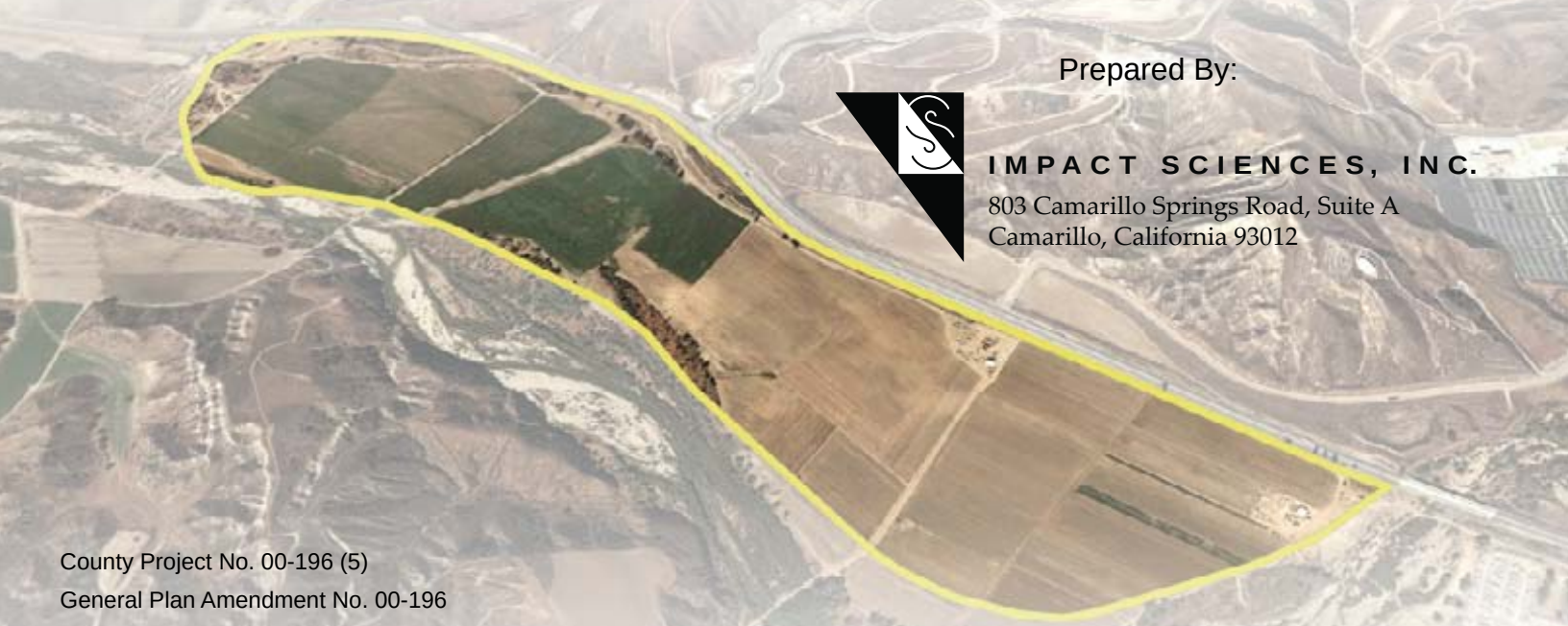
County of Los Angeles

Revised Final Environmental Impact Report

SCH No. 2004021002

Volume V
Appendices F4.10 - F4.23

LANDMARK VILLAGE



Prepared By:

IMPACT SCIENCES, INC.
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Camarillo, California 93012

County Project No. 00-196 (5)
General Plan Amendment No. 00-196
Sub Plan Amendment No. 00-196
Specific Plan Amendment No. 00-196
Vesting Tentative Tract Map No. 53108
SEA Conditional Use Permit No. 200500112
Oak Tree Permit No. 00-196
Off-Site Materials Transport Approval No. CUP00-196
Conditional Use Permit (Off-Site Grading) CUP00-196

NEWHALL RANCH
Newhall Ranch Company

September 2011

Landmark Village

Revised Final Environmental Impact Report

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Volume V

Appendices F4.10 – F4.23

Prepared for:

Los Angeles County
Department of Regional Planning
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September 2011

TABLE OF CONTENTS

Section Page

Volume I

1.0 INTRODUCTION 1.0-1

2.0 TOPICAL RESPONSES, COMMENT LETTERS, AND RESPONSES TO COMMENT LETTERS. 2.0-1

Topical Responses

Topical Response A: Update to Previously Prepared Landmark Village Topical Responses.. TRA-1
Updated Topical Response 1: Perchlorate Treatment Update TR1-1
Updated Topical Response 2: Newhall Ranch RMDP/SCP Project and Associated EIS/EIR ... TR2-1
Updated Topical Response 3: Additional Public Review Opportunities TR3-1
Topical Response 4: CLWA's 41,000 afy Water Transfer TR4-1
Topical Response 5: Litigation Concerning Water Supplies TR5-1
Topical Response 6: Global Climate Change and its Effects on California Water Supplies TR6-1
Topical Response 7: Global Climate Change and its Effects on Sensitive Biological Resources TR7-1
Topical Response 8: Greenhouse Gas Emissions and Global Climate Change TR8-1
Updated Topical Response 9: Groundwater Supplies and Overdraft Claims TR9-1
New Topical Response 10: Bankruptcy-Related Comments TR10-1
New Topical Response 11: Nickel Water TR11-1
New Topical Response 12: Revised Project Design TR12-1
New Topical Response 13: Chloride TR13-1
New Topical Response 14: Water Quality TR14-1
New Topical Response 15: 2010 Urban Water Management Plan TR15-1
New Topical Response 16: 2010 Santa Clarita Valley Water Report TR16-1

State Agencies

A1. Letter from the California Department of Fish and Game, dated March 17, 2010 ..... 2A-1
A2. State of California Department of Conservation, dated March 23, 2010 ..... 2A-18
A3. State of California, Governor's Office of Planning and Research, dated March 18, 2010 ..... 2A-30
A4. California Department of Transportation, dated April 23, 2010 ..... 2A-33

County Agencies

B1. Los Angeles County Department of Public Works, dated March 8, 2010 ..... 2B-1
B2. Los Angeles County, Department of Parks and Recreation, dated March 16, 2010 ..... 2B-16
B3. County of Ventura, Resource Management Agency, dated March 17, 2010 ..... 2B-18
B4. County Sanitation Districts of Los Angeles County, dated March 17, 2010 ..... 2B-40

Local Agencies and Organizations

C1. Friends of the Santa Clara River, dated February 15, 2010 ..... 2C-1
C2. Sierra Club, dated February 17, 2010 ..... 2C-2
C3. SCOPE, dated February 19, 2010 ..... 2C-9
C4. California Water Impact Network, dated March 9, 2010 ..... 2C-13
C5. Planning and Conservation League, dated March 15, 2010 ..... 2C-20
C6. TriCounty Watchdogs, dated March 15, 2010 ..... 2C-22

TriCounty Watchdogs Prior Comment Letter, dated January 21, 2007 ....2C-29
C7. Letter from Friends of the Santa Clara River, dated March 16, 2010 ....2C-36
C8. Letter from Heal the Bay, dated March 16, 2010 ....2C-49
C9. Letter from California Native Plant Society, dated March 17, 2010 ....2C-53
C10. Southern California Association of Governments, dated March 17, 2010 ....2C-64
C11. Letter from Center for Biological Diversity, dated March 17, 2010 ....2C-74
C12. Sierra Club, dated March 17, 2010 ....2C-100
C13. Santa Clarita Organization for Planning and the Environment, dated March 10, 2010 ....2C-156
C14. Castaic Lake Water Agency, dated March 16, 2010 ....2C-170
C15. Santa Monica Mountains Conservancy, dated April 13, 2010 ....2C-171
C16. Castaic Lake Water Agency, dated April 15, 2010 ....2C-177
C17. South Coast Air Quality Management District, dated May 13, 2010 ....2C-178
C18. City of Los Angeles, dated May 13, 2010 ....2C-203
C19. Letter from Santa Clarita Organization for Planning and the Environment, March 16, 2011 ....2C-213
C20. Letter from Ventura County Agricultural Water Quality Coalition, April 27, 2011 ....2C-226

Individuals

D1. Celia Lamborn, Undated 2D-1
D2. Edgar Echinger, dated February 15, 2010 ....2D-3
D3. Edgar Echinger, dated February 15, 2010 ....2D-6
D4. Joy Grully (sp), dated February 16, 2010 ....2D-8
D5. Melba Simms, dated February 16, 2010 ....2D-10
D6. Betty Schnaar, dated February 16, 2010 ....2D-12
D7. Theresa Brady, dated February 16, 2010 ....2D-15
D8. Theresa Brady, dated February 16, 2010 ....2D-17
D9. Elizabeth McMahan, dated February 16, 2010 ....2D-20
D10. Nancy Clark, dated February 18, 2010 ....2D-23
D11. Allan Martin, March 1, 2010 ....2D-26
D12. Thea and Chris Page, dated March 5, 2010 ....2D-229
D13. Arlene Stone, dated March 5, 2010 ....2D-233
D14. Ken Weiss, dated March 5, 2010 ....2D-236
D15. Cheryl Kohr, dated March 7, 2010 ....2D-239
D16. Joanne Nagy, dated March 8, 2010 ....2D-242
D17. Jennifer Kilpatrick, c/o Santa Clarita Organization for Planning and the Environment, dated March 10, 2010 ....2D-246
D18. Andrew Briseno, dated March 10, 2010 ....2D-261
D19. Penny Margold, dated March 11, 2010 ....2D-263
D20. Letter from David Magney, dated March 16, 2010 ....2D-269
Attachment. Letter from Friends of the Santa Clara River and California Native Plant Society, dated August 25, 2009 ....2D-336
D21. Patricia Jones, No Date 2D-597

Volume II

3.0 REVISED RECIRCULATED DRAFT EIR PAGES 3.0-1

Volume III

Appendices

F1.0 Project Description
CBRE Letter to Alex Herrell, January 18, 2011

F4.1 Geotechnical and Soil Resources
Allan E. Seward Engineering Geology, Inc. Geologic and Geotechnical Report December 21, 2009
Allan E. Seward Engineering Geology, Inc. Geologic and Geotechnical Report Addendum No. 1 February 25, 2010

F4.2 Hydrology
Drainage Concept Report for Landmark Village Tentative Tract Map No. 53108, dated November 2009.

F4.3 Water Quality
Upper Santa Clara River Chloride TMDL Reconsideration Conditional Site Specific Objectives For Chloride, and Interim Wasteload Allocations California Regional Water Quality Control Board – Los Angeles Region
Interconnection Agreement Between County Sanitation Districts Nos. 26 and 32 of Los Angeles County and the Newhall Land and Farming Company
Geosyntec Memorandum – LID Water Quality Analysis Results for Landmark Village dated May 17, 2011
Geosyntec Memorandum – Evaluation of Equivalency with Los Angeles County Low Impact Development Standards dated August 9, 2010
The Sanitation Districts' memorandum, along with the SCOPE letter and transcript of the oral testimony
Landmark Village Water Quality Technical Report – Geosyntec Consultants, September 2011

Volume IV

F4.4 Biota
URS, "Jurisdiction Delineation, Newhall Ranch Project, for a Portion of the Santa Clara River and Its Tributaries, Los Angeles County, California" (December 2003)
The Newhall Land And Farming Company and U.S. Department of Defense, Army Corps of Engineers, "Correspondence Relating to Amendment to Jurisdiction Delineation Package, Newhall Ranch Project, for a Portion of the Santa Clara River and Its Tributaries, Los Angeles County, California" (February and July 2004)
Glenn Lukos Associates, "Jurisdictional Delineation for Entrada, An Approximately 850-Acre Property in Los Angeles County, California" (as revised September 15, 2008)
URS, "Composite Wetland Delineation for the Newhall Ranch Resource Management and Development Plan Site and Entrada Planning Area" (2009)
URS, "Preliminary Jurisdictional Determination for the Newhall Ranch Resource Management and Development Plan Site and Entrada Planning Area, Los Angeles County, California" (2009)

Appendices (continued)

Volume IV (continued)

URS Corporation, 2009, Revised Preliminary Jurisdictional Determination
United States Department of the Interior – Biological Opinion for the Newhall Ranch Management and Development Plan, Santa Clarita, Los Angeles County, California (June 7, 2011)
The Santa Clarita Valley Water Quality Report - 2010

F4.7 Traffic/Access
Austin-Foust Associates, Inc. – Memorandum, Landmark Village Traffic Impact Analysis-Supplemental Freeway Analysis (May 23, 2011)
Austin-Foust Associates, Inc. – Memorandum, Landmark Village Traffic Impact Analysis – Supplemental Freeway Fair-Share Calculation Analysis (June 17, 2011)
Austin-Foust Associates, Inc. – Memorandum, Landmark Village Traffic Impact Analysis – Additional Existing Plus Project Scenario Analysis (June 16, 2011)
Austin-Foust Associates, Inc. – Memorandum, Landmark Village Traffic Impact Analysis-Supplemental Freeway Analysis (June 9, 2011)
Austin-Foust Associates, Inc. – Memorandum, Portrero Canyon Road Bridge (July 1, 2010)
Final EIR/EA – I-5 HOV/Truck Lanes Project SR-14 to Parker Road
Excerpt, Section 4.8, Traffic, Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Environmental Impact Statement/Environmental Impact Report (SCH No. 2000011025)
Los Angeles Daily News Article "Rail Plans Picking Up Steam Proposal Links Santa Clarita, Port Hueneme" September 24, 2007
Excerpt from the Mission Village Draft EIR – Mitigation Measures, Section 4.5
Traffic Mitigation Agreement – Fair Share Payment Agreement Between Department of Transportation and Newhall Land
Los Angeles County Department of Public Works/City of Santa Clarita/Austin-Foust Associates, Inc., March 8, 2005, "Santa Clarita Valley Consolidated Traffic Model, 2004 Update and Validation"
Ventura County Transit Investment Study – Final Report, December 4, 2009
Westside Santa Clarita Valley – Roadway Phasing Analysis November 2006

F4.9 Air Quality Analyses and Calculations
Impact Sciences, Inc., Landmark Village Supplemental Localized Significance Thresholds Analysis, August 2010
Impact Sciences, Inc., Landmark Village Supplemental Construction Health Risk Assessment, August 2010
URBEMIS2007 Calculations, Construction
URBEMIS2007 Calculations, Construction with Mitigation
URBEMIS2007 Calculations, Operational
URBEMIS2007 Calculations, Operational with Mitigation
CO Hotspots, With and Without Potrero Bridge
Landmark Village CNFL at Off-Site Noise Sensitive Land Uses - Cumulative Plus Project Conditions – 2030 With and Without Potrero Bridge

Volume V

F4.10 Water Service

2003-2008 Agricultural Water Spreadsheets

Water Quality Data from Newhall Ranch Additional Administrative Record (AAR-107:116214-276)

AMEC Progress Letter – Former Whittaker-Bermite Facility, Santa Clarita, CA (September 15, 2009)

AMEC Letter Request for Deadline Extension for OU2-6 RAP Former Whittaker Bermite Facility, Santa Clarita, CA (June 8, 2009)

Castaic Lake Water Agency Memorandum – Treatment Plant Operations and Maintenance (October 1, 2009)

Castaic Lake Water Agency News Release September 14, 2009

Friends of the Santa Clara River v. Castaic Lake Water Agency (2004) 123 Cal.App.4th 1 (2000 UWMP Litigation)

Retired Irrigated Farmland – Landmark Village Tentative Tract Map No. 53108

CLWA, Letter from CLWA (Dan Masnada) to County of Los Angeles (Mitch Glaser), dated February 24, 2010,

Letter from Alex Herrell, Director, Community Development, to Sam Dea, Supervising Regional Planner, Los Angeles County Department of Regional Planning, dated April 7, 2009

Semitropic Water Storage District, February 22, 2010, Letter to Newhall Land and Farming

Notice of Settlement and Dismissal from Newhall Ranch Specific Plan Program EIR Litigation

Revised Water Supply Assessment – Landmark Village Vesting Tentative Tract Map No. 53108 (January 2010)

Santa Clarita Valley Water Report – CLWA 2009

Santa Clarita Valley Water Report – CLWA 2010

State Water Project Delivery Reliability Report 2009

Letter from Valencia Water Company to Los Angeles County, June 8, 2011, Regarding Well 201

Letters to Valencia Water Company and Newhall County Water District Regarding Well Monitoring from the California Department of Public Health, dated August 4, 2011

Summary of Water Quality Compliance Monitoring Results for Valencia Commerce Center Well E-15, 2006–2009

NRSP 2010 Annual Groundwater Report

2010 Urban Water Management Plan

Valencia Water Company, Well E-15 Water Quality Compliance Monitoring Results – 2006 to 2009

Semitropic Water Storage District, December 31, 2010, Letter to Newhall Land and Farming

F4.11 Wastewater Disposal

Sanitation District of Los Angeles County – Memorandum, Response to SCOPE Letter and Testimony to the Board of Supervisors Regarding Formation of the Newhall Ranch Sanitation District (March 8, 2011)

Interconnection Agreement Between County Sanitation Districts Nos. 26 and 32 of Los Angeles County and the Newhall Land Farming Company (January 9, 2002)

Appendices (continued)

Volume V (continued)

F4.18 Agricultural Resources
California Resources Agency, "Memorandum Regarding Resources Agency Policy On Projects Involving Agricultural Land" (May 4, 2005)

F4.22 Cultural Resources
Programmatic Agreement Between the Los Angeles District, U.S. Army Corps of Engineers, and the California State Historic Preservation Officer Regarding the Newhall Ranch Resource Management and Development Plan Project

F4.23 Global Climate Change
Creed v. City of Chula Vista, Fourth District Court Appeal, Division One, Case No. D057779, Opinion, ordered for publication on July 8, 2011
CBD, et al. v. Kern County, et al. and Tejon Ranch, Kern County Superior Court Case No. S-1500-CV-268902 KCT , Order, dated December 8, 2010
Summary of Existing Emissions
CBD, et al. v. Kern County, et al. and Tejon Ranch, Fifth District Court Appeal, Case No. F061908, Appellants' Opening Brief, dated March 9, 2011

APPENDIX F4.10

Water Service

2003-2008 Agricultural Water Spreadsheets

Newhall Ranch Specific Plan
2003 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus(furrow)	59	6.31	372	2.64%	12,286	325	5.51			
Citrus(micro)	492	4.73	2327	16.53%		2,030	4.13			
Sudan Grass	388	10.81	4194	29.79%		3,660	9.43	388	3,660	4,194
Vegetables	931	7.72	7187	51.04%		6,271	6.74	581	3,914	4,485
Totals				**100.00%**		**12,286**		**969**	**7,573**	**8,680**

Newhall Ranch Specific Plan
2004 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus	340	4.92	1673	10.86%	12,828	1,393	4.10			
Irrigated Hay	160	2.95	472	3.06%		393	2.46	160	393	472
Irrigated Pasture	174	11.26	1959	12.72%		1,632	9.38	174	1,632	1,959
Vegetables	1,392	8.04	11192	72.67%		9,322	6.70	627	4,199	5,041
Nursery	30	3.52	106	0.69%		88	2.93		-	-
Totals				**100.00%**		**12,828**		**961**	**6,224**	**7,472**

Newhall Ranch Specific Plan
2005 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus	308	3.69	1137	12.61%	8,800	1,110	3.60			
Irrigated Hay	160	6.03	965	10.70%		942	5.89	160	942	965
Irrigated Pasture	174	7.03	1223	13.57%		1,194	6.86	175	1,201	1,230
Vegetables	907	6.03	5469	60.68%		5,340	5.89	278	1,637	1,676
Nursery	83	2.64	219	2.43%		214	2.58			-
Totals				**100.00%**		**8,800**		**613**	**3,780**	**3,871**

Newhall Ranch Specific Plan
2006 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	% of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus	278	4.07	1131	9.44%	13,709	1,295	4.66			
Irrigated Hay	233	6.65	1549	12.93%		1,773	7.61	205	1,560	1,363
Sudan Grass (double Crop)		0	0	0.00%		-				
Irrigated Pasture	231	7.76	1793	14.96%		2,051	8.88	231	2,051	1,793
Vegetables	923	6.65	6138	51.23%		7,023	7.61	285	2,168	1,895
Sod	119	6.65	791	6.60%		905	7.61	119	905	791
Nursery	199	2.91	579	4.83%		663	3.33			-
Totals				**100.00%**		**13,709**		**840**	**6,685**	**5,842**

Newhall Ranch Specific Plan
2007 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus	278	4.45	1237	8.88%	11,781	1,046	3.76			
Alfalfa	205	7.27	1490	10.70%		1,261	6.15	205	1,261	1,490
Irrigated Hay	28	7.27	204	1.46%		172	6.15			
Sudan Grass (double Crop)		0	0	0.00%		-				
Irrigated Pasture	231	8.48	1959	14.07%		1,657	7.17	231	1,657	1,959
Vegetables	1,037	7.27	7539	54.13%		6,377	6.15	355	2,183	2,581
Sod	119	7.27	865	6.21%		732	6.15	119	732	865
Nursery	199	3.18	633	4.54%		535	2.69			
Totals				**100.00%**		**11,781**		**910**	**5,833**	**6,895**

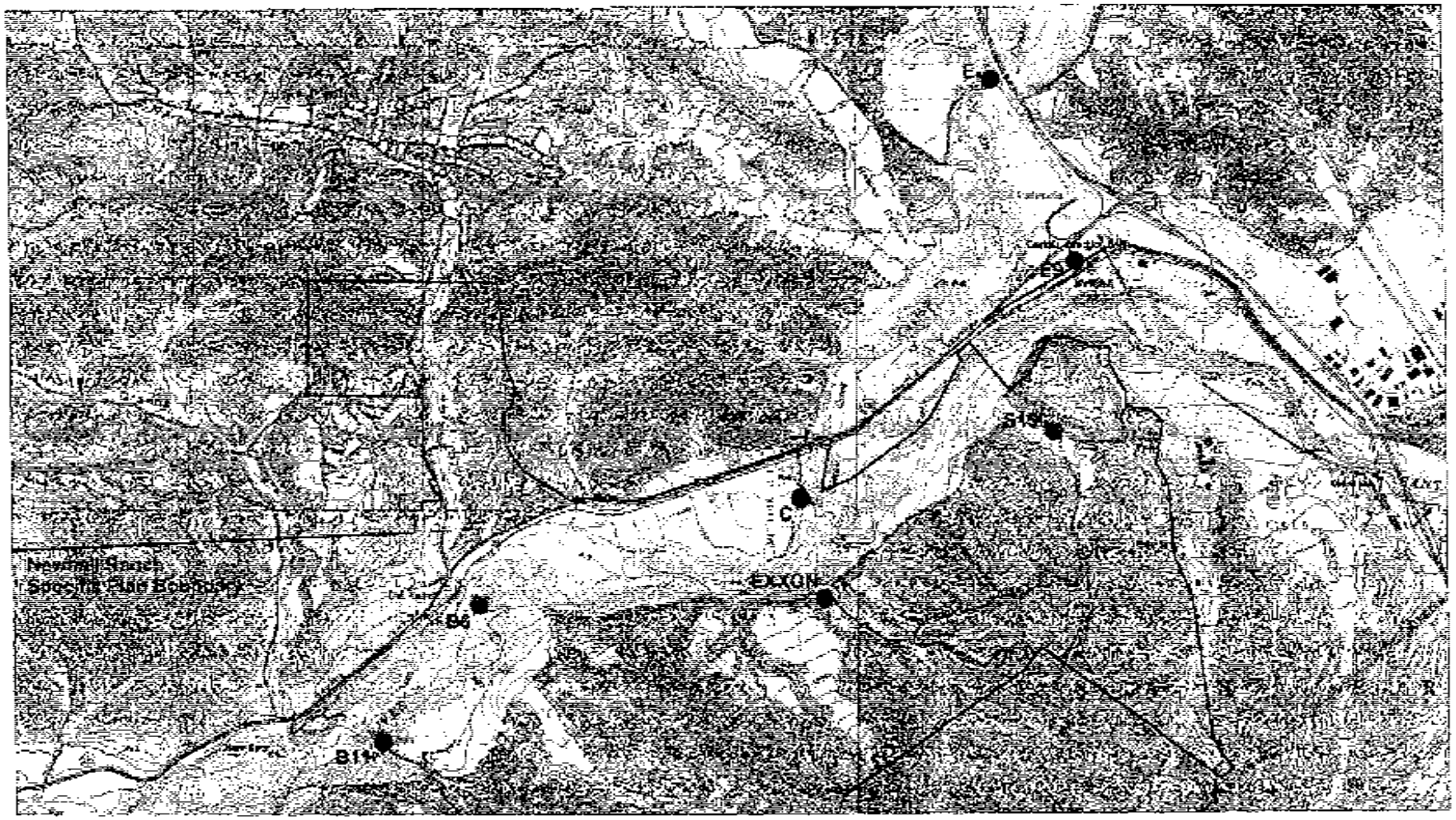
Newhall Ranch Specific Plan
2008 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus	273	4.63	1264	10.31%	10,633	1,096	4.01			
Alfalfa	82	7.57	621	5.06%		538	6.56	82	538	621
Irrigated Hay	28	7.57	212	1.73%		184	6.56			
Sudan Grass (double Crop)		0	0	0.00%		-				
Irrigated Pasture	231	8.83	2040	16.63%		1,769	7.66	231	1,769	2,040
Vegetables	825	7.57	6245	50.93%		5,416	6.56	142	932	1,075
Sod	168	7.27	1221	9.96%		1,059	6.30	168	1,059	1,221
Nursery	199	3.31	659	5.37%		571	2.87		-	
Totals				**100.00%**		**10,633**		**623**	**4,298**	**4,957**

Water Quality Data from Newhall Ranch Additional Administrative Record (AAR-107:116214-276)

ADDITIONAL NEWHALL RANCH AGRICULTURAL WELL WATER QUALITY DATA (2000-2001)

116214



AG WELL LOCATION MAP
MAY 2003

0 1,550 3,100 (Feet)

116215

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OF SOUTHERN CALIFORNIA
1139 East Dominguez, Suite I
Carson, CA 90746
310-637-7121 Fax 310-637-2953
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CERTIFICATE OF ANALYSIS

COA No.:	SCA-15024195-0
Supersedes:	None
COA Date:	5/24/00
Page 1 of 2	

TO:
Mr. Ross Sensenmaier
Project Manager
Columbia Analytical Services
6325 Canoga Avenue
Canoga Park, CA 91303

Received From:	Canoga Park, CA
Received Date:	5/17/00
P.O.# / ID:	L2001744
Location of Test: (except where noted)	Carson, CA

Analytical Results

Desc. 1:	Log #: L2001744	Desc. 4:	Sample Date:05/17/00	Laboratory ID:	150130536
Desc. 2:	Well E	Desc. 5:	Sample Time:1015	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matrix: Water	Temp Rec'd (°C):	4.8

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
Heterotrophic Plate Count	8.0	/mL	SMEWW 18th ed.	5/19/00	

Desc. 1:	Log #: L2001744	Desc. 4:	Sample Date:05/17/00	Laboratory ID:	150130537
Desc. 2:	E-9	Desc. 5:	Sample Time:1030	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matrix: Water	Temp Rec'd (°C):	4.8

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
Heterotrophic Plate Count	10	/mL	SMEWW 18th ed.	5/19/00	

Desc. 1:	Log #: L2001744	Desc. 4:	Sample Date:05/17/00	Laboratory ID:	150130538
Desc. 2:	C Well	Desc. 5:	Sample Time:1045	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matrix: Water	Temp Rec'd (°C):	4.8

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
Heterotrophic Plate Count	58	/mL	SMEWW 18th ed.	5/19/00	

Desc. 1:	Log #: L2001744	Desc. 4:	Sample Date:05/17/00	Laboratory ID:	150130539
Desc. 2:	B-6	Desc. 5:	Sample Time:1110	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matrix: Water	Temp Rec'd (°C):	4.8

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
Heterotrophic Plate Count	10	/mL	SMEWW 18th ed.	5/19/00	

Desc. 1:	Log #: L2001744	Desc. 4:	Sample Date:05/17/00	Laboratory ID:	150130540
Desc. 2:	B-11	Desc. 5:	Sample Time:1200	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matrix: Water	Temp Rec'd (°C):	4.8

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	5/19/00	
Heterotrophic Plate Count	<1	/mL	SMEWW 18th ed.	5/19/00	

The results of these tests relate only to the samples tested. This report shall not be reproduced except in full, without the written approval of the laboratory.

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CERTIFICATE OF ANALYSIS

COA No.:	SCA-15024185-0
Supersedes:	None
COA Date	5/24/00
Page 2 of 2	

TO:
Mr. Ross Senstermeker
Project Manager
Columbia Analytical Services
5925 Canoga Avenue
Canoga Park, CA 91303

Received From:	Canoga Park, CA
Received Date:	5/17/00
P.O.#/ID:	L2001744
Location of Test: (except where noted)	Carson, CA

Analytical Results

Desc. 1:	Log #: L2001744	Desc. 4:	Sample Date:05/17/00	Laboratory ID:	150185841
Desc. 2:	S-158	Desc. 5:	Sample Time:1230	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matrix: Water	Temp Rec'd (°C):	4.8

Analyte	Result	Units	Method Reference	Test Date Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 18th ed.	5/19/00
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 18th ed.	5/18/00
Heterotrophic Plate Count	1.0	/mL	SMEWW 18th ed.	5/19/00

COA Comment: This water complies with State of California and the U.S. Public Health Services regulations for potable water as analyzed by Silliker Laboratories.

Melissa Cafiochia
Melissa Cafiochia — Lab Director

The results of these tests relate only to the samples tested. This report shall not be reproduced except in full, without the written approval of the laboratory.

116217

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2001744
Project:	Newhall Ranch	Date Collected:	5/17/00
Sample Matrix:	Water	Date Received:	5/17/00

Metals

Sample Name:	WELL E	Units:	mg/L (ppm)
Lab Code:	L2001744-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Arsenic, Total	METHOD	206.2	0.005	1	5/23/00	5/23/00	ND	
Barium, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	0.02	
Boron, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	0.42	
Cadmium, Total	METHOD	200.7	0.005	1	5/18/00	5/18/00	ND	
Calcium, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	87	
Chromium, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Copper, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Iron, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Magnesium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	29	
Manganese, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Mercury, Total	METHOD	245.1	0.0005	1	5/23/00	5/23/00	ND	
Nickel, Total	METHOD	200.7	0.04	1	5/18/00	5/18/00	ND	
Selenium, Total	METHOD	270.2	0.005	1	5/23/00	5/23/00	ND	
Silver, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Sodium, Total	METHOD	200.7	0.5	1	5/18/00	5/18/00	97	
Thallium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Zinc, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	ND	

Approved By: _____ Date: 5/24/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2001744
Date Collected: 5/17/00
Date Received: 5/17/00

Metals

Sample Name: E-9
Lab Code: L2001744-002
Test Notes:

Units: mg/L (ppm)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Arsenic, Total	METHOD	206.2	0.005	1	5/23/00	5/23/00	ND	
Barium, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	0.03	
Boron, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	0.36	
Cadmium, Total	METHOD	200.7	0.005	1	5/18/00	5/18/00	ND	
Calcium, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	93	
Chromium, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Copper, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Iron, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	0.3	
Magnesium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	35	
Manganese, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	0.08	
Mercury, Total	METHOD	245.1	0.0005	1	5/23/00	5/23/00	ND	
Nickel, Total	METHOD	200.7	0.04	1	5/18/00	5/18/00	ND	
Selenium, Total	METHOD	270.2	0.005	1	5/23/00	5/23/00	ND	
Silver, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Sodium, Total	METHOD	200.7	0.5	1	5/18/00	5/18/00	74	
Thallium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Zinc, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	0.04	

Approved By: BJS Date: 5/24/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2001744
Project:	Newhall Ranch	Date Collected:	5/17/00
Sample Matrix:	Water	Date Received:	5/17/00

Metals

Sample Name:	C WELL	Units:	mg/L (ppm)
Lab Code:	L2001744-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Arsenic, Total	METHOD	200.2	0.005	1	5/23/00	5/23/00	ND	
Barium, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	0.02	
Boron, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	0.40	
Cadmium, Total	METHOD	200.7	0.005	1	5/18/00	5/18/00	ND	
Calcium, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	100	
Chromium, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Copper, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Iron, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Magnesium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	36	
Manganese, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Mercury, Total	METHOD	245.1	0.0005	1	5/23/00	5/23/00	ND	
Nickel, Total	METHOD	200.7	0.04	1	5/18/00	5/18/00	ND	
Selenium, Total	METHOD	270.2	0.005	1	5/23/00	5/23/00	ND	
Silver, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Sodium, Total	METHOD	200.7	0.5	1	5/18/00	5/18/00	98	
Thallium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Zinc, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	ND	

Approved By: SOS Date: 5/24/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2001744
Date Collected: 5/17/00
Date Received: 5/17/00

Metals

Sample Name: B-6
Lab Code: L2001744-004
Test Notes:

Units: mg/L (ppm)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Arsenic, Total	METHOD	206.2	0.005	1	5/23/00	5/23/00	ND	
Barium, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	0.03	
Boron, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	0.49	
Cadmium, Total	METHOD	200.7	0.005	1	5/18/00	5/18/00	ND	
Calcium, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	130	
Chromium, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Copper, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Iron, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	0.7	
Magnesium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	43	
Manganese, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Mercury, Total	METHOD	245.1	0.0005	1	5/23/00	5/23/00	ND	
Nickel, Total	METHOD	200.7	0.04	1	5/18/00	5/18/00	ND	
Selenium, Total	METHOD	270.2	0.005	1	5/23/00	5/23/00	ND	
Silver, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Sodium, Total	METHOD	200.7	0.5	1	5/18/00	5/18/00	120	
Thallium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Zinc, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	ND	

Approved By: [illegible] Date: 5/24/00

Page No:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2001744
Project:	Newhall Ranch	Date Collected:	5/17/00
Sample Matrix:	Water	Date Received:	5/17/00

Metals

Sample Name:	B-11	Units:	mg/L (ppm)
Lab Code:	L2001744-005	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Arsenic, Total	METHOD	206.2	0.005	1	5/23/00	5/23/00	ND	
Barium, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	ND	
Boron, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	0.61	
Cadmium, Total	METHOD	200.7	0.005	1	5/18/00	5/18/00	ND	
Calcium, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	110	
Chromium, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Copper, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Iron, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	0.1	
Magnesium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	35	
Manganese, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	0.10	
Mercury, Total	METHOD	245.1	0.0005	1	5/23/00	5/23/00	ND	
Nickel, Total	METHOD	200.7	0.04	1	5/18/00	5/18/00	ND	
Selenium, Total	METHOD	270.2	0.005	1	5/23/00	5/23/00	ND	
Silver, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Sodium, Total	METHOD	200.7	0.5	1	5/18/00	5/18/00	120	
Thallium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Zinc, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	ND	

Approved By: BJS Date: 5/24/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2001744
Project:	Newhall Ranch	Date Collected:	5/17/00
Sample Matrix:	Water	Date Received:	5/17/00

Metals

Sample Name:	B-156	Units:	mg/L (ppm)
Lab Code:	L2001744-006	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Arsenic, Total	METHOD	206.2	0.005	1	5/23/00	5/23/00	ND	
Barium, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	ND	
Boron, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	0.25	
Cadmium, Total	METHOD	200.7	0.005	1	5/18/00	5/18/00	ND	
Calcium, Total	METHOD	200.7	0.05	1	5/18/00	5/18/00	110	
Chromium, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Copper, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Iron, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Magnesium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	38	
Manganese, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Mercury, Total	METHOD	245.1	0.0005	1	5/23/00	5/23/00	ND	
Nickel, Total	METHOD	200.7	0.04	1	5/18/00	5/18/00	ND	
Selenium, Total	METHOD	270.2	0.005	1	5/23/00	5/23/00	ND	
Silver, Total	METHOD	200.7	0.01	1	5/18/00	5/18/00	ND	
Sodium, Total	METHOD	200.7	0.5	1	5/18/00	5/18/00	79	
Thallium, Total	METHOD	200.7	0.1	1	5/18/00	5/18/00	ND	
Zinc, Total	METHOD	200.7	0.02	1	5/18/00	5/18/00	0.04	

Approved By: [illegible] Date: 5/24/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2001744
Date Collected: 5/17/00
Date Received: 5/17/00

Inorganic Parameters

Sample Name: WELL E
Lab Code: L2001744-001
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	5/18/00	200	
Chloride	mg/L (ppm)	300.0	0.5	20	NA	5/18/00	70	
Color	COLOR UNIT	110.2	5	1	NA	5/17/00	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	5/17/00	1100	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	5/22/00	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	5/17/00	0.9	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	5/18/00	1.6	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	5/18/00	ND	
Odor	T.O.N.	140.1	1	1	NA	5/17/00	ND	
pH	pH UNITS	150.1	-	1	NA	5/17/00	7.6	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	5/17-18/00	650	
Sulfate	mg/L (ppm)	300.0	1.0	20	NA	5/18/00	250	
Surfactants	mg/L (ppm)	425.1	0.1	1	5/18/00	5/18/00	ND	
Turbidity	NTU	180.1	0.1	1	NA	5/17/00	0.4	

Approved By: BPS Date: 5/23/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2001744
Project:	Newhall Ranch	Date Collected:	5/17/00
Sample Matrix:	Water	Date Received:	5/17/00

Inorganic Parameters

Sample Name: E-9
Lab Code: L2001744-002
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	5/18/00	280	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	5/18/00	40	
Color	COLOR UNIT	110.2	5	1	NA	5/17/00	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	5/17/00	1100	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	5/22/00	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	5/17/00	0.7	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	5/18/00	2.3	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	5/18/00	ND	
Odor	T.O.N.	140.1	1	1	NA	5/17/00	ND	
pH	pH UNITS	150.1	--	1	NA	5/17/00	7.5	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	5/17-18/00	680	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	5/18/00	240	
Surfactants	mg/L (ppm)	425.1	0.1	1	5/18/00	5/18/00	ND	
Turbidity	NTU	180.1	0.1	1	NA	5/17/00	0.6	

Approved By: BJS Date: 5/23/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	**Service Request:**	L2001744
Project:	Newhall Ranch	**Date Collected:**	5/17/00
Sample Matrix:	Water	**Date Received:**	5/17/00

Inorganic Parameters

Sample Name: C WELL
Lab Code: L2001744-003
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	5/18/00	260	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	5/18/00	57	
Color	COLOR UNIT	110.2	5	1	NA	5/17/00	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	5/17/00	1200	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	5/22/00	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	5/17/00	0.7	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	5/18/00	2.1	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	5/18/00	ND	
Odor	T.O.N.	140.1	1	1	NA	5/17/00	ND	
pH	pH UNITS	150.1	–	1	NA	5/17/00	7.5	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	5/17-18/00	750	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	5/18/00	290	
Surfactants	mg/L (ppm)	425.1	0.1	1	5/18/00	5/18/00	ND	
Turbidity	NTU	180.1	0.1	1	NA	5/17/00	0.2	

Approved By: BQS Date: 5/23/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	**Service Request:**	L2001744
Project:	Newhall Ranch	**Date Collected:**	5/17/00
Sample Matrix:	Water	**Date Received:**	5/17/00

Inorganic Parameters

Sample Name:	B-6		
Lab Code:	L2001744-004	Basis:	NA
Test Notes:			

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	5/18/00	310	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	5/18/00	83	
Color	COLOR UNIT	110.2	5	1	NA	5/17/00	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	5/17/00	1400	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	5/22/00	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	5/17/00	0.8	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	5/18/00	1.9	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	5/18/00	ND	
Odor	T.O.N.	140.1	1	1	NA	5/17/00	ND	
pH	pH UNITS	150.1	--	1	NA	5/17/00	7.4	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	5/17-18/00	940	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	5/18/00	360	
Surfactants	mg/L (ppm)	425.1	0.1	1	5/18/00	5/18/00	ND	
Turbidity	NTU	180.1	0.1	1	NA	5/17/00	0.3	

Approved By: BQS Date: 5/23/00

1266021397

0174 (WET.SA) - Sample (w) 5/22/00

Page No.:

116227

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	**Service Request:**	L2001744
Project:	Newhall Ranch	**Date Collected:**	5/17/00
Sample Matrix:	Water	**Date Received:**	5/17/00

Inorganic Parameters

Sample Name: B-11
Lab Code: L2001744-005
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	5/18/00	260	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	5/18/00	88	
Color	COLOR UNIT	110.2	5	1	NA	5/17/00	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	5/17/00	1300	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	5/22/00	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	5/17/00	0.7	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	5/18/00	2.3	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	5/18/00	0.008	
Odor	T.O.N.	140.1	1	1	NA	5/17/00	ND	
pH	pH UNITS	150.1	--	1	NA	5/17/00	7.6	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	5/17-18/00	800	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	5/18/00	290	
Surfactants	mg/L (ppm)	425.1	0.1	1	5/18/00	5/18/00	ND	
Turbidity	NTU	180.1	0.1	1	NA	5/17/00	ND	

Approved By: BQS Date: 5/23/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	**Service Request:**	L2001744
Project:	Newhall Ranch	**Date Collected:**	5/17/00
Sample Matrix:	Water	**Date Received:**	5/17/00

Inorganic Parameters

Sample Name: S-130
Lab Code: L2001744-006
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	5/18/00	220	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	5/18/00	.26	
Color	COLOR UNIT	110.2	5	1	NA	5/17/00	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	5/17/00	1100	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	5/22/00	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	5/17/00	0.4	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	5/18/00	2.4	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	5/18/00	ND	
Odor	T.O.N.	140.1	1	1	NA	5/17/00	ND	
pH	pH UNITS	150.1	-	1	NA	5/17/00	7.7	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	5/17-18/00	770	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	5/18/00	360	
Surfactants	mg/L (ppm)	425.1	0.1	1	5/18/00	5/18/00	ND	
Turbidity	NTU	180.1	0.1	1	NA	5/17/00	0.1	

Approved By: BOS Date: 5/23/00

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Laboratory
Report
#66091

Columbia Analytical Services
Ross Fenstermakr,Eydie Schwrtz
6925 Canoga Avenue
Canoga Park , CA 91304

Samples Received
18-may-2000 09:24:00

WELL E (2005180055) Sampled on 05/17/00

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
				Gross Alpha and Beta Radiation				
	05/31/00	116953	(ML/EPA 900.0)	Alpha, Gross	3.5	pCi/l	1.3	1
	05/31/00	116953	(ML/EPA 900.0)	Alpha, Two Sigma Error	2.7	pCi/l	0.0000	1
	05/31/00	116953	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.3	pCi/l	1.3	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Gross	3.3	pCi/l	1.7	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Two Sigma Error	3.9	pCi/l	0.0000	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Min Detectable Activity	1.7	pCi/l	1.7	1
				Radon 222				
	05/18/00	116912	(SM7500RN)	Radon 222	230	pCi/l	50	1
	05/18/00	116912	(SM7500RN)	Radon 222, Two Sigma Error	19.7	pCi/l	0.0000	1
				Regulated VOCs plus Lists 1&3				
	05/25/00	116936	(ML/EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2-Butanone (MEK)	ND	ug/l	5.0	1

116230

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	o-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Carbon Tetrachloride	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromoform	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromochloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloromethane (Methyl Chloride)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorodibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromodichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Di-isopropyl ether	NA	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Ethyl benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/ES24.2/624)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Fluorotrichloromethane-Freon11	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Isopropylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m,p-Xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/ES24.2/624)	Methyl Tert-butyl ether (MTBE)	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	Naphthalene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Xylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	sec-Butylbenzene	ND	ug/l	0.50	1

116231

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	tert-amyl Methyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total THM	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	NA	% Rec		
			(Surrogate)	4-Bromofluorobenzene	71	% Rec		
			(Surrogate)	Toluene-d8	NA	% Rec		

E-9 (2005180057) Sampled on 05/17/00

Gross Alpha and Beta Radiation

05/31/00	116953	(ML/EPA 900.0)	Alpha, Gross	3.5	pCi/l	1.5	1
05/31/00	116953	(ML/EPA 900.0)	Alpha, Two Sigma Error	3.3	pCi/l	0.0000	1
05/31/00	116953	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.5	pCi/l	1.5	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Gross	7.8	pCi/l	1.1	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Two Sigma Error	2.8	pCi/l	0.0000	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Min Detectable Activity	1.1	pCi/l	1.1	1

Radon 222

05/18/00	116912	(SM7500RN)	Radon 222	185	pCi/l	50	1
05/18/00	116912	(SM7500RN)	Radon 222, Two Sigma Error	18.6	pCi/l	0.0000	1

Regulated VOCs plus Lists 1&3

05/25/00	116936	(ML/EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
05/25/00	116936	(ML/EPA 524.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1
05/25/00	116936	(ML/EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
05/25/00	116936	(ML/EPA 524.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethane	ND	ug/l	0.50	1

116232

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Laboratory
Report
#56091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2-Butanone (MEK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	o-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Carbon Tetrachloride	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromoform	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromochloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloromethane (Methyl Chloride)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorodibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromodichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Di-isopropyl ether	NA	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Ethyl benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/E524.2/624)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Fluorotrichloromethane-Freon11	ND	ug/l	0.50	1

116233

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Isopropylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m,p-Xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/E524.2/624)	Methyl Tert-butyl ether (MTBE)	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	Naphthalene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Xylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	sec-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Amyl Methyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total THM	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	NA	% Rec		
			(Surrogate)	4-Bromofluorobenzene	102	% Rec		
			(Surrogate)	Toluene-d8	NA	% Rec		

C WELL (2005180058) Sampled on 05/17/00

Gross Alpha and Beta Radiation

05/31/00	116953	(ML/EPA 900.0)	Alpha, Gross	5.2	pCi/l	1.0	1
05/31/00	116953	(ML/EPA 900.0)	Alpha, Two Sigma Error	2.2	pCi/l	0.0000	1
05/31/00	116953	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.0	pCi/l	1.0	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Gross	3.6	pCi/l	2.4	1

116234

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/31/00	116953	(ML/EPA 900.0)	Beta, Two Sigma Error	5.0	pCi/l	0.0000	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Min Detectable Activity	2.4	pCi/l	2.4	1
			Radon 222					
	05/18/00	116912	(SM7500RN)	Radon 222	235	pCi/l	50	1
	05/18/00	116912	(SM7500RN)	Radon 222, Two Sigma Error	20.0	pCi/l	0.0000	1
			Regulated VOCs plus Lists 1&3					
	05/25/00	116936	(ML/EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2-Butanone (MEK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	o-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Carbon Tetrachloride	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1

116235

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Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	Bromoform	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromochloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloromethane(Methyl Chloride)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorodibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromodichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Di-isopropyl ether	NA	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Ethyl benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/E524.2/624)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Fluorotrichloromethane-Freon11	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Isopropylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m,p-Xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/E524.2/624)	Methyl Tert-butyl ether (MTBE)	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	Naphthalene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Xylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	sec-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	tert-amyl Methyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total THM	ND	ug/l	0.50	1

116236

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	Total xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	NA	% Rec		
			(Surrogate)	4-Bromofluorobenzene	67	% Rec		
			(Surrogate)	Toluene-d8	NA	% Rec		
B-6 (2005180059)			**Sampled on 05/17/00**					
			Gross Alpha and Beta Radiation					
	05/31/00	116953	(ML/EPA 900.0)	Alpha, Gross	17.7	pCi/l	1.4	1
	05/31/00	116953	(ML/EPA 900.0)	Alpha, Two Sigma Error	4.0	pCi/l	0.0000	1
	05/31/00	116953	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.4	pCi/l	1.4	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Gross	<2.3	pCi/l	2.3	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Two Sigma Error	NA	pCi/l	0.0000	1
	05/31/00	116953	(ML/EPA 900.0)	Beta, Min Detectable Activity	2.3	pCi/l	2.3	1
			Radon 222					
	05/18/00	116912	(SM7500RN)	Radon 222	170	pCi/l	50	1
	05/18/00	116912	(SM7500RN)	Radon 222, Two Sigma Error	18.5	pCi/l	0.0000	1
			Regulated VOCs plus Lists 1&3					
	05/25/00	116936	(ML/EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3-Dichloropropane	ND	ug/l	0.50	1

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC BatchN	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2-Butanone (MEK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	o-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Carbon Tetrachloride	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromoform	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromochloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloromethane(Methyl Chloride)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorodibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromodichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Di-isopropyl ether	NA	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Ethyl benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/E524.2/624)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Fluorotrichloromethane-Freon11	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Isopropylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m,p-Xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/E524.2/624)	Methyl Tert-butyl ether (MTBE)	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	Naphthalene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Xylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1

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Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	sec-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	tert-amyl Methyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total THM	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	NA	% Rec		
			(Surrogate)	4-Bromofluorobenzene	85	% Rec		
			(Surrogate)	Toluene-d8	NA	% Rec		

B-11 (2005180061) Sampled on 05/17/00

Gross Alpha and Beta Radiation

05/31/00	116953	(ML/EPA 900.0)	Alpha, Gross	7.0	pCi/l	1.1	1
05/31/00	116953	(ML/EPA 900.0)	Alpha, Two Sigma Error	2.6	pCi/l	0.0000	1
05/31/00	116953	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.1	pCi/l	1.1	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Gross	<2.9	pCi/l	2.9	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Two Sigma Error	NA	pCi/l	0.0000	1
05/31/00	116953	(ML/EPA 900.0)	Beta, Min Detectable Activity	2.9	pCi/l	2.9	1

Radon 222

05/18/00	116912	(SM7500RN)	Radon 222	380	pCi/l	50	1
05/18/00	116912	(SM7500RN)	Radon 222, Two Sigma Error	23.0	pCi/l	0.0000	1

Regulated VOCs plus Lists 1&3

05/25/00	116936	(ML/EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
05/25/00	116936	(ML/EPA 524.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1

116239

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Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2-Butanone (MEK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	o-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Carbon Tetrachloride	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromoform	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromochloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloromethane (Methyl Chloride)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorodibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromodichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Di-isopropyl ether	NA	ug/l	5.0	1

116240

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Laboratory
Report
#65091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	Ethyl benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/8524.2/624)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Fluorotrichloromethane-Freon11	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Isopropylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m,p-Xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/8524.2/624)	Methyl Tert-butyl ether (MTBE)	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	Naphthalene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Xylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	sec-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	tert-amyl Methyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total THM	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	NA	% Rec		
			(Surrogate)	4-Bromofluorobenzene	95	% Rec		
			(Surrogate)	Toluene-d8	NA	% Rec		

116241

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
S-156 (2005180062)			Sampled on 05/17/00					
			Gross Alpha and Beta Radiation					
	06/06/00	117260	(ML/EPA 900.0)	Alpha, Gross	4.3	pCi/l	1.3	1
	06/06/00	117260	(ML/EPA 900.0)	Alpha, Two Sigma Error	2.9	pCi/l	0.0000	1
	06/06/00	117260	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.3	pCi/l	1.3	1
	06/06/00	117260	(ML/EPA 900.0)	Beta, Gross	7.0	pCi/l	1.7	1
	06/06/00	117260	(ML/EPA 900.0)	Beta, Two Sigma Error	4.1	pCi/l	0.0000	1
	06/06/00	117260	(ML/EPA 900.0)	Beta, Min Detectable Activity	1.7	pCi/l	1.7	1
			Radon 222					
	05/18/00	116912	(SM7500RN)	Radon 222	138	pCi/l	50	1
	05/18/00	116912	(SM7500RN)	Radon 222, Two Sigma Error	17.7	pCi/l	0.0000	1
			Regulated VOCs plus Lists 1&3					
	05/25/00	116936	(ML/EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,1-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	1,3-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	2-Butanone (MEK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	o-Chlorotoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Chlorotoluene	ND	ug/l	0.50	1

116242

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Laboratory
Report
#66091

Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorobenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Carbon Tetrachloride	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromoform	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromochloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloroethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chloromethane (Methyl Chloride)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Chlorodibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dibromomethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Bromodichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Dichloromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Di-isopropyl ether	NA	ug/l	5.0	1
	05/25/00	116936	(ML/EPA 524.2)	Ethyl benzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/ES24.2/624)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Fluorotrichloromethane-Freon11	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Isopropylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	m,p-Xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/ES24.2/624)	Methyl Tert-butyl ether (MTBE)	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	Naphthalene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Xylene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	sec-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/l	0.50	1

116243

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Columbia Analytical Services
(continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
	05/25/00	116936	(ML/EPA 524.2)	tert-amyl Methyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/l	3.0	1
	05/25/00	116936	(ML/EPA 524.2)	tert-Butylbenzene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total THM	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Total xylenes	ND	ug/l	0.50	1
	05/25/00	116936	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	NA	% Rec		
			(Surrogate)	4-Bromofluorobenzene	88	% Rec		
			(Surrogate)	Toluene-d8	NA	% Rec		

116244

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	E WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorofluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorotrifluoroethane (CFC 113)	METHOD	524.2	2	1	NA	3/5/01	ND	
1,1-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Acetone	METHOD	524.2	5	1	NA	3/5/01	ND	
Carbon Disulfide	METHOD	524.2	5	1	NA	3/5/01	ND	
Methylene Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Methyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
trans-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloroethane (1,1-DCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Acetate	METHOD	524.2	5	1	NA	3/5/01	ND	
Diisopropyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Ethyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
2,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Butanone (MEK)	METHOD	524.2	5	1	NA	3/5/01	ND	
cis-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,1-Trichloroethane (TCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Carbon Tetrachloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Benzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloroethane (EDC)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Amyl Methyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Trichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Dibromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromodichloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chloroethyl Vinyl Ether	METHOD	524.2	1	1	NA	3/5/01	ND	
cis-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Methyl-2-pentanone (MIBK)	METHOD	524.2	5	1	NA	3/5/01	ND	
trans-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2-Trichloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Toluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Tetrachloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Hexanone	METHOD	524.2	5	1	NA	3/5/01	ND	
Dibromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromoethane (EDB)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

116245

Approved By: _____ Date: 3-16-01

00666VOA.KR1 - Sample 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	E WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

1S2p/020597p

116246

00666VOA.XR1 - Sample 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	E-9 WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-002	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorofluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorotrifluoroethane (CFC 113)	METHOD	524.2	2	1	NA	3/5/01	ND	
1,1-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Acetone	METHOD	524.2	5	1	NA	3/5/01	ND	
Carbon Disulfide	METHOD	524.2	5	1	NA	3/5/01	ND	
Methylene Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Methyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
trans-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloroethane (1,1-DCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Acetate	METHOD	524.2	5	1	NA	3/5/01	ND	
Diisopropyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Ethyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
2,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Butanone (MEK)	METHOD	524.2	5	1	NA	3/5/01	ND	
cis-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromochloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,1-Trichloroethane (TCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Carbon Tetrachloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Benzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloroethane (EDC)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Amyl Methyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Trichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Dibromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromodichloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chloroethyl Vinyl Ether	METHOD	524.2	1	1	NA	3/5/01	ND	
cis-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Methyl-2-pentanone (MIBK)	METHOD	524.2	5	1	NA	3/5/01	ND	
trans-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2-Trichloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Toluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Tetrachloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Hexanone	METHOD	524.2	5	1	NA	3/5/01	ND	
Dibromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromoethane (EDB)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116247

06666VOA.KRJ - Sample (2) 3/15/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Volatile Organic Compounds

Sample Name: E-9 WELL
Lab Code: L2100666-002
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01
1S2p/020597p

116248

00666VOA.KRI - Sample (2) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	C WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorofluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorotrifluoroethane (CFC 113)	METHOD	524.2	2	1	NA	3/5/01	ND	
1,1-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Acetone	METHOD	524.2	5	1	NA	3/5/01	ND	
Carbon Disulfide	METHOD	524.2	5	1	NA	3/5/01	ND	
Methylene Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Methyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
trans-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloroethane (1,1-DCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Acetate	METHOD	524.2	5	1	NA	3/5/01	ND	
Diisopropyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Ethyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
2,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Butanone (MEK)	METHOD	524.2	5	1	NA	3/5/01	ND	
cis-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,1-Trichloroethane (TCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Carbon Tetrachloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Benzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloroethane (EDC)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Amyl Methyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Trichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Dibromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromodichloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chloroethyl Vinyl Ether	METHOD	524.2	1	1	NA	3/5/01	ND	
cis-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Methyl-2-pentanone (MIBK)	METHOD	524.2	5	1	NA	3/5/01	ND	
trans-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2-Trichloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Toluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Tetrachloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Hexanone	METHOD	524.2	5	1	NA	3/5/01	ND	
Dibromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromoethane (EDB)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116249

0666VOA.KRI - Sample (3) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	C WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

1S2p/020597p

116250

00666VOA.XRI - Sample (3) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	B-6 WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-004	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorofluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorotrifluoroethane (CFC 113)	METHOD	524.2	2	1	NA	3/5/01	ND	
1,1-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Acetone	METHOD	524.2	5	1	NA	3/5/01	ND	
Carbon Disulfide	METHOD	524.2	5	1	NA	3/5/01	ND	
Methylene Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Methyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
trans-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloroethane (1,1-DCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Acetate	METHOD	524.2	5	1	NA	3/5/01	ND	
Diisopropyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Ethyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
2,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Butanone (MEK)	METHOD	524.2	5	1	NA	3/5/01	ND	
cis-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,1-Trichloroethane (TCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Carbon Tetrachloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Benzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloroethane (EDC)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Amyl Methyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Trichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Dibromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromodichloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chloroethyl Vinyl Ether	METHOD	524.2	1	1	NA	3/5/01	ND	
cis-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Methyl-2-pentanone (MIBK)	METHOD	524.2	5	1	NA	3/5/01	ND	
trans-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2-Trichloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Toluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Tetrachloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Hexanone	METHOD	524.2	5	1	NA	3/5/01	ND	
Dibromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromoethane (EDB)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116251

06666VOA.ER1 - Sample (4) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	B-6 WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-004	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116252

182p/020597p

00666VOA.XRI - Sample (4) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	EXON WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-005	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorofluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorotrifluoroethane (CFC 113)	METHOD	524.2	2	1	NA	3/5/01	ND	
1,1-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Acetone	METHOD	524.2	5	1	NA	3/5/01	ND	
Carbon Disulfide	METHOD	524.2	5	1	NA	3/5/01	ND	
Methylene Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Methyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
trans-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloroethane (1,1-DCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Acetate	METHOD	524.2	5	1	NA	3/5/01	ND	
Diisopropyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Ethyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
2,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Butanone (MEK)	METHOD	524.2	5	1	NA	3/5/01	ND	
cis-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,1-Trichloroethane (TCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Carbon Tetrachloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Benzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloroethane (EDC)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Amyl Methyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Trichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Dibromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromodichloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chloroethyl Vinyl Ether	METHOD	524.2	1	1	NA	3/5/01	ND	
cis-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Methyl-2-pentanone (MIBK)	METHOD	524.2	5	1	NA	3/5/01	ND	
trans-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2-Trichloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Toluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Tetrachloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Hexanone	METHOD	524.2	5	1	NA	3/5/01	ND	
Dibromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromoethane (EDB)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116253

00666VOA.KRI - Sample (5) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Volatile Organic Compounds

Sample Name: EXON WELL
Lab Code: L2100666-005
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

1S2p/020597p

116254

00666VOA.XR1 - Sample (5) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	B-11 WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-006	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorofluoromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Trichlorotrifluoroethane (CFC 113)	METHOD	524.2	2	1	NA	3/5/01	ND	
1,1-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Acetone	METHOD	524.2	5	1	NA	3/5/01	ND	
Carbon Disulfide	METHOD	524.2	5	1	NA	3/5/01	ND	
Methylene Chloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Methyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
trans-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloroethane (1,1-DCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Vinyl Acetate	METHOD	524.2	5	1	NA	3/5/01	ND	
Diisopropyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Ethyl *tert*-Butyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
2,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Butanone (MEK)	METHOD	524.2	5	1	NA	3/5/01	ND	
cis-1,2-Dichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chloroform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,1-Trichloroethane (TCA)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Carbon Tetrachloride	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Benzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloroethane (EDC)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Amyl Methyl Ether	METHOD	524.2	2	1	NA	3/5/01	ND	
Trichloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Dibromomethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromodichloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chloroethyl Vinyl Ether	METHOD	524.2	1	1	NA	3/5/01	ND	
cis-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Methyl-2-pentanone (MIBK)	METHOD	524.2	5	1	NA	3/5/01	ND	
trans-1,3-Dichloropropene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2-Trichloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Toluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Tetrachloroethene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Hexanone	METHOD	524.2	5	1	NA	3/5/01	ND	
Dibromochloromethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromoethane (EDB)	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Chlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116255

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Volatile Organic Compounds

Sample Name: B-11 WELL
Lab Code: L2100666-006
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-11-01

116256

1S2p/020597p

00666VOA.ER1 - Sample (6) 3/16/01

00666VOA.ER1 - Sample (6) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Volatile Organic Compounds

Sample Name:	B-11 WELL	Units:	ug/L (ppb)
Lab Code:	L2100666-006	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	CRDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,1,1,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Ethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Total Xylenes	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Styrene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromoform	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Isopropylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Bromobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,1,2,2-Tetrachloroethane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichloropropane	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Propylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
2-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
4-Chlorotoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3,5-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
tert-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,4-Trimethylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
sec-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,3-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
p-Isopropyltoluene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,4-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
n-Butylbenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2-Dibromo-3-chloropropane	METHOD	524.2	1	1	NA	3/5/01	ND	
1,2,4-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Hexachlorobutadiene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
Naphthalene	METHOD	524.2	0.5	1	NA	3/5/01	ND	
1,2,3-Trichlorobenzene	METHOD	524.2	0.5	1	NA	3/5/01	ND	

Approved By: _____ Date: 3-11-01

1S2p/020597p

116257

00666VOA.KRI - Sample (6) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Inorganic Parameters

Sample Name: E WELL
Lab Code: L2100666-001
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	3/5/01	190	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	3/6/01	84	
Color	COLOR UNITS	110.2	5	1	NA	3/1/01	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	3/1/01	1100	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	3/8/01	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	3/7/01	1.1	
Hardness as CaCO3	mg/L (ppm)	130.2	5	1	NA	3/8/01	360	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	3/2/01	1.6	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	3/2/01	ND	
Odor	T.O.N.	140.1	1.0	1	NA	3/1/01	ND	
pH	pH UNITS	150.1	--	1	NA	3/1/01	7.4	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	3/7-8/01	730	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	3/6/01	280	
Surfactants	mg/L (ppm)	425.1	0.1	1	3/1/01	3/1/01	ND	
Turbidity	NTU	180.1	0.1	1	NA	3/1/01	1.6	

Approved By: _____ Date: 3-11-01

116258

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Inorganic Parameters

Sample Name: E-9 WELL
Lab Code: L2100666-002
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	3/5/01	270	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	3/6/01	39	
Color	COLOR UNITS	110.2	5	1	NA	3/1/01	15	
Conductivity	uMHOS/cm	120.1	10	1	NA	3/1/01	1000	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	3/8/01	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	3/7/01	0.8	
Hardness as CaCO3	mg/L (ppm)	130.2	5	1	NA	3/8/01	390	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	3/2/01	1.7	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	3/2/01	ND	
Odor	T.O.N.	140.1	1.0	1	NA	3/1/01	ND	
pH	pH UNITS	150.1	--	1	NA	3/1/01	7.5	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	3/7-8/01	690	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	3/6/01	220	
Surfactants	mg/L (ppm)	425.1	0.1	1	3/1/01	3/1/01	ND	
Turbidity	NTU	180.1	0.1	1	NA	3/1/01	16	

Approved By: _____ Date: 3-16-01
(Signature)

116259

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Inorganic Parameters

Sample Name: C WELL
Lab Code: L2100666-003
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	3/5/01	250	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	3/6/01	56	
Color	COLOR UNITS	110.2	5	1	NA	3/1/01	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	3/1/01	1100	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	3/8/01	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	3/7/01	0.7	
Hardness as CaCO3	mg/L (ppm)	130.2	5	1	NA	3/8/01	410	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	3/2/01	2.1	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	3/2/01	ND	
Odor	T.O.N.	140.1	1.0	1	NA	3/1/01	ND	
pH	pH UNITS	150.1	—	1	NA	3/1/01	7.4	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	3/7-8/01	770	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	3/6/01	280	
Surfactants	mg/L (ppm)	425.1	0.1	1	3/1/01	3/1/01	ND	
Turbidity	NTU	180.1	0.1	1	NA	3/1/01	0.5	

Approved By: _____ Date: 3-16-01

15/4/921377

116260

Page No:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newball Land and Farming Company
Project: Newball Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Inorganic Parameters

Sample Name: B-6 WELL
Lab Code: L2100666-004
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	3/5/01	280	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	3/6/01	80	
Color	COLOR UNITS	110.2	5	1	NA	3/1/01	5	
Conductivity	uMHOS/cm	120.1	10	1	NA	3/1/01	1400	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	3/8/01	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	3/7/01	0.8	
Hardness as CaCO3	mg/L (ppm)	130.2	5	1	NA	3/8/01	510	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	3/2/01	2.8	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	3/2/01	ND	
Odor	T.O.N.	140.1	1.0	1	NA	3/1/01	ND	
pH	pH UNITS	150.1	--	1	NA	3/1/01	7.6	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	3/7-8/01	960	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	3/6/01	360	
Surfactants	mg/L (ppm)	425.1	0.1	1	3/1/01	3/1/01	ND	
Turbidity	NTU	180.1	0.1	1	NA	3/1/01	2.4	

Approved By: _____ Date: 3-16-01
15/6/02 1397

116261

Page No.

006-SWETSA1 - Sample(s) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Inorganic Parameters

Sample Name: EXON WELL
Lab Code: L2100666-005
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	3/5/01	240	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	3/6/01	35	
Color	COLOR UNITS	110.2	5	1	NA	3/1/01	10	
Conductivity	uMHOS/cm	120.1	10	1	NA	3/1/01	1400	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	3/8/01	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	3/7/01	0.5	
Hardness as CaCO3	mg/L (ppm)	130.2	5	1	NA	3/8/01	550	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	3/2/01	5.2	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	3/2/01	ND	
Odor	T.O.N.	140.1	1.0	1	NA	3/1/01	ND	
pH	pH UNITS	150.1	–	1	NA	3/1/01	7.6	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	3/7-8/01	1000	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	3/6/01	470	
Surfactants	mg/L (ppm)	425.1	0.1	1	3/1/01	3/1/01	ND	
Turbidity	NTU	180.1	0.1	1	NA	3/1/01	9.1	

Approved By: _____ Date: 3-16-01

116262

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall-Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Inorganic Parameters

Sample Name: B-11 WELL
Lab Code: L2100666-006
Test Notes:

Basis: NA

Analyte	Units	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Alkalinity as CaCO3, Total	mg/L (ppm)	SM 2320B	10	1	NA	3/5/01	250	
Chloride	mg/L (ppm)	300.0	0.5	10	NA	3/6/01	96	
Color	COLOR UNITS	110.2	5	1	NA	3/1/01	ND	
Conductivity	uMHOS/cm	120.1	10	1	NA	3/1/01	1300	
Cyanide, Total	mg/L (ppm)	335.2	0.05	1	NA	3/8/01	ND	
Fluoride	mg/L (ppm)	340.2	0.1	1	NA	3/7/01	0.7	
Hardness as CaCO3	mg/L (ppm)	130.2	5	1	NA	3/8/01	410	
Nitrate as Nitrogen	mg/L (ppm)	300.0	0.2	1	NA	3/2/01	2.5	
Nitrite as Nitrogen	mg/L (ppm)	354.1	0.003	1	NA	3/2/01	0.004	
Odor	T.O.N.	140.1	1.0	1	NA	3/1/01	ND	
pH	pH UNITS	150.1	--	1	NA	3/1/01	7.5	
Solids, Total Dissolved (TDS)	mg/L (ppm)	160.1	10	1	NA	3/7-8/01	850	
Sulfate	mg/L (ppm)	300.0	1.0	10	NA	3/6/01	290	
Surfactants	mg/L (ppm)	425.1	0.1	1	3/1/01	3/1/01	ND	
Turbidity	NTU	180.1	0.1	1	NA	3/1/01	0.3	

Approved By: _____ Date: 3-16-01

116263

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Metals

Sample Name:	E WELL	Units:	mg/L (ppm)
Lab Code:	L2100666-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.02	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.37	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	96	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	0.1	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	31	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	ND	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	92	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.05	

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116264

Page 1/1

08666ICP CGI - Sample 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Metals

Sample Name: E WELL
Lab Code: L2100666-001
Test Notes:

Units: mg/L (ppm)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.02	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.37	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	96	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	0.1	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	31	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	ND	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	92	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.05	

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116265

Page No

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Metals

Sample Name: E-9 WELL
Lab Code: L2100666-002
Test Notes:

Units: mg/L (ppm)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.03	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.35	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	98	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	3.1	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	36	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	0.10	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	ND	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	73	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	

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116266

Page No.

00666EP.CG1 - Sample (2) 3/16/01

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Metals

Sample Name:	C WELL	Units:	mg/L (ppm)
Lab Code:	L2100666-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.02	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.37	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	110	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	0.1	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	36	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	ND	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	90	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	

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116267

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Newhall Land and Farming Company
Project: Newhall Ranch
Sample Matrix: Water

Service Request: L2100666
Date Collected: 3/1/01
Date Received: 3/1/01

Metals

Sample Name: B-6 WELL
Lab Code: L2100666-004
Test Notes:

Units: mg/L (ppm)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	0.03	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.46	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	140	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	0.1	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	43	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	0.006	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	120	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116268

Page No.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Metals

Sample Name:	EXON WELL	Units:	mg/L (ppm)
Lab Code:	L2100666-005	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.26	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	140	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	0.01	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	0.5	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	48	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	0.03	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	0.008	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	88	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	

Approved By: _____ Date: 3-11-01

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116269

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Newhall Land and Farming Company	Service Request:	L2100666
Project:	Newhall Ranch	Date Collected:	3/1/01
Sample Matrix:	Water	Date Received:	3/1/01

Metals

Sample Name:	B-11 WELL	Units:	mg/L (ppm)
Lab Code:	L2100666-006	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes
Aluminum, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	ND	
Arsenic, Total	METHOD	206.2	0.005	1	3/5/01	3/8/01	ND	
Barium, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	
Boron, Total	METHOD	200.7	0.05	1	3/5/01	3/5/01	0.55	
Cadmium, Total	METHOD	200.7	0.005	1	3/5/01	3/5/01	ND	
Calcium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	110	
Chromium, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Copper, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Iron, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	0.1	
Magnesium, Total	METHOD	200.7	0.2	1	3/5/01	3/5/01	35	
Manganese, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	0.05	
Mercury, Total	METHOD	245.1	0.0005	1	3/5/01	3/5/01	ND	
Nickel, Total	METHOD	200.7	0.04	1	3/5/01	3/5/01	ND	
Selenium, Total	METHOD	270.2	0.005	1	3/5/01	3/8/01	ND	
Silver, Total	METHOD	200.7	0.01	1	3/5/01	3/5/01	ND	
Sodium, Total	METHOD	200.7	0.5	1	3/5/01	3/5/01	120	
Thallium, Total	METHOD	200.7	0.1	1	3/5/01	3/5/01	ND	
Zinc, Total	METHOD	200.7	0.02	1	3/5/01	3/5/01	ND	

Approved By: _____ Date: 3-16-01

116270

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

Report Date: Tuesday, March 06, 2001
Received Date: Thursday, March 01, 2001
Log By: mq
Log Time: 15:18

Client: Columbia Analytical Services
6925 Canoga Avenue
Canoga Park, CA 91303
Attn.: L. Ross Fenstermaker

Phone: (818) 587-5550
FAX: (818) 587-5555

Project:

P.O. #: L2100088
Turnaround Time: Normal

CERTIFICATE OF ANALYSIS

Lab#: A101554-001 Sample ID: E Well Matrix: Water
Sampled By: Client Date: 3/1/01 Time: 9:25

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed	Worksheet #
Chromium, hexavalent (Cr VI)	ND		ug/L	1	0.50	EPA 218.6	3/1/01 dc	WS22315
Prep. Direct Inj.								
Perchlorate	ND		ug/L	1	4.0	EPA 314	3/2/01 dc	WS22368

Lab#: A101554-002 Sample ID: E-9 Well Matrix: Water
Sampled By: Client Date: 3/1/01 Time: 9:40

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed	Worksheet #
Chromium, hexavalent (Cr VI)	ND		ug/L	1	0.50	EPA 218.6	3/1/01 dc	WS22315
Prep. Direct Inj.								
Perchlorate	ND		ug/L	1	4.0	EPA 314	3/2/01 dc	WS22368

Lab#: A101554-003 Sample ID: C Well Matrix: Water
Sampled By: Client Date: 3/1/01 Time: 10:00

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed	Worksheet #
Chromium, hexavalent (Cr VI)	ND		ug/L	1	0.50	EPA 218.6	3/1/01 dc	WS22315
Prep. Direct Inj.								
Perchlorate	ND		ug/L	1	4.0	EPA 314	3/2/01 dc	WS22368

Lab#: A101554-004 Sample ID: B-8 Well Matrix: Water
Sampled By: Client Date: 3/1/01 Time: 10:20

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed	Worksheet #
Chromium, hexavalent (Cr VI)	ND		ug/L	1	0.50	EPA 218.6	3/1/01 dc	WS22315
Prep. Direct Inj.								
Perchlorate	ND		ug/L	1	4.0	EPA 314	3/2/01 dc	WS22368

14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.weckdabs.com

116271

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1954

Client: Columbia Analytical Services
Project Name:

Report Date: *Tuesday, March 06, 2001*

CERTIFICATE OF ANALYSIS

Lab#: A101554-005 Sample ID: Exon Well Matrix: Water
Sampled By: Client Date: 3/1/01 Time: 11:00

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed		Worksheet #
Chromium, hexavalent (Cr VI)	0.70		ug/L	1	0.50	EPA 218.6	3/1/01	dc	WS22315
Prep. Direct Inj.									
Perchlorate	ND		ug/L	1	4.0	EPA 314	3/2/01	dc	WS22368

Lab#: A101554-006 Sample ID: B-11 Well Matrix: Water
Sampled By: Client Date: 3/1/01 Time: 11:45

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed		Worksheet #
Chromium, hexavalent (Cr VI)	ND		ug/L	1	0.50	EPA 218.6	3/1/01	dc	WS22315
Prep. Direct Inj.									
Perchlorate	ND		ug/L	1	4.0	EPA 314	3/2/01	dc	WS22368

Authorized Signature

ELAP # 1132
LACSD # 10143

Flags for Data Qualifiers:

B = Compound detected in the blank. Sample result equal or less than 10 times the concentration in the blank.
J = Estimated value, detected but below the reporting limit.
H = Estimated value, result over the calibration range
R = Result is suspect, LCS recovery greater than the upper control limit.
L = Result is suspect, LCS recovery lower than the control limit.
Q = QC result out of acceptance limits.
T = Trace detection, detected but below the reporting limit.

Notes:

Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless specified.
RL = Reporting Limit
ND = Not detected, below the reporting limit
Sub = Subcontracted analysis, original report enclosed.

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116272

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1139 East Dominguez, Suite I
Carson, CA 90746
310-637-7121 Fax 310-637-2953

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CERTIFICATE OF ANALYSIS

COA No:	SCA-15064716-0
Supersedes:	None
COA Date	3/5/01
Page 1 of 2	

TO:
Mr. Ross Fenstermaker
Project Manager
Columbia Analytical Services
6925 Canoga Avenue
Canoga Park, CA 91303

Received From:	Canoga Park, CA
Received Date:	3/1/01
P.O.# / ID:	LL100666
Location of Test: (except where noted)	Carson, CA

Analytical Results

Desc. 1:	Log #: L2100666	Desc. 4:	Sample Date:03/01/01	Laboratory ID:	150333454
Desc. 2:	E Well	Desc. 5:	Sample Time:09:25	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matric Drinking Water	Temp Rec'd (°C):	6.3

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
Heterotrophic Plate Count	<1	/mL	SMEWW 18th ed.	3/3/01	

Desc. 1:	Log #: L2100666	Desc. 4:	Sample Date:03/01/01	Laboratory ID:	150333467
Desc. 2:	E-9 Well	Desc. 5:	Sample Time:09:40	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matric Drinking Water	Temp Rec'd (°C):	6.3

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
Heterotrophic Plate Count	6.0	/mL	SMEWW 18th ed.	3/3/01	

Desc. 1:	Log #: L2100666	Desc. 4:	Sample Date:03/01/01	Laboratory ID:	150333461
Desc. 2:	C-Well	Desc. 5:	Sample Time:10:00	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matric Drinking Water	Temp Rec'd (°C):	6.3

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
Heterotrophic Plate Count	16	/mL	SMEWW 18th ed.	3/3/01	

Desc. 1:	Log #: L2100666	Desc. 4:	Sample Date:03/01/01	Laboratory ID:	150333463
Desc. 2:	B-6 Well	Desc. 5:	Sample Time:10:20	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matric Drinking Water	Temp Rec'd (°C):	6.3

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
Heterotrophic Plate Count	29	/mL	SMEWW 18th ed.	3/3/01	

Desc. 1:	Log #: L2100666	Desc. 4:	Sample Date:03/01/01	Laboratory ID:	150333465
Desc. 2:	Exon Well	Desc. 5:	Sample Time:11:00	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 6:	Matric Drinking Water	Temp Rec'd (°C):	6.3

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
Heterotrophic Plate Count	6.0	/mL	SMEWW 18th ed.	3/3/01	

The results of these tests relate only to the samples tested. This report shall not be reproduced except in full, without the written approval of the laboratory.

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CERTIFICATE OF ANALYSIS

COA No:	SCA-15064718-0
Supersedes:	None
COA Date	3/5/01
Page 2 of 2	

TO:
Mr. Ross Fenstermaker
Project Manager
Columbia Analytical Services
6925 Canoga Avenue
Canoga Park, CA 91303

Received From:	Canoga Park, CA
Received Date:	3/1/01
P.O.# / ID:	LL100666
Location of Test: (except where noted)	Carson, CA

Analytical Results

Desc. 1:	Log #: L2100666	Desc. 4:	Sample Date:03/01/01	Laboratory ID:	150333466
Desc. 2:	B-11 Well	Desc. 6:	Sample Time:11:45	Condition Rec'd:	NORMAL
Desc. 3:	Sampler:Not Given	Desc. 5:	Matrix: Drinking Water	Temp Rec'd (°C):	6.3

Analyte	Result	Units	Method Reference	Test Date	Loc.
Coliforms - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
E. coli - 10X10 ml MPN	<1.1	/100mL	SMEWW, 19th ed.	3/3/01	
Heterotrophic Plate Count	34	/mL	SMEWW 18th ed.	3/3/01	

COA Comment: This water complies with State of California and the U.S. Public Health Services regulations for potable water as analyzed by Silliker Laboratories.

Vidhya Gangar

Vidhya Gangar, M.S. Laboratory Director

The results of these tests relate only to the samples tested. This report shall not be reproduced except in full, without the written approval of the laboratory.

116274

DAVI LABORATORIES, ENVIRONMENTAL ASSOCIATES
701 "B" Belmont Way • Pinole, CA 94564 • (510) 724-9450 • Fax (510) 724-9174

ANALYTICAL RESULTS REPORT

Company: Columbia Analytical Services
Address: 6925 Canoga Avenue
Canoga Park, CA 91303

Contact: Mr. L. Ross Fenstermaker
Report Date: March 20, 2001
Purchase Order #: L2100666

TABLE I

Sample I.D.	Analyses Date/Time	Matrix	EPA Method	Analysis	Results pCi/L	±	Sigma error
E Well	3/20/01(0925)	Water	900.0	Gross Alpha	6.00	±	1.59
			900.0	Gross Beta	1.62	±	0.41
			913.0	Radon 222	303	±	47
			908.1	Uranium	5.52	±	1.61
			903.0	Radium 226	0.41	±	0.40
			904.0	Radium 228	0.83	±	1.24
E -9 Well	3/20/01(0940)	Water	900.0	Gross Alpha	3.24	±	1.20
			900.0	Gross Beta	1.82	±	0.52
			913.0	Radon 222	203	±	40
			908.1	Uranium	1.79	±	0.39
			903.0	Radium 226	0.32	±	0.19
			904.0	Radium 228	0.00	±	1.00
C Well	3/20/01(1000)	Water	900.0	Gross Alpha	3.56	±	1.31
			900.0	Gross Beta	0.68	±	0.28
			913.0	Radon 222	259	±	44
			908.1	Uranium	3.10	±	0.90
			903.0	Radium 226	0.26	±	0.23
			904.0	Radium 228	0.00	±	1.00
B-6 Well	3/20/01(1020)	Water	900.0	Gross Alpha	8.95	±	2.16
			900.0	Gross Beta	0.58	±	0.15
			913.0	Radon 222	182	±	39
			908.1	Uranium	7.88	±	2.29
			903.0	Radium 226	0.67	±	0.40
			904.0	Radium 228	1.85	±	0.29

116275

Company: Columbia Analytical Services
Contact: Mr. L. Ross Fenstermaker
Report Date: March 20, 2001
Purchase Order #: L2100666

TABLE I

Sample I.D.	Analyses Date/Time	Matrix	EPA Method	Analysis	Results pCi/L	±	Sigma error
Exon Well	3/20/01(1100)	Water	900.0	Gross Alpha	6.55	±	1.95
			900.0	Gross Beta	0.97	±	0.26
			913.0	Radon 222	127	±	34
			908.1	Uranium	4.23	±	1.23
			903.0	Radium 226	0.00	±	1.00
			904.0	Radium 228	0.59	±	0.28
B-11 Well	3/20/01(1145)	Water	900.0	Grossalpha	7.92	±	1.91
			900.0	Gross Beta	2.39	±	0.40
			913.0	Radon 222	274	±	45
			908.1	Uranium	5.08	±	1.48
			903.0	Radium 226	0.34	±	0.30
			904.0	Radium 228	0.00	±	1.00

TABLE II QA/QC Data

Analysis.	Spike Activity pCi	Detected Activity pCi	Percent of Agreement %
Gross Alpha	492.3 pCi	453.3 pCi	92.08
Gross Beta	1193.6 pCi	1133.1 pCi	94.93
Radon 222	8275.0 pCi	8010.2 pCi	96.80
Uranium	237.5 pCi	230.5 pCi	97.05
Radium 226	2.9 pCi	2.7 pCi	93.10
Radium 228	11.9 pCi	11.3 pCi	94.95

Patricia Davi
Davi Laboratories
QA/QC Manager

116276

amec

RECEIVED
SEP 16 2009
By

September 15, 2009

Project 9967.000.0

Mr. Jose Diaz
Department of Toxic Substances Control
Site Mitigation Branch
9211 Oakdale Avenue
Chatsworth, CA 91311

Re: Former Whittaker-Bermite Facility, Santa Clarita, CA
Summary Report for Month of August 2009

Dear Mr. Diaz:

This letter constitutes a progress report for the month of August 2009, prepared pursuant to Task 4 and Section 6.3 of the "Imminent and Substantial Endangerment Determination and Order and Remedial Action Order" (the Order) that the Department of Toxic Substances Control (DTSC) issued on November 22, 2002, for the former Whittaker-Bermite facility (site) in Santa Clarita, California.

SECTION I – SOIL ISSUES

Specific actions taken on behalf of the respondent, actions expected to be undertaken, and planned activities for soil issues are summarized in the following sections:

OU1 REMEDIATION

Activities for This Report Period (1)

All excavation, bio-treatment, backfilling, and slope restoration activities for the OU1 remediation program were completed during previous reporting periods. During this reporting period, CDM worked on the preparation of the closure report documenting the soil remediation operations for OU1.

Anticipated Activities for This Month

Work on the closure report documenting the soil remediation operations for OU1.

Long-Term Actions

Complete the closure report documenting the soil remediation operations for OU1 and submit to DTSC for review.

Activities for This Report Period (2)

Operated the primary soil vapor extraction (SVE) system at Area 43 and the secondary (hi-vacuum) SVE system at Building 329.

AMEC Geomatrix, Inc.
510 Superior Avenue, Suite 200
Newport Beach, CA
USA 92663-3627
Tel (949) 642-0245
Fax (949) 642-4474
www.amecgeomatrixinc.com

AMEC Geomatrix

Anticipated Activities for This Month

Continue operation and optimization of SVE systems at Building 329 and Area 43.

Long-Term Actions

Continue the SVE operations until volatile organic compound levels are eliminated or reduced to appropriate levels or until asymptotic levels are reached.

REMEDIAL ACTION PLAN

Activities for This Report Period

CDM completed the third draft of the Remedial Action Plan (RAP) for OU2 through OU6 soils (Site-Wide Soils RAP), which was submitted to DTSC on August 14, 2009. The DTSC issued preliminary review comments via email on August 24, 2009. DTSC's preliminary review comments were incorporated and the third draft of the RAP was resubmitted to DTSC on August 31, 2009.

Anticipated Activities for This Month

Allow DTSC review of the Site-Wide Soils RAP. Address DTSC's comments, if any received.

Long-Term Actions

Work with DTSC to finalize the Site-Wide Soils RAP and present for public review.

PILOT STUDIES (SVE)

Activities for This Report Period

CDM had previously prepared a pilot study work plan for SVE. DTSC approved the revised SVE work plan in a letter dated October 22, 2008.

The field pilot programs for Areas 2, 4, 27, 31/45, 53/54/72, Area 14-South, and Hula Bowl Canyon I were completed during prior reporting periods. During this reporting period the field pilot program for Area 14-Central was completed. However, due to the large amount of VOC mass removal achieved for both Area 14-South and 14-Central using the G.E.O. cryogenic/condenser system, the operations in Area 14 were extended for an additional two months while evaluations are completed to determine if further operation of the G.E.O. system with the existing well configuration is warranted prior to scale up of the pilot study operations.

Anticipated Activities for This Month

Prepare the report documenting the results of the pilot studies, and extended SVE pilot operations in Area 14.

Long-Term Actions

Complete planned pilot study activities and prepare documentation reports for submittal to DTSC. Incorporate the results of the SVE Pilot Study to the Site-Wide RAP and the Remedial Design document.

PILOT STUDIES (GEDIT)

Activities for This Report Period

CDM had previously prepared pilot study work plan for in-situ bioremediation of perchlorate impact to deep soils via Gaseous Electron Donor Injection Technology (GEDIT). DTSC provided conditional approval of the GEDIT work plan on November 14, 2008.

The laboratory bench-scale treatability study for the GEDIT pilot study was initiated at CDM's laboratory in Bellevue, Washington, during a previous reporting period. The bench-scale study was continued during this reporting period.

Anticipated Activities for This Month

Continue tracking and monitoring of bench-scale study.

Long-Term Actions

Complete planned pilot study activities and prepare documentation reports for submittal to DTSC. Incorporate the results of the GEDIT Pilot Study to the Site-Wide RAP and the Remedial Design document.

SOILS INTERIM REMEDIAL MEASURES (IRMS) AND REMOVAL ACTIONS

Depleted Uranium (DU) Investigation and Clearance Activities

Activities for this Report Period

Continued to maintain close contact with California Department of Public Health-Radiological Health Branch (CDPH-RHB) regarding the review of the Work Plan and have provided preliminary information to address requests made by CDPH-RHB. Site visit by CDPH-RHB has not been scheduled at this time and is being coordinated by Mr. Jerry Hensley at RHB along with Mr. Jose Diaz at DTSC. Meeting with California Department of Fish and Game representative was completed on August 24th resulting in approval of permit for brush removal as described in our notification. Development of the project Health and Safety Plan (HASP) as well as the Final Status Survey Plan (FSSP) have also been started during this period. Finalization of both plans will be pending information received from CDPH-RHB review of Work Plan.

Anticipated Activities for this Month

It is anticipated that a site visit will be scheduled by CDPH-RHB and DTSC as part of the Work Plan review process. This visit will provide supporting information pertinent to the review of the submitted Work Plan. Pending comments from CDPH-RBH, changes may be necessary to the Work Plan. Work on both the HASP and FSSP will be continued during this period. We are awaiting approval from ACOE and RWQCB prior to moving forward with the brush removal. We expect to initiate coordination for brush removal during this period.

Long Term Actions

Once approval is confirmed with ACOE and RWQCB the brush removal and UXO clearance survey can be coordinated. Pending necessary changes to the Work Plan, submittal of the FSSP to CDPH-RHB will be required. A specific schedule will be developed for brush removal, UXO clearance, DU removal and Final Status Surveys.

UXO/OE Investigation and Clearance Activities

Activities for This Report Period

EODT completed the following activities during this reporting period.

Work Plan Addendum (WPA) Further Investigation and No Further Action Areas
The EODT Work Plan Addendum (WPA) and associated Conceptual Site Model were submitted for DTSC and stakeholders review on July 23, 2009. The WPA field work will characterize the Further Investigations Areas and confirm the No Further Action status of the areas not affected by Munitions and Explosives of Concerns (MEC) as originally referenced in the 2006 Historical Site Assessment (HSA) Report.

Munitions and Explosives of Concern Clearance Activities at Hula Bowl II and III Associated Drainage Area, and the Depleted Uranium (DU) Impacted Area
The Hula Bowl II and III and DU Work Plan Addenda were approved with comments by DTSC in June 2008. EODT continues to coordinate with the DU-Impacted Area contractor Energy Solutions and AMEC Geomatrix to refine a phased removal plan consisting of an initial surface clearance to be followed by a removal to depth in the footprint of the DU excavation. After the MEC surface clearance is complete and actual site conditions are known, along with DTSC, the subsurface removal action alternatives will be planned and completed. Fish and Game permit application has been submitted and approved for brush clearance in the DU clearance area.

Hula Bowl II and III Drainage
EODT is tracking the landfill drainage so the clearance is completed after the drainage 'dam' is in place (so new items do not enter the drainage).

Anticipated Activities for This Month

Work Plan Addendum Further Investigation and No Further Action Areas
Anticipate planning for the field work execution and staffing in coordination with DTSC and the stakeholders.

Munitions and Explosives of Concern Clearance Activities at Hula Bowl II and III Associated Drainage Area, and the Depleted Uranium Impacted Area
Track the progress on the Hula Bowl II and III drainage 'dam' to determine the appropriate time for surface removal.

DU area MEC clearance
EODT will continue to track the progress of the review and approval process and refine the schedule for the surface clearance.

SECTION III – GROUNDWATER AND SURFACE WATER ISSUES

Specific actions taken on behalf of the respondent, action expected to be undertaken and planned activities for groundwater and surface water issues are summarized in the following sections:

GROUNDWATER (OU7) FEASIBILITY STUDY (FS)

Activities for This Report Period (1)

The Draft OU-7 FS report has been prepared and is under internal review. To support the OU-7 FS evaluations, step drawdown testing was conducted in selected OU2/OU6 perched zone wells to assess hydraulic properties.

Anticipated Activities for This Month

Continue the OU-7 FS evaluations. The Draft OU-7 FS report is under review and will be submitted to DTSC in October 2009.

Review the step drawdown testing results for selected OU2/OU6 perched zone wells. This information will be used in the OU-7 FS evaluation of groundwater extraction and dewatering options for the perched groundwater zone.

Long-Term Actions

Prepare the Remedial Action Plan for OU-7.

INTERIM REMEDIAL MEASURES (IRMS) AND PILOT PROGRAMS FOR GROUNDWATER

SAUGUS AQUIFER EXTRACTION PILOT PROGRAM

Activities for This Report Period

The Work Plan, Saugus Aquifer Pilot Remediation Well Network, Operable Unit 7 was submitted to DTSC on September 22, 2008. DTSC provided comments on November 18, 2008 and subsequently provided conditional approval of the Work Plan on December 31, 2008. A request for qualifications and proposals (RFQ/RFP) for implementation of the Saugus Extraction Pilot program was issued during March and a site tour was given to the bidders on March 25th. Responses to RFQ/RFP were received from five firms on the proposal deadline of April 23. Following review of the proposals, presentations and interviews were conducted with the five companies on May 27, 2009. Whittaker team has entered into contract negotiations with the front runner firm for implementation of the Saugus Extraction Pilot program.

Anticipated Activities for This Month

Whittaker team will continue negotiations with the front runner firm and execute a mutually agreeable contract so that the scope of work outlined in the Work Plan, Saugus Aquifer Pilot Remediation Well Network is implemented. DTSC comments on the Pilot Saugus Groundwater Remediation Work Plan will be incorporated as the Work Plan is implemented.

Long-Term Actions

Implement the Saugus Aquifer Extraction Pilot Program. Incorporate the results of the pilot work to the groundwater (OU7) RAP and design document.

NORTHERN ALLUVIUM GROUNDWATER TREATMENT SYSTEM OPERATION

Activities for This Report Period (1)

A Pilot Remediation Pumping Program was started in Northern Alluvium Areas 11, 67, and 75, in 2006. An alternate extraction well 75-MW-35 for higher groundwater extraction and six hot spot wells were connected to the new higher capacity groundwater treatment system in 2007. Sustained pumping of the extraction well 75-MW-35 that began in mid-October 2007 continues to date, with the exception of a brief period of shut down for treatment system maintenance. As of August 31, 2009, approximately 23,017,700 gallons of impacted water have been treated and discharged.

The August monthly compliance sample was collected on August 3, 2009. The sampling results indicated that the system was in compliance during May. Media were replaced in the treatment vessels as follows:

- August 6, 2009 – Removed/replaced perchlorate media in lead vessel.

- August 31, 2009 – Removed/replaced nitrate medial in lead vessel.

After replacement, the nitrate and perchlorate treatment vessels were reconfigured to have the old lag vessel as the lead and the new vessel with fresh media as the lag vessel. Because of a cracked valve on the GAC manifold, only the lead GAC vessel is in operation. Siemens is working on a solution to repair the leaky manifold.

The system was operated routinely throughout the month. The low flow wells were shut down during the routine quarterly sampling event (August 5 to August 12, 2009), however, the high flow well remained on during this time. As of August 31, 2009, approximately 23,017,700 gallons of impacted water have been treated and discharged. Approximately 91 percent of the treated volume was from the extraction wells of the Northern Alluvium pumping system; the remaining 9 percent is from IDW water collected during the quarterly sampling events, storm water collected from various areas of the site, and Saugus well development water.

Anticipated Activities for This Month

Continue the pumping, treatment, and discharge system operation and routine weekly and monthly NPDES compliance sampling and media change outs as needed.

Monitoring of the aquifer response to pumping from the alternate extraction well 75-MW-35 and the downgradient site boundary low flow extraction wells will continue.

Repair GAC manifold and put the second GAC treatment vessel back into service.

Long-Term Actions

Continue operating the extraction and treatment system and conduct additional performance monitoring.

Activities for This Report Period (2)

Potential application of remedial technologies for Northern Alluvium groundwater hot spots, including evaluation of the Area 75 boundary containment established by sustained operation of the low flow pumping wells is being addressed in the OU7 FS.

Anticipated Activities for This Month

Evaluation of potential pilot studies for the Northern Alluvium area of the site will continue. The results presented in the Shaw Technology Demonstration Summary Report for Area 11 will be reviewed for potential applicability to other areas in the Northern Alluvium.

Long-Term Actions

Additional source control measures in Northern Alluvium will be considered and recommended where determined to be necessary.

GROUNDWATER AND MONITORING

Activities for This Report Period (1)

Data review and preparation of the report is in progress for the Second Quarter 2009 quarterly groundwater monitoring. Sampling for the Third Quarter 2009 monitoring event was conducted during August.

Anticipated Activities for This Month

Data review and preparation of the report is in progress for the Second Quarter 2009 quarterly groundwater monitoring.

Long-Term Actions

Continue monitoring and reporting of the proposed network of monitoring wells on the updated schedule presented in Technical Memorandum No. 8.

Activities for This Report Period (2)

RCRA groundwater monitoring of the Area 1 (former Building 317) continues on schedule. Data from the Second Quarter 2009 groundwater monitoring event conducted in May 2009 is being reviewed. Sampling for the Third Quarter 2009 monitoring event was conducted during August.

Anticipated Activities for This Month

Data from the Second Quarter 2009 groundwater monitoring event conducted in May 2009 is being reviewed and report preparation is in progress.

Long-Term Actions

The current RCRA groundwater monitoring program will be modified to include the proposed wells and frequency and DTSC input to the monitoring plan.

STORM WATER MONITORING

Activities for This Report Period

Pursuant to the site Storm Water Pollution Prevention Plan, Environ continued coordinating the implementation of short-term surface water run-off mitigation measures. Implementation of the short-term mitigation measures is being coordinated with CDM, particularly in the areas of the site where soil remediation activities have occurred.

Anticipated Activities for This Month

Upgrades to the short-term mitigation measures will continue as necessary. CDM is working on a plan for upgrading the short-term mitigation measures. Surface water run-off sampling will be conducted following significant rainfall events in accordance with the site-wide surface water runoff sampling plan.

Long-Term Actions

Long-term mitigation of the drainages and excavations will be conducted in conjunction with the soil remediation.

SECTION IV – REQUIREMENTS UNDER THE ORDER THAT WERE NOT COMPLETED

All requirements of the Order were completed. Whittaker has met or exceeded all the substantive requirements of the Order.

SECTION V – PROBLEMS OR ANTICIPATED PROBLEMS IN COMPLYING WITH THE ORDER

Following DTSC's agreement with Whittaker's proposed modifications to implementation plans in compliance with the Order reflected in the letter dated September 28, 2004, DTSC's letter dated July 11, 2005, included a schedule for submitting a number of documents. All deadlines have been met and documents have been submitted per requested schedule.

SECTION VI – RESULTS OF SAMPLE ANALYSIS, TESTS, AND OTHER DATA

Whittaker has instructed its contractors to continue to provide DTSC staff with raw data sets for ongoing quarterly groundwater monitoring events and RI/FS work upon receipt from the lab.

Sincerely yours,
AMEC Geomatrix, Inc.

Hassan Amini, PhD, CHG
Project Coordinator

cc: Eric Lardiere, Esq., Whittaker Corp; Joseph Armao, Winston & Strawn, LLP; William Weaver, CDM; Jessica Donovan, ENVIRON; Paul Bergstrom, Knight Piésold; Larry Sievers, EODT; Tim Bricker, Santa Clarita L.L.C.; Megan Trend, Chubb Financial Solutions; Cindy Hunter, MariKay Fish, Julie Diebenow, AIG Insurance; Vitthal Hosangadi, NOREAS; John Carty, Zurich North America; Hal Dash, Cerrell Associates; Jeff Hogan, City of Santa Clarita; Yueh

Chuang, CH2M Hill; Kathy Stryker Anderson, US Army Corps of Engineers; Robert DiPrimio, Valencia Water Company; Lynn Takaichi, and Meredith Durant, Kennedy Jenks; David Bacharowski, RWQCB; James Leserman, Castaic Lake Water Agency; Steve Cole, Newhall County Water District; Mauricio Guardado, Santa Clarita Water; Neil Elsey, Avion Holdings LLC; Alisa Lacey, Stinson Morrison Hecker LLP; Jeff O'Keefe, Department of Public Health.

AMEC Letter Request for Deadline Extension for OU2-6 RAP Former Whittaker Bermite Facility, Santa Clarita, CA (June 8, 2009)

June 8, 2009

Project 9967

Mr. Jose Diaz
Department of Toxic Substances Control
Site Mitigation Branch
9211 Oakdale Avenue
Chatsworth, California 91311

Re: Request for Deadline Extension for OU2-6 RAP
Former Whittaker Bermite Facility, Santa Clarita, CA

Dear Mr. Diaz:

Confirming our discussions of May 22 and June 2, this letter presents Whittaker's formal request to extend the deadline for submitting the Remedial Action Plan (RAP) for Operable Units 2 through 6 of the former Whittaker Bermite site (the site) from May 29, 2009, to August 14, 2009.

As you are aware, the Whittaker team prepared and submitted the second draft of the RAP to the Department of Toxic Substance Control (DTSC) on January 30, 2009. DTSC provided comments on April 10, 2009, and referenced the February 18, 2009, letter from the City of Santa Clarita (City) and raised concern that modifications to the terms and conditions of the Porta Bella Development Plan that was referenced in the City letter would significantly delay cleanup of the site. Based on that concern DTSC requested that the RAP should be revised to remove any reference to the Porta Bella Plan. As requested, the Whittaker team is currently revising the RAP and removing specific references to the Porta Bella Plan. Nonetheless, we wish to maintain the references to the integration of site remediation with potential future development on a conceptual level to allow flexibility for any potential future development.

As we discussed during our telephone conversations on May 22nd and June 2nd, 2009, a technical meeting between the DTSC and Whittaker teams will be highly beneficial to discuss application of the selected remedial measures to specific areas referenced in the RAP. To that end, I will contact you to coordinate that meeting. Following our technical meeting and discussions with DTSC, we will make appropriate changes to the text, figures, tables, and appendixes as necessary.

The April 10, 2009, DTSC letter also provided comments related to the Resource Conservation and Recovery Act (RCRA) unit (OU6). DTSC requested a revised "Closure Plan" for the RCRA unit to incorporate pilot and field studies proposed for that area. DTSC anticipates that the revisions to the Closure Plan will trigger Class 2 or 3 modifications to the RCRA Interim Status Hazardous Waste Facility Permit. As I briefed you during our telephone conversations, we are currently reviewing the available closure options for the RCRA unit (i.e., clean closure vs. closure with waste in place). Based on the review of the DTSC comments and our telephone conversations, we understand that modifications to the Closure Plan can be proposed at this time while the pilot and field studies are underway. However, the determination of "clean" vs. "waste in place" closure will need to be made based on the results of the studies as well as an

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AMEC Geomatrix

assessment of the risks to human health and environment that may be posed by any residual chemicals beneath the RCRA unit. Although we have already started review of this matter, development of modifications to the Closure Plan will require additional time. Therefore, I respectfully request a revised deadline of September 15 for the proposed modifications.

As you are aware, we are making good progress in implementing the work plan for the soil vapor extraction pilot study that has been approved by the DTSC. We have also started the laboratory scale testing portion of our pilot study work plan for Gaseous Electron Donor Injection Technology potentially applicable to deep soil treatment at the site. Meanwhile, we will continue our focus on expediting on-site groundwater containment through implementation of the pilot scale extraction and treatment operation that was approved by DTSC. To that end, we have finished review of the contractors' proposals and have conducted interviews to select a qualified firm. We will make that selection in the next two weeks. In addition, Energy Solutions results of characterization of the depleted uranium (DU) impact in the Areas 57 and 14 and their work plan for DU removal has been finalized and will be submitted to DTSC and the Radiological Health Branch of the California Department of Public Health shortly. In summary, we are making good progress in all areas of compliance with the DTSC order, as I regularly summarize in my monthly project progress summary reports.

Please call me at (949) 642-0245 if you need any additional information. Thank you for your continuous attention and support.

Sincerely,
AMEC Geomatrix, Inc.

Hassan Amini, Ph.D. C.HG.
Project Coordinator

cc: Eric Lardiere, Whittaker Corp; William Weaver, CDM; Jessica Donovan, ENVIRON; Paul Bergstrom, Knight Piésold; Larry Sievers, EODT; Tim Bricker, Santa Clarita L.L.C.; Megan Trend, Chubb Financial Solutions; Cindy Hunter, MariKay Fish, Julie Diebenow, AIG Insurance; Vitthal Hosangadi, NOREAS; John Carty, Zurich North America; Hal Dash, Cerrell Associates; Jeff Hogan, City of Santa Clarita; Yueh Chuang, CH2M Hill; Kathy Stryker Anderson, US Army Corps of Engineers; Robert DiPrimio, Valencia Water Company; Lynn Takaichi, and Meredith Durant, Kennedy Jenks; David Bacharowski, RWQCB; James Leserman, Castaic Lake Water Agency; Steve Cole, Newhall County Water District; Mauricio Guardado, Santa Clarita Water; Neil Elsey, Avion Holdings LLC; Alisa Lacey, Stinson Morrison Hecker LLP; Jeff O'Keefe, Department of Public Health

Castaic Lake Water Agency
Memorandum

ITEM NO. 4.1

October 1, 2009

To: CLWA Board of Directors

From: Brian J. Folsom BJF
Engineering and Operations Manager

Subject: Engineering and Operations Department Report

TREATMENT PLANT OPERATIONS AND MAINTENANCE

Completed Work:

Deliveries to the purveyors in September totaled 4,663 acre-feet (AF), for an average daily flow rate of 51 million gallons per day (MGD). September 2009 deliveries were 8.7% above September 2008 deliveries. The fiscal-year-to-date (FYTD) deliveries for FY 2009/2010 are 15,036 AF, which is 2.2% above FYTD 2008/2009. Monthly flows for 2006, 2007, 2008 and 2009 are presented in the attached table. *(FY 09/10 Action A1.1. Meet all purveyor water demands and Action B3.9: Meet all applicable water quality regulations.)*

FYTD electrical use for FY 2009/10 at the Agency's major facilities is shown in the attached "Energy Usage at Major Facilities" table and equals 2,990,433 kWh at a total cost of $343,452.77.

Inspection and maintenance activities during September included cleaning wash water return basins, chemical feed pump monthly maintenance, on-line analyzer maintenance and fabrication of clarifier screens at RVWTP.

Distribution system maintenance activities during September included preventive maintenance on air release and vacuum valves and pump outs, and exercising of valves. Grading at Sand Canyon Reservoir was completed.

Inspector Activities

Pressure recorders/data loggers readings and GPS coordinates were gathered at various points throughout the system.

Magic Mountain Pipeline/Recycled Water Pipeline Modification: Performed inspections of Security Paving's construction of the Magic Mountain Pipeline Vault Replacement.

Rio Vista Water Treatment Plant Expansion: Inspected soil borings, located underground facilities and collected GPS coordinates of existing utilities throughout jobsite.

Completed 50 dig alerts.

Work in Progress:

Maintenance of air release and vacuum valves and pump-outs throughout the distribution system continues. Ozone injector preventive maintenance is ongoing. At RVWTP, a leak was discovered near the plant water line and the area was excavated to determine the source of the leak. Repair of the leak is nearly complete. Electrical switch gear preventive maintenance and testing at all facilities continues.

Planned Actions:

Install ozone generator cooling water closed loop system. Perform repairs on plant water tank at Rio Vista Water Treatment Plant.

PERCHLORATE CONTAMINATION PROGRAM MANAGEMENT

(FY 2009/10 Action A4.1: Complete construction of the Groundwater Production Restoration Project; Action A4.2: Complete construction and startup of the Perchlorate Treatment Project; Action A4.8: Develop replacement wells for capacity lost due to perchlorate contamination.)

SUMMARY

Work continues on multiple tasks to address the groundwater contamination stemming from past manufacturing activities on the Whittaker-Bermite site. The Agency and purveyors are proceeding to restore the production capacity of the groundwater supply wells contaminated by perchlorate, while working on the objectives of containing the downgradient migration of perchlorate and recovering costs incurred in responding to the perchlorate contamination.

PERCHLORATE CONTAMINATION PROGRAM MANAGEMENT

The following table provides a status report on the activities and tasks:

Task Group	Tasks	Consultant	Status
Settlement Activities	Project Description	K/J	Complete.
	Final Settlement	K/J, Nossaman	Settlement agreement took effect on 7/13/07 with U.S. District Court approval.
DTSC Approval Activities	Remedial Investigation (RI)	K/J	DTSC approved 8/16/05.
	Feasibility Study (FS)	K/J	DTSC approved 8/16/05.
	Final Remedial Action Plan	K/J	Public hearing held 9/7/05. DTSC approved 1/20/06.
U.S. Army Corps of Engineers Feasibility Phase Study	Conceptual Hydrogeology Technical Memorandum	CH2MHill	Final distributed 1/19/05. Progress report with model construction calibration distributed 10/11/05.
DPH Approval Activities (97-005)	Source Water Assessment	B&V, CE	Received comments on revised document from DPH 4/27/06.
	Effective Monitoring and Treatment	B&V, CE, CH2MHill	Received comments on revised document from DPH 4/27/06.
	Water Quality Investigation	B&V, CE	Received comments on revised document from DPH 4/27/06.
	Human Health Risk	B&V	Received comments on revised document from DPH 4/27/06.
	Source Protection Plan	B&V	Received comments on revised document from DPH 4/27/06.

Task Group	Tasks	Consultant	Status
	Alternatives Evaluation	B&V, CE	Received comments on revised document from DPH 5/10/06. Revised document will be returned to DPH with Engineer's Report.
	Engineers Report	B&V	Final submitted to DPH 1/29/09.
	CEQA	B&V	Mitigated Negative Declaration certified 9/14/05.
	Operations and Maintenance Report	K/J	Staff is reviewing K/J draft report submitted on 8/19/09.
	Permit Application	B&V	Will be submitted with documents.
	Public Hearing	B&V	Will take place upon approval of all documents.
	DPH Evaluation and Permit	B&V	Awaiting response from DPH.
Implementation Activities	Easements and Right of Way	K/J	Easement and right-of-way acquisition completed 1/08.
	Treatment Project	K/J	Project is 96% complete.
	Pipeline Project	K/J	Project is 98% complete.
	Well Rehabilitation	SCP/GPC	General Pump completed the rehabilitation work on 2/3/09 and installed the new pumps.
	Start-up and Monitoring	K/J	Scheduled fall 2009.
	Sentinel Wells	Environ	Wells have been installed. Disposal of investigation derived wastes awaits results of laboratory analyses.

The monthly Technical Committee Meeting was held on September 9, 2009. The next Technical Committee Meeting is scheduled for October 13, 2009. The next Whittaker-Bermite Multi-Jurisdictional Task Force meeting is scheduled for December 9, 2009. A ribbon cutting event was held at the new Perchlorate Treatment Facility on September 22, 2009.

FINANCIAL STATUS

The Settlement Agreement among CLWA, the purveyors, Whittaker-Bermite and insurance carriers is in effect. Reimbursement requests have been submitted and payments have been made for expenses through July 31, 2009.

CAPITAL IMPROVEMENT PROJECTS

Sand Canyon Pipeline and Reservoir

Completed Work:

Nye and Nelson, Inc. completed construction work on July 31, 2009. The Agency approved the Certificate of Acceptance for the project on August 26, 2009 and recorded the Notice of Completion on September 2, 2009.

Work In Progress:

Construction contract is in close-out phase.

Planned Actions:

Close out project and process final payment to contractor.

Rio Vista Water Treatment Plant Expansion

(FY 2009/10 Action B1.26: Complete construction of the RVWTP Expansion Project.)

Completed Work:

The contractor has installed the foundation rebar for the new washwater return basin and the formwork for a portion of the chlorine building walls. The contractor has also constructed a portion of the ozone injection sample stations and prepared the subgrade for the new clarifier structure.

Work In Progress:

The contactor is working on the remaining submittals and Kennedy/Jenks Consultants (K/J) is reviewing the submitted submittals. The contractor is installing the formwork for the chlorine building walls and preparing the clarifier structure area for rebar installation. The contractor is also installing electrical duct banks.

Planned Actions:

The contractor will continue to prepare and submit his construction submittals and K/J will continue to review them. Construction activities will continue.

Modification to MWDSC Foothill Feeder Connection

(FY 2009/10 Action B1.25: Complete construction of the permanent raw water connection to MWDSC's Foothill Feeder pipeline.)

Completed Work:

The connection agreement has been executed. The 60% design submittal has been completed.

Work in Progress:

MWDSC and staff are reviewing the 60% submittal.

Planned Actions:

MWDSC and staff will be submitting comments to K/J for action.

Honby Parallel Phase II

(FY 2009/10 Action B1.3: Complete design of the Honby Parallel Pipeline Phase 2; Action B1.24: Complete construction of the Honby Parallel Pipeline Phase 2.)

Completed Work:

The City has approved the pipeline alignment and geotechnical data.

Work in Progress:

Permits, license agreements and easements are in the process of being acquired. K/J is revising the plans and specifications to address LADWP comments.

Planned Actions:

Complete and submit the traffic control plans to the City for approval. Mail notification letters to businesses along the project route to inform them of the project. Acquire permits, license agreement and easements. Submit the revised plans and specifications to LADWP.

RVWTP Relocate Entrance Gate and Security Kiosk

(FY 2009/10 Action B6.2: Complete design of RVWTP entrance gate and security kiosk relocation.)

Completed Work:

Lee & Ro completed the PDR.

Work In Progress:

Staff is in the process of requesting Board approval of the final design services.

Planned Actions:

Start final design.

RVWTP Warehouse and Storage Facilities

(FY 2009/10 Action B1.16: Complete design of the RVWTP Maintenance Facility Expansion Project.)

Completed Work:

Lee & Ro completed the preliminary plans.

Work in Progress:

Staff is reviewing the preliminary plans.

Planned Actions:

Staff will meet with Lee & Ro to discuss staff's comments to the preliminary plans.

ESFP Chemical Storage and Delivery

Completed Work:

SoCal Pacific Construction completed 99% of the construction contract. Remaining work was evaluated and credits and liquidated damages were issued as deductive contract change orders. Notice of Completion for the project was recorded in the Los Angeles County Recorder's Office on August 20, 2009 and the final payment was released on September 30, 2009.

ESFP Chemical Storage and Delivery

(Continued from previous page...)

Work in Progress:

Construction contract is in closeout phase.

Planned Actions:

Agency staff will complete the remaining construction items.

ESFP Drainage and Paving Improvements

(FY 2009/10 Action B1.23: Complete construction of the ESFP Drainage and Paving Improvements Project.)

a) Planning and Preliminary Design for ESFP Drainage and Paving Improvements.

b) ESFP Ozone Injection Station Canopy, Lighting and Pavement Improvements.

Completed Work:

a) Notice to Proceed was issued to Civiltec Engineering, Inc. on November 13, 2008. Civiltec completed topographic survey, subsurface investigations, initial Base Map and submitted the Geotechnical Investigation Report and a draft of a Preliminary Design Report. On September 30, 2009, Civiltec submitted recommended alternatives for discussion.

b) Design drawings have been completed.

Work in Progress:

a) Civiltec Engineering, Inc. is finalizing the recommendations for a Preliminary Design Report draft.

b) The specifications are being finalized.

Planned Actions:

a) Staff will review the proposed design alternatives.

b) Advertise the project for construction bids.

ESFP Railing and Platform Modifications

(FY 2009/10 Action B2.16: Complete modifications of the ESFP railings and platforms.)

Completed Work:

The topographic survey has been completed. Construction drawings for the railing and platform improvements at washwater basin are being finalized. The design of railing and platform improvements at filter gallery was added to the project scope in April 2009. Hilts Consulting Group, Inc. collected and reviewed record drawings information and conducted field investigations and provided 90% submittals plans and specifications for staff review and comments.

Work in Progress:

Hilts Consulting Group is reviewing the comments and modifying the plans and specifications.

ESFP Railing and Platform Modifications

(Continued from previous page...)

Planned Actions:

On October 5, 2009, meet with the consultant to field verify proposed design details. Consultant anticipates submitting final plans and specifications for staff review and approval in October 2009.

Recycled Water Program Phase II

(FY 2009/10 Action B1.27: Complete design and construct Recycled Water Program Phase II.)

Completed Work:

The draft initial study for Phase 2A has been completed. The draft evaluation for the old Honby Pump Station has been completed. The draft design has been completed for the installation of inspection access structures for the old Honby Pipeline.

Work in Progress:

Staff is reviewing the draft initial study for Phase 2A and the draft evaluation of the old Honby Pump Station for Phase 2B. K/J is analyzing potential recycled water facilities near Lost Canyon for Phase 2B. Staff is reviewing the draft design of the inspection access structures for the old Honby Pipeline.

Planned Actions:

Complete the draft environmental documentation for Phase 2A. Finalize the evaluation of the old Honby Pump Station.

Kennedy/Jenks Consultants' General Engineering Services Work Authorization

During September, K/J assisted the Agency staff with various engineering tasks including coordinating with the Los Angeles County Sanitation District regarding the treatment and availability of recycled water at the Saugus Water Reclamation Plant and coordinating with Civiltec Engineering, Inc. on the development of the water system hydraulic model and the system emergency storage study.

FACILITY CAPACITY FEES

(Goal C1.: Fairness Doctrine - Apply all costs using the Fairness Doctrine by applying costs to those who benefit from an expenditure and ensuring that existing and future users will pay their fair share.)

Completed Work:

During September, 20 new certificates were issued and $145,894 was collected in facility capacity fees, representing approximately 11.7 acre-feet of water demand. For the fiscal year, 54 new certificates have been issued and $1,129,853 has been collected in developer impact fees representing 100.26 acre-feet of water demand.

Attachments

CASTAIC LAKE WATER AGENCY

SWP Water Deliveries to Purveyors (Acre-Feet)

2006	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SCWC	807	775	428	545	1,603	2,051	2,648	2,410	2,183	1,495	1,267	936	17,146
VWC	821	875	622	887	1,736	2,050	2,360	1,412	1,614	1,574	1,327	1,035	16,313
NCWD	490	347	158	245	589	454	828	625	647	464	597	455	5,898
LACo	68	75	52	55	113	146	178	161	143	112	105	81	1,289
Total	2,186	2,072	1,260	1,732	4,041	4,701	6,013	4,608	4,586	3,644	3,295	2,508	**40,646**
Cum. YTD	2,186	4,258	5,518	7,250	11,291	15,992	22,005	26,613	31,199	34,843	38,138	40,646	
Cum. FYTD	26,700	28,772	30,032	31,763	35,804	**40,505**	6,013	10,622	15,207	18,852	22,146	24,654	
2007	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
SCWC	984	684	1,217	1,423	2,023	2,370	2,732	2,773	2,229	1,906	1,403	926	20,669
VWC	983	640	1,212	908	1,871	2,003	2,046	1,857	1,767	1,428	1,270	922	16,906
NCWD	436	185	397	578	712	586	765	910	630	443	420	418	6,478
LACo	83	63	92	102	137	151	174	168	138	122	107	69	1,406
Total	2,485	1,572	2,918	3,012	4,742	5,110	5,717	5,707	4,764	3,899	3,200	2,334	**45,459**
Cum. YTD	2,485	4,056	6,974	9,986	14,729	19,838	25,555	31,262	36,026	39,925	43,125	45,459	
Cum. FYTD	27,139	28,711	31,629	34,641	39,383	**44,493**	5,717	11,424	16,188	20,087	23,286	25,621	
2008	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
SCWC	764	707	1,203	1,273	1,795	2,333	2,446	2,283	2,064	2,044	1,162	638	18,712
VWC	815	583	1,631	1,443	1,640	1,845	2,159	1,761	1,577	1,419	1,000	547	16,419
NCWD	414	300	270	344	505	640	767	671	505	493	302	217	5,427
LACo	56	53	92	116	134	158	167	163	144	127	82	62	1,353
Total	2,049	1,642	3,196	3,175	4,074	4,975	5,539	4,879	4,290	4,083	2,546	1,465	**41,912**
Cum. YTD	2,049	3,692	6,887	10,062	14,136	19,111	24,650	29,529	33,819	37,901	40,447	41,912	
Cum. FYTD	27,670	29,312	32,508	35,683	39,757	**44,732**	5,539	10,418	14,708	18,790	21,336	22,801	
2009	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
SCWC	910	367	1,106	1,448	2,135	1,896	2,073	2,300	2,032	0	0	0	14,267
VWC	518	364	923	1,242	1,135	996	2,102	2,063	2,011	0	0	0	11,353
NCWD	242	132	210	415	467	427	937	599	477	0	0	0	3,904
LACo	75	38	73	102	134	121	152	149	143	0	0	0	986
Total	1,744	901	2,312	3,207	3,870	3,440	5,263	5,110	4,663	0	0	0	**30,510**
Cum. YTD	1,744	2,645	4,957	8,164	12,034	15,474	20,737	25,847	30,510	30,510	30,510	30,510	
Cum. FYTD	24,545	25,446	27,758	30,965	34,835	**38,275**	5,263	10,373	15,036	15,036	15,036	15,036	

10/1/2009

CASTAIC LAKE WATER AGENCY

Recycled Water Deliveries to Purveyors (Acre-Feet)

2006	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SCWC													0
VWC	14	16	6	12	42	66	75	63	67	33	20	12	427
NCWD													0
LACo													0
Total*	14	16	6	12	42	66	75	63	67	33	20	12	**426**
Cum. YTD	14	30	36	48	90	156	231	294	361	394	414	426	
Cum. FYTD	284	300	306	318	360	**426**	75	142	209	242	262	274	
2007	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
SCWC													0
VWC	17	14	43	38	58	63	78	67	55	37	25	7	501
NCWD													0
LACo													0
Total*	17	14	43	38	58	63	78	67	55	37	25	7	**501**
Cum. YTD	17	32	74	112	170	233	311	378	433	469	494	501	
Cum. FYTD	291	306	348	386	444	**507**	78	133	187	224	249	256	
2008	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
SCWC													0
VWC	4	11	39	37	56	34	26	63	44	38	4	1	358
NCWD													0
LACo													0
Total*	4	11	39	37	56	34	26	63	44	38	4	1	**358**
Cum. YTD	4	16	54	92	147	182	208	271	315	353	357	358	
Cum. FYTD	260	271	310	348	403	**438**	26	89	133	171	175	176	
2009	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
SCWC													0
VWC	8	3	24	39	30	46	71	59	17	0	0	0	298
NCWD													0
LACo													0
Total*	8	3	24	39	30	46	71	59	17	0	0	0	**298**
Cum. YTD	8	11	35	74	104	150	221	280	298	298	298	298	
Cum. FYTD	184	187	211	250	280	**326**	71	88	105	105	105	105	

10/1/2009

FY 2009/10
Energy Usage at Major Facilities

Service Date From	Service Date To	Usage kWh Total	Usage kVarh Total	Total $ Amount
Earl Schmidt Intake Pump Station				
07/01/09	07/29/09	4,008	4,302	$489.20
07/29/09	08/27/09	7,226	10,163	$6,311.53
		Total		**$6,800.73**
Earl Schmidt Filtration Plant				
07/01/09	07/28/09	118,668	89,844	$12,575.44
07/28/09	08/26/09	124,925	97,018	$13,573.19
		Total		**$26,148.63**
Honby Pump Station				
07/01/09	07/22/09	0		$67.28
07/22/09	08/20/09	0		$94.80
		Total		**$162.08**
Recycled Water Meter				
07/01/09	07/10/09	10,987	4,197	$1,617.58
07/10/09	08/10/09	37,110	14,067	$5,325.10
		Total		**$6,942.68**
Rio Vista Intake Pump Station				
07/01/09	07/29/09	578,750	206	$73,917.27
06/29/09	07/29/09			$10.00
07/29/09	08/27/09	632,506	142,890	$80,482.94
		Total		**$154,410.21**
Rio Vista Water Treatment Plant				
07/01/09	07/29/09	183,775		$15,847.44
07/29/09	08/27/09	190,833		$16,335.09
		Total		**$32,182.53**
Sand Canyon Pump Station				
07/01/09	07/29/09	467,599	168,661	$53,803.10
07/29/09	08/27/09	574,056	202,627	$63,002.81
				$116,805.91
	TOTAL	**2,930,443**		**$343,452.77**

Castaic Lake Water Agency News Release
September 14, 2009

NEWS RELEASE
DATE: September 14, 2009
FOR IMMEDIATE RELEASE

CONTACT: Dan Masnada (661) 297-1600 ext. 239
Brian Folsom (661) 297-1600 ext. 270

CASTAIC LAKE WATER AGENCY

CLWA TO CELEBRATE COMPLETION OF PROJECT TO RESTORE GROUNDWATER PRODUCTION CAPACITY IMPACTED BY PERCHLORATE CONTAMINATION

The Castaic Lake Water Agency (CLWA), in partnership with the CLWA Santa Clarita Water Division, Newhall County Water District, Valencia Water Company and the City of Santa Clarita, will be holding an event celebrating completion of a project to restore groundwater production capacity impacted by perchlorate contamination and stop migration of a contaminant plume emanating from the former Whittaker-Bermite site in the center of the Santa Clarita Valley. The event is scheduled for Tuesday, September 22, 2009 at 9:30 a.m. at CLWA Rio Vista Intake Pump Station (RVIPS) located at 26401 Bouquet Canyon Road. The RVIPS is the stucco building to the left of In-N-Out Burger near Lowe's Home Improvement Warehouse.

After years of negotiations and studies, regulatory agencies, property owners and water suppliers agreed on the process to clean up ammonium perchlorate contaminating a portion of the local groundwater basin. The contamination is a result of manufacturing and storing explosives, fireworks and munitions over 50 years at the approximate 996 site.

The project to restore the well production capacity and mitigate the migration of the perchlorate plume began in 2007. Pumping and treatment operations will occur on a continuous basis over a number of decades. The affected groundwater will be pumped from two existing wells through a dedicated underground pipeline to the new perchlorate treatment plant located at CLWA's RVIPS. The project will remove the perchlorate from the pumped groundwater using ion exchange technology. The treated groundwater will then be disinfected and pumped into the CLWA distribution system.

Other activities on the project include continual monitoring of the wells and further characterization of the groundwater contamination to ensure migration of the contaminate plume is fully contained. The entire process will be overseen by State regulatory agencies to ensure public health and safety. The successful completion of the project would not be possible without the mutual cooperation of many parties in addition to the four water agencies and the City, including the U.S. Army Corps of Engineers, California Department of Public Health, California Department of Toxic Substances Control, Los Angeles County Department of Public Works, community groups, Whittaker Corporation, and numerous consultants, contractors, and suppliers.

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Friends of Santa Clara River v. Castaic Lake Water Agency
Cal.App. 5 Dist.,2004.

Court of Appeal, Fifth District, California.
FRIENDS OF the SANTA CLARA RIVER et al.,
Plaintiffs and Appellants,
v.
CASTAIC LAKE WATER AGENCY et al.,
Defendants and Respondents.
No. F043273.

Sept. 22, 2004.
Rehearing Denied Oct. 14, 2004.

Background: Nonprofit corporations petitioned for writ of mandate against water districts and agencies alleging an urban water management plan was adopted in violation of the Urban Water Management Planning Act (UWMP Act). The Superior Court of Kern County, No. 245365,Richard J. Oberholzer, entered judgment denying the writ. Corporations appealed.

Holding: The Court of Appeal, Cornell, J., held that plan's description of the reliability of groundwater was inadequate because of the failure to address timing issues related to perchlorate contamination.

Reversed and remanded.

West Headnotes

[1] Waters and Water Courses 405 196

405 Waters and Water Courses
405IX Public Water Supply
405IX(A) Domestic and Municipal Purposes
405k196 k. Purity of Water and Protection Thereof from Pollution or Diversion. Most Cited Cases
The role of an appellate court in reviewing an administrative record for a prejudicial abuse of discretion under the Urban Water Management Planning Act (UWMP Act) is precisely the same as the role of the superior court and, therefore, the lower court's findings of fact and conclusions of law are not binding on the appellate court. West's Ann.Cal.Water Code § 10651.

[2] Waters and Water Courses 405 196

405 Waters and Water Courses
405IX Public Water Supply
405IX(A) Domestic and Municipal Purposes
405k196 k. Purity of Water and Protection Thereof from Pollution or Diversion. Most Cited Cases
Under the Urban Water Management Planning Act (UWMP Act), a water plan's description of the reliability of the groundwater supplied from a formation and an aquifer was inadequate because of the failure to address timing issues related to perchlorate contamination; simply stating that a treatment technology was available and that a groundwater treatment plan was being developed, without discussing when the plan would need to be implemented and the amount of time needed for its implementation, left a temporal gap in the description of the reliability of the water source, which rendered the UWMP legally inadequate. West's Ann.Cal.Water Code § 10631(c).
See 63 Cal.Jur.3d, Water, § 1131.
****625** Law Offices of Stephan C. Volker, Stephan C. Volker, San Francisco, and Gretchen E. Dent, San Jose, for Plaintiffs and Appellants.
Horvitz & Levy, Encino, William N. Hancock, San Francisco, Jon B. Eisenberg, Encino; McCormick, Kidman & Behrens, Russell G. Behrens and David D. Boyer, Costa Mesa, for Defendants and Respondents Castaic Lake Water Agency and Santa Clarita Water Company.
Gatzke Dillon & Ballance, Mark J. Dillon, Carlsbad, Michael S. Haberkorn and Heather S. Riley for Defendant and Respondent Valencia Water Company.

***3 OPINION**

CORNELL, J.
Friends of the Santa Clara River and the Sierra Club appeal from the denial of their petition for writ of mandate alleging an urban water management plan for parts of the Santa Clarita Valley was adopted in violation of the Urban Water Management Planning

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Act (UWMP Act), ****626**Water Code section 10610 et seq.[FN1] Among the many grounds for reversal asserted is ***4** the failure of the urban water management plan to assess the reliability of the water supply obtained from two layers of an aquifer contaminated with perchlorate.

FN1. All further statutory references are to the version of the Water Code in effect during 2000 unless otherwise indicated.

Certain aspects of the urban water management plan concerning the effects of perchlorate contamination on the groundwater supply can be summarized as follows. If there is a dry stretch, the districts plan to take more water from the Saugus Formation. If the perchlorate contamination impairs the supply of water taken from the Saugus Formation in dry years, the districts plan to restore full production capacity by treating the contaminated water. While the treatment facilities are being built, the districts have no plan to cover the reduction in water available from the Saugus Formation.

Thus, the plan's description of the perchlorate contamination and the method for addressing that contamination is flawed because it fails to (1) address the time needed to implement the available method for treating the contaminated water and (2) describe the reliability of the groundwater supply during that implementation period. As this gap in the reliability analysis is sufficient for reversal, we do not address the other challenges to the adoption of the plan.[FN2]

FN2. The failure to address the other challenges should not give rise to any inference as to their merit.

FACTUAL AND PROCEDURAL SUMMARY

I. Parties

Friends of the Santa Clara River is a nonprofit corporation organized under the laws of the State of California in 1993. Some of its members reside within the subject service area and are ratepayers. The Sierra Club is a nonprofit corporation formed under the laws of the State of California in 1892. These parties are referred to collectively as plaintiffs.

Castaic Lake Water Agency (CLWA) is a public agency created and governed by the uncodified Castaic Lake Water Agency Law. (Stats.1962, 1st Ex.Sess., ch. 28, § 1, p. 208, reprints at 72A West's Ann. Wat.-Appen. (1999 ed.) § 103-1 et seq., p. 487.) CLWA was formed to provide a supplemental supply of imported water to the water purveyors of the Santa Clarita Valley. Its area of wholesale water service covers approximately 195 square miles. CLWA contracts with California's Department of Water Resources for water from the State Water Project (SWP) and other sources, treats those supplies at its treatment plants, and delivers the treated water to water retailers within its area.

***5** Newhall County Water District (Newhall) is a district formed by election under California's County Water District Law (§ 30000 et seq.). Newhall is a retail water purveyor serving an area of approximately 34 square miles and supplies groundwater pumped from wells supplemented by imported water purchased from CLWA. At the end of 1999, Newhall served approximately 6,758 connections, i.e., accounts.[FN3]

FN3. On May 20, 2004, Newhall filed a request for withdrawal of its brief that did not explain the reason for the request but acknowledged that if withdrawal was granted, this court, in accordance with California Rules of Court, rule 17(a)(2), would decide the appeal based on the record, the opening brief, the briefs of the other defendants, and oral argument.

Santa Clarita Water Company (SCWC) is a California corporation and retailer of ****627** water. SCWC's service area includes portions of the City of Santa Clarita and unincorporated areas of Los Angeles County in the communities of Saugus, Canyon Country and Newhall. SCWC supplies water from groundwater wells and imported water purchased from CLWA.[FN4]At the end of 1999, SCWC served approximately 21,100 connections.

FN4. The relationship between CLWA and SCWC was, at one time, more than that of wholesaler and retailer. (See *Klajic v. Castaic Lake Water Agency* (2001) 90 Cal.App.4th 987, 109 Cal.Rptr.2d 454 [writ of mandate sought to compel CLWA to

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divest itself of its ownership of all stock of SCWC].)

Valencia Water Company (VWC) is a California corporation and retailer of water. VWC's service area is approximately 25 square miles and includes portions of the City of Santa Clarita, the community of Valencia, and the unincorporated areas of Castaic and Stevenson Ranch. VWC supplies water from groundwater wells and imported water purchased from CLWA. At the end of 1999, VWC served approximately 20,865 connections.

CLWA, Newhall, SCWC and VWC are referred to collectively as defendants.

Defendants jointly caused the preparation of the 2000 Urban Water Management Plan (UWMP) under the UWMP Act to cover the service area of CLWA.

II. Sources of Water for the Santa Clarita Valley

Historically, the Santa Clarita Valley obtained its water supply from an underground water basin, or aquifer, that is about 84 square miles and is divided into an upper and lower level. The shallow level, called the Alluvial Aquifer, underlies the Santa Clara River and its tributaries. Water from this layer is obtained from wells up to 200 feet deep. Beneath the Alluvial Aquifer is a deeper layer of groundwater called the Saugus Formation. Water from the Saugus Formation is pumped from wells extending to approximately 2,000 feet in depth.

***6** Based on historical production, the UWMP estimates (1) the Alluvial Aquifer will supply 30,000 to 40,000 acre-feet per year in normal weather years and 30,000 to 35,000 acre-feet per year in dry years, and (2) the Saugus Formation will supply 7,500 to 15,000 acre-feet per year in normal weather years and 11,000 to 15,000 acre-feet per year in dry years. At the time the UWMP was adopted, groundwater from the aquifer accounted for approximately 54 percent of the water supplied in the CLWA service area.

Since 1980, imported water from the SWP has supplemented local supplies to meet community water requirements. CLWA owns three entitlements to water from the SWP that total 95,200 acre-feet per year.[FN5] In 1966, CLWA entered into a contract with the SWP for 41,500 acre-feet of water per year. In the 1980's, CLWA purchased an entitlement to 12,700 acre-feet per year of SWP water from a Kern County water district. In 1999, CLWA acquired an entitlement to 41,000 acre-feet per year of SWP water from the Kern County Water Agency and its member district, Wheeler Ridge-Maricopa Water Storage District.[FN6]

FN5. This annual contractual entitlement represented about 2.3 percent of the 4.2 million acre-feet per year the SWP was contracted to deliver to 29 contracting agencies. The California Department of Water Resources' contractual obligations to deliver water through the SWP, and the reliability of the delivery, is discussed in greater detail in *Planning & Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 908, footnote 5, 100 Cal.Rptr.2d 173.

FN6. The agreement for the acquisition is described in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (2002) 95 Cal.App.4th 1373, 1375, 116 Cal.Rptr.2d 54.

****628 III. Proposal and Adoption of the UWMP**

On Wednesday, November 22, 2000, defendants released a draft of the UWMP to the public for review and comment. CLWA indicated that public comments would be accepted only if received by it by 6:00 p.m., December 7, 2000.

The general manager of the United Water Conservation District sent a comment letter that expressed concerns about (1) the way the UWMP's draft presented existing and future water supplies, (2) reliance on groundwater banking projects that were unavailable to CLWA or years away from operation, and (3) the uncertainty of how the Saugus Formation will react to the higher levels of pumping proposed. In particular, the letter states:

"In the legislation concerning Urban Water Management Plans, agencies are asked to consider existing and future sources of water. This is particularly useful to those using the Plan, since supply shortfalls can be recognized and future

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projects can be identified to supplement the existing sources of water. ***7** Our largest concern is that the draft of the Plan tends to combine existing sources with future potential sources so that it is difficult to establish where you are now and where you need to go. Thus, it is difficult to determine the present state of the supply and the timing of need for specific future projects. An example, which we will explain in more detail below, is the listing of various out-of-area storage projects as part of the year 2000 water supply (e.g., Figure 1-12). This approach implies that these projects are needed now (they are not) and that they could supply water to [CLWA] now (they cannot)."

On December 6, 2000, defendants conducted a joint public hearing concerning the UWMP. On December 20, 2000, the boards of the defendant water agencies held a joint meeting and approved the UWMP. CLWA submitted the UWMP to the California Department of Water Resources, and the submission was completed on February 5, 2001.

IV. Lawsuit

On April 23, 2001, plaintiffs filed a verified petition for writ of mandate challenging defendants' approval of the UWMP based on alleged violations of the UWMP Act and the public trust doctrine. The County of Ventura also filed a petition for writ of mandate challenging defendants' approval of the UWMP. The two petitions were consolidated into a single case and transferred to the Kern Superior Court.

Plaintiffs' cause of action based on the public trust doctrine was dismissed without leave to amend as a result of demurrers filed by defendants. Plaintiffs' cause of action based on violations of the UWMP Act was heard on the merits by the superior court on January 21, 2003, and February 4, 2003.

On April 8, 2003, the superior court filed an "Order and Findings: Statement of Decision" in which it denied the petitions for writ of mandate.[FN7] Defendants filed memoranda of costs. Defendants CLWA and SCWC jointly requested costs in the amount of $59,179.04. Defendant VWC claimed $8,416.78 in costs. Plaintiffs filed a motion to tax costs that challenged the recovery of certain costs related to the preparation of the administrative record, [FN8]****629** such as "the cost of copies, including Bates stamping ($49,203.77), offsite duplication ($132.84 and $430.45), binders ($1,175.84, $421.53 and ***8** $177.49), and [VWC's] administrative record charges ($4,191.31)." [FN9] The superior court heard the motion to tax costs on July 1, 2003, and awarded CLWA and SCWC costs in the amount of $55,469.72 and awarded VWC costs in the amount of $6,575.06.

FN7. The County of Ventura did not appeal from the denial of its petition.

FN8. The administrative record of proceedings submitted to the superior court was organized into 37 three-ring binders and contained 17,766 pages.

FN9. The invoice from Whitmont Legal Copying, Inc., to counsel for CLWA and SCWC in the amount of $49,203.77 for copies and Bates labeling appears to cover the production of 16 copies of the administrative record. After subtracting the $1,065.96 charged to generate and apply the Bates labels, the average cost per page for the copies of the administrative record came to approximately 16.93 cents (($49,203.77 $1,065.96) (17,766 pages 16 copies) = $0.16934 per page).

Subsequently, judgment was entered in favor of defendants and plaintiffs appealed.

DISCUSSION

In 1983, the Legislature adopted the UWMP Act to promote the active management of urban water demands and efficient water usage in order to protect the people of the state and their water resources. (Stats.1983, ch. 1009, § 1, p. 3556.) To achieve the goal of water conservation and efficient use, urban water suppliers are required to develop water management plans that include long-range planning to ensure adequate water supplies to serve existing customers and future demands for water. (§ 10610.2, subds.(d) & (e).) The plans must consider a 20-year time horizon (§ 10631, subd. (a)) and must be updated "at least once every five years on or before December 31, in years ending in five and zero" (§ 10621, subd. (a)). The UWMP Act requires plans to address specific issues. (§§ 10631, 10632 & 10633.) It also sets forth the procedural steps that urban water

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suppliers must follow when preparing, reviewing, and amending their plans. (§§ 10640-10645; see generally Waterman, *Addressing California's Uncertain Water Future By Coordinating Long-Term Land Use and Water Planning: Is A Water Element in the General Plan the Next Step?*(2004) 31 Ecology L.Q. 117, 162-166 [overview of the UWMP Act].)

I. Standard of Review

In a mandate proceeding to review the decision of a public agency to adopt an urban water management plan, the standard of our review is set forth in section 10651, which provides:

"In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse ***9** of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence."

Although no published decision has applied section 10651, the statutory language is similar to Public Resources Code section 21168.5, which applies to some of the mandamus proceedings brought under the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq.

[1] The role of an appellate court in reviewing an administrative record for a "prejudicial abuse of discretion" under section 10651 is precisely the same as the role of the superior court and, therefore, the lower court's findings of fact and conclusions of law are not binding on the appellate court. (See ****630***San Joaquin Raptor /Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722, 32 Cal.Rptr.2d 704 [review conducted under Pub. Resources Code, § 21168.5].)

Plaintiffs contend that the defendants "ha[ve] not proceeded in a manner required by law" as that phrase is used in section 10651 and thus have prejudicially abused their discretion in adopting the UWMP. In particular, plaintiffs claim the UWMP does not comply with section 10631 because it (1) erroneously conflates existing sources with planned sources, (2) improperly characterizes supplies that are merely potential as "planned sources of water available to the supplier" (§ 10631, subd. (b)), and (3) fails to evaluate adequately the reliability of existing sources of water, such as groundwater from the aquifers and imported water from the SWP. Plaintiffs also contend that many of the findings of fact made in the UWMP are not supported by substantial evidence.

Defendants argue that all of the deficiencies alleged by plaintiffs are merely claims that the weight of the evidence does not support the conclusions of the agencies. As it is not our function to reweigh the evidence, but to determine if there is substantial evidence to support the findings of the UWMP, the plaintiffs must fail if there is such substantial evidence. Defendants claim that such substantial evidence exists in the record. Defendants also seem to imply that since the UWMP is subject to modification at any time and must be reviewed every five years (§ 10621, subd. (a)), any deficiency is not prejudicial.

II. Reliability of Groundwater Sources and Perchlorate Contamination

Plaintiffs have raised a number of issues concerning the discussion in the UWMP regarding the quantity and quality of available groundwater. Some of the issues relate to the perchlorate contamination of the groundwater.

****10 A. Testimony Regarding Perchlorate Contamination***

To support their claims concerning the inadequacy of the UWMP's discussion of perchlorate contamination, plaintiffs cite the following testimony given before the Public Utilities Commission by Steven B. Bachman, a geologist employed by the primary water wholesaler in the County of Ventura who also does consulting work for the County of Ventura.

"There is a significant area of perchlorate contamination to the east of the wells that pump from the Saugus Aquifer. The perchlorate has seeped into the Saugus Aquifer and has flowed westward towards the wells, shutting down 25 percent of the total Saugus Aquifer wells. [¶] ... [¶]

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"The extent of the perchlorate contamination in the Saugus Aquifer is not yet known, largely because there is a lack of wells to monitor west of well VWC No. 157.... Perchlorate that is still in the soils at the contamination site will be 'a long-term source of contamination' that will continue to reach the aquifers as rains and runoff push the contaminants in the soil into the groundwater system.... [¶] ... [¶]

"The concentration of perchlorate in the production wells probably represents the leading edge of a much larger plume of higher concentrations of perchlorate. The total area of the Saugus Aquifer contaminated by the perchlorate has yet to be fully defined. We do know that the contaminant has migrated a minimum of 2 miles through the subsurface and over land to contaminate the vital pumping areas. (Exhibit 23.) Since the groundwater gradients in the contaminated area in the Saugus are towards ****631** the west, the contaminant is likely to continue to migrate further west and northwest. Time of travel from the soil contamination sites to the deep Saugus wells implies that the contaminant has been moving between 1 to 3 feet per day within the Saugus Aquifer. This implies that the perchlorate could impact [VWC's] well No. 201 as early as next year. Further down gradient is [VWC's] well No. 160."

Also, Richard D. McJunkin, a senior hydrogeologist with the California Department of Toxic Substances Control, testified that increased pumping of water from wells near the contamination site will accelerate the flow of the perchlorate contamination.

B. Contents of UWMP

Perchlorate contamination is discussed in chapters 1, 2 and 6 of the UWMP. Chapter 1 of the UWMP is titled Introduction and Summary. Section 1.6 of the UWMP describes the water supply, including groundwater taken ***11** from both layers of the underground water basin. Section 1.6A. of the UWMP contains the following summary of the quality of the groundwater:

"Groundwater quality can be compromised by the presence of contaminants. Perchlorate was recently discovered in Saugus Formation groundwater at a site formerly occupied by an industry located in the area. Wells found exceeding the legal limit of this contaminant were shut down, and a groundwater cleanup plan is being developed using proven treatment methods which can restore full production capability."

Chapter 2 of the UWMP is titled "Water Supply Resources." The introductory paragraphs in that chapter contain the following statements about groundwater and perchlorate contamination:

"There is a range of opinion about issues such as the annual yield capability from groundwater basins. Accordingly, the [UWMP] recognizes that active management of resources may be necessary to achieve the projected supply. A number of management activities are thus described in this chapter, such as a water treatment program to remove perchlorates from the Saugus Formation. Many similar programs have been successfully implemented, including the water recharge and water quality management programs of groundwater in Orange County, which in recent years have enhanced the annual yield from this important source of local supply. Although there are water supply and water quality issues to be addressed in relation to groundwater supplies, the availability of active management options to address these issues creates a high probability that the annual yields discussed in this chapter can be sustained."

The "water treatment program to remove perchlorates from the Saugus Formation" is described subsequently in section 2.1A. of the UWMP as follows:

"In addition to [total dissolved solids] concerns, water quality problems have been observed in Southern California recently that could affect groundwater supply availability, in particular, the local discovery of perchlorate. Perchlorate is used in the manufacture of solid rocket propellants, munitions, and fireworks, and can be treated and removed from groundwater. Aerojet has implemented biological treatment in Rancho Cordova, California and is re-injecting the treated water into the ground. The California Department of Health Services has not yet approved biological treatment for a drinking water end use.

****632** "An ion exchange process has also been developed that successfully treats and removes

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perchlorate. This process is called the continuous ion exchange ***12** system. The system has been successfully piloted at Jet Propulsion Laboratory and at a location in Main San Gabriel Basin. The treatment cost for this process is about $300 per acre-foot excluding the cost of brine disposal. Discussions are currently underway with the owners of the property identified as the source of the local contamination on groundwater cleanup. No perchlorate has been detected in Alluvial Aquifer wells to date, although some has been detected in monitoring wells located on the contaminating site."

These two paragraphs and the above quoted statement from the introductory materials are the only mention of perchlorate contamination in chapter 2 of the UWMP and its effect on the reliability or availability of water supplied from the aquifers.

Chapter 4 of the UWMP is titled Reliability Planning and does not mention perchlorate contamination or describe its effect on the reliability of the aquifers as a source of groundwater.

The description in chapters 1 and 2 of the UWMP of perchlorate contamination and its impact on the supply of water from the underground water basin can be summarized as follows: (1) An unspecified number of wells in the Saugus Formation have been shut down because of perchlorate contamination; (2) perchlorate has not been found in supply wells in the Alluvial Aquifer but has been found in monitoring wells on the contaminating site; (3) perchlorate contamination in water can be treated with an ion exchange process at a cost of over $300 per acre-foot; (4) defendants and the owners of the site contaminated with perchlorate are discussing groundwater cleanup; and (5) available options to address the perchlorate issues create a high probability that the annual yields discussed in the UWMP can be sustained.[FN10]

> FN10. Section 6.4 of the UWMP summarizes the earlier discussion of the perchlorate contamination as follows: "The recent detection of perchlorate in the Saugus Formation is an example of prior contamination due to industrial chemical processes. The few wells affected have been shut down, effective treatment technologies have been developed, and a plan is being worked out to remove the contamination from the groundwater."

C. Matters Not Discussed in the UWMP

The UWMP mentions "a groundwater cleanup plan ... being developed" (UWMP, § 1.6A.) to address the perchlorate contamination, but it does not mention what stage of development has been reached or how much longer it will take to complete and implement that plan.[FN11] Assuming the length of time ***13** needed to implement the plan is uncertain, the UWMP does not describe the factors that have caused that uncertainty.[FN12]

> FN11. As a result of the failure to describe the timing, the UWMP also does not describe plans to replace contaminated sources with alternative sources of water until the treatment option is implemented. (See § 10631, subd. (c).)

> FN12. For example, implementation of the ion exchange process may be subject to review under CEQA because the disposal of the brine created by that process may have a significant environmental impact and the CEQA review process would increase the amount of time needed to implement the treatment process.

Timing considerations of other aspects of the perchlorate contamination also affect the reliability of the supply of groundwater. For instance, the UWMP does not ****633** state how fast the perchlorate contamination is spreading in either the Saugus Formation or the Alluvial Aquifer, how far it might reach within the 20-year period covered by the UWMP, or how the rate of migration is affected by factors, such as the increased use of Saugus Formation in dry years. To the extent that the answers to these timing issues are uncertain, the UWMP does not discuss how this uncertainty affects the reliability of the supply of groundwater. More specifically, the UWMP does not state how it reached the implicit determination that the quantities of groundwater set forth in the UWMP met the reliability criterion of 90 percent, i.e., there was a 90 percent level of certainty that those amounts would be available.[FN13]

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FN13. Section 1.7A. of the UWMP states that "The [reliability] criterion set for this [UWMP] is that there must be a water supply sufficient to meet projected demands 90 percent of the time, or in 18 out of the next 20 years."

The lack of information in the UWMP regarding how long it would take to implement the ion exchange process to treat perchlorate contaminated water pumped from the Saugus Formation or the Alluvial Aquifer stands in contrast to figure 1-14 in the UWMP, which sets forth a program implementation schedule for other programs related to water supply, such as (1) drilling new wells in the Saugus Formation (feasibility-six months, design-three months, construction & permitting-nine months), (2) negotiating water transfer agreements (15 months), (3) water recycling, (4) water banking programs, and (5) desalination.

D. The UWMP Did Not Comply with Section 10631

Section 10631 specifies some of the mandatory contents of an urban water management plan. Under subdivision (b) of section 10631, a plan shall "[i]dentify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over ... five-year increments" to 20 years or as far as data is available. Subdivision (c) of section 10631 provides:

"Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of ***14** the following: [¶] (1) An average water year. [¶] (2) A single dry water year. [¶] (3) Multiple dry water years.

"For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable."

Plaintiffs contend the UWMP fails to comply with section 10631 in that it does not evaluate adequately the reliability of the Saugus Formation and the Alluvial Aquifer as sources of water because the UWMP understates the perchlorate contamination and ignores the migration of that contamination.

When any water source may not be available at a consistent level of use, the UWMP must describe plans to replace that source with alternative sources. (§ 10631, subd. (c).) In this case, the Saugus Formation and Alluvial Aquifer may be sources that are not available at a consistent level because of the environmental and water quality concerns raised by the perchlorate contamination. Furthermore, the implementation of a process to treat water pumped from those sources cannot be implemented instantaneously. If the decision to implement a water treatment process is not made until a dry year has begun or until after the start of multiple ****634** dry years, the reliability of the water supply available during those dry periods could be affected significantly.

[2] Accordingly, we conclude that the UWMP's description of the reliability of the groundwater supplied from the Saugus Formation and Alluvial Aquifer is inadequate under subdivision (c) of section 10631 because of the failure to address timing issues related to the perchlorate contamination.[FN14] Simply stating that a treatment technology is available and that a groundwater treatment plan is being developed without discussing when the plan may need to be implemented and the amount of time needed for its implementation leaves a temporal gap in the description of the reliability of the water source. This gap renders the UWMP legally inadequate.

FN14. This holding can be restated in the language of section 10610.2, subdivision (d) as follows. Because of the failure to address the timing issues, the UWMP does not show that the defendants have made "every effort to ensure the appropriate level of reliability in [their] water service sufficient to meet the needs of [their] various categories of customers during normal, dry, and multiple dry years." (*Ibid.*)

***15** Without a reliable analysis of the availability of water, the UWMP is fatally flawed. The public and the various governmental entities that rely on the UWMP may be seriously misled by it and, if the wrong set of circumstances occur,[FN15] the consequences to those who relied on the UWMP, as well as those who share a water supply with them,

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could be severe. The ability to modify and review the plan does not overcome the initial failure.

> FN15. Those circumstances could include a prolonged drought, increased reliance on groundwater from the Saugus Formation, accelerated spread of the perchlorate contamination within the formation, and problems or delays in implementing the ion exchange.

The judgment must be reversed as defendants did not proceed in a manner required by law in their preparation of the UWMP, thus prejudicially abusing their discretion. (§ 10651.)

III. Recoverable Costs

As the judgment against plaintiffs will be reversed, we need not address the issues raised in connection with their attack on the costs awarded to defendants, such as whether defendants were entitled to recover the expense incurred for *additional* copies of the administrative record (see Cal. Administrative Mandamus (Cont.Ed.Bar 3d ed. 2003) Recoverable Costs, § 10.15, pp. 360-361 (5/04)).

DISPOSITION

The judgment is reversed and the matter is remanded to the superior court with directions to grant the petition for a writ of mandate vacating defendants' approval of the 2000 Urban Water Management Plan. Friends of the Santa Clara River and Sierra Club shall recover their costs on appeal from Castaic Lake Water Agency, Santa Clarita Water Company and Valencia Water Company. Newhall County Water District's request to withdraw its respondent's brief is granted.

WE CONCUR: VARTABEDIAN, Acting P.J., and BUCKLEY, J.
Cal.App. 5 Dist.,2004.
Friends of Santa Clara River v. Castaic Lake Water Agency
123 Cal.App.4th 1, 19 Cal.Rptr.3d 625, 34 Envtl. L. Rep. 20,118, 04 Cal. Daily Op. Serv. 9281, 2004 Daily Journal D.A.R. 12,676

END OF DOCUMENT

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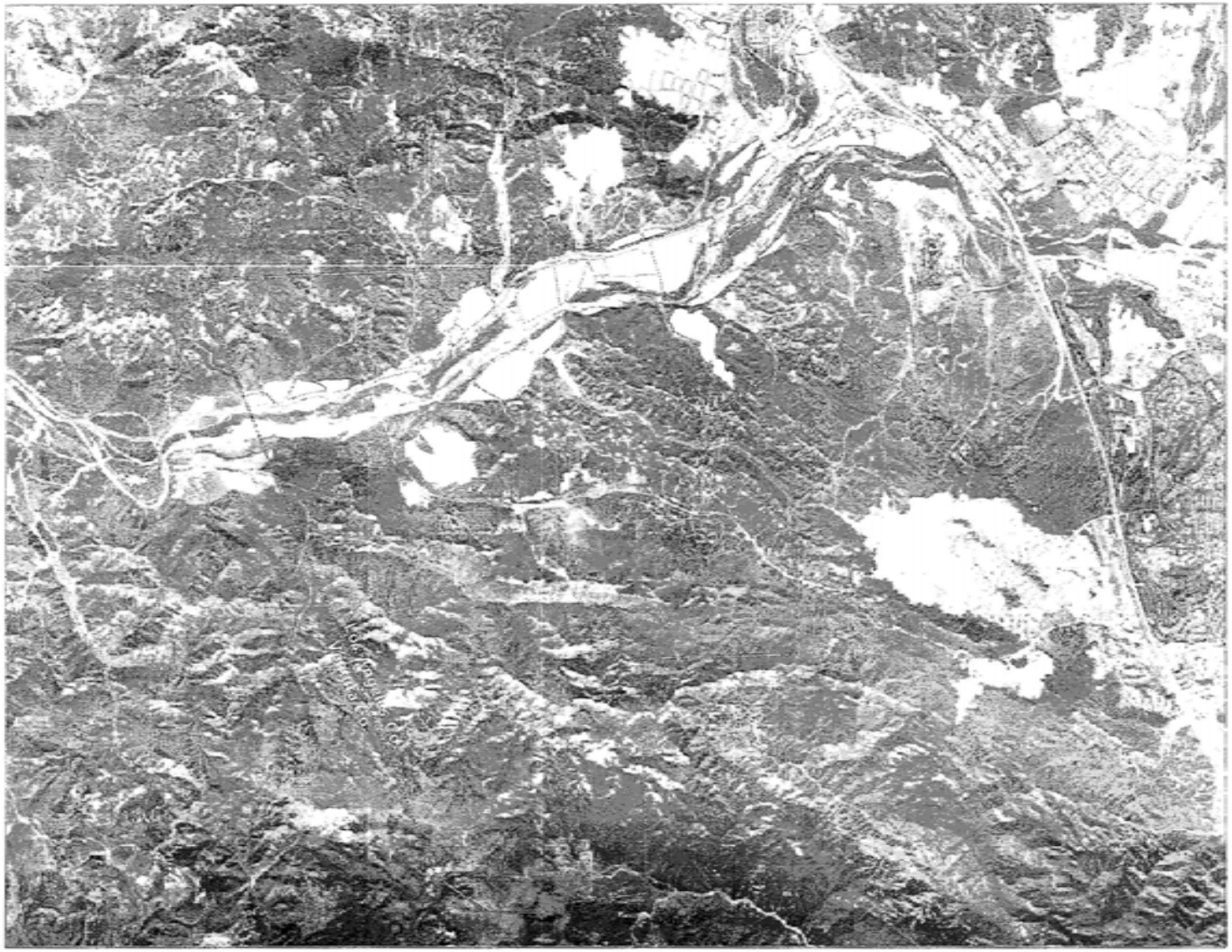
Retired Irrigated Farmland – Landmark Village Tentative Tract Map No. TR53108



L E G E N D

..... Newhall Ranch Specific Plan Boundary

Irrigated Agricultural Lands - NRSP

Irrigated Agricultural Lands - outside NRSP

FORMA

Newhall Land Historically Irrigated Agricultural Areas within Los Angeles County

RETIRED IRRIGATED FARMLAND – LANDMARK VILLAGE
Tentative Tract Map No. TR53108
County Project No. 00-196
2008

The Newhall Land and Farming Company (Newhall) has submitted an application to Los Angeles County for approval of the Landmark Village Vesting Tentative Tract Map No. 53108, which is the first tentative map within the Newhall Ranch Specific Plan. As part of the approval of the Specific Plan in 2003, the County required the following Specific Plan mitigation measure (Mitigation Measure 4.11-22):

> "4.11-22. Beginning with the filing of the first subdivision map allowing construction on the Specific Plan site and with the filing of each subsequent subdivision map allowing construction, the Specific Plan applicant, or its designee, shall provide documentation to the County of Los Angeles identifying the specific portion(s) of irrigated farmland in the County of Los Angeles proposed to be retired from irrigated production to make agricultural water available to serve the subdivision. As a condition of subdivision approval, the applicant, or its designee, shall provide proof to the County that the agricultural land has been retired prior to issuance of building permits for the subdivision."

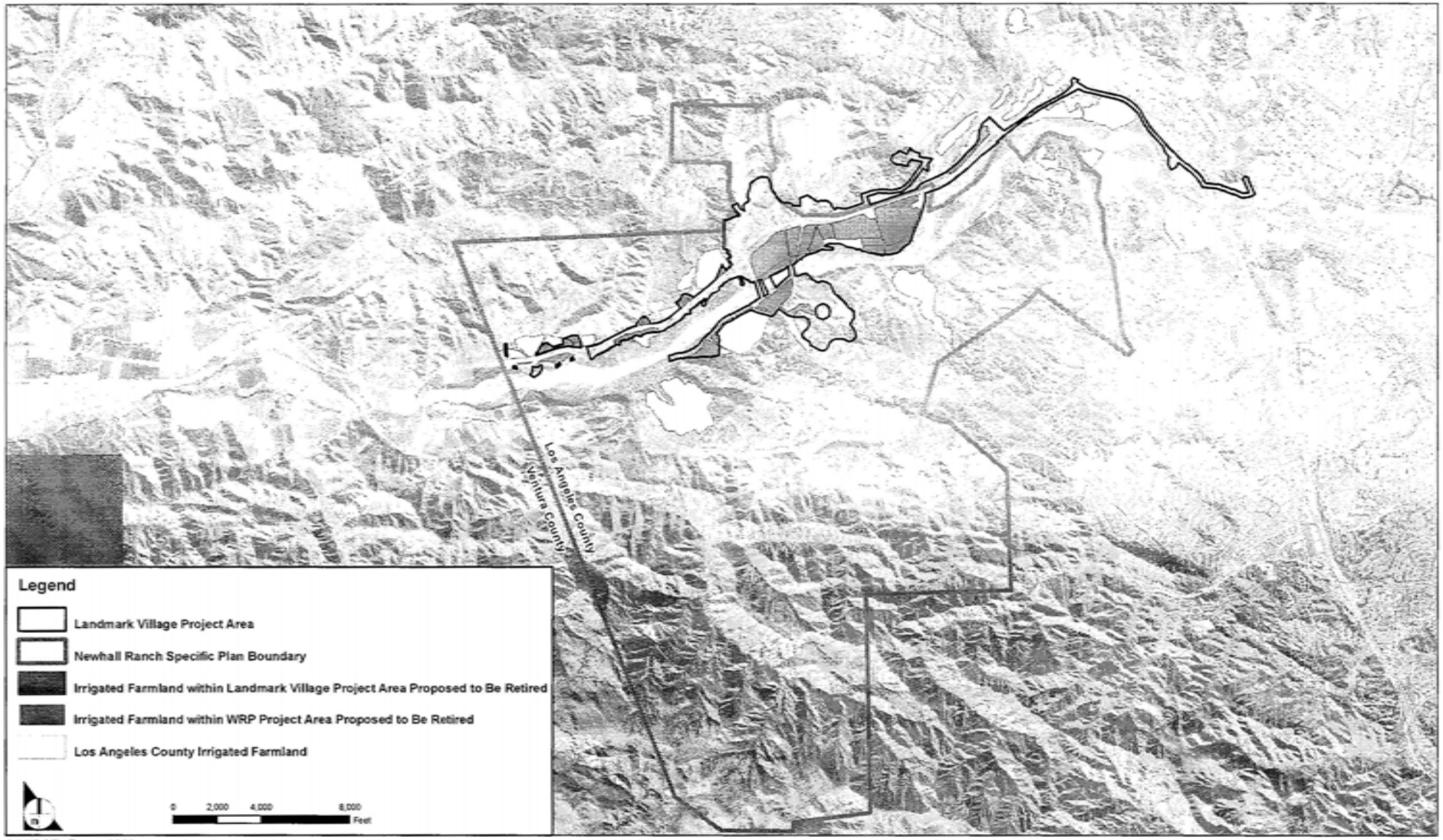
The attached illustration, entitled "Exhibit A - Newhall Ranch Irrigated Farmland Proposed to Be Retired - Landmark Village / WRP," shows irrigated agricultural lands on and near the Specific Plan site, including Landmark Village and the site for the Newhall Water Reclamation Plant (WRP). [1] In association with the Landmark Village project, Newhall proposes to retire irrigated agricultural lands on the Landmark Village site. As shown on Exhibit B entitled, "Landmark Village Irrigated Farmlands to be Retired," this action would allow for the transfer of 2,940 acre-feet per year (afy) of groundwater historically and presently used for irrigation on the Landmark Village site to the Municipal and Industrial (M&I) uses. As also shown on Exhibit B, another 141 afy would be available for M&I uses proposed for the Specific Plan site. As a result of this land conversion, a total of 3,080 afy would be transferred to proposed M&I uses on the

[1] The Newhall Water Reclamation Plant is not part of the Landmark Village project. It is a previously approved project that will serve the Newhall Ranch Specific Plan. It is being addressed in this report because the development of the WRP site will also result in the transfer of agricultural land to WRP uses and, hence, result in the transfer of agricultural water to M&I uses.

Specific Plan site, including the Landmark Village project and the WRP. As shown, the potable water demand for the Landmark Village project is 608 acre-feet per year (afy). The potable water demand for the WRP is 13 afy. After subtracting these demands from the total amount of water that would become available once the agricultural land on the Landmark Village site and WRP site is retired, a total of 6,417 afy will still be available to future subdivision maps on the Specific Plan site.

Prior to the issuance of building permits for the Landmark Village project, Newhall, or its designee, will provide evidence that irrigated agricultural land on the Landmark Village site has been retired to make agricultural water available to serve the subdivision.

Exhibits A and B



SOURCE: Forma 2003

Exhibit A

Newhall Ranch Irrigated Farmland Proposed to Be Retired - Landmark Village / WRP

EXHIBIT B
LANDMARK VILLAGE
IRRIGATED FARMLANDS TO BE RETIRED

(Mitigation Measure 4.11-22)
(all numbers in acre feet)

Proposed Subdivision	A Starting Agricultural Water Supply Available for Conversion to Potable	B Location of Agricultural Fields to be Retired	Types of Planted Crops Retired	C Retired Fields Water Useage	D Subdivision Potable Water Demand	E Ending Agricultural Water Supply Available for Next Subdivision (A-D)
1 Landmark Village TTM 53108*	7038	See Exhibit A	Alfalfa, sudan/pasture,	2940	608	6430
2 WRP	6430	See Exhibit A	Leased vegetables	141	13	6417
Total All Projects				3080	621	

RETIRED IRRIGATED FARMLAND – MISSION VILLAGE
Tentative Tract Map No. TR61105
County Project No. 04-181
2008

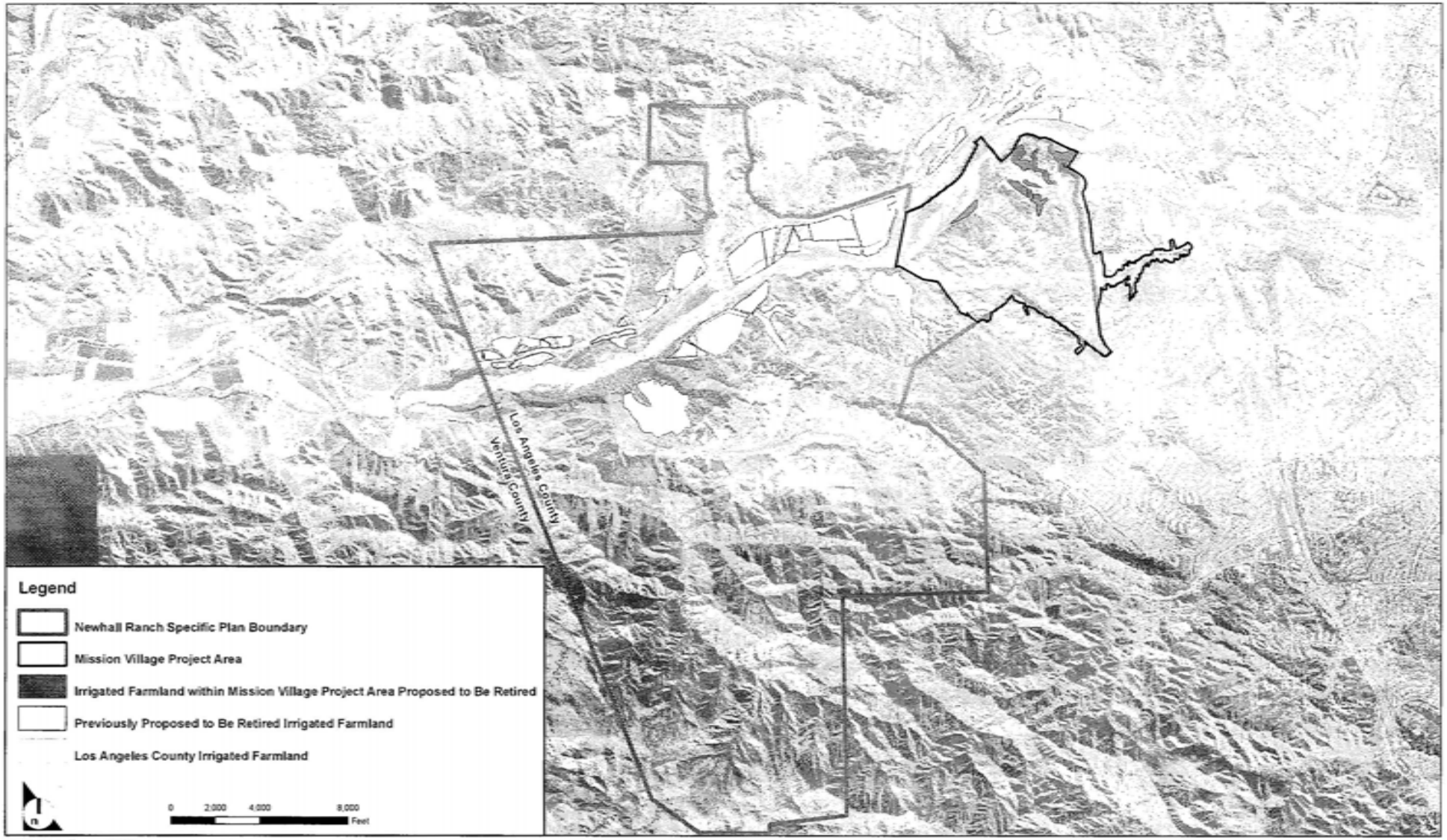
The Newhall Land and Farming Company (Newhall) has submitted an application to Los Angeles County for approval of the Mission Village Vesting Tentative Tract Map No. 61105, which is the second tentative map within the Newhall Ranch Specific Plan. As part of the approval of the Specific Plan in 2003, the County required the following Specific Plan mitigation measure (Mitigation Measure 4.11-22):

> "4.11-22. Beginning with the filing of the first subdivision map allowing construction on the Specific Plan site and with the filing of each subsequent subdivision map allowing construction, the Specific Plan applicant, or its designee, shall provide documentation to the County of Los Angeles identifying the specific portion(s) of irrigated farmland in the County of Los Angeles proposed to be retired from irrigated production to make agricultural water available to serve the subdivision. As a condition of subdivision approval, the applicant, or its designee, shall provide proof to the County that the agricultural land has been retired prior to issuance of building permits for the subdivision."

The attached illustration, entitled "Exhibit A - Newhall Ranch Irrigated Farmland Proposed to Be Retired - Mission Village," shows irrigated agricultural lands on and near the Specific Plan site, including Mission Village. In association with the Mission Village project, Newhall proposes to retire irrigated agricultural lands on the Mission Village site. As shown on Exhibit B entitled, "Mission Village Irrigated Farmlands to be Retired," this action would allow for the transfer of 529 acre-feet per year (afy) of groundwater historically and presently used for irrigation on the Mission Village site to the Municipal and Industrial (M&I) uses for the Specific Plan site. As shown, the potable water demand for the Mission Village project is 1,961 afy. After subtracting this demand from the total amount of water that would become available once the agricultural land on the Mission Village site is retired, a total of 4,456 afy will still be available to future subdivision maps on the Specific Plan site.

Prior to the issuance of building permits for the Mission Village project, Newhall, or its designee, will provide evidence that irrigated agricultural land on the Mission Village site has been retired to make agricultural water available to serve the subdivision.

Exhibits A and B



SOURCE: Forma 2003

Exhibit A

Newhall Ranch Irrigated Farmland Proposed to Be Retired - Mission Village

EXHIBIT B
MISSION VILLAGE
IRRIGATED FARMLANDS TO BE RETIRED

(Mitigation Measure 4.11-22)
(all numbers in acre feet)

Proposed Subdivision	A Starting Agricultural Water Supply Available for Conversion to Potable	B Location of Agricultural Fields to be Retired	Types of Planted Crops Retired	C Retired Fields Water Useage	D Subdivision Potable Water Demand	E Ending Agricultural Water Supply Available for Next Subdivision (A-D)
1 Landmark Village TTM 53108*	7038	See Exhibit A	Alfalfa, sudan/pasture,	2940	608	6430
2 WRP *	6430	See Exhibit A	Leased vegetables	141	13	6417
3 Mission Village	6417	See Exhibit A	Leased vegetables	529	1961	4456
Total All Projects				3610	2582	

* Landmark + WRP Potable Demand is 621 afy

RETIRED IRRIGATED FARMLAND – HOMESTEAD VILLAGE
Tentative Tract Map No. TR060678
2008

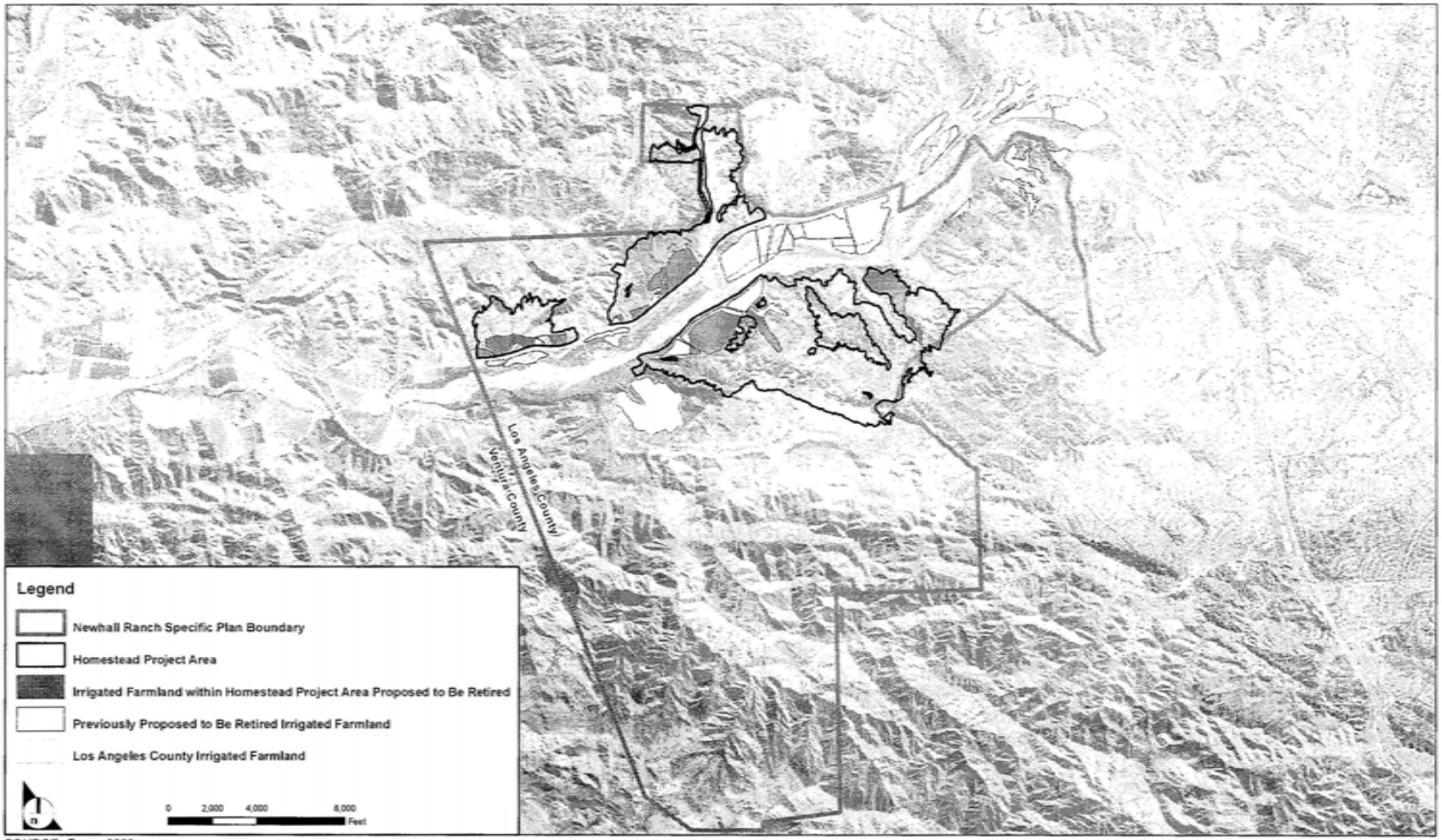
The Newhall Land and Farming Company (Newhall) has submitted an application to Los Angeles County for approval of the Homestead Village Vesting Tentative Tract Map No. 060678, which is the third tentative map within the Newhall Ranch Specific Plan. As part of the approval of the Specific Plan in 2003, the County required the following Specific Plan mitigation measure (Mitigation Measure 4.11-22):

> "4.11-22. Beginning with the filing of the first subdivision map allowing construction on the Specific Plan site and with the filing of each subsequent subdivision map allowing construction, the Specific Plan applicant, or its designee, shall provide documentation to the County of Los Angeles identifying the specific portion(s) of irrigated farmland in the County of Los Angeles proposed to be retired from irrigated production to make agricultural water available to serve the subdivision. As a condition of subdivision approval, the applicant, or its designee, shall provide proof to the County that the agricultural land has been retired prior to issuance of building permits for the subdivision."

The attached illustration, entitled "Exhibit A - Newhall Ranch Irrigated Farmland Proposed to Be Retired - Homestead Village," shows irrigated agricultural lands on and near the Specific Plan site, including Homestead Village. In association with the Homestead Village project, Newhall proposes to retire irrigated agricultural lands on the Homestead Village site. As shown on Exhibit B entitled, "Homestead Village Irrigated Farmlands to be Retired," this action would allow for the transfer of 1,726 acre-feet per year (afy) of groundwater historically and presently used for irrigation on the Homestead Village site to the Municipal and Industrial (M&I) uses for the Specific Plan site. As shown, the potable water demand for the Homestead Village project is 2,462 afy. After subtracting this demand from the total amount of water that would become available once the agricultural land on the Homestead Village site is retired, a total of 1,994 afy will still be available to future subdivision maps on the Specific Plan site.

Prior to the issuance of building permits for the Homestead Village project, Newhall, or its designee, will provide evidence that irrigated agricultural land on the Homestead Village site has been retired to make agricultural water available to serve the subdivision.

Exhibits A and B



SOURCE: Forma 2003

Exhibit A

Newhall Ranch Irrigated Farmland Proposed to Be Retired - Homestead

EXHIBIT B
HOMESTEAD
IRRIGATED FARMLANDS TO BE RETIRED

(Mitigation Measure 4.11-22)
(all numbers in acre feet)

Proposed Subdivision	A Starting Agricultural Water Supply Available for Conversion to Potable	B Location of Agricultural Fields to be Retired	Types of Planted Crops Retired	C Retired Fields Water Useage	D Subdivision Potable Water Demand	E Ending Agricultural Water Supply Available for Next Subdivision (A-D)
1 Landmark Village TTM 53108*	7038	See Exhibit A	Alfalfa, sudan/pasture,	2940	608	6430
2 WRP *	6430	See Exhibit A	Leased vegetables	141	13	6417
3 Mission Village	6417	See Exhibit A	Leased vegetables	529	1961	4456
4 Homestead **	4456	See Exhibit A	Leased vegetables	1726	2462	1994
Total All Projects				5336	5044	

* Landmark + WRP Potable Demand is 621 afy

** Homestead potable demand reflects the 13 afy of WRP which is accounted for separately in line #2 above.

CLWA, February 24, 2010, Letter from CLWA (Dan Masnada) to County of Los Angeles (Mitch Glaser)

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By

CASTAIC LAKE WATER AGENCY

February 24, 2010

Mr. Mitch Glaser
Los Angeles County
Department of Regional Planning
320 West Temple Street
Los Angeles, California 90012

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APRIL JACOBS

Re: Castaic Lake Water Agency Additional Information on Comments on the One Valley One Vision, Draft Environmental Impact Report

Dear Mr. Glaser:

The Castaic Lake Water Agency (CLWA) is the provider of imported water to the Santa Clarita Valley. The CLWA service area covers most of the proposed project area and the determination of water demand and availability for CLWA's service area is addressed in the 2005 Santa Clarita Valley Urban Water Management Plan (UWMP) prepared by CLWA and the local water retailers. As such, CLWA has an interest in Santa Clarita Valley water issues and previously submitted a letter in response to the Draft Environmental Impact Report (DEIR) on the One Valley One Vision (OVOV) plan.

In an October 28, 2009 letter, CLWA commented on the Water Resources section of the DEIR. CLWA stated that it would be revising its comments after the California Department of Water Resources (DWR) updated its 2007 State Water Project SWP Delivery Reliability Report. On January 26, 2010, DWR released its Draft 2009 SWP Delivery Reliability Report.

The 2009 draft report shows reductions in average water deliveries when compared to the 2007 report which, in turn, shows reductions in SWP deliveries from the 2005 report that was used to prepare the 2005 UWMP. The 2007 report shows current SWP annual Table A deliveries averaging 63% of the maximum contract amount of 4,133 thousand acre-feet (taf) per year (CLWA's portion of this total is 95,200 af). The 2009 draft report shows a corresponding value of 60%. The 2007 report projects an annual average of 66% to 69% for the future condition, whereas the updated 2009 draft report uses 60% for all years 2009 through 2029. Conversely, the annual deliveries during drier conditions are projected to be slightly higher than estimated in the 2007 report.

Attached is a revised estimate of the water supply projections for all of the scenarios in the 2005 UWMP, which incorporate the results of the 2009 draft report. The chart includes additional sources of supply that CLWA has identified since the 2005 UWMP. These include water from Newhall Land sources in Kern County and recycled water that will be generated by the Newhall Ranch Water Reclamation Plant and utilized by the Newhall Ranch development (Newhall Ranch projected demand is included in the 2005 UWMP).

The attached charts represent a reasonable estimate of the available supplies for the CLWA service area. ***The charts show that, for the demand projected in the 2005 UWMP, the supply would be adequate for all scenarios and all years through 2030.*** The 2030 scenarios in the 2005 UWMP used a population projection of 428,209 for the CLWA service area. The DEIR should consider this projected number in its demand analysis in relation to the 460,000 to 485,000 residents reflected in the OVOV Plan buildout population in the DEIR Project Description.

The demand figures in the updated 2005 UWMP charts have not been adjusted to reflect the recent passage of SB 7X-7. This law requires that CLWA and the local retailers demonstrate a per capita water reduction of 10% in 2015 and 20% by 2020. The 2005 UWMP includes a 10% conservation factor through the year 2030. The 2010 UWMP will address a number of projected demand scenarios including one that reflects the impact of the 20%-conservation-by-2020 legislation.

Additionally, the updated 2005 UWMP charts do not incorporate demands or supplies for the OVOV planning area that are outside of the CLWA service area and which constitute part of the 460,000 to 485,000 population projection cited above. Analysis of these demands and supplies should be performed independent of CLWA's updated 2005 UWMP charts.

While the 2009 draft report reflects the most current information on SWP reliability, it may be subject to revision as a result of the public review process. Additionally, the Biological Opinions that were the primary reason for the reductions in SWP supply reliability are subject to change due to ongoing legal challenges and new scientific information given to the resource agencies responsible for the Biological Opinions. Such changes that may occur in the future would require that the attached charts be revised and appropriate revisions made in the County's planning and environmental documents.

CLWA appreciates the efforts of the County and the City of Santa Clarita on the OVOV plan update and the DEIR and looks forward to assisting you in providing information for the DEIR. If you have any questions, please contact Jeff Ford, Senior Water Resources Planner, at (661) 513-1281 or by e-mail at jford@clwa.org.

Sincerely,

Dan Masnada
General Manager

Attachments

cc: Paul Brotzman, City of Santa Clarita
Jason Smisko, City of Santa Clarita
Steve Cole, Newhall County Water District
Robert DiPrimio, Valencia Water Company
Mauricio Guardado, Santa Clarita Water Company
Adam Ariki, Los Angeles County Waterworks District #36
Tom Worthington, Impact Sciences, Inc.

Table 5-1 Summary of Current and Planned Water Supplies and Banking Programs(1)						
Water Supply Sources	Supply (af)					
	2007	2010	2015	2020	2025	2030
Existing Supplies (1)						
Wholesale (Imported)	61,800	75,787	75,787	74,407	74,407	74,407
SWP Table A Supply (2)	57,120	57,120	57,120	57,120	57,120	57,120
Buena Vista-Rosedale	0	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	0	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA) (3)	4,680	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County) (3) (4)	0	1,380	1,380	0	0	0
Local Supplies						
Groundwater	*40,000*	*46,000*	*46,000*	*46,000*	*46,000*	*46,000*
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000	35,000
Saugus Formation	5,000	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	103,500	123,487	123,487	122,107	122,107	122,107
Existing Banking Programs (3)						
Semitropic Water Bank (5)	50,870	50,870	0	0	0	0
Rosedale-Rio Bravo (7)	64,898	64,898	64,898	64,898	64,898	64,898
Semitropic Water Bank Newhall Land (8)	0	18,828	18,828	18,828	18,828	18,828
Total Existing Banking Programs	115,768	134,596	83,726	83,726	83,726	83,726
Planned Supplies (1)						
Local Supplies						
Groundwater	*0*	*10,000*	*10,000*	*20,000*	*20,000*	*20,000*
Restored wells (Saugus Formation)	0	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	0	10,000	10,000	10,000
Recycled Water - CLWA (6)	0	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	0	1,500	2,500	3,500	5,400
Total Planned Supplies	0	10,000	13,100	28,800	34,500	41,100
Planned Banking Programs (3)						
Additional Planned Banking	0	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	0	20,000	20,000	20,000	20,000

1. The values shown under "Existing Supplies" and "Planned Supplies" are supplies projected to be available in average/normal years. The values shown under "Existing Banking Programs" and "Planned Banking Programs" are total amounts currently in storage.
2. SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available, based on Tables 6-12 and 6-13 of DWR's "State Water Project Delivery Reliability Report 2009". Year 2030 figure is calculated by multiplying by DWR's 2029 percentage of 60%. Figures shown in red represent changes from the 2005 UWMP due to the Draft State Water Project Delivery Reliability Report 2009. Figures shown in blue are additional sources of supply identified since the 2005 UWMP.
3. Supplies shown are total amounts that can be withdrawn, and would typically be used only during dry years. Each water bank has annual limitations on withdrawals that are reflected in Tables 5-3 and 5-4.
4. Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).
5. Supplies shown are the total amount currently in storage, and would typically be used only during dry years. Once the current storage amount is withdrawn, this supply would no longer be available and in any event, is not available after 2013.
6. Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.
7. CLWA has 64,898 af of recoverable water as of 12/31/09 in the Rosedale-Rio Bravo Water Banking and Recovery Program.
8. Supplies shown are the total amounts currently in storage. As of December 31, 2009, there is 18,828 af of water stored in the Semitropic Groundwater Storage Bank by The Newhall Land and Farming Company for the Newhall Ranch Specific Plan. The stored water can be extracted from the bank in dry years in amounts up to 4,950 afy. Newhall Ranch is located within the CLWA service area.

Table 5-2 Projected Average/Normal Year Supplies and Demands					
	Supply (af)				
Water Supply Sources	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	69,727	69,727	69,727	69,727	69,727
SWP Table A Supply (1)	57,120	57,120	57,120	57,120	57,120
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land (6)	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA) (2)	0	0	0	0	0
Flexible Storage Account (Ventura County) (2)	0	0	0	0	0
Local Supplies					
Groundwater	46,000	46,000	46,000	46,000	46,000
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	117,427	117,427	117,427	117,427	117,427
Existing Banking Programs					
Semitropic Water Bank (2)	0	0	0	0	0
Rosedale-Rio Bravo (2)	0	0	0	0	0
Semitropic Water Bank – Newhall Land (2)	0	0	0	0	0
Total Existing Banking Programs	0	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	0	0	0	0	0
Restored wells (Saugus Formation) (2)	0	0	0	0	0
New Wells (Saugus Formation) (2)	0	0	0	0	0
Recycled Water - CLWA (3)	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	0	3,100	8,800	14,500	21,100
Planned Banking Programs					
Additional Planned Banking (2)	0	0	0	0	0
Total Planned Banking Programs	0	0	0	0	0
Total Existing and Planned Supplies and Banking	117,427	120,527	126,227	131,927	138,527
Total Estimated Demand (w/o conservation) (4)	100,050	109,400	117,150	128,400	138,300
Conservation (5)	(8,600)	(9,700)	(10,700)	(11,900)	(12,900)
Total Adjusted Demand	91,450	99,700	106,450	116,500	125,400

1. SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by 60%.
2. Not needed during average/normal years.
3. Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.
4. Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area are not included.
5. Assumes 10 percent reduction on urban portion of total demand resulting from conservation best management practices, as discussed in CLWA's 2005 UWMP, Chapter 7.
6. Figures shown in red represent changes from the 2005 UWMP due to the Draft State Water Project Delivery Reliability Report 2009. Figures shown in blue are additional sources of supply identified since the 2005 UWMP.

Table 5-3 Projected Single-Dry Year Supplies and Demands					
	Supply (af)				
Water Supply Sources	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	25,331	26,283	25,855	26,807	27,759
SWP Table A Supply (1)	6,664	7,616	8,568	9,520	10,472
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County)(2)	1,380	1,380	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	74,531	75,483	75,055	76,007	76,959
Existing Banking Programs					
Semitropic Water Bank (3)	17,000	0	0	0	0
Rosedale-Rio Bravo (5)	20,000	20,000	20,000	20,000	20,000
Semitropic Water Bank – Newhall Land (10)	4,950	4,950	4,950	4,950	4,950
Total Existing Banking Programs	41,950	24,950	24,950	24,950	24,950
Planned Supplies					
Local Supplies					
Groundwater	10,000	10,000	20,000	20,000	20,000
Restored wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water - CLWA (4)	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	10,000	13,100	28,800	34,500	41,100
Planned Banking Programs					
Additional Planned Banking (6)	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	20,000	20,000	20,000	20,000
Total Existing and Planned Supplies and Banking	126,481	133,533	148,805	155,457	163,009
Total Estimated Demand (w/o conservation) (7) (8)	110,100	120,300	128,900	141,200	152,100
Conservation (9)	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

1. SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of single dry year deliveries projected to be available on Tables 6-4 and 6-13 of DWR's "State Water Project Delivery Reliability Report 2009". Year 2030 figure is calculated by multiplying by DWR's 2029 percentage of 11%. Figures shown in red represent changes from the 2005 UWMP due to the Draft State Water Project Delivery Reliability Report 2009. Figures shown in blue are additional sources of supply identified since the 2005 UWMP.
2. Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).
3. The total amount of water currently in storage is 50,870 af, available through 2013. Withdrawals of up to this amount are potentially available in a dry year, but given possible competition for withdrawal capacity with other Semitropic banking partners in extremely dry years, it is assumed here that about one third of the total amount stored could be withdrawn.
4. Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.
5. CLWA has 64,898 af of recoverable water as of 12/31/09 in the Rosedale-Rio Bravo Water Banking and Recovery Program.
6. Assumes additional planned banking supplies available by 2014.
7. Assumes increase in total demand of 10 percent during dry years.
8. Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area are not included.
9. Assumes 10 percent reduction on urban portion of total normal year demand resulting from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in CLWA's 2005 UWMP, Chapter 7.
10. Delivery of stored water from the Newhall Land Semitropic Groundwater Bank requires further agreements between CLWA and Newhall Land.

Table 5-4 Projected Multiple-Dry Year Supplies and Demands(1)					
	Supply (af)				
Water Supply Sources	**2010**	**2015**	**2020**	**2025**	**2030**
Existing Supplies					
Wholesale (Imported)	*46,485*	*46,485*	*47,097*	*47,097*	*47,097*
SWP Table A Supply (2)	32,368	32,368	33,320	33,320	33,320
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA) (3)	1,170	1,170	1,170	1,170	1,170
Flexible Storage Account (Ventura County) (3)	340	340	0	0	0
Local Supplies					
Groundwater	*47,500*	*47,500*	*47,500*	*47,500*	*47,500*
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation (4)	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	96,685	95,685	99,297	96,297	96,297
Existing Banking Programs					
Semitropic Water Bank (3)	12,700	0	0	0	0
Rosedale-Rio Bravo (6) (7)	5,000	15,000	15,000	15,000	15,000
Semitropic Water Bank – Newhall Land (12)	4,950	4,950	4,950	4,950	4,950
Total Existing Banking Programs	22,650	19,950	19,950	19,950	19,950
Planned Supplies					
Local Supplies					
Groundwater	*6,500*	*6,500*	*6,500*	*6,500*	*6,500*
Restored wells (Saugus Formation) (4)	6,500	6,500	5,000	5,000	5,000
New Wells (Saugus Formation) (4)	0	0	1,500	1,500	1,500
Recycled Water (5)	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	6,500	9,600	15,300	21,000	27,600
Planned Banking Programs					
Additional Planned Banking (7) (8)	0	5,000	15,000	15,000	15,000
Total Planned Banking Programs	0	5,000	15,000	15,000	15,000
Total Existing and Planned Supplies and Banking	124,835	130,235	146,547	152,247	158,847
Total Estimated Demand (w/o conservation) (9) (10)	110,100	120,300	128,900	141,200	152,100
Conservation (11)	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

1. Supplies shown are annual averages over four consecutive dry years (unless otherwise noted). Figures shown in red represent changes from the 2005 UWMP due to the Draft State Water Project Delivery Reliability Report 2009. Figures shown in blue are additional sources of supply identified since the 2005 UWMP.
2. SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available during the worst case four-year drought of 1931-1934 as provided in Tables 6-4 and 6-13 of DWR's "State Water Project Delivery Reliability Report 2009." Year 2030 figure is calculated by multiplying by DWR's 2029 percentage of 35%.
3. Based on total amount of storage available divided by 4 (4-year dry period). Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).
4. Total Saugus pumping is the average annual amount that would be pumped under the groundwater operating plan, as summarized in Table 3-6 of the 2005 UWMP ([11,000+15,000+25,000+35,000]/4).
5. Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.
6. CLWA has 64,898 af of recoverable water as of 12/31/09 in the Rosedale-Rio Bravo Water Banking and Recovery Program.
7. Average dry year period supplies could be up to 20,000 af for each program depending on storage amounts at the beginning of the dry period.
8. Assumes additional planned banking supplies available by 2014.
9. Assumes increase in total demand of 10 percent during dry years.
10. Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area are not included.
11. Assumes 10 percent reduction on urban portion of total normal year demand resulting from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in CLWA's 2005 UWMP, Chapter 7.
12. Delivery of stored water from the Newhall Land Semitropic Groundwater Bank requires further agreements between CLWA and Newhall Land.

Letter from Alex Herrell, Director, Community Development, to Sam Dea, Supervising Regional Planner, Los Angeles County Department of Regional Planning, dated April 7, 2009

NEWHALL LAND

A LENNAR/LNR COMPANY

April 7, 2009
Sam Dea
Supervising Regional Planner
Los Angeles County Department of Regional Planning

Dear Mr. Dea

This correspondence and attachments are provided in compliance with the Newhall Ranch Specific Plan Final EIR Mitigation Measure 4.11-15 (below) to provide an annual report indicating the amount of groundwater used in Los Angeles County for irrigation.

4.11-15. Groundwater historically and presently used for crop irrigation on the Newhall Ranch Specific Plan site and elsewhere in Los Angeles County shall be made available by the Newhall Land and Farming Company, or its assignee, to partially meet the potable water demands of the Newhall Ranch Specific Plan. The amount of groundwater pumped for this purpose shall not exceed 7,038 AFY. This is the amount of groundwater pumped historically and presently by the Newhall Land and Farming Company in Los Angeles County to support its agricultural operations. Pumping this amount will not result in a net increase in groundwater use in the Santa Clarita Valley. To monitor groundwater use, the Newhall Land and Farming Company, or its assignee, shall provide the County an annual report indicating the amount of groundwater used in Los Angeles County and the specific land upon which that groundwater was historically used for irrigation. For agricultural land located off the Newhall Ranch Specific Plan site in Los Angeles County, at the time agricultural groundwater is transferred from agricultural uses on that land to Specific Plan uses, The Newhall Land and Farming Company, or its assignee, shall provide a verified statement to the County's Department of Regional Planning that Alluvial aquifer water rights on that land will now be used to meet Specific Plan demand. (emphasis added)

The information provided in the attached chart depicts the amount of irrigation water historically and currently used on Newhall's Los Angeles County farm fields for crop seasons 2001-2008, using the same methodology from the FEIR. Revised Table 2.5-32 from the FEIR is also attached showing the original information for the years 1996 – 2000 that served as the baseline for determining the estimated annual average usage of 7,038 acre feet. A map is also attached showing the specific land in Los Angeles County upon which the groundwater has historically been used.

Newhall's annual water use varies based upon the amount of irrigated acres, the type of irrigated crops and their water demand as determined by California Irrigation Management Information System.

If you have any questions regarding this letter or the attached exhibits please contact me at (661) 255-4449.

Newhall Land

Alex Herrell
Director, Community Development

THE NEWHALL LAND AND FARMING COMPANY
23823 VALENCIA BOULEVARD, VALENCIA, CALIFORNIA 91355-2194 • PHONE 661.255.4000 FAX 661.255.3960 WWW.NEWHALL.COM

Los Angeles County Agriculture Water Use

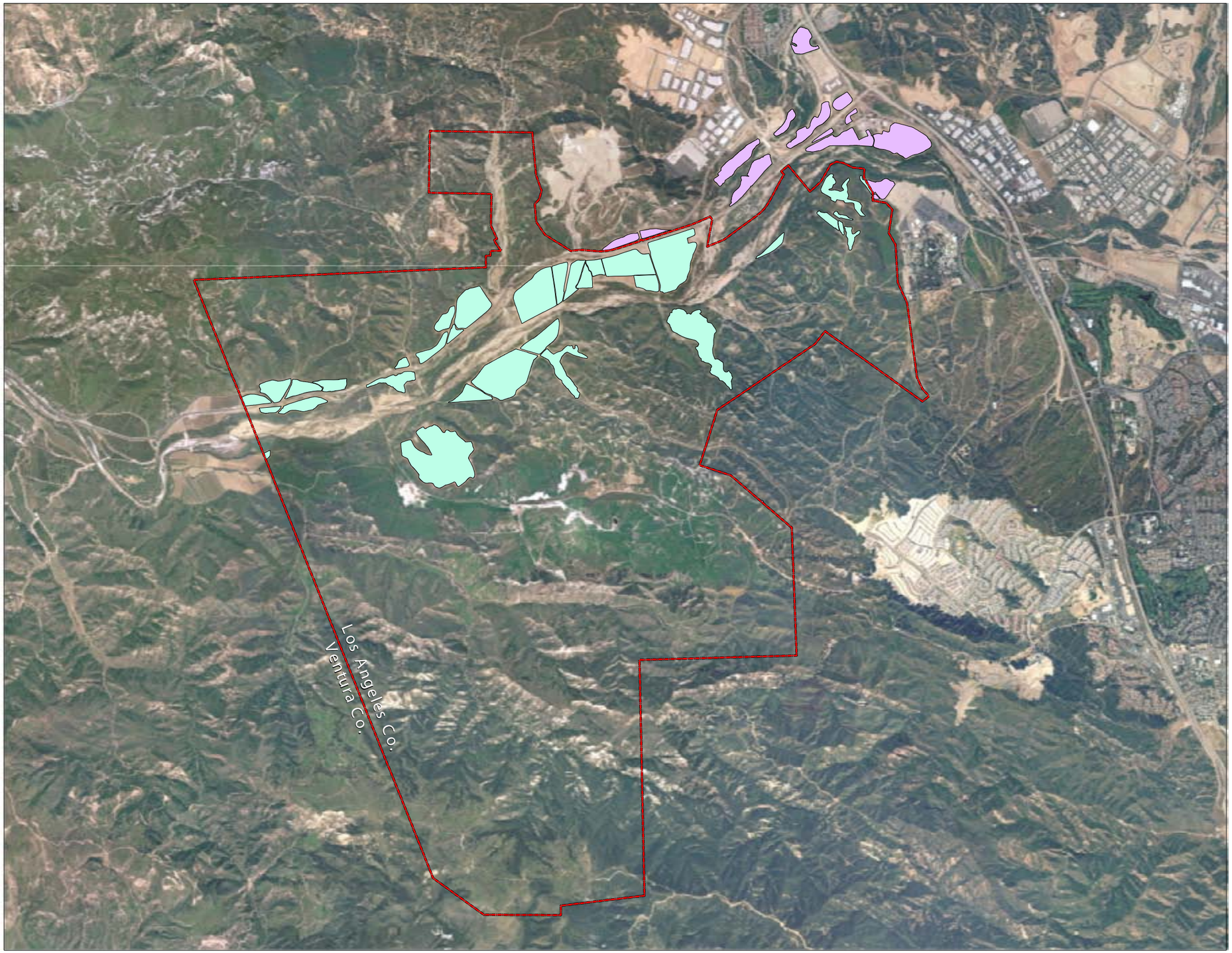
Using Adjusted CIMIS ET Data to Allocate Actual Water Pumped

Year	Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
2008											
	Citrus	273	4.63	1264	10.31%	10,633	1,096	4.01			
	Alfalfa	82	7.57	621	5.06%		538	6.56	82	538	621
	Irrigated Hay	28	7.57	212	1.73%		184	6.56			
	Irrigated Pasture	231	8.83	2040	16.63%		1,769	7.66	231	1,769	2,040
	Vegetables	825	7.57	6245	50.93%		5,416	6.56	142	932	1,075
	Sod	168	7.27	1221	9.96%		1,059	6.30	168	1,059	1,221
	Nursery	199	3.31	659	5.37%		571	2.87		-	
					100.00%		**10,633**		**623**	**4,298**	**4,957**
2007											
	Citrus	278	4.45	1237	8.88%	11,781	1,046	3.76			
	Alfalfa	205	7.27	1490	10.70%		1,261	6.15	205	1,261	1,490
	Irrigated Hay	28	7.27	204	1.46%		172	6.15			
	Irrigated Pasture	231	8.48	1959	14.07%		1,657	7.17	231	1,657	1,959
	Vegetables	1,037	7.27	7539	54.13%		6,377	6.15	355	2,183	2,581
	Sod	119	7.27	865	6.21%		732	6.15	119	732	865
	Nursery	199	3.18	633	4.54%		535	2.69			
					100.00%		**11,781**		**910**	**5,833**	**6,895**
2006											
	Citrus	278	4.07	1131	9.44%	13,709	1,295	4.66			
	Irrigated Hay	233	6.65	1549	12.93%		1,773	7.61	205	1,560	1,363
	Irrigated Pasture	231	7.76	1793	14.96%		2,051	8.88	231	2,051	1,793
	Vegetables	923	6.65	6138	51.23%		7,023	7.61	285	2,168	1,895
	Sod	119	6.65	791	6.60%		905	7.61	119	905	791
	Nursery	199	2.91	579	4.83%		663	3.33			-
					100.00%		**13,709**		**840**	**6,685**	**5,842**
2005											
	Citrus	308	3.69	1137	12.61%	8,800	1,110	3.60			
	Irrigated Hay	160	6.03	965	10.70%		942	5.89	160	942	965
	Irrigated Pasture	174	7.03	1223	13.57%		1,194	6.86	175	1,201	1,230
	Vegetables	907	6.03	5469	60.68%		5,340	5.89	278	1,637	1,676
	Nursery	83	2.64	219	2.43%		214	2.58			-
					100.00%		**8,800**		**613**	**3,780**	**3,871**
2004											
	Citrus	340	4.92	1673	10.86%	12,828	1,393	4.10			
	Irrigated Hay	160	2.95	472	3.06%		393	2.46	160	393	472
	Irrigated Pasture	174	11.26	1959	12.72%		1,632	9.38	174	1,632	1,959
	Vegetables	1,392	8.04	11192	72.67%		9,322	6.70	627	4,199	5,041
	Nursery	30	3.52	106	0.69%		88	2.93		-	-
					100.00%		**12,828**		**961**	**6,224**	**7,472**
2003											
	Citrus(furrow)	59	6.31	372	2.64%	12,286	325	5.51			
	Citrus(micro)	492	4.73	2327	16.53%		2,030	4.13			
	Sudan Grass	388	10.81	4194	29.79%		3,660	9.43	388	3,660	4,194
	Vegetables	931	7.72	7187	51.04%		6,271	6.74	581	3,914	4,485
					100.00%		**12,286**		**969**	**7,573**	**8,680**
2002											
	Citrus(furrow)	171	6.62	1132	7.57%	15,135	1,146	6.70			
	Citrus(micro)	545	4.97	2709	18.12%		2,742	5.03			
	Sudan Grass	175	11.35	1986	13.29%		2,011	11.49	175	2,011	1,986
	Vegetables	1,125	8.11	9124	61.03%		9,236	8.21	800	6,568	6,488
					100.00%		**15,135**		**975**	**8,579**	**8,474**
2001											
	Citrus(furrow)	288	5.49	1581	13.47%	14,188	1,911	6.63			
	Citrus(micro)	657	4.12	2707	23.06%		3,271	4.98			
	Sudan Grass	150	9.41	1412	12.02%		1,706	11.37	150	1,706	1,412
	Vegetables	899	6.72	6041	51.46%		7,301	8.12	719	5,839	4,832
					100.00%		**14,188**		**869**	**7,545**	**6,243**

Revised Table 2.5-32
Los Angeles County Agricultural Water Use
Using Adjusted CIMIS ET Data to Allocate Actual Water Pumped

Year	Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	% of Water Use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water by Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
2000	Citrus (furrow)	291	6.05	1,761	12.35%	13,798	1,704	5.86			
	Citrus (micro)	811	4.54	3,682	25.83%		3,565	4.40			
	Alfalfa (flood)	55	10.37	570	4.00%		552	10.04	55	552	570
	Sudan/pasture (flood)	150	10.37	1,556	10.91%		1,506	10.04	150	1,506	1,556
	lsd. Vegetables (sprinkler)	902	7.41	6,684	46.90%		6,471	7.17	722	5,180	5,350
					100.00%		**13,798**		**927**	**7,238**	**7,476**
1999	Citrus (furrow)	291	6.13	1,784	12.56%	16,131	2,025	6.96			
	Citrus (micro)	781	4.6	3,593	25.29%		4,079	5.22			
	Alfalfa (flood)	55	10.51	578	4.07%		656	11.93	55	656	578
	Sudan/pasture (flood)	150	10.51	1,577	11.10%		1,790	11.93	150	1,790	1,577
	lsd. Vegetables (sprinkler)	889	7.51	6,676	46.99%		7,580	8.53	709	6,046	5,325
					100.00%		**16,131**		**914**	**8,492**	**7,479**
1998	Citrus (furrow)	291	5.48	1,595	13.47%	11,477	1,546	5.31			
	Citrus (micro)	743	4.11	3,054	25.80%		2,961	3.99			
	Alfalfa (flood)	115	9.4	1,081	9.13%		1,048	9.11	115	1,048	1,081
	Sudan/pasture (flood)	100	9.4	940	7.94%		911	9.11	100	911	940
	lsd. Vegetables (sprinkler)	770	6.71	5,167	43.65%		5,010	6.51	590	3,839	3,959
					100.00%		**11,477**		**805**	**5,798**	**5,980**
1997	Citrus (furrow)	291	5.96	1,734	12.12%	14,862	1,801	6.19			
	Citrus (micro)	803	4.47	3,589	25.08%		3,727	4.64			
	Walnuts (micro)	33	4.47	148	1.03%		153	4.64			
	Alfalfa (flood)	160	10.22	1,635	11.42%		1,698	10.61	160	1,698	1,635
	Sudan/pasture (flood)	103	10.22	1,053	7.35%		1,093	10.61	103	1,093	1,053
	lsd. Vegetables (sprinkler)	843	7.3	6,154	43.00%		6,390	7.58	663	5,026	4,840
					100.00%		**14,862**		**926**	**7,816**	**7,528**
1996	Citrus (furrow)	291	5.96	1,734	12.84%	13,702	1,760	6.05			
	Citrus (micro)	801	4.47	3,580	26.51%		3,633	4.54			
	Walnuts (micro)	33	4.47	148	1.09%		150				
	Alfalfa (flood)	105	10.21	1,072	7.94%		1,088	10.36	105	1,088	1,072
	Sudan/pasture (flood)	170	10.21	1,736	12.85%		1,761	10.36	170	1,761	1,736
	lsd. Vegetables (sprinkler)	717	7.3	5,234	38.76%		5,311	7.41	537	3,978	3,920
					100.00%		**13,702**		**812**	**6,826**	**6,728**
Average						**13,994**	**13,994**		**877**	**7,234**	**7,038**

CIMIS = California Irrigation Management Information System. Does not include dryland farming or Christmas tree use.
af = acre-feet; ac = acres; yr = year.



L E G E N D

- Newhall Ranch Specific Plan Boundary
- Irrigated Agricultural Lands - NRSP
- Irrigated Agricultural Lands - outside NRSP

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

FORMA

04-07-2003
agricultural_acres_040703.mxd

Newhall Land Historically Irrigated Agricultural Areas within Los Angeles County

Semitropic Water Storage District, February 22, 2010, Letter to Newhall Land and Farming

NEWHALL LAND

April 22, 2010

Sam Dea
Supervising Regional Planner
Los Angeles County Department of Regional Planning
Hall of Records, 13th Floor
320 West Temple Street, Room 1382
Los Angeles, California 90012

Dear Mr. Dea:

This correspondence and the attached communication from Semitropic Water Storage District is Newhall's status report to the County of Los Angeles, Department of Regional Planning, indicating that the amount of water placed in the Semitropic groundwater bank under Newhall's stored water account is 18,828 acre feet as of December 31, 2009. This status report is a requirement of the Newhall Ranch Specific Plan Program EIR, Mitigation Measure SP-4.11-18.

If you should have any questions, please do not hesitate to call me.

Sincerely,

Newhall Land

Alex Herrell
Director, Community Development

Attachment: Semitropic letter, dated February 22, 2010

25124 SPRINGFIELD COURT, SUITE 300, VALENCIA, CALIFORNIA 91355-1088 • PHONE 661.255.4000 FAX 661.255.3060 WWW.VALENCIA.COM WWW.NEWHALLRANCH.NET

1101 Central Avenue, P.O. Box Z, Wasco, CA 93280-0877

Telephone: (661) 758-5113 Bakersfield: (661) 327-7144
Facsimile: (661) 758-3219 E-mail: mail@semitropic.com
Website: www.semitropic.com

February 22, 2010

Newhall Land and Farming Company
Attn: Steve Zimmer, General Manager
25121 Springfield Court, Suite 300
Valencia, CA 91355-2103

Mr. Zimmer:

As of December 31, 2009, Newhall Land and Farming Company has 18,828 acre feet of stored water in their account.

Please let me know if I can be of further help.

Sincerely,

Judy Burns

Judy Burns
Accounting Supervisor

Notice of Settlement and Dismissal from Newhall Ranch Specific Plan Program EIR Litigation

5TH CIVIL NO. F044638

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA
FIFTH APPELLATE DISTRICT

United Water Conservation District, Petitioner, v. County of Los Angeles, *et al.*, Respondents.	COURT OF APPEAL FIFTH APPELLATE DISTRICT FILED APR - 1 2004 KAY FRAUENHOLTZ CLERK/ADMINISTRATOR By_____ Deputy
The Newhall Land and Farming Company, *et al.*, Real Parties in Interest.	
And Related Cases.	

Appeal From The Judgment of The Kern County Superior Court
The Honorable Roger D. Randall, Presiding
(Kern County Superior Court No. 239324-RDR
[Consolidated with Case Nos. 239325, 239326 and 239327-RDR])

NOTICE OF SETTLEMENT AND DISMISSAL OF APPEAL

Lloyd W. Pellman, County Counsel
Peter J. Gutierrez, Sr. Deputy County Counsel
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NOTICE OF SETTLEMENT
(APPELLATE COURT CASE NO. F044638)

The parties to this settlement ("the Parties"), as defined below, through their respective counsel, have agreed as follows:

I. THE PARTIES AND PURPOSE

A. THE PARTIES/EFFECTIVE DATE

1. The Sierra Club, Friends of the Santa Clara River and Santa Clarita Organization for Planning the Environment ("Appellants") are represented by John T. Buse of the Environmental Defense Center and Jan Chatten-Brown of Chatten-Brown and Associates in the Newhall Ranch litigation and this appeal (*United Water Conservation District v. County of Los Angeles, et al.*, Case No. 239324-RDR [Consolidated with Case Nos. 239325, 239326 and 239327-RDR], 5th Civil No. F044638) ("Newhall Ranch Litigation").

2. The Appellants filed the "Notice Of Appeal From Order Granting Motion To Discharge Peremptory Writ Of Mandate" ("Notice of Appeal") on December 19, 2003 in connection with the Newhall Ranch Litigation. The Judgment appealed from disposed of all claims and causes of action between the Parties.

3. The County of Los Angeles and its Board of Supervisors ("the County") are represented in the Newhall Ranch Litigation by Lloyd W. Pellman, County Counsel, and Peter J. Gutierrez, Senior Deputy County Counsel. The County is not a party to this settlement, because there are no settlement provisions that require any action to be taken by the County to implement the settlement. Nonetheless, the County will benefit by this settlement due to the dismissal of this appeal, as discussed below. In addition, the counsel for the County has reviewed this Notice, and has no objection to the settlement.

4. The Newhall Land and Farming Company, a California limited partnership, Valencia Corporation, the Newhall Ranch Company, Newhall Management Limited Partnership and The Newhall Land and Farming Company, a California

corporation ("Newhall") are represented in the Newhall Ranch Litigation by Mark J. Dillon and Michael S. Haberkorn of Gatzke Dillon & Ballance LLP.

5. The effective date of this settlement will be March 29, 2004 ("Effective Date").

B. PURPOSE

1. The purpose of this settlement is to set forth the Parties' agreement, which shall result in the final settlement of the Newhall Ranch Litigation (*United Water Conservation District v. County of Los Angeles, et al.*, Case No. 239324-RDR [Consolidated with Case Nos. 239325, 239326 and 239327-RDR] 5th Civil No. F044638), the effect of which will be a complete dismissal, with prejudice, of the appeal, pursuant to Rule 20 of the California Rules of Court.

2. This settlement is a compromise of disputed claims, and neither this settlement nor any term thereof shall be construed as any type of admission on the part of any party to this settlement.

II. TERMS OF SETTLEMENT/DISMISSAL

A. AGRICULTURAL WATER SUPPLY

1. As stated in the Revised Additional Analysis (Volume VIII; May 2003), the actual amount of groundwater pumped from the basin to irrigate Newhall's agricultural lands is calculated by utilizing Southern California Edison ("SCE") pump test data.

For pumps powered by electricity, SCE pump tests are used to calculate the actual amount of water pumped from the basin. The actual water pumping is calculated by multiplying the total kilowatt-hours (kwh) of energy used per well per year, by the kilowatt-hours per acre foot (kwh/AF), which is derived from the annual pump tests performed by SCE, Hydrologic Services Division. These pump tests are performed by SCE on an annual basis, which is customary in the agricultural industry. Newhall also requests that SCE perform these well pump tests for purposes of monitoring well efficiency and energy costs.

For pumps powered by diesel and natural gas, the actual water pumping is calculated by multiplying the actual running hours from engine hour meters by the acre-

feet pumped per hour. The acre-feet pumped per hour is determined by the gallons per minute that each unit is designed to pump.

The total water pumped from all Newhall agricultural wells, utilizing the SCE and other data, is summarized in Exhibit 1 to the letter report, dated March 7, 2003, from Underhill Engineering, Inc. The Underhill report, which was contained in **Appendix AB** in the Newhall Ranch Final Additional Analysis (Volume IV; March 2003) included Los Angeles County agricultural water use data over a five-year period (1996-2000). In addition, actual results of pump tests from SCE were included as **Appendix AQ** in the Newhall Ranch Final Additional Analysis (Volume VII; May 2003). At page 2.5-136 - 2.5-139, the Revised Additional Analysis (Volume VIII; May 2003) was revised to clarify the above information. In addition, at page 2.5-140, the Revised Additional Analysis included revised **Table 2.5-32**, which depicted Newhall's water use for its agricultural lands in Los Angeles County.

As shown on revised **Table 2.5-32**, using the actual SCE pump test data, a five-year annual average of 7,246 acre-feet of water per year was pumped by Newhall and utilized for irrigation of its crops in Los Angeles County. In addition, the County and Newhall used adjusted data from the California Irrigation Management Information System ("CIMIS"), which is provided by the University of California. The adjusted CIMIS data was used as a "cross check" to corroborate Newhall's allocation of the total amount of water actually pumped, as calculated from the SCE pump test and other data. Using the adjusted CIMIS data to compare to actual pumpage, a total of 7,038 acre-feet of water per year was determined to be the average amount of water used on Newhall's agricultural lands in Los Angeles County from 1996-2000. The revised Additional Analysis used the lower (and more conservative) of the two methods to determine the actual amount of groundwater pumped and delivered to Newhall's agricultural lands in Los Angeles County (*i.e.*, 7,038 AFY).

2. Newhall shall do the following:

(a) Groundwater Use/Limitations. Groundwater historically and presently used for crop irrigation on the Newhall Ranch Specific Plan

site and elsewhere in Los Angeles County shall be made available by Newhall, or its assignee, to partially meet the potable water demands of the Newhall Ranch Specific Plan. The amount of groundwater pumped for this purpose shall not exceed 7,038 AFY. Newhall represents that this is the amount of groundwater pumped historically and presently by Newhall in Los Angeles County to support its agricultural operations, and that pumping this amount will not result in a net increase in groundwater use in the Santa Clarita Valley.

(b) **Reporting.** To monitor groundwater use, Newhall, or its assignee, shall provide the County an annual report indicating the amount of groundwater used in Los Angeles County and the specific land upon which that groundwater was historically used for irrigation. After submitting the annual report to the County, Newhall, or its designee, will promptly provide the Appellants with a copy of such report, provided that the Appellants make a written request to Newhall for a copy of such report.

(c) **Verification.** For agricultural land located off the Newhall Ranch Specific Plan site in Los Angeles County, at the time agricultural groundwater is transferred from agricultural uses on that land to Specific Plan uses, Newhall, or its assignee, shall provide a verified statement to the County's Department of Regional Planning and Appellants that Alluvial aquifer water rights on that land will now be used to meet Specific Plan demand.

(d) **On-Going Documentation.** Beginning with the filing of the first subdivision map allowing construction on the Specific Plan site and with the filing of each subsequent subdivision map allowing construction, Newhall, or its designee, shall provide documentation to the County of Los Angeles and Appellants identifying the specific portion(s) of irrigated farmland in the County proposed to be retired from irrigated production to make agricultural water available to serve the subdivision. This documentation shall include the location of the irrigated agricultural fields to be retired and the types of planted crops on such land for the baseline five-year period 1996-2000. As a condition of subdivision approval, Newhall, or its designee, shall provide proof to the County that the agricultural land has been retired prior to issuance of building permits for the subdivision. A copy of the information provided to the County shall also be provided to Appellants.

B. AGRICULTURAL WATER QUALITY

1. The Newhall Ranch Final Additional Analysis (Volume IV; March 2003) included water quality data from one of Newhall's existing agricultural wells, along with a map depicting its location ("C-Well"). The water quality testing data was considered representative of Newhall's other existing agricultural wells. Additional agricultural water quality data was presented in the *2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems*, July 2002, prepared by Richard C. Slade & Associates. The *2001 Update Report* was included as **Appendix 2.5(l)** to the Newhall Ranch Revised Draft Additional Analysis (Volume II; November 2002).

In addition, in response to public comments, Newhall provided water quality sampling from six additional Newhall agricultural-supply wells. The data was taken from sampling that occurred in 2000 and 2001. The additional water quality data was included in the Newhall Ranch Additional Administrative Record (AAR 107:116214-276). The data was consistent with the prior sampling data from the C-Well location.

2. Newhall shall do the following:

(a) **ASR Program.** The Saugus Groundwater Banking/ASR program injection water must meet the water quality requirements of the State Regional Water Quality Control Board, Los Angeles Region. The water extracted for use on the Specific Plan site shall meet the Title 22 drinking water standards of the State Department of Health Services.

(b) **Title 22 Standards.** The agricultural groundwater used to meet the needs of the Specific Plan shall meet the drinking water quality standards required under Title 22 prior to use. As part of the CEQA review for the first tract map of Newhall Ranch, Newhall shall provide data showing that the agricultural groundwater will meet the Title 22 standards and describe the treatment measures, if any, necessary to meet these standards.

C. FEES/COSTS

1. Newhall shall pay Appellants' counsel a lump sum in the total amount of $43,000.00, provided that this notice of settlement and a separate notice of abandonment of this appeal is filed and served with the appropriate courts, which results in the

dismissal of the pending appeal in the Newhall Ranch Litigation, consistent with Rule 20 of the California Rules of Court, within three court days from the Effective Date of this settlement.

2. Newhall's payment to Appellants' counsel shall be made within thirty days of the court's Order dismissing the pending appeal.

3. The County shall not be responsible for the payment of any fees or costs of any kind whatsoever arising from this settlement.

D. DISMISSAL

1. Pursuant to California Rules of Court, Rule 20, the Appellants request that this Court (5th Civil No. F044638) enter the Order, below, dismissing the appeal and the entire action with prejudice. Remittitur to be issued forthwith.

E. OTHER PROVISIONS

1. The execution of this settlement shall not be construed by any party as an admission of liability or an admission as to the truth or falsity of any claim, allegation, defense or fact, which is the subject of this settlement.

2. This settlement shall have no force or effect unless and until the court issues an order dismissing the pending appeal in the Newhall Ranch Litigation.

3. All Parties to this settlement represent and warrant that they are the owner of the claims which are the subject of this settlement, and that such claims have not been assigned or transferred to any person or entity, whether voluntarily or involuntarily, by operation of law or otherwise. This representation and warranty shall survive execution and performance of this settlement.

4. All Parties further warrant and represent that the individual executing this settlement on behalf of each party has full authority to bind the party to the terms and conditions of the settlement. The governing bodies, boards of directors or officers of the Parties to this settlement have approved the terms set forth in this settlement, to the extent such approval is required by the rules, regulations, articles of incorporation, by-laws and any other governing documents of any party to the settlement.

5. This settlement shall be construed and enforced in accordance with the laws of the State of California. The Kern County Superior Court shall be the appropriate venue for the resolution of any disputes arising from this settlement.

6. Except as provided in this settlement, the Parties shall bear their own attorneys' fees and costs in connection with the entire Newhall Ranch Litigation.

7. This settlement may be executed by facsimile signatures and in multiple counterparts, each of which shall be deemed to constitute an original, and all of which taken together shall constitute one in the same document. This settlement shall be effective on the Effective Date shown above.

Environmental Defense Center

March 30, 2004 By: John Buse
John T. Buse

Chatten-Brown and Associates

March ___, 2004 By:_____
Jan Chatten-Brown

Attorneys for Appellants, Sierra Club, Friends of the Santa Clara River and Santa Clarita Organization for Planning the Environment

Gatzke Dillon & Ballance LLP

March ___, 2004 By:_____
Mark J. Dillon

Attorneys for Real Parties in Interest, The Newhall Land and Farming Company, *et al.*

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Environmental Defense Center

March ___, 2004

By:_____
John T. Buse

Chatten-Brown and Associates

March 30, 2004

By: _____
Jan Chatten-Brown

Attorneys for Appellants, Sierra Club, Friends of the Santa Clara River and Santa Clarita Organization for Planning the Environment

Gatzke Dillon & Ballance LLP

March _ , 2004

By:_____
Mark J. Dillon

Attorneys for Real Parties in Interest, The Newhall Land and Farming Company, *et al.*

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Environmental Defense Center

March __, 2004

By:_____
John T. Buse

Chatten-Brown and Associates

March __, 2004

By:_____
Jan Chatten-Brown

Attorneys for Appellants, Sierra Club, Friends of the Santa Clara River and Santa Clarita Organization for Planning the Environment

Gatzke Dillon & Ballance LLP

March 30, 2004

By:_____
Mark J. Dillon

Attorneys for Real Parties in Interest, The Newhall Land and Farming Company, *et al.*

ORDER

THE COURT:

Pursuant to the above Notice of Settlement, the appeal in this action (5th Civil No. F044638) is dismissed, with prejudice, and without appeal costs to any party. Remittitur to issue forthwith.

_____, 2004

_____
Associate Justice

ATTORNEYS:

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Michael S. Haberkorn (State Bar No. 159266)
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Facsimile: (760) 431-9512

Civil No. F 044638
(Superior Court No. 239324-RDR)

DECLARATION OF SERVICE BY OVERNIGHT MAIL
(C.C.P. Sections 1013a and 2015.5)

I am a resident of the County of San Diego; I am over the age of 18 years and not a party to the within entitled action; my business address: 1921 Palomar Oaks Way, Suite 200, Carlsbad, California 92008.

On March 30, 2004, I served the attached documents: **NOTICE OF SETTLEMENT AND DISMISSAL OF APPEAL** by placing a true copy thereof, enclosed in a sealed envelope, addressed as follows:

SEE ATTACHED SERVICE LIST

Service of the attached document was accomplished in the following manner: I placed such envelope(s) addressed as shown on the attached service list for collection and delivery by Golden State Overnight with delivery fees paid or provided for in accordance with this office's practice. I am readily familiar with this office's practice for processing correspondence for delivery the following day by Golden State Overnight.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on March 30, 2004, at Carlsbad, California.

Tina Zampa

Tina Zampa

ATTACHMENT TO DECLARATION OF SERVICE BY OVERNIGHT MAIL

Civil No. F 44638
(Superior Court No. 239324 - RDR)

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The Honorable Roger D. Randall Department 6 Kern County Superior Court 1415 Truxtun Avenue Bakersfield, California 93301-5216	

REVISED
WATER SUPPLY ASSESSMENT

Landmark Village
Vesting Tentative Tract Map No. 53108

Prepared for:

The County of Los Angeles
Department of Regional Planning

January 2010

Prepared by

Valencia Water Company
24631 Avenue Rockefeller
Valencia, CA 91355
Phone: (661) 294-0828 Fax: (661) 294-3806
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TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
- 1.1 Landmark Village 2
- 1.2 Purpose of WSA 2
- 1.3 Castaic Lake Water Agency 3
- 1.4 Valencia Water Company 3
- 1.5 2005 Urban Water Management Plan and Recent Events Affecting the SWP System 4
- 1.6 Documents Relied upon in Preparing this WSA 6

2.0 WATER SUPPLY ASSESSMENT 11
- 2.1 Average/Normal Year, Single Dry Year and Multiple Dry Year Water Assessment 12
  - 2.1.1 Average/Normal Water Year 14
  - 2.1.2 Single-Dry Year 16
  - 2.1.3 Multiple Dry Years 18

3.0 IDENTIFICATION OF EXISTING WATER SUPPLY SOURCES 21
- 3.1 Annual Existing Water Supply Entitlements, Water Rights, or Water Service Contracts 21
- 3.2 Groundwater 23
  - 3.2.1 Water Code §10910(f)(1). Review of relevant information contained in the urban water management plan. 24
  - 3.2.2 Water Code §10910(f) (2). Description of any groundwater basin or basins from which the proposed project will be supplied, including information concerning adjudication and overdraft 24
  - 3.2.3 Water Code §10910(f)(3). Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin from which the proposed project will be supplied. 25
  - 3.2.4 Water Code §10910(f)(4). Description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system from any basin from which the proposed project will be supplied 25
  - 3.2.5 Water Code §10910(f)(5). Analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. 25

3.2.6 Sustainability of Existing Groundwater Supplies and Projected Supplies....26
3.3 Additional Project Water Supplies....27
3.3.1 Nickel Water....27
3.3.2 Semitropic Water Storage District Groundwater Banking Project....27
3.4 Recycled Water....27
4.0 CONCLUSION....29

LIST OF TABLES

Table 1 Summary of Current and Planned Water Supplies and Banking Programs 13
Table 2 Projected Average/Normal Year Supplies and Demand.... 15
Table 3 Projected Single-Dry Year Supplies and Demands 17
Table 4 Projected Multiple-Dry Year Supplies and Demands.... 19

1.0 INTRODUCTION

This report provides information necessary to update and complete the Water Supply Assessment ("WSA") for Landmark Village, Vesting Tentative Tract Map No. 53108 ("project"). Landmark Village is the first project to be implemented within the approved Newhall Ranch Specific Plan, located in unincorporated Los Angeles County ("County"). A previous draft WSA was prepared by Valencia Water Company for Landmark Village in June 2006. This revised WSA is intended to replace the prior draft WSA in its entirety.

The revised WSA has been prepared pursuant to the requirements of Senate Bill 610 (Costa; Chapter 643, Stats. 2001) ("SB 610"), which requires public water agencies, parties or purveyors that may supply water to certain proposed development projects to prepare a WSA for use by the County in environmental documentation for such projects, pursuant to the California Environmental Quality Act ("CEQA").[1] This revised WSA contains information from the 2005 Urban Water Management Plan ("2005 UWMP"), which was adopted by Castaic Lake Water Agency ("CLWA"), Valencia Water Company ("Valencia") and other water purveyors. It also includes published information provided by the California Department of Water Resources ("DWR") concerning the reliability of water supplies delivered to CLWA from the State Water Project ("SWP").

The project site is located within Valencia's service area and Valencia is the operator of the public water system that will provide water to the proposed project.[2, 3]

A WSA is required for any "project" that is subject to CEQA[4] and proposes, among other things, a residential development of more than 500 dwelling units.[5] Landmark Village is a qualifying project under this definition.[6] This revised WSA will provide information to the County for its consideration in making a determination, based on the entire record, as to whether there is a sufficient water supply available to meet the Landmark Village project's water demand, in addition to Valencia's existing and planned future uses, including agricultural and manufacturing uses.[7] The County requested that Valencia prepare a WSA for Landmark Village, and it is

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1 SB 610 amended section 21151.9 of the California Public Resources Code, and amended sections 10631, 10656, 10910, 19811, 19812, and 19815, repealed section 10913, and added and amended section 10657, of the California Water Code.

2 For purposes of this WSA, Valencia is the "public water system," as defined by Water Code §10912(c), because it has 3,000 or more service connections and provides piped water to the public for human consumption.

3 Water Code §10910(b).

4 Public Resources Code §21080.

5 Water Code §10912(a)(1). This section also includes other types of development that are defined as a "project" by this section of the code.

6 Water Code §10912(a)(1). This section also includes other types of development that are defined as a "project" by this section of the code.

7 Water Code §10910(c).

updated to reflect the best available information as of the date of this report. Consistent with the approved Newhall Ranch Specific Plan, no potable State Water Project (SWP) supplies will be utilized to serve Landmark Village.

1.1 Landmark Village

The applicant is requesting approval of the Landmark Village residential and commercial mixed-use project (County Project No. 00-196) and associated entitlement actions necessary to develop the project site. The project is a component of the approved Newhall Ranch Specific Plan, and will consist of a maximum total of 1,444 residential home sites, 1,033,000 square feet of retail/commercial/mixed uses, an elementary school, community park, fire station, and other associated amenities and infrastructure improvements. Public and private recreational facilities will be provided, and a network of hiking/biking trails will extend both throughout the project site and along the Santa Clara River. Build-out of the proposed project would result in the following land use mix:

- 1,136 multi-family residential;
- 308 single-family residential;
- A maximum of 1,033,000 square feet of mixed use/commercial;
- 9-acre elementary school;
- 16-acre Community Park (includes about 10 acres of active park and approximately six acres of passive park);
- 1.3-acre fire station;
- Public and private recreational facilities;
- Trails; and
- Road and other infrastructure improvements.

At build-out, total water demand for the project is estimated to be approximately 972 acre-feet per year ("afy"), which includes a potable water demand of 608 afy and a recycled or non-potable water demand of 364 afy.

1.2 Purpose of WSA

The purpose of this updated WSA is to provide the County with an analysis of whether Valencia's water system has sufficient projected water supplies to meet the demands of the project, in addition to existing and planned future uses in the Santa Clarita Valley.[8] Specifically, this WSA evaluates whether the total projected water supply determined to be available during

[8] Water Code §10910(c).

normal, single dry, and multiple dry water years over the next 25 years, will meet the projected water demand associated with the project, in addition to existing and planned future water uses, including agriculture and manufacturing uses.[9] If the water supply is anticipated to be insufficient, the WSA must describe measures being taken to obtain an adequate supply.[10] The WSA is required to be included in the Environmental Impact Report ("EIR") prepared by the County for the project pursuant to CEQA.[11]

1.3 Castaic Lake Water Agency

CLWA is a public water agency that serves an area of 195 square miles in Los Angeles and Ventura counties. CLWA is a water wholesaler that provides about half of the water used by Santa Clarita households and businesses. CLWA operates two potable water treatment plants, storage facilities, and over 17 miles of transmission pipelines. CLWA supplements local groundwater supplies with SWP water and other imported water from Northern and Central California. This water is treated and delivered to the local water retailers in the Santa Clarita Valley. The four retail purveyors served by CLWA are Valencia, Los Angeles County Water District #36, Newhall County Water District ("NCWD") and Santa Clarita Water Division of CLWA ("SCWD").

CLWA also delivers highly treated recycled water from one of the two existing water reclamation plants in the Santa Clarita Valley owned by the Sanitation Districts of Los Angeles County. The recycled water is used to meet a portion of the non-potable water demands (golf courses and landscape irrigation, etc.) in the Santa Clarita Valley.

1.4 Valencia Water Company

Valencia is a public water utility regulated by the California Public Utilities Commission ("CPUC"). Valencia's current service area includes a mix of residential and commercial land uses, mostly comprised of single-family homes, apartments, condominiums and a number of local shopping centers and neighborhood commercial developments. Valencia supplies water from groundwater wells, CLWA imported water and recycled water. The City of Santa Clarita and Los Angeles County special landscape irrigation districts are the largest overall water users for irrigation purposes. Magic Mountain Amusement Park is the largest individual commercial water user. The service area includes three golf courses, the Valencia Industrial Center, and the Valencia Commerce Center. All water services are metered, with the exception of fire services.

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[9] Water Code §10910(c)(4).

[10] Water Code §10911(a).

[11] Water Code §10911(b), (c).

1.5 2005 Urban Water Management Plan and Recent Events Affecting the SWP System

The California Urban Water Management Planning Act ("UWMP Act") requires most water utilities to update and submit an Urban Water Management Plan ("UWMP") every five years. In 2005, the Valley's UWMP was updated by CLWA, in cooperation with Valencia and the other retail water purveyors. The 2005 UWMP was adopted by CLWA's Board of Directors in November 2005 and by Valencia's Board of Directors in December 2005. The 2005 UWMP is a compilation of information collected from various water resource documents listed in Section 1.6. The 2005 UWMP contains information on water use, water resources, recycled water, water quality, reliability planning, demand management measures, best management practices and water shortage contingency planning.

This revised WSA also includes information prepared by DWR regarding the reliability of imported water supplies delivered from the SWP, although Landmark Village does not rely on these supplies. In December 2007, a federal court imposed interim rules that restrict the operations of both the SWP and the Central Valley Project ("CVP") while a new federal biological opinion for the Delta smelt was prepared by the U.S. Fish and Wildlife Service in 2008. In August 2008, DWR prepared an update to its 2005 Reliability Report, which is issued biennially to indicate how much SWP water is available during varying hydrologic scenarios (i.e., normal and dry years). The DWR 2007 SWP Delivery Reliability Report (August 2008) reduced the average long term reliability of SWP supply from 77% to 66% in order to account for the operational changes required by the federal court to protect the Delta smelt and other constraints on the SWP system.

In addition, on November 14, 2008, the California Fish and Game Commission listed the longfin smelt as a threatened species under the California Endangered Species Act. The Commission also voted to change the state-protected status of the Delta smelt from threatened to endangered. In response, on December 9, 2008, the State Water Contractors and others filed litigation challenging the Commission's decision on the longfin smelt. The litigation is still pending, and the outcome of the litigation cannot be predicted at this time.

On December 15, 2008, the U.S. Fish and Wildlife Service issued the new Biological Opinion for the Delta smelt. The new Biological Opinion continues restrictions on SWP and CVP operations that have been in place under the federal court's interim rules concerning the Delta smelt. However, the Biological Opinion also imposed new requirements for the Bay-Delta that may further erode SWP water delivery reliability under the current, constrained operations. DWR has not yet issued a new SWP delivery reliability report, which is expected to address the ramifications of the new Biological Opinion, and its effects on SWP supplies and deliveries. DWR is expected to issue the next update of the SWP delivery reliability report by the end of 2009. In response to the Biological Opinion, on March 5, 2009, the State Water Contractors and

others filed litigation challenging the new Biological Opinion. The litigation is still pending, and the outcome of the litigation cannot be predicted at this time.
On January 4, 2009, the National Marine Fisheries Services (NMFS) issued a new Biological Opinion based on its review of the proposed long-term coordinated Central Valley Project/State Water Project (CVP/SWP) operations in the Central Valley, California, and its effects on listed fish and designated and proposed critical habitats. Specifically, the 2009 BO concluded that the CVP/SWP operations are likely to jeopardize continued existence of federally-listed Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, green sturgeon, and Southern Resident killer whales, and the designated critical habitats of the salmon, steelhead, and sturgeon.

The 2009 BO contains new measures causing water supply impacts, in addition to requiring a number of habitat measures and associated studies. According to the NMFS, the 2009 BO's restrictions on CVP/SWP operations will impact an estimated five to seven percent of the available annual water on average moved by the federal and state pumping plants, or about 330,000 acre-feet per year (afy); however, water operations will not be affected by the 2009 BO immediately and will be tied to water year type. The 2009 BO also includes exception procedures for drought and health and safety issues.

In December 2009, DWR prepared an update to its 2007 Reliability Report. The Draft 2009 SWP Delivery Reliability Report (December 2009) further reduced the average long term reliability of SWP supply from 66% to 60% in order to account for the operational changes required due to federal Biological Opinions to protect endangered fish such as Delta smelt and spring-run salmon, climate change and other constraints on the SWP system. Using the lower percentages from the DWR Draft 2009 SWP Delivery Reliability Report (December 2009), and updating information related to other sources of supply in the Santa Clarita Valley, Tables 1, 2, 3, and 4, below, are consistent with the best available information provided by DWR concerning the long term reliability of SWP supply and other sources of supply.[12]

The total projected water demand for this project is estimated to be 972 acre-feet per year and was accounted for in the 2005 UWMP. The timing of the project places it within the timeframe for calculating "planned future uses" within the 25 year water supply projection included in the

[12] The information presented in Tables 1-4 of this WSA is based on the 2005 UWMP, with the additional information provided by the DWR Draft 2009 SWP Delivery Reliability Report, December 2009 (and changes and updated information regarding other sources of supply). The discussion of water supply in this WSA and in environmental documents should be tempered, though, by noting that while the Draft 2009 SWP Delivery Reliability Report (December 2009) represents a reasonable scenario as required by CEQA, recent reductions in supply close the gap between the available supply and demand in the future, thereby making the CLWA service area more susceptible to shortages in certain dry years. Accordingly, the reduction in SWP supply reinforces the need to continue diligent efforts to conserve potable water and increase the use of recycled water, both to meet the goals in the 2005 UWMP and to maximize utilization of potable water supplies. CLWA and the retail water purveyors will continue to work diligently with Los Angeles County and the City of Santa Clarita with water conservation ordinances and the enforcement mechanisms to aggressively implement water conservation in the CLWA service area.

2005 UWMP. This information is incorporated by reference in this WSA. SB 610 requires the WSA to document the water demand for the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses. (Water Code §10910(c).) Water Code §10910(c)(2) states that if the proposed project was accounted for in the most recently adopted UWMP, the public water system may incorporate the requested information from the UWMP in preparing the WSA. The 2005 UWMP projects an annual growth rate in water demand of approximately 2.2 percent over a 25-year period for the Santa Clarita Valley. The project's associated water demand was included by Valencia in the water demand projections contained in the 2005 UWMP (see Table 2-6 in the 2005 UWMP); and, therefore, is accounted for in the 2005 UWMP.

1.6 Documents Relied upon in Preparing this WSA

The following list identifies the documentation that has been relied upon in the preparation of this WSA. The documents are incorporated by reference in this WSA as if fully set forth herein. Copies of the referenced documents are available for review at Valencia Water Company by contacting Robert J. DiPrimio, (661) 295-6501, and can be obtained upon the payment of the costs of reproduction. These documents, which are part of Valencia Water Company's record for the preparation of this WSA, are organized below by subject matter and are presented chronologically (earliest first):

DWR Documents

California Department of Water Resources, Groundwater Basins in California, Bulletin 118-80, January 1980. (DWR Bulletin 118-80, 1980).

California Department of Water Resources, The State Water Project Delivery Reliability Report 2002, May 2003. (DWR Reliability Report, 2003).

California Department of Water Resources, California's Groundwater, Bulletin 118, Santa Clara River Valley Groundwater Basin, Santa Clara River Valley East Subbasin, February, 2004.

California Department of Water Resources, Excerpts from the Working Draft of 2005 State Water Project Delivery Reliability, May 25, 2005. (DWR Reliability Report Excerpts, 2005)

California Department of Water Resources, The State Water Project Delivery Reliability Report 2005, Final, April 2006. (DWR Reliability Report, 2006).

California Department of Water Resources, The State Water Project Delivery Reliability Report 2007, Draft, December 2007. (DWR Reliability Report Draft, 2007).

California Department of Water Resources, The State Water Project Delivery Reliability Report 2007, Final, August 2008. (DWR Reliability Report, 2007).

*California Department of Water Resources, The State Water Project Delivery Reliability Report 2009, Draft***,** December 2009. (DWR Draft Reliability Report Draft, 2009).

CLWA Documents

Water Supply Contract Between the State of California Department of Water Resources and CLWA, 1963 (plus amendments, including the "Monterey Amendment," 1995, and Amendment No. 19, 1999, the transfer of 41,000 acre-feet of entitlement from Kern County Water Agency to CLWA).

2002 Draft Recycled Water Master Plan prepared for CLWA by Kennedy/Jenks Consultants.

2002 Semitropic Groundwater Storage Program and Point of Delivery Agreement Among the Department of Water Resources of the State of California, CLWA and Kern County Water Agency.

2003 Semitropic Groundwater Storage Program prepared for CLWA by Kennedy/Jenks Consultants.

Water Supply Reliability Plan Draft Report prepared for CLWA by Kennedy/Jenks Consultants, September 2003.

Draft Environmental Impact Report – Supplemental Water Project Transfer of 41,000 acre-feet of State Water Project Table A Amount, prepared for CLWA by Science Applications International Corporation, June 2004 (SCH No. 1998041127).

Final Environmental Impact Report – Supplemental Water Project Transfer of 41,000 acre-feet of State Water Project Table A Amount, prepared for CLWA by Science Applications International Corporation, December 2004 (SCH No. 1998041127).[13]

Draft Environmental Impact Report - Rosedale-Rio Bravo Water Storage District (RRBWSD) Water Banking and Exchange Program, prepared for CLWA by Science Applications International Corporation, August 2005 (SCH No. 2005061157).

Final Environmental Impact Report - Rosedale-Rio Bravo Water Storage District (RRBWSD) Water Banking and Exchange Program, prepared for CLWA by Science Applications International Corporation, October 2005 (SCH No. 2005061157).

Draft Environmental Impact Report - Castaic Lake Water Agency Water Acquisition from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District Water

[13] CLWA's contract rights to SWP water total 95,200 afy, including a water transfer of 41,000 afy approved in 1999 from Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's EIR prepared in connection with the 41,000 water transfer was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles Superior Court, Case Number PC018110). CLWA was not enjoined from using any water that is part of the 41,000 afy transfer. CLWA prepared and circulated a new draft EIR for the transfer. CLWA approved and certified the new EIR for the transfer on December 22, 2004. Two challenges to the new EIR were filed in January 2005 in the Ventura County Superior Court (*Planning and Conservation League v. CLWA* and *California Water Impact Network v. CLWA*). The matters were consolidated and transferred to Los Angeles Superior Court. In April 2007, the Court ruled that the 2004 EIR was properly prepared with one exception: it failed to show the analytical route as to how and why the EIR's three water supply allocation scenarios are relevant and would occur. PCL and CWIN filed Notices of Appeal in July 2007. CLWA and two Kern County Water Agencies filed notices of cross appeals. On December 17, 2009, the California Court of Appeal issued its opinion which upheld the adequacy of CLWA's 2004 EIR and legal right to the transferred water.

Banking and Recovery Program, prepared for CLWA by Science Applications International Corporation, June 2006 (SCH No. 2006021003).

Final Environmental Impact Report - Castaic Lake Water Agency Water Acquisition from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District Water Banking and Recovery Program, prepared for CLWA by Science Applications International Corporation, October 2006 (SCH No. 2006021003).

Draft Program Environmental Impact Report - Recycled Water Master Plan, prepared for CLWA by Bon Terra Consulting, November 2006 (SCH No. 2005041138).

Final Program Environmental Impact Report - Recycled Water Master Plan, prepared for CLWA by Bon Terra Consulting, March 2007 (SCH No. 2005041138).

CLWA Letter to City of Santa Clarita and Los Angeles County Department of Regional Planning, June 2007.

CLWA Letter to Los Angeles County Department of Regional Planning, February 2008. (CLWA Letter, February 2008).`

CLWA Data Document/Capital Improvement Program, dated November 12, 2008.

Groundwater Documents

Memorandum of Understanding Between the Santa Clara River Valley Upper Basin Water Purveyors and United Water Conservation District, August 2001. (MOU, 2001).

2001 Update Report: Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, prepared for Santa Clarita Valley Water Purveyors by Richard C. Slade and Associates, LLC, July 2002. (Slade, 2002).

Groundwater Management Plan - Santa Clara River Valley Groundwater Basin, East Subbasin, prepared for CLWA by Luhdorff & Scalmanini Consulting Engineers, December 2003.

Regional Groundwater Flow Model for the Santa Clarita Valley: Model Development and Calibration, prepared for Upper Basin Water Purveyors (CLWA, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company) by CH2M HILL, April 2004.

Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California, prepared for Upper Basin Water Purveyors in Support of the Department of Health Services 97-005 Permit Application by CH2M HILL, December 2004.

Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property (Santa Clarita, California), prepared for Upper Basin Water Purveyors in support of the amended 2000 UWMP by CH2M HILL, December 21, 2004.

Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2, prepared by Luhdorff & Scalmanini Consulting Engineers, April 2005 (Q2 Report).

Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California, prepared in support of the August 2001 Memorandum of Understanding between the Upper Basin Water Purveyors and the United Water Conservation

District, prepared by CH2M HILL in cooperation with Luhdorff & Scalmanini, August 2005. (Basin Yield Study, 2005).

Analysis of Groundwater Supplies and Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, August 2009, prepared by Luhdorff & Scalmanini and GSI Water Solutions. (Basin Yield Study, 2009).

Interim Remedial Action Plan, to facilitate and restore pumping of groundwater from two Saugus Formation production wells impacted by perchlorate, prepared for Castaic Lake Water Agency by Kennedy/Jenks Consultants, and approved by the Department of Toxic Substances Control, December 2005.

Mitigated Negative Declaration - Groundwater Containment, Treatment and Restoration Project, CLWA, August 2005.

Technical Memorandum: *Potential Effects of Climate Change on Groundwater Supplies for the Newhall Ranch Specific Plan, Santa Clarita Valley, California*, prepared by GSI Water Solutions, Inc. (John Porcello), dated March 18, 2008.

Water Planning Documents

2005 Urban Water Management Plan, prepared for Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District, Valencia Water Company, Los Angeles County Waterworks District No. 36, prepared by Black & Veatch, Nancy Clemm, Kennedy Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini, Richard Slade and Associates, November 2005. (2005 UWMP).

Santa Clarita Valley Water Report 2005, prepared for CLWA, Los Angeles County Waterworks District No. 36, Santa Clarita Water Division, Newhall County Water District and Valencia Water Company by Luhdorff and Scalmanini, Consulting Engineers, April 2006. (SCVWR, 2006).

Santa Clarita Valley Water Report 2006, prepared for CLWA, Los Angeles County Waterworks District No. 36, Santa Clarita Water Division, Newhall County Water District and Valencia Water Company by Luhdorff and Scalmanini, Consulting Engineers, May 2007. (SCVWR, 2007).

Santa Clarita Valley Water Report 2007, prepared for CLWA, Los Angeles County Waterworks District No. 36, Santa Clarita Water Division, Newhall County Water District and Valencia Water Company by Luhdorff and Scalmanini, Consulting Engineers, April 2008. (SCVWR, 2008).

Santa Clarita Valley Water Report 2008, prepared for CLWA, Los Angeles County Waterworks District No. 36, Santa Clarita Water Division, Newhall County Water District and Valencia Water Company by Luhdorff and Scalmanini, Consulting Engineers, April 2009. (SCVWR, 2009).

Newhall Ranch Planning Documents

Agreement between Newhall Land and Farming Company and Semitropic Water Storage District for a Newhall-Semitropic Water Banking and Exchange Program, 2001.

Nickel Water contract and environmental documentation (*see*, Newhall Ranch Revised Draft Additional Analysis, Volume II, prepared by Impact Sciences, Inc., for Los Angeles County, November 2002, Appendix 2.5(b), (c)).

Los Angeles County. 2003. Additional CEQA Findings Regarding the Newhall Ranch Final Additional Analysis to the Partially Certified Final EIR for the Newhall Ranch Specific Plan and Water Reclamation Plant. March 2003. (Los Angeles County 2003).

Revised Additional Analysis to the Newhall Ranch Specific Plan and Water Reclamation Plant Final Environmental Impact Report, Volume VIII (Final Revised Text, Figures and Tables), (SCH No. 95011015) prepared by Impact Sciences, Inc. for Los Angeles County Department of Regional Planning, May 2003. (Newhall Ranch, 2003).

Landmark Village Draft EIR, Vols. I-IX, including appendices (November 2006)

Landmark Village Final EIR, Vols. I-V, including appendices (November 2007)

2.0 WATER SUPPLY ASSESSMENT

The preparation of this WSA relies upon information from the 2005 UWMP and numerous water resource and planning documents listed in Section 1.6. Based on this supporting information, Valencia concludes that there is sufficient water supply available to meet the Landmark Village project demand, in addition to Valencia's existing and other planned future uses, including agricultural and manufacturing uses.

Valencia and CLWA have existing water entitlements, rights, and contracts to meet future demand as needed over time, and have committed sufficient capital resources and planned investments in various water programs and facilities to serve all of its existing and planned customers. Valencia also has identified specific water supplies provided by the developer combined with operational strategies and a prudent and flexible management approach that demonstrates water supply reliability for the Landmark Village project.

The project is part of the approved Newhall Ranch Specific Plan. The Specific Plan identified four primary sources of supply: (a) Newhall Ranch agricultural water (from the Alluvial aquifer); (b) recycled water from the Newhall Ranch Water Reclamation Plant ("Newhall WRP") and the existing Valencia WRP; (c) imported water supply referred to as Nickel Water (not a part of the SWP); and (d) Semitropic Groundwater Bank. Additional information about these sources and their use is discussed in the previously certified Newhall Ranch Specific Plan Program EIR (March 9, 1999) and the Newhall Ranch Revised Additional Analysis, Vol. VIII (May 2003).

In 2008, Valencia's service area-wide demands were 32,730 af, and the total municipal demand for both imported, groundwater and non-potable recycled water in CLWA's service area was 75,900 af. Based on information provided by the project's consultant, Valencia has estimated that the project will require approximately 972 afy of water consisting of 608 af of potable water and 364 af of non-potable (recycled) water at build-out.

Provided below is a summary of water supply and demand projections presented in the 2005 UWMP that address the SB610 requirements for this project. The 2005 UWMP contains information about water use (Chapter 2), water resources (Chapter 3), recycled water (Chapter 4), water quality (Chapter 5), reliability planning (Chapter 6), demand management measures (Chapter 7) and shortage contingency planning (Chapter 8).

All four of the primary sources of water identified in the approved Newhall Ranch Specific Plan are included as part of the water supplies reported in the 2005 UWMP. The Newhall Ranch agricultural water is included with the existing Alluvial aquifer supplies resulting in no net increase in groundwater use from build-out of the project. Recycled water from the Newhall Ranch WRP and the Valencia WRP are also included as part of the planned water supplies for the project and included in the 2005 UWMP. The other two Specific Plan supplies (imported

water referred to as Nickel Water and the Semitropic Water Bank-Newhall Land) are available, but are not needed to meet the water demand for the proposed Landmark Village project.

2.1 Average/Normal Year, Single Dry Year and Multiple Dry Year Water Assessment

The amount of available water supply is summarized in Table 1 below. Table 1 is not intended to be an operational plan for how supplies would be used in a particular year, but rather identifies the complete range of water supplies available under a range of hydrologic conditions. Diversity of supply allows Valencia and the purveyors the option of drawing on multiple sources of supply in response to changing conditions such as varying climatic conditions (average/normal years, single dry years, multiple dry years), natural disasters and contamination with substances such as perchlorate.

It is the stated goal of Valencia, CLWA and the other retail water purveyors to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of non-essential demand during certain dry years, the water supply plan described in the 2005 UWMP successfully achieves this goal.

Table 1
Summary of Current and Planned Water Supplies and Banking Programs[1]

Water Supply Sources	Supply (af)				
	2010	**2015**	**2020**	**2025**	**2030**
Existing Supplies[1]					
Wholesale (Imported)	75,667	75,667	74,287	74,287	74,287
SWP Table A Supply[2]	57,000	57,000	57,000	57,000	57,000
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)[3]	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County)[3] [4]	1,380	1,380	0	0	0
Local Supplies					
Groundwater	*46,000*	*46,000*	*46,000*	*46,000*	*46,000*
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	**123,367**	**123,367**	**121,987**	**121,987**	**121,987**
Existing Banking Programs [3]					
Semitropic Water Bank [5]	45,920	0	0	0	0
Rosedale-Rio Bravo [7]	64,898	64,898	64,898	64,898	64,898
Semitropic Water Bank – Newhall Land [8]	18,828	18,828	18,828	18,828	18,828
Total Existing Banking Programs	**129,646**	**83,726**	**83,726**	**83,726**	**83,726**
Planned Supplies [1]					
Local Supplies					
Groundwater	10,000	10,000	20,000	20,000	20,000
Restored wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water - CLWA[6]	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	**10,000**	**13,100**	**28,800**	**34,500**	**41,100**
Planned Banking Programs[3]					
Additional Planned Banking	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	**0**	**20,000**	**20,000**	**20,000**	**20,000**

Notes:

[1] The values shown under "Existing Supplies" and "Planned Supplies" are supplies projected to be available in average/normal years. The values shown under "Existing Banking Programs" are the total amounts currently in storage; the values shown under "Planned Banking Programs" represent the annual maximum withdrawal capacity. In 2008, CLWA also acquired approximately 850 af of non-SWP water supply by entering into a water transfer agreement with Yuba County Water Agency (YCWA); however, Table 1 has not been updated to reflect this additional non-SWP supply.

[2] SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available, based on Tables 6.3 and 6.12 of DWR's "Draft State Water Project Delivery Reliability Report, December 2009" [14]

[3] Supplies shown are total amounts that can be withdrawn, and would typically be used only during dry years.

[14] The Landmark Village Draft EIR (SCH No. 2004021002; November 2006), Section 4.10, Water Service, and the Landmark Village Final EIR, Volume I (November 2007), Topical Responses 4 and 5, provide extensive information concerning the litigation effects on availability of SWP Table A Amount.

[4] Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

[5] Supplies shown are the total amount currently in storage, and would typically be used only during dry years. Once the current storage amount is withdrawn, this supply would no longer be available and in any event, is not available after 2013.

[6] Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.

[7] CLWA has 64,898 af of recoverable water as of 12/31/07 in the Rosedale-Rio Bravo Water Banking and Recovery Program.

[8] Supplies shown are the total amount currently in storage. As of December 31, 2007, there is 18,828 af of water stored in the Semitropic Groundwater Storage Bank by The Newhall Land and Farming Company for the Newhall Ranch Specific Plan. The stored water can be extracted from the bank in dry years in amounts up to 4,950 afy. Newhall Ranch is located within the CLWA service area.

Source: 2005 UWMP, DWR Draft 2009 SWP Delivery Reliability Report, SCV Water Report (April 2009)

The subject of perchlorate contamination and its impact on groundwater supplies was extensively discussed in the 2005 UWMP. The source of the contamination is believed to be the Whittaker-Bermite property, located in the center of the Santa Clarita Valley and used as a munitions manufacturing facility for over 50 years. Significant progress has been made toward characterizing the extent of perchlorate contamination, along with implementing necessary measures for on-site and off-site containment and treatment. The reliability analysis provided in the 2005 UWMP takes into account the impact on water supply operations while the planning, design and construction of perchlorate treatment, containment and other restoration activities are implemented. For additional information on this topic, please see Chapters 5 and 6, Appendixes D and E in the 2005 UWMP and the latest annual Santa Clarita Valley Water Report (April 2009).

2.1.1 Average/Normal Water Year

Table 2 summarizes the water supplies available to Valencia, CLWA and the other retail water purveyors over the 25 year planning period during an average/normal year. The water supplies are broken down into existing and planned water supply sources, including wholesale (imported) water, local supplies, transfers, and banking programs. Demands are shown with and without the effects of an assumed 10 percent urban demand reduction resulting from conservation.

TABLE 2
PROJECTED AVERAGE/NORMAL YEAR SUPPLIES AND DEMAND

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	69,707	69,707	69,707	69,707	69,707
SWP Table A Supply [1]	57,100	57,100	57,100	57,100	57,100
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA) [2]	0	0	0	0	0
Flexible Storage Account (Ventura County) [2]	0	0	0	0	0
Local Supplies					
Groundwater	46,000	46,000	46,000	46,000	46,000
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	**117,407**	**117,407**	**117,407**	**117,407**	**117,407**
Existing Banking Programs					
Semitropic Water Bank [2]	0	0	0	0	0
Rosedale-Rio Bravo [2]	0	0	0	0	0
Semitropic Water Bank – Newhall Land [2]	0	0	0	0	0
Total Existing Banking Programs	0	0	0	0	0
Planned Supplies					
Local Supplies					
Groundwater	0	0	0	0	0
Restored wells (Saugus Formation) [2]	0	0	0	0	0
New Wells (Saugus Formation) [2]	0	0	0	0	0
Recycled Water - CLWA [3]	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	0	3,100	8,800	14,500	21,100
Planned Banking Programs					
Additional Planned Banking [2]	0	0	0	0	0
Total Planned Banking Programs	0	0	0	0	0
Total Existing and Planned Supplies and Banking	**117,407**	**120,507**	**126,207**	**131,907**	**138,507**
Total Estimated Demand (w/o conservation) [4]	100,050	109,400	117,150	128,400	138,300
Conservation [5]	(8,600)	(9,700)	(10,700)	(11,900)	(12,900)
Total Adjusted Demand	91,450	99,700	106,450	116,500	125,400

Notes:

1 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available on Tables 6.3 and 6.12 of DWR's "Draft State Water Project Delivery Reliability Report, 2009."

2 Not needed during average/normal years.

3 Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.

4 Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area are not included.

5 A 10 percent reduction on urban portion of total normal demand is estimated to result from conservation best management practices, as discussed in CLWA's 2005 UWMP, Chapter 7.

Source: 2005 UWMP, DWR Draft 2009 SWP Delivery Reliability Report, SCV Water Report (April 2009)

2.1.2 Single-Dry Year

Table 3 summarizes the existing and planned water supplies available to Valencia, CLWA and the other retail water purveyors over the 25 year planning period should a single-dry event occur, similar to the drought that occurred in California in 1977. Demand during single-dry years was assumed to increase by 10 percent. During prolonged dry periods, experience indicates that a reduction in demand of 10 percent is achievable through the implementation of conservation best management practices.

Table 3
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)				
	2010	**2015**	**2020**	**2025**	**2030**
Existing Supplies					
Wholesale (Imported)	25,367	26,267	25,887	26,787	27,787
SWP Table A Supply [1]	6,700	7,600	8,600	9,500	10,500
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA)	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County)[2]	1,380	1,380	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	**74,567**	**75,467**	**75,087**	**75,987**	**76,987**
Existing Banking Programs					
Semitropic Water Bank [3]	17,000	0	0	0	0
Rosedale-Rio Bravo [5]	20,000	20,000	20,000	20,000	20,000
Semitropic Water Bank – Newhall Land [10]	4,950	4,950	4,950	4,950	4,950
Total Existing Banking Programs	**41,950**	**24,950**	**24,950**	**24,950**	**24,950**
Planned Supplies					
Local Supplies					
Groundwater	10,000	10,000	20,000	20,000	20,000
Restored wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water - CLWA [4]	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	**10,000**	**13,100**	**28,800**	**34,500**	**41,100**
Planned Banking Programs					
Additional Planned Banking [6]	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	20,000	20,000	20,000	20,000
Total Existing and Planned Supplies and Banking[11]	**126,517**	**133,517**	**148,837**	**155,437**	**163,037**
Total Estimated Demand (w/o conservation) [7] [8]	110,100	120,300	128,900	141,200	152,100
Conservation [9]	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

Notes:

1 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of single dry year deliveries projected to be available, based on Tables 6.4 and 6-13 of DWR's "Draft State Water Project Delivery Reliability Report 2009."

2 Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

3 The total amount of water currently in storage is 45,920 af, available through 2013. Withdrawals of up to this

amount are potentially available in a dry year, but given possible competition for withdrawal capacity with other Semitropic banking partners in extremely dry years, it is assumed here that about one third of the total amount stored could be withdrawn.

[4] Recycled water supplies based on projections provided in CLWA's 2005 UWMP Chapter 4, Recycled Water.

[5] CLWA has 64,898 af of recoverable water as of 12/31/07 in the Rosedale-Rio Bravo Water Banking and Recovery Program.

[6] Assumes additional planned banking supplies available by 2014.

[7] Assumes increase in total demand of 10 percent during dry years.

[8] Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area are not included.

[9] A 10 percent reduction on urban portion of total normal year demand is estimated to result from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in CLWA's 2005 UWMP, Chapter 7.

[10] Delivery of stored water from the Newhall Land Semitropic Groundwater Bank requires further agreements between CLWA and Newhall.

[11] In 2008, CLWA also acquired approximately 850 af of non-SWP water supply by entering into a water transfer agreement with Yuba County Water Agency (YCWA); however, Table 3 has not been updated to reflect this additional non-SWP supply, which is available during dry year.

Source*:* 2005 UWMP, DWR Draft 2009 SWP Delivery Reliability Report, SCV Water Report (April 2009)

2.1.3 Multiple Dry Years

Table 4 summarizes the existing and planned water supplies available to Valencia, CLWA and the other retail water purveyors over the 25 year planning period should a four year multiple dry year event occur, similar to the drought that occurred in California during the years 1931 to 1934. Demand during dry years was assumed to increase by 10 percent. During prolonged dry periods, experience indicates that a reduction in demand of 10 percent is achievable through the implementation of conservation best management practices.

Table 4
Projected Multiple-Dry Year Supplies and Demands[1]

Water Supply Sources	Supply (af)				
	2010	2015	2020	2025	2030
Existing Supplies					
Wholesale (Imported)	47,417	47,417	47,077	47,077	47,077
SWP Table A Supply [2]	33,300	33,300	33,300	33,300	33,300
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607
Flexible Storage Account (CLWA) [3]	1,170	1,170	1,170	1,170	1,170
Flexible Storage Account (Ventura County) [3]	340	340	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation [4]	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	**96,617**	**96,617**	**96,277**	**96,277**	**96,277**
Existing Banking Programs					
Semitropic Water Bank	12,700	0	0	0	0
Rosedale-Rio Bravo [6] [7]	5,000	15,000	15,000	15,000	15,000
Semitropic Water Bank – Newhall Land[12]	4,950	4,950	4,950	4,950	4,950
Total Existing Banking Programs	**22,650**	**19,950**	**19,950**	**19,950**	**19,950**
Planned Supplies					
Local Supplies					
Groundwater	6,500	6,500	6,500	6,500	6,500
Restored wells (Saugus Formation) [4]	6,500	6,500	5,000	5,000	5,000
New Wells (Saugus Formation) [4]	0	0	1,500	1,500	1,500
Recycled Water [5]	0	1,600	6,300	11,000	15,700
Recycled Water - Newhall Ranch	0	1,500	2,500	3,500	5,400
Total Planned Supplies	**6,500**	**9,600**	**15,300**	**21,000**	**27,600**
Planned Banking Programs					
Additional Planned Banking [7] [8]	0	5,000	15,000	15,000	15,000
Total Planned Banking Programs	**0**	**5,000**	**15,000**	**15,000**	**15,000**
Total Existing and Planned Supplies and Banking[13]	**125,767**	**131,167**	**146,527**	**152,227**	**158,827**
Total Estimated Demand (w/o conservation)	110,100	120,300	128,900	141,200	152,100
Conservation [11]	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

Notes:

1 Supplies shown are annual averages over four consecutive dry years (unless otherwise noted).

2 SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 af by percentages of average deliveries projected to be available during the worst case four-year drought of 1931-1934 as provided in Tables 6.13 of DWR's "Draft State Water Project Delivery Reliability Report, 2009."

3 Based on total storage amount available ÷ by 4-yr dry period. Initial term of the Ventura County entities' flexible storage account is 10 years (2006-2015).

4 Total Saugus pumping is the avg. annual amount that would be pumped under the groundwater operating plan summarized in Table 3-6, 2005 UWMP.

5 Recycled water supplies based on projections provided in CLWA's 2005 UWMP, Chapter 4, Recycled Water.

6 CLWA has 64,898 af of recoverable water as of 12/31/07 in the Rosedale-Rio Bravo Water Banking and

Recovery Program.

[7] Average dry year period supplies could be up to 20,000 af for each program depending on storage amounts at the beginning of the dry period.

[8] Assumes additional planned banking supplies available by 2014.

[9] Assumes increase in total demand of 10 percent during dry years.

[10] Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area are not included.

[11] A 10 percent reduction on urban portion of total normal year demand is estimated to result from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in CLWA's 2005 UWMP, Chapter 7.

[12] Delivery of stored water from the Newhall Land Semitropic Groundwater Bank requires further agreements between CLWA and Newhall.

[13] In 2008, CLWA also acquired approximately 850 af of non-SWP water supply by entering into a water transfer agreement with Yuba County Water Agency (YCWA); however, Table 4 has not been updated to reflect this additional non-SWP supply, which is available during dry years.

Source: 2005 UWMP, DWR Draft 2009 SWP Delivery Reliability Report, SCV Water Report (April 2009)

3.0 IDENTIFICATION OF EXISTING WATER SUPPLY SOURCES

3.1 Annual Existing Water Supply Entitlements, Water Rights, or Water Service Contracts

The first substantive "content" requirement for a WSA is the identification and description of the existing water supply sources in the public water system that will serve the project. Water Code §10910(d) requires that the WSA identify any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and describe the quantities of water received in prior years by the public water system. The identification of existing water supplies must be demonstrated by providing information related to the following:

- Written contracts or other proof of entitlement to an identified water supply;
- Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system;
- Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply; and
- Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

The proposed project has independent rights to several sources of water. They are:

- Newhall Ranch Agricultural Water (from the Alluvial aquifer);
- Recycled Water generated by the Newhall Ranch WRP;
- Imported Nickel Water (not a part of the SWP); and
- Semitropic Groundwater Banking Project.

In addition to the independent sources listed above, the proposed project has identified the Valencia Water Reclamation Plant (Valencia WRP) as an available source of recycled water for the project. Wastewater generated by the proposed project would be pumped to the Valencia WRP for treatment. For additional information regarding these supplies, please see *Newhall Ranch Revised Additional Analysis, Volume VIII*, (May 2003).

The potable and non-potable water supplies identified to serve the Newhall Ranch Specific Plan and the amounts needed to serve the project are presented below:

Newhall Ranch Specific Plan Summary of Water Supplies and Landmark Village Demand			
		Supply	**Landmark Village Demand**
		(Acre-Feet/Year)	**(Acre-Feet/Year)**
Potable Water		8,645	
	Newhall Agricultural Water	7,038	608
	Nickel Water	1,607	0
Non-Potable Water		9,035	
	Newhall Ranch Recycled Water	5,344	0
	Valencia Water Reclamation Plant	3,691	364
Total Water Supplies		17,680	972
Banking Programs		4,950	0
	Semitropic Groundwater Banking Project	4,950	0

The 2005 UWMP summarizes the current water supplies available for the project and the Santa Clarita Valley as a whole. Such supplies are derived from five primary sources:

- Groundwater from the Alluvial aquifer;
- Groundwater from the Saugus Formation;
- SWP supplies and other imported sources;
- Dry-year groundwater banking programs; and
- Recycled water.

Within the CLWA service area, these sources of water supply can be characterized as: (1) *local supplies*, consisting of groundwater and recycled water; and (2) *imported supplies*, transported via the SWP consisting of SWP contract amounts, other imported water sources and dry year supplies delivered from groundwater banking programs. As required by SB 610 (Water Code §10910(d)), Chapter 2 of the 2005 UWMP and the SCVWR 2009 summarize the quantities of water used by each of the water purveyors in the Santa Clarita Valley to meet water demands since importation of SWP water began in 1980. Also, Section 1.6, above, contains a list of documents identifying the existing water supply entitlements, water rights, or water service contracts relevant to meet the project's water demand as well as future estimated demands reported in the 2005 UWMP.

Potential future water sources include acquisition of additional imported water supplies, recycled water, desalination, storm water runoff, increased short term pumping from the Saugus Formation during dry years and additional groundwater banking programs. Demand side management programs (conservation) are also considered an important component of water supply resulting from efforts by CLWA, Valencia and the other retailers to reduce long-term water demands.

3.2 Groundwater

Water Code §10910(f) requires a WSA to include specific information describing groundwater resources if the water supply for a proposed project includes groundwater. Over the last 25 years, the water purveyors have developed a groundwater operating plan that includes municipal, agricultural and other smaller uses while maintaining the local Basin in a sustainable condition (i.e., no long term depletion of groundwater or interrelated surface water). This has resulted in preparation of the following important studies funded by the purveyors to ensure sustainability of the local groundwater resources:

1. Slade (2002) updates prior reports and includes a detailed review of the hydrologic conditions and description of groundwater resources available to Valencia and other large municipal and agriculture groundwater producers, including SCWD, NCWD, The Newhall Land and Farming Company ("Newhall") and the Wayside Honor Ranch operating within the Santa Clara River Valley East Subbasin, one of several subbasins identified along the Santa Clara River in Los Angeles and Ventura counties by Updated Bulletin 118 of the California Department of Water Resources. The shallow aquifer system is designated the Alluvial aquifer and the deeper aquifer is designated the Saugus Formation. Slade reported that both aquifer systems were in good operating condition and not in an overdraft condition. Also included are hundreds of other small scale water producers that account for less than 1 percent of total production from these aquifer systems (SCVWR 2008).
2. In 2003, CLWA in cooperation with Valencia and the other retail water purveyors completed and adopted a Groundwater Management Plan in accordance with Water Code §10753. Among the elements of the adopted Plan is the preparation of annual groundwater management reports, such as the Santa Clarita Valley Water Report, that provides information about local groundwater conditions, SWP supplies, water conservation and recycled water. The Plan also contemplated preparing other technical reports to address specific aspects of basin management. Recently, technical reports have been prepared on the development and calibration of a numerical groundwater flow model, an analysis of perchlorate containment in groundwater and a groundwater yield study of the Upper Basin.
3. In August 2005, work was completed in support of a Memorandum of Understanding (MOU) entered into by the Valencia, CLWA and the other water purveyors and United Water Conservation District. The MOU is a commitment by the water purveyors to expand on the previous knowledge of groundwater conditions in the Upper Basin and, using a regional groundwater flow model, evaluate the long-term sustainability of the purveyor's groundwater operating plan under a range of existing and potential future hydrologic conditions. The primary conclusion of the modeling analysis is that the groundwater operating plan will not cause detrimental short-term or long-term effects to the groundwater and surface water resources in the Santa Clarita Valley and, therefore, is sustainable (Basin Yield Study, 2005).

4. In August 2009, the Basin Yield Study 2005 was updated by Luhdorff and Scalmanini and GSI Solutions. The study essentially updated previous groundwater modeling work but included important additional analyses. The additional work included analyzing different groundwater operating scenarios and assessing the potential impact from several climate change scenarios. The updated study concluded that continuation of the region's current groundwater operating plan is sustainable; that the groundwater basin has not been and is not projected to be in overdraft; and that the water purveyors' groundwater operating can be relied upon for long term planning purposes (Basin Yield Study, 2009).

The following sub-parts respond to specific requirements of Water Code §10910(f):

3.2.1 Water Code §10910(f)(1). Review of relevant information contained in the urban water management plan.

The 2005 UWMP contains relevant information about groundwater resources available for the project in Chapter 3, Water Resources and Appendix C, Groundwater Resources and Yield. This includes a description of the local Alluvial and Saugus Formation aquifer systems, their respective yields as well as historical and projected production consistent with the purveyor's groundwater operating plan.

3.2.2 Water Code §10910(f) (2). Description of any groundwater basin or basins from which the proposed project will be supplied, including information concerning adjudication and overdraft.

Slade (2002) provides a detailed description of the Santa Clara River Valley East Sub-basin ("Basin") and the two aquifer systems, the Alluvial aquifer and the Saugus Formation. The Basin is about 22 miles long east to west and 13 miles wide. The Alluvial Aquifer has an estimated storage capacity of about 240,000 acre-feet (af) of water and approximately 1.65 million af of potentially usable groundwater is present from depths of 300 to 2,500 feet in the Saugus Formation (Slade 2002).

In 2003, CLWA with the cooperation of Valencia and the other retail water purveyors completed and adopted a Groundwater Management Plan in accordance with Water Code §10753. The management objectives of the Plan is to ensure the ongoing use of local groundwater by maintaining the Basin in good operating condition (no overdraft), protecting water quality and preventing adverse impacts to surface waters. The groundwater basin has not been adjudicated and has not been identified as overdrafted or projected to be overdrafted by the Department of Water Resources (DWR Bulletin 118, California's Groundwater, 2003, page 98).

The most current analysis and update of operational yield for both aquifers is included in the Basin Yield Study completed by CH2MHill/Scalmanini in 2005, as updated by Luhdorff and Scalmanini and GSI Solutions in 2009. The updated report analyzes the operational yield of both aquifers and other parameters of production capacity. The study concluded neither aquifer

system is in overdraft and the purveyor's groundwater operating plan as described in the Groundwater Management Plan is sustainable (Basin Yield Study, 2009).

3.2.3 Water Code §10910(f)(3). Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin from which the proposed project will be supplied.

During the past 5-year period, Valencia's production averaged 12,288 afy from the Alluvial aquifer and 2,212 afy from the Saugus Formation. See Table 2-1 in the SCVWR 2009 for a summary of the historical groundwater production for the past five years by the retail water purveyors.

Total pumpage from the Alluvial aquifer in 2007 was 41,716 af. Of the total Alluvial pumpage in 2008, 27,919 af was for municipal water supply, and the balance, 13,797 af, was for agriculture and other (minor) miscellaneous uses (SCVWR 2009). Since 1980, when imported water deliveries began from the SWP, total pumpage from the Alluvial aquifer has ranged from a low of about 20,200 afy (in 1983) to slightly more than 43,400 afy (in 1999) (SCVWR 2009).

Total pumpage from the Saugus Formation in 2008 was 6,918 af (SCVWR 2009). Of the total Saugus Formation pumpage in 2008, 5,965 af was for municipal water supply, and the balance 953 af was for agricultural and other (minor) uses (SCVWR 2009). Groundwater pumpage from the Saugus peaked in the early 1990s and then declined steadily. On a long-term average basis since the importation of SWP water, total pumpage from the Saugus Formation has ranged from a low of 3,716 afy (in 1999) to a high of 14,917 afy in (1991) (SCVWR 2009).

3.2.4 Water Code §10910(f)(4). Description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system from any basin from which the proposed project will be supplied.

See Table 3-8 in the 2005 UWMP for a summary of the range of groundwater production projected by Valencia and the other the retail water purveyors. To ensure sustainability, the purveyors have committed that the annual use of groundwater pumped collectively in any given year will not exceed the purveyors' operating plan as described in the Basin Yield Study (August 2009) and reported annually in the Santa Clarita Valley Water Report. The project's potable water demand of 608 afy will be supplied from groundwater produced from the Alluvial aquifer located in Los Angeles County.

3.2.5 Water Code §10910(f)(5). Analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

As to the Newhall Ranch Specific Plan, the project applicant, Newhall, would meet most of the potable water demands of the Specific Plan by using Newhall's groundwater produced from the

Alluvial aquifer in Los Angeles County, which is presently committed to agriculture. The amount of water available from this source totals approximately 7,038 afy. The project's potable water demand is estimated to be 608 afy. The water presently used to irrigate crops would be used to meet all of the potable water needs of the project resulting in no net increase in groundwater use.

As stated previously, the water purveyors have developed a groundwater operating plan to meet the requirements of municipal, agricultural and other smaller uses while maintaining the local Alluvial Aquifer and Saugus Formation in a sustainable condition (i.e., no long term depletion of groundwater or interrelated surface water). The groundwater operating plan is based on the concept that pumping can vary from year to year to allow increased groundwater use in dry year periods and increased recharge during wet periods and collectively assure that the groundwater Basin is adequately replenished through various wet/dry cycles. A description of the groundwater operating plan is found in the 2005 UWMP and the Basin Yield Study (August 2009). Based on these studies, the groundwater Basin is in good operating condition (not in a condition of overdraft). The purveyor's groundwater operating plan is a reliable long term component of water supply for the Santa Clarita Valley.

As stated in this WSA, an analysis and discussion regarding the discovery and impact of perchlorate contamination on the sufficiency of groundwater supplies is contained in the 2005 UWMP and most recent annual Santa Clarita Valley Water Report. The reliability analysis contained in the 2005 UWMP takes into account the impact of perchlorate on water supply operations while the planning, design and construction of treatment and other restoration activities are implemented.

3.2.6 Sustainability of Existing Groundwater Supplies and Projected Supplies

Groundwater supplies were reviewed in the 2005 UWMP and evaluated in the Basin Yield Study (August 2009) to determine whether supply projections were realistic over varying hydrologic conditions. The review made the following critical findings:

(1) Both the Alluvial aquifer and the Saugus Formation are reasonable and sustainable sources at the yields represented in the 2005 UWMP over the next 25 years;

(2) The yields are not overstated and will not deplete or "dry up" the groundwater basin; and

(3) There is no need to reduce the yields for purposes of planning in the context of the 2005 UWMP.

Additionally, the 2005 UWMP and Basin Yield Study (August 2009) concluded that both aquifers are in good operating condition (not in a condition of overdraft) and are not projected to become overdrafted.

3.3 Additional Project Water Supplies

3.3.1 Nickel Water

Newhall also maintains contractual rights to an additional source of water, referred to as "Nickel Water." The applicant has secured 1,607 afy of potable water under contract with the Nickel Family LLC in Kern County. This water is 100 percent reliable on a year-to-year basis, and not subject to the annual fluctuations that can occur in dry year conditions. The water would be delivered through the Kern County Water Agency and the SWP system. Nickel Water would only be needed on the Specific Plan site in years when all of the Newhall Ranch agricultural water has been used, which is estimated to occur after the 20th year of project construction. Consequently, this source of water would not be needed to serve the proposed project.

3.3.2 Semitropic Water Storage District Groundwater Banking Project

The project applicant has entered into an agreement to reserve and purchase water storage capacity of up to 55,000 acre-feet in the Semitropic Water Storage District Groundwater Banking Project. Sources of water that can be stored in this banking project include, but are not limited to, Nickel Water, CLWA SWP entitlement and other CLWA water supplies. As of December 31, 2007, Newhall has stored 18,828 af of water in this banking program that could be extracted when needed in amounts of up to 4,950 afy. This supply provides added reliability for the entire Newhall Ranch Specific Plan especially in dry years and only after the Newhall Ranch agricultural water is fully committed. Consequently, this source is not needed to serve the proposed project.

3.4 Recycled Water

Wastewater that has been highly treated and disinfected can be reused for landscape irrigation. In 1993, CLWA completed a *Reclaimed Water System Master Plan* to use recycled water as a reliable water source to meet a portion of the non-potable demand within Santa Clarita Valley. The Master Plan was updated in 2002 and again in 2007, and the amount of recycled water expected to be produced in the future is approximately 17,000 af per year in 2030 (2005 UWMP, CLWA Final Program EIR Recycled Water Master Plan, 2007). CLWA is currently under contract for 1,700 af per year that became available in 2003.

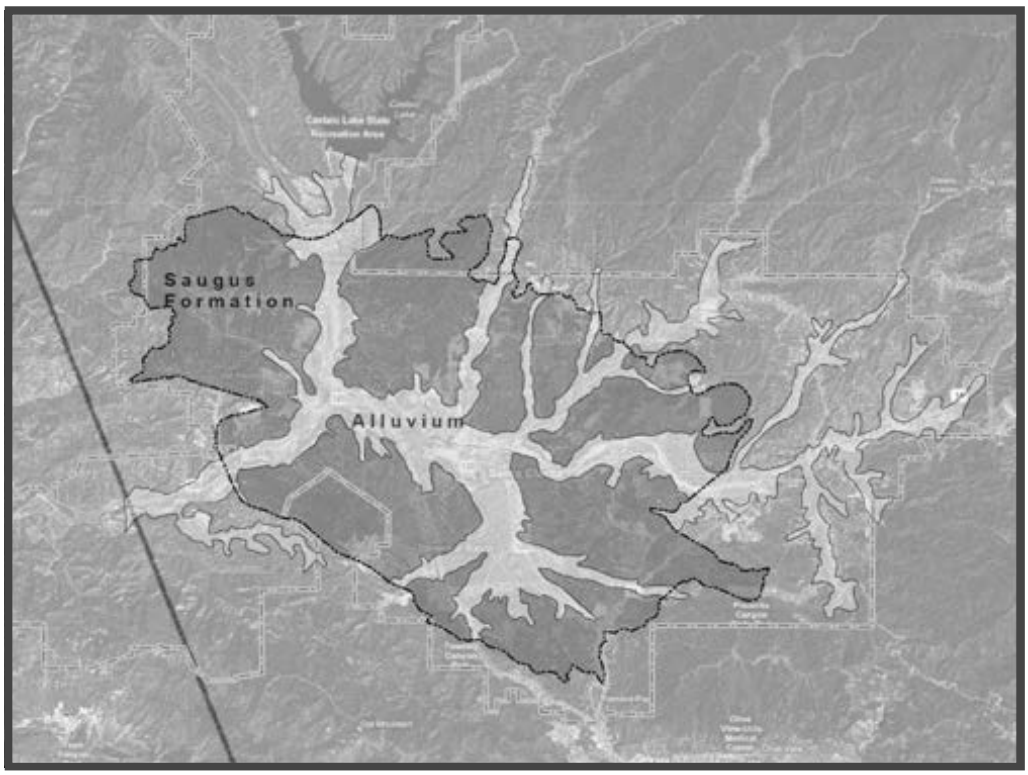
As the Newhall Ranch Specific Plan is developed, including the Landmark Village project, two sources of recycled water would be available to the project from the Newhall WRP and the existing Valencia WRP. Water from the Newhall WRP and Valencia WRP would be used to meet the non-potable demands of the project. Areas on the site that would use recycled water to meet non-potable demands include common areas, slopes, school landscaped areas and parks.

Wastewater generated by the project would be pumped to the Valencia WRP for treatment. Consequently, initial deliveries of recycled water to the project would be supplied from the Valencia WRP.

4.0 CONCLUSION

Based on the analysis set forth in this revised WSA and as supported by the documents relied on for its preparation, Valencia Water Company's total projected water supplies will meet the projected water demands associated with the Landmark Village project in combination with existing and other planned uses within the Valencia's service area. This determination is consistent with the best available information, including the 2005 UWMP, DWR's 2009 Delivery Reliability Report, and the most recent annual Santa Clarita Valley Water Report (April 2009).

2009
Santa Clarita Valley
Water Report



Castaic Lake Water Agency (CLWA)
CLWA Santa Clarita Water Division
Los Angeles County Waterworks District 36
Newhall County Water District
Valencia Water Company
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CONSULTING ENGINEERS

2009 Santa Clarita Valley Water Report

prepared for:

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Table of Contents

Page

Executive Summary ES-1
ES.1 2009 Water Requirements and Supplies 1
ES.2 Alluvial Aquifer 3
ES.3 Saugus Formation 4
ES.4 Imported Water 5
ES.5 Recycled Water 6
ES.6 2010 Water Supply Outlook 7

1. Introduction 1-1
1.1 Background 1
1.2 Purpose and Scope of the Report 2
1.3 Santa Clarita Valley Water Purveyors 3
1.4 The Upper Santa Clara River Hydrologic Area and East Groundwater Subbasin 3

2. 2009 Water Requirements and Supplies 2-1

3. Water Supplies 3-1
3.1 Groundwater Basin Yield 1
3.2 Alluvium – General 5
3.2.1 Alluvium – Historical and Current Conditions 7
3.3 Saugus Formation – General 9
3.3.1 Saugus Formation – Historical and Current Conditions 10
3.4. Imported Water 11
3.4.1 State Water Project Table A Supplies 12
3.4.2 Other Imported Water Supplies 13
3.4.3 Imported Water Supply Reliability 14
3.5 Water Quality – General 15
3.5.1 Groundwater Quality – Alluvium 19
3.5.2 Groundwater Quality – Saugus Formation 19
3.5.3 Imported Water Quality 20
3.6 Recycled Water 20
3.7 Santa Clara River 21

4. Summary of 2009 Water Supply and 2010 Outlook 4-1

5. Water Conservation 5-1

6. References 6-1

Figures

(all figures follow their respective sections)

1-1	CLWA and Purveyor Service Areas
1-2	Santa Clara River Groundwater Subbasins
1-3	Annual Precipitation and Cumulative Departure from Mean Annual Precipitation at Newhall-Soledad 32c Gage
2-1	Total Water Supply Utilization Santa Clarita Valley
3-1	Alluvium and Saugus Formation Santa Clara River Valley, East Groundwater Subbasin
3-2	Groundwater Production - Alluvium Santa Clara River Valley, East Groundwater Subbasin
3-3	Alluvial Well Locations By Area Santa Clara River Valley, East Groundwater Subbasin
3-4	Groundwater Elevations in Eastern Santa Clarita Valley Alluvial Wells
3-5	Groundwater Elevations in Western Santa Clarita Valley Alluvial Wells
3-6	Annual Groundwater Production from Alluvium by Area (Acre-feet) Santa Clara River Valley, East Groundwater Subbasin
3-7	Saugus Well Locations Santa Clara River Valley, East Groundwater Subbasin
3-8	Groundwater Production – Saugus Formation Santa Clara River Valley, East Groundwater Subbasin
3-9	Groundwater Elevations in Saugus Wells
3-10	Treated Water Distribution System Castaic Lake Water Agency

Figures, continued

(all figures follow their respective sections)

3-11 Groundwater Quality in Eastern Santa Clarita Valley Alluvial Wells

3-12 Groundwater Quality in Western Santa Clarita Valley Alluvial Wells

3-13 Groundwater Quality in Saugus Wells

3-14 Annual Stream Discharge
Santa Clara River

4-1 Historical and Projected Water Use
Santa Clarita Valley

Tables

Page

ES-1 Santa Clarita Valley Summary of 2009 Water Supplies and Uses ES-2
2-1 Water Supply Utilization by Municipal Purveyors ..... (after) 2-2
2-2 Individual Water Supply Utilization by Agricultural and Other Users .... (after) 2-2
2-3 Total Water Supply Utilization for Municipal, Agricultural and Other Uses ..... (after) 2-2
3-1 Groundwater Operating Plan for the Santa Clarita Valley 3-3
3-2 2009 CLWA Imported Water Supply and Disposition ..... (after) 3-13
4-1 2010 Water Supply and Demand ..... (after) 4-2

Executive Summary

This annual report, which is the twelfth in a series that began to describe water supply conditions in 1998, provides current information about the water requirements and water supplies of the Santa Clarita Valley. The report was prepared for the imported water wholesaler, Castaic Lake Water Agency (CLWA), and for the four local retail water Purveyors that serve the Valley: CLWA Santa Clarita Water Division, Los Angeles County Waterworks District 36, Newhall County Water District, and Valencia Water Company. These entities and representatives from the City of Santa Clarita and the County of Los Angeles Department of Regional Planning meet as required to coordinate the management of imported water with local groundwater and recycled water to meet water requirements in the Valley.

This report provides information about local groundwater resources, State Water Project (SWP) and other imported water supplies, water conservation, and recycled water. The report reviews the sufficiency and reliability of supplies in the context of existing water demand, with focus on actual conditions in 2009, and it provides a short-term outlook of water supply and demand for 2010.

ES.1 2009 Water Requirements and Supplies

In 2009, total water requirements in the Santa Clarita Valley were about 86,600 acre-feet (af), of which about 70,000 af (81 percent) were for municipal use and the remainder (16,600 af) was for agricultural and other (miscellaneous) uses, including individual domestic uses. Total demand in 2009 was about 4.5 percent lower than in 2008, less than what was estimated in the 2008 Water Report, and water requirements in 2009 were also lower than the average projection in the 2005 Urban Water Management Plan (UWMP) (but closer to the projection in the 2005 UWMP with conservation). The majority of decreased water demand is attributable to a significant (8%) decrease in municipal water use from 2008. Total water requirements in 2009 were met by a combination of about 47,700 af from local groundwater resources (about 31,100 af for municipal and about 16,600 af for agricultural and other uses), about 38,600 af of SWP and other imported water, and about 300 af of recycled water.

Of the 47,700 af of total groundwater pumping in the Valley in 2009, about 40,000 af were pumped from the Alluvium and about 7,700 af were pumped from the underlying, deeper Saugus Formation. Alluvial pumping represented about a 1,750 af decrease from 2008, and Saugus pumping was slightly higher than in 2008, by about 750 af. Neither pumping volume resulted in any notable overall change in groundwater conditions (water levels, water quality, etc.) in either

aquifer system. Imported water deliveries to the Purveyors decreased by about 3,200 af from the previous year. Water uses and supplies in 2009 are summarized in the following Table ES-1.

Table ES-1
Santa Clarita Valley
Summary of 2009 Water Supplies and Uses
(acre-feet)

Municipal		
SWP and other Imported		38,546
Groundwater (Total)		31,100
Alluvium	*24,396*	
Saugus	*6,704*	
Recycled Water		328
Subtotal		**69,974**
Agriculture/Miscellaneous		
SWP and other Imported		-
Groundwater (Total)		16,564
Alluvium	*15,590*	
Saugus	*974*	
Subtotal		**16,564**
Total		***86,538***

In accordance with the California Urban Water Management Planning Act, the Valley-wide UWMP was updated in 2005 to extend projected water demands through 2030, and to describe the combination of local groundwater, imported water supplies from the State Water Project and other sources, local recycled water supplies, and other water supplies planned to meet those existing and projected water demands in the Valley. The 2005 UWMP describes the reliability of local groundwater resources and the adequacy of groundwater supplies to meet groundwater demand, including consideration of the impacts of perchlorate contamination on several municipal water supply wells. The 2005 UWMP also describes the plans and ongoing work for integrated control of perchlorate migration and full restoration of perchlorate-impacted groundwater supply.

Notable details about each component of water supply in the Valley, and about the water supply outlook for 2010, include the following.

ES.2 Alluvial Aquifer

The groundwater operating plan in the 2005 UWMP includes Alluvial pumping in the range of 30,000 to 40,000 acre-feet per year (afy) following average/normal years, and slightly reduced pumping (30,000 to 35,000 afy) following dry years. An updated review of groundwater basin yield, completed in 2009, includes the same basic range of Alluvial pumping in the 2008 groundwater Operating Plan. Pumping from the Alluvium in 2009 was 40,000 af, which is at the upper end of the operating plan range for the Alluvium and had no adverse effects on groundwater levels and storage in the basin. On average, pumping from the Alluvium has been about 32,000 afy since supplemental imported water became available in 1980. That average rate remains near the lower end of the range of operational yield.

On a long-term basis, continuing through 2009, there is no evidence of any historic or recent trend toward permanent water level or storage decline. In general, throughout a large part of the basin, Alluvial groundwater levels have generally remained near historic highs during the last 30 years. Above average precipitation in late 2004 and 2005 resulted in significant water level recovery in the eastern part of the basin, continuing the overall trend of fluctuating groundwater levels within a generally constant range over the last 30 years. These ongoing data indicate that the Alluvium remains in good operating condition and can continue to support pumping in the operating range included in the 2005 UWMP, or slightly higher, without adverse results (e.g., long-term water level decline or degradation of groundwater quality.)

Based on an integration of water quality records from multiple wells completed in the Alluvium, there have been historical fluctuations in groundwater quality, typically associated with variations in precipitation and streamflow. However, like groundwater levels, there has been no long-term trend toward groundwater quality degradation; groundwater produced from the Alluvial aquifer remains a viable municipal and agricultural water supply.

In 2002, as part of ongoing monitoring of wells for perchlorate contamination, perchlorate was detected in one Alluvial well (the SCWD Stadium Well) located near the former Whittaker-Bermite facility. The detected concentration was slightly below the then-applicable Notification Level for perchlorate (6 µg/l, which was subsequently established as the Maximum Contaminant Level for perchlorate in October 2007), and the well has now been replaced to restore that component of municipal water supply that was impacted by perchlorate. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. After an interim period of wellhead treatment, that well has now been returned to regular water supply service. All other Alluvial wells operated by the Purveyors continue to be used for municipal water supply service;

those wells near the Whittaker-Bermite property are sampled in accordance with drinking water regulations and perchlorate has not been detected. As detailed in the 2005 UWMP, the ongoing inactivation of one Alluvial well due to perchlorate contamination does not limit the Purveyors' ability to produce groundwater from the Alluvium in accordance with the groundwater operating plan in the 2005 UWMP or the now updated 2008 groundwater Operating Plan.

The ongoing characterization and plan for control and cleanup of perchlorate in the Valley has focused on the Saugus Formation. In addition, however, on-site cleanup and control activities that began in 2006, and continued through 2009, include continuation of soil cleanup on the Whittaker-Bermite site, and continuation of pumping and treatment in the Northern Alluvium on the Whittaker-Bermite site. Expanded pumping and treatment, intended to effect perchlorate containment in the Northern Alluvium, became operational in October 2007. Under the direction of the State Department of Toxic Substances Control (DTSC), Whittaker has submitted a comprehensive site-wide remediation plan for the contaminants of concern in soil and groundwater detected on the site. A Draft Remedial Action Plan for Operable Units 2 through 6, focused on soil remediation, was submitted to DTSC in 2009. Whittaker has also completed a Draft Feasibility Study for Operable Unit 7 to identify and select treatment technologies for both on-site and off-site groundwater. Final approval of soil and groundwater clean-up plans by DTSC is expected by the end of 2010.

ES.3 Saugus Formation

The groundwater operating plan in the 2005 UWMP includes pumping from the Saugus in the range of 7,500 to 15,000 afy in average/normal years; it also includes planned dry-year pumping from the Saugus of 21,000 to 35,000 afy for one to three consecutive dry years. The 2005 UWMP recognizes the results of basin yield analyses in 2004 and 2005 which found that such short-term pumping can be recharged during subsequent wet/normal years to allow groundwater levels and storage to recover, as it has in historical periods. The 2008 groundwater Operating Plan includes the same broad ranges by Saugus pumping.

Pumping from the Saugus Formation was about 7,700 af in 2009; on average, Saugus pumping has been about 6,800 afy since 1980. Both rates remain near the lower end of the ranges included in the groundwater operating plans and in the UWMP. As a result of long-term relatively low pumping from the Saugus Formation, groundwater levels in that aquifer have remained generally constant to slightly increasing over the last 35 to 40 years; those trends continued in 2009.

In 1997, ammonium perchlorate was discovered in four wells completed in the Saugus Formation in the vicinity of the former Whittaker-Bermite facility located generally toward the east, on the south side of the basin. All four of those impacted wells remain out of active supply service; one of them has been permanently sealed and destroyed. In 2006, a very low level of perchlorate was detected in another Saugus municipal well (NCWD's Well NC-13). That low level detection has been interpreted to not indicate anything new about the migration of perchlorate; however, it has also prompted additional monitoring well installation and a focused study of the Saugus Formation in that area. Results are being integrated with other groundwater remediation efforts and reviewed by the DTSC. All other Saugus wells owned and operated by the Purveyors are available for municipal water supply service. As part of regular operation, those wells are sampled in accordance with drinking water regulations and perchlorate has not been detected. Despite the inactivated Saugus wells, the Purveyors still have sufficient pumping capacity in other wells to meet the planned normal range of Saugus pumping in the 2005 UWMP.

Work toward the ultimate remediation of perchlorate contamination, including the restoration of impacted groundwater supply continued to progress in 2009, with focus on construction of facilities to implement a jointly developed plan to "pump and treat" contaminated water from two of the originally impacted wells to stop migration of the contaminant plume, and to deliver treated water for municipal supply to partially replace impacted well capacity. Environmental review of the project was completed with adoption of a Mitigated Negative Declaration in September 2005. The Final Interim Remedial Action Plan was completed and approved by DTSC in January 2006. Construction of facilities and pipelines necessary to implement the pump and treat program and to also restore inactivated well capacity began in November 2007. Construction was completed in spring 2010, and operational start-up is ongoing as this report is being written.

ES.4 Imported Water

Historically comprised of only its SWP Table A Amount, CLWA's imported water supplies now consist of a combination of SWP water and water acquired from the Buena Vista Water Storage District in Kern County. CLWA's contractual Table A Amount is 95,200 af of water from the SWP. Under the 2007 Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo), Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within the Rosedale-Rio Bravo's service area on an ongoing basis. CLWA will receive 11,000 af of these supplies annually through either exchange

of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal.

CLWA's final allocation of SWP water for 2009 was 40 percent of its Table A Amount, or 38,080 af. The total available imported water supply in 2009 was 67,050 af, comprised of the 38,080 af of Table A supply, 11,000 af purchased from Buena Vista/Rosedale Rio Bravo, 14,610 af of 2008 carryover delivered in 2009, 1,650 af recovered from the Semitropic Water Banking and Exchange Program, 52 af from the 2009 SWP Turnback Pool and 1,658 af through the Yuba Accord. CLWA deliveries to the Purveyors were 38,546 af. Following disposition of available water supplies in 2009, carryover of 28,303 af from 2008 and 2009 is available for 2010 water supply. No additional banking of imported water occurred in 2009.

CLWA has two groundwater banking agreements with the Semitropic Water Storage District in Kern County. In accordance with those agreements, over a ten-year period (until 2012/13), CLWA could withdraw up to 50,870 af of its Table A water that was stored in 2002 and 2003 to meet future Valley demands when needed. Following the withdrawal of 4,950 af in 2009 (1,650 af utilized in 2009 and 3,300 af planned to be utilized in 2010), that balance is 45,920 af. In addition to the banking in Semitropic, CLWA finalized an agreement with the Rosedale-Rio Bravo Water Storage District in 2005 and can now bank up to 100,000 afy of surplus Table A Amount in that District's Water Banking and Exchange Program. In addition to 20,000 af previously banked in both 2005 and 2006, CLWA banked 8,200 af of water in 2007. In accordance with the provisions of that agreement, CLWA can withdraw up to a total of 42,900 af of that water, at a rate up to 20,000 afy, to meet Valley water demands when needed. Additionally, as part of the Buena Vista Water Acquisition Agreement, CLWA is entitled to 22,000 af of water that was stored in the Rosedale Rio-Bravo Water Banking and Exchange Program in 2005 and 2006 on CLWA's behalf. As of 2010, CLWA maintains a recoverable total of 64,900 af in the Rosedale Rio-Bravo Water Banking and Exchange Program.

Since SWP water deliveries are subject to reduction when dry conditions occur in Northern California, the UWMP includes programs, like the Semitropic and Rosedale-Rio Bravo programs, for enhancing water supply reliability during such occurrences. A capital improvement program funded by CLWA has been established to provide facilities and additional water supplies needed to firm up SWP water supplies during times of drought.

ES.5 Recycled Water

Recycled water service was initiated in July 2003 in accordance with CLWA's Draft Reclaimed

Water System Master Plan (2002). The amount of recycled water used for irrigation purposes, at a golf course and in roadway median strips, was approximately 328 af in 2009. CLWA completed programmatic CEQA analysis in early 2007 for full implementation of the recycled water system as outlined in the Master Plan. CLWA is preparing the design of the second phase of the Recycled Water Master Plan that will take water from the Saugus Water Reclamation plant and distribute it to identified users to the north, across the Santa Clara River and then to the west and the east, which will include service to Santa Clarita Central Park. Another new phase of the recycled water system is in design to extend the system south from Magic Mountain Parkway. Collectively, these phases will have design capacity to increase recycled water deliveries by about 1,500 afy.

ES.6 2010 Water Supply Outlook

In 2010, total water demands are expected to be between 82,000-84,000 af, less than actual water use over the last three years, and below the water demand projections in the 2005 UWMP. It is expected that water demands in 2010 will continue to be met with a generally similar mix of water supplies comprised of local groundwater, supplemental SWP and other imported water, and recycled water.

Announced on May 20, 2010, the final allocation of water from the SWP is 45 percent of CLWA's Table A Amount, or 42,840 af. Combined with local groundwater from the two aquifer systems (48,000 af), total Flexible Storage Account (6,060 af), net carryover of SWP Table A allocation from 2008 and 2009 (28,303 af), annual acquisition through the Buena Vista Water/Rosedale Rio-Bravo Water Acquisition Agreement (11,000 af), delivery of water previously recovered but not used from the Semitropic Groundwater Storage Bank (3,300 af), and recycled water (500 af), the total available water supplies for 2010 are 140,000 af. As a result, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2010.

In August, 2007, a federal court ruled that certain operational changes were required of the SWP in order to protect the endangered Delta smelt. The court order resulted in the preparation of a new Biological Opinion (BO) requiring DWR to implement mitigation requirements with resultant impacts on SWP water supply reliability. Since then, DWR has prepared two updates to its 2005 Reliability Report, which is issued biennially to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies under varying hydrologic scenarios, e.g. normal and dry years. The current Draft SWP Delivery Reliability Report 2009 was issued in February, 2010. With the objective of protecting endangered fish such as the Delta

smelt and spring-run salmon, the Draft incorporates restrictions on SWP operations according to the Biological Opinions of the U.S. Fish and Wildlife Service and the National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. It also considers the impacts on SWP delivery reliability due to climate change, sea level rise, and vulnerability of the Delta's conveyance system and structure due to floods and earthquakes. The current Draft Reliability Report projects long-term reliability of 60 percent during normal year hydrology. CLWA staff has assessed the impact of the current Reliability Report on the CLWA reliability analysis contained in the Agency's 2005 UWMP and concluded that current and anticipated supplies are available to meet anticipated water supply needs.

CLWA, the retail water Purveyors, Los Angeles County and the City of Santa Clarita have formed the Santa Clarita Valley Water Committee. The specific purpose of the committee is to work collaboratively to ensure the progressive implementation of water use efficiency programs and ordinances in the Santa Clarita Valley. In terms of short-term water supply availability, CLWA has determined that, while current operational changes of the SWP are in effect, there are sufficient supplemental water supplies, including SWP water, to augment local groundwater and other water supplies such that overall water supplies will be sufficient to meet projected 2010 water requirements as reflected herein.

In any given year, SWP supplies may be reduced due to dry weather conditions or regulatory factors. During such an occurrence, the remaining water demands are planned to be met by a combination of alternate supplies such as returning water from CLWA's accounts in the Semitropic Groundwater Storage Program and the Rosedale-Rio Bravo Water Banking and Exchange Program, deliveries from CLWA's flexible storage account in Castaic Lake Reservoir, local groundwater pumping, short-term water exchanges, and participation in DWR dry-year water purchase programs in accordance with the 2005 Urban Water Management Plan. Following the recovery of 4,950 af in 2009, the banked excess 2002 and 2003 SWP Table A water in Semitropic represents nearly 46,000 af of recoverable water for drought water supply. In addition, the banked excess SWP Table A water in 2005 and 2006, augmented by banked water acquired through the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement in 2005, 2006 and 2007, represent a total of 64,900 af of recoverable water for drought water supply from the Rosedale-Rio Bravo Banking and Exchange Program.

Drought periods may affect available water supplies in any single year and for a duration usually not longer than three consecutive years. It is important to note that hydrologic conditions vary from region to region throughout the state. Dry conditions in Northern California affecting SWP supply may not affect local groundwater and other supplies in Southern California, and the

reverse situation can also occur (as it did in 2002 and 2003). For this reason, CLWA and the Purveyors have emphasized developing a water supply portfolio that is diverse, especially in dry years. Diversity of supply is considered a key element of reliability, giving Valley water Purveyors the ability to draw on multiple sources of supply to ensure reliable service during dry years, as well as during normal and wet years.

1. Introduction

1.1 Background

For most residents of the Santa Clarita Valley (Valley), domestic water service is provided by four retail water Purveyors: Castaic Lake Water Agency's Santa Clarita Water Division (SCWD), Los Angeles County Waterworks District 36 (LAWWD36), Newhall County Water District (NCWD), and Valencia Water Company (VWC). Together, the Purveyors provide water to nearly 70,000 service connections. As a State Water Contractor, Castaic Lake Water Agency (CLWA) contracts for State Water Project water delivered from Castaic Lake, after which it is treated, filtered, and disinfected at two CLWA treatment plants before distribution to the Purveyors. Staff of these entities meet regularly to coordinate the supply of water in the Valley. Their respective service areas are shown in Figure 1-1.

While municipal water supply has grown to become the largest category of water use in the Valley, there remains an agricultural and other small private water demand that is predominately dependent on local groundwater for its water supply. Accordingly, ongoing agricultural water requirements and the use of local groundwater to meet those requirements are considered in analyses of water requirements and supplies such as reported herein. In addition to municipal and agricultural water uses in the Valley, water supply for a small fraction of Valley residents is provided by individual private water supply wells. The locations, construction details, annual pumping and other information about these private wells are not currently available. In the absence of detailed information about private wells and associated water use, pumping as reported herein necessarily includes an estimate of groundwater pumped from private wells; it is intended that this estimate will be refined in the future as more information about the private wells is obtained.

For more than 20 years, CLWA and the Purveyors have reviewed and reported on the availability of water supplies to meet all water requirements in the Valley. Those reports have also addressed local water resources, most notably groundwater, in the region. Past studies have assessed the condition of local groundwater aquifers, their hydrogeologic characteristics, aquifer storage capacity, operational yield and recharge rate, groundwater quality and contamination, and the ongoing conjunctive use of groundwater and imported water resources.

Other efforts have included developing drought contingency plans, coordinating emergency response procedures and implementing Valley-wide conservation programs. In 1985, the

Purveyors prepared the area's first Urban Water Management Plan (UWMP.) Information in the plan was coordinated among CLWA and the Purveyors to provide accurate, comprehensive and consistent water supply and demand information for long term planning purposes. In accordance with the California Urban Water Management Planning Act, the Valley-wide UWMP was most recently updated in 2005 to extend water demand projections through 2030, and to describe the combination of local groundwater, imported water supplies from the State Water Project, local recycled water supplies, and planned other water supplies to meet the existing and projected water demands in the Valley. The 2005 UWMP also describes the reliability of local groundwater resources and the adequacy of groundwater supplies to meet that component of overall water supply; and it also describes the impacts of perchlorate contamination on several municipal water supply wells, and the plans and ongoing work for integrated control of perchlorate migration and full restoration of perchlorate-impacted groundwater supply.

In 2009, primarily in preparation for the next update of the UWMP in 2010, an updated analysis of groundwater basin yield was completed to guide the ongoing use of groundwater and the associated distribution of pumping to maintain groundwater use at a sustainable rate while also addressing localized issues such as restoration of groundwater contamination which has impacted local groundwater supplies since 1987. The results of the updated groundwater basin analysis are summarized in this Water Report.

1.2 Purpose and Scope of the Report

The purpose of this report, which is the twelfth in a series of annual water reports that began to describe water supply conditions in 1998, is to provide current information about water requirements and available water supplies to meet those demands in the Santa Clarita Valley. CLWA and the Purveyors began preparation of this series of reports in response to a request made by the Los Angeles County Board of Supervisors in 1998. Over the last few years, this series of reports has also served as an annual summary of groundwater conditions in the Valley in fulfillment of the commitment in the Santa Clarita Valley Groundwater Management Plan, adopted in 2003, to regularly report on implementation of that Plan.

This report was prepared for Castaic Lake Water Agency, for CLWA's Santa Clarita Water Division, and for Los Angeles County Waterworks District 36, Newhall County Water District, and Valencia Water Company. It continues a format for providing information regarding water uses and the availability of water supplies on an annual basis. It is intended to be a helpful resource for use by water planners and local land use planning agencies. This report is complemented by the more detailed Urban Water Management Plan for the area, which provides

longer-term water supply planning over a 25-year period, and by a number of other technical reports, some of which are specifically referenced herein.

1.3 Santa Clarita Valley Water Purveyors

As introduced above, four retail water Purveyors provide water service to most residents of the Santa Clarita Valley. Brief summary descriptions of those four Purveyors are as follows.

Castaic Lake Water Agency Santa Clarita Water Division has a service area that includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Saugus, Canyon Country, and Newhall. Water is supplied from both groundwater and CLWA turnouts to about 28,700 service connections.

Los Angeles County Waterworks District 36 has a service area that encompasses approximately 7,635 acres in the Hasley Canyon area and the unincorporated community of Val Verde. LAWWD 36 has nearly 1,400 service connections. The District has traditionally obtained its full water supply from a connection to the CLWA's Castaic Conduit and continued to do so in 2009.

Newhall County Water District's service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall, Canyon Country, Valencia, and Castaic. NCWD supplies water from both groundwater and CLWA turnouts to approximately 9,600 service connections.

Valencia Water Company's service area serves nearly 30,000 service connections in a portion of the City of Santa Clarita and in the unincorporated communities of Castaic, Newhall, Saugus, Stevenson Ranch, and Valencia. VWC supplies water from both groundwater and CLWA turnouts; VWC also delivers recycled water for a small amount of non-potable use.

1.4 The Upper Santa Clara River Hydrologic Area and East Groundwater Subbasin

The Upper Santa Clara River Hydrologic Area (HA), as defined by the California Department of Water Resources (DWR), is located almost entirely in northwestern Los Angeles County. The area encompasses about 654 square miles comprised of flat valley land (about 6 percent of the total area) and hills and mountains (about 94 percent of the total area) that border the valley area. The mountains include the Santa Susana and San Gabriel Mountains to the south, and the Sierra

Pelona and Leibre-Sawmill Mountains to the north. Elevations range from about 800 feet on the valley floor to about 6,500 feet in the San Gabriel Mountains. The headwaters of the Santa Clara River are at an elevation of about 3,200 feet at the divide separating this hydrologic area from the Mojave Desert.

The Santa Clara River and its tributaries flow intermittently from Lang Station westward about 35 miles to Blue Cut, just west of the Los Angeles-Ventura County line, where the River is the outlet from the Upper Santa Clara River Hydrologic Area. The principal tributaries of the River in the Santa Clarita Valley are Castaic Creek, San Francisquito Creek, Bouquet Creek, and the South Fork of the Santa Clara River. In addition to tributary inflow, the Santa Clara River receives treated wastewater discharge from the Saugus and Valencia Water Reclamation Plants, which are operated by the Sanitation Districts of Los Angeles County.

The Santa Clara River Valley East Groundwater Subbasin, beneath the Santa Clarita Valley in the Upper Santa Clara River HA, is the source of essentially all local groundwater used for water supply in the Santa Clarita Valley. Below Blue Cut, the Santa Clara River continues westward through Ventura County to its mouth near Oxnard. Along that route, the River traverses all or parts of six groundwater basins in Ventura County (Piru, Fillmore, Santa Paula, Oxnard Forebay, Oxnard Plain, and Mound) as shown in Figure 1-2.

There are two primary precipitation gages in the Santa Clarita Valley, the Newhall-Soledad 32c gage and the Newhall County Water District gage (Figure 1-3). The National Climatic Data Center (NCDC) and Los Angeles County Department of Public Works (LADPW) have maintained records for the Newhall-Soledad 32c gage since 1931. Newhall County Water District has maintained records for the NCWD gage since 1979. The cumulative records from these two gages correlate very closely, with the NCWD gage recording approximately 25 percent more precipitation than the Newhall-Soledad 32c gage. This is likely due to the location of the NCWD gage, which is at the base of the mountains rimming the southern edge of the Santa Clarita Valley.

The Santa Clarita Valley is characterized as having an arid climate. Historically, intermittent periods of below-average precipitation have typically been followed by periods of above-average precipitation in a cyclical pattern, with each wetter or drier period typically lasting from one to five years. The longer-term precipitation records for the Newhall-Soledad 32c gage are illustrated in Figure 1-3. Long-term average precipitation at that gage is 17.9 inches (1931-2009). Figure 1-3 also shows the cumulative departure from mean annual precipitation. In general, periods of below-average precipitation have been longer and more moderate than

periods of above-average precipitation. Recently, the periods from 1971 to 1976, 1984 to 1991 and 1999 to 2003 have been drier than average; the periods from 1977 to 1983 and 1992 to 1996 have been wetter than average. More recently, wet conditions that began in late 2004, continued into early 2005, ultimately resulting in about 37 inches of measured precipitation, or slightly more than 200 percent of long-term average precipitation, in that year. Those significantly wet conditions contributed to substantial groundwater recharge and decreased water demand that year. Subsequently, total precipitation in 2006 and 2007 was slightly to significantly lower, 14 inches and 6 inches respectively, but water requirements in both years were still close to those projected in the 2005 UWMP, and there were no dramatic changes in groundwater conditions. With the exception of the average annual rainfall total in 2008, the dry conditions that began in 2006 have persisted through 2009. 2009 was a below-average year, with 11.6 inches of precipitation. However, water demand in 2009 was below that projected for average conditions in the 2005 UWMP, and below the short-term projection in the 2008 Water Report. Early year precipitation in 2010 was approximately 13.4 inches through April, or close to long-term average for that part of the year, but water use further decreased from last year for the same period. Combined with other water supply considerations, discussed in Chapter 4, those conditions are expected to result in 2010 water requirements being slightly lower than water use in 2009.

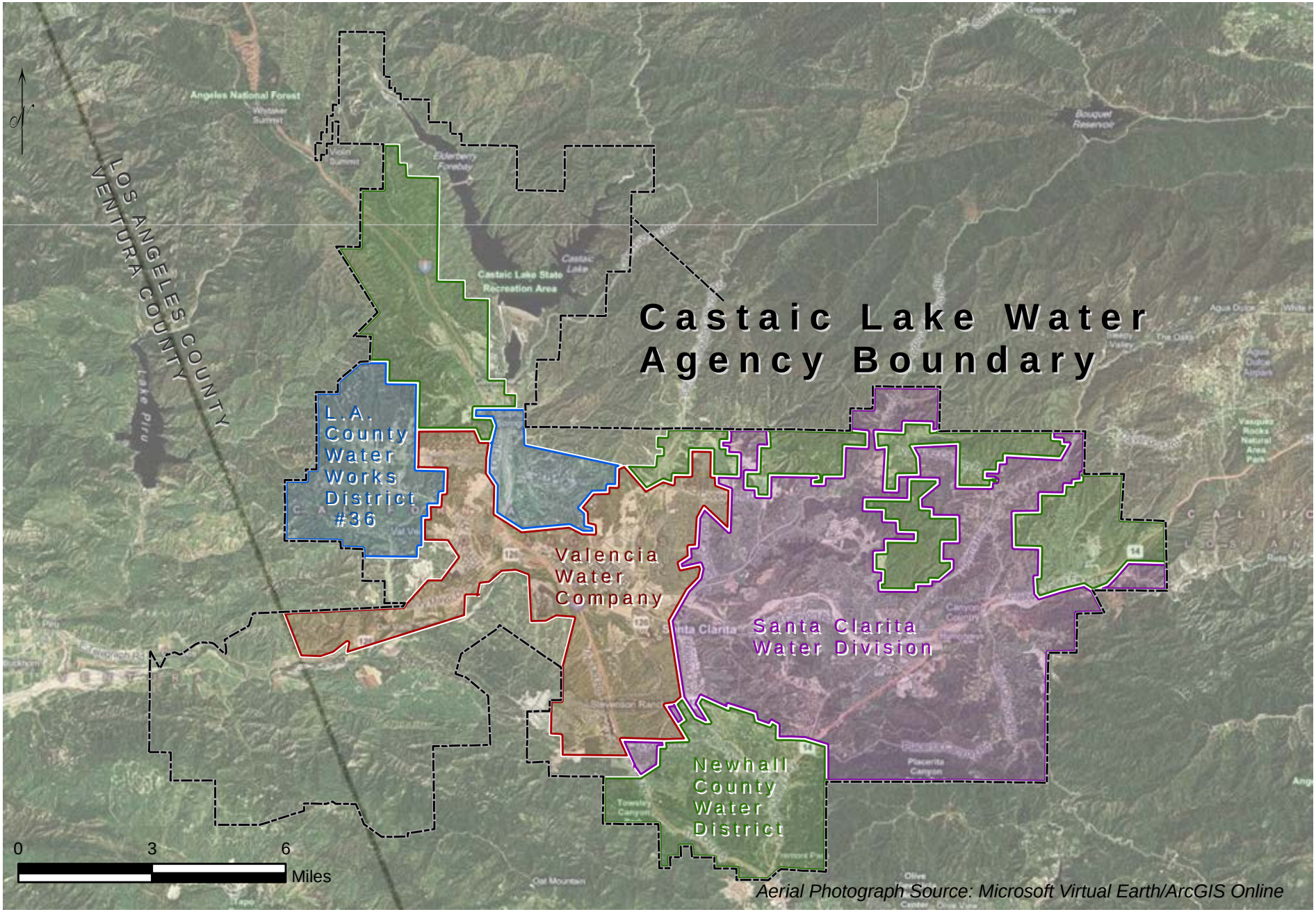

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Figure 1-1
CLWA and Purveyor Service Areas

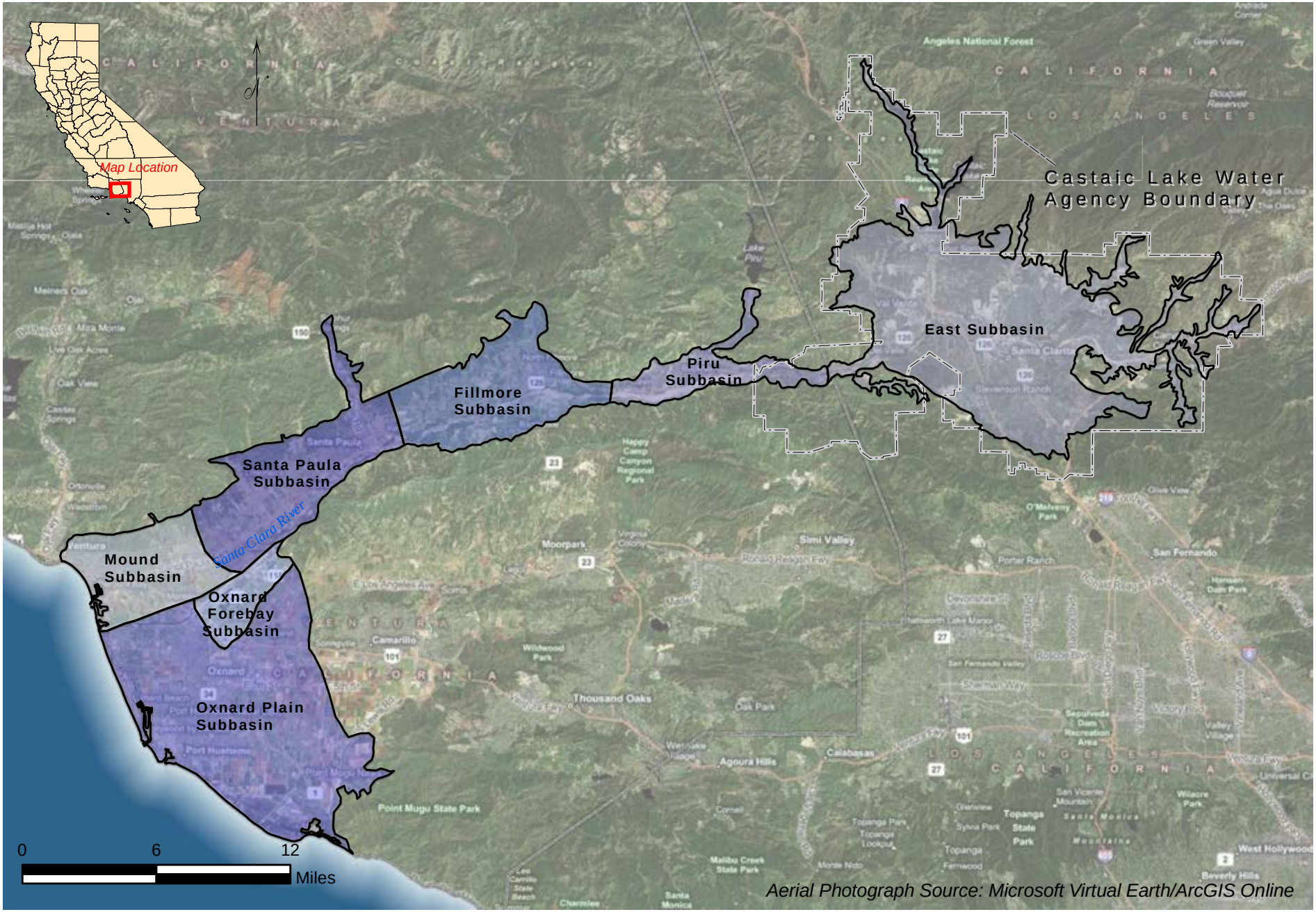

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Figure 1-2
Santa Clara River Groundwater Subbasins

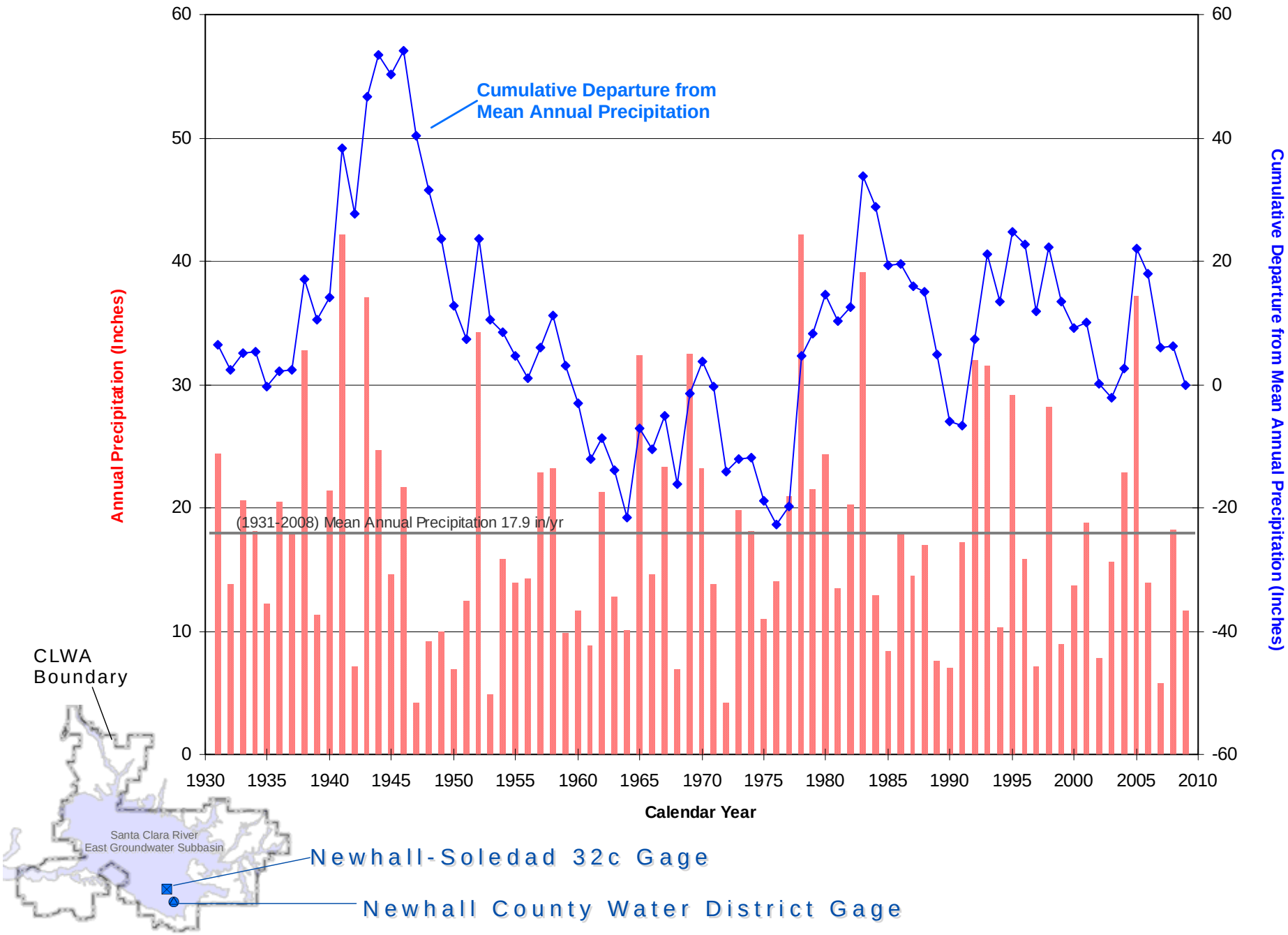

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Figure 1-3
Annual Precipitation and Cumulative Departure from Mean Annual Precipitation at Newhall-Soledad 32c Gage

2. 2009 Water Requirements and Supplies

Total water use in the Santa Clarita Valley was 86,600 af in 2009, a decrease of 4,100 af from the previous year. Of the total water demand, 70,000 af (81 percent) were for municipal use and the remaining 16,600 af (19 percent) were for agricultural and other (miscellaneous) uses, including estimated individual domestic uses. The majority of decreased water demand is attributable to a significant (8%) decrease in municipal water use from 2008. The total water demands were met by a combination of about 47,700 af from local groundwater resources (about 31,100 af for municipal supply and about 16,600 af for agricultural and other uses), about 38,600 af of SWP and other imported water, and about 300 af of recycled water.

Compared to the previous year, total water demand in the Santa Clarita Valley decreased by about 4.5 percent in 2009, and was less than the short-term projected water requirement presented in last year's Water Report. The decrease in water use in 2009 is attributed to ongoing very slow growth in the number of new service connections and continued water conservation awareness as a result of state-wide dry conditions and decreased deliveries of water from the State Water Project. Growth in each Purveyor service area was notably lower than in the preceding two years, with total additions of only about 300 new services connections in 2009, in notable contrast to the growth rate of about 1,000 connections per year over the preceding three years, and in even greater contrast to the predominant growth rate that was three times higher from the late 1990's through 2004. In addition, the Purveyors and the local community continued to be aware of the Governor's Alert in June, 2008 with regard to drought conditions and potential water supply shortages followed by the Governor's Drought Emergency Declaration in February, 2009. The widespread awareness of dry conditions throughout the state and the perceived effects on water supply availability are considered to be prime factors causing total water demand in 2009 to have continued to decline over each of the preceding two years, and to be well below the demand projections in the 2005 UWMP.

The uses of local groundwater, augmented by imported water supplies to meet municipal water requirements since 1980, when the importation of SWP water began, and also slightly augmented by the use of recycled water, are summarized in Table 2-1. Notable with regard to municipal water requirements is that, through 2009, total municipal demand (70,000 af) continues to be below (by about 11,000 af in 2009) the projections in the 2005 UWMP without conservation, and about equal to the projections in the UWMP with conservation.

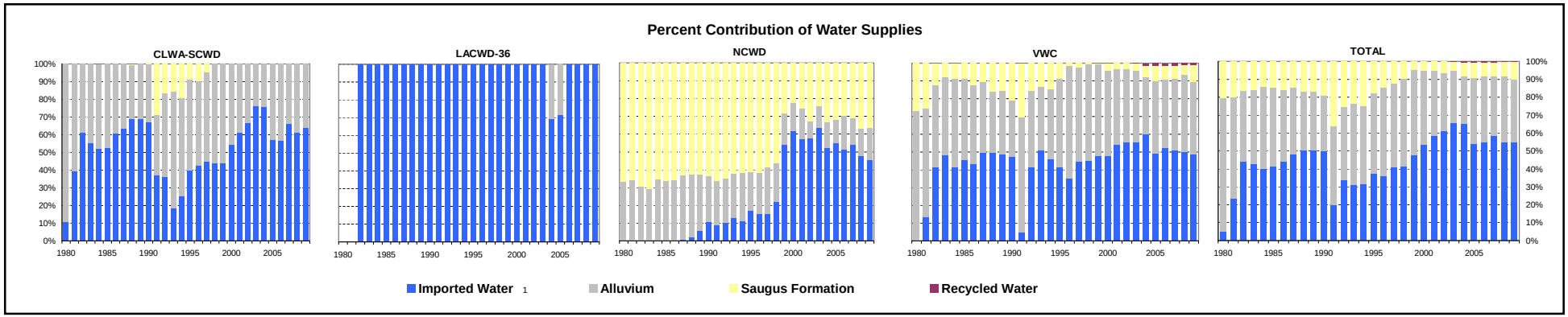
Water supply utilization for all agricultural and other non-municipal uses is summarized in Table 2-2. The category of Small Private Domestic, Irrigation and Golf Course Uses in Table 2-2 includes an estimated 500 af of small private pumping from the Alluvium.

Water supply utilization for all uses in the Santa Clarita Valley, again for the period 1980 to present, is summarized in Table 2-3. The trends in utilization of local groundwater and imported water, complemented by the recent addition of recycled water, are graphically illustrated in Figure 2-1. As can be seen by inspection of Table 2-2 and Figure 2-1, total water use in the Valley was nearly linearly increasing from the early 1980's through 2007, with some weather-related fluctuations in certain years. As discussed above, total water use has declined over the last two years, from a peak slightly above 92,000 af in 2007 to 86,600 af in 2009. Overall, the increase in total water demand since the inception of supplemental SWP importation has been from about 37,000 acre-feet in 1980 to the mid-80,000 acre-feet per year range through 2000-2005, to the short-term peak in the low-90,000 acre-feet per year range in 2006 through 2008.

The decreased demand in 2009 is comparable to the then-increasing demand in 2002. As can also be seen by inspection of Table 2-2 and Figure 2-1, most of the historical increase in water demand has been met with generally increasing importation of SWP water, most recently complemented by other imported water as discussed herein. Since the early 1990's, following a decade of decreased groundwater use during the initial period of SWP importation, total groundwater pumping has fluctuated from year to year, but has remained within a range between about 38,000 and 50,000 acre-feet per year through 2009.

Table 2-1
Water Supply Utilization by Municipal Purveyors
(Acre-Feet)

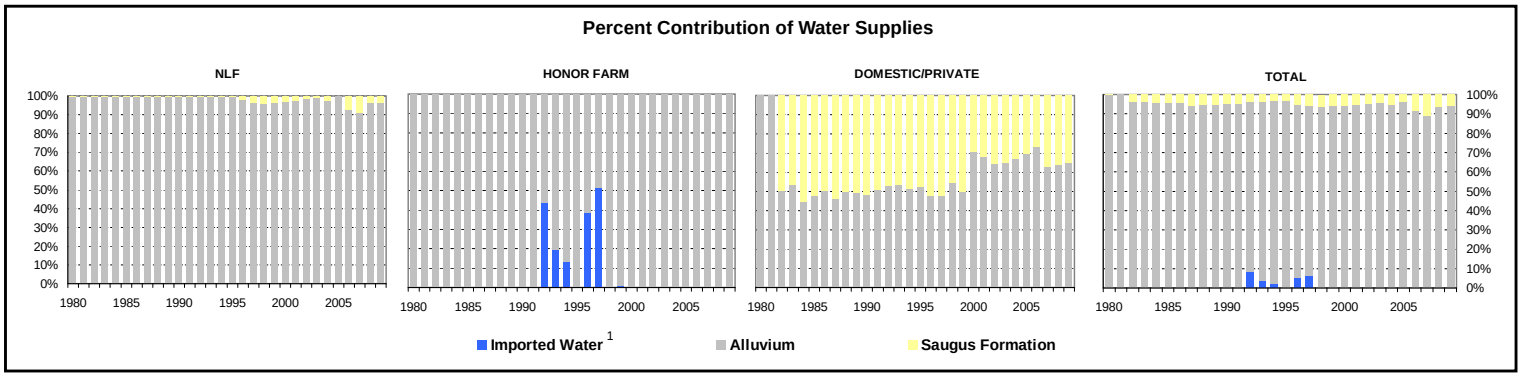
Year	CLWA Santa Clarita Water Division				Los Angeles County Waterworks District 36			Newhall County Water District				Valencia Water Company					All Municipal Purveyors				
	Imported Water [1]	*Alluvium*	*Saugus Formation*	**Total**	*Imported Water* [1]	*Alluvium* [2]	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,125	9,460	0	**10,585**	0	-	**0**	0	1,170	2,363	**3,533**	0	5,995	2,206	-	**8,201**	1,125	16,625	4,569	-	**22,319**
1981	4,602	7,109	0	**11,711**	0	-	**0**	0	1,350	2,621	**3,971**	1,214	5,597	2,329	-	**9,140**	5,816	14,056	4,950	-	**24,822**
1982	6,454	4,091	0	**10,545**	145	-	**145**	0	1,178	2,672	**3,850**	3,060	3,415	897	-	**7,372**	9,659	8,684	3,569	-	**21,912**
1983	5,214	4,269	0	**9,483**	207	-	**207**	0	1,147	2,787	**3,934**	3,764	3,387	611	-	**7,762**	9,185	8,803	3,398	-	**21,386**
1984	6,616	6,057	0	**12,673**	240	-	**240**	0	1,549	2,955	**4,504**	4,140	4,975	854	-	**9,969**	10,996	12,581	3,809	-	**27,386**
1985	6,910	6,242	0	**13,152**	272	-	**272**	0	1,644	3,255	**4,899**	4,641	4,633	885	-	**10,159**	11,823	12,519	4,140	-	**28,482**
1986	8,366	5,409	0	**13,775**	342	-	**342**	0	1,842	3,548	**5,390**	5,051	5,167	1,427	-	**11,645**	13,759	12,418	4,975	-	**31,152**
1987	9,712	5,582	0	**15,294**	361	-	**361**	22	2,127	3,657	**5,806**	6,190	4,921	1,305	-	**12,416**	16,285	12,630	4,962	-	**33,877**
1988	11,430	5,079	63	**16,572**	434	-	**434**	142	2,283	4,041	**6,466**	7,027	4,835	2,300	-	**14,162**	19,033	12,197	6,404	-	**37,634**
1989	12,790	5,785	0	**18,575**	457	-	**457**	428	2,367	4,688	**7,483**	7,943	5,826	2,529	-	**16,298**	21,618	13,978	7,217	-	**42,813**
1990	12,480	5,983	40	**18,503**	513	-	**513**	796	1,936	4,746	**7,478**	7,824	5,232	3,516	-	**16,572**	21,613	13,151	8,302	-	**43,066**
1991	6,158	5,593	4,781	**16,532**	435	-	**435**	675	1,864	4,994	**7,533**	700	9,951	4,642	-	**15,293**	7,968	17,408	14,417	-	**39,793**
1992	6,350	8,288	2,913	**17,551**	421	-	**421**	802	1,994	5,160	**7,956**	6,338	6,615	2,385	-	**15,338**	13,911	16,897	10,458	-	**41,266**
1993	3,429	12,016	2,901	**18,346**	465	-	**465**	1,075	1,977	5,068	**8,120**	8,424	5,815	2,182	-	**16,421**	13,393	19,808	10,151	-	**43,352**
1994	5,052	10,996	3,863	**19,911**	453	-	**453**	906	2,225	5,103	**8,234**	7,978	6,847	2,565	-	**17,390**	14,389	20,068	11,531	-	**45,988**
1995	7,955	10,217	1,726	**19,898**	477	-	**477**	1,305	1,675	4,775	**7,755**	7,259	8,698	1,586	-	**17,543**	16,996	20,590	8,087	-	**45,673**
1996	9,385	10,445	2,176	**22,006**	533	-	**533**	1,213	1,803	4,871	**7,887**	6,962	12,433	326	-	**19,721**	18,093	24,681	7,373	-	**50,147**
1997	10,120	11,268	1,068	**22,456**	785	-	**785**	1,324	2,309	5,168	**8,801**	9,919	11,696	516	-	**22,131**	22,148	25,273	6,752	-	**54,173**
1998	8,893	11,426	0	**20,319**	578	-	**578**	1,769	1,761	4,557	**8,087**	9,014	10,711	149	-	**19,874**	20,254	23,898	4,706	-	**48,858**
1999	10,772	13,741	0	**24,513**	654	-	**654**	5,050	1,676	2,622	**9,348**	10,806	11,823	106	-	**22,735**	27,282	27,240	2,728	-	**57,250**
2000	13,751	11,529	0	**25,280**	800	-	**800**	6,024	1,508	2,186	**9,718**	12,004	12,179	1,007	-	**25,190**	32,579	25,216	3,193	-	**60,988**
2001	15,648	9,896	0	**25,544**	907	-	**907**	5,452	1,641	2,432	**9,525**	13,362	10,518	835	-	**24,715**	35,369	22,055	3,267	-	**60,691**
2002	18,921	9,513	0	**28,434**	1,069	-	**1,069**	5,986	981	3,395	**10,362**	15,792	11,603	965	-	**28,360**	41,768	22,097	4,360	-	**68,225**
2003	20,668	6,424	0	**27,092**	1,175	-	**1,175**	6,572	1,266	2,513	**10,351**	16,004	11,707	1,068	50	**28,829**	44,419	19,397	3,581	50	**67,447**
2004	22,045	7,146	0	**29,191**	854	380	**1,234**	5,896	1,582	3,739	**11,217**	18,410	9,862	1,962	420	**30,654**	47,205	18,970	5,701	420	**72,296**
2005	16,513	12,408	0	**28,921**	857	343	**1,200**	5,932	1,389	3,435	**10,756**	14,732	12,228	2,513	418	**29,891**	38,034	26,368	5,948	418	**70,768**
2006	17,146	13,156	0	**30,302**	1,289	-	**1,289**	5,898	2,149	3,423	**11,470**	16,313	11,884	2,449	419	**31,065**	40,646	27,189	5,872	419	**74,126**
2007	20,669	10,686	0	**31,355**	1,406	-	**1,406**	6,478	1,806	3,691	**11,975**	16,779	13,140	2,367	470	**32,756**	45,332	25,632	6,058	470	**77,492**
2008	18,598	11,878	0	**30,476**	1,354	-	**1,354**	5,428	1,717	4,195	**11,340**	16,325	14,324	1,770	311	**32,730**	41,705	27,919	5,965	311	**75,900**
2009	17,739	10,077	0	**27,816**	1,243	-	**1,243**	4,832	1,860	3,868	**10,559**	14,732	12,459	2,836	328	**30,355**	38,546	24,396	6,704	328	**69,974**



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.
2.Groundwater purchased from LA County Honor Farm.

Table 2-2
Individual Water Supply Utilization by Agricultural and Other Users
(Acre-Feet)

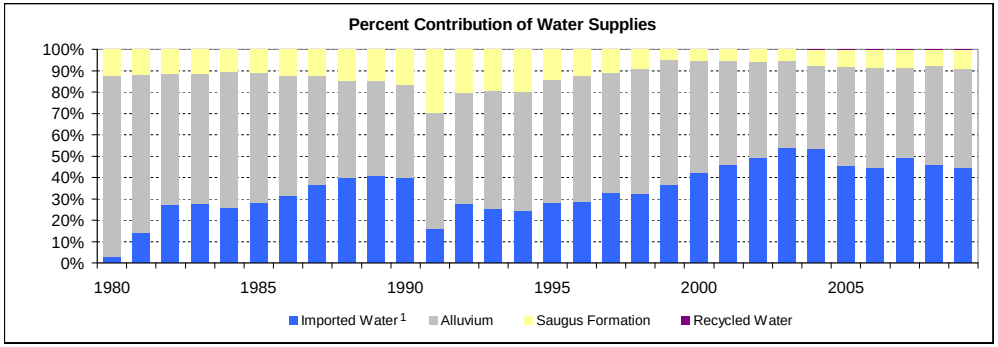
	Newhall Land and Farming			Los Angeles County Honor Farm			Small Private Domestic, Irrigation and Golf Courses Uses			All Agricultural and Other Users			
Year	*Alluvium*	*Saugus Formation*	**Total**	*Alluvium*	*Imported Water* [1]	**Total**	*Alluvium* [2]	*Saugus Formation* [3]	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**
1980	11,331	20	**11,351**	3,000	0	**3,000**	500	0	**500**	0	14,831	20	**14,851**
1981	13,237	20	**13,257**	3,000	0	**3,000**	500	0	**500**	0	16,737	20	**16,757**
1982	9,684	20	**9,704**	3,000	0	**3,000**	500	501	**1,001**	0	13,184	521	**13,705**
1983	7,983	20	**8,003**	3,000	0	**3,000**	500	434	**934**	0	11,483	454	**11,937**
1984	11,237	20	**11,257**	3,000	0	**3,000**	500	620	**1,120**	0	14,737	640	**15,377**
1985	9,328	20	**9,348**	3,000	0	**3,000**	500	555	**1,055**	0	12,828	575	**13,403**
1986	8,287	20	**8,307**	3,000	0	**3,000**	500	490	**990**	0	11,787	510	**12,297**
1987	6,512	20	**6,532**	3,000	0	**3,000**	500	579	**1,079**	0	10,012	599	**10,611**
1988	5,951	20	**5,971**	3,000	0	**3,000**	500	504	**1,004**	0	9,451	524	**9,975**
1989	6,243	20	**6,263**	3,000	0	**3,000**	500	522	**1,022**	0	9,743	542	**10,285**
1990	8,225	20	**8,245**	2,000	0	**2,000**	500	539	**1,039**	0	10,725	559	**11,284**
1991	7,039	20	**7,059**	2,240	0	**2,240**	500	480	**980**	0	9,779	500	**10,279**
1992	8,938	20	**8,958**	1,256	987	**2,243**	500	446	**946**	987	10,694	466	**12,147**
1993	8,020	20	**8,040**	1,798	443	**2,241**	500	439	**939**	443	10,318	459	**11,220**
1994	10,606	20	**10,626**	1,959	311	**2,270**	500	474	**974**	311	13,065	494	**13,870**
1995	11,174	20	**11,194**	2,200	6	**2,206**	500	453	**953**	6	13,874	473	**14,353**
1996	12,020	266	**12,286**	1,237	780	**2,017**	500	547	**1,047**	780	13,757	813	**15,350**
1997	12,826	445	**13,271**	1,000	1,067	**2,067**	500	548	**1,048**	1,067	14,326	993	**16,386**
1998	10,250	426	**10,676**	2,000	12	**2,012**	500	423	**923**	12	12,750	849	**13,611**
1999	13,824	479	**14,303**	1,842	20	**1,862**	500	509	**1,009**	20	16,166	988	**17,174**
2000	11,857	374	**12,231**	1,644	3	**1,647**	1,220	513	**1,733**	3	14,721	887	**15,611**
2001	12,661	300	**12,961**	1,604	0	**1,604**	1,224	573	**1,797**	0	15,489	873	**16,362**
2002	13,514	211	**13,725**	1,602	0	**1,602**	1,063	589	**1,652**	0	16,179	800	**16,979**
2003	10,999	122	**11,121**	2,273	0	**2,273**	931	504	**1,435**	0	14,203	626	**14,829**
2004	10,991	268	**11,259**	2,725	0	**2,725**	1,071	535	**1,606**	0	14,787	803	**15,590**
2005	8,648	6	**8,654**	2,499	0	**2,499**	1,133	499	**1,632**	0	12,280	505	**12,785**
2006	11,477	934	**12,411**	3,026	0	**3,026**	1,369	506	**1,875**	0	15,872	1,440	**17,312**
2007	9,968	971	**10,939**	2,085	0	**2,085**	1,088	656	**1,744**	0	13,141	1,627	**14,768**
2008	9,191	330	**9,521**	3,506	0	**3,506**	1,100	623	**1,723**	0	13,797	953	**14,750**
2009	11,061	379	**11,440**	3,432	0	**3,432**	1,097	595	**1,692**	0	15,590	974	**16,564**



1. *Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.*
2. *Robinson Ranch Golf Course irrigation and estimated private pumping.*
3. *Valencia Country Club and Vista Valencia Golf Course irrigation.*

Table 2-3
Total Water Supply Utilization for Municipal, Agricultural and Other Uses
(Acre-Feet)

Year	*Imported Water*[1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,125	31,456	4,589	-	**37,170**
1981	5,816	30,793	4,970	-	**41,579**
1982	9,659	21,868	4,090	-	**35,617**
1983	9,185	20,286	3,852	-	**33,323**
1984	10,996	27,318	4,449	-	**42,763**
1985	11,823	25,347	4,715	-	**41,885**
1986	13,759	24,205	5,485	-	**43,449**
1987	16,285	22,642	5,561	-	**44,488**
1988	19,033	21,648	6,928	-	**47,609**
1989	21,618	23,721	7,759	-	**53,098**
1990	21,613	23,876	8,861	-	**54,350**
1991	7,968	27,187	14,917	-	**50,072**
1992	14,898	27,591	10,924	-	**53,413**
1993	13,836	30,126	10,610	-	**54,572**
1994	14,700	33,133	12,025	-	**59,858**
1995	17,002	34,464	8,560	-	**60,026**
1996	18,873	38,438	8,186	-	**65,497**
1997	23,215	39,599	7,745	-	**70,559**
1998	20,266	36,648	5,555	-	**62,469**
1999	27,302	43,406	3,716	-	**74,424**
2000	32,582	39,937	4,080	-	**76,599**
2001	35,369	37,544	4,140	-	**77,053**
2002	41,768	38,276	5,160	-	**85,204**
2003	44,419	33,599	4,207	50	**82,276**
2004	47,205	33,757	6,503	420	**87,885**
2005	38,034	38,648	6,453	418	**83,553**
2006	40,646	43,061	7,312	419	**91,438**
2007	45,332	38,773	7,685	470	**92,260**
2008	41,705	41,716	6,918	311	**90,650**
2009	38,546	39,986	7,678	328	**86,538**



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

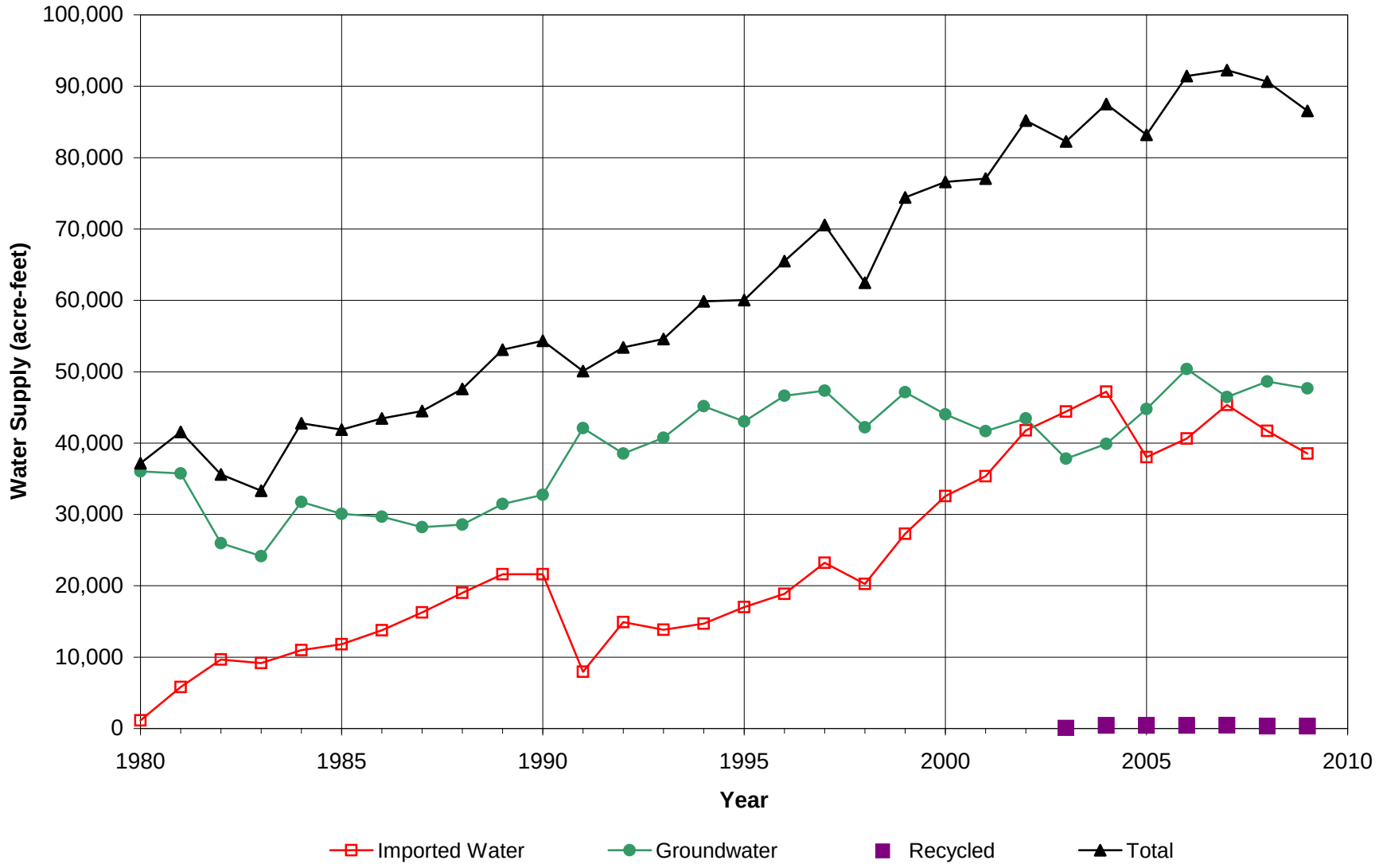


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Figure 2-1
Total Water Supply Utilization
Santa Clarita Valley

3. Water Supplies

Prior to 1980, local groundwater extracted from the Alluvium and the Saugus Formation was the sole source of water supply in the Santa Clarita Valley. Since 1980, local groundwater supplies have been supplemented with imported SWP water supplies, augmented in 2007 by acquisition of additional supplemental water from the Buena Vista Water Storage District. Those water supplies have also been slightly augmented by deliveries from CLWA's recycled water program since 2003. This section describes the groundwater resources of the Santa Clarita Valley, SWP and other imported water supplies, and CLWA's recycled water program.

3.1 Groundwater Basin Yield

The groundwater basin generally beneath the Santa Clarita Valley, identified in the State Department of Water Resources' Bulletin 118 as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin No. 4-4.07), is comprised of two aquifer systems. The Alluvium generally underlies the Santa Clara River and its several tributaries, and the Saugus Formation underlies practically the entire Upper Santa Clara River area. The mapped extent of the Santa Clara River Valley East Subbasin in DWR Bulletin 118 and its relationship to the extent of the CLWA service area are illustrated in Figure 3-1. The mapped Subbasin boundary approximately coincides with the outer extent of the Alluvium and Saugus Formation.

A 2001 Update Report on both the Alluvium and Saugus Formation Aquifers (Slade, 2002), which updated analyses and interpretation of hydrogeologic conditions from earlier reports (Slade, 1986 and 1988), included extensive detail on major aspects of the groundwater basin. Notable parts of the Update Report relative to groundwater supply included findings that:

- Analysis of historical groundwater levels and production indicates that there have been no conditions that would be illustrative of groundwater overdraft.

- Utilization of operational yield (as opposed to perennial yield) as a basis for managing groundwater production would be more applicable in this basin to reflect fluctuating utilization of groundwater in conjunction with imported SWP water.

- Operational yield of the Alluvium would typically be 30,000 to 40,000 afy for wet and normal rainfall years, with an expected reduction into the range of 30,000 to 35,000 afy in dry years.

- Operational yield of the Saugus Formation would typically be in the range of 7,500 to 15,000 afy on a long-term basis, with possible short-term increases during dry periods into a range of 15,000 to 25,000 afy, and to 35,000 afy if dry conditions continue.

Following on the 2001 Update Report, the groundwater component of overall water supply in the Valley derives from a groundwater operating plan to meet water requirements (municipal, agricultural and other non-municipal, and small individual domestic) while maintaining the basin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). That operating plan also addresses groundwater contamination issues in the basin, all consistent with the Groundwater Management Plan adopted in 2003. The groundwater operating plan is based on the concept that pumping can vary from year to year to generally rely on increased groundwater use in dry periods and increased recharge during locally wet periods, and to collectively assure that the groundwater basin is adequately replenished through various wet/dry cycles.

The groundwater operating plan, summarized in Table 3-1, is as follows:

Alluvium – Pumping from the Alluvial Aquifer in a given year is related to local hydrologic conditions in the eastern Santa Clara River watershed. Pumping is expected to typically range between 30,000 and 40,000 afy following normal and above-normal rainfall years. Due to hydrogeologic constraints in the eastern part of the basin, pumping is expected to be typically reduced to between 30,000 and 35,000 afy following multiple locally dry years.

Saugus Formation – Pumping from the Saugus Formation in a given year is related to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping is expected to typically range between 7,500 and 15,000 afy. Planned dry-year pumping from the Saugus Formation is expected to range between 15,000 and 25,000 afy during a drought year and can increase to between 21,000 and 25,000 afy if SWP deliveries are reduced for two consecutive years, and between 21,000 and 35,000 afy if SWP deliveries are reduced for three consecutive years. Such high pumping is expected to typically be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 afy, to further enhance the effectiveness of natural recharge processes that would cause groundwater levels and storage volumes to recover after the higher pumping during dry years.

Table 3-1
Groundwater Operating Plan for the Santa Clarita Valley

Aquifer	Groundwater Production (af)			
	Normal Years	**Dry Year 1**	**Dry Year 2**	**Dry Year 3**
Alluvium	30,000 to 40,000	30,000 to 35,000	30,000 to 35,000	30,000 to 35,000
Saugus	7,500 to 15,000	15,000 to 25,000	21,000 to 25,000	21,000 to 35,000
Total	**37,500 to 55,000**	**45,000 to 60,000**	**51,000 to 60,000**	**51,000 to 70,000**

In 2004, as part of analyzing the restoration of perchlorate-impacted groundwater supply in the Valley, a numerical groundwater flow model was developed and calibrated for use in analyzing the response of the groundwater basin to long-term operation at the operational yields noted above, with focus on perchlorate extraction and the control of perchlorate migration in the basin. That groundwater flow model was then utilized in 2005 to specifically analyze the sustainability of groundwater supplies in both the Alluvium and the Saugus Formation through a long-term (78 year) hydrologic period that was selected to examine groundwater basin response to variations in pumping in accordance with the operating plan. Resultant projections of groundwater levels, groundwater storage, and surface water flows showed the basin to respond in a long-term sustainable manner, with no chronic depletion of groundwater levels, storage, or stream flows. The analysis of groundwater sustainability was summarized in a Basin Yield Report (CH2M Hill and LSCE, 2005), which included the following findings:

- The groundwater basin has historically been, and continues to be, in good operating condition and not in overdraft, as indicated by historical data.

- The groundwater plan is sustainable over varying hydrologic conditions, because it is feasible to intermittently exceed a long-term average yield for one or more years without creating long-term adverse impacts to the groundwater system and the Santa Clara River.

- The groundwater operating plan for the Alluvium and the Saugus Formation can be used for long-term water supply planning purposes. In particular, although increased pumping from the Saugus Formation during dry periods can be expected to cause short-term declines in groundwater levels, it is not projected to cause permanent declines in groundwater discharges or streamflow. Saugus groundwater levels can be expected to recover to pre-drought conditions when pumping is reduced in subsequent wet to normal years.

- The strategy around which the groundwater operating plan was designed (maximizing the use of Alluvial Aquifer and imported water during years of normal or above-normal availability of these supplies, while limiting the use of the Saugus Formation during these periods, then temporarily increasing Saugus pumping during years when SWP supplies are significantly reduced because of drought conditions) is viable on a long-term basis.

- Together, the historical observations of basin conditions and the model simulations together support the historical and ongoing confidence that groundwater can continue to be a sustainable source of water supply under the groundwater operating plan.

In 2008, partly in preparation for the next UWMP in 2010, and in part because of recent events that can be expected to impact the future reliability of the supplemental water supply from the State Water Project, the Purveyors initiated an updated analysis to further assess groundwater development potential and possible augmentation of the groundwater operating plan. A further consideration in conducting an updated analysis of the basin was that global climate change could alter local rainfall and associated recharge patterns, thus affecting local groundwater supplies, i.e. the yield of the basin. Finally, the Los Angeles County Flood Control District (LACFCD) is planning a number of small flood control projects in the Santa Clarita Valley; estimated amounts of conservation/groundwater recharge potential were being included for each of the individual projects in the overall LACFCD planning, and the Purveyors had interest in whether that potential could appreciably augment the yield of the basin.

The updated basin yield analysis, completed in August, 2009, concluded the following (LSCE and GSI, 2009).

- The 2008 Operating Plan, with currently envisioned pumping rates and distribution comparable to the Operating Plan described above, will not cause detrimental short- or long-term effects to the groundwater and surface water resources in the Valley and is, therefore, sustainable. Further, local conditions in the Alluvium in the eastern end of the basin can be expected to repeat historical groundwater level declines during dry periods, necessitating a reduction in desired Alluvial aquifer pumping due to decreased well yield and associated actual pumping capacity during those periods. However, those reductions in pumping from the Alluvial aquifer can be made up by an equivalent amount of increased pumping in other parts of the basin without disrupting basin-wide sustainability or local pumping capacity in those other areas. For the Saugus Formation, the modeling analysis indicated that this aquifer can sustain the pumping that is imbedded the 2008 Operating Plan.

- A Potential Operating Plan (Alluvial pumping between 41,500 and 47,500 afy) would result in lower Alluvial groundwater levels, failure of the basin to fully recover (during wet hydrologic cycles) from depressed storage that would occur during dry periods, and generally declining trends in groundwater levels and storage. Long-term lowering of groundwater levels would also occur in the Saugus Formation (pumping between about 16,000 and nearly 40,000 afy) with only partial water level recovery occurring in the Saugus. Thus, the Potential Operating Plan would not be sustainable over a long-term period.

- Several climate change models were examined to estimate the potential impacts on local hydrology in the Santa Clarita Valley. The range of potential climate change impacts extends from a possible wet trend to a possible dry trend over the long term. The trends that range from an approximate continuation of historical average precipitation, to something wetter than that, would appear to result in continued sustainability of the 2008 Operating Plan, again with intermittent constraints on full pumping in the eastern part of the basin. The potential long-term dry trend arising out of climate change would be expected to decrease local recharge to the point that lower and declining groundwater levels would render the 2008 Operating Plan unsustainable. Ultimately it was recognized that a wide range of potential global climate change produces a range of non-unique results with respect to local hydrologic conditions and associated sustainable groundwater supply. Notable in the wide range of possibilities, however, was the output that, over 20 to 25 year planning horizon of the UWMP, the range of relatively wet to relatively dry hydrologic conditions would be expected to produce sustainable groundwater conditions under the 2008 groundwater Operating Plan.

Based on the preceding conclusions, groundwater utilization continues in accordance with the 2008 Operating Plan; and the Potential Operating Plan is not being considered for implementation.

3.2 Alluvium – General

The spatial extent of the aquifers used for groundwater supply in the Valley, the Alluvium and the Saugus Formation, are illustrated in Figure 3-1. Geologic descriptions and hydrogeologic details related to both aquifers are included in several technical reports including Slade (1986, 1988 & 2002), CH2M Hill (2005) and LSCE (2005), and in the 2005 Urban Water Management Plan.

Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), the 2005 UWMP, and the 2009 Updated Basin Yield Report (LSCE and GSI), the management practice of the Purveyors continues to be to rely on groundwater from the Alluvium for part of the overall municipal water supply, whereby total pumping from the Alluvium (by municipal, agricultural, and small private pumpers) is in accordance with the 2008 groundwater Operating Plan, 30,000 to 40,000 afy following wet and normal years, with possible reduction to 30,000 to 35,000 afy following multiple dry years. Such operation will maximize use of the Alluvium because of the aquifer's ability to store and produce good quality water on a sustainable basis, and because the Alluvium is capable of rapid recovery of groundwater storage in wet periods. As with many groundwater basins, it is possible to intermittently exceed a long-term average yield for one or more years without long-term adverse effects. Higher pumping for short periods may temporarily lower groundwater storage and related water levels, as has been the case in the Alluvium several times since the 1930's. However, subsequent decreases in pumping limit the amount of water level decline. Normal to wet-period recharge results in a rapid return of groundwater levels to historic highs. Historical groundwater data collected from the Alluvium over numerous hydrologic cycles continue to provide assurance that groundwater elevations, if locally lowered during dry periods, recover in subsequent average or wet years. Such water level response to rainfall is a significant characteristic of permeable, porous, alluvial aquifer systems that occur within large watersheds. In light of these historical observations, complemented by the long-term sustainability analysis using the numerical groundwater flow model, there is ongoing confidence that groundwater will continue to be a sustainable source of water supply at the rates of pumping described in the Basin Yield Report, as incorporated in the 2005 UWMP, and as described in the Updated Basin Yield Report, as expected to be incorporated in the 2010 UWMP.

Long-term adverse impacts to the Alluvium could occur if the amount of water extracted from the aquifer were to exceed the amount of water that recharges the aquifer over an extended period. However, the quantity and quality of water in the Alluvium and all significant pumping from the Alluvium are routinely monitored, and no long-term adverse impacts have ever been evident. Ultimately, the Purveyors have identified cooperative measures to be taken, if needed, to ensure sustained use of the aquifer. Such measures include but are not limited to the continuation of conjunctive use of SWP and other imported supplemental water with local groundwater, artificial recharge of the aquifer with local runoff or other surface water supplies, financial incentives discouraging extractions above a selected limit, expanded use of other water supplies such as recycled water, and expanded implementation of demand-side management, including conservation.

3.2.1 Alluvium – Historical and Current Conditions

Total pumping from the Alluvium in 2009 was about 40,000 af, a decrease of 1,750 af from the preceding year. Total Alluvium pumping was at the upper end of the groundwater Operating Plan range. Of the total Alluvial pumping in 2009, about 24,400 af (61 percent) was for municipal water supply, and the balance, about 15,600 af (39 percent), was for agriculture and other smaller uses, including individual domestic uses. In a longer-term context, there has been a change in municipal/agricultural pumping distribution since SWP deliveries began in 1980, toward a higher fraction for municipal water supply (from about 50 percent to more than 65 percent of Alluvial pumpage), which reflects the general land use changes in the area. Ultimately, on a long-term average basis since the beginning of imported water deliveries from the SWP, total Alluvial pumping has been about 32,000 afy, which is at the lower end of the range of operational yield of the Alluvium. That average has been higher over the last decade, about 38,500 afy, which remains within the range of operational yield of the Alluvium. The overall historic record of Alluvial pumping is illustrated in Figure 3-2.

Groundwater levels in various parts of the basin have historically exhibited different responses to both pumpage and climatic fluctuations. During the last 20 to 30 years, depending on location, Alluvial groundwater levels have remained nearly constant (generally toward the western end of the basin), or have fluctuated from near the ground surface when the basin is full, to as much as 100 feet lower during intermittent dry periods of reduced recharge (generally toward the eastern end of the basin). For illustration of the various groundwater level conditions in the basin, the Alluvial wells have been grouped into areas with similar groundwater level patterns, as shown in Figure 3-3. The groundwater level records have been organized into hydrograph form (groundwater elevation vs. time) as illustrated in Figures 3-4 and 3-5. Also shown on these plots is an annual marker indicating whether the year had a below-average amount of rainfall. The wells shown on these plots are representative of the respective areas, showing the range of values (highest to lowest elevation) through each area, and containing a sufficiently long-term record to illustrate trends over time.

Situated along the eastern upstream end of the Santa Clara River Channel, the ‘Mint Canyon’ area, located at the far eastern end of the groundwater basin, and the nearby ‘Above Saugus WRP’ area generally exhibit similar groundwater level responses (Figure 3-4) to hydrologic and pumping conditions. As shown in Figure 3-6, the Purveyors decreased total Alluvial pumping from the ‘Mint Canyon’ area steadily from 2000 through 2003, and correspondingly increased pumping in the ‘Below Saugus WRP’, and ‘Below Valencia WRP’ areas. In spite of a continued period of below-average precipitation from 1999 to 2003, that progressive decrease in pumping resulted in a cessation of groundwater level decline in the ‘Mint Canyon Area’. Subsequent wet

conditions in late 2004, continuing into 2005, resulted in full recovery of groundwater storage. With such high groundwater levels, pumping in the 'Mint Canyon' area was increased in 2005 and 2006, with no significant change in groundwater levels in 2005 and a slight decrease in 2006. Over the last four years, precipitation has been average to below-average. Accordingly, water levels have shown some decline, but this decline has been slowed by the reduction in pumpage in this easternmost part of the basin. Water levels remain within the historic range of levels over similar wet/dry periods. Just below the 'Mint Canyon' area, the 'Above Saugus WRP' has shown a similar decline, despite the steady rate of pumping over the last four years. Here the water levels also remain within the range of historical levels, as expected following a multi-year period without a significant wet year. These parts of the Valley have historically experienced a number of alternating wet and dry hydrologic conditions (Figure 3-4) during which groundwater level declines have been followed by returns to high or mid-range historic levels. This trend has continued over the last four years where below-average hydrologic conditions in 2009 followed three average to below-average years, and groundwater levels remain within mid-range levels.

In the 'Bouquet Canyon' area, pumping has remained relatively constant for the last ten years, and water levels have fluctuated with consecutive wet or dry years. During and since the most recent wet conditions of 2004 and 2005, water levels returned to within historic mid-range levels. During 2009, groundwater level trends either leveled off or showed some increase with the onset of precipitation at the end of the year. This groundwater level response to wet/dry years and pumping is typical for this area of the basin and, for 2009, levels have remained within the range of historical levels. When water levels are low, well yields and pumping capacities in this and other eastern areas can be impacted. The affected Purveyors typically respond by increasing use of Saugus Formation and imported (SWP) supplies, as shown in Table 2-3. The Purveyors also shift a fraction of the Alluvial pumping that would normally be supplied by the eastern areas to areas further west, where well yields and pumping capacities remain fairly constant because of smaller groundwater level fluctuations.

In the western parts and lower elevations of the Alluvium, groundwater levels respond to pumping and precipitation in a similar manner, but to an attenuated or limited extent compared to those situated in the eastern, higher elevation areas. As shown in the western group of hydrographs in Figure 3-5, groundwater level fluctuations become more subtle moving westward and lower in the Valley. The 'Below Saugus WRP' area, along the Santa Clara River immediately downstream of the Saugus Water Reclamation Plant, and the 'San Francisquito Canyon' area generally exhibit similar groundwater level trends. In this middle part of the basin, historical groundwater levels were lower in the 1950's and 60's than current levels. Groundwater levels in this area notably recovered as pumping declined through the 1960's and 1970's. They

have subsequently sustained generally high levels for much of the last 30 years, with three dry-period exceptions: mid-1970's, late 1980's to early 1990's, and the late 1990's to early 2000's. Recoveries to previous high groundwater levels followed both of the short dry-period declines in the 1970's and 1990's. More recently, groundwater levels recovered significantly in both areas, to historic highs, following a wetter-than-average year in 2004 and significantly wet 2005. Since 2005, pumping has been increasing in the 'Below Saugus WRP' area, while 'San Francisquito Canyon' area pumping approximately doubled in 2005, and has since gradually declined and leveled off over the last three years. Despite the current multi-year period of average to below-average precipitation, groundwater levels in these two areas remain in mid-range to high historical range.

The 'Castaic Valley' area is located along Castaic Creek below Castaic Lake. Below that and along the Santa Clara River, downstream of the Valencia Water Reclamation Plant, is the 'Below Valencia WRP' area, where discharges of treated effluent from the Valencia WRP to the Santa Clara River contribute to groundwater recharge. In the 'Castaic Valley' area, groundwater levels continue to remain fairly constant, with slight responses to climatic and other fluctuations, since the 1950's (Figure 3-5). Small changes in groundwater levels over the last four years are consistent with other short-term historical fluctuations. The long-term, generally constant trend remained through 2009. The 'Below Valencia WRP' area groundwater levels exhibit slight, if any, response to climatic fluctuations, and have remained fairly constant since the 1950's despite a notable increase in pumping through the 1990s that has since remained relatively steady over the last seven years, through 2009 (Figure 3-5 and 3-6).

In summary, depending on the period of available data, all the history of groundwater levels in the Alluvium shows the same general picture: recent (last 30 years) groundwater levels have exhibited historic highs; in some locations, there are intermittent dry-period declines (resulting from use of some groundwater from storage) followed by wet-period recoveries (and associated refilling of storage space). On a long-term basis, whether over the last 29 years since importation of supplemental SWP water, or over the last 40 to 50 years (since the 1950's - 60's), the Alluvium shows no chronic trend toward decreasing water levels and storage, and thus shows no symptoms of water level-related overdraft. Consequently, pumping from the Alluvium has been and continues to be sustainable, well within the operational yield of that aquifer on a long-term average basis, and also within the operating yield in almost every individual year.

3.3 Saugus Formation – General

Saugus wells operated by the Purveyors are located in the southern portion of the basin, south of the Santa Clara River (Figure 3-7). Consistent with the 2001 Update Report (Slade), the 2005

Basin Yield Report (CH2M Hill and LSCE), and the 2009 Basin Yield Update Report (LSCE and GSI), the Purveyors have utilized the Saugus in accordance with the original (and the 2008) groundwater Operating Plan, in the range of 7,500 to 15,000 afy in average/normal years, with planned dry-year pumping of 15,000 to 35,000 afy for one to three consecutive dry years, when shortages to CLWA's SWP water supplies could occur. Such high pumping would be followed by periods of lower pumping (7,500 to 15,000 afy in average/normal years as noted above) in order to allow recharge to recover water levels and storage in the Saugus. Maintaining the substantial volume of water in the Saugus Formation is an important strategy to help maintain water supplies in the Santa Clarita Valley during drought periods.

3.3.1 Saugus Formation – Historical and Current Conditions

Total pumping from the Saugus in 2009 was about 7,700 af, or about 750 af more than in the preceding year. Of the total Saugus pumping in 2009, most (about 6,700 af) was for municipal water supply, and the balance (1,000 af) was for agricultural and other irrigation uses. Historically, groundwater pumping from the Saugus peaked in the early 1990's and then steadily declined through the remainder of that decade. Since then, Saugus pumping had been in the range of about 4,000 to 6,500 afy, with the increase to almost 7,700 af in 2007 and again in 2009. Over the last five years, the municipal use of Saugus water has been relatively unchanged; almost all of the relatively small fluctuations from year to year have been related to non-municipal usage. On a long-term average basis since the importation of SWP water, total pumping from the Saugus Formation has ranged between a low of about 3,700 afy (in 1999) and a high of nearly 15,000 afy (in 1991); average pumping from 1980 to present has been about 6,800 afy. These pumping rates remain well within, and generally at the lower end of the range of Operating Yield of the Saugus Formation. The overall historic record of Saugus pumping is illustrated in Figure 3-8.

Unlike the Alluvium, which has an abundance of wells with extensive water level records, the water level data for the Saugus Formation are limited by both the distribution of the wells in that Formation and the periods of water level records. The wells that do have water level records extending back to the mid-1960's indicate that groundwater levels in the Saugus Formation were highest in the mid-1980's and are currently higher than they were in the mid-1960's (Figure 3-9). Based on these data, there is no evidence of any historic or recent trend toward permanent water level or storage decline. There continue to be seasonal fluctuations in groundwater levels but the prevalent longer-term trend is one of general stability.

Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), the 2005 UWMP, and the 2008 Updated Basin Yield Report (LSCE and GSI, 2009), the

Purveyors continue to maintain groundwater storage and associated water levels in the Saugus Formation so that supply is available during drought periods, when Alluvial pumping might be reduced and/or SWP or other supplemental supplies also decreased. The period of increased pumping during the early 1990's is a good example of this management strategy. Most notably, in 1991, when SWP deliveries were substantially reduced, increased pumping from the Saugus made up almost half of the decrease in SWP deliveries. The increased Saugus pumping over several consecutive dry years (1991-1994) resulted in short-term declining groundwater levels, reflecting the use of water from storage. However, groundwater levels subsequently recovered when pumping declined, reflecting recovery of groundwater storage in the Saugus Formation.

3.4 Imported Water

CLWA obtains the majority of its water supplies from the State Water Project (SWP), which is owned and operated by the California Department of Water Resources (DWR). CLWA is one of 29 contractors holding long-term SWP contracts with DWR. SWP water originates as rainfall and snowmelt in northern and central California. Runoff is stored in Lake Oroville, which is the project's largest storage facility. The water is then released from Lake Oroville down the Feather River to the Sacramento River and through the Sacramento-San Joaquin Delta. Water is diverted from the Delta into the Clifton Court Forebay, and then pumped into the 444-mile long California Aqueduct. SWP water is temporarily stored in San Luis Reservoir, which is jointly operated by DWR and the U.S. Bureau of Reclamation. Prior to delivery to CLWA, SWP supplies are stored in Castaic Lake, a terminal reservoir located at the end of the West Branch of the California Aqueduct.

CLWA's service area covers approximately 195 square miles (124,800 acres), including the City of Santa Clarita and surrounding unincorporated communities. SWP water from Castaic Lake is treated, filtered and disinfected at CLWA's Earl Schmidt Filtration Plant and Rio Vista Water Treatment Plant, which have a combined treatment capacity of 86 million gallons per day. Treated water is delivered from the treatment plants by gravity flow to each of the four Purveyors through a distribution network of pipelines and turnouts. At present, CLWA delivers water to the four Purveyors through 25 potable turnouts as schematically illustrated in Figure 3-10.

In 2009, CLWA fulfilled the following major accomplishments in order to enhance, preserve, and strengthen the quality and reliability of existing and future supplies:

- continued participation in a long-term water banking programs with Rosedale-Rio Bravo Water Storage District and the Semitropic Water Storage District. Water was not

withdrawn from the Rosedale-Rio Bravo Water Storage District, but 1,650 acre-feet was withdrawn from the Semitropic Water Storage District,

- continued implementation of the AB 3030 Groundwater Management Plan,
- continued implementation of the water conservation Best Management Practices,
- reconvened the Santa Clarita Valley Drought Committee, which has now changed its name to the Santa Clarita Valley Water Committee
- continued construction of treatment and distribution facilities for restoration of municipal well capacity impacted by perchlorate contamination,
- continued cooperative effort with the U.S. Army Corps of Engineers for characterization studies of the former Whittaker-Bermite site and in a task force effort with the City of Santa Clarita, local legislators, and state agencies to effect the cleanup and remediation of all aspects of the former Whittaker-Bermite site, including perchlorate contamination of local groundwater,
- began construction of the expansion of the Rio Vista Water Treatment Plant from 30 mgd to 60 mgd, and
- continued recycled water service.

3.4.1 State Water Project Table A Supplies

Each SWP contractor has a specified water supply amount shown in Table A of its contract that currently totals approximately 4.1 million af. The term of the CLWA contract is through 2038 and is renewable after that year. Although the SWP has not been fully completed, the SWP can deliver all 4.1 million af of Table A Amounts during certain wet years.

CLWA has a contractual Table A Amount of 95,200 af per year of water from SWP.[1] On October 30, 2008, the initial allocation for 2009 was announced as 15 percent. The allocation

[1] Of CLWA's 95,200 af annual Table A Amount, 41,000 afy was permanently transferred to CLWA in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's EIR prepared in connection with the 41,000 afy water transfer was challenged in Friends of the Santa Clara River v. Castaic Lake Water Agency (Los Angeles County Superior Court) ("Friends"). On appeal, the Court of Appeal held that since the 41,000 afy EIR tiered off the Monterey Agreement EIR that was later decertified, CLWA would also have to decertify its EIR as well and prepare a revised EIR. CLWA was not prevented from using any water that is part of the 41,000 afy transfer. Under the jurisdiction of the Los Angeles County Superior Court, CLWA prepared and circulated a revised Draft EIR for the transfer. CLWA approved the revised EIR in late 2004 ("2004 EIR") and lodged the EIR with the Los Angeles Superior Court. Thereafter, the case was dismissed with prejudice (i.e., permanently).

In January 2005, two new challenges to CLWA's 2004 EIR were filed in the Ventura County Superior Court by the Planning and Conservation League ("PCL") and by the California Water Impact Network ("CWIN"); these cases were consolidated and transferred to Los Angeles County Superior Court, Planning and Conservation League v. Castaic Lake Water Agency (Los Angeles County Superior Court,) ("PCL Action"). In May 2007, a final Statement of Decision was filed by the trial court in the PCL Action. It included a determination that the transfer is valid and cannot be terminated or unwound. The trial court did find one defect in the 2004 EIR, requiring Judgment to be entered against CLWA. The defect, however, did not relate to the environmental conclusions reached in the 2004 EIR. Notices of Appeal were filed by PCL and CWIN and the Agency, Kern County Water Agency, and Wheeler Ridge-Maricopa Water Storage District filed notices of cross-appeals. On December 17, 2009, the Court of Appeal issued a published opinion in which it reversed the trial court's Judgment, and found that the 41,000 afy EIR fully complied with CEQA, and remanded the matter to the trial court with directions to issue a new judgment denying PCL's and CWIN's challenges in their entirety. A petition for rehearing was filed by PCL and CWIN on January 4, 2010 but was denied on January 14, 2010. On January 26, 2010, PCL and CWIN filed a petition for review with the California Supreme Court, but the Court denied the petition on March 10, 2010.

was increased to 20 percent on March 18, 2009, and further increased to 30 percent on April 16, 2009; and then to 40 percent on May 20, 2009. The allocation was not subsequently changed. CLWA's final allocation of Table A Amount for 2009 was thus 40 percent, or 38,080 af.

In addition to its Table A Amount, CLWA has access to 4,684 af of "flexible storage" in Castaic Lake. In 2005, CLWA negotiated an agreement with the Ventura County SWP contractors to allow CLWA to utilize their flexible storage account of 1,376 af. In combination, this provides total flexible storage of 6,060 af, which is maintained in Castaic Lake for use in a future dry period or an emergency. This amount was available in 2009, but was not utilized due to other available supplies.

Also in 2005, CLWA completed an agreement to participate in a long-term water banking program with Rosedale-Rio Bravo Water Storage District in Kern County. CLWA delivered 20,000 af of its excess Table A water into storage in both 2005 and 2006. CLWA delivered another 8,200 af into that storage account in 2007 but did not contribute to or withdraw SWP water from the bank in 2008 or 2009. This long-term program will allow the storage up to 100,000 af at any one time, and will provide significant dry year reliability for the Santa Clarita Valley.

The other banking component of CLWA's imported water supply reliability program is comprised of two 10-year agreements with Semitropic Water Storage District whereby CLWA banked surplus Table A water supply in 2002 and 2003. Notable in 2009 was the first recovery of water from the 2002 account; of 4,950 af withdrawn in 2009, 1,650 af were delivered for water supply in the Valley, and the 3,300 af balance is intended to be delivered in 2010.

As delineated in Table 3-2, with the 40 percent Table A allocation and other imported water supplies, including 14,610 af of carryover from 2008, CLWA had total available supply of 67,050 af in 2009, most of which was delivered to the Purveyors (38,546 af), leaving 28,303 af of Table A Amount available for carryover to 2010.

3.4.2 Other Imported Water Supplies

In early 2007, CLWA finalized a Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo) in Kern County. Under this Program, Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within

Table 3-2
2009 CLWA Imported Water Supply and Disposition
(acre-feet)

Supply		
Net 2008 SWP Carryover to 2009 [1]		14,610
Buena Vista/Rosedale Rio-Bravo		11,000
Yuba County Accord Water		1,658
2009 SWP Turnback Pool Water		52
Semitropic Water Banking and Exchange Program		1,650
2009 Final SWP Table A Allocation [2]		38,080
Total 2009 Imported Water Supply		**67,050**
Disposition		
Purveyor Deliveries (Total)		38,546
CLWA SCWD	*17,739*	
Valencia Water Company	*14,732*	
Newhall County Water District	*4,832*	
Los Angeles County WWD 36	*1,243*	
CLWA/DWR/Purveyor Metering[3]		201
Rosedale – Rio Bravo Water Banking and Exchange Program		0
2009 Table A Carryover to 2010[4]		28,303
Total 2009 Imported Water Disposition		**67,050**

1. Total 2009 carryover; amount used by CLWA, based on final DWR delivery accounting was 10,107 af.

2. Final 2009 allocation was 40% of contractual Table A amount of 95,200 acre-feet, which progressed as follows:

Initial allocation, October 30, 2008	15%
Allocation increase, March 18, 2009	20%
Allocation increase, April 16, 2009	30%
Final allocation, May 20, 2009	40%

3. Reflects meter reading differences.

4. Total 2009 Table A carryover to 2010.

Rosedale-Rio Bravo's service area on an ongoing basis.[2] CLWA receives 11,000 af of these supplies annually through either exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal.

In 2008, CLWA entered into the Yuba Accord Agreement, which allows for the purchase of water from the Yuba County Water Agency through the Department of Water Resources to 21 State Water Project contractors (including CLWA) and the San Luis and Delta-Mendota Water Authority. CLWA may purchase up to approximately 1,000 af per year and in 2009 received 1,658 af as part of the Agreement.

3.4.3 Imported Water Supply Reliability

The Department of Water Resources issued its Draft State Water Project Delivery Reliability Report 2009 in February 2010. The report is updated with new information and calculations of delivery reliability every two years and is intended to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies. The current Draft Reliability Report, with the objective of protecting endangered fish such as the Delta smelt and spring-run salmon, incorporates restrictions on SWP operations according to the Biological Opinions of the U.S. Fish and Wildlife Service and the National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. It also considers the impacts on SWP delivery reliability due to climate change, sea level rise, and vulnerability of the Delta's conveyance system and structure due to floods and earthquakes. The current Draft Reliability Report projects long-term reliability of 60 percent during normal year hydrology. In 2010, CLWA staff assessed the impact of the current Reliability Report on the CLWA reliability analysis contained in the Agency's 2005 UWMP. It concluded that current and anticipated supplies are available to meet anticipated water supply needs.

Groundwater banking and conjunctive use offer significant opportunities to improve water supply reliability for CLWA. Groundwater banking is the process of storing available supplies of water in groundwater basins during wet years or when supplemental water is otherwise available. During dry periods, or when imported water supply availability is reduced, banked water can be recovered from groundwater storage to replace, or firm up, the imported water supply deliveries.

[2] A CEQA action was filed by California Water Impact Network (CWIN) in November 2006 challenging the adequacy of CLWA's EIR on the acquisition of 11,000 af from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District. In November 2007, a Los Angeles Superior Court ruled in favor of CLWA on all points. In January 2008, CWIN filed a notice of appeal. The case was argued before the appellate court March 2, 2009. On April 20, 2009, the Court of Appeal issued an opinion affirming the Superior Court's judgement.

As described herein, CLWA has entered into two groundwater banking programs and now has, in aggregate, more than 110,000 af of recoverable water in banked groundwater storage outside the local groundwater basin. The first component of CLWA's overall groundwater banking program is the result of two 10-year agreements between CLWA and Semitropic Water Storage District whereby, over the terms of the two agreements, CLWA can withdraw up to 45,920 af of SWP Table A water that it stored in Semitropic to meet Valley demands when needed in dry years (45,920 af is the net recoverable balance after originally banking 24,000 af in 2002 and 32,522 af in 2003, and withdrawing 4,950 af in 2009). The second component of the program, the long-term Rosedale-Rio Bravo Water Banking and Exchange Program in Kern County, has a recoverable total of 64,900 acre-feet in storage (i.e., 75,200 af originally banked less contractual losses).

Conjunctive use is the purposeful integrated use of surface water and groundwater supplies to maximize water supply from the two sources. CLWA and the Purveyors have been conjunctively utilizing local groundwater and imported surface water since the initial importation of SWP water in 1980. The groundwater banking programs described above allow CLWA to firm up the imported water component of conjunctive use in the Valley by storing surplus SWP and other water, in wet years, in groundwater basins outside the Valley. This allows recovery and importation of that water as needed in dry years to maintain a greater overall amount of imported surface water to be used conjunctively with local groundwater, further supporting the sustainable use of local groundwater at the rates in the groundwater operating plan.

3.5 Water Quality – General

Water delivered by the Purveyors consistently meets drinking water standards set by the Environmental Protection Agency (EPA) and the California Department of Public Health (DPH). An annual Water Quality Report is provided to all Santa Clarita Valley residents who receive water from one of the four water retailers. There is detailed information in that report about the results of quality testing of the groundwater and treated SWP water supplied to the residents of the Santa Clarita Valley during 2008. Several constituents of particular local interest are discussed in more detail below.

Total Trihalomethanes

In 2002, the United States Environmental Protection Agency implemented the new Disinfectants and Disinfection Byproducts Rule. In part, this rule established a new MCL of 80 µg/l (based on an annual running average) for Total Trihalomethanes (TTHM). TTHMs are byproducts created when chlorine is used as a means for disinfection. CLWA and the Purveyors implemented an alternative method of disinfection, chloramination, in 2005 to maintain compliance with the new

rule and future regulations relating to disinfection byproducts. TTHM concentrations have remained significantly below the MCL since implementation of alternative disinfection.

Perchlorate

Perchlorate has been a water quality concern in the Valley since 1997 when it was originally detected in four wells operated by the Purveyors in the eastern part of the Saugus Formation, near the former Whittaker-Bermite facility. In late 2002, perchlorate was detected in a fifth municipal well, in this case an Alluvial well (SCWD's Stadium Well) also located near the former Whittaker-Bermite site. In early 2005, perchlorate was detected in a second Alluvial well (VWC's Well Q2) near the former Whittaker-Bermite site. In 2006, a very low concentration of perchlorate was detected in another Saugus well (NCWD's Well NC-13), near one of the originally impacted wells. However, that detection has been interpreted to not be an indication of continued perchlorate migration in a westerly direction. Subsequent monitoring well installation has been completed and a focused study of the Saugus Formation has ultimately been incorporated into the overall groundwater remediation and removal actions submitted by Whittaker-Bermite and reviewed by the State Department of Toxic Substances Control (DTSC) as discussed below.

Wells with perchlorate concentrations exceeding the then-applicable Action Level (18 μg/l) or, more recently, the then-applicable Notification Level (6 μg/l)[3] were removed from active water supply service. One of the Alluvial wells (VWC's Well Q2) was returned to active water supply service, with treatment, in late 2005 as discussed below. The other impacted wells remain out of service; two wells (VWC's Well 157 and SCWD's Stadium Well) have been sealed and replaced by new wells, and two wells (SCWD's Saugus 1 & 2 Wells) are being returned to service as described below. The 2005 UWMP specifically addressed the adequacy of groundwater supply in light of the inactivation of the impacted Alluvial and Saugus wells; and it addressed the plan and schedule for restoration of perchlorate-impacted wells, including the protection of existing non-impacted wells. As summarized in the 2005 UWMP, the inactivation of the impacted wells does not constrain the ability to meet the groundwater component of total water supply in the Valley.

In 2000, CLWA and the impacted Purveyors filed a lawsuit against Whittaker Corporation (the former owner of the contaminated property) and Santa Clarita LLC and Remediation Financial, Inc. (the owners of record at that time). The lawsuit sought to have defendants pay all necessary costs of response, removal of the contaminant, remedial actions, and any liabilities or damages associated with the contamination. An Interim Settlement and Funding Agreement was reached

[3] The Maximum Contaminant Level (MCL) for perchlorate was set at 6 μg/l by the State Department of Public Health in October 2007.

in 2003. Although that Agreement expired in January 2005, the parties, under DTSC oversight, jointly developed a plan to "pump and treat" contaminated water from two of the Purveyors' impacted wells to stop migration of the contaminant plume and to partially restore the municipal well capacity that has been impacted by perchlorate. The parties also continued negotiations intended to achieve a long term settlement to the litigation through 2006, and a final settlement was completed and executed in April 2007.

Since 2007, the impacted Purveyors (SCWD, NCWD, and VWC) and CLWA continued working toward implementation of a jointly developed plan that will combine pumping from two of the impacted wells and a water treatment process to restore the impacted pumping capacity and control the migration of contamination in the aquifer. The development and implementation of a cleanup plan for the Whittaker-Bermite site and the impacted groundwater is being coordinated among CLWA, the impacted Purveyors, the State DTSC, and U.S. Army Corps of Engineers. DTSC is the lead agency responsible for regulatory oversight of the Whittaker-Bermite site.

In February 2003, DTSC and the impacted Purveyors entered into a voluntary cleanup agreement entitled *Environmental Oversight Agreement*. Under the Agreement, DTSC is providing review and oversight of the response activities being undertaken by the Purveyors related to the detection of perchlorate in the impacted wells. Under the Agreement's Scope of Work, the impacted Purveyors prepared a Work Plan for sampling the production wells, a report on the results and findings of the production well sampling, a draft Human Health Risk Assessment, a draft Remedial Action Workplan, an evaluation of treatment technologies and an analysis showing the integrated effectiveness of a project to restore impacted pumping capacity, extract perchlorate-impacted groundwater from two Saugus wells for treatment, and control the migration of perchlorate in the Saugus Formation. Environmental review of that project was completed in 2005 with adoption of a mitigated Negative Declaration. The Final Interim Remedial Action Plan for containment and extraction of perchlorate was completed and approved by DTSC in January 2006. Design of the treatment facilities and related pipelines is complete. Construction of those facilities and pipelines to implement the pump and treat program and to also restore inactivated municipal well capacity began in November 2007 and was completed, and in operational startup, as this report was being drafted (May, 2010).

Under the direction of DTSC, Whittaker has submitted a comprehensive site-wide remediation plan for the contaminants of concern in soil and groundwater detected on the property. A Draft Remedial Action Plan for Operable Units 2 through 6 that is focused on soil remediation was submitted to DTSC in 2009. The plan contains a number of recommended technologies to remove contaminants from the soil, in addition to a proposed clean-up schedule for the site. Whittaker has also completed a Draft Operable Unit 7 Feasibility Study to identify and select

treatment technologies for both on-site and off-site groundwater. Final approval by DTSC of soil and groundwater clean-up plans is expected by the end of 2010.

As noted above, perchlorate was detected in a second Alluvial well, VWC's Well Q2, in early 2005. In response, Valencia removed the well from active service, and commissioned the preparation of an analysis and report assessing the impact of, and response to, the perchlorate contamination of that well. Valencia's response for Well Q2 was to obtain permitting for installation of wellhead treatment, followed by installation of treatment facilities and returning the well to water supply service in October 2005. After nearly two years of operation with wellhead treatment, including regular monitoring specified by the State Department of Public Health (DPH), all of which resulted in no detection of perchlorate in Well Q2, Valencia requested that DPH allow treatment to be discontinued. DPH approved that request in August 2007, and treatment was subsequently discontinued. DPH-specified monitoring for perchlorate continues at Well Q2; there has been no detection of perchlorate since discontinuation of wellhead treatment.

On the Whittaker-Bermite site, soil remediation activities in operating unit subareas started in 2005. Groundwater "pump and treat" operations in the Northern Alluvium, which also started in 2005, continued through 2009. Expanded pumping, intended to effect perchlorate containment as well as to treat 'hot spots' in the Northern Alluvium, became operational in October 2007. Also on the Whittaker-Bermite site, remediation work in the Saugus Formation is underway. Additional objectives of this project include the reduction of further transport of contaminants to regional groundwater and reduction of the size of the contaminant mass in deep/perched zones.

Hardness

In 2008, the Valencia Water Company began a demonstration project delivering pre-softened groundwater from one of its wells to approximately 420 residents located in the Copperhill Community of Valencia. Hard water is the primary complaint from Valencia customers and it is estimated that more than 50 percent have installed individual water softening units at their homes. In addition to having high operating costs, many of these units are designed to discharge a brine (salt) solution to the sanitary sewer system that is eventually discharged to the Santa Clara River, or is part of the recycled water supply. The environmental impact of such discharges was the subject of a major Chloride Total Maximum Daily Load investigation which concluded with a commitment by the Purveyors to achieve surface water quality goals for in-stream discharge from the basin. Valencia's project is aimed at improving the quality of water for its customers to eliminate the need for home softening devices and to achieve the environmental benefits of reduced chloride discharge to the river.

The demonstration project utilizes softening technology that removes calcium and produces small calcium carbonate pellets which can be reused in a variety of industries. The demonstration project has now been operated for over a year and provides the water company with customer feedback and technical/financial information to assess potential future expansion of treatment to other well sites.

3.5.1 Groundwater Quality – Alluvium

Groundwater quality is, of course, a key factor in assessing the Alluvial aquifer as a municipal and agricultural water supply. Groundwater quality details and long-term conditions, examined by integration of individual records from several wells completed in the same aquifer materials and in close proximity to each other, have been discussed in previous annual Water Reports and in the 2005 UWMP. There were some changes in groundwater quality in 2009 that reflect fluctuations, trends, or other groundwater quality conditions as illustrated in Figures 3-11 and 3-12. These graphs show historical specific conductance values for representative wells in the Valley with the California Department of Public Health Secondary Maximum Levels included for reference. Most of the trends show a significant lowering of the specific conductance values by half following the wet years of 2004-2005. Since then, those trends have returned to 2004 levels but do not exceed historical levels. In summary, those conditions include: no long-term overall trend and, most notably, no long-term decline in Alluvial groundwater quality; a general groundwater quality "gradient" from east to west, with lowest dissolved mineral content to the east, increasing in a westerly direction; and periodic fluctuations in some parts of the basin, where groundwater quality has inversely varied with precipitation and stream flow. Those variations are typically characterized by increased mineral concentrations through dry periods of lower stream flow and lower groundwater recharge, such as is currently occurring, followed by lower mineral concentrations through wetter periods of higher stream flow and higher groundwater recharge.

The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial aquifer remains a viable ongoing water supply source in terms of groundwater quality.

3.5.2 Groundwater Quality – Saugus Formation

As discussed above for the Alluvium, groundwater quality is a key factor in also assessing the Saugus Formation as a municipal and agricultural water supply. As with groundwater level data, long-term Saugus groundwater quality data are not sufficiently extensive to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. However, integration

of individual records from several wells has been used to examine general water quality trends. Based on those records, water quality in the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Based on available data over the last 50 years, groundwater quality in the Saugus has exhibited a slight overall increase in dissolved mineral content as illustrated in Figure 3-13. More recently, several wells within the Saugus Formation have exhibited an additional increase in dissolved mineral content, similar to short-term changes in the Alluvium, possibly as a result of recharge to the Saugus Formation from the Alluvium. Since 2005, however, these levels have been steadily dropping or remaining constant. Dissolved mineral concentrations in the Saugus Formation remain below the Secondary (aesthetic) Upper Maximum Contaminant Level. Groundwater quality within the Saugus will continue to be monitored to ensure that degradation to the long-term viability of the Saugus as a component of overall water supply does not occur.

3.5.3 Imported Water Quality

CLWA operates two water treatment plants, the Earl Schmidt Filtration Plant located near Castaic Lake and the Rio Vista Water Treatment Plant located in Saugus. CLWA produces water that meets drinking water standards set by the U.S. EPA and DPH. SWP water has different aesthetic characteristics than groundwater with lower dissolved mineral concentrations (total dissolved solids) of approximately 250 to 360 mg/l, and lower hardness (as calcium carbonate) of about 105 to 135 mg/l.

Historically, the State Water Project (SWP) delivered only surface water from the Sacramento-San Joaquin River Delta. However, CLWA and other SWP users, in anticipation of drought, many years ago began “water banking” programs where SWP water could be stored or exchanged during wet years and withdrawn in dry years. The last three years have seen severe state-wide drought. As a result, water has been withdrawn from the water banking programs and pumped into the SWP system. During the period of 2008 through 2010, a greater portion of water in the SWP has been this “pumped-in” water. The “pumped-in” water has met all water quality standards established by DWR under its anti-degradation policy for the SWP.

3.6 Recycled Water

Recycled water is available from two water reclamation plants operated by the Sanitation Districts of Los Angeles County. In 1993, CLWA prepared a draft Reclaimed Water System Master Plan that outlined a multi-phase program to deliver recycled water in the Valley. CLWA previously completed environmental review on the construction of Phase I of the project, which will ultimately deliver 1,700 afy of recycled water. Deliveries of recycled water began in 2003

for irrigation water supply at a golf course and in roadway median strips. In 2009, recycled water deliveries were 328 af, generally consistent with recycled water deliveries that have ranged between 311 and 470 afy over the past six years.

Surveys conducted by CLWA indicate an interest for recycled water by existing water users as well as by future development as recycled water becomes available. In 2002, CLWA produced an updated Draft Recycled Water Master Plan. Overall, the program is expected to ultimately recycle up to 17,400 af of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping and other non-potable uses, as set forth in the UWMP.

In 2007, CLWA completed California Environmental Quality Act (CEQA) analysis of the Recycled Water Master Plan (2002). This analysis consisted of a Program Environmental Impact Report (PEIR) covering the various options for a recycled water system as outlined in the Master Plan. The PEIR was certified by the CLWA Board in March 2007.

CLWA is preparing the design of the second phase of the Recycled Water Master Plan that will take water from the Saugus Water Reclamation plant and distribute it to identified users to the north, across the Santa Clara River and then to the west and the east, which will include service to Santa Clarita Central Park. There is also a new phase of the of the recycled water system in design that would extend the existing system southward from the intersection of Magic Mountain Parkway and the Old Road to the intersection of Orchard Village Road and Lyons Avenue, serving large irrigation customers along its proposed alignment. Collectively, these phases will have design capacity to increase recycled water deliveries by about 1,500 afy.

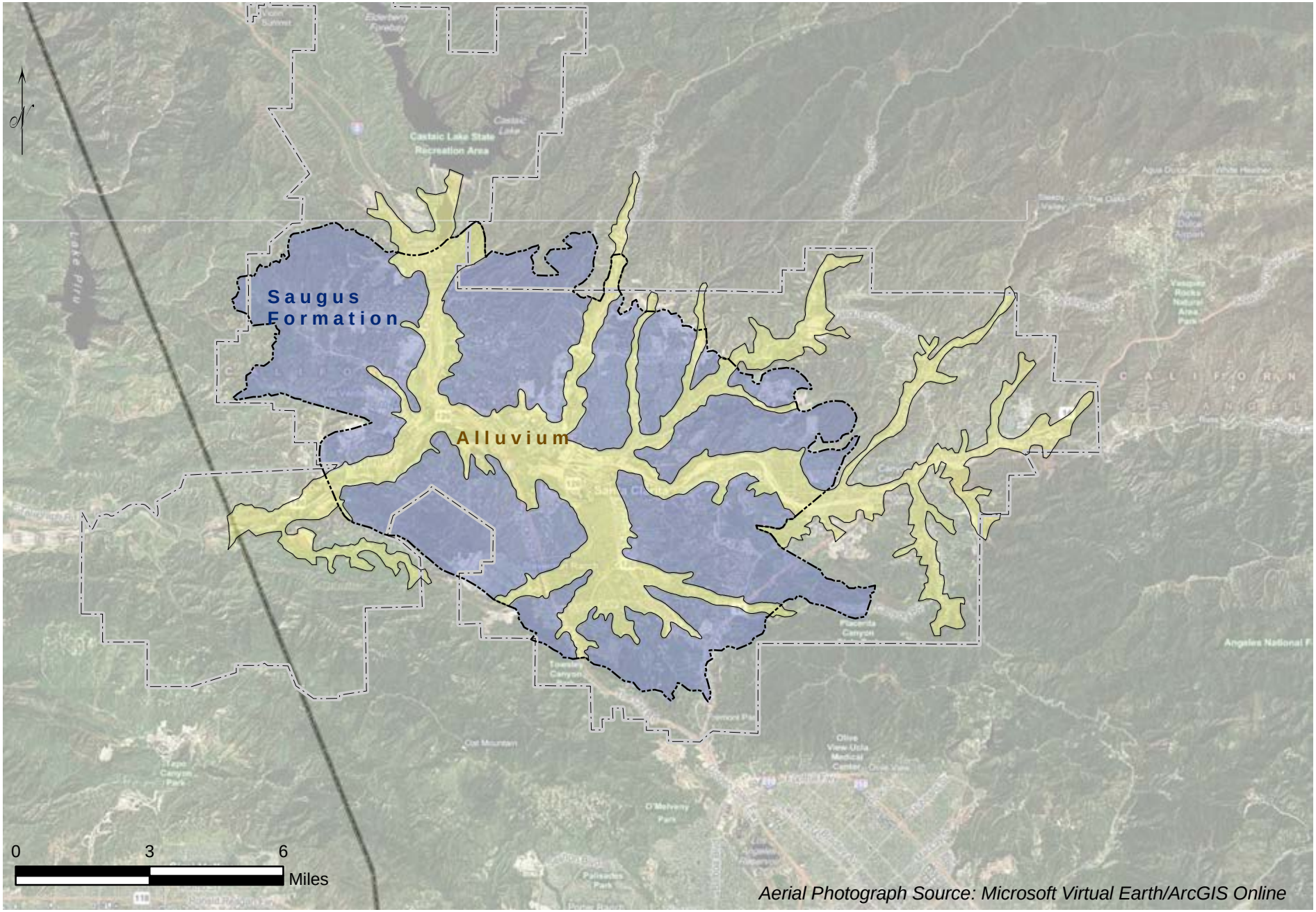
3.7 Santa Clara River

The Memorandum of Understanding (MOU) between the Santa Clarita Valley Purveyors and the United Water Conservation District, which manages surface and groundwater resources in seven groundwater basins in the Lower Santa Clara River Valley Area, was a significant accomplishment when it was prepared and executed in 2001. The MOU initiated a collaborative and integrated approach to data collection; database management; groundwater flow modeling; assessment of groundwater basin conditions, including determination of basin yield amounts; and preparation and presentation of reports, including continued annual reports such as this one for current planning and consideration of development proposals, and also including more technically detailed reports on geologic and hydrologic aspects of the overall stream-aquifer system. Meetings of the MOU participants have continued, and integration of the Upper (Santa Clarita Valley) and Lower (United WCD) Santa Clara River databases has been accomplished. As discussed above, a numerical groundwater flow model of the entire Santa Clarita groundwater

basin was developed and calibrated in 2002-2004. Subsequent to its initial use in 2004 for assessing the effectiveness of various operating scenarios to restore pumping capacity impacted by perchlorate contamination (by pumping and treating groundwater for water supply while simultaneously controlling the migration of contaminated groundwater), the model was used in 2005 for evaluation of basin yield under varying management actions and hydrologic conditions. The results completed the determination of sustainable operating yield values for both the Alluvium and the Saugus Formation, which were incorporated in the 2005 UWMP. The updated analysis of basin yield, completed in 2009, indicates that the 2008 Operating Plan will maintain river flows at higher levels than occurred prior to urbanization of the Valley.

On occasion, issues have been raised about whether use and management of groundwater in the Santa Clarita Valley have adversely impacted surface water flows into Ventura County. Part of the groundwater modeling work has addressed the surface water flow question as well as groundwater levels and storage. While the sustainability of groundwater has logically derived primarily from projected long-term stability of groundwater levels and storage, it has also derived in part from modeled simulations of surface water flows and the lack of streamflow depletion by groundwater pumping. In addition, the long-term history of groundwater levels in the western and central part of the basin, as illustrated in Figures 3-4 and 3-5, supports the modeled analysis and suggests that groundwater has not been lowered in such a way as to induce infiltration from the river and thus impact surface water flows.

Historical annual stream discharge in the Santa Clara River, into and out of the Santa Clarita Valley, is shown on Figure 3-14. The upstream gage at Lang Station was reinstated in 2002 and shows a wide range of average annual inflow over the last seven years. The downstream gage was moved in 1996 to its present location near Piru, about two miles downriver from the former County Line Gage. The combined record (1953-2009) of these two downstream gages indicates an annual stream discharge of about 47,000 afy. These data gaged near the County line show notably higher flows from the Santa Clarita Valley into the uppermost downstream basin, the Piru Basin, over the last 30 to 35 years.



Aerial Photograph Source: Microsoft Virtual Earth/ArcGIS Online

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Figure 3-1
Alluvium and Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

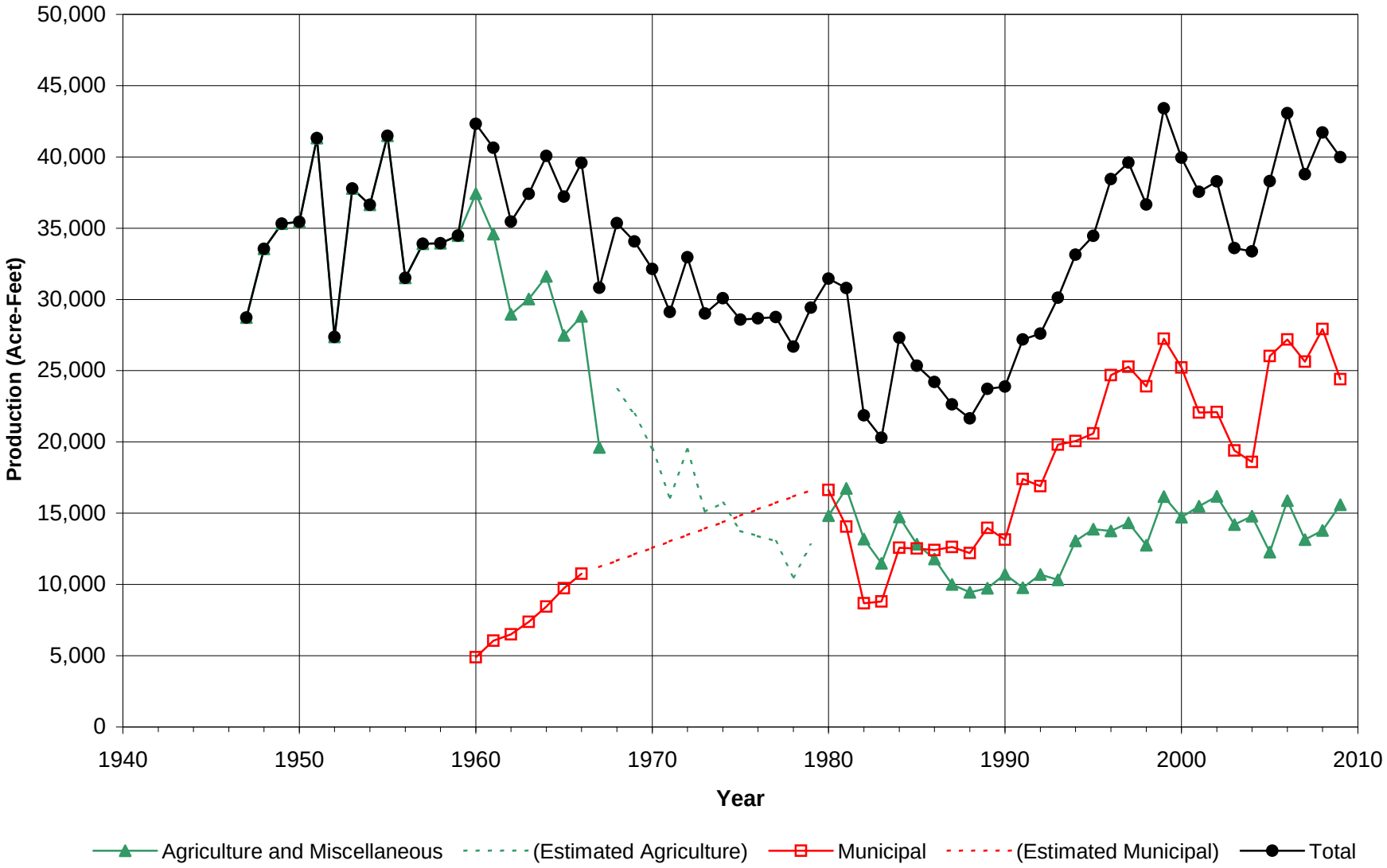

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Figure 3-2
Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin

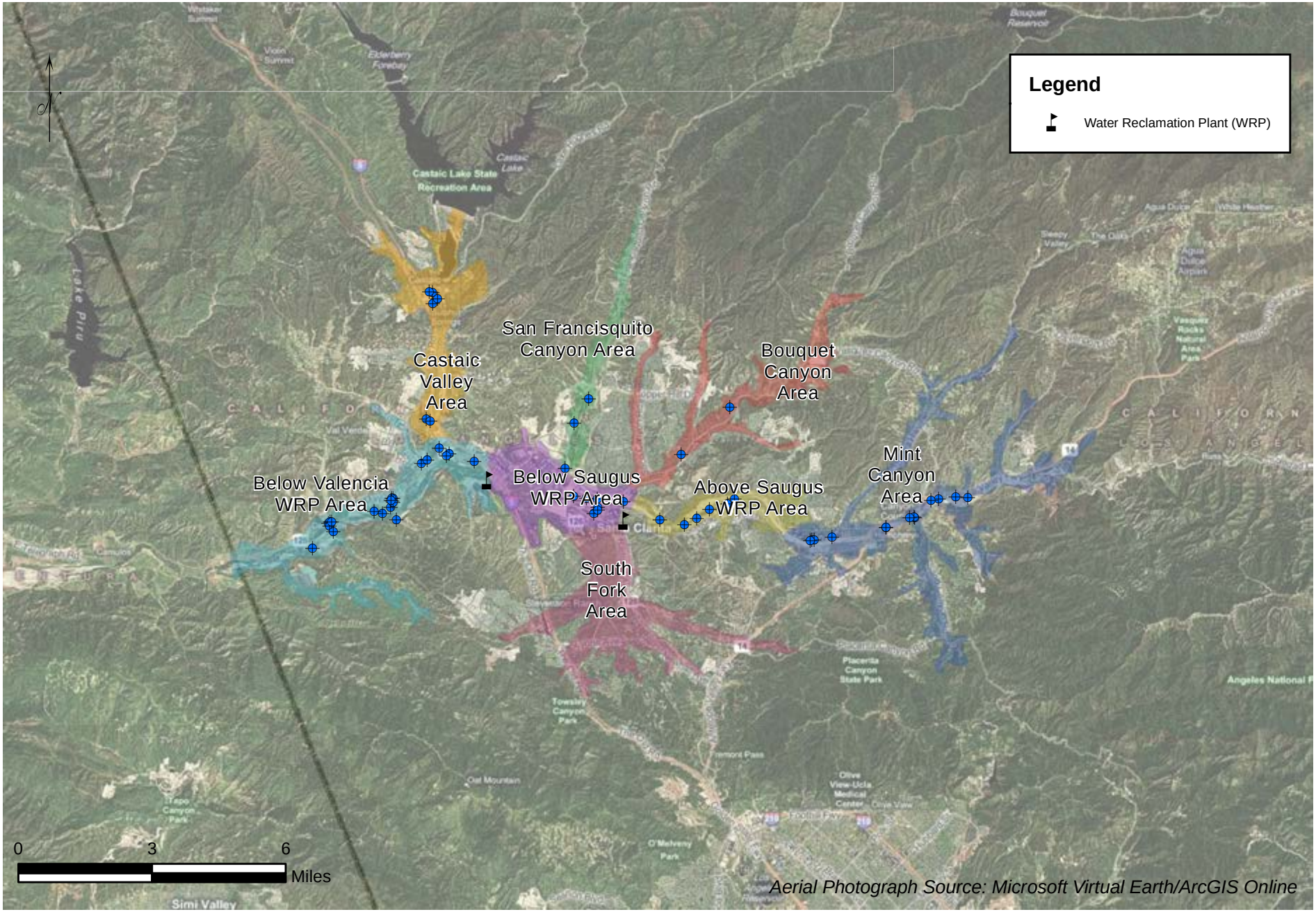

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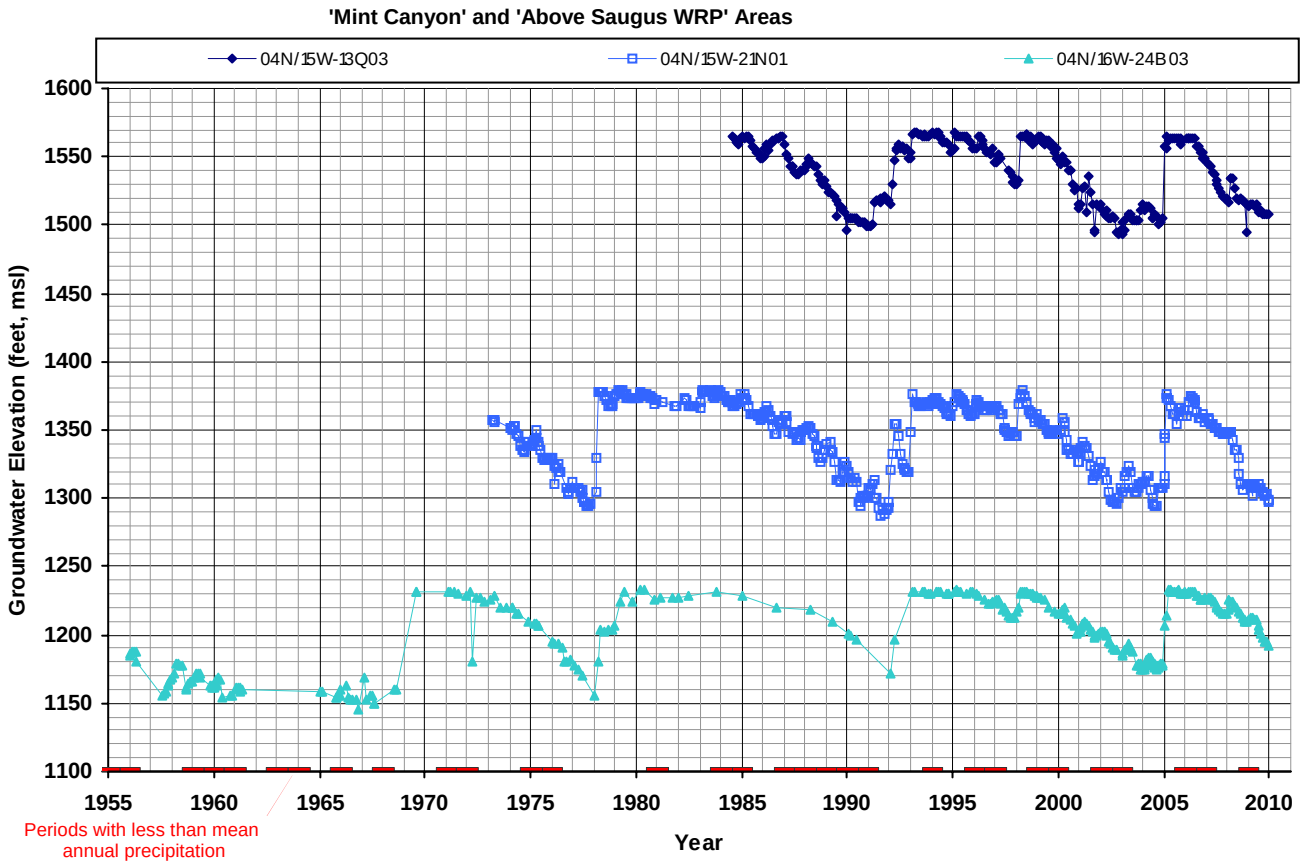
Figure 3-3
Alluvial Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin



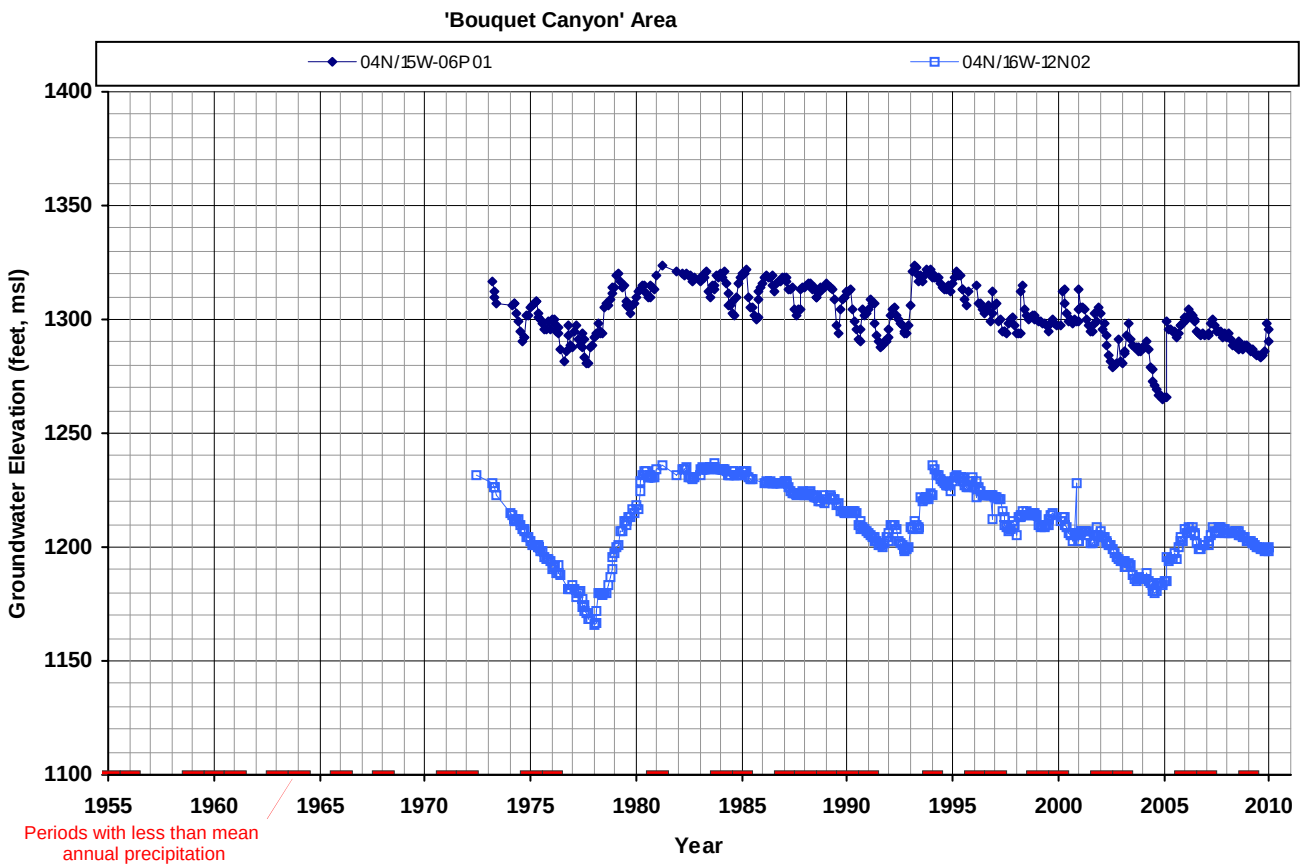


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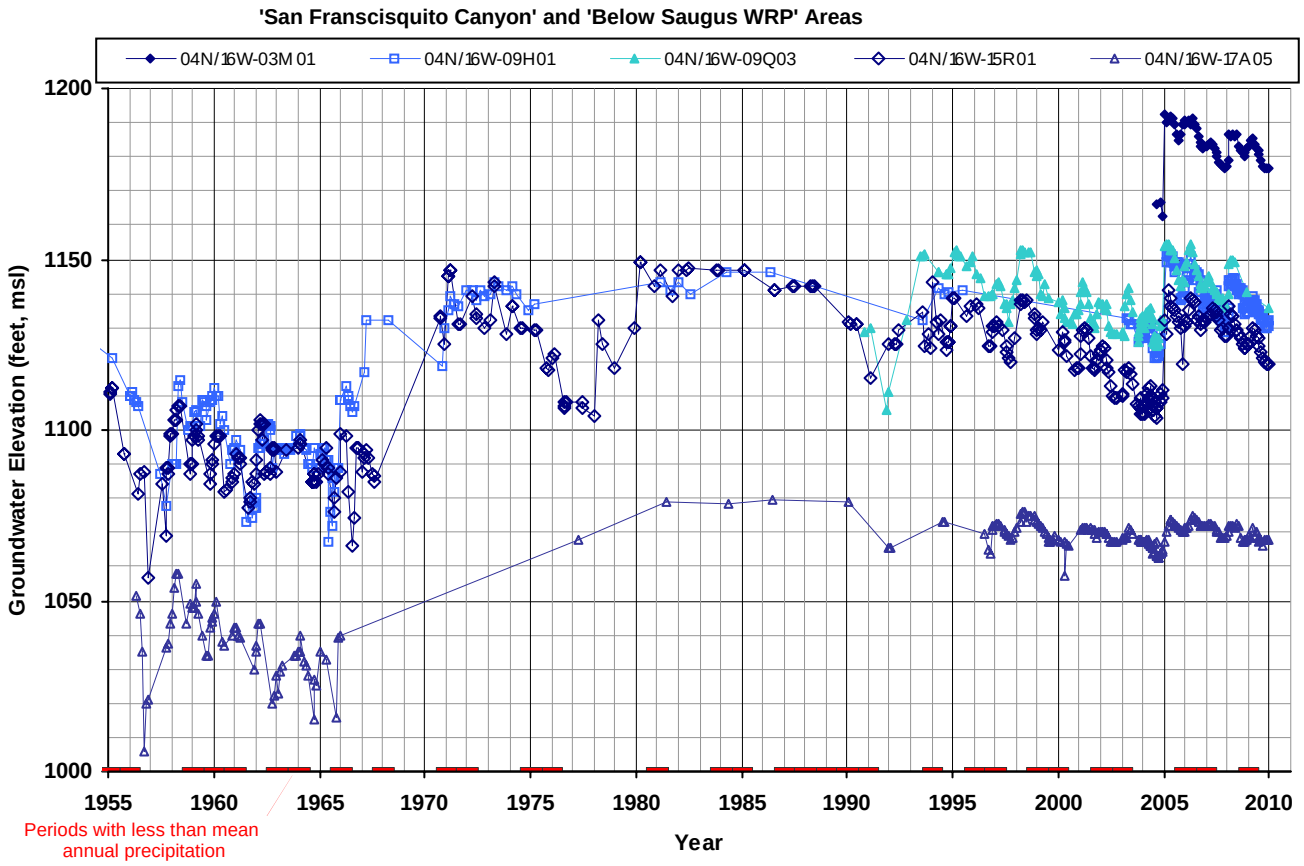
Figure 3-4
Groundwater Elevations in Eastern Santa Clarita Valley Alluvial Wells



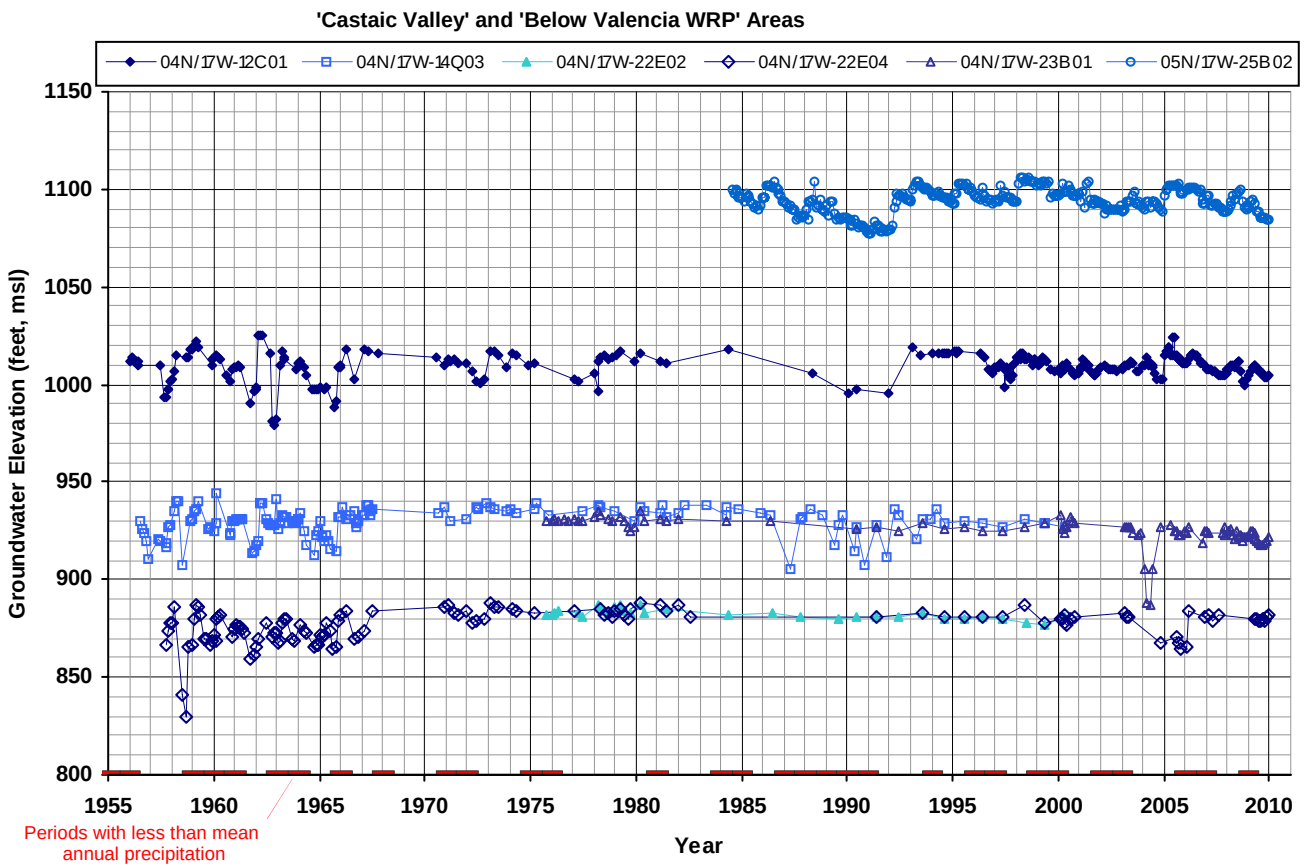


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Figure 3-5
Groundwater Elevations in Western Santa Clarita Valley Alluvial Wells

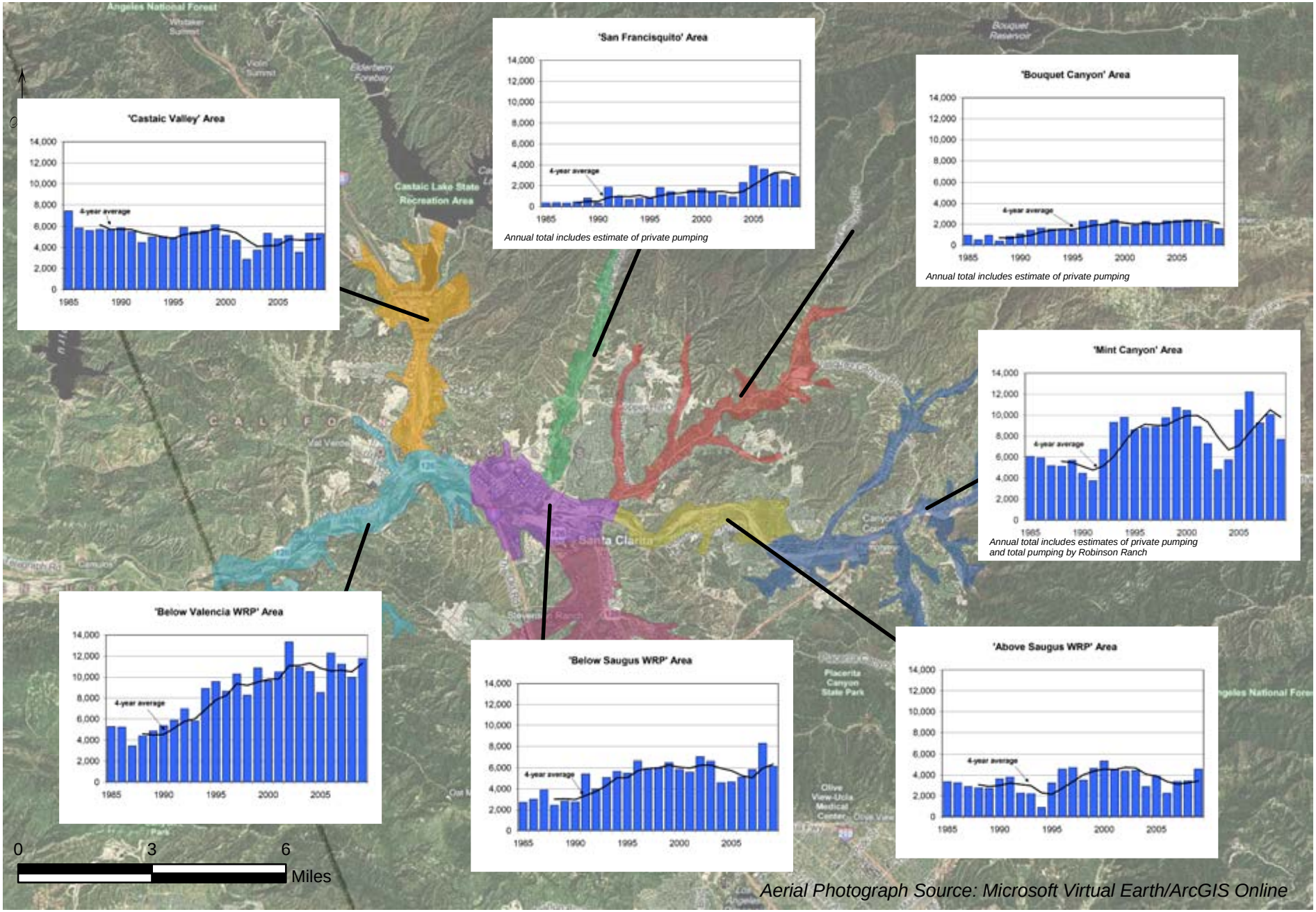

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Figure 3-6
Annual Groundwater Production from Alluvium by Area (Acre-feet)
Santa Clara River Valley, East Groundwater Subbasin

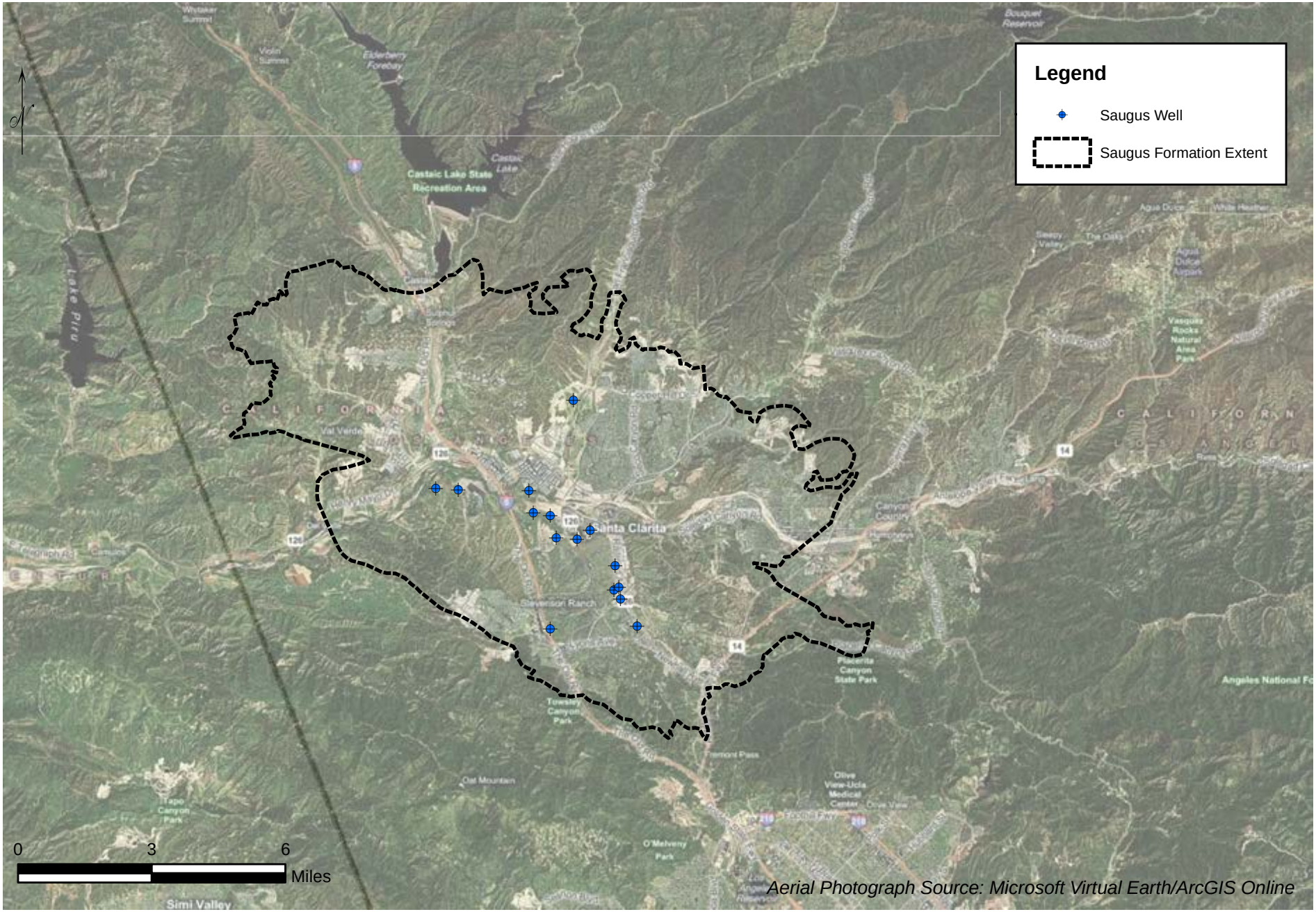

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Figure 3-7
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

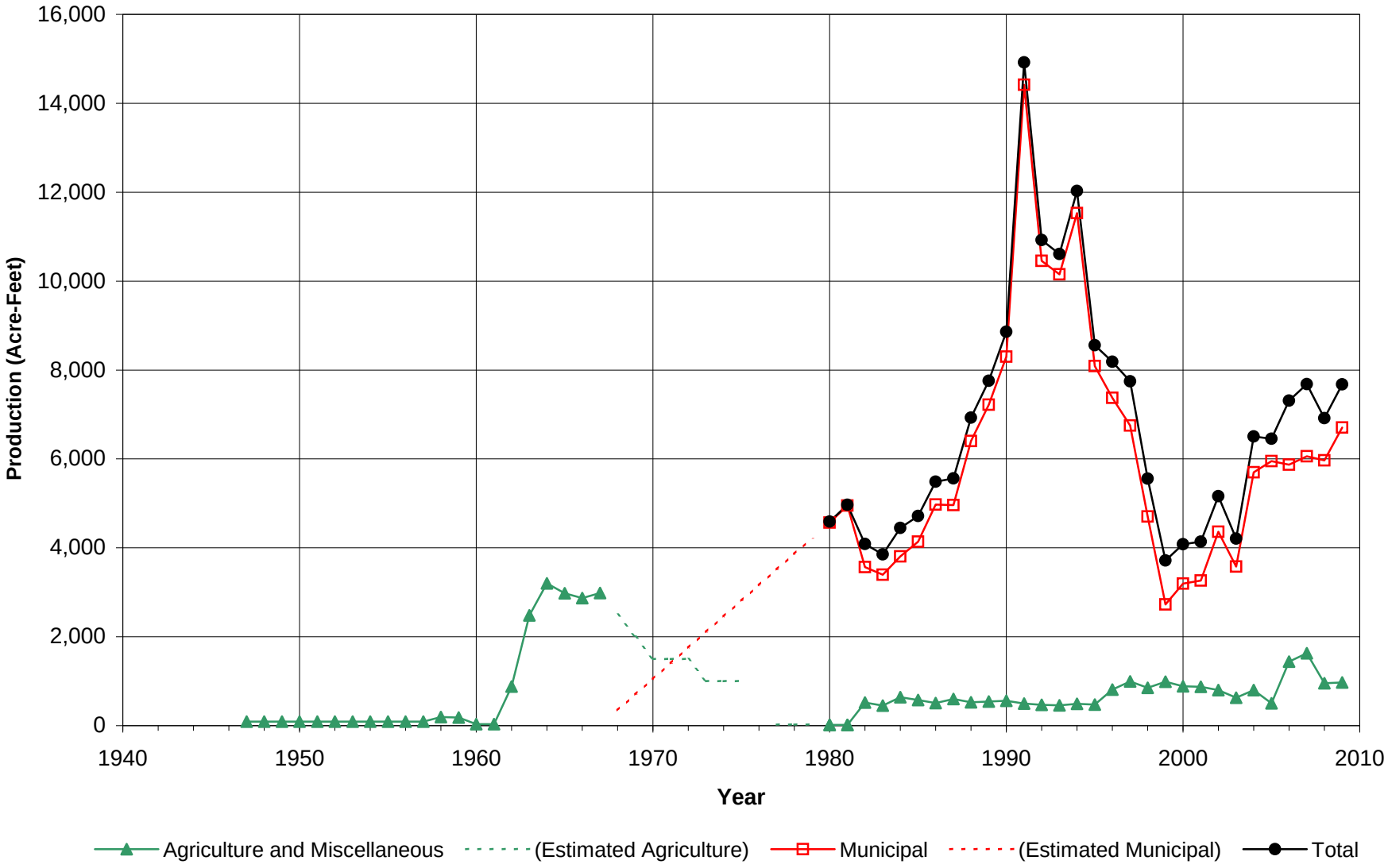

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Figure 3-8
Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

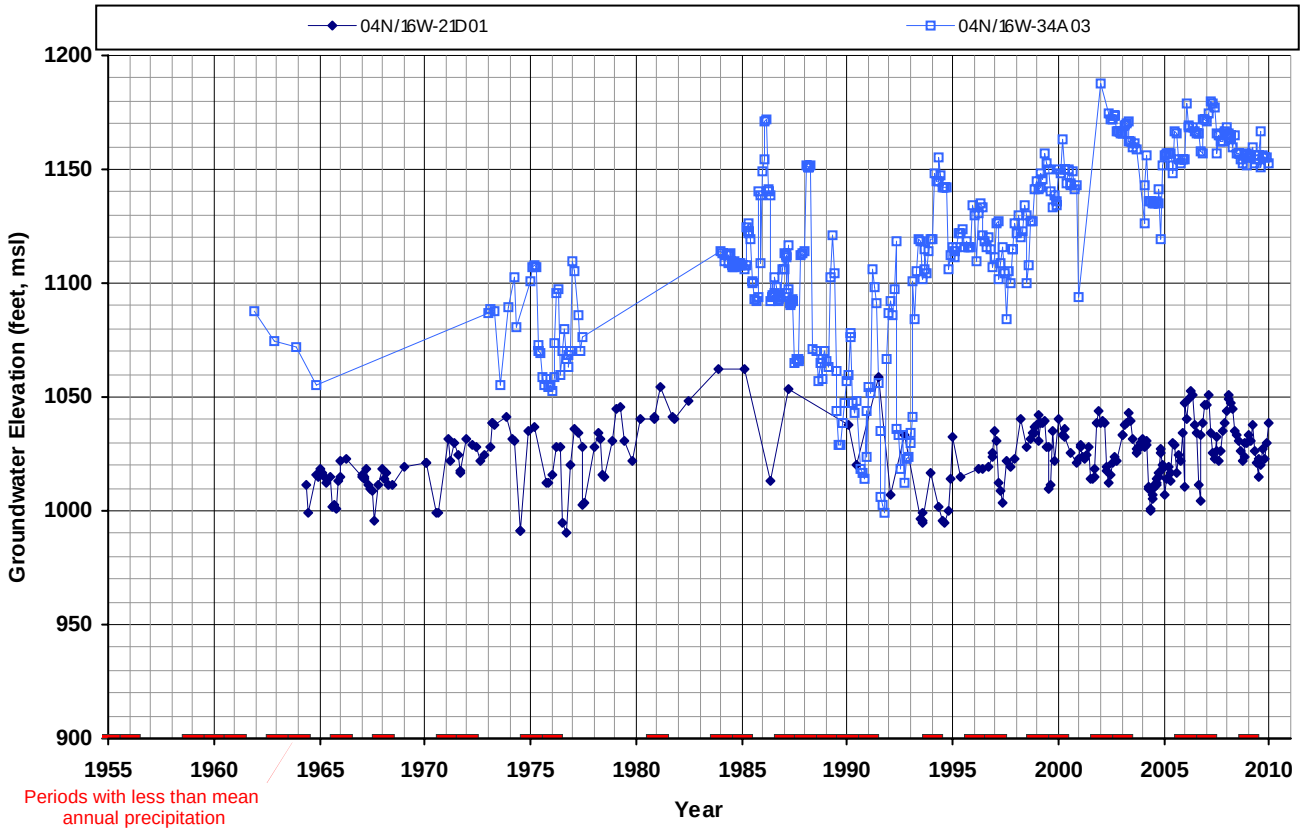

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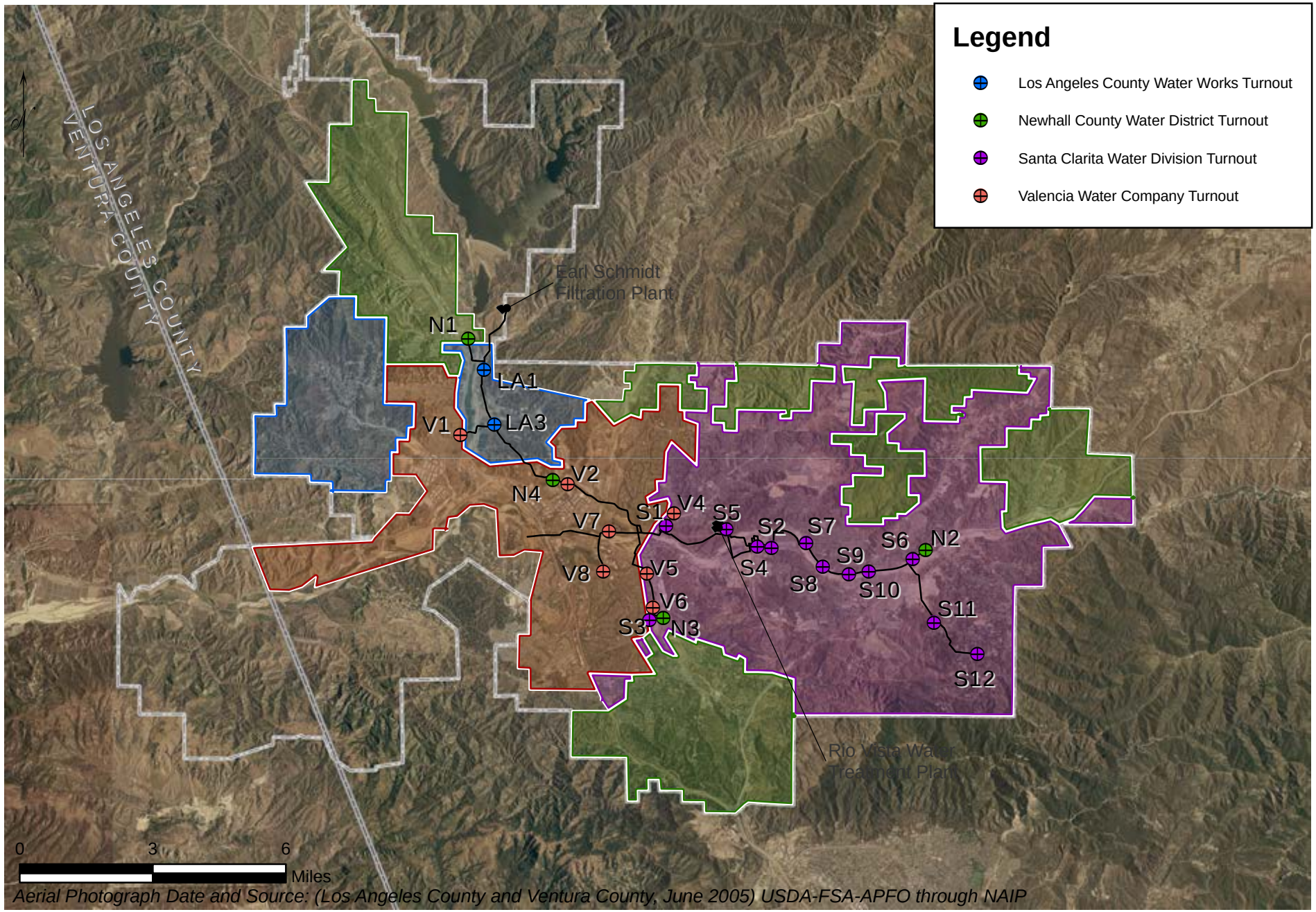
Figure 3-9
Groundwater Elevations in Saugus Wells



Aerial Photograph Date and Source: (Los Angeles County and Ventura County, June 2005) USDA-FSA-APFO through NAIP

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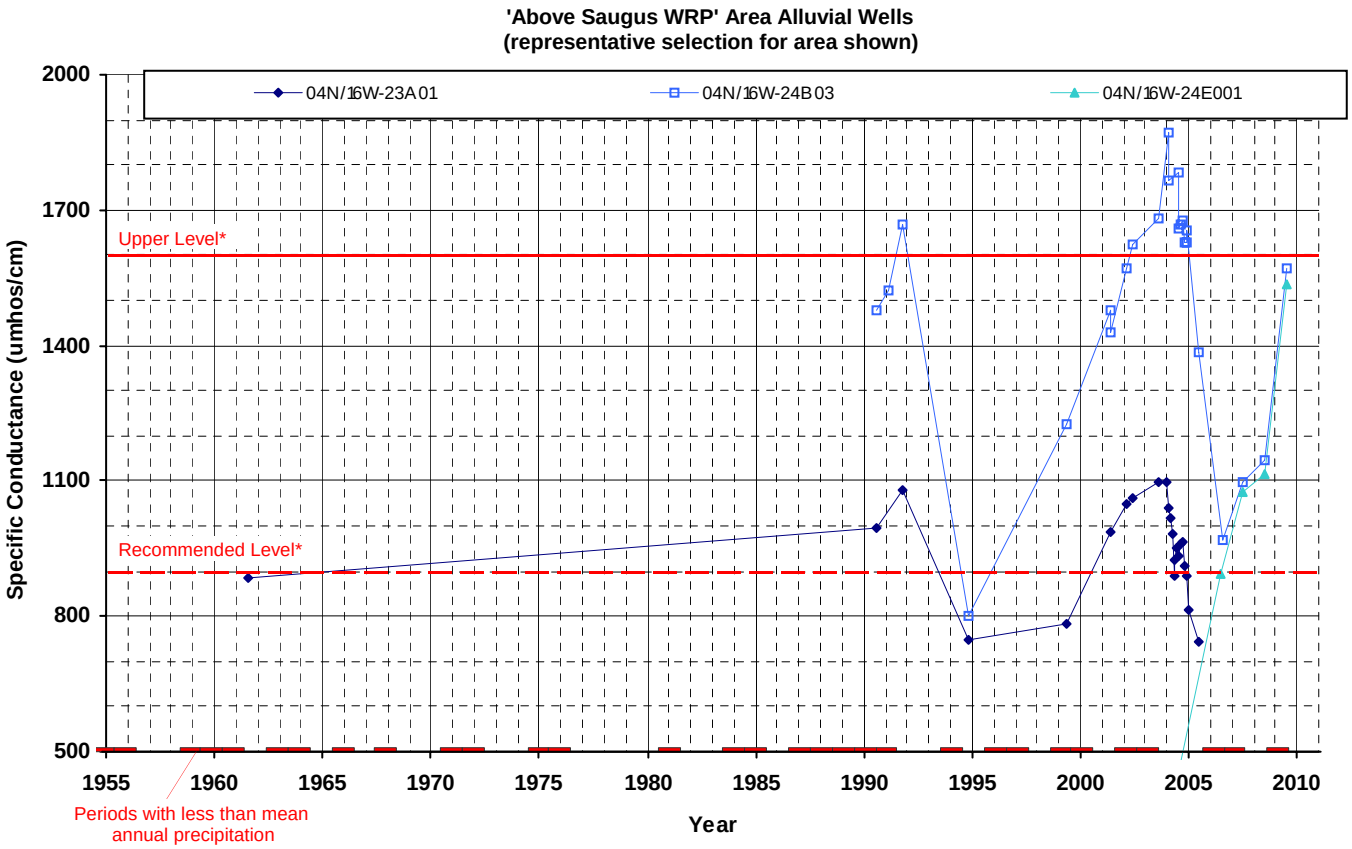
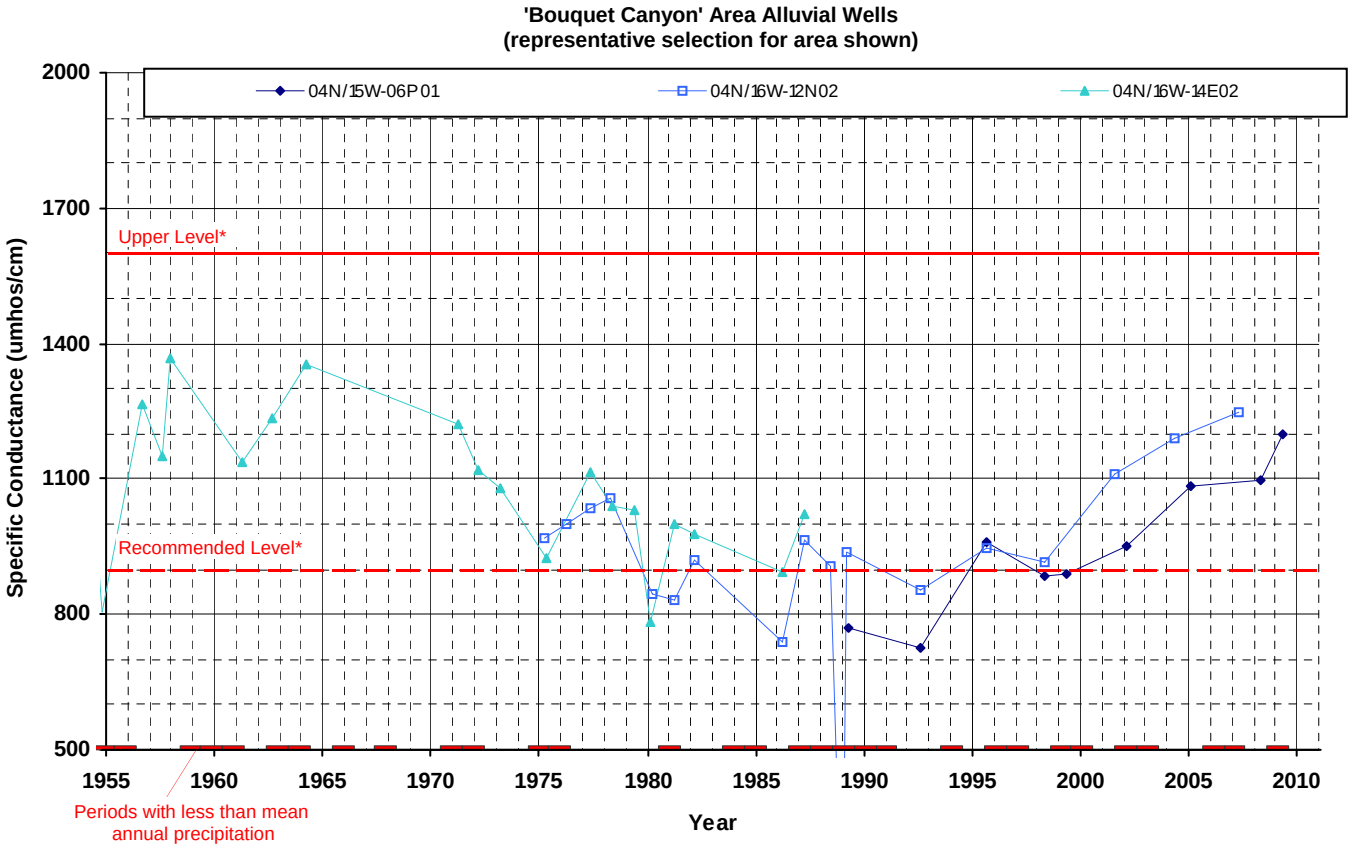
Figure 3-10
Treated Water Distribution System
Castaic Lake Water Agency





*California Department of Public Health Secondary Maximum Contaminant Level

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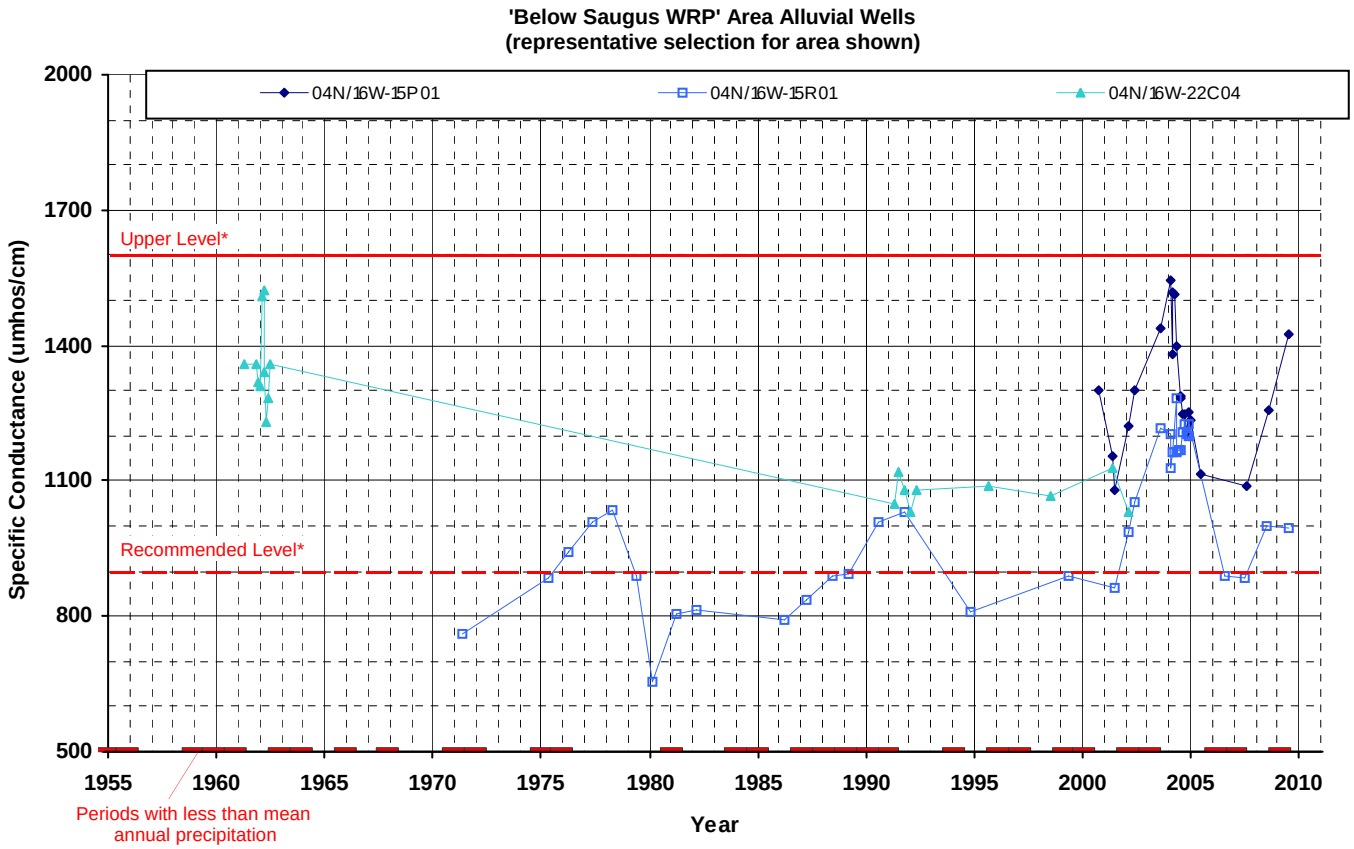
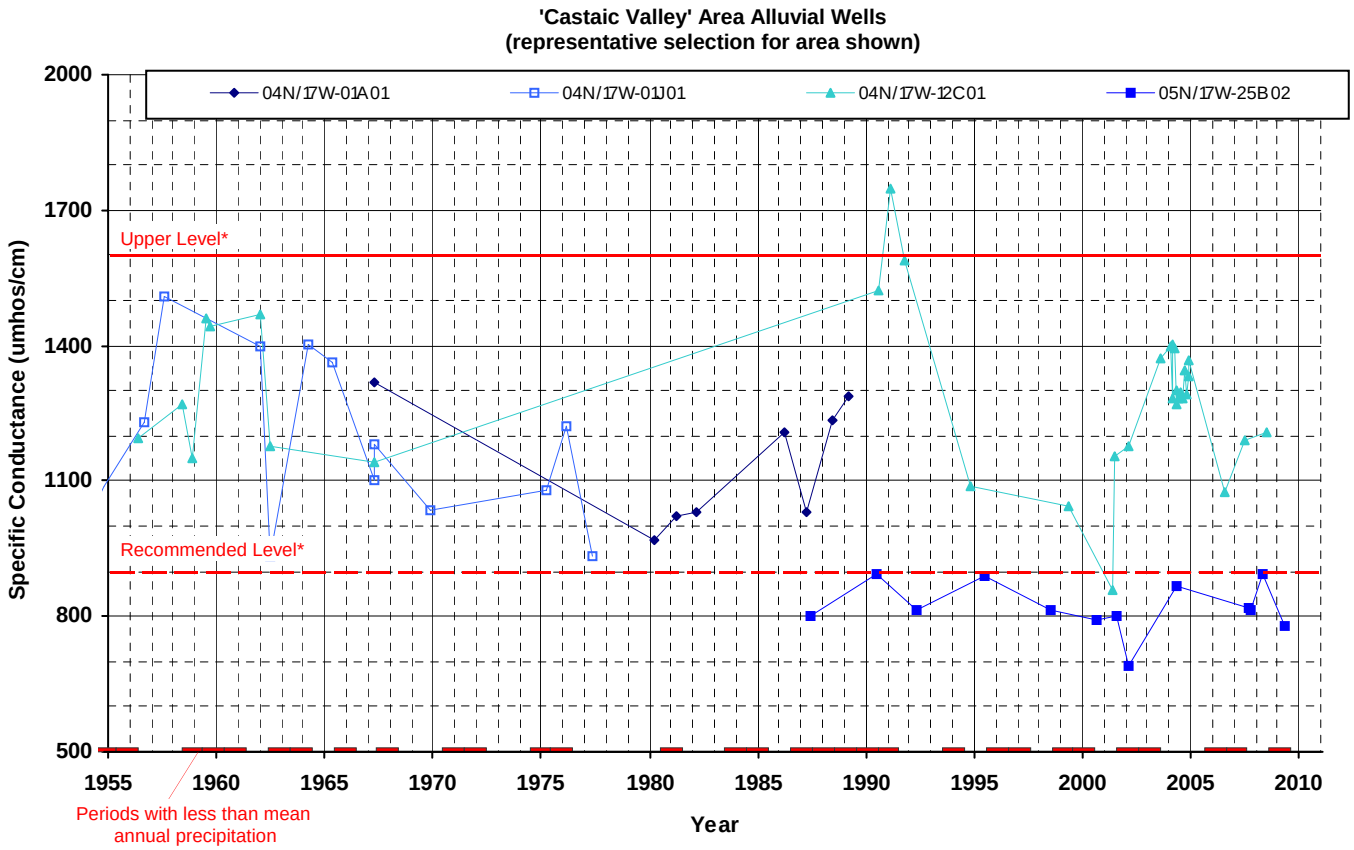
Figure 3-11
Groundwater Quality in
Eastern Santa Clarita Valley Alluvial Wells





*California Department of Public Health Secondary Maximum Contaminant Level

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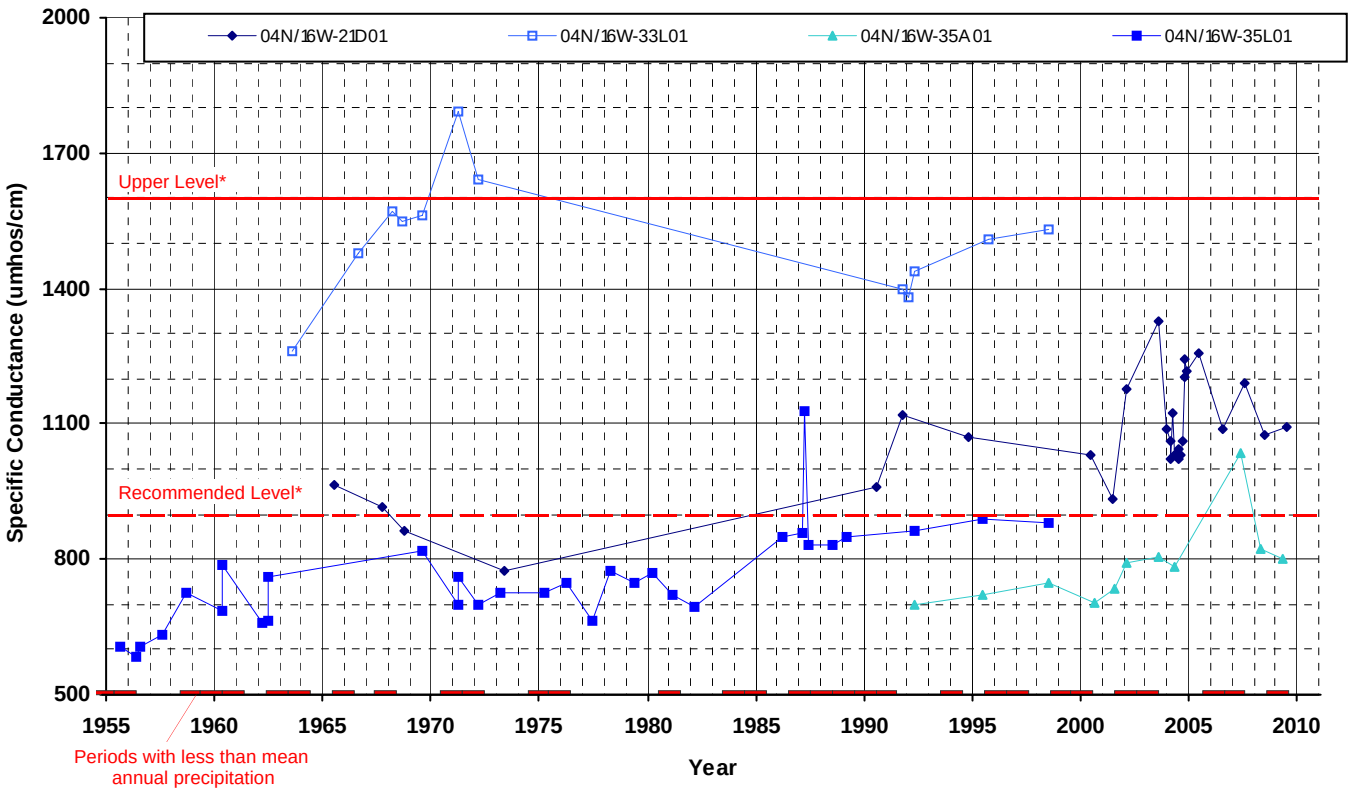
Figure 3-12
Groundwater Quality in
Western Santa Clarita Valley Alluvial Wells



*California Department of Public Health Secondary Maximum Contaminant Level

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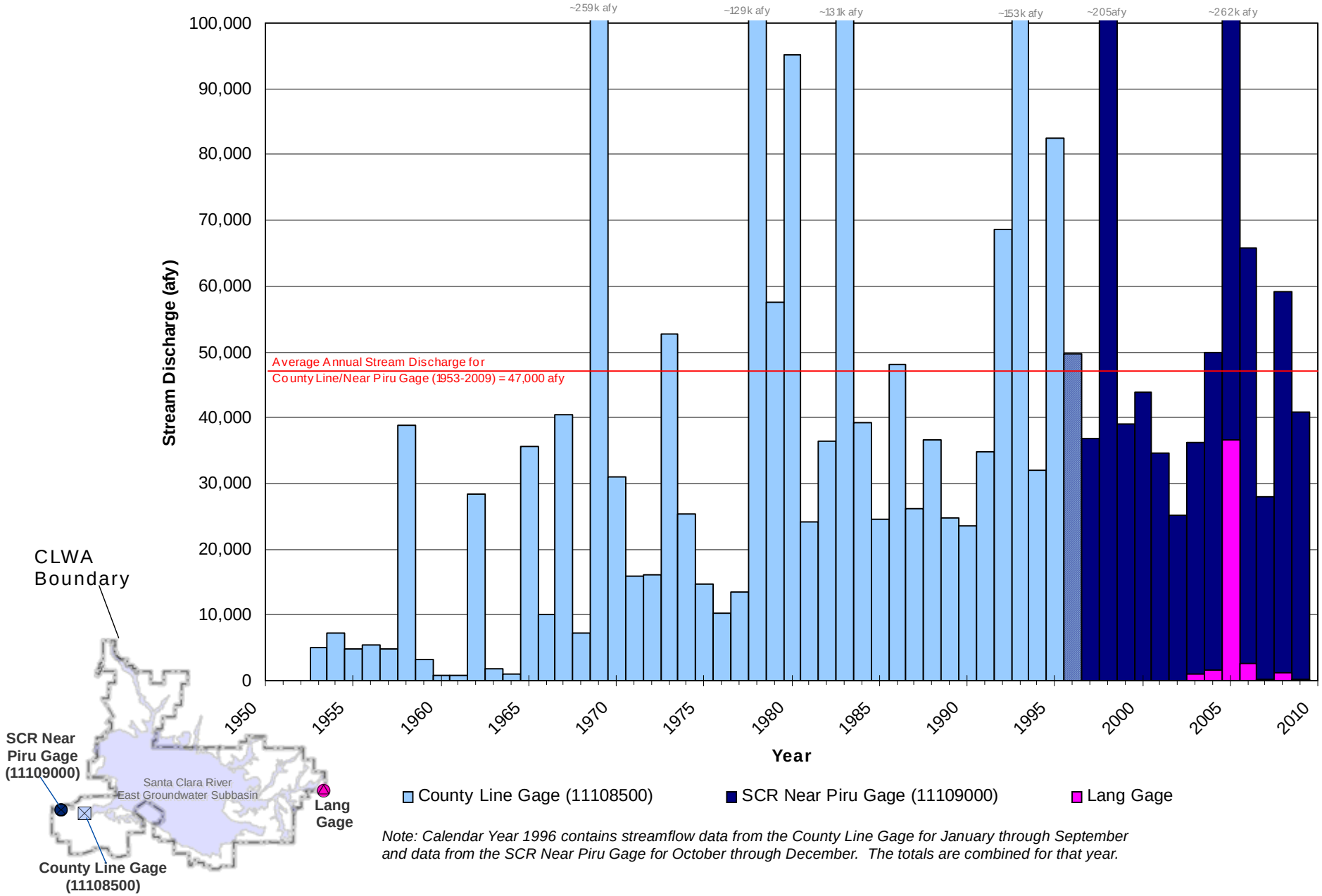
Figure 3-13
Groundwater Quality in Saugus Wells



Note: Calendar Year 1996 contains streamflow data from the County Line Gage for January through September and data from the SCR Near Piru Gage for October through December. The totals are combined for that year.

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Figure 3-14
Annual Stream Discharge
Santa Clara River

4. Summary of 2009 Water Supply and 2010 Outlook

As discussed in the preceding chapters, total water demands in the Santa Clarita Valley were 86,600 af in 2009. This represented a decrease of 4,100 af, or about 4.5 percent, from total demand in 2008 and continues a declining trend in total water demand over the last two years. Of the total demand in 2009, nearly 70,000 af were for municipal water supply, and the balance (16,600 af) was for agricultural and other uses, including estimated individual domestic uses. As detailed in Chapter 2, the total demand in 2009 was met by a combination of local groundwater, SWP and other imported water, and a small amount of recycled water.

The water demand in 2009 was notably lower than the average projection in the 2005 UWMP, (97,900 af), and also lower than the short-term projected demand that was estimated in the 2008 Water Report (91,000 af). For illustration, historical water use from 1980 through 2008 is plotted in Figure 4-1; also shown with that historical record are the projected total water demands in the 2005 UWMP through 2030. As discussed in the 2005 UWMP, year-to-year fluctuations in historical water demand have ranged from about ten percent below to about nine percent above the average or "normal" projection that would describe the long-term historical trend in the Valley's total water demand. The primary factor causing the year-to-year fluctuations is weather. In the short term, wetter years have typically resulted in decreased water demand, and drier years have typically resulted in higher water demand. Extended drier periods, however, have resulted in decreases in demand due to conservation and water shortage awareness. The decline in water demand toward the end of the 1987-92 drought is a good example of such reduced demand. A good recent example of wet-year effects on water demand was 2005, where extremely wet conditions resulted in total water requirements about six percent below the average projection in the 2005 UWMP.

Adding to the types of demand fluctuations described in the 2005 UWMP are the recently-observed effects of broad economic conditions on growth. As reflected by the numbers of service connections in each Purveyor service area, growth in 2009 further slowed, with addition of a total of only about 300 new service connections, in contrast to about 1,000 new connections in each of the preceding two years, and in notable contrast to the predominant growth rate nearly three times higher from the late 1990's through 2004. In addition, the Purveyors were informed by, and have conveyed to the local community, the Governor's Alert in June, 2008 regarding drought conditions and potential water supply shortages, and the Governor's subsequent Drought Emergency Declaration in February, 2009. The widespread awareness of dry conditions throughout the state, aggressive conservation messaging, and the decrease in local growth are

prime factors causing total water demand in 2009 to be notably less than each of the preceding two years, and well below the earlier estimated demand in the 2005 UWMP.

The preceding factors are expected to have a continuing effect in 2010, resulting in estimated total water demand that is again lower than last year. Total municipal water requirements in the first quarter of 2010 were about 16 percent lower than in 2009; that trend continued through April, at the end of which total municipal water requirements were about 19 percent lower than through the first four months of 2009. If municipal demand through the balance of the year tracks average or below average use over the same period through the last two years, and with agricultural and other water requirements comparable to previous years, total water demand in 2010 will be around 82,000 to 84,000 af. That range continues to be substantially below the 100,000 af demand projected for 2010 in the 2005 UWMP.

It is expected that both municipal and agricultural water demands in 2010 will continue to be met with a mix of water supplies as in previous years, notably local groundwater and imported SWP and other supplemental water, complemented by recycled water that will continue to supply a small fraction of total water demand.

On May 20, 2010, the final allocation of water from the SWP in 2010 was announced to be 45 percent; for CLWA, that equates to 42,840 af of its total Table A Amount, of 95,200 af. Combined with local groundwater from the two aquifer systems (48,000 af), total Flexible Storage Account water (6,060 af), net carryover SWP water from 2008 and 2009 (28,303 af), annual acquisition from Buena Vista Water/Rosedale-Rio Bravo Water Storage Districts (11,000 af), unused water previously withdrawn from the Semitropic Groundwater Storage Bank (3,300 af), and recycled water (500 af), the total available water supplies for 2010 are about 140,000 af. Consequently, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2010. Projected 2010 water supplies and demand are summarized in Table 4-1.

In August, 2007, a federal court ruled that certain operational changes were required of the SWP in order to protect the endangered Delta smelt. The court order resulted in the preparation of a new Biological Opinion (BO) requiring DWR to implement mitigation requirements with resultant impacts on SWP water supply reliability. Since then, DWR has prepared two updates to its 2005 Reliability Report, which is issued biennially to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies under varying hydrologic scenarios, e.g. normal and dry years. The current Draft SWP Delivery Reliability Report 2009 was issued in February, 2010. With the objective of protecting endangered fish such as the Delta

Table 4-1
2010 Water Supply and Demand
(acre-feet)

Projected 2010 Demand [1]		**82,000-84,000**
Available 2010 Water Supplies		
Local Groundwater		48,000
Alluvium [2]	*39,000*	
Saugus Formation [3]	*9,000*	
Imported Water		91,503
Table A Amount [4]	*42,840*	
Net Carryover from 2009 [5]	*28,303*	
Buena Vista/Rosedale-Rio Bravo[6]	*11,000*	
Flexible Storage Account (CLWA) [7]	*4,684*	
Flexible Storage Account (Ventura County) [7]	*1,376*	
Yuba Accord[8]	*0*	
Recovery of Banked Water		
Unused Semitropic 2002 Account withdrawal in 2009	*3,300*	
Recycled Water		500
Total Available 2010 Supplies		**140,003**
Additional Dry Year Supplies [9]		
Semitropic Groundwater Storage Bank		45,920
2002 Account[10]	*16,650*	
2003 Account[10]	*29,270*	
Rosedale-Rio Bravo Water Banking and Exchange Program		64,898
2005 and 2006 Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement[11]	*22,000*	
2005 Banking of Table A[12]	*17,800*	
2006 Banking of Table A[12]	*17,800*	
2007 Rosedale Rio-Bravo Banking[12]	*7,298*	
Total Additional Dry Year Supplies		**110,818**

1. Decreased from 2005 UWMP projections to reflect recent early 2010 actual water use, recent three-year trend, and economy-driven decrease in growth.

2. The Alluvium represents 30,000 – 40,000 afy of available supply under local wet-normal conditions, and 30,000 – 35,000 afy under local dry conditions. Available supply in 2010 is shown to be upper-range for average/wet conditions based on actual Alluvium conditions.

3. The Saugus Formation represents 7,500 – 15,000 afy of available water supply under non-drought conditions, and up to 35,000 afy under increasingly dry conditions. Available supply in 2010 is shown to be below mid-range for average/wet conditions, but above recent Saugus pumping in anticipation of perchlorate containment and cleanup pumping in the second half of 2010.

4. CLWA's SWP Table A amount is 95,200 af. The initial 2010 allocation was 15 percent (14,820 af). On March 17, 2010, the allocation was increased to 20 percent (19,040 af). On April 15, 2010 the allocation

was increased to 30 percent (28,560 af). On May 4, 2010 the allocation was increased to 40 percent (38,080 af). On May 20, 2010 the final allocation was increased to 45 percent (42,840 af).

5. Net amount available to CLWA in 2010; total carryover was 28,303 af.

6. 2010 annual supply from Buena Vista / Rosedale-Rio Bravo Water Acquisition Agreement.

7. CLWA can directly utilize up to 4,684 af of storage capacity in Castaic Lake. By agreement in 2005, CLWA can also utilize 1,376 af of Ventura County SWP contractors' flexible storage capacity in Castaic Lake.

8. Up to 850 af of non-SWP water supply is available to CLWA in critically dry years as a result of agreements among DWR, Yuba County Water Agency, and the U.S. Bureau of Reclamation regarding settlement of water rights issues on the Lower Yuba River (Yuba Accord). CLWA opted to not take any Yuba water in 2010.

9. Does not include other reliability measures available to CLWA and the retail water Purveyors. These measures include short-term exchanges, participation in DWR's dry-year water purchase programs, local dry-year supply programs and other future groundwater storage programs.

10. Net recoverable water after banking 24,000 af and 32,522 af in 2002 and 2003, respectively and recovering 4,950 af in 2009.

11. Water stored in Rosedale-Rio Bravo Water Banking and Exchange Program pursuant to the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement.

12. Net recoverable water after banking 20,000 af in both 2005 and 2006, and banking 8,200 af in 2007.

smelt and spring-run salmon, the Draft incorporates restrictions on SWP operations according to the Biological Opinions of the U.S. Fish and Wildlife Service and the National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. It also considers the impacts on SWP delivery reliability due to climate change, sea level rise, and vulnerability of the Delta's conveyance system and structure due to floods and earthquakes. The current Draft Reliability Report projects long-term reliability of 60 percent during normal year hydrology. CLWA staff has assessed the impact of the current Reliability Report on the CLWA reliability analysis contained in the Agency's 2005 UWMP and concluded that current and anticipated supplies are available to meet anticipated water supply needs. However, the preceding discussion of SWP supply should be considered by noting that, while the SWP Reliability Report represents a reasonable scenario with respect to long term reliability, recent reductions in supply reduce the difference between available supply and demand in the future, thereby making the CLWA service area more subject to shortages in certain dry years. Accordingly, the reduction in SWP supply reinforces the need to continue diligent efforts to conserve potable water and increase the use of recycled water, both to meet the goals in the 2005 UWMP and to maximize utilization of potable water supplies.

As discussed in Chapter 5, CLWA and the retail water purveyors have worked with Los Angeles County and the City of Santa Clarita in preparing a water conservation ordinance and the enforcement mechanisms to aggressively implement water conservation in the CLWA service area. In terms of short-term water supply availability, however, CLWA and the Purveyors have determined that, while current operational changes of the SWP are in effect, there are sufficient supplemental water supplies, including SWP water, to augment local groundwater and other water supplies such that overall water supplies will be sufficient to meet projected water requirements, as reflected herein, without the need for mandatory rationing though the summer of 2010. CLWA, the retail water Purveyors, Los Angeles County and the City of Santa Clarita have formed the Santa Clarita Valley Water Committee. The specific purpose of the committee is to work collaboratively to ensure the progressive implementation of water use efficiency programs and ordinances in the Santa Clarita Valley.

In addition to the regular and previously banked water supplies described above to meet projected demand in 2010, a residual of nearly 46,000 af of recoverable water remains stored in the Semitropic Groundwater Storage Bank in Kern County. Nearly 64,900 af of recoverable water are also stored in the long-term Rosedale-Rio Bravo Water Banking and Exchange Program, also in Kern County. After recovery of 4,950 af of banked water in 2009, 1,650 af of which were used in 2009 and 3,300 af of which are intended to be used in 2010, remaining recoverable water in all the Kern County storage banks slightly exceeds 110,000 af. That

component of overall water supply is separately reflected in Table 4-1 because it is intended for future dry-year supply and will not be used for 2010 water supply.

CLWA and the Purveyors have implemented a number of projects that are part of an overall program to provide facilities needed to firm up imported water supplies during times of drought. These involve water conservation, surface and groundwater storage, water transfers and exchanges, water recycling, additional short-term pumping from the Saugus Formation, and increasing CLWA's imported supply. This overall strategy is designed to meet increasing water demands while assuring a reasonable degree of supply reliability.

Part of the overall water supply strategy is to provide a blend of groundwater and imported water to area residents to ensure consistent quality and reliability of service. The actual blend of imported water and groundwater in any given year and location in the Valley is an operational decision and varies over time due to source availability and operational capacity of Purveyor and CLWA facilities. The goal is to conjunctively use the available water resources so that the overall reliability of water supply is maximized while utilizing local groundwater at a sustainable rate.

For long-term planning purposes, water supplies and facilities are added on an incremental basis and ahead of need. It would be economically unsound to immediately, or in the short term, acquire all the facilities and water supplies needed for the next twenty to thirty years. This would unfairly burden existing customers with costs that should be borne by future customers. There are numerous ongoing efforts to produce an adequate and reliable supply of good quality water for Valley residents. Water consumers expect that their needs will continue to be met with a high degree of reliability and quality of service. To that end, CLWA's and the Purveyors' stated reliability goal is to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions contained in the 2005 UWMP for a planning horizon over the next 25 years, in combination with conservation of non-essential demand during certain dry years, CLWA and the Purveyors believe implementing their water plan will successfully achieve this goal.

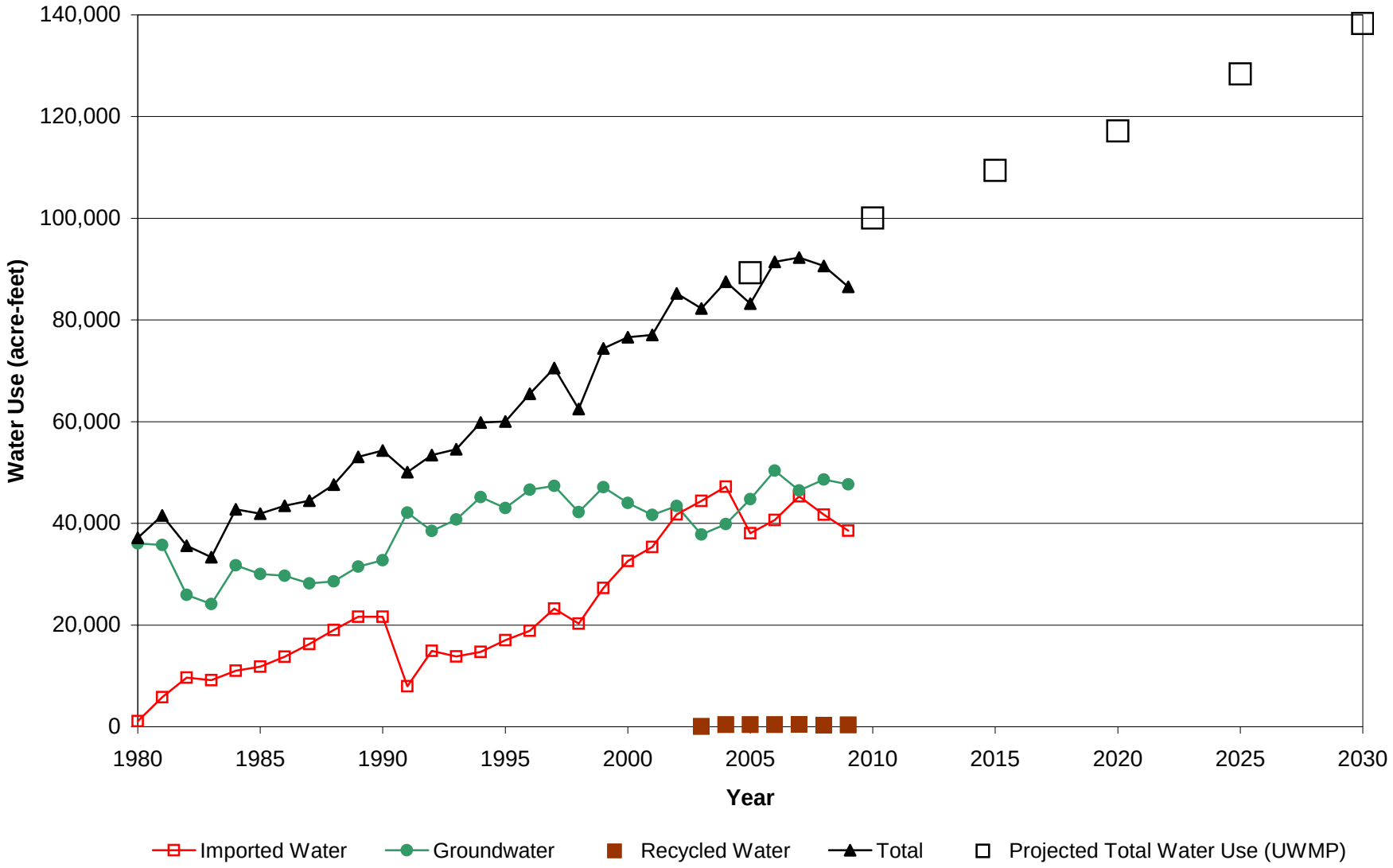

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Figure 4-1
Historical and Projected Water Use
Santa Clarita Valley

5. Water Conservation

The California Urban Water Conservation Council (CUWCC) was formed in 1991 through the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. The urban water conservation Best Management Practices (BMPs) included in the MOU are intended to reduce California's long-term urban water demands. While the BMPs are currently implemented by the MOU signatories on a voluntary basis, they are specified as part of the Demand Management Measures section of the Urban Water Management Planning Act. Water conservation can achieve a number of goals, such as:

- meeting legal mandates
- reducing average annual potable water demands
- reducing sewer flows
- reducing demands during peak seasons
- meeting drought restrictions
- reducing carbon footprint, waste water flows and urban runoff.

CLWA signed the urban MOU in 2001 on behalf of its wholesale service area, and pledged to implement several BMPs at a wholesale support level (listed below). NCWD signed the MOU in 2002 and VWC signed the MOU in 2006, both on behalf of their respective retail service areas. As separate MOU signatories and in their respective roles as retailers, NCWD and VWC are committed to implementing all BMPs that are feasible and applicable in their service areas. Efforts are made to coordinate with CLWA and the other Purveyors wherever possible to maximize efficiency and ensure the cost effectiveness of NCWD's and VWC's conservation program.

In coordination with the Purveyors, CLWA has been implementing the following BMPs (which pertain to wholesalers) for several years (some prior to signing the MOU in 2001):

BMP 3	System Water Audits, Leak Detection and Repair
BMP 7	Public Information Programs
BMP 8	School Education Programs
BMP 10	Wholesale Agency Programs
BMP 12	Water Conservation Coordinator

CLWA and the Purveyors have been implementing these BMPs valley-wide. Since 2001,

CLWA has also instituted implementation of BMP 2 (Residential Plumbing Retrofits) and BMP 14 (Residential Ultra Low Flush Toilet (ULFT) and High Efficiency Toilet (HET) Replacement Programs) on behalf of the Purveyors.

In addition to these efforts, in September 2006 CLWA installed a weather station at its headquarters adjacent to the Rio Vista Water Treatment Plant. This station became part a network of over 120 automated weather stations in the state of California that make up the California Irrigation Management Information System (CIMIS). The Department of Water Resources (DWR) manages the system which has a primary purpose of making available to the public, free of charge, information useful in estimating crop water use for irrigation scheduling.

NCWD, SCWD and VWC have initiated implementation of the remaining BMPs that are specific to retail water suppliers:

BMP 1	Water survey programs for single-family residential and multi-family residential customers
BMP 2	Residential plumbing retrofits (including Weather Based Irrigation Controllers)
BMP 3	System water audits, leak detection and repair
BMP 4	Metering with commodity rates for all new connections and retrofit of existing connections
BMP 5	Large landscape conservation programs and incentives
BMP 6	High-efficiency clothes washing machine financial incentive programs
BMP 7	Public Information Programs
BMP 8	School Education Programs
BMP 9	Conservation programs for commercial, industrial, and institutional (CII) accounts
BMP 11	Conservation pricing
BMP 12	Conservation coordinator
BMP 13	Water waste prohibition
BMP 14	Residential High Efficiency Toilet (HET) Replacement Program

Reports to the CUWCC on BMP implementation by CLWA and the Purveyors were included in the 2005 UWMP and have been reported annually to the CUWCC since 2007.

Additional savings are occurring Valley-wide due to state interior plumbing code requirements that have been in effect since 1992, as well as due to changes in lot size and reduction in exterior square footage of new housing and commercial developments. The City of Santa Clarita and

County of Los Angeles have also taken a more active conservation role and have begun implementing water efficient devices and practices on the properties they own and manage. All of these efforts have begun to impact overall demand in the Valley, as can be seen in the significant decline in total water demand over the last two years and extending into early 2010. The Valley's water suppliers continue to monitor water demand trends through time to assess those factors that are accounting for the reduction, and to attempt to quantify them.

Most recently with regard to water conservation, CLWA and the retail water Purveyors entered into an MOU in 2007 to prepare a Santa Clarita Valley Water Use Efficiency Strategic Plan (the Plan). The purpose of the plan is to prepare a comprehensive long-term conservation plan for the Santa Clarita Valley by adopting objectives, policies and programs designed to promote proven and cost effective conservation practices. The Plan provides a detailed study of existing residential and commercial water use and recommends programs designed to reduce the overall Valley-Wide water demand by 10 percent by 2030. The programs are designed to provide Valley residents with the tools and education to use water more efficiently. The six programs identified in the Plan are:

- High Efficiency Toilet Rebate Program
- CII Audits & Customized Incentive Program
- Large Landscape Audits & Customized Incentive Program
- Landscape Contractor Certification and Weather Based Irrigation Controller Program
- High Efficiency Washer Rebate Program
- Public Information and Education Programs

In addition to the six programs designed for existing customers, the Plan also identifies three other key factors that will help reduce the valley's overall water demand; passive conservation, inflation, and new more water-efficient building ordinances.

Finally, the Plan includes an Appendix with more aggressive water use efficiency measures designed to meet a potential 20 percent reduction in water use by 2020. This includes funding more active conservation programs, retrofit on resale legislation, water rate reform, water budget based rates, and a more aggressive recycled water program.

Implementation of the majority of the programs identified in the Plan are beginning in 2010 through funding by CLWA on behalf of all the Purveyors.

In addition to this effort, the water Purveyors are working with City and County agencies to develop a landscape irrigation ordinance for the Santa Clarita Valley. This ordinance will focus primarily on new construction aimed at reducing overall water demands by requiring efficient landscape design and delivery systems. Implementation of the ordinance is expected in 2010, depending on review and adoption by the City and County.

Finally, in 2008, Governor Schwarzenegger issued a proclamation for all Californians to reduce their per capita water consumption by 20 percent by the year 2020. In November 2009, the Governor and California's legislature reached an historic agreement over ensuring long term water supply reliability for California, as well as restoring and protecting the Sacramento-San Joaquin Delta and other ecologically sensitive areas. The agreement is comprised of four policy bills and an $11.4 billion bond measure. One of the policy bills (SB 7X7) identifies reporting criteria and guidelines for water utilities to track and measure progress toward achieving the 20 percent per capita demand reduction goal. Water utilities are required to implement strategies and report progress in their Urban Water Management Plans. In 2010, DWR is expected to provide guidance and criteria for implementing the provisions of this new law; that guidance is expected to provide clarification regarding individual (per-capita) and broader (Valley-wide) conservation goals, which will be utilized in the preparation of the 2010 update of the UWMP for the Santa Clarita Valley.

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2010
Santa Clarita Valley Water Report

Castaic Lake Water Agency (CLWA)
CLWA Santa Clarita Water Division
Los Angeles County Waterworks District 36
Newhall County Water District
Valencia Water Company

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2010 Santa Clarita Valley Water Report

prepared for:

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CLWA Santa Clarita Water Division
Los Angeles County Waterworks District 36
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Table of Contents

Page

Executive Summary ES-1
ES.1 2010 Water Requirements and Supplies 1
ES.2 Alluvial Aquifer 3
ES.3 Saugus Formation 4
ES.4 Imported Water 6
ES.5 Recycled Water 7
ES.6 2011 Water Supply Outlook 7

1. Introduction 1-1
1.1 Background 1
1.2 Purpose and Scope of the Report 2
1.3 Santa Clarita Valley Water Purveyors 3
1.4 The Upper Santa Clara River Hydrologic Area and East Groundwater Subbasin 3

2. 2010 Water Requirements and Supplies 2-1

3. Water Supplies 3-1
3.1 Groundwater Basin Yield 1
3.2 Alluvium – General 5
3.2.1 Alluvium – Historical and Current Conditions 7
3.3 Saugus Formation – General 10
3.3.1 Saugus Formation – Historical and Current Conditions 10
3.4. Imported Water 11
3.4.1 State Water Project Table A Supplies 12
3.4.2 Other Imported Water Supplies 14
3.4.3 Imported Water Supply Reliability 14
3.5 Water Quality – General 16
3.5.1 Groundwater Quality – Alluvium 20
3.5.2 Groundwater Quality – Saugus Formation 21
3.5.3 Imported Water Quality 21
3.6 Recycled Water 22
3.7 Santa Clara River 23

4. Summary of 2010 Water Supply and 2011 Outlook 4-1

5. Water Conservation 5-1

6. References 6-1

Figures

(all figures follow their respective sections)

1-1 CLWA and Purveyor Service Areas

1-2 Santa Clara River Groundwater Subbasins

1-3 Annual Precipitation and Cumulative Departure from Mean Annual Precipitation at Newhall-Soledad 32c Gage

2-1 Total Water Supply Utilization
Santa Clarita Valley

3-1 Alluvium and Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

3-2 Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin

3-3 Alluvial Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin

3-4 Groundwater Elevations in Eastern Santa Clarita Valley Alluvial Wells

3-5 Groundwater Elevations in Western Santa Clarita Valley Alluvial Wells

3-6 Annual Groundwater Production from Alluvium by Area (Acre-feet)
Santa Clara River Valley, East Groundwater Subbasin

3-7 Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

3-8 Groundwater Production – Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

3-9 Groundwater Elevations in Saugus Wells

3-10 Treated Water Distribution System
Castaic Lake Water Agency

Figures, continued

(all figures follow their respective sections)

3-11 Groundwater Quality in Eastern Santa Clarita Valley Alluvial Wells

3-12 Groundwater Quality in Western Santa Clarita Valley Alluvial Wells

3-13 Groundwater Quality in Saugus Wells

3-14 Annual Stream Discharge
Santa Clara River

4-1 Historical and Projected Water Use
Santa Clarita Valley

Tables

Page

ES-1 Santa Clarita Valley Summary of 2010 Water Supplies and Uses ES-2
2-1 Water Supply Utilization by Municipal Purveyors ..... (after) 2-2
2-2 Individual Water Supply Utilization by Agricultural and Other Users .... (after) 2-2
2-3 Total Water Supply Utilization for Municipal, Agricultural and Other Uses ..... (after) 2-2
3-1 Groundwater Operating Plan for the Santa Clarita Valley 3-3
3-2 2010 CLWA Imported Water Supply and Disposition ..... (after) 3-14
4-1 2011 Water Supply and Demand ..... (after) 4-2

Executive Summary

This annual report, which is the thirteenth in a series that began to describe water supply conditions in 1998, provides current information about the water requirements and water supplies of the Santa Clarita Valley. The report was prepared for the imported water wholesaler, Castaic Lake Water Agency (CLWA), and for the four local retail water Purveyors that serve the Valley: CLWA Santa Clarita Water Division, Los Angeles County Waterworks District 36, Newhall County Water District, and Valencia Water Company. These entities and representatives from the City of Santa Clarita and the County of Los Angeles Department of Regional Planning meet as required as the Santa Clarita Valley Water Committee to coordinate the management of imported water with local groundwater and recycled water to meet water requirements in the Valley.

This report provides information about local groundwater resources, State Water Project (SWP) and other imported water supplies, water conservation, and recycled water. The report reviews the sufficiency and reliability of supplies in the context of existing water demand, with focus on actual conditions in 2010, and it provides a short-term outlook of water supply and demand for 2011.

ES.1 2010 Water Requirements and Supplies

In 2010, total water requirements in the Santa Clarita Valley were about 80,200 acre-feet (af), of which about 64,100 af (80 percent) were for municipal use and the remainder (16,100 af) was for agricultural and other (miscellaneous) uses, including individual domestic uses. Total demand in 2010 was about 7.4 percent lower than in 2009, less than what was estimated in the 2009 Water Report, and water requirements in 2010 were also lower than the average projection in the 2005 Urban Water Management Plan (UWMP) (but closer to the projection in the 2005 UWMP with conservation). The majority of decreased water demand is attributable to a significant (8%) decrease in municipal water use from 2009. Total water requirements in 2010 were met by a combination of about 49,300 af from local groundwater resources (about 33,200 af for municipal and about 16,100 af for agricultural and other uses), about 30,600 af of SWP and other imported water, and about 300 af of recycled water.

Of the 49,300 af of total groundwater pumping in the Valley in 2010, about 41,200 af were pumped from the Alluvium and about 8,100 af were pumped from the underlying, deeper Saugus Formation. Alluvial pumping represented about a 1,200 af increase from 2009, and Saugus pumping was slightly higher than in 2009, by about 400 af. Neither pumping volume resulted in

any notable overall change in groundwater conditions (water levels, water quality, etc.) in either aquifer system. Imported water deliveries to the Purveyors decreased by about 8,000 af from the previous year. Water uses and supplies in 2010 are summarized in the following Table ES-1.

Table ES-1
Santa Clarita Valley
Summary of 2010 Water Supplies and Uses
(acre-feet)

Municipal		
SWP and other Imported		30,578
Groundwater (Total)		33,152
Alluvium	*25,984*	
Saugus	*7,168*	
Recycled Water		336
Subtotal		**64,066**
Agriculture/Miscellaneous		
SWP and other Imported		-
Groundwater (Total)		16,099
Alluvium	*15,175*	
Saugus	*924*	
Subtotal		**16,099**
Total		***80,165***

In accordance with the California Urban Water Management Planning Act, the Valley-wide UWMP was updated and recently adopted to extend projected water demands through 2050, and to describe the combination of local groundwater, imported water supplies from the State Water Project and other sources, local recycled water supplies, and other water supplies planned to meet those projected water demands in the Valley. The 2010 UWMP describes the reliability of local groundwater resources and the adequacy of groundwater supplies to meet groundwater demand. The 2010 UWMP also describes the recently completed work for integrated control of perchlorate migration and restoration of perchlorate-impacted groundwater supply.

Notable details about each component of water supply in the Valley, and about the water supply outlook for 2011, include the following.

ES.2 Alluvial Aquifer

Based on an updated evaluation of groundwater basin yield, completed in 2009, the groundwater operating plan in the 2010 UWMP includes Alluvial pumping in the range of 30,000 to 40,000 acre-feet per year (afy) following average/normal years, and slightly reduced pumping (30,000 to 35,000 afy) following dry years. Pumping from the Alluvium in 2010 was 41,200 af, which is slightly above the upper end of the operating plan range for the Alluvium but had no adverse effects on groundwater levels and storage in the basin. On average, pumping from the Alluvium has been about 32,600 afy since supplemental imported water became available in 1980. That average rate remains near the lower end of the range of operational yield.

On a long-term basis, continuing through 2010, there is no evidence of any historic or recent trend toward permanent water level or storage decline. In general, throughout a large part of the basin, Alluvial groundwater levels have generally remained near historic highs during the last 30 years. Above-average precipitation in late 2004 and 2005 resulted in significant water level recovery in the eastern part of the basin, and through the recent multi-year dry period (2006-2009), water level declines have leveled off and remained within their historic range, continuing the overall trend of fluctuating groundwater levels within a generally constant range over the last 30 years. These ongoing data indicate that the Alluvium remains in good operating condition and can continue to support pumping in the operating range included in the 2010 UWMP, or slightly higher, without adverse results (e.g., long-term water level decline or degradation of groundwater quality.)

Based on an integration of water quality records from multiple wells completed in the Alluvium, there have been historical fluctuations in groundwater quality, typically associated with variations in precipitation and streamflow. However, like groundwater levels, there has been no long-term trend toward groundwater quality degradation; groundwater produced from the Alluvial aquifer remains a viable municipal and agricultural water supply.

In 2002, as part of ongoing monitoring of wells for perchlorate contamination, perchlorate was detected in one Alluvial well (the SCWD Stadium Well) located near the former Whittaker-Bermite facility. The detected concentration was slightly below the then-applicable Notification Level for perchlorate (6 µg/l, which was subsequently established as the Maximum Contaminant Level for perchlorate in October 2007), and the well has now been replaced to restore that component of municipal water supply that was impacted by perchlorate. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. After an interim period of wellhead treatment, that well has now been returned to regular water supply service. All other

Alluvial wells operated by the Purveyors continue to be used for municipal water supply service; those wells near the Whittaker-Bermite property are sampled in accordance with drinking water regulations and perchlorate has not been detected. The 2005 UWMP specifically addressed the adequacy of groundwater supply in light of the inactivation of the impacted Alluvial wells; and it addressed the plan and schedule for restoration of perchlorate-impacted wells, including the protection of existing non-impacted wells. As summarized in the 2010 UWMP, the replacement and reactivation of the formerly impacted wells now adds to the overall ability to meet the groundwater component of total water supply in the Valley.

The ongoing characterization and plan for control and cleanup of perchlorate in the Valley has focused on the Saugus Formation. In addition, however, on-site cleanup and control activities that began in 2006, and continued through 2010, include continuation of soil cleanup on the Whittaker-Bermite site, and continuation of pumping and treatment in the Northern Alluvium on the Whittaker-Bermite site. Expanded pumping and treatment, intended to effect perchlorate containment in the Northern Alluvium, became operational in October 2007. Under the direction of the State Department of Toxic Substances Control (DTSC), Whittaker has submitted a comprehensive site-wide remediation plan for the contaminants of concern in soil and groundwater detected on the site. A Draft Remedial Action Plan for Operable Units 2 through 6, focused on soil remediation, was submitted to DTSC in 2009. In January, 2011, Whittaker also completed a Draft Feasibility Study for Operable Unit 7 to identify and select treatment technologies for both on-site and off-site groundwater. DTSC approved the Remedial Action Plan for contaminated soils in Operable Units 2 through 6 on December 6, 2010 and Preparation of the Remedial Design documents is underway. Field implementation of the soil remediation is expected to begin in fall 2011.

ES.3 Saugus Formation

The groundwater operating plan in the 2010 UWMP includes pumping from the Saugus in the range of 7,500 to 15,000 afy in average/normal years; it also includes planned dry-year pumping from the Saugus of 21,000 to 35,000 afy for one to three consecutive dry years. As with the operation plan for the Alluvium, the ranges of Saugus pumping are based on the updated evaluation of groundwater basin yield, completed in 2009, which found those ranges of pumping to be sustainable on a long-term basis.

Pumping from the Saugus Formation was about 8,100 af in 2010; on average, Saugus pumping has been slightly more than 6,800 afy since 1980. Both rates remain near the lower end of the ranges included in the groundwater operating plans and in the UWMP. As a result of long-term

relatively low pumping from the Saugus Formation, groundwater levels in that aquifer have remained generally constant to slightly increasing over the last 40 to 45 years; those trends continued in 2010.

In 1997, ammonium perchlorate was discovered in four wells (Saugus 1, Saugus 2, V157, and NC-11) completed in the Saugus Formation in the vicinity of the former Whittaker-Bermite facility located generally toward the east, on the south side of the basin. In 2006, a very low level of perchlorate was detected in another Saugus municipal well (NC-13). And in 2010, it was detected further downgradient in a sixth Saugus well (V201). To date, one of the impacted wells has been destroyed and replaced, three have remained in or been returned to service with treatment as required, one remains out of service with its capacity replaced by an alternate source, and the most recently impacted well remains out of service with plans in development for restoration or replacement. As part of regular operation, those wells that remain in service are sampled in accordance with drinking water regulations. At these wells, perchlorate has either not been detected or wellhead treatment is in place for the removal of perchlorate. All other Saugus wells owned and operated by the Purveyors remain available for municipal water supply service.

Work toward the ultimate remediation of perchlorate contamination, including the restoration of impacted groundwater supply continued to progress in 2010, with focus on construction of facilities to implement a jointly developed plan to "pump and treat" contaminated water from two of the originally impacted wells to stop migration of the contaminant plume, and to deliver treated water for municipal supply to partially replace impacted well capacity. Environmental review of the project was completed with adoption of a Mitigated Negative Declaration in September 2005. The Final Interim Remedial Action Plan was completed and approved by DTSC in January 2006. Construction of facilities and pipelines necessary to implement the pump and treat program and to also restore inactivated well capacity began in November 2007. Construction was completed in May, 2010, DPH issued an amendment to CLWA's Operating Permit in December, 2010, and two of the originally impacted Saugus wells (Saugus 1 and 2) were placed back in service in January, 2011. Through this reactivation, Castaic Lake Water Agency's Saugus Perchlorate Treatment Facility (SPTF) is now online and numerous monitoring tests are performed each week in order to ensure the safety of the water leaving the plant. The Purveyors continue to have sufficient pumping capacity to meet the planned normal range of Saugus pumping as described in the 2010 UWMP.

ES.4 Imported Water

Historically comprised of only its SWP Table A Amount, CLWA's imported water supplies now consist of a combination of SWP water and water acquired from the Buena Vista Water Storage District in Kern County. CLWA's contractual Table A Amount is 95,200 af of water from the SWP. Under the 2007 Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo), Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within the Rosedale-Rio Bravo's service area on an ongoing basis. CLWA will receive 11,000 af of these supplies annually through either exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal.

CLWA's final allocation of SWP water for 2010 was 50 percent of its Table A Amount, or 47,600 af. The total available imported water supply in 2010 was 90,498 af, comprised of the 47,600 af of Table A supply, 11,000 af purchased from Buena Vista/Rosedale Rio Bravo, 28,303 af of 2008 and 2009 carryover delivered in 2010, 3,300 af delivered from the Semitropic Water Banking and Exchange Program, and 295 af from the 2010 SWP Turnback Pool. CLWA deliveries to the Purveyors were 30,578 af. Following disposition of available water supplies in 2010, carryover of 3,712 af from 2010 is available for 2011 water supply. Water banking in 2010 included 32,256 af of water delivered to the Rosedale-Rio Bravo Water Banking and Exchange Program.

CLWA has two groundwater banking agreements with the Semitropic Water Storage District in Kern County. In accordance with those amended agreements, over a twenty-year period (until 2022/2023), CLWA could withdraw up to 50,870 af of its Table A water that was stored in 2002 and 2003 to meet future Valley demands when needed. Following the withdrawal of 4,950 af in 2009 (1,650 af utilized in 2009 and 3,300 af utilized in 2010), that balance is 45,920 af. In addition to the banking in Semitropic, CLWA finalized an agreement with the Rosedale-Rio Bravo Water Storage District in 2005 and can now bank up to 100,000 afy of surplus Table A Amount in that District's Water Banking and Exchange Program. In addition to 20,000 af previously banked in both 2005 and 2006, CLWA banked 8,200 af of water in 2007, and 32,256 af of water in 2010. In accordance with the provisions of that agreement, CLWA can withdraw up to a total of 72,513 af of that water, at a rate up to 20,000 afy, to meet Valley water demands when needed. Additionally, as part of the Buena Vista Water Acquisition Agreement, CLWA is entitled to 22,000 af of water that was stored in the Rosedale Rio-Bravo Water Banking and Exchange Program in 2005 and 2006 on CLWA's behalf. As of 2011, CLWA maintains a

recoverable total of 94,500 af in the Rosedale Rio-Bravo Water Banking and Exchange Program.

Since SWP water deliveries are subject to reduction when dry conditions occur in Northern California, the 2010 UWMP includes programs, like the Semitropic and Rosedale-Rio Bravo programs, for enhancing water supply reliability during such occurrences. A capital improvement program funded by CLWA has been established to provide facilities and additional water supplies needed to firm up SWP water supplies during times of drought.

ES.5 Recycled Water

Recycled water service was initiated in July 2003 in accordance with CLWA's Draft Reclaimed Water System Master Plan (2002). The amount of recycled water used for irrigation purposes, at a golf course and in roadway median strips, was approximately 336 af in 2010. CLWA and the Purveyors completed programmatic CEQA analysis in early 2007 for full implementation of the recycled water system as outlined in the Master Plan. CLWA and the Purveyors are preparing the design of the second phase of the Recycled Water Master Plan (Phase IIA) that will take water from the Saugus Water Reclamation plant and distribute it to identified users to the north, across the Santa Clara River and then to the west and the east, which will include service to Santa Clarita Central Park. Another new phase of the recycled water system (Phase IIC) is in design to extend the system southward from the intersection of Valencia Boulevard and the Old Road, south along Rockwell Canyon Road to the intersection of Orchard Village Road and Lyons Avenue, serving large irrigation customers along its proposed alignment. Collectively, these phases will have design capacity to increase recycled water deliveries by about 1,500 afy.

ES.6 2011 Water Supply Outlook

In 2011, total water demands are expected to be about 82,000 af, slightly more than actual water use last year, and consistent with the water demand projections in the 2010 UWMP. It is expected that water demands in 2011 will continue to be met with a generally similar mix of water supplies comprised of local groundwater, supplemental SWP and other imported water, and recycled water.

Announced on April 20, 2011, the latest allocation of water from the SWP in 2011 is 80 percent of CLWA's Table A Amount, or 76,160 af. Combined with local groundwater from the two aquifer systems (50,000 af), total Flexible Storage Account (6,060 af), net carryover of SWP Table A allocation from 2010 used in 2011 (3,712 af), annual acquisition through the Buena Vista Water/Rosedale Rio-Bravo Water Acquisition Agreement (11,000 af), and recycled water

(500 af), the total available water supplies for 2011 are nearly 150,000 af. As a result, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2011.

In August, 2007, a federal court ruled that certain operational changes were required of the SWP in order to protect the endangered Delta smelt. The court order resulted in the preparation of a new Biological Opinion (BO) requiring DWR to implement mitigation requirements with resultant impacts on SWP water supply reliability. The current SWP Delivery Reliability Report 2009, finalized in August, 2010, incorporates restrictions on SWP operations according to the Biological Opinions of the U.S. Fish and Wildlife Service and the National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. However, in December 2010, a federal judge overruled most of the 2008 federal biological opinion and invalidated several of the criteria that reduced SWP's water supply. The effects of this reversal are still not completely known, but will probably result in some relief from SWP pumping restrictions in the long term. The current SWP Delivery Reliability Report 2009 also considers the impacts on SWP delivery reliability due to climate change, sea level rise, and vulnerability of the Delta's conveyance system and structure due to floods and earthquakes. With these factors, the Reliability Report projects long-term reliability of 60 percent during normal year hydrology. CLWA staff has assessed the impact of the current Reliability Report on the CLWA reliability analysis contained in the Agency's 2005 UWMP and concluded in the 2010 UWMP that current and anticipated supplies are available to meet anticipated water supply needs through the year 2050.

CLWA, the retail water Purveyors, Los Angeles County and the City of Santa Clarita have formed the Santa Clarita Valley Water Committee. The specific purpose of the Committee is to work collaboratively to ensure the progressive implementation of water use efficiency programs and manage the conjunctive use of the water supplies in the Santa Clarita Valley. In terms of short-term water supply availability, the Committee has determined that, while current operational changes of the SWP are in effect, there are sufficient supplemental water supplies, including SWP water, to augment local groundwater and other water supplies such that overall water supplies will be sufficient to meet projected 2011 water requirements as reflected herein.

In any given year, SWP supplies may be reduced due to dry weather conditions or regulatory factors. During such an occurrence, the remaining water demands are planned to be met by a combination of alternate supplies such as returning water from CLWA's accounts in the Semitropic Groundwater Storage Program and the Rosedale-Rio Bravo Water Banking and Exchange Program, deliveries from CLWA's flexible storage account in Castaic Lake Reservoir,

local groundwater pumping, short-term water exchanges, and participation in DWR dry-year water purchase programs. Following the recovery of 4,950 af (with delivery of 1,650 af in 2009 and delivery of 3,300 in 2010), the banked excess 2002 and 2003 SWP Table A water in Semitropic represents nearly 46,000 af of recoverable water for drought water supply. In addition, the banked excess SWP Table A water in 2005 and 2006, augmented by banked water acquired through the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement in 2005, 2006, 2007 and 2010, represent a total of more than 94,500 af of recoverable water for drought water supply from the Rosedale-Rio Bravo Banking and Exchange Program.

Drought periods may affect available water supplies in any single year and for a duration usually not longer than three consecutive years. It is important to note that hydrologic conditions vary from region to region throughout the state. Dry conditions in Northern California affecting SWP supply may not affect local groundwater and other supplies in Southern California, and the reverse situation can also occur (as it did in 2002 and 2003). For this reason, CLWA and the Purveyors have emphasized developing a water supply portfolio that is diverse, especially in dry years. Diversity of supply is considered a key element of reliability, giving Valley water Purveyors the ability to draw on multiple sources of supply to ensure reliable service during dry years, as well as during normal and wet years.

1. Introduction

1.1 Background

For most residents of the Santa Clarita Valley (Valley), domestic water service is provided by four retail water Purveyors: Castaic Lake Water Agency's Santa Clarita Water Division (SCWD), Los Angeles County Waterworks District 36 (LAWWD36), Newhall County Water District (NCWD), and Valencia Water Company (VWC). Together, the Purveyors provide water to about 70,000 service connections. As a State Water Contractor, Castaic Lake Water Agency (CLWA) contracts for State Water Project water delivered from Castaic Lake, after which it is treated, filtered, and disinfected at two CLWA treatment plants before distribution to the Purveyors. Staff of these entities meet regularly to coordinate the supply of water in the Valley. Their respective service areas are shown in Figure 1-1.

While municipal water supply has grown to become the largest category of water use in the Valley, there remains an agricultural and other small private water demand that is dependent on local groundwater for its water supply. Accordingly, ongoing agricultural water requirements and the use of local groundwater to meet those requirements are considered in analyses of water requirements and supplies as reported herein. Also, in addition to municipal and agricultural water uses in the Valley, water supply for a small fraction of Valley residents is provided by individual private water supply wells. The locations, construction details, annual pumping and other information about these private wells are not currently available. In the absence of detailed information about private wells and associated water use, pumping as reported herein necessarily includes an estimate of groundwater pumped from private wells; it is intended that this estimate will be refined in the future as more information about the private wells is obtained.

For more than 25 years, CLWA and the Purveyors have reviewed and reported on the availability of water supplies to meet all water requirements in the Valley. Those reports have also addressed local water resources, most notably groundwater, in the region. Past studies have assessed the condition of local groundwater aquifers, their hydrogeologic characteristics, aquifer storage capacity, operational yield and recharge rate, groundwater quality and contamination, and the ongoing conjunctive use of groundwater and imported water resources.

Other efforts have included developing drought contingency plans, coordinating emergency response procedures and implementing Valley-wide conservation programs. In 1985, the Purveyors prepared the area's first Urban Water Management Plan (UWMP.) Information in the

plan was coordinated among CLWA and the Purveyors to provide accurate, comprehensive and consistent water supply and demand information for long term planning purposes. In accordance with the California Urban Water Management Planning Act, the Valley-wide UWMP has been updated to extend water demand projections through 2050, and to describe the combination of local groundwater, imported water supplies from the State Water Project, local recycled water supplies, and planned other water supplies to meet the existing and projected water demands in the Valley. The 2010 UWMP describes the reliability of local groundwater resources and the adequacy of groundwater supplies to meet that component of overall water supply; and it also describes the mitigation of perchlorate contamination which had impacted several municipal water supply wells, and the implementation of integrated control of perchlorate migration and full restoration of perchlorate-impacted groundwater supply.

In 2009, primarily in preparation for the update of the UWMP in 2010, an updated analysis of groundwater basin yield was completed to guide the ongoing use of groundwater and the associated distribution of pumping to maintain groundwater use at a sustainable rate while also addressing localized issues such as restoration of groundwater contamination which has impacted local groundwater supplies since 1987. The results of the updated groundwater basin analysis are summarized in this Water Report.

1.2 Purpose and Scope of the Report

The purpose of this report, which is the thirteenth in a series of annual water reports that began to describe water supply conditions in 1998, is to provide current information about water requirements and available water supplies to meet those demands in the Santa Clarita Valley. CLWA and the Purveyors began preparation of this series of reports in response to a request made by the Los Angeles County Board of Supervisors in 1998. Over the last few years, this series of reports has also served as an annual summary of groundwater conditions in the Valley in fulfillment of the commitment in the Santa Clarita Valley Groundwater Management Plan, adopted in 2003, to regularly report on implementation of that Plan.

This report was prepared for Castaic Lake Water Agency, for CLWA's Santa Clarita Water Division, and for Los Angeles County Waterworks District 36, Newhall County Water District, and Valencia Water Company. It continues a format for providing information regarding water uses and the availability of water supplies on an annual basis. It is intended to be a helpful resource for use by water planners and local land use planning agencies. This report is complemented by the more detailed Urban Water Management Plan for the area, which provides

longer-term water supply planning over a 40-year period, and by a number of other technical reports, some of which are specifically referenced herein.

1.3 Santa Clarita Valley Water Purveyors

As introduced above, four retail water Purveyors provide water service to most residents of the Santa Clarita Valley. Brief summary descriptions of those four Purveyors are as follows.

Castaic Lake Water Agency Santa Clarita Water Division has a service area that includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Saugus, Canyon Country, and Newhall. Water is supplied from both groundwater and CLWA turnouts to about 28,900 service connections.

Los Angeles County Waterworks District 36 has a service area that encompasses approximately 7,635 acres in the Hasley Canyon area and the unincorporated community of Val Verde. LAWWD 36 has nearly 1,400 service connections. The District has traditionally obtained its full water supply from a connection to the CLWA's Castaic Conduit and continued to do so in 2010.

Newhall County Water District's service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall, Canyon Country, Valencia, and Castaic. NCWD supplies water from both groundwater and CLWA turnouts to more than 9,600 service connections.

Valencia Water Company's service area serves nearly 30,100 service connections in a portion of the City of Santa Clarita and in the unincorporated communities of Castaic, Newhall, Saugus, Stevenson Ranch, and Valencia. VWC supplies water from both groundwater and CLWA turnouts; VWC also delivers recycled water for a small amount of non-potable use.

1.4 The Upper Santa Clara River Hydrologic Area and East Groundwater Subbasin

The Upper Santa Clara River Hydrologic Area (HA), as defined by the California Department of Water Resources (DWR), is located almost entirely in northwestern Los Angeles County. The area encompasses about 654 square miles comprised of flat valley land (about 6 percent of the total area) and hills and mountains (about 94 percent of the total area) that border the valley area. The mountains include the Santa Susana and San Gabriel Mountains to the south, and the Sierra

Pelona and Leibre-Sawmill Mountains to the north. Elevations range from about 800 feet on the valley floor to about 6,500 feet in the San Gabriel Mountains. The headwaters of the Santa Clara River are at an elevation of about 3,200 feet at the divide separating this hydrologic area from the Mojave Desert.

The Santa Clara River and its tributaries flow intermittently from Lang Station westward about 35 miles to Blue Cut, just west of the Los Angeles-Ventura County line, where the River is the outlet from the Upper Santa Clara River Hydrologic Area. The principal tributaries of the River in the Santa Clarita Valley are Castaic Creek, San Francisquito Creek, Bouquet Creek, and the South Fork of the Santa Clara River. In addition to tributary inflow, the Santa Clara River receives treated wastewater discharge from the Saugus and Valencia Water Reclamation Plants, which are operated by the Santa Clarita Valley Sanitation District.

The Santa Clara River Valley East Groundwater Subbasin, beneath the Santa Clarita Valley in the Upper Santa Clara River HA, is the source of essentially all local groundwater used for water supply in the Santa Clarita Valley. Below Blue Cut, the Santa Clara River continues westward through Ventura County to its mouth near Oxnard. Along that route, the River traverses all or parts of six groundwater basins in Ventura County (Piru, Fillmore, Santa Paula, Oxnard Forebay, Oxnard Plain, and Mound) as shown in Figure 1-2.

There are two primary precipitation gages in the Santa Clarita Valley, the Newhall-Soledad 32c gage and the Newhall County Water District gage (Figure 1-3). The National Climatic Data Center (NCDC) and Los Angeles County Department of Public Works (LADPW) have maintained records for the Newhall-Soledad 32c gage since 1931. Newhall County Water District has maintained records for the NCWD gage since 1979. The cumulative records from these two gages correlate very closely, with the NCWD gage historically recording approximately 25 percent more precipitation than the Newhall-Soledad 32c gage. Recently, since 2006, this relationship has been slightly different, with the NCWD gage recording approximately 40% more precipitation than the Newhall-Soledad 32c gage. The cause of this change may be due to different equipment or practices at one of the gages, and will be investigated further, but the overall offset is likely due to the location of the NCWD gage, which is at the base of the mountains rimming the southern edge of the Santa Clarita Valley.

A third gage was established in December, 2006 near the Rio Vista Treatment Plant near the main Santa Clara River channel and on the north side of the Valley (inset map on Figure 1-3). This gage is managed through the CIMIS program by the Department of Water Resources, under the name #204 Santa Clarita. These data correlate well with the nearby precipitation gages in the

Valley over the period of 2008 into 2010, and they are intended to be incorporated in future monitoring and reporting on the Valley. Comparison of overlapping records indicate that this station records about 30% less precipitation than is measured at Newhall-Soledad, and about half of what is measured at the NCWD gage.

The Santa Clarita Valley is characterized as having an arid climate. Historically, intermittent periods of below-average precipitation have typically been followed by periods of above-average precipitation in a cyclical pattern, with each wetter or drier period typically lasting from one to five years. The longer-term precipitation records for the Newhall-Soledad 32c gage are illustrated in Figure 1-3. Long-term average precipitation at that gage is 17.8 inches (1931-2010). Figure 1-3 also shows the cumulative departure from mean annual precipitation. In general, periods of below-average precipitation have been longer and more moderate than periods of above-average precipitation. Recently, the periods from 1971 to 1976, 1984 to 1991 and 1999 to 2003 have been drier than average; the periods from 1977 to 1983, 1992 to 1996, and 2004 to 2005 have been wetter than average. More recently, with the exception of the average annual rainfall total in 2008, the dry conditions that began in 2006, persisted through 2009. 2010 was an above average year (125% of normal) with 24.3 inches of precipitation. It is notable, that almost half of that amount came in the last quarter of the year, with 8.6 inches in December. Despite the overall drier-than-average conditions, water demand in 2007 through 2010 was below that projected in the 2005 UWMP, and actual demand in 2010 was below the short-term projection in the 2009 Water Report. Early year precipitation in 2011 was approximately 11.6 inches through March, or close to long-term average for that part of the year, but water use was slightly higher than last year for the same period. Combined with other water supply considerations, discussed in Chapter 4, those conditions are expected to result in 2011 water requirements being slightly higher than water use in 2010.

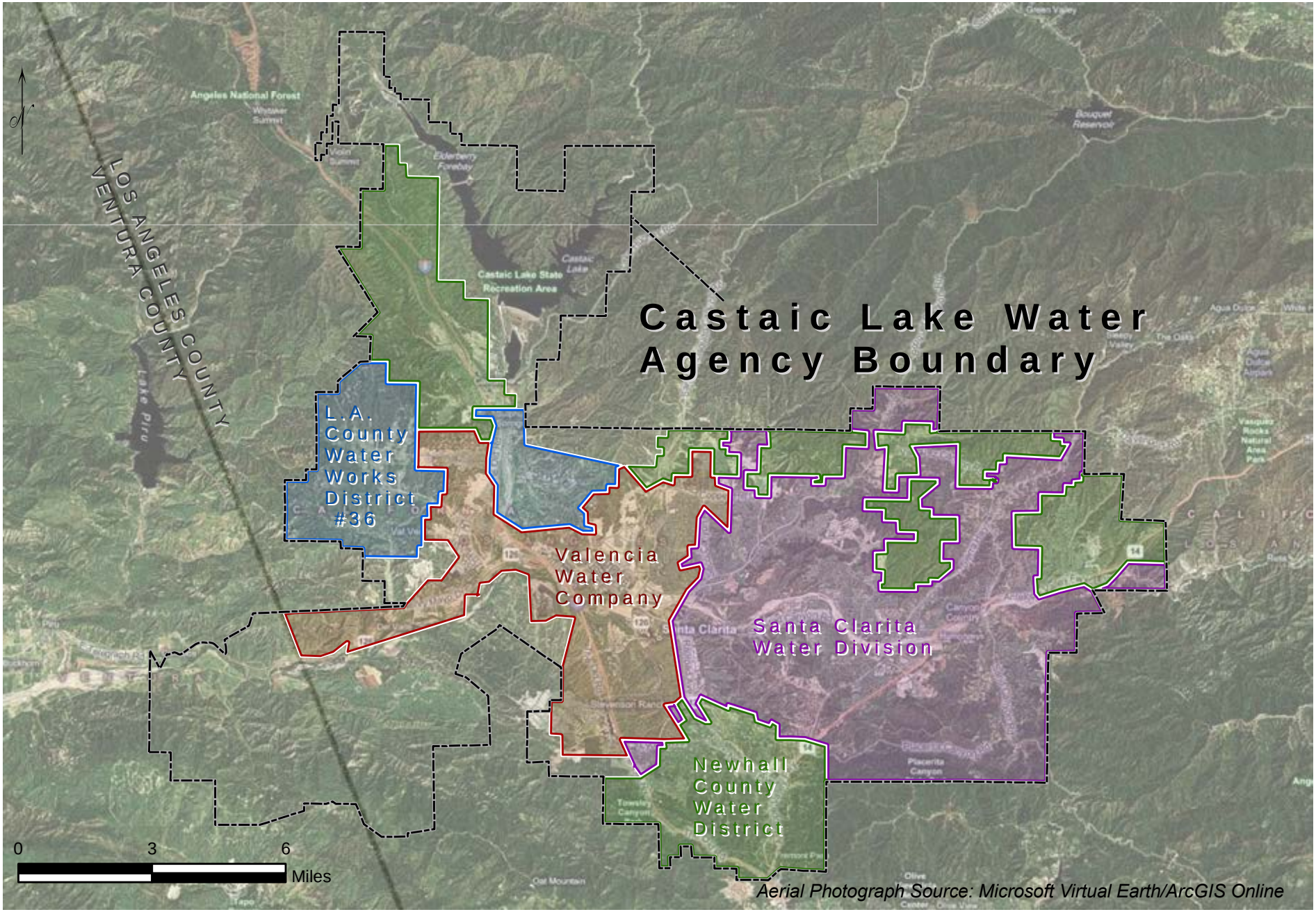

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Figure 1-1
CLWA and Purveyor Service Areas

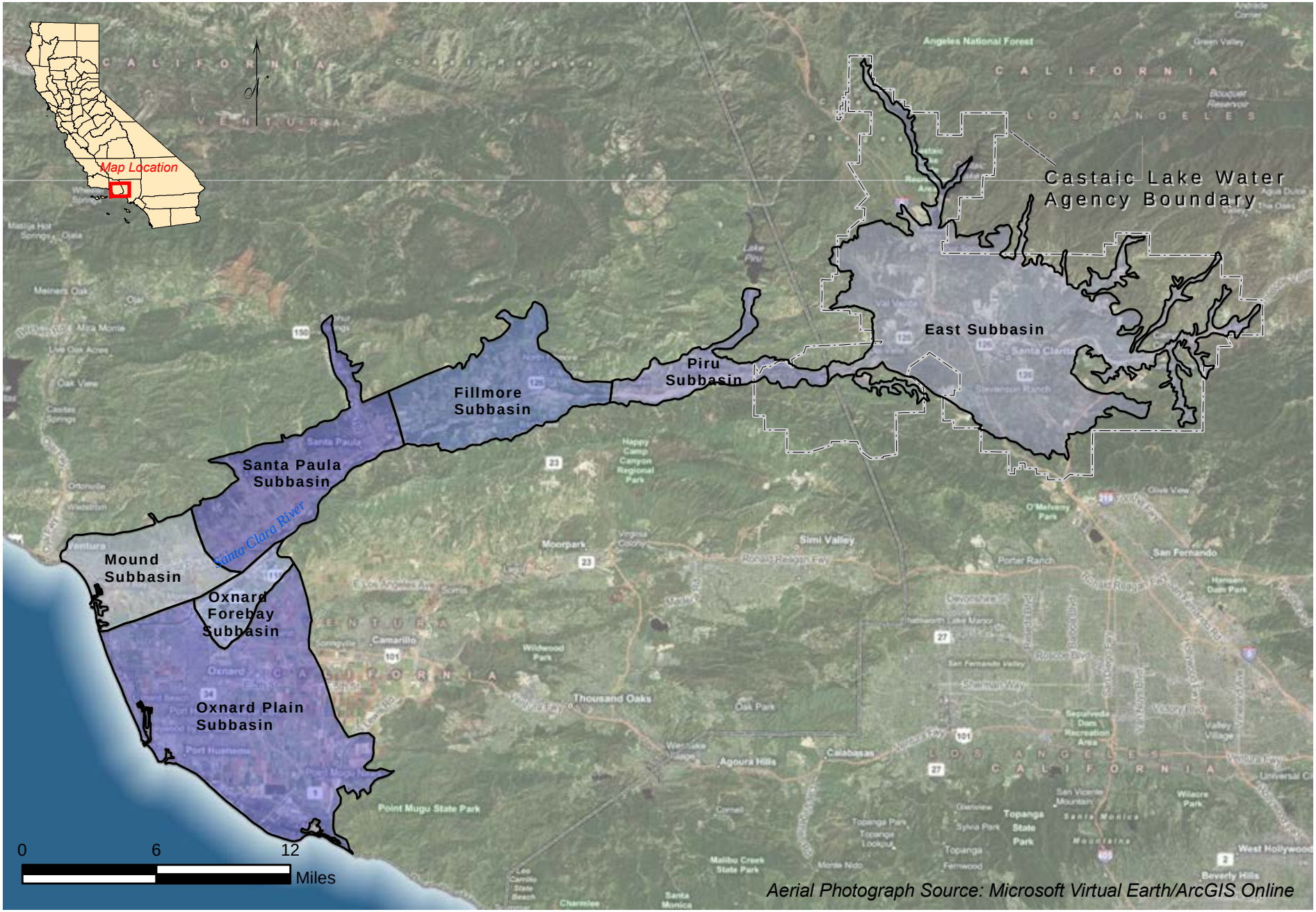

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Figure 1-2
Santa Clara River Groundwater Subbasins

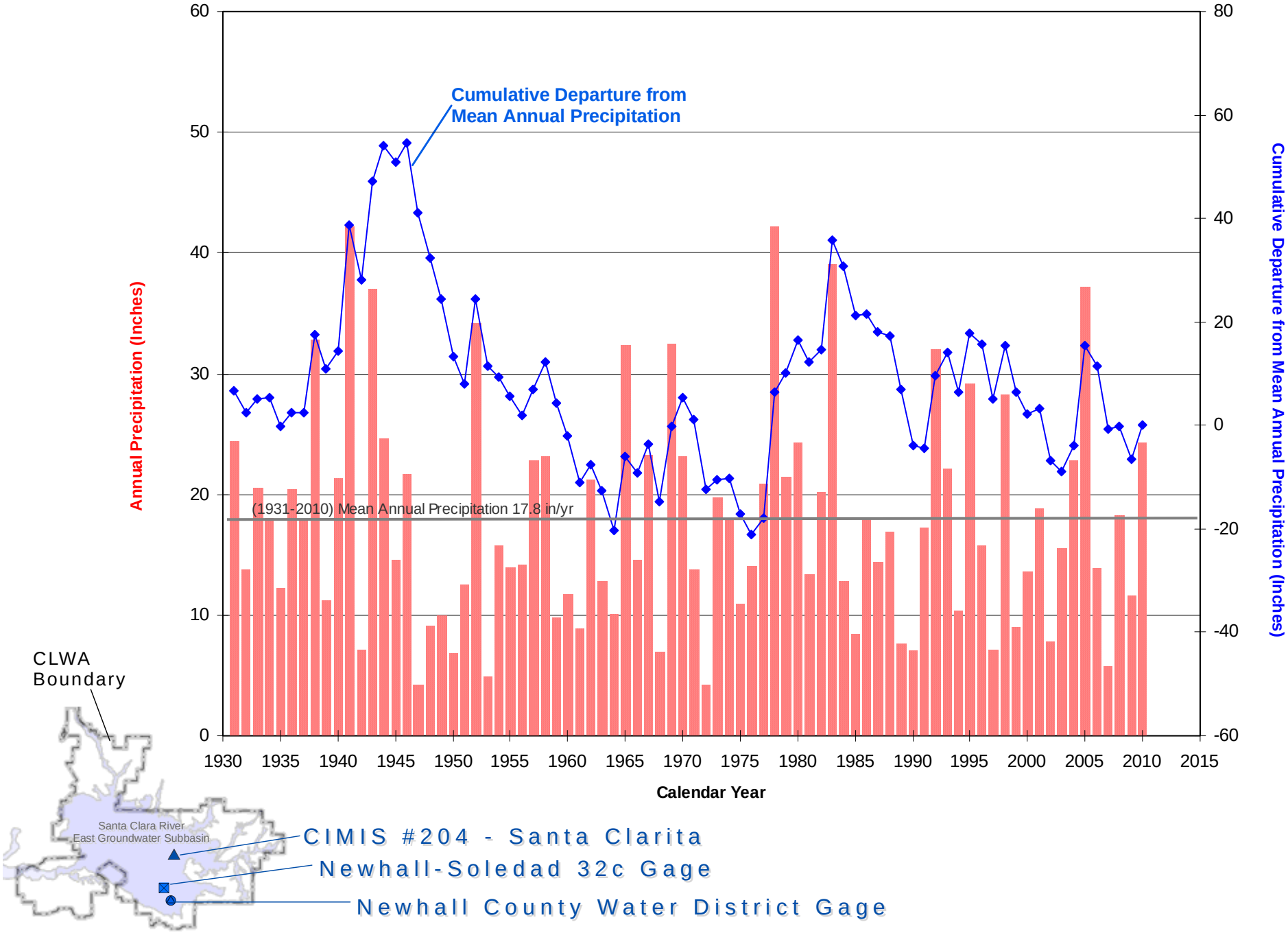

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Figure 1-3
Annual Precipitation and Cumulative Departure from Mean Annual Precipitation at Newhall-Soledad 32c Gage

2. 2010 Water Requirements and Supplies

Total water use in the Santa Clarita Valley was 80,200 af in 2010, a decrease of 6,400 af from the previous year. Of the total water demand, 64,100 af (80 percent) were for municipal use and the remaining 16,100 af (20 percent) were for agricultural and other (miscellaneous) uses, including estimated individual domestic uses. The majority of decreased water demand is attributable to a significant (8%) decrease in municipal water use from 2009. The total water demands were met by a combination of about 49,300 af from local groundwater resources (about 33,200 af for municipal supply and about 16,100 af for agricultural and other uses), about 30,600 af of SWP and other imported water, and about 300 af of recycled water.

Compared to the previous year, total water demand in the Santa Clarita Valley decreased by about 7.4 percent in 2010, and was less than the short-term projected water requirement estimated in last year's Water Report. The decrease in water use in 2010 is attributed to ongoing very slow growth in the number of new service connections and continued water conservation awareness as a result of state-wide dry conditions. Growth over the last two years in each Purveyor service area was notably lower than in the preceding four-year period, with total additions of only about 400 new services connections in 2010, in notable contrast to the growth rate of about 1,000 connections per year between 2005 to 2008, and in even greater contrast to the predominant growth rate that was three times higher from the late 1990's through 2004. In addition, the Purveyors and the local community continued to be aware of the Governor's Alert in June, 2008 with regard to drought conditions and potential water supply shortages followed by the Governor's Drought Emergency Declaration in February, 2009. The widespread awareness of dry conditions throughout the state and the perceived effects on water supply availability are considered to be prime factors causing total water demand in 2010 to have continued to decline over each of the preceding three years, and to be well below the demand projections in the 2005 UWMP.

The uses of local groundwater, augmented by imported water supplies to meet municipal water requirements since 1980, when the importation of SWP water began, and also slightly augmented by the use of recycled water, are summarized in Table 2-1. Notable with regard to municipal water requirements is that, through 2010, total municipal demand (64,100 af) continues to be below (by about 20,000 af in 2010) the projections in the 2005 UWMP without conservation, and about equal to the projections in the UWMP with conservation.

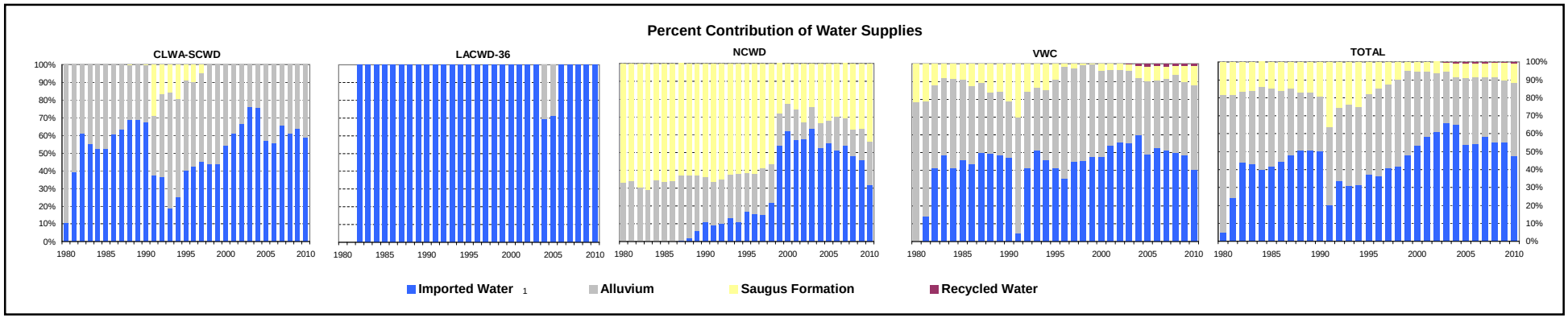
Water supply utilization for all agricultural and other non-municipal uses is summarized in Table 2-2. The category of Small Private Domestic, Irrigation and Golf Course Uses in Table 2-2 includes an estimated 500 af of small individual private pumping from the Alluvium.

Water supply utilization for all uses in the Santa Clarita Valley, again for the period 1980 to present, is summarized in Table 2-3. The trends in utilization of local groundwater and imported water, complemented by the recent addition of recycled water, are graphically illustrated in Figure 2-1. As can be seen by inspection of Table 2-2 and Figure 2-1, total water use in the Valley was nearly linearly increasing from the early 1980's through 2007, with some weather-related fluctuations in certain years. As discussed above, total water use has progressively declined over the last three years, from a peak slightly above 92,000 af in 2007 to 80,200 af in 2010. The decreased demand in 2010 is the lowest in nearly a decade (since 2001). Overall, the increase in total water demand since the inception of supplemental SWP importation has been from about 37,000 acre-feet in 1980 to the mid-80,000 acre-feet per year range through 2000-2005, to the short-term peak in the low-90,000 acre-feet per year range in 2006 through 2008, and back to the mid to low-80,000 af per year range over the last couple of years.

As can also be seen by inspection of Table 2-2 and Figure 2-1, most of the historical increase in water demand has been met with generally increasing importation of SWP water, most recently complemented by other imported water as discussed herein. The recent decrease in water demand has been met with a generally consistent amount of local groundwater and a decreased use of imported water. Since the early 1990's, following a decade of generally decreased groundwater use during the initial period of SWP importation, total groundwater pumping has fluctuated from year to year, but has remained within a range between about 38,000 and 50,000 acre-feet per year through 2010.

Table 2-1
Water Supply Utilization by Municipal Purveyors
(Acre-Feet)

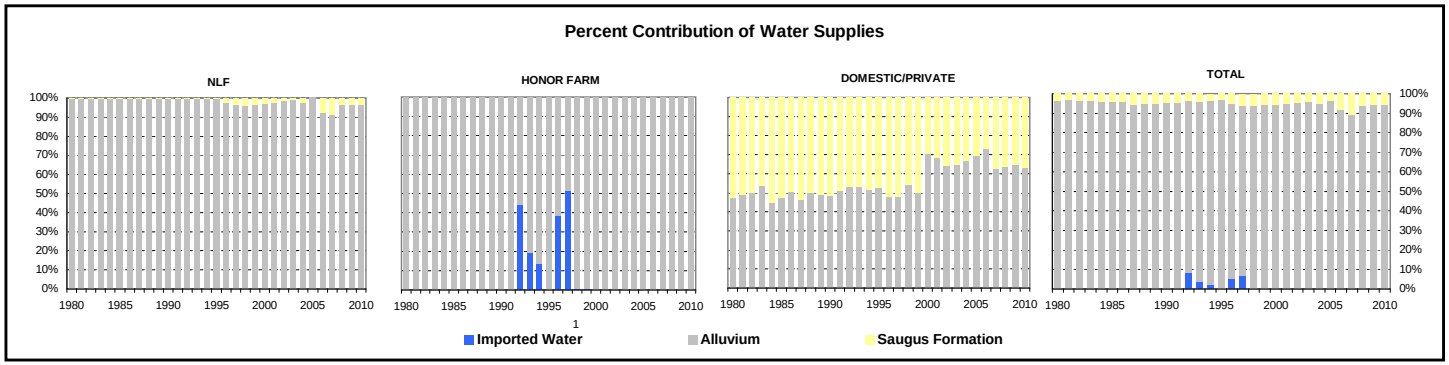
Year	CLWA Santa Clarita Water Division				Los Angeles County Waterworks District 36			Newhall County Water District				Valencia Water Company					All Municipal Purveyors				
	Imported Water [1]	*Alluvium*	*Saugus Formation*	**Total**	*Imported Water* [1]	*Alluvium* [2]	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,126	9,467	0	**10,593**	0	-	**0**	0	1,170	2,363	**3,533**	0	5,995	1,644	-	**7,639**	1,126	16,632	4,007	-	**21,765**
1981	4,603	7,106	0	**11,709**	0	-	**0**	0	1,350	2,621	**3,971**	1,214	5,597	1,808	-	**8,619**	5,817	14,053	4,429	-	**24,299**
1982	6,454	4,091	0	**10,545**	145	-	**145**	0	1,178	2,672	**3,850**	3,060	3,415	897	-	**7,372**	9,659	8,684	3,569	-	**21,912**
1983	5,214	4,269	0	**9,483**	207	-	**207**	0	1,147	2,787	**3,934**	3,764	3,387	611	-	**7,762**	9,185	8,803	3,398	-	**21,386**
1984	6,616	6,057	0	**12,673**	240	-	**240**	0	1,549	2,955	**4,504**	4,140	4,975	854	-	**9,969**	10,996	12,581	3,809	-	**27,386**
1985	6,910	6,242	0	**13,152**	272	-	**272**	0	1,644	3,255	**4,899**	4,641	4,633	885	-	**10,159**	11,823	12,519	4,140	-	**28,482**
1986	8,366	5,409	0	**13,775**	342	-	**342**	0	1,842	3,548	**5,390**	5,051	5,167	1,427	-	**11,645**	13,759	12,418	4,975	-	**31,152**
1987	9,712	5,582	0	**15,294**	361	-	**361**	22	2,127	3,657	**5,806**	6,190	4,921	1,305	-	**12,416**	16,285	12,630	4,962	-	**33,877**
1988	11,430	5,079	63	**16,572**	434	-	**434**	142	2,283	4,041	**6,466**	7,027	4,835	2,300	-	**14,162**	19,033	12,197	6,404	-	**37,634**
1989	12,790	5,785	0	**18,575**	457	-	**457**	428	2,367	4,688	**7,483**	7,943	5,826	2,529	-	**16,298**	21,618	13,978	7,217	-	**42,813**
1990	12,480	5,983	40	**18,503**	513	-	**513**	796	1,936	4,746	**7,478**	7,824	5,232	3,516	-	**16,572**	21,613	13,151	8,302	-	**43,066**
1991	6,158	5,593	4,781	**16,532**	435	-	**435**	675	1,864	4,994	**7,533**	700	9,951	4,642	-	**15,293**	7,968	17,408	14,417	-	**39,793**
1992	6,350	8,288	2,913	**17,551**	421	-	**421**	802	1,994	5,160	**7,956**	6,338	6,615	2,385	-	**15,338**	13,911	16,897	10,458	-	**41,266**
1993	3,429	12,016	2,901	**18,346**	465	-	**465**	1,075	1,977	5,068	**8,120**	8,424	5,815	2,182	-	**16,421**	13,393	19,808	10,151	-	**43,352**
1994	5,052	10,996	3,863	**19,911**	453	-	**453**	906	2,225	5,103	**8,234**	7,978	6,847	2,565	-	**17,390**	14,389	20,068	11,531	-	**45,988**
1995	7,955	10,217	1,726	**19,898**	477	-	**477**	1,305	1,675	4,775	**7,755**	7,259	8,698	1,586	-	**17,543**	16,996	20,590	8,087	-	**45,673**
1996	9,385	10,445	2,176	**22,006**	533	-	**533**	1,213	1,803	4,871	**7,887**	6,962	12,433	326	-	**19,721**	18,093	24,681	7,373	-	**50,147**
1997	10,120	11,268	1,068	**22,456**	785	-	**785**	1,324	2,309	5,168	**8,801**	9,919	11,696	516	-	**22,131**	22,148	25,273	6,752	-	**54,173**
1998	8,893	11,426	0	**20,319**	578	-	**578**	1,769	1,761	4,557	**8,087**	9,014	10,711	149	-	**19,874**	20,254	23,898	4,706	-	**48,858**
1999	10,772	13,741	0	**24,513**	654	-	**654**	5,050	1,676	2,622	**9,348**	10,806	11,823	106	-	**22,735**	27,282	27,240	2,728	-	**57,250**
2000	13,751	11,529	0	**25,280**	800	-	**800**	6,024	1,508	2,186	**9,718**	12,004	12,179	1,007	-	**25,190**	32,579	25,216	3,193	-	**60,988**
2001	15,648	9,941	0	**25,589**	907	-	**907**	5,452	1,641	2,432	**9,525**	13,362	10,518	835	-	**24,715**	35,369	22,100	3,267	-	**60,736**
2002	18,916	9,513	0	**28,429**	1,069	-	**1,069**	5,986	981	3,395	**10,362**	15,792	11,603	965	-	**28,360**	41,763	22,097	4,360	-	**68,220**
2003	20,665	6,424	0	**27,089**	1,175	-	**1,175**	6,572	1,266	2,513	**10,351**	16,004	11,707	1,068	50	**28,829**	44,416	19,397	3,581	50	**67,444**
2004	22,045	7,146	0	**29,191**	854	380	**1,234**	5,896	1,582	3,739	**11,217**	18,410	9,862	1,962	420	**30,654**	47,205	18,970	5,701	420	**72,296**
2005	16,476	12,408	0	**28,884**	857	343	**1,200**	5,932	1,389	3,435	**10,756**	14,732	12,228	2,513	418	**29,891**	37,997	26,368	5,948	418	**70,731**
2006	16,548	13,156	0	**29,704**	1,289	-	**1,289**	5,898	2,149	3,423	**11,470**	16,313	11,884	2,449	419	**31,065**	40,048	27,189	5,872	419	**73,528**
2007	20,488	10,686	0	**31,174**	1,406	-	**1,406**	6,478	1,806	3,691	**11,975**	16,779	13,140	2,367	470	**32,756**	45,151	25,632	6,058	470	**77,311**
2008	18,598	11,878	0	**30,476**	1,354	-	**1,354**	5,428	1,717	4,195	**11,340**	16,325	14,324	1,770	311	**32,730**	41,705	27,919	5,965	311	**75,900**
2009	17,739	10,077	0	**27,816**	1,243	-	**1,243**	4,832	1,860	3,868	**10,559**	14,732	12,459	2,836	328	**30,355**	38,546	24,396	6,704	328	**69,974**
2010	15,188	10,607	0	**25,795**	1,141	-	**1,141**	3,035	2,323	4,173	**9,531**	11,214	13,054	2,995	336	**27,599**	30,578	25,984	7,168	336	**64,066**



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.
2. Groundwater purchased from LA County Honor Farm.
Note: Water use for SCWD was adjusted in the 2010 Water Report for 1980, 1981, 2001, 2002, 2003, 2005, 2006, and 2007 to reflect the correct amount; the annual totals were changed in Tables 2-1 and 2-3 by +8 af, -2 af, +45 af, -5 af, -3 af, -37 af, -598 af, and -181 af, respectively.
The Saugus Formation use was adjusted in the 2010 Water Report for 1980 and 1981 to shift 562 af and 521 af, respectively, from VWC municipal use shown in Table 2-1 to irrigation and golf course use shown in Table 2-2; the annual totals in Table 2-3 do not change.

Table 2-2
Individual Water Supply Utilization by Agricultural and Other Users
(Acre-Feet)

	Newhall Land and Farming			Los Angeles County Honor Farm			Small Private Domestic, Irrigation and Golf Courses Uses			All Agricultural and Other Users			
Year	*Alluvium*	*Saugus Formation*	**Total**	*Alluvium*	*Imported Water* [1]	**Total**	*Alluvium* [2]	*Saugus Formation* [3]	**Total**	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**
1980	11,331	20	**11,351**	3,000	0	**3,000**	500	562	**1,062**	0	14,831	582	**15,413**
1981	13,237	20	**13,257**	3,000	0	**3,000**	500	521	**1,021**	0	16,737	541	**17,278**
1982	9,684	20	**9,704**	3,000	0	**3,000**	500	501	**1,001**	0	13,184	521	**13,705**
1983	7,983	20	**8,003**	3,000	0	**3,000**	500	434	**934**	0	11,483	454	**11,937**
1984	11,237	20	**11,257**	3,000	0	**3,000**	500	620	**1,120**	0	14,737	640	**15,377**
1985	9,328	20	**9,348**	3,000	0	**3,000**	500	555	**1,055**	0	12,828	575	**13,403**
1986	8,287	20	**8,307**	3,000	0	**3,000**	500	490	**990**	0	11,787	510	**12,297**
1987	6,512	20	**6,532**	3,000	0	**3,000**	500	579	**1,079**	0	10,012	599	**10,611**
1988	5,951	20	**5,971**	3,000	0	**3,000**	500	504	**1,004**	0	9,451	524	**9,975**
1989	6,243	20	**6,263**	3,000	0	**3,000**	500	522	**1,022**	0	9,743	542	**10,285**
1990	8,225	20	**8,245**	2,000	0	**2,000**	500	539	**1,039**	0	10,725	559	**11,284**
1991	7,039	20	**7,059**	2,240	0	**2,240**	500	480	**980**	0	9,779	500	**10,279**
1992	8,938	20	**8,958**	1,256	987	**2,243**	500	446	**946**	987	10,694	466	**12,147**
1993	8,020	20	**8,040**	1,798	443	**2,241**	500	439	**939**	443	10,318	459	**11,220**
1994	10,606	20	**10,626**	1,959	311	**2,270**	500	474	**974**	311	13,065	494	**13,870**
1995	11,174	20	**11,194**	2,200	6	**2,206**	500	453	**953**	6	13,874	473	**14,353**
1996	12,020	266	**12,286**	1,237	780	**2,017**	500	547	**1,047**	780	13,757	813	**15,350**
1997	12,826	445	**13,271**	1,000	1,067	**2,067**	500	548	**1,048**	1,067	14,326	993	**16,386**
1998	10,250	426	**10,676**	2,000	12	**2,012**	500	423	**923**	12	12,750	849	**13,611**
1999	13,824	479	**14,303**	1,842	20	**1,862**	500	509	**1,009**	20	16,166	988	**17,174**
2000	11,857	374	**12,231**	1,644	3	**1,647**	1,220	513	**1,733**	3	14,721	887	**15,611**
2001	12,661	300	**12,961**	1,604	0	**1,604**	1,224	573	**1,797**	0	15,489	873	**16,362**
2002	13,514	211	**13,725**	1,602	0	**1,602**	1,063	589	**1,652**	0	16,179	800	**16,979**
2003	10,999	122	**11,121**	2,273	0	**2,273**	931	504	**1,435**	0	14,203	626	**14,829**
2004	10,991	268	**11,259**	2,725	0	**2,725**	1,071	535	**1,606**	0	14,787	803	**15,590**
2005	8,648	6	**8,654**	2,499	0	**2,499**	1,133	499	**1,632**	0	12,280	505	**12,785**
2006	11,477	934	**12,411**	3,026	0	**3,026**	1,369	506	**1,875**	0	15,872	1,440	**17,312**
2007	9,968	971	**10,939**	2,085	0	**2,085**	1,088	656	**1,744**	0	13,141	1,627	**14,768**
2008	9,191	330	**9,521**	3,506	0	**3,506**	1,100	623	**1,723**	0	13,797	953	**14,750**
2009	11,061	379	**11,440**	3,432	0	**3,432**	1,097	595	**1,692**	0	15,590	974	**16,564**
2010	10,772	366	**11,138**	3,446	0	**3,446**	957	558	**1,515**	0	15,175	924	**16,099**

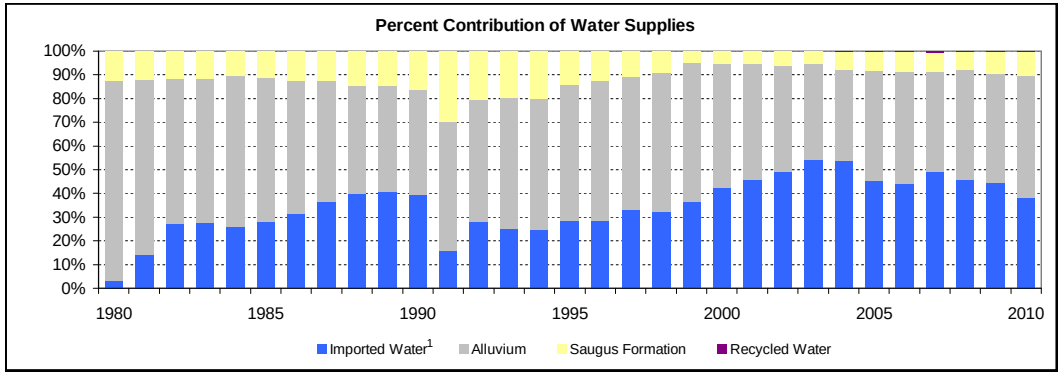


1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.
2. Robinson Ranch Golf Course irrigation and estimated private pumping.
3. Valencia Country Club and Vista Valencia Golf Course irrigation.

Note: The Saugus Formation use was adjusted in the 2010 Water Report for 1980 and 1981 to shift 562 af and 521 af, respectively, from VWC municipal use shown in Table 2-1 to irrigation and golf course use shown in Table 2-2; the annual totals in Table 2-3 do not change.

Table 2-3
Total Water Supply Utilization for Municipal, Agricultural and Other Uses
(Acre-Feet)

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,126	31,463	4,589	-	**37,178**
1981	5,817	30,790	4,970	-	**41,577**
1982	9,659	21,868	4,090	-	**35,617**
1983	9,185	20,286	3,852	-	**33,323**
1984	10,996	27,318	4,449	-	**42,763**
1985	11,823	25,347	4,715	-	**41,885**
1986	13,759	24,205	5,485	-	**43,449**
1987	16,285	22,642	5,561	-	**44,488**
1988	19,033	21,648	6,928	-	**47,609**
1989	21,618	23,721	7,759	-	**53,098**
1990	21,613	23,876	8,861	-	**54,350**
1991	7,968	27,187	14,917	-	**50,072**
1992	14,898	27,591	10,924	-	**53,413**
1993	13,836	30,126	10,610	-	**54,572**
1994	14,700	33,133	12,025	-	**59,858**
1995	17,002	34,464	8,560	-	**60,026**
1996	18,873	38,438	8,186	-	**65,497**
1997	23,215	39,599	7,745	-	**70,559**
1998	20,266	36,648	5,555	-	**62,469**
1999	27,302	43,406	3,716	-	**74,424**
2000	32,582	39,937	4,080	-	**76,599**
2001	35,369	37,589	4,140	-	**77,098**
2002	41,763	38,276	5,160	-	**85,199**
2003	44,416	33,599	4,207	50	**82,273**
2004	47,205	33,757	6,503	420	**87,885**
2005	37,997	38,648	6,453	418	**83,516**
2006	40,048	43,061	7,312	419	**90,840**
2007	45,151	38,773	7,685	470	**92,079**
2008	41,705	41,716	6,918	311	**90,650**
2009	38,546	39,986	7,678	328	**86,538**
2010	30,578	41,159	8,092	336	**80,165**



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Note: Water use for SCWD was adjusted in the 2010 Water Report for 1980, 1981, 2001, 2002, 2003, 2005, 2006, and 2007 to reflect the correct amount; the annual totals were changed in Tables 2-1 and 2-3 by +8 af, -2 af, +45 af, -5 af, -3 af, -37 af, -598 af, and -181 af, respectively.

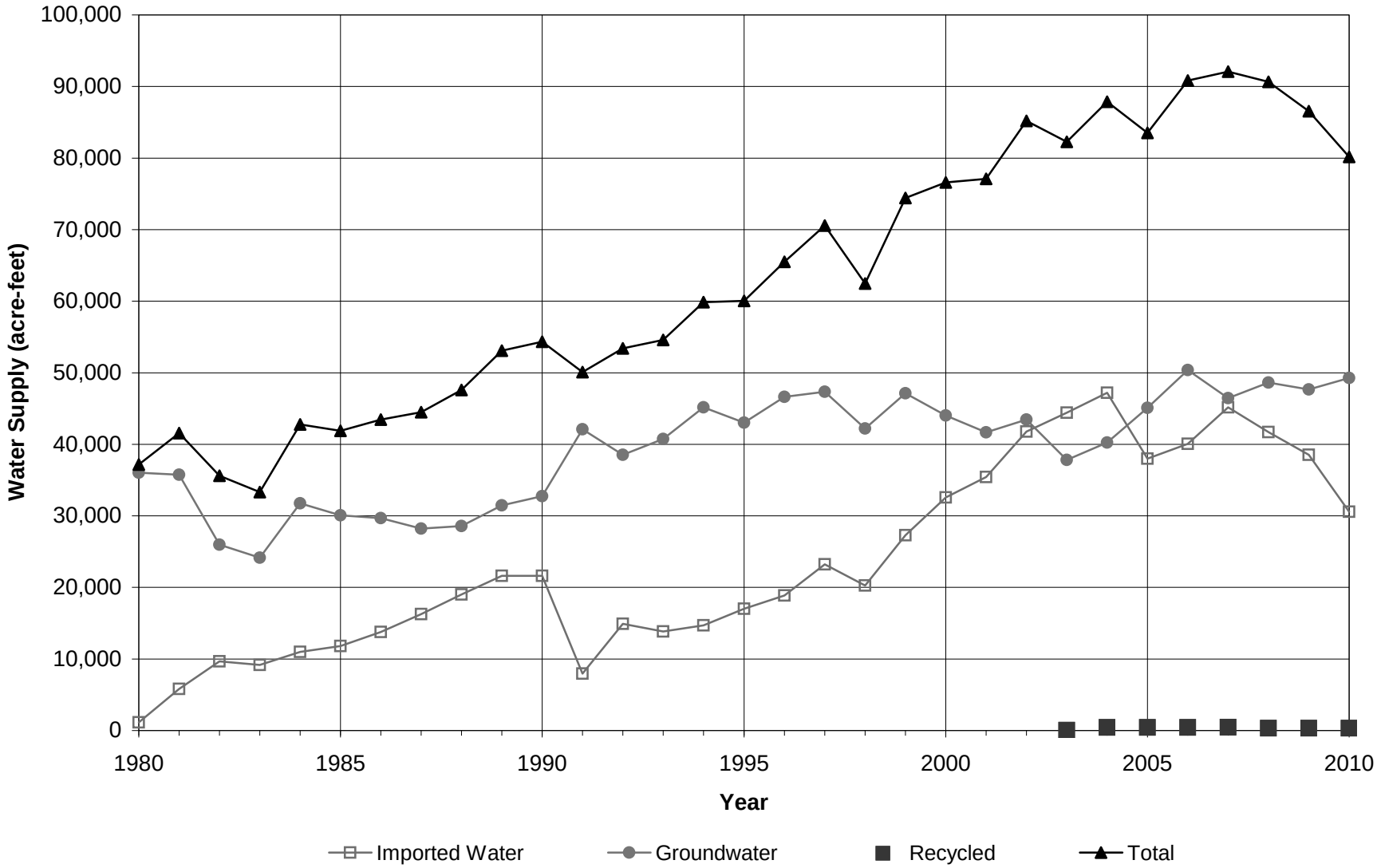


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Figure 2-1
Total Water Supply Utilization
Santa Clarita Valley

3. Water Supplies

Prior to 1980, local groundwater extracted from the Alluvium and the Saugus Formation was the sole source of water supply in the Santa Clarita Valley. Since 1980, local groundwater supplies have been supplemented with imported SWP water supplies, augmented in 2007 by acquisition of additional supplemental water from the Buena Vista Water Storage District. Those water supplies have also been slightly augmented by deliveries from CLWA's recycled water program since 2003. This section describes the groundwater resources of the Santa Clarita Valley, SWP and other imported water supplies, and the recycled water program in the Valley.

3.1 Groundwater Basin Yield

The groundwater basin generally beneath the Santa Clarita Valley, identified in the State Department of Water Resources' Bulletin 118 as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin No. 4-4.07), is comprised of two aquifer systems. The Alluvium generally underlies the Santa Clara River and its several tributaries, and the Saugus Formation underlies practically the entire Upper Santa Clara River area. The mapped extent of the Santa Clara River Valley East Subbasin in DWR Bulletin 118 and its relationship to the extent of the CLWA service area are illustrated in Figure 3-1. The mapped Subbasin boundary approximately coincides with the outer extent of the Alluvium and Saugus Formation.

A 2001 Update Report on both the Alluvium and Saugus Formation Aquifers (Slade, 2002), which updated analyses and interpretation of hydrogeologic conditions from earlier reports (Slade, 1986 and 1988), included extensive detail on major aspects of the groundwater basin. Notable parts of the Update Report relative to groundwater supply included findings that:

- Analysis of historical groundwater levels and production indicates that there have been no conditions that would be illustrative of groundwater overdraft.

- Utilization of operational yield (as opposed to perennial yield) as a basis for managing groundwater production would be more applicable in this basin to reflect fluctuating utilization of groundwater in conjunction with imported SWP water.

- Operational yield of the Alluvium would typically be 30,000 to 40,000 afy for wet and normal rainfall years, with an expected reduction into the range of 30,000 to 35,000 afy in dry years.

- Operational yield of the Saugus Formation would typically be in the range of 7,500 to 15,000 afy on a long-term basis, with possible short-term increases during dry periods into a range of 15,000 to 25,000 afy, and to 35,000 afy if dry conditions continue.

Following on the 2001 Update Report (Slade, 2002), the groundwater component of overall water supply in the Valley derives from a groundwater operating plan to meet water requirements (municipal, agricultural and other non-municipal, and small individual domestic) while maintaining the basin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). That operating plan also addresses groundwater contamination issues in the basin, all consistent with the Groundwater Management Plan adopted in 2003. The groundwater operating plan is based on the concept that pumping can vary from year to year to generally rely on increased groundwater use in dry periods and increased recharge during locally wet periods, and to collectively assure that the groundwater basin is adequately replenished through various wet/dry cycles.

The groundwater operating plan, summarized in Table 3-1, is as follows:

Alluvium – Pumping from the Alluvial Aquifer in a given year is related to local hydrologic conditions in the eastern Santa Clara River watershed. Pumping is expected to typically range between 30,000 and 40,000 afy following normal and above-normal rainfall years. Due to hydrogeologic constraints in the eastern part of the basin, pumping is expected to be typically reduced to between 30,000 and 35,000 afy following multiple locally dry years.

Saugus Formation – Pumping from the Saugus Formation in a given year is related to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping is expected to typically range between 7,500 and 15,000 afy. Planned dry-year pumping from the Saugus Formation is expected to range between 15,000 and 25,000 afy during a drought year and can increase to between 21,000 and 25,000 afy if SWP deliveries are reduced for two consecutive years, and between 21,000 and 35,000 afy if SWP deliveries are reduced for three consecutive years. Such high pumping is expected to typically be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 afy, to enhance the effectiveness of natural recharge processes that would cause groundwater levels and storage volumes to recover after the higher pumping during dry years.

Table 3-1
Groundwater Operating Plan for the Santa Clarita Valley

Aquifer	Groundwater Production (af)			
	Normal Years	**Dry Year 1**	**Dry Year 2**	**Dry Year 3**
Alluvium	30,000 to 40,000	30,000 to 35,000	30,000 to 35,000	30,000 to 35,000
Saugus	7,500 to 15,000	15,000 to 25,000	21,000 to 25,000	21,000 to 35,000
Total	**37,500 to 55,000**	**45,000 to 60,000**	**51,000 to 60,000**	**51,000 to 70,000**

In 2004, as part of analyzing the restoration of perchlorate-impacted groundwater supply in the Valley, a numerical groundwater flow model was developed and calibrated for use in analyzing the response of the groundwater basin to long-term operation at the operational yields noted above, with focus on perchlorate extraction and the control of perchlorate migration in the basin. That groundwater flow model was then utilized in 2005 to specifically analyze the sustainability of groundwater supplies in both the Alluvium and the Saugus Formation through a long-term (78 year) hydrologic period that was selected to examine groundwater basin response to variations in pumping in accordance with the operating plan. Resultant projections of groundwater levels, groundwater storage, and surface water flows showed the basin to respond in a long-term sustainable manner, with no chronic depletion of groundwater levels, storage, or stream flows. The analysis of groundwater sustainability was summarized in a Basin Yield Report (CH2M Hill and LSCE, 2005), which included the following findings:

- The groundwater basin has historically been, and continues to be, in good operating condition and not in overdraft, as indicated by historical data.

- The groundwater plan is sustainable over varying hydrologic conditions, because it is feasible to intermittently exceed a long-term average yield for one or more years without creating long-term adverse impacts to the groundwater system and the Santa Clara River.

- The groundwater operating plan for the Alluvium and the Saugus Formation can be used for long-term water supply planning purposes. In particular, although increased pumping from the Saugus Formation during dry periods can be expected to cause short-term declines in groundwater levels, it is not projected to cause permanent declines in groundwater discharges or streamflow. Saugus groundwater levels can be expected to recover to pre-drought conditions when pumping is reduced in subsequent wet to normal years.

- The strategy around which the groundwater operating plan was designed (maximizing the use of Alluvial Aquifer and imported water during years of normal or above-normal availability of these supplies, while limiting the use of the Saugus Formation during these periods, then temporarily increasing Saugus pumping during years when SWP supplies are significantly reduced because of drought conditions) is viable on a long-term basis.

- Together, the historical observations of basin conditions and the model simulations together support the historical and ongoing confidence that groundwater can continue to be a sustainable source of water supply under the groundwater operating plan.

In 2008, partly in preparation for the 2010 Urban Water Management Plan, and in part because of recent events that can be expected to impact the future reliability of the supplemental water supply from the State Water Project, the Purveyors initiated an updated analysis to further assess groundwater development potential and possible augmentation of the groundwater operating plan. A further consideration in conducting an updated analysis of the basin was that global climate change could alter local rainfall and associated recharge patterns, thus affecting local groundwater supplies, i.e. the yield of the basin. Finally, the Los Angeles County Flood Control District (LACFCD) was planning a number of small flood control projects in the Santa Clarita Valley; estimated amounts of conservation/groundwater recharge potential were being included for each of the individual projects in the overall LACFCD planning, and the Purveyors had interest in whether that potential could appreciably augment the yield of the basin.

The updated basin yield analysis, completed in August, 2009, concluded the following (LSCE and GSI, 2009):

- The 2008 Operating Plan, with currently envisioned pumping rates and distribution comparable to the Operating Plan described above, will not cause detrimental short- or long-term effects to the groundwater and surface water resources in the Valley and is, therefore, sustainable. Further, local conditions in the Alluvium in the eastern end of the basin can be expected to repeat historical groundwater level declines during dry periods, necessitating a reduction in desired Alluvial aquifer pumping due to decreased well yield and associated actual pumping capacity during those periods. However, those reductions in pumping from the Alluvial aquifer can be made up by an equivalent amount of increased pumping in other parts of the basin without disrupting basin-wide sustainability or local pumping capacity in those other areas. For the Saugus Formation, the modeling analysis indicated that it can sustain the pumping that is embedded the 2008 Operating Plan.

- A Potential Operating Plan (Alluvial pumping between 41,500 and 47,500 afy) would result in lower Alluvial groundwater levels, failure of the basin to fully recover (during wet hydrologic cycles) from depressed storage that would occur during dry periods, and generally declining trends in groundwater levels and storage. Long-term lowering of groundwater levels would also occur in the Saugus Formation (pumping between about 16,000 and nearly 40,000 afy) with only partial water level recovery occurring in the Saugus. Thus, the Potential Operating Plan would not be sustainable over a long-term period.

- Several climate change models were examined to estimate the potential impacts on local hydrology in the Santa Clarita Valley. The range of potential climate change impacts extends from a possible wet trend to a possible dry trend over the long term. The trends that range from an approximate continuation of historical average precipitation, to something wetter than that, would appear to result in continued sustainability of the 2008 Operating Plan, again with intermittent constraints on full pumping in the eastern part of the basin. The potential long-term dry trend arising out of climate change would be expected to decrease local recharge to the point that lower and declining groundwater levels would render the 2008 Operating Plan unsustainable. Ultimately it was recognized that a wide range of potential global climate change produces a range of non-unique results with respect to local hydrologic conditions and associated sustainable groundwater supply. Notable in the wide range of possibilities, however, was the output that, over a 20 to 25 year planning horizon of the 2005 UWMP, the range of relatively wet to relatively dry hydrologic conditions would be expected to produce sustainable groundwater conditions under the 2008 Groundwater Operating Plan.

Based on the preceding conclusions, groundwater utilization continues in accordance with the 2008 Operating Plan; and the Potential Operating Plan is not being considered for implementation.

3.2 Alluvium – General

The spatial extent of the aquifers used for groundwater supply in the Valley, the Alluvium and the Saugus Formation, are illustrated in Figure 3-1. Geologic descriptions and hydrogeologic details related to both aquifers are included in several technical reports including Slade (1986, 1988 & 2002), CH2M Hill (2005) and LSCE (2005), the 2005 UWMP and the 2010 UWMP.

Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), the 2005 UWMP, the 2009 Updated Basin Yield Report (LSCE and GSI), and the 2010

UWMP, the management practice of the Purveyors continues to be to rely on groundwater from the Alluvium for part of the overall municipal water supply, whereby total pumping from the Alluvium (by municipal, agricultural, and small private pumpers) is in accordance with the 2008 groundwater Operating Plan, 30,000 to 40,000 afy following wet and normal years, with possible reduction to 30,000 to 35,000 afy following multiple dry years. Such operation will maximize use of the Alluvium because of the aquifer's ability to store and produce good quality water on a sustainable basis, and because the Alluvium is capable of rapid recovery of groundwater storage in wet periods. As with many groundwater basins, it is possible to intermittently exceed a long-term average yield for one or more years without long-term adverse effects. Higher pumping for short periods may temporarily lower groundwater storage and related water levels, as has been the case in the Alluvium several times since the 1930's. However, subsequent decreases in pumping limit the amount of water level decline. Normal to wet-period recharge results in a rapid return of groundwater levels to historic highs. Historical groundwater data collected from the Alluvium over numerous hydrologic cycles continue to provide assurance that groundwater elevations, if locally lowered during dry periods, recover in subsequent average or wet years. Such water level response to rainfall is a significant characteristic of permeable, porous, alluvial aquifer systems that occur within large watersheds. In light of these historical observations, complemented by the long-term sustainability analysis using the numerical groundwater flow model, there is ongoing confidence that groundwater will continue to be a sustainable source of water supply at the rates of pumping described in the Basin Yield Report, as incorporated in the 2005 UWMP, and as described in the 2009 Updated Basin Yield Report, and incorporated in the 2010 UWMP.

Long-term adverse impacts to the Alluvium could occur if the amount of water extracted from the aquifer were to exceed the amount of water that recharges the aquifer over an extended period. However, the quantity and quality of water in the Alluvium and all significant pumping from the Alluvium are routinely monitored, and no long-term adverse impacts have ever been evident. Ultimately, the Purveyors have identified cooperative measures to be taken, if needed, to ensure sustained use of the aquifer. Such measures include but are not limited to the continuation of conjunctive use of SWP and other imported supplemental water with local groundwater, artificial recharge of the aquifer with local runoff or other surface water supplies, financial incentives discouraging extractions above a selected limit, expanded use of other water supplies such as recycled water, and expanded implementation of demand-side management, including conservation.

3.2.1 Alluvium – Historical and Current Conditions

Total pumping from the Alluvium in 2010 was about 41,200 af, an increase of 1,200 af from the preceding year. Total Alluvium pumping was slightly above the upper end of the groundwater Operating Plan range. However, as discussed in the balance of this section, groundwater level response to that amount of pumping has remained consistent with historically observed conditions, with no negative changes that might indicate pumping in excess of a sustainable amount; overall, the combination of 2010 pumping and groundwater level response suggest that the Operating Plan range does not reflect absolute groundwater pumping limits. Of the total Alluvial pumping in 2010, about 26,000 af (63 percent) was for municipal water supply, and the balance, about 15,200 af (37 percent), was for agriculture and other smaller uses, including individual domestic uses. In a longer-term context, there has been a change in municipal/agricultural pumping distribution since SWP deliveries began in 1980, toward a higher fraction for municipal water supply (from about 50 percent to more than 65 percent of Alluvial pumpage), which reflects the general land use changes in the area. Ultimately, on a long-term average basis since the beginning of imported water deliveries from the SWP, total Alluvial pumping has been about 32,600 afy, which is at the lower end of the range of operational yield of the Alluvium. That average has been higher over the last decade, about 38,700 afy, which remains within the range of operational yield of the Alluvium. The overall historic record of Alluvial pumping is illustrated in Figure 3-2.

Groundwater levels in various parts of the basin have historically exhibited different responses to both pumpage and climatic fluctuations. During the last 20 to 30 years, depending on location, Alluvial groundwater levels have remained nearly constant (generally toward the western end of the basin), or have fluctuated from near the ground surface when the basin is full, to as much as 100 feet lower during intermittent dry periods of reduced recharge (generally toward the eastern end of the basin). For illustration of the various groundwater level conditions in the basin, the Alluvial wells have been grouped into areas with similar groundwater level patterns, as shown in Figure 3-3. The groundwater level records have been organized into hydrograph form (groundwater elevation vs. time) as illustrated in Figures 3-4 and 3-5. Also shown on these plots is an annual marker indicating whether the year had a below-average amount of rainfall. The wells shown on these plots are representative of the respective areas, showing the range of values (highest to lowest elevation) through each area, and containing a sufficiently long-term record to illustrate trends over time.

Situated along the upstream end of the Santa Clara River Channel, the ‘Mint Canyon’ area, located at the far eastern end of the groundwater basin, and the nearby ‘Above Saugus WRP’ area generally exhibit similar groundwater level responses (Figure 3-4) to hydrologic and

pumping conditions. These parts of the Valley have historically experienced a number of alternating wet and dry hydrologic conditions during which groundwater level declines have been followed by returns to high or mid-range historic levels. When water levels are low, well yields and pumping capacities in this and other eastern areas can be impacted. The affected Purveyors typically respond by increasing use of Saugus Formation and imported (SWP) supplies, as shown in Table 2-3. The Purveyors also shift a fraction of the Alluvial pumping that would normally be supplied by the eastern areas to areas further west, where well yields and pumping capacities remain fairly constant because of smaller groundwater level fluctuations. Recent wet and dry periods illustrate the groundwater level response to managed Alluvial pumping. The five-year period of 1999-2003 saw water level declines on the order of 50 to 60 feet; pumping was gradually reduced by 50 percent over that period and water levels stopped declining. Subsequent wet conditions in late 2004, continuing into 2005, resulted in full recovery of groundwater storage. With such high groundwater levels, higher pumping was resumed in the 'Mint Canyon' area in 2005 and 2006 and has again been gradually decreased through the recent dry period. As shown in Figure 3-6, the Purveyors decreased total Alluvial pumping from the 'Mint Canyon' area from 12,000 afy in 2006 to 7,000 afy in 2010, and correspondingly increased pumping in the western areas of the Valley over the drier-than-average period. Continuing through 2010, the decrease in pumping in the 'Mint Canyon' area has corresponded with a cessation of groundwater level decline; water levels remain within the historic range of levels over similar wet/dry periods.

Just below the 'Mint Canyon' area, the 'Above Saugus WRP' area has shown similar water level trends. While the pumping trends are similar to the 'Mint Canyon' area, pumping here has been less by about half. The long-term average of pumping as shown in Figure 3-6 is about 3,500 afy, and the pumping response to hydrologic cycles follows the upstream area by a couple of years. Here the water levels also remain within the range of historical levels, as expected with managed pumping rates and a single wet year in 2010, following a multi-year dry period.

In the 'Bouquet Canyon' area, pumping has remained relatively constant for the last ten years at about 1,700 afy, and water levels have fluctuated with consecutive wet or dry years. During and since the most recent wet conditions of 2004 and 2005, water levels returned to within historic mid-range levels. This groundwater level response to wet/dry years and pumping is typical for this area of the basin and, in 2010, levels remained within their historic range.

In the western parts and lower elevations of the Alluvium, groundwater levels respond to pumping and precipitation in a similar manner, but to an attenuated or limited extent compared to those situated in the eastern, higher elevation areas. As shown in the western group of hydrographs in Figure 3-5, groundwater level fluctuations become more subtle moving westward

and lower in the Valley. The 'Below Saugus WRP' area, along the Santa Clara River immediately downstream of the Saugus Water Reclamation Plant, and the 'San Francisquito Canyon' area generally exhibit similar groundwater level trends. In this middle part of the basin, historical groundwater levels were lower in the 1950's and 60's than current levels. Groundwater levels in this area notably recovered as pumping declined through the 1960's and 1970's. They have subsequently sustained generally high levels for much of the last 30 years, with three dry-period exceptions: mid-1970's, late 1980's to early 1990's, and the late 1990's to early 2000's. Recoveries to previous high groundwater levels followed both of the short dry-period declines in the 1970's and 1990's. More recently, groundwater levels recovered significantly in both areas, to historic highs, following a wetter-than-average year in 2004 and significantly wet 2005. With the exception of a couple of years, pumping has been generally constant at about 6,000 afy since the mid 1990's in the 'Below Saugus WRP' area. In the 'San Francisquito Canyon' area, annual pumping has approximately doubled since 2005, compared to the long-term average of 1,500 afy. In 2010, the single wet year after a multi-year period of below-average precipitation, groundwater levels in these two areas remain in mid-range to high historical range.

The 'Castaic Valley' area is located along Castaic Creek below Castaic Lake. Below that and along the Santa Clara River, downstream of the Valencia Water Reclamation Plant, is the 'Below Valencia WRP' area, where discharges of treated effluent from the Valencia WRP to the Santa Clara River contribute to groundwater recharge. In the 'Castaic Valley' area, groundwater levels continue to remain fairly constant, with slight responses to climatic and other fluctuations, since the 1950's (Figure 3-5). In the 'Castaic Valley' area, pumping has remained relatively constant over the last 25 years at about 5,200 afy, with a recent slight downward trend. Small changes in groundwater levels over the last five years are consistent with other short-term historical fluctuations around the Valley, but in the long-term, a generally constant trend remained through 2010. In the 'Below Valencia WRP' area, pumping notably increased through the 1990's but has since remained relatively stable over the last seven years, at about 12,000 afy (Figure 3-6). Despite the higher pumping rate, groundwater levels in this area exhibit slight, if any, response to either pumping or climatic fluctuations, and have remained fairly constant since the 1950's through 2010 (Figure 3-5).

In summary, depending on the period of available data, all the history of groundwater levels in the Alluvium shows the same general picture: recent (last 30 years) groundwater levels have exhibited historic highs; in some locations, there are intermittent dry-period declines (resulting from use of some groundwater from storage) followed by wet-period recoveries (and associated refilling of storage space). On a long-term basis, whether over the last 30 years since importation of supplemental SWP water, or over the last 40 to 50 years (since the 1950's - 60's), the Alluvium shows no chronic trend toward decreasing water levels and storage, and thus shows

no symptoms of water level-related overdraft. Consequently, pumping from the Alluvium has been and continues to be sustainable, well within the operational yield of that aquifer on a long-term average basis, and also within the operating yield in almost every individual year.

3.3 Saugus Formation – General

Saugus wells operated by the Purveyors are located in the southern portion of the basin, south of the Santa Clara River (Figure 3-7). Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), and the 2009 Updated Basin Yield Report (LSCE and GSI), the Purveyors have utilized the Saugus in accordance with the original (and the 2008) groundwater Operating Plan, in the range of 7,500 to 15,000 afy in average/normal years, with planned dry-year pumping of 15,000 to 35,000 afy for one to three consecutive dry years, when shortages to CLWA's SWP water supplies could occur. Such high pumping would be followed by periods of lower pumping (7,500 to 15,000 afy in average/normal years as noted above) in order to allow recharge to recover water levels and storage in the Saugus. Maintaining the substantial volume of water in the Saugus Formation remains an important strategy to help maintain water supplies in the Santa Clarita Valley during drought periods.

3.3.1 Saugus Formation – Historical and Current Conditions

Total pumping from the Saugus in 2010 was about 8,100 af, or about 400 af more than in the preceding year. Of the total Saugus pumping in 2010, most (about 7,200 af) was for municipal water supply, and the balance (900 af) was for agricultural and other irrigation uses. Historically, groundwater pumping from the Saugus peaked in the early 1990's and then steadily declined through the remainder of that decade. Since then, Saugus pumping has been in the range of about 4,000 to 8,000 afy, with the recent 5-year average at about 7,500 af per year. Most of the increase has been over the last two years, as the municipal use of Saugus water over the previous five-year period (2004-2008) had been relatively constant. On a long-term basis since the importation of SWP water, total pumping from the Saugus Formation has ranged between a low of about 3,700 afy (in 1999) and a high of nearly 15,000 afy (in 1991); average pumping from 1980 to present has been slightly more than 6,800 afy. These pumping rates remain well within, and generally at the lower end of the range of Operating Yield of the Saugus Formation. The overall historic record of Saugus pumping is illustrated in Figure 3-8.

Unlike the Alluvium, which has an abundance of wells with extensive water level records, the water level data for the Saugus Formation are limited by both the distribution of the wells in that Formation and the periods of water level records. The wells that do have water level records extending back to the mid-1960's indicate that groundwater levels in the Saugus Formation were

highest in the mid-1980's and are currently higher than they were in the mid-1960's (Figure 3-9). Based on these data, there is no evidence of any historic or recent trend toward permanent water level or storage decline. There continue to be seasonal fluctuations in groundwater levels but the prevalent longer-term trend is one of general stability.

Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), the 2005 UWMP, the 2009 Updated Basin Yield Report (LSCE and GSI, 2009), and the 2010 UWMP, the Purveyors continue to maintain groundwater storage and associated water levels in the Saugus Formation so that supply is available during drought periods, when Alluvial pumping might be reduced and/or SWP or other supplemental supplies also decreased. The period of increased pumping during the early 1990's is a good example of this management strategy. Most notably, in 1991, when SWP deliveries were substantially reduced, increased pumping from the Saugus made up almost half of the decrease in SWP deliveries. The increased Saugus pumping over several consecutive dry years (1991-1994) resulted in short-term declining groundwater levels, reflecting the use of water from storage. However, groundwater levels subsequently recovered when pumping declined, reflecting recovery of groundwater storage in the Saugus Formation.

3.4 Imported Water

CLWA obtains the majority of its water supplies from the State Water Project (SWP), which is owned and operated by the California Department of Water Resources (DWR). CLWA is one of 29 contractors holding long-term SWP contracts with DWR. SWP water originates as rainfall and snowmelt in northern and central California. Runoff is stored in Lake Oroville, which is the project's largest storage facility. The water is then released from Lake Oroville down the Feather River to the Sacramento River and through the Sacramento-San Joaquin Delta. Water is diverted from the Delta into the Clifton Court Forebay, and then pumped into the 444-mile long California Aqueduct. SWP water is temporarily stored in San Luis Reservoir, which is jointly operated by DWR and the U.S. Bureau of Reclamation. Prior to delivery to CLWA, SWP supplies are stored in Castaic Lake, a terminal reservoir located at the end of the West Branch of the California Aqueduct.

CLWA's service area covers approximately 195 square miles (124,800 acres), including the City of Santa Clarita and surrounding unincorporated communities. SWP water from Castaic Lake is treated, filtered and disinfected at CLWA's Earl Schmidt Filtration Plant and Rio Vista Water Treatment Plant, which have a combined treatment capacity of 86 million gallons per day. Treated water is delivered from the treatment plants by gravity flow to each of the four Purveyors through a distribution network of pipelines and turnouts. At present, CLWA delivers

water to the four Purveyors through 26 potable turnouts as schematically illustrated in Figure 3-10.

In 2010, CLWA fulfilled the following major accomplishments in order to enhance, preserve, and strengthen the quality and reliability of existing and future supplies:

- coordinated preparation of the 2010 Urban Water Management Plan
- continued participation in a long-term water banking programs with Rosedale-Rio Bravo Water Storage District and the Semitropic Water Storage District. 32,256 af of water were delivered to the Rosedale-Rio Bravo Water Storage District, and 3,300 acre-feet were delivered to the purveyors after withdrawal from the Semitropic Water Storage District,
- continued implementation of the AB 3030 Groundwater Management Plan,
- continued implementation of the water conservation Best Management Practices, including measures in the Santa Clarita Valley Water Use Efficiency Plan
- continued participation in the Santa Clarita Valley Water Committee
- completed construction, and placed into operation, treatment and distribution facilities for restoration of a portion of municipal well capacity impacted by perchlorate contamination,
- continued cooperative effort with the U.S. Army Corps of Engineers for characterization studies of the former Whittaker-Bermite site and in a task force effort with the City of Santa Clarita, local legislators, and state agencies to effect the cleanup and remediation of all aspects of the former Whittaker-Bermite site, including perchlorate contamination of local groundwater,
- continued construction of the expansion of the Rio Vista Water Treatment Plant from 30 mgd to 60 mgd, and
- continued recycled water service.

3.4.1 State Water Project Table A Supplies

Each SWP contractor has a specified water supply amount shown in Table A of its contract that currently totals approximately 4.1 million af. The term of the CLWA contract is through 2038 and is renewable after that year. Although the SWP has not been fully completed, the SWP can deliver nearly all 4.1 million af of Table A Amounts during certain wet years.

CLWA has a contractual Table A Amount of 95,200 af per year of water from SWP.[1] On November 30, 2009, the initial allocation for 2010 was announced as 5 percent. The allocation was increased to 20 percent on March 30, 2010, to 30 percent on April 22, 2010, to 40 percent on May 3, 2010, to 45 percent on May 20, 2010, and finally to 50 percent on June 22, 2010. The allocation was not subsequently changed. CLWA's final allocation of Table A Amount for 2010 was thus 50 percent, or 47,600 af.

In addition to its Table A Amount, CLWA has access to 4,684 af of "flexible storage" in Castaic Lake. In 2005, CLWA negotiated an agreement with the Ventura County SWP contractors to allow CLWA to utilize their flexible storage account of 1,376 af. In combination, this provides total flexible storage of 6,060 af, which is maintained in Castaic Lake for use in a future dry period or an emergency. This amount was available in 2010, but was not utilized due to other available supplies.

Also in 2005, CLWA completed an agreement to participate in a long-term water banking program with Rosedale-Rio Bravo Water Storage District in Kern County. CLWA delivered 20,000 af of its excess Table A water into storage in both 2005 and 2006. CLWA delivered another 8,200 af into that storage account in 2007 and contributed 32,256 af of SWP and Buena Vista-Rosedale Rio Bravo water to the bank in 2010. This long-term program will allow the storage up to 100,000 af at any one time, and will provide significant dry year reliability for the Santa Clarita Valley.

The other banking component of CLWA's imported water supply reliability program is comprised of two agreements with Semitropic Water Storage District whereby CLWA banked surplus Table A water supply in 2002 and 2003. Notable in 2009 was the first recovery of water

[1] Of CLWA's 95,200 af annual Table A Amount, 41,000 afy was permanently transferred to CLWA in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's EIR prepared in connection with the 41,000 afy water transfer was challenged in Friends of the Santa Clara River v. Castaic Lake Water Agency (Los Angeles County Superior Court) ("Friends"). On appeal, the Court of Appeal held that since the 41,000 afy EIR tiered off the Monterey Agreement EIR that was later decertified, CLWA would also have to decertify its EIR as well and prepare a revised EIR. CLWA was not prevented from using any water that is part of the 41,000 afy transfer. Under the jurisdiction of the Los Angeles County Superior Court, CLWA prepared and circulated a revised Draft EIR for the transfer. CLWA approved the revised EIR in late 2004 ("2004 EIR") and lodged the EIR with the Los Angeles Superior Court. Thereafter, the case was dismissed with prejudice (i.e., permanently).

In January 2005, two new challenges to CLWA's 2004 EIR were filed in the Ventura County Superior Court by the Planning and Conservation League ("PCL") and by the California Water Impact Network ("CWIN"); these cases were consolidated and transferred to Los Angeles County Superior Court, Planning and Conservation League v. Castaic Lake Water Agency (Los Angeles County Superior Court,) ("PCL Action"). In May 2007, a final Statement of Decision was filed by the trial court in the PCL Action. It included a determination that the transfer is valid and cannot be terminated or unwound. The trial court did find one defect in the 2004 EIR, requiring Judgment to be entered against CLWA. The defect, however, did not relate to the environmental conclusions reached in the 2004 EIR. Notices of Appeal were filed by PCL and CWIN and the Agency, Kern County Water Agency, and Wheeler Ridge-Maricopa Water Storage District filed notices of cross-appeals. On December 17, 2009, the Court of Appeal issued a published opinion in which it reversed the trial court's Judgment, and found that the 41,000 afy EIR fully complied with CEQA, and remanded the matter to the trial court with directions to issue a new judgment denying PCL's and CWIN's challenges in their entirety. A petition for rehearing was filed by PCL and CWIN on January 4, 2010 but was denied on January 14, 2010. On January 26, 2010, PCL and CWIN filed a petition for review with the California Supreme Court, but the Court denied the petition on March 10, 2010.

from the 2002 account; of 4,950 af withdrawn in 2009, 1,650 af was delivered for water supply in the Valley in 2009, and the 3,300 af balance was delivered in 2010.

As delineated in Table 3-2, with the 50 percent Table A allocation and other imported water supplies, including 28,303 af of carryover from 2008 and 2009, CLWA had total available supply of 90,498 af in 2010, the largest part of which was delivered to the Rosedale-Rio Bravo Water Banking Program (32,256 af) and to the Purveyors (30,578 af), leaving 26,186 af of Table A Amount available for carryover to 2011. As summarized in Chapter 4, CLWA was able to use 3,712 af of the total available 2010 carryover before the SWP system reservoirs went into a 'spill' mode due to wet hydrologic conditions.

3.4.2 Other Imported Water Supplies

In early 2007, CLWA finalized a Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo) in Kern County. Under this Program, Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within Rosedale-Rio Bravo's service area on an ongoing basis. CLWA receives 11,000 af of these supplies annually through either exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal.

In 2008, CLWA entered into the Yuba Accord Agreement, which allows for the purchase of water from the Yuba County Water Agency through the Department of Water Resources to 21 State Water Project contractors (including CLWA) and the San Luis and Delta-Mendota Water Authority. Up to 850 of non-SWP supply is available to CLWA in critically dry years. Under certain hydrologic conditions, additional water may be available to CLWA from this program. CLWA chose not to purchase any water from this source in 2010.

3.4.3 Imported Water Supply Reliability

The current SWP Delivery Reliability Report 2009, issued in August, 2010, incorporates restrictions on SWP operations according to the Biological Opinions of the U.S. Fish and Wildlife Service and the National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. However, in December 2010, a federal judge overruled most of the 2008 federal biological opinion and invalidated several of the criteria that reduced SWP's water supply. The effects of this reversal are still not completely known, but will probably result in some relief from SWP pumping restrictions in the long term. The current SWP Delivery

Table 3-2
2010 CLWA Imported Water Supply and Disposition
(acre-feet)

Supply		
Net 2008 and 2009 SWP Carryover to 2010 [1]		28,303
Buena Vista/Rosedale Rio-Bravo		11,000
Yuba County Accord Water		0
2010 SWP Turnback Pool Water		295
Semitropic Water Banking and Exchange Program		3,300
2010 Final SWP Table A Allocation [2]		47,600
Total 2010 Imported Water Supply		**90,498**
Disposition		
Purveyor Deliveries (Total)		30,578
CLWA SCWD	*15,188*	
Valencia Water Company	*11,214*	
Newhall County Water District	*3,035*	
Los Angeles County WWD 36	*1,141*	
Deliveries to Devil's Den		768
CLWA/DWR/Purveyor Metering[3]		710
Rosedale – Rio Bravo Water Banking and Exchange Program		32,256
2010 Table A Carryover to 2011[4]		26,186
Total 2010 Imported Water Disposition		**90,498**

1. Total 2008 and 2009 carryover to 2010; amount used by CLWA, based on final DWR delivery accounting was 28,303 af.

2. Final 2010 allocation was 50% of contractual Table A amount of 95,200 acre-feet, which progressed as follows:

Initial allocation, November 30, 2009	5%
Allocation increase, February 23, 2010	15%
Allocation increase, March 30, 2010	20%
Allocation increase, April 22, 2010	30%
Allocation increase, May 3, 2010	40%
Allocation increase, May 20, 2010	45%
Final allocation, June 22, 2010	50%

3. Reflects meter reading differences.

4. Total 2010 Table A carryover to 2011.

Reliability Report 2009 also considers the impacts on SWP delivery reliability due to climate change, sea level rise, and vulnerability of the Delta's conveyance system and structure due to floods and earthquakes. With these factors, the Reliability Report projects long-term reliability of 60 percent during normal year hydrology. CLWA staff has assessed the impact of the current Reliability Report on the CLWA water supply and concluded in the 2010 UWMP that current and anticipated supplies are available to meet anticipated water supply needs through the year 2050.

Groundwater banking and conjunctive use offer significant opportunities to improve water supply reliability for CLWA. Groundwater banking is the process of storing available supplies of water in groundwater basins during wet years or when supplemental water is otherwise available. During dry periods, or when imported water supply availability is reduced, banked water can be recovered from groundwater storage to replace, or firm up, the imported water supply deliveries.

As described herein, CLWA has entered into two groundwater banking programs and now has, in aggregate, more than 140,000 af of recoverable water in banked groundwater storage outside the local groundwater basin. The first component of CLWA's overall groundwater banking program is the result of two 10-year agreements between CLWA and Semitropic Water Storage District whereby, over the terms of the two agreements, CLWA can withdraw up to 45,920 af of SWP Table A water that it stored in Semitropic to meet Valley demands when needed in dry years (45,920 af is the net recoverable balance after originally banking 24,000 af in 2002 and 32,522 af in 2003, and withdrawing 4,950 af in 2009 for delivery in 2009 and 2010). In April, 2011, Semitropic and CLWA extended the original agreements by 10 years to 2022/2023. The second component of the program, the long-term Rosedale-Rio Bravo Water Banking and Exchange Program in Kern County, has a recoverable total of 94,513 acre-feet in storage (including 32,256 af delivered in 2010, less contractual losses).

Conjunctive use is the purposeful integrated use of surface water and groundwater supplies to maximize water supply from the two sources. CLWA and the Purveyors have been conjunctively utilizing local groundwater and imported surface water since the initial importation of SWP water in 1980. The groundwater banking programs described above allow CLWA to firm up the imported water component of conjunctive use in the Valley by storing surplus SWP and other water, in wet years, in groundwater basins outside the Valley. This allows recovery and importation of that water as needed in dry years to maintain a greater overall amount of imported surface water to be used conjunctively with local groundwater, further supporting the sustainable use of local groundwater at the rates in the groundwater operating plan.

3.5 Water Quality – General

Water delivered by the Purveyors consistently meets drinking water standards set by the Environmental Protection Agency (EPA) and the California Department of Public Health (DPH). An annual Water Quality Report is provided to all Santa Clarita Valley residents who receive water from one of the four water retailers. There is detailed information in that report about the results of quality testing of the groundwater and treated SWP water supplied to the residents of the Santa Clarita Valley during 2010. Several constituents of particular local interest are discussed in more detail below.

Total Trihalomethanes

In 2002, the United States Environmental Protection Agency implemented the new Disinfectants and Disinfection Byproducts Rule. In part, this rule established a new Maximum Contaminant Level (MCL) of 80 µg/l (based on an annual running average) for Total Trihalomethanes (TTHM). TTHMs are byproducts created when chlorine is used as a means for disinfection. CLWA and the Purveyors implemented an alternative method of disinfection, chloramination, in 2005 to maintain compliance with the new rule and future regulations relating to disinfection byproducts. TTHM concentrations have remained significantly below the MCL since implementation of alternative disinfection.

Perchlorate

Perchlorate has been a water quality concern in the Valley since 1997 when it was originally detected in four wells operated by the Purveyors in the eastern part of the Saugus Formation, near the former Whittaker-Bermite facility. In late 2002, perchlorate was detected in a fifth municipal well, in this case an Alluvial well (SCWD's Stadium Well) also located near the former Whittaker-Bermite site. In early 2005, perchlorate was detected in a second Alluvial well (VWC's Well Q2) near the former Whittaker-Bermite site. In 2006, a very low concentration of perchlorate was detected to be present below the Detection for Reporting Limit (<4.0 µg/l) in another Saugus well (NCWD's Well NC-13), near one of the originally impacted wells. Most recently, in August 2010, perchlorate was detected further downgradient in an eighth well, Valencia's Saugus Well 201. While the initial detection was below the MCL, the well was immediately taken out of active supply service. VWC is currently pursuing restoration alternatives. Other monitoring has been completed and a focused study of the Saugus Formation has ultimately been incorporated into the overall groundwater remediation and removal actions submitted by Whittaker-Bermite and reviewed by the State Department of Toxic Substances Control (DTSC) as discussed below.

Perchlorate is a regulated chemical in drinking water. In October, 2007, DPH established a MCL for perchlorate of 6 µg/l. Prior to that, wells with perchlorate concentrations exceeding the then-applicable Action Level (18 µg/l) or, subsequently, the then-applicable Notification Level (6 µg/l) were removed from active water supply service. One of the Alluvial wells (VWC's Well Q2) was returned to active water supply service, with treatment, in late 2005 as discussed below. Saugus Well NC-13 has remained in service with regular sampling per DPH requirements and no subsequent detections of perchlorate. NC-11 has remained out of service with its capacity replaced by other sources through a SWP turnout. Two wells (VWC's Well 157 and SCWD's Stadium Well) have been sealed and replaced by new wells, and two wells (SCWD's Saugus 1 & 2 Wells) have recently been returned to service as described below. The 2005 UWMP specifically addressed the adequacy of groundwater supply in light of the inactivation of the impacted Alluvial and Saugus wells; and it addressed the plan and schedule for restoration of perchlorate-impacted wells, including the protection of existing non-impacted wells. As now summarized in the 2010 UWMP, the replacement and reactivation of the impacted wells, augmented by planned and funded replacement wells, adds to the overall ability to meet the groundwater component of total water supply in the Valley. As noted above, Well V201 was taken out of service in August, 2010. Initial plans for restoration are expected to involve some combination of methodologies already employed at other previously impacted wells, installation of wellhead treatment and/or well replacement.

In 2000, CLWA and the impacted Purveyors filed a lawsuit against Whittaker Corporation (the former owner of the contaminated property) and Santa Clarita LLC and Remediation Financial, Inc. (the owners of record at that time). The lawsuit sought to have defendants pay all necessary costs of response, removal of the contaminant, remedial actions, and any liabilities or damages associated with the contamination. An Interim Settlement and Funding Agreement was reached in 2003. Although that Agreement expired in January 2005, the parties, under DTSC oversight, jointly developed a plan to "pump and treat" contaminated water from two of the Purveyors' impacted wells to stop migration of the contaminant plume and to partially restore the municipal well capacity that has been impacted by perchlorate. The parties also continued negotiations intended to achieve a long term settlement to the litigation through 2006, and a final settlement was completed and executed in April 2007.

Since 2007, the impacted Purveyors (SCWD, NCWD, and VWC) and CLWA continued working toward implementation of a jointly developed plan that would combine pumping from two of the impacted wells and a water treatment process to restore the impacted pumping capacity and control the migration of contamination in the aquifer. The development and implementation of a cleanup plan for the Whittaker-Bermite site and the impacted groundwater is being coordinated

among CLWA, the impacted Purveyors, the State DTSC, and U.S. Army Corps of Engineers. DTSC is the lead agency responsible for regulatory oversight of the Whittaker-Bermite site.

In February 2003, DTSC and the impacted Purveyors entered into a voluntary cleanup agreement entitled *Environmental Oversight Agreement*. Under the Agreement, DTSC is providing review and oversight of the response activities being undertaken by the Purveyors related to the detection of perchlorate in the impacted wells. Under the Agreement's Scope of Work, the impacted Purveyors prepared a Work Plan for sampling the production wells, a report on the results and findings of the production well sampling, a draft Human Health Risk Assessment, a draft Remedial Action Workplan, an evaluation of treatment technologies and an analysis showing the integrated effectiveness of a project to restore impacted pumping capacity, extract perchlorate-impacted groundwater from two Saugus wells for treatment, and control the migration of perchlorate in the Saugus Formation. Environmental review of that project was completed in 2005 with adoption of a mitigated Negative Declaration. The Final Interim Remedial Action Plan for containment and extraction of perchlorate was completed and approved by DTSC in January, 2006. Design of the treatment facilities and related pipelines is complete. Construction of those facilities and pipelines to implement the pump and treat program and to also restore inactivated municipal well capacity began in November, 2007 and was completed May, 2010. Water from Saugus 1 and Saugus 2 was initially treated and discharged into the Santa Clara River. DPH issued an amendment to CLWA's Operating Permit in December, 2010, and the wells were placed back in service on January 25, 2011.

Under the direction of DTSC, Whittaker has submitted a comprehensive site-wide remediation plan for the contaminants of concern in soil and groundwater detected on the property. A Draft Remedial Action Plan for Operable Units 2 through 6 that is focused on soil remediation was submitted to DTSC in 2009. The plan contains a number of recommended technologies to remove contaminants from the soil, in addition to a proposed clean-up schedule for the site. Whittaker has also completed a Draft Operable Unit 7 Feasibility Study to identify and select treatment technologies for both on-site and off-site groundwater. The work plan for Pilot Remediation of Saugus Aquifer Containment and Remediation was approved by DTSC on December 31, 2008 and the plan is currently being implemented. DTSC approved the Remedial Action Plan for contaminated soils in Operable Units 2 through 6 on December 6, 2010 and Preparation of the Remedial Design documents is underway. Field implementation of the soil remediation is expected to begin in fall 2011.

As noted above, perchlorate was detected in a second Alluvial well, VWC's Well Q2, in early 2005. In response, Valencia removed the well from active service, and commissioned the preparation of an analysis and report assessing the impact of, and response to, the perchlorate

contamination of that well. Valencia's response for Well Q2 was to obtain permitting for installation of wellhead treatment, followed by installation of treatment facilities and returning the well to water supply service in October 2005. After nearly two years of operation with wellhead treatment, including regular monitoring specified by DPH, all of which resulted in no detection of perchlorate in Well Q2, Valencia requested that DPH allow treatment to be discontinued. DPH approved that request in August 2007, and treatment was subsequently discontinued. DPH-specified monitoring for perchlorate continues at Well Q2; there has been no detection of perchlorate at this well since discontinuation of wellhead treatment.

On January 25, 2011, Castaic Lake Water Agency's Saugus Perchlorate Treatment Facility (SPTF) came on line. Numerous monitoring tests are performed each week in order to ensure the safety of the water leaving the plant. Samples are collected weekly at the Saugus 1 and Saugus 2 wells, influent water point, effluent water point and lead and lag vessels as well as several other distribution locations. The samples are analyzed for many pollutants, including chlorate, perchlorate, chloride, nitrate, nitrite and sulfate. In addition samples are analyzed for microbiological growth, radiological and volatile organic compounds. Castaic Lake Water Agency is also conducting initial monitoring to complete California DPH permit requirements.

On the Whittaker-Bermite site, soil remediation activities in operating unit subareas started in 2005. Groundwater "pump and treat" operations in the Northern Alluvium, which also started in 2005, continued through 2010. Expanded pumping, intended to effect perchlorate containment as well as to treat 'hot spots' in the Northern Alluvium, became operational in October, 2007. Also on the Whittaker-Bermite site, remediation work in the Saugus Formation is underway. Additional objectives of this project include the reduction of further transport of contaminants to regional groundwater and reduction of the size of the contaminant mass in deep/perched zones.

Hardness

In 2008, the Valencia Water Company began a demonstration project delivering pre-softened groundwater from one of its wells to approximately 420 residents located in the Copperhill Community of Valencia. Hard water is the primary complaint from Valencia customers and it is estimated that more than 50 percent have installed individual water softening units at their homes. In addition to having high operating costs, many of these units are designed to discharge a brine (salt) solution to the sanitary sewer system that is eventually discharged to the Santa Clara River, or is part of the recycled water supply. The environmental impact of such discharges was the subject of a major Chloride Total Maximum Daily Load investigation which concluded with a commitment by the Purveyors to achieve surface water quality goals for in-stream discharge from the basin. Valencia's project is aimed at improving the quality of water

for its customers to eliminate the need for home softening devices and to achieve the environmental benefits of reduced chloride discharge to the river.

The demonstration project utilizes softening technology that removes calcium and produces small calcium carbonate pellets which can be reused in a variety of industries. The demonstration project has now been operated for over two years and provides the water company with customer feedback and technical/financial information to assess potential future expansion of treatment to other well sites.

3.5.1 Groundwater Quality – Alluvium

Groundwater quality is, of course, a key factor in assessing the Alluvial aquifer as a municipal and agricultural water supply. Groundwater quality details and long-term conditions, examined by integration of individual records from several wells completed in the same aquifer materials and in close proximity to each other, have been discussed in previous annual Water Reports and in the 2010 UWMP. There were some changes in groundwater quality in 2010 that reflect fluctuations, trends, or other groundwater quality conditions as illustrated in Figures 3-11 and 3-12. These graphs show historical specific conductance values for representative wells in the Valley ('Above Saugus WRP', 'Below Saugus WRP', 'Bouquet Canyon', and 'Castaic Valley' areas) with the California Department of Public Health Secondary Maximum Levels included for reference. By 2007-2008, some of the trends show a significant lowering of the specific conductance values by half following the wet years of 2004-2005. Since 2007-2008, most of those trends have returned to about 2004 levels. In summary, water quality in the Alluvium exhibits: no long-term overall trends and, most notably, no decline in Alluvial groundwater quality that exceeds historical conditions; and periodic fluctuations in some parts of the basin, where groundwater quality has inversely varied with precipitation and stream flow. Those variations are typically characterized by increased mineral concentrations through dry periods of lower stream flow and lower groundwater recharge, such as is currently occurring, followed by lower mineral concentrations through wetter periods of higher stream flow and higher groundwater recharge.

The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial aquifer remains a viable ongoing water supply source in terms of groundwater quality.

3.5.2 Groundwater Quality – Saugus Formation

As discussed above for the Alluvium, groundwater quality is a key factor in also assessing the Saugus Formation as a municipal and agricultural water supply. As with groundwater level data, long-term Saugus groundwater quality data are not sufficiently extensive to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. However, integration of individual records from several wells has been used to examine general water quality trends. Based on those records, water quality in the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Based on available data over the last 50 years, groundwater quality in the Saugus has exhibited a slight overall increase in dissolved mineral content as illustrated in Figure 3-13. More recently, several wells within the Saugus Formation have exhibited an additional increase in dissolved mineral content, similar to short-term changes in the Alluvium, possibly as a result of recharge to the Saugus Formation from the Alluvium. Since 2005, however, these levels have been steadily dropping or remaining constant. Dissolved mineral concentrations in the Saugus Formation remain below the Secondary (aesthetic) Upper Maximum Contaminant Level. Groundwater quality within the Saugus will continue to be monitored to ensure that degradation to the long-term viability of the Saugus as a component of overall water supply does not occur.

3.5.3 Imported Water Quality

CLWA operates two surface water treatment plants, the Earl Schmidt Filtration Plant located near Castaic Lake and the Rio Vista Water Treatment Plant located in Saugus. CLWA produces water that meets drinking water standards set by the U.S. EPA and DPH. SWP water has different aesthetic characteristics than groundwater with lower dissolved mineral concentrations (total dissolved solids) of approximately 250 to 360 mg/l, and lower hardness (as calcium carbonate) of about 105 to 135 mg/l.

Historically, the State Water Project (SWP) delivered only surface water from the Sacramento-San Joaquin River Delta. However, CLWA and other SWP users, in anticipation of drought, many years ago began “water banking” programs where SWP water could be stored or exchanged during wet years and withdrawn in dry years. The last four years have seen state-wide drought. As a result, water has been withdrawn from the water banking programs and pumped into the SWP system. During the period of 2008 through 2010, a greater portion of water in the SWP has been this “pumped-in” water. The “pumped-in” water has met all water quality standards established by DWR under its anti-degradation policy for the SWP.

3.6 Recycled Water

Recycled water is available from two water reclamation plants operated by the Santa Clarita Valley Sanitation District. In 1993, CLWA prepared a draft Reclaimed Water System Master Plan that outlined a multi-phase program to deliver recycled water in the Valley. CLWA previously completed environmental review on the construction of Phase I of the project, which will ultimately deliver 1,700 afy of recycled water. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips. In 2010, recycled water deliveries were 336 af, generally consistent with recycled water deliveries that have ranged between about 300 and nearly 500 afy over the past eight years.

Surveys conducted by CLWA indicate an interest for recycled water by existing water users as well as by future development as recycled water becomes available. In 2002, CLWA produced an updated Draft Recycled Water Master Plan. Overall, the program is expected to ultimately recycle up to 17,400 af of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping and other non-potable uses, as set forth in the UWMP. This is in addition to an expected recycled water use of approximately 5,400 af per year in the Newhall Ranch Specific Plan development.

In 2007, CLWA and the Purveyors completed California Environmental Quality Act (CEQA) analysis of the Recycled Water Master Plan (2002). This analysis consisted of a Program Environmental Impact Report (PEIR) covering the various options for a recycled water system as outlined in the Master Plan. The PEIR was certified by the CLWA Board in March 2007.

CLWA and the Purveyors are preparing the design of the second phase of the Recycled Water Master Plan (Phase IIA) that will take water from the Saugus Water Reclamation plant and distribute it to identified users to the north, across the Santa Clara River and then to the west and the east, which will include service to Santa Clarita Central Park. The environmental documentation for this phase is nearly complete. There is also a new phase of the of the recycled water system (Phase IIC) in design that would extend the existing system southward from the intersection of Valencia Boulevard and the Old Road, south along Rockwell Canyon Road to the intersection of Orchard Village Road and Lyons Avenue, serving large irrigation customers along its proposed alignment. Collectively, these phases will have design capacity to increase recycled water deliveries by about 1,500 afy.

3.7 Santa Clara River

The Memorandum of Understanding (MOU) between the Santa Clarita Valley Purveyors and the United Water Conservation District, which manages surface and groundwater resources in seven groundwater basins in the Lower Santa Clara River Valley Area, was a significant accomplishment when it was prepared and executed in 2001. The MOU initiated a collaborative and integrated approach to data collection; database management; groundwater flow modeling; assessment of groundwater basin conditions, including determination of basin yield amounts; and preparation and presentation of reports, including continued annual reports such as this one for current planning and consideration of development proposals, and also including more technically detailed reports on geologic and hydrologic aspects of the overall stream-aquifer system. Meetings of the MOU participants have continued, and coordination of the Upper (Santa Clarita Valley) and Lower (United WCD) Santa Clara River databases has been accomplished. As discussed above, a numerical groundwater flow model of the entire Santa Clarita groundwater basin was developed and calibrated in 2002-2004. Subsequent to its initial use in 2004 for assessing the effectiveness of various operating scenarios to restore pumping capacity impacted by perchlorate contamination (by pumping and treating groundwater for water supply while simultaneously controlling the migration of contaminated groundwater), the model was used in 2005 for evaluation of basin yield under varying management actions and hydrologic conditions. The results completed the determination of sustainable operating yield values for both the Alluvium and the Saugus Formation, which were incorporated in the 2005 UWMP. The updated analysis of basin yield, completed in 2009, indicates that the 2008 Operating Plan will maintain river flows at higher levels than occurred prior to urbanization of the Valley; the resultant operating yield values for both the Alluvium and the Saugus Formation are now incorporated in the 2010 UWMP.

On occasion, issues have been raised about whether use and management of groundwater in the Santa Clarita Valley have adversely impacted surface water flows into Ventura County. Part of the groundwater modeling work has addressed the surface water flow question as well as groundwater levels and storage. While the sustainability of groundwater has logically derived primarily from projected long-term stability of groundwater levels and storage, it has also derived in part from modeled simulations of surface water flows and the lack of streamflow depletion by groundwater pumping. In addition, the long-term history of groundwater levels in the western and central part of the basin, as illustrated in Figures 3-4 and 3-5, supports the modeled analysis and suggests that groundwater has not been lowered in such a way as to induce infiltration from the river and thus impact surface water flows.

Historical annual stream discharge in the Santa Clara River, into and out of the Santa Clarita Valley, is shown on Figure 3-14. The upstream gage at Lang Station was reinstated in 2002 and shows a wide range of average annual inflow over the last seven years. The downstream gage was moved in 1996 to its present location near Piru, about two miles downriver from the former County Line Gage. The combined record (1953-2010) of these two downstream gages indicates an annual stream discharge of about 47,000 afy. These data gaged near the County line show notably higher flows from the Santa Clarita Valley into the uppermost downstream basin, the Piru Basin, over the last 35 to 40 years.

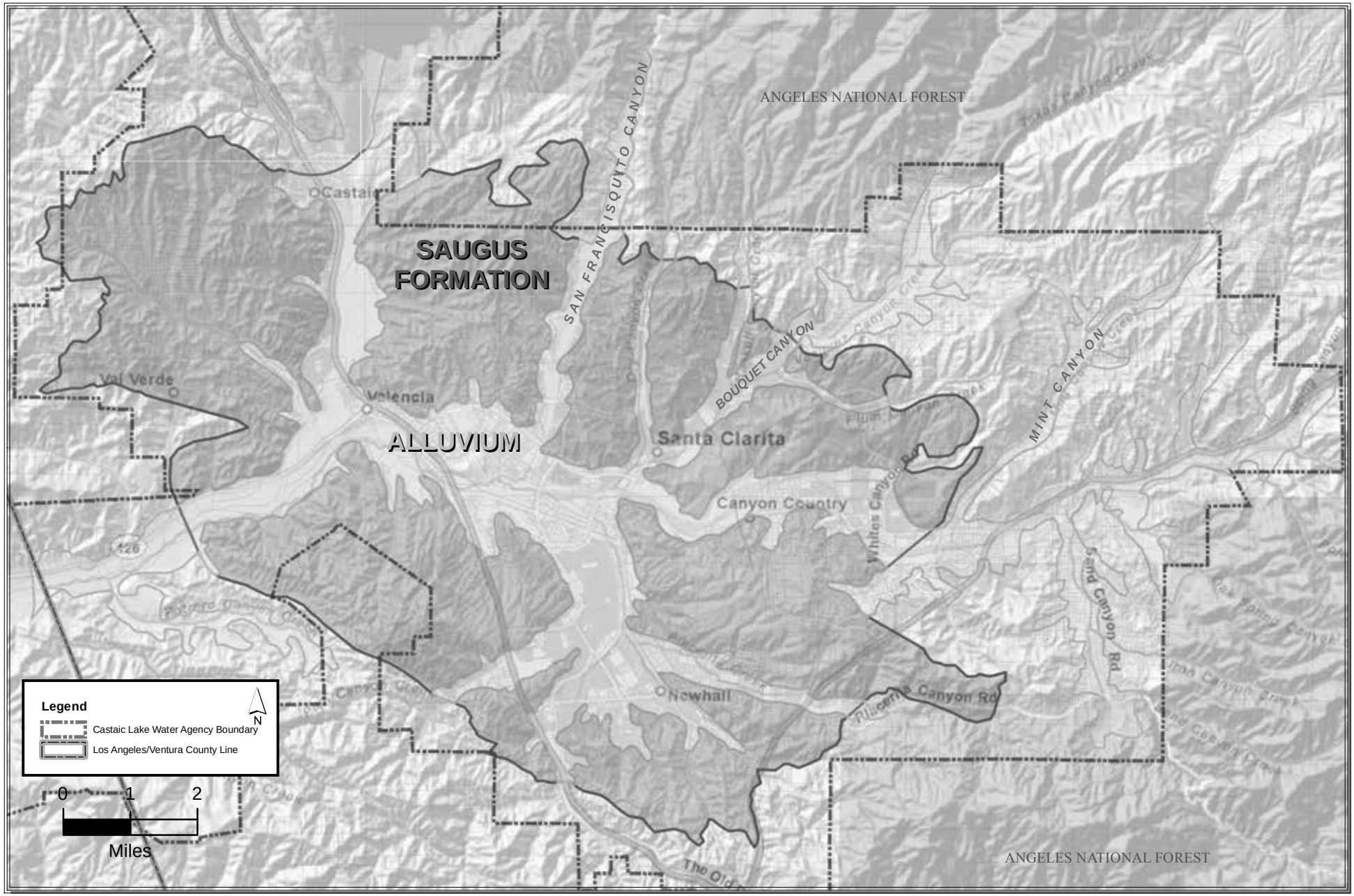

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Figure 3-1
Santa Clara River Valley, East Groundwater Subbasin

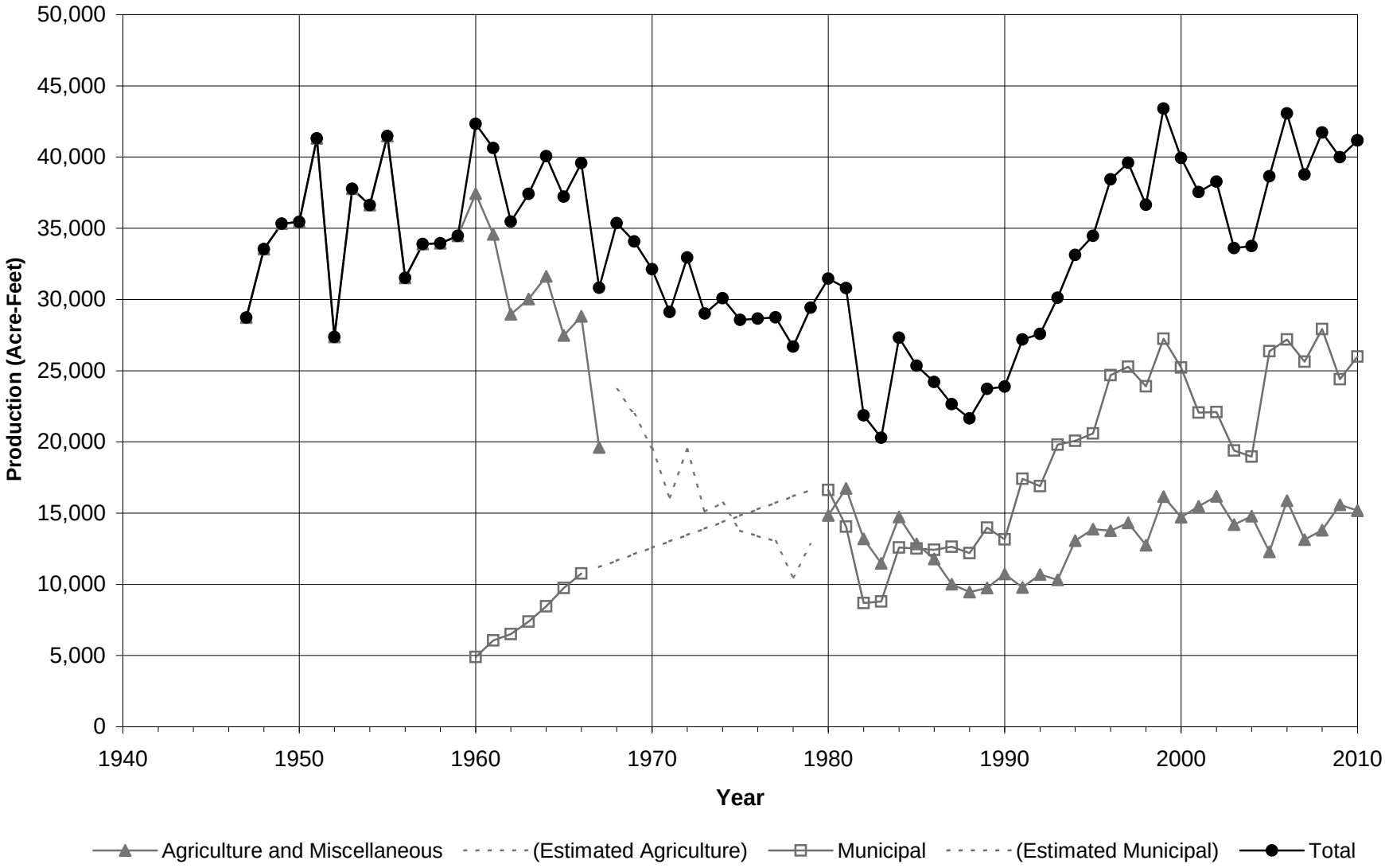

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Figure 3-2
Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin

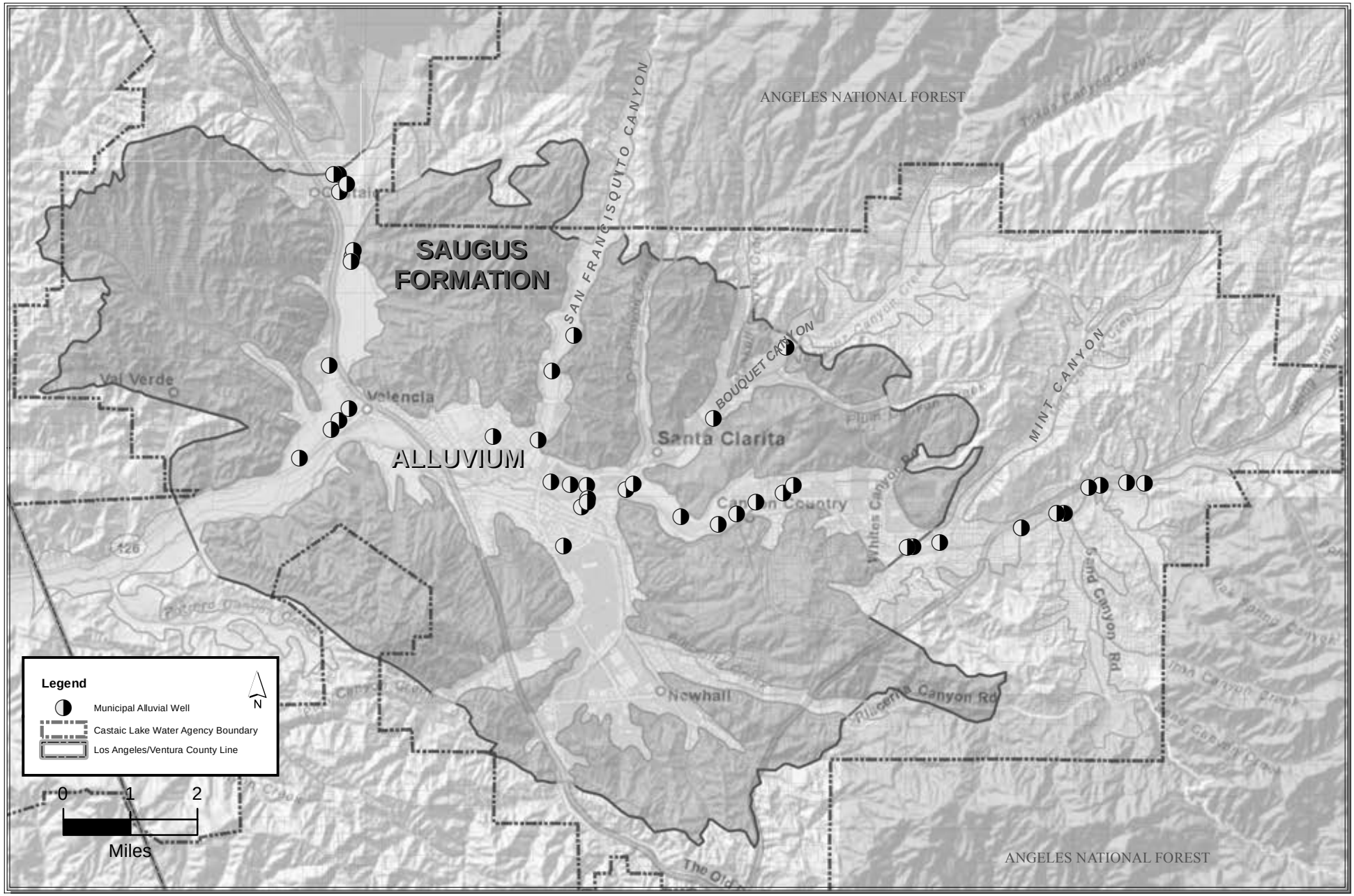

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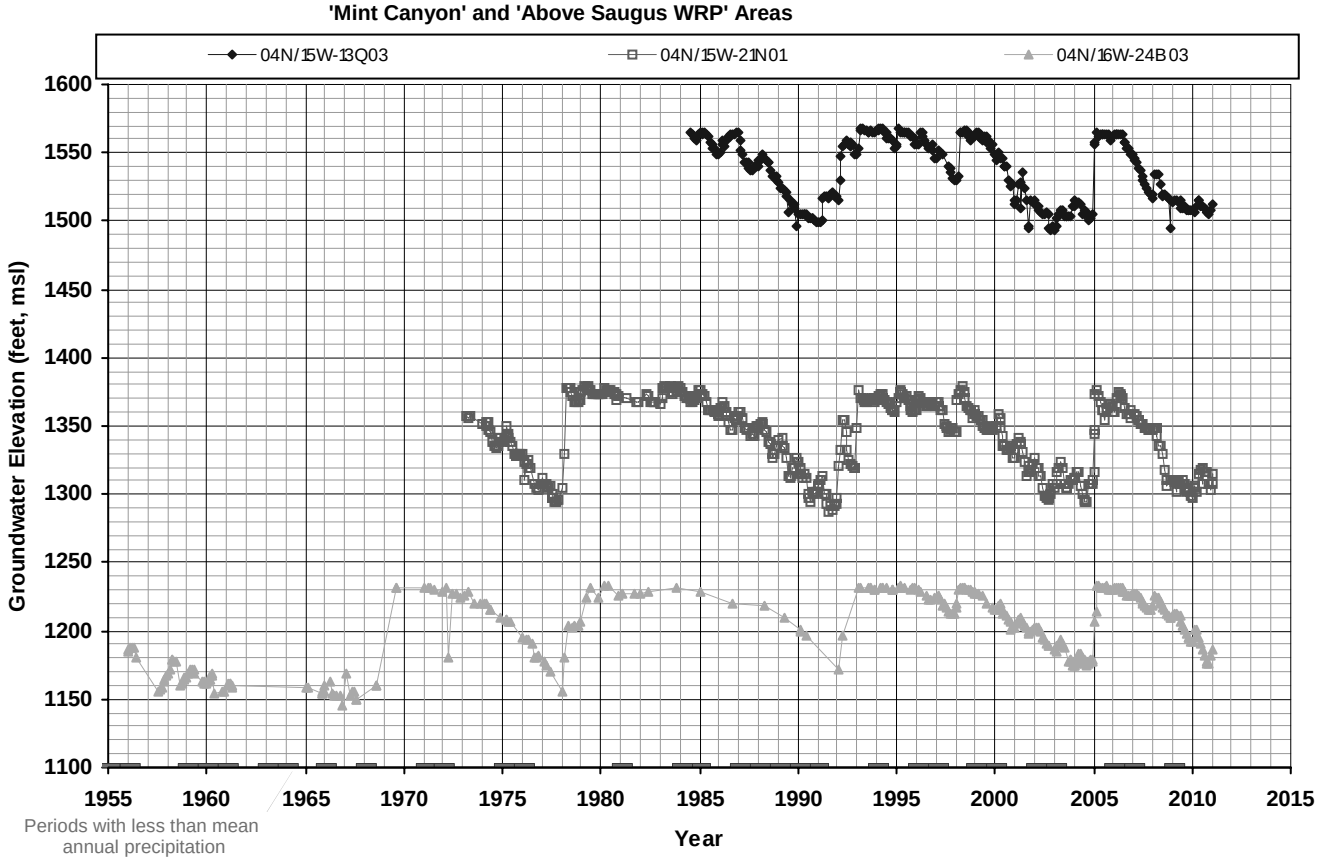
Figure 3-3
Municipal Alluvial Well Locations
Santa Clara River Valley, East Groundwater Subbasin



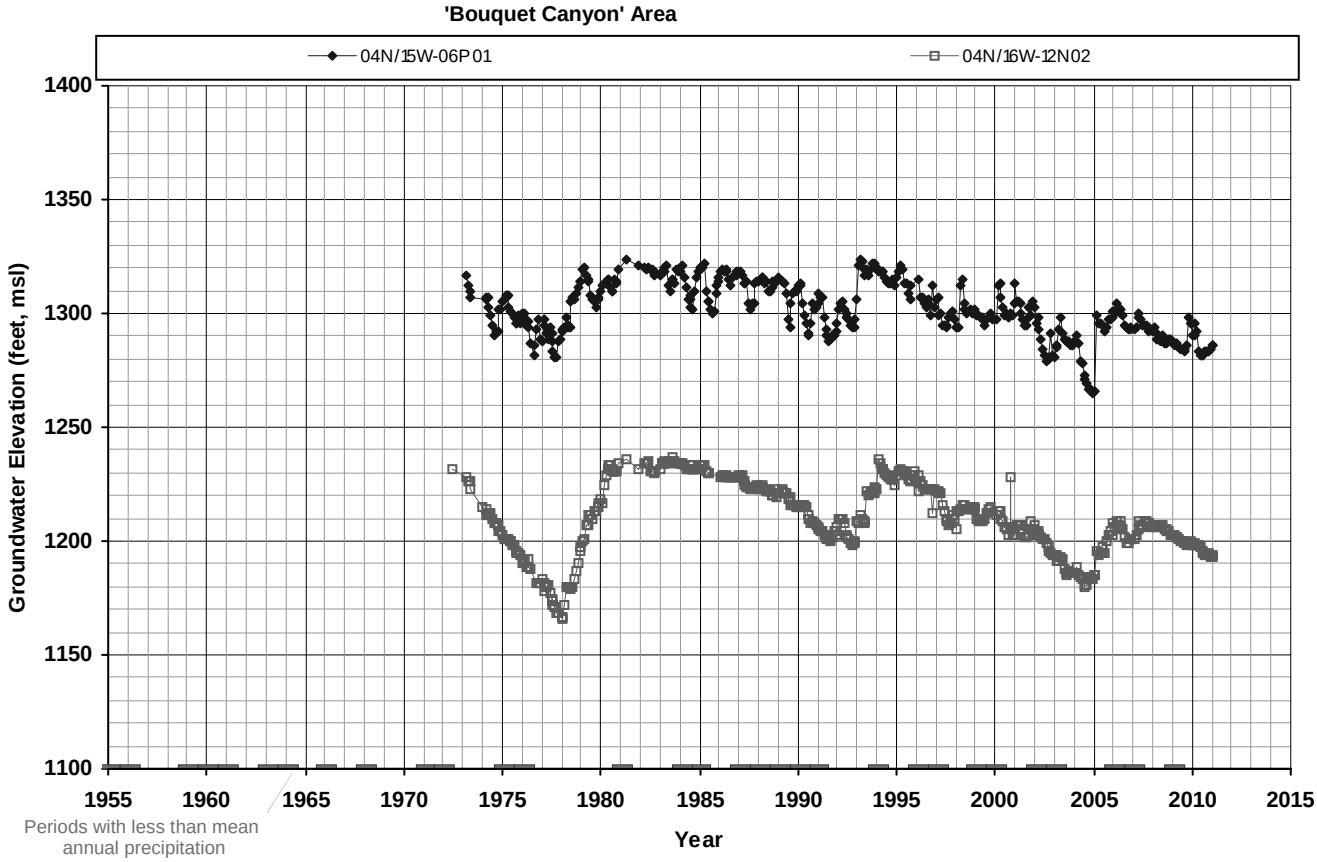


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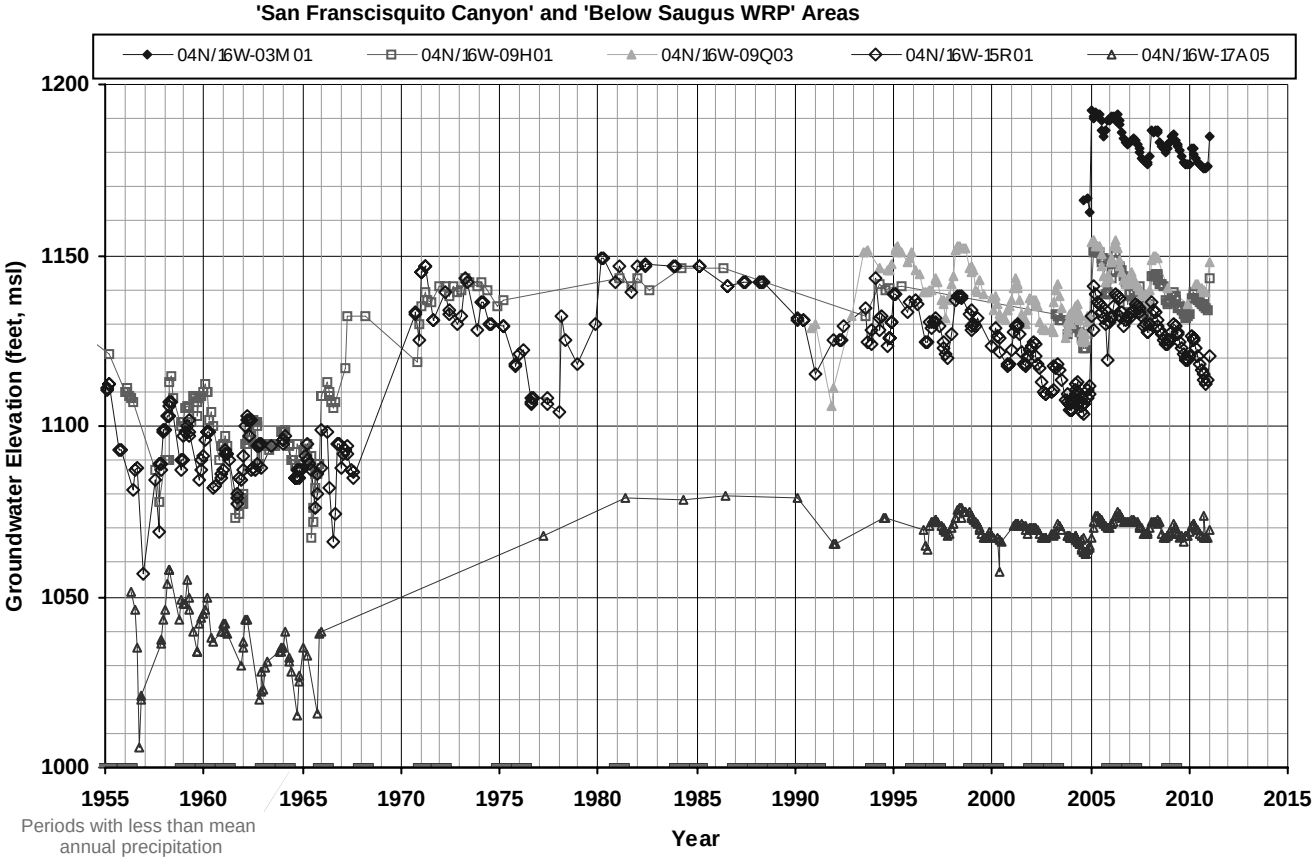
Figure 3-4
Groundwater Elevations in Eastern Santa Clarita Valley Alluvial Wells



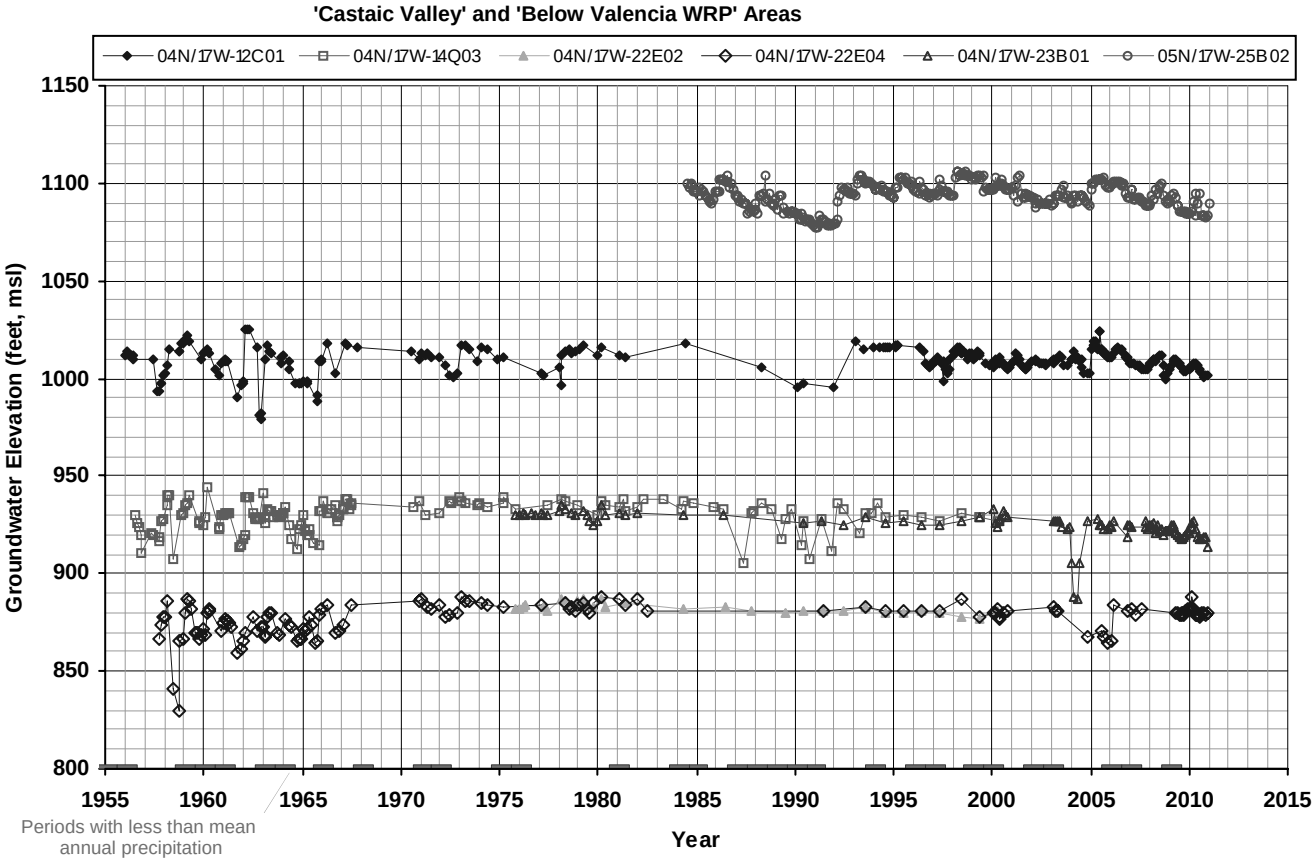


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Figure 3-5
Groundwater Elevations in Western Santa Clarita Valley Alluvial Wells

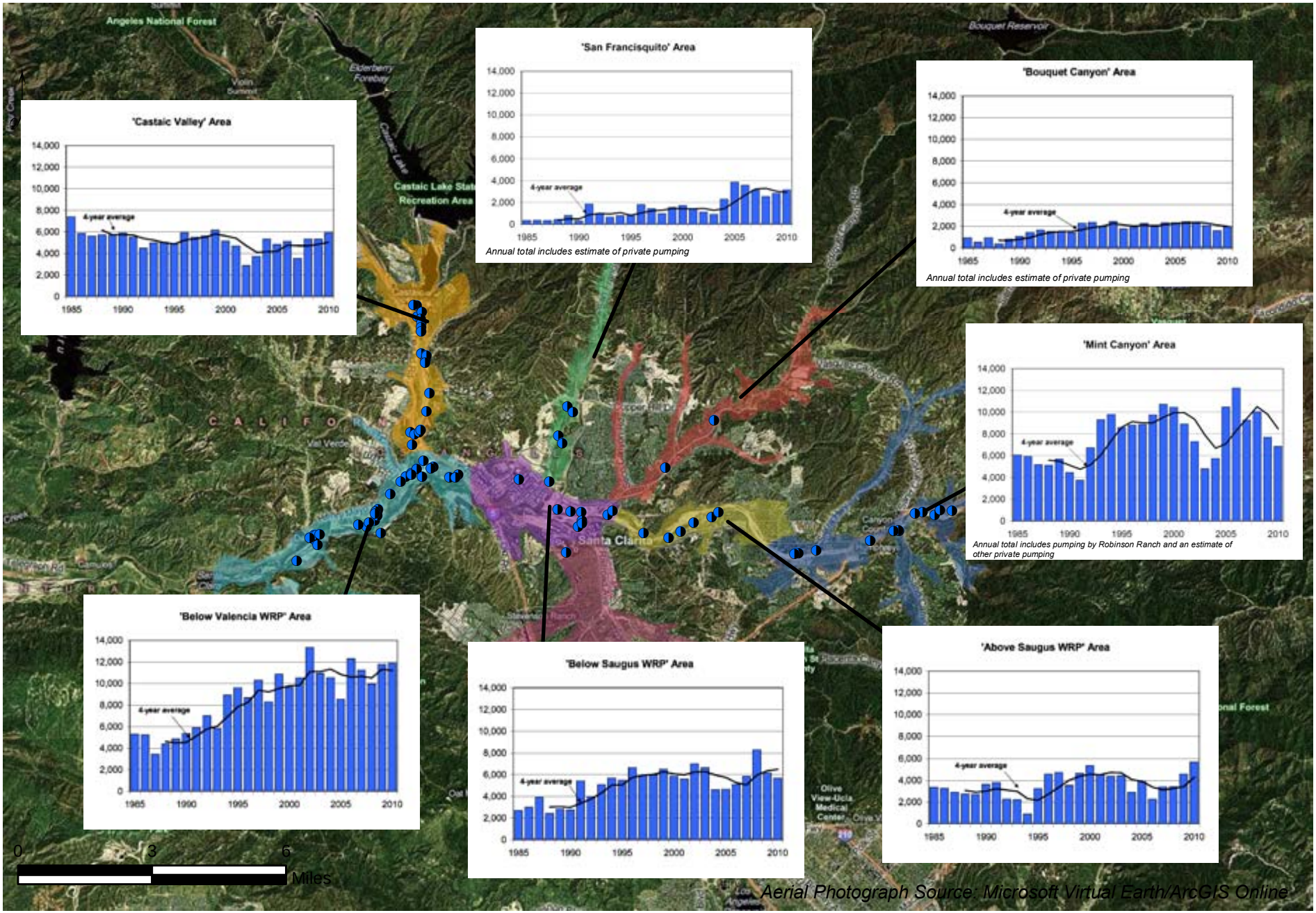

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Figure 3-6
Annual Groundwater Production from Alluvium by Area (Acre-feet)
Santa Clara River Valley, East Groundwater Subbasin

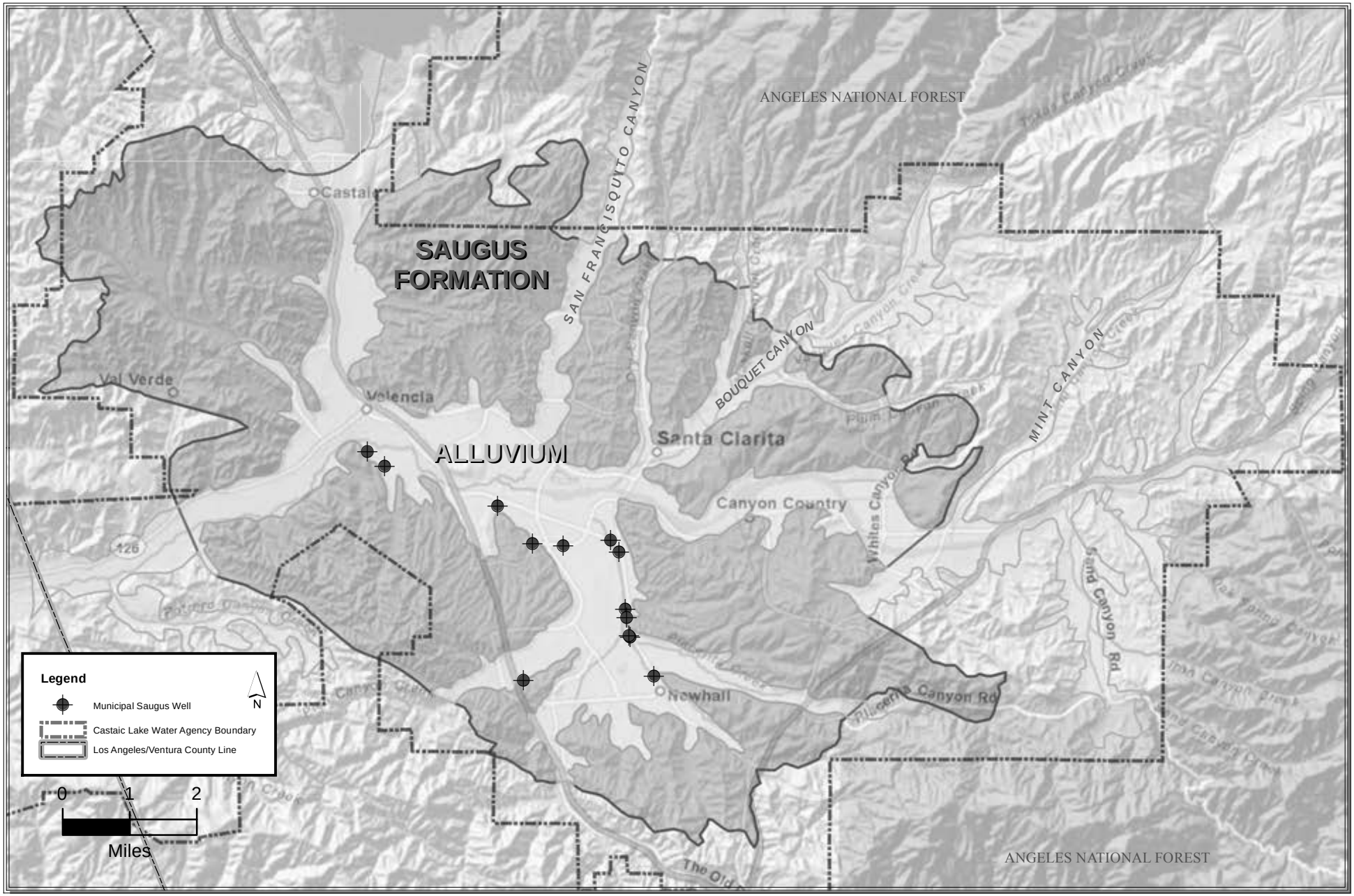

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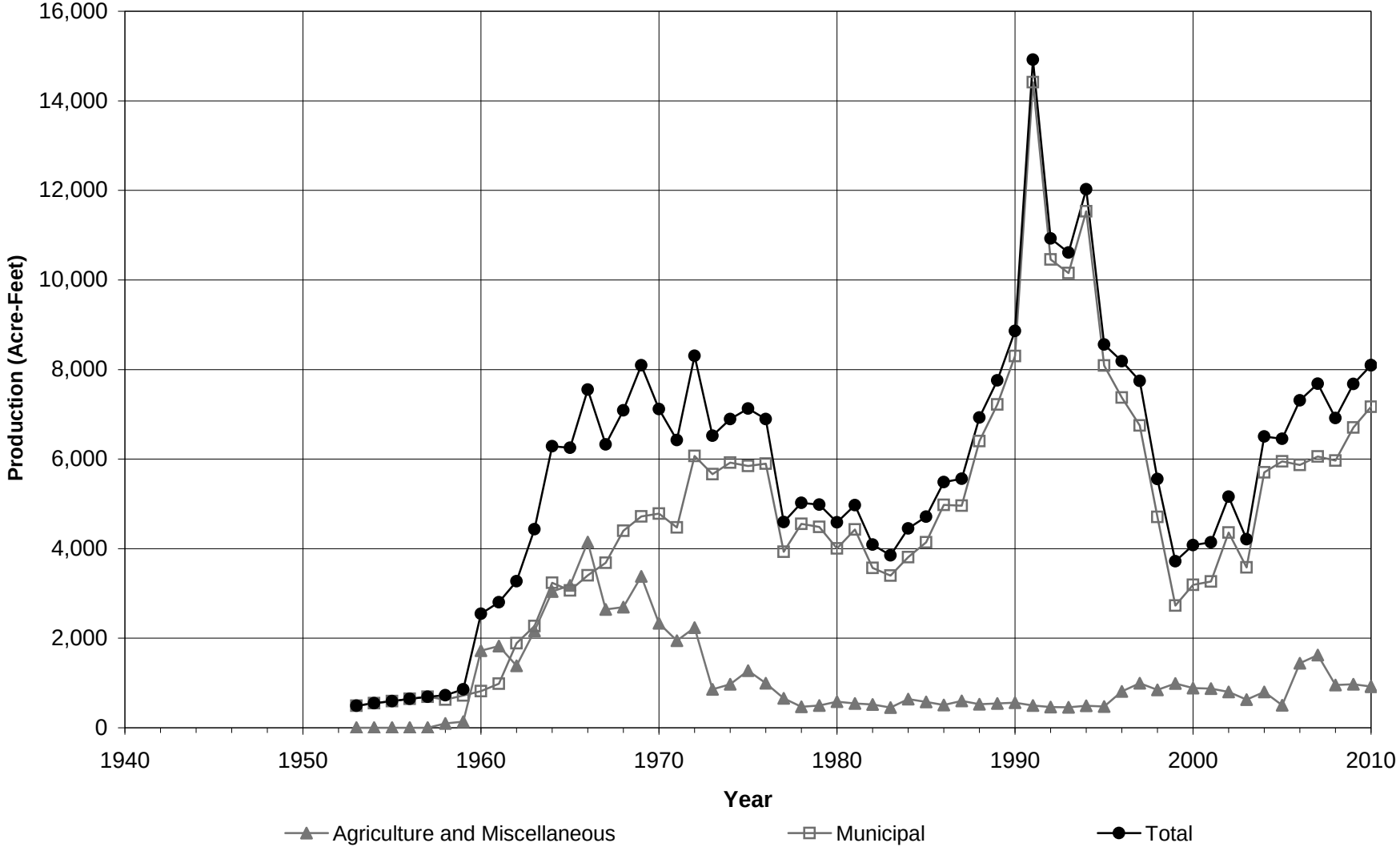
Figure 3-7
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin



Note: Historical pumping for 1953-1979 was adjusted for the 2010 Water Report to incorporate the amounts reported by Slade (1988) and as verified with the water purveyors.

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Figure 3-8
Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

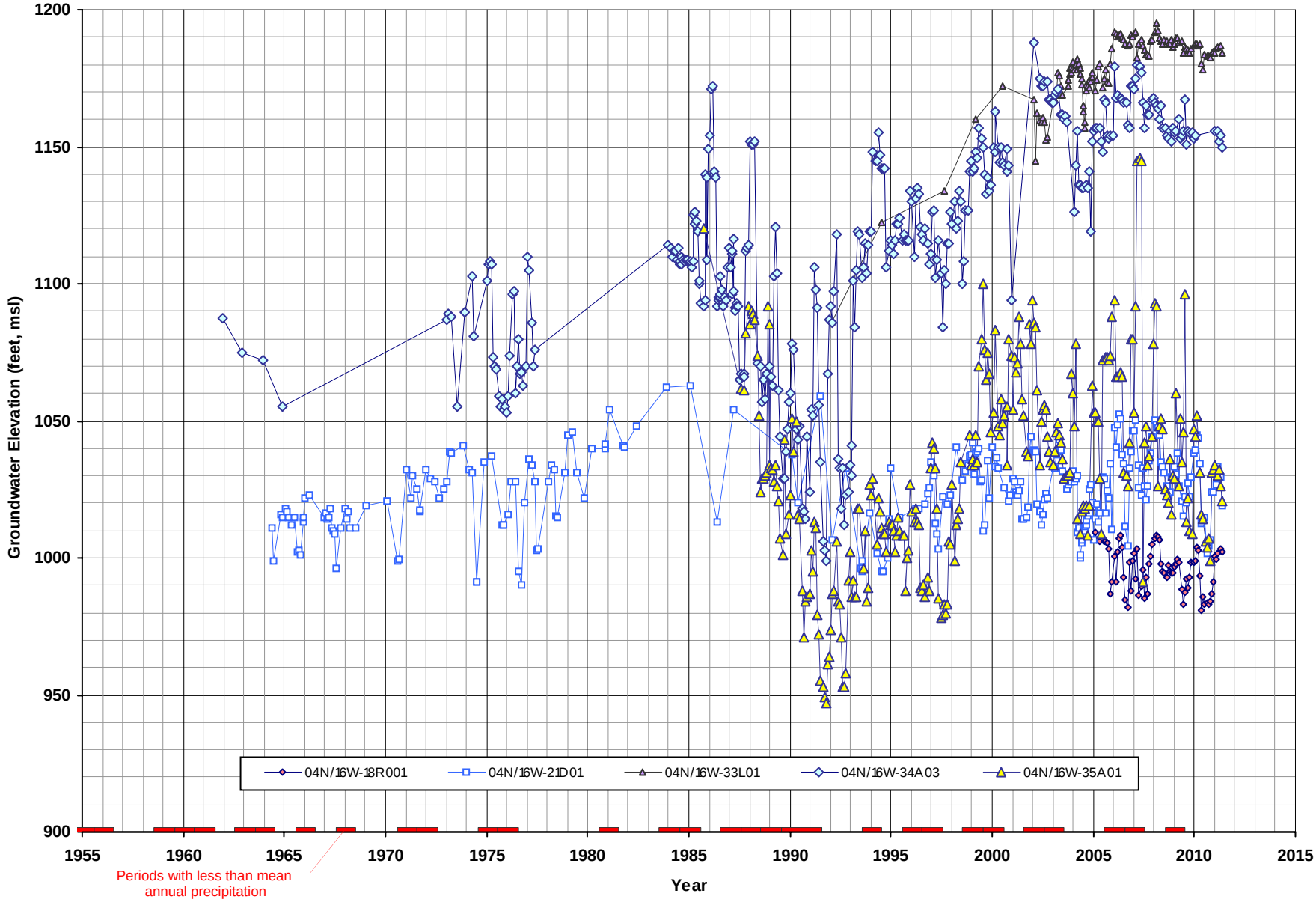

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Figure 3-9
Groundwater Elevations in Saugus Wells

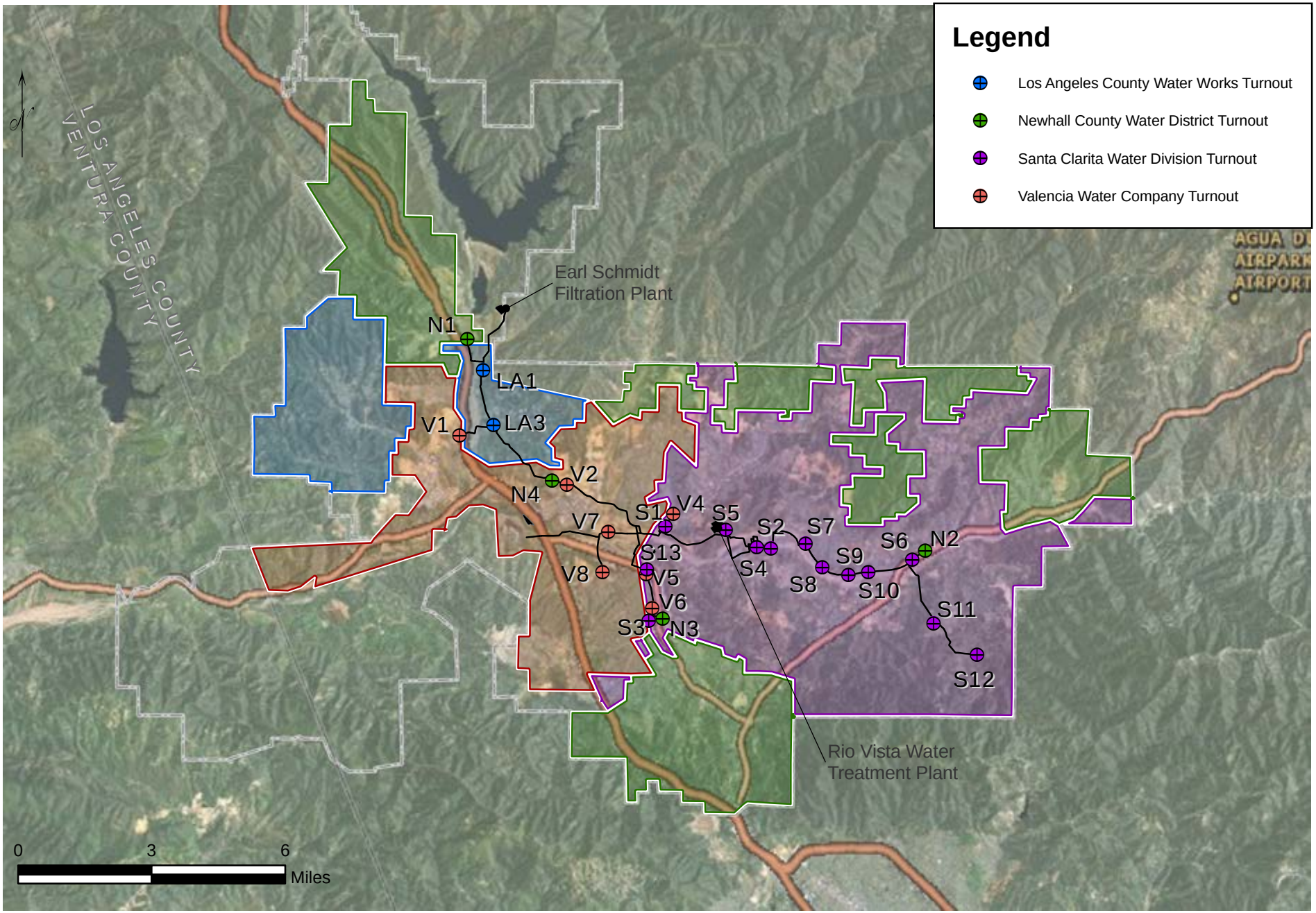

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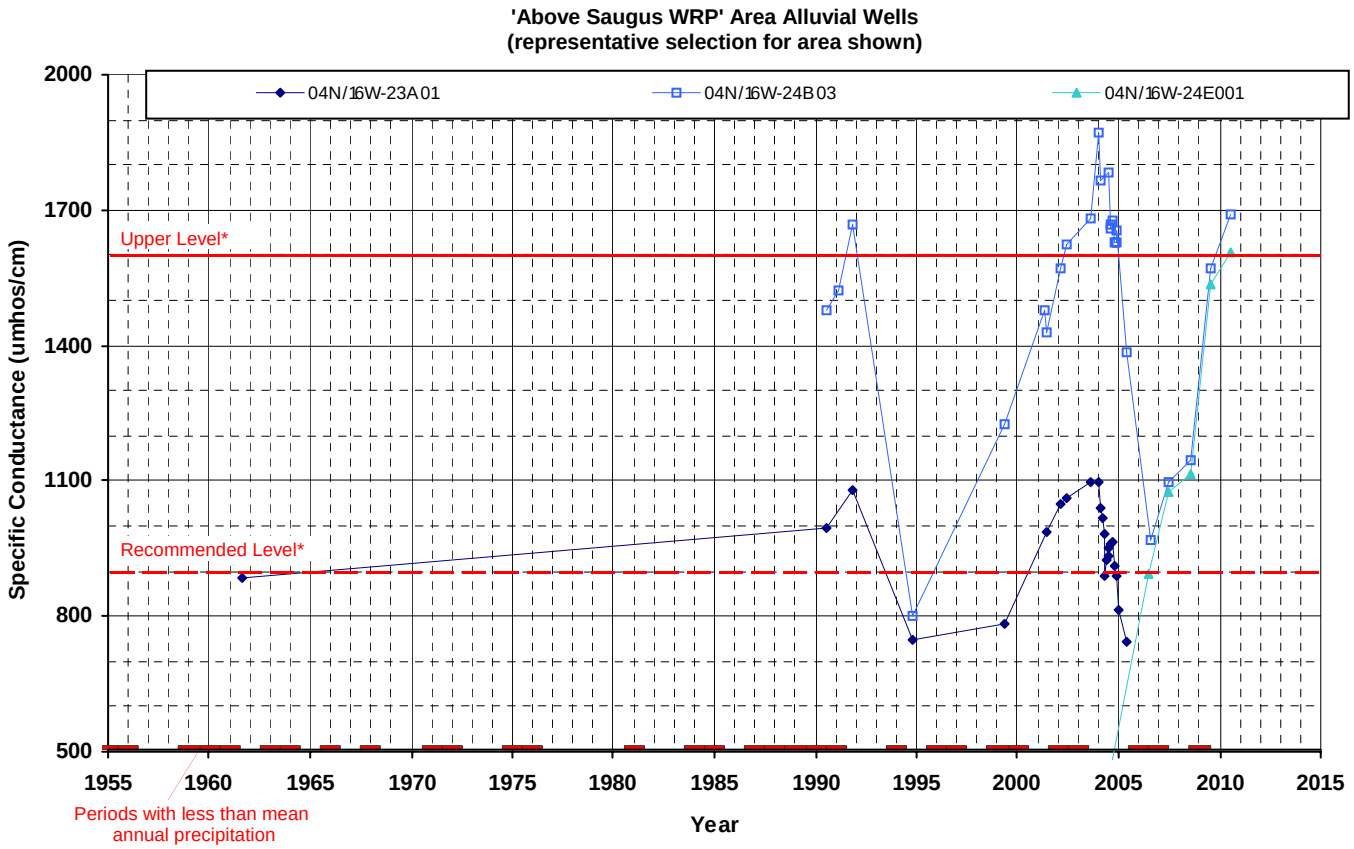
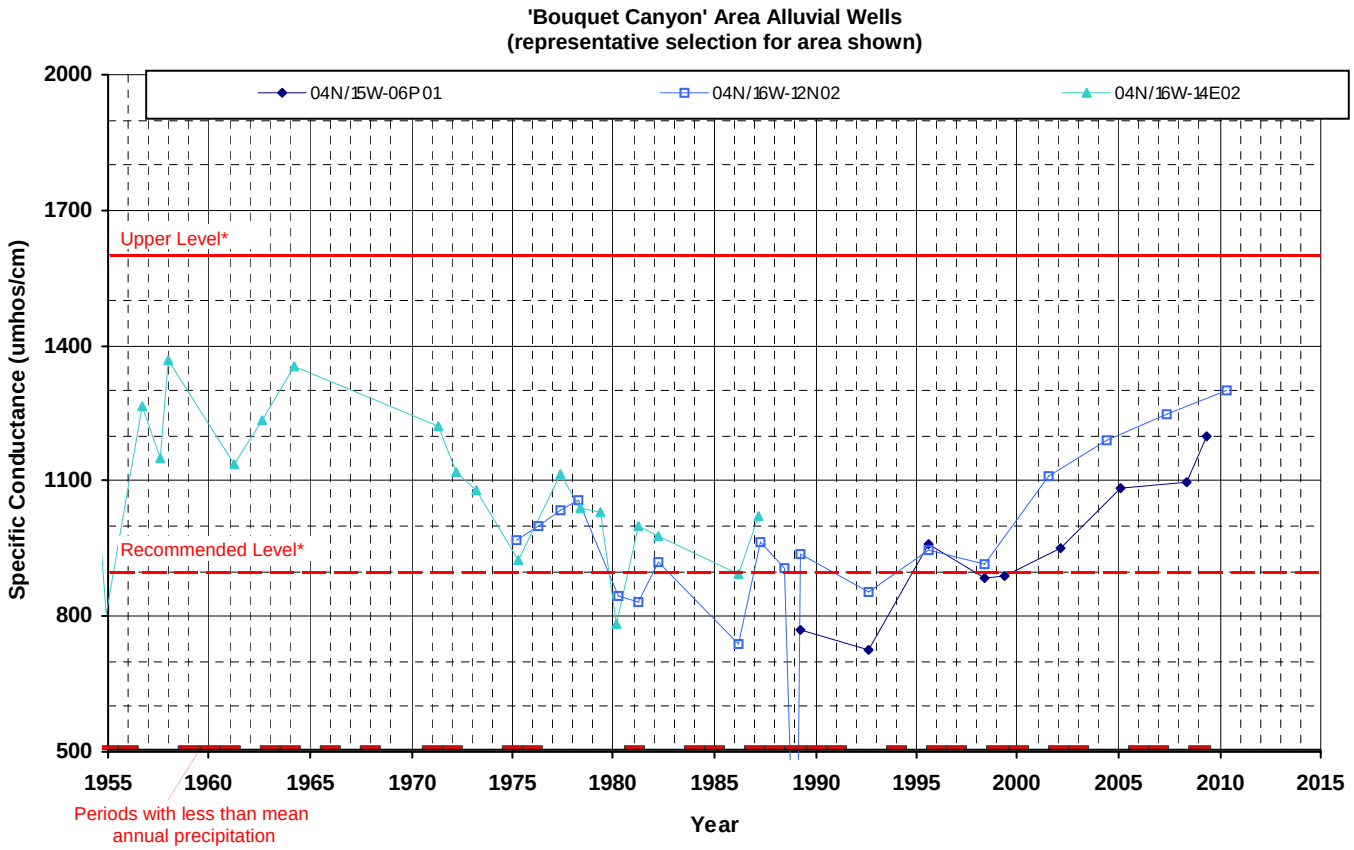
Figure 3-10
Treated Water Distribution System
Castaic Lake Water Agency





*California Department of Public Health Secondary Maximum Contaminant Level

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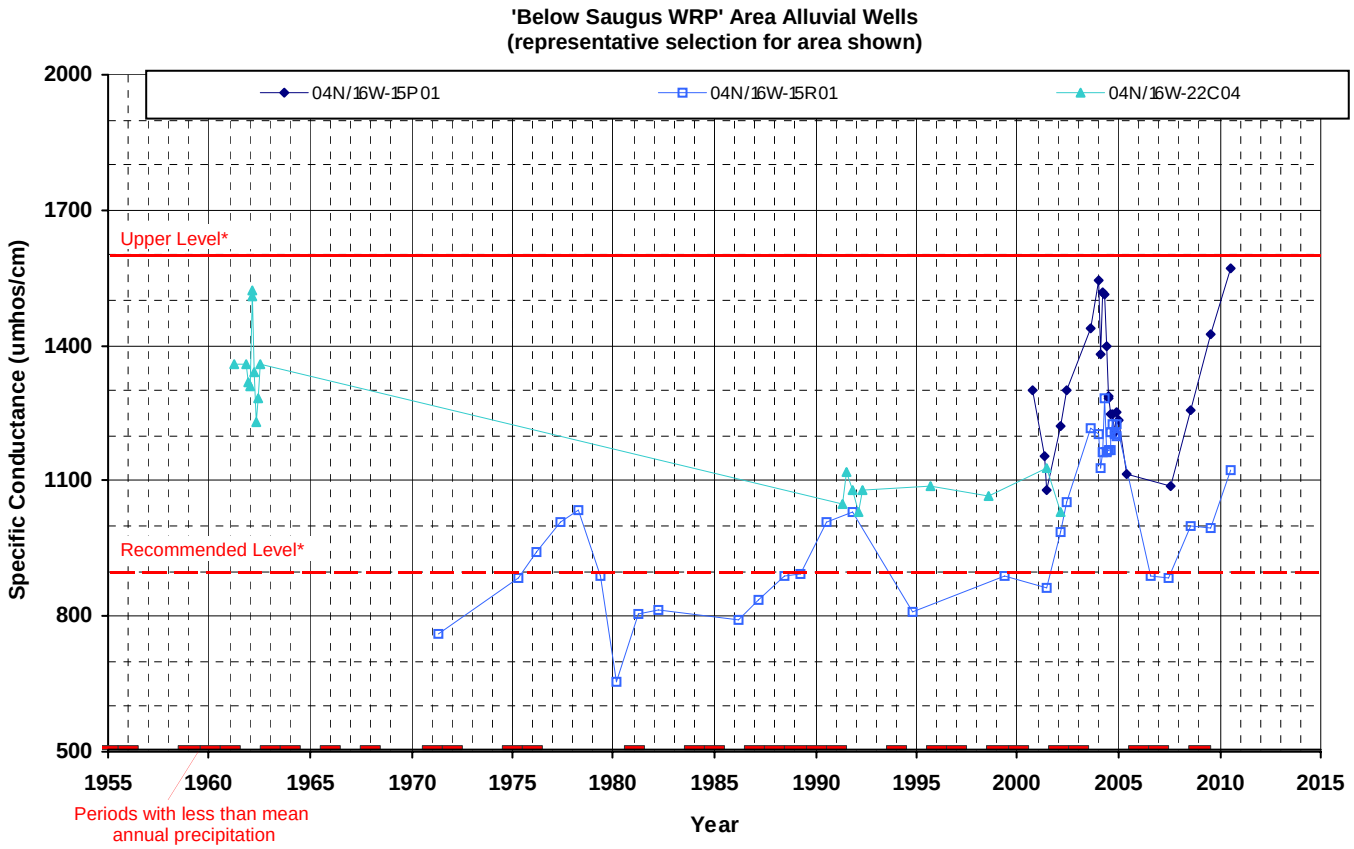
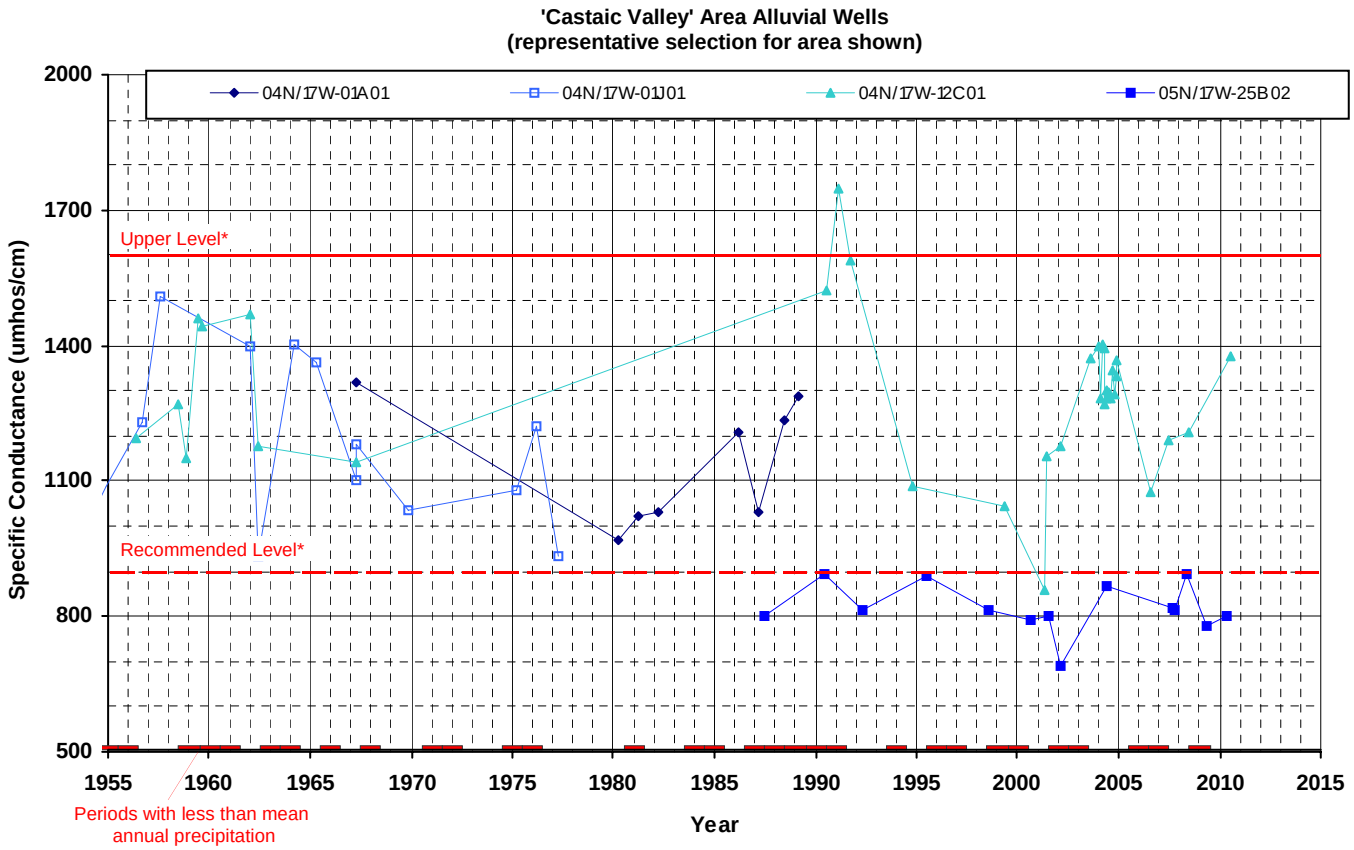
Figure 3-11
Groundwater Quality in
Eastern Santa Clarita Valley Alluvial Wells





*California Department of Public Health Secondary Maximum Contaminant Level

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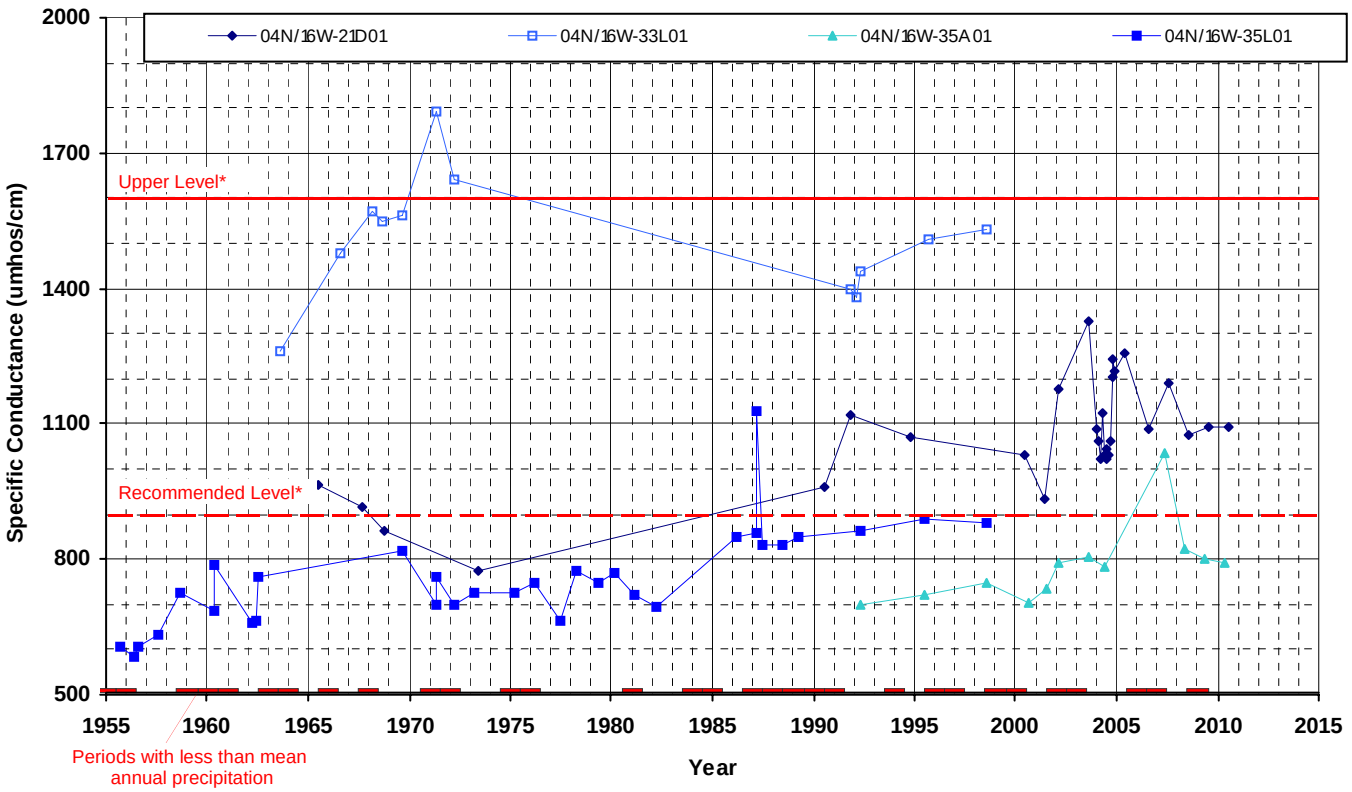
Figure 3-12
Groundwater Quality in
Western Santa Clarita Valley Alluvial Wells



*California Department of Public Health Secondary Maximum Contaminant Level

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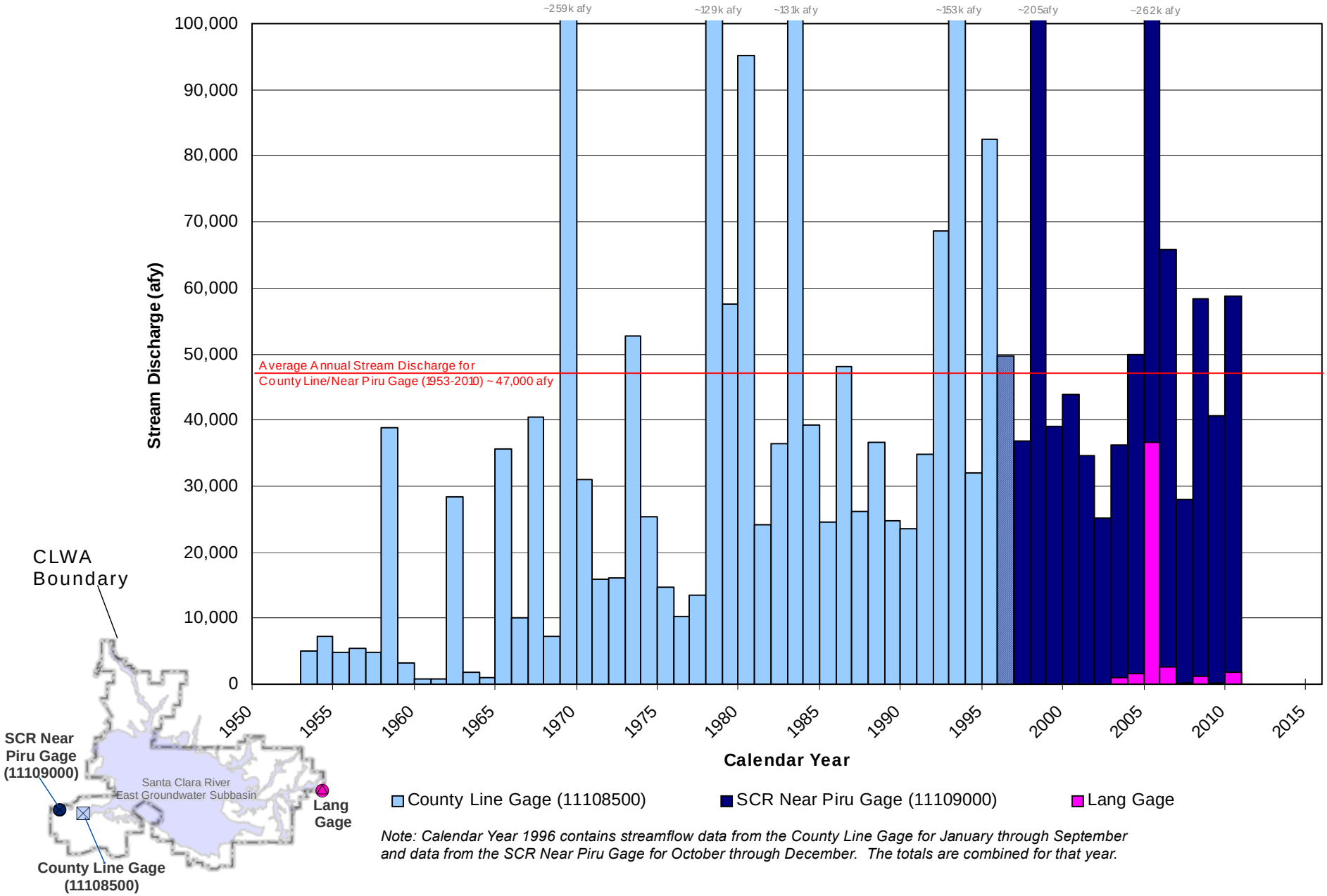
Figure 3-13
Groundwater Quality in Saugus Wells



Note: Calendar Year 1996 contains streamflow data from the County Line Gage for January through September and data from the SCR Near Piru Gage for October through December. The totals are combined for that year.

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Figure 3-14
Annual Stream Discharge
Santa Clara River

4. Summary of 2010 Water Supply and 2011 Outlook

As discussed in the preceding chapters, total water demands in the Santa Clarita Valley were 80,200 af in 2010. This represented a decrease of 6,400 af, or about 7.4 percent, from total demand in 2009 and continues a declining trend in total water demand over the last three years. Of the total demand in 2010, nearly 64,100 af were for municipal water supply, and the balance (16,100 af) was for agricultural and other uses, including estimated individual domestic uses. As detailed in Chapter 2, the total demand in 2010 was met by a combination of local groundwater, SWP and other imported water, and a small amount of recycled water.

The water demand in 2010 was notably lower than the average projection in the 2005 UWMP, (100,050 af), and also lower than the short-term projected demand that was estimated in the 2009 Water Report (82,000-84,000 af). For illustration, historical water use from 1980 through 2010 is plotted in Figure 4-1; also shown with that historical record are the currently projected municipal and agricultural water demands in the 2010 UWMP through 2050. The primary factor causing year-to-year fluctuations in water demands has been weather. In the short term, wetter years have typically resulted in decreased water demand, and drier years have typically resulted in higher water demand. Extended drier periods, however, have resulted in decreases in demand due to conservation and water shortage awareness. The decline in water demand toward the end of the 1987-92 drought is a good example of such reduced demand. Similarly, over the recent multi-year dry period (2006-2009), total water demands progressively declined from historical high in 2007 to the lowest in nearly a decade in 2010.

Adding to these types of demand fluctuations are the recently-observed effects of broad economic conditions. As reflected by the numbers of service connections in each Purveyor service area, growth in 2010 remained low, with addition of a total of only about 400 new service connections, in contrast to about 1,000 new connections each year between 2005 and 2008, and in notable contrast to the predominant growth rate nearly three times higher from the late 1990's through 2004. In addition, the Purveyors were informed by, and have conveyed to the local community, the Governor's Alert in June, 2008 regarding drought conditions and potential water supply shortages, and the Governor's subsequent Drought Emergency Declaration in February, 2009. The widespread awareness of dry conditions throughout the state, aggressive conservation messaging, and the decrease in local growth are prime factors causing total water demand in 2010 to be notably less than each of the preceding four years, and lower than all years since 2001.

The preceding factors are expected to have some continuing effect in 2011, resulting in estimated total water demand that will not continue to decline, but is expected to be only slightly higher than last year. Total municipal water requirements in the first quarter of 2011 were about 10 percent higher than the same period in 2010. Recognizing those early-year conditions, and consistent with the most recent demand projections in the 2010 UWMP, total water demand in 2011 is estimated to be about 82,000 af.

It is expected that both municipal and agricultural water demands in 2011 will continue to be met with a mix of water supplies as in previous years, notably local groundwater and imported SWP and other supplemental water, complemented by recycled water that will continue to supply a small fraction of total water demand.

On April 20, 2011, the allocation of water from the SWP in 2011 was announced to be 80 percent; for CLWA, that equates to 76,160 af of its total Table A Amount of 95,200 af. Combined with local groundwater from the two aquifer systems (50,000 af), total Flexible Storage Account water (6,060 af), net carryover SWP water from 2010 (3,712 af), annual acquisition from Buena Vista Water/Rosedale-Rio Bravo Water Storage Districts (11,000 af), and recycled water (500 af), the total available water supplies for 2011 are almost 150,000 af. Consequently, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2011. Projected 2011 water supplies and demand are summarized in Table 4-1.

In August, 2007, a federal court ruled that certain operational changes were required of the SWP in order to protect the endangered Delta smelt. With the objective of protecting endangered fish such as the Delta smelt and spring-run salmon, the court order resulted in the preparation of a new Biological Opinion (BO) requiring DWR to implement mitigation requirements with resultant impacts on SWP water supply reliability. The current SWP Delivery Reliability Report 2009, issued in August, 2010, incorporates restrictions on SWP operations according to the Biological Opinions of the U.S. Fish and Wildlife Service and the National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. However, in December 2010, a federal judge overruled most of the 2008 federal biological opinion and invalidated several of the criteria that reduced SWP's water supply. The effects of this reversal are still not completely known, but will probably result in some relief from SWP pumping restrictions in the long term. The current SWP Delivery Reliability Report 2009 also considers the impacts on SWP delivery reliability due to climate change, sea level rise, and vulnerability of the Delta's conveyance system and structure due to floods and earthquakes. With these factors, the Reliability Report projects long-term reliability of 60 percent during normal year hydrology.

Table 4-1
2011 Water Supply and Demand
(acre-feet)

Projected 2011 Demand [1]		**82,000**
Available 2011 Water Supplies		
Local Groundwater		50,000
Alluvium [2]	*38,500*	
Saugus Formation [3]	*11,500*	
Imported Water		96,932
Table A Amount [4]	*76,160*	
Net Carryover from 2010 [5]	*3,712*	
Buena Vista/Rosedale-Rio Bravo[6]	*11,000*	
Flexible Storage Account (CLWA) [7]	*4,684*	
Flexible Storage Account (Ventura County) [7]	*1,376*	
Yuba Accord[8]	*0*	
Recycled Water		500
Total Available 2011 Supplies		**147,432**
Additional Dry Year Supplies [9]		
Semitropic Groundwater Storage Bank		45,920
2002 Account[10]	*16,650*	
2003 Account[10]	*29,270*	
Rosedale-Rio Bravo Water Banking and Exchange Program		94,513
2005 and 2006 Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement[11]	*22,000*	
2005 Banking of Table A[12]	*17,800*	
2006 Banking of Table A[12]	*17,800*	
2007 Rosedale Rio-Bravo Banking[12]	*7,298*	
2010 Rosedale Rio-Bravo Banking[13]	*29,615*	
Total Additional Dry Year Supplies		**140,433**

1. Linear interpolation from actual 2010 demand to projected 2015 demand in draft 2010 UWMP.

2. The Alluvium represents 30,000 – 40,000 afy of available supply under local wet-normal conditions, and 30,000 – 35,000 afy under local dry conditions. Available supply in 2011 is shown to be normal year sustainable production in Updated Basin Yield Analysis, August 2009.

3. The Saugus Formation represents 7,500 – 15,000 afy of available water supply under non-drought conditions, and up to 35,000 afy under increasingly dry conditions. Available supply in 2011 is shown to be normal year sustainable production in Updated Basin Yield Analysis, August 2009.

4. CLWA's SWP Table A amount is 95,200 af. The initial 2011 allocation was 25 percent (23,800 af). On December 16, 2010 the allocation was increased to 50 percent (47,600 af), On January 20, 2011 the allocation was increased to 60 percent (57,120 af). On March 15, 2011 the allocation was increased to 70 percent (66,640 af). On April 20, 2011 the allocation was increased to 80 percent (76,160 af).

5. Of the 26,186 af of total available 2010 carryover, all but 3,712 af was returned to the SWP as the system reservoirs went in a 'spill' mode due to a hydrological wet year in 2010/2011 and the carryover water in storage needed to be reassigned.

6. 2011 annual supply from Buena Vista / Rosedale-Rio Bravo Water Acquisition Agreement.

7. CLWA can directly utilize up to 4,684 af of storage capacity in Castaic Lake. By agreement in 2005, CLWA can also utilize 1,376 af of Ventura County SWP contractors' flexible storage capacity in Castaic Lake.

8. Up to 850 af of non-SWP water supply is available to CLWA in critically dry years as a result of agreements among DWR, Yuba County Water Agency, and the U.S. Bureau of Reclamation regarding settlement of water rights issues on the Lower Yuba River (Yuba Accord). CLWA opted to not take any Yuba water in 2011.

9. Does not include other reliability measures available to CLWA and the retail water Purveyors. These measures include short-term exchanges, participation in DWR's dry-year water purchase programs, local dry-year supply programs and other future groundwater storage programs.

10. Net recoverable water after banking 24,000 af and 32,522 af in 2002 and 2003, respectively and recovering 4,950 af in 2009.

11. Water stored in Rosedale-Rio Bravo Water Banking and Exchange Program pursuant to the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement.

12. Net recoverable water after banking 20,000 af in both 2005 and 2006, and banking 8,200 af in 2007.

13. Net recoverable water after banking 32,256 af in 2010.

CLWA staff has assessed the impact of the current Reliability Report on the CLWA reliability analysis contained in the Agency's 2005 UWMP and concluded in the 2010 UWMP that current and anticipated supplies are available to meet anticipated water supply needs through the year 2050. The preceding discussion of SWP supply should be considered by noting that, while the SWP Reliability Report represents a reasonable scenario with respect to long term reliability, recent reductions in supply reduce the difference between available supply and demand in the future, thereby making the CLWA service area more subject to shortages in certain dry years. Accordingly, the reduction in SWP supply reinforces the need to continue diligent efforts to conserve potable water and increase the use of recycled water to maximize utilization of potable water supplies.

As discussed in Chapter 5, CLWA and the retail water purveyors have worked with Los Angeles County and the City of Santa Clarita to aggressively implement water conservation in the CLWA service area. In terms of short-term water supply availability, however, CLWA and the Purveyors have determined that, while current operational changes of the SWP are in effect, there are sufficient supplemental water supplies, including SWP water, to augment local groundwater and other water supplies such that overall water supplies will be sufficient to meet projected water requirements. CLWA, the retail water Purveyors, Los Angeles County and the City of Santa Clarita have formed the Santa Clarita Valley Water Committee (formerly convened as the Santa Clarita Drought Committee). The specific purpose of the committee is to work collaboratively to manage the conjunctive use of the Valley's water supplies and ensure the progressive implementation of water use efficiency programs in the Santa Clarita Valley.

In addition to the regular and previously banked water supplies described above to meet projected demand in 2011, a residual of nearly 46,000 af of recoverable water remains stored in the Semitropic Groundwater Storage Bank in Kern County. Nearly 95,000 af of recoverable water are also stored in the long-term Rosedale-Rio Bravo Water Banking and Exchange Program, also in Kern County. After recovery of 4,950 af of banked water from Semitropic in 2009, 1,650 af of which were used in 2009 and 3,300 af of which were used in 2010, remaining recoverable water in all the Kern County storage banks is slightly more than 140,000 af. That component of overall water supply is separately reflected in Table 4-1 because it is intended for future dry-year supply and will not be used for 2011 water supply.

CLWA and the Purveyors have implemented a number of projects that are part of an overall program to provide facilities needed to firm up imported water supplies during times of drought. These involve water conservation, surface and groundwater storage, water transfers and exchanges, water recycling, additional short-term pumping from the Saugus Formation, and

increasing CLWA's imported supply. This overall strategy is designed to meet increasing water demands while assuring a reasonable degree of supply reliability.

Part of the overall water supply strategy is to provide a blend of groundwater and imported water to area residents to ensure consistent quality and reliability of service. The actual blend of imported water and groundwater in any given year and location in the Valley is an operational decision and varies over time due to source availability and operational capacity of Purveyor and CLWA facilities. The goal is to conjunctively use the available water resources so that the overall reliability of water supply is maximized while utilizing local groundwater at a sustainable rate.

For long-term planning purposes, water supplies and facilities are added on an incremental basis and ahead of need. It would be economically unsound to immediately, or in the short term, acquire all the facilities and water supplies needed for the next twenty to thirty years. This would unfairly burden existing customers with costs that should be borne by future customers. There are numerous ongoing efforts to produce an adequate and reliable supply of good quality water for Valley residents. Water consumers expect that their needs will continue to be met with a high degree of reliability and quality of service. To that end, CLWA's and the Purveyors' stated reliability goal is to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions contained in the 2010 UWMP for a planning horizon over the next 40 years, in combination with conservation of non-essential demand during certain dry years, CLWA and the Purveyors believe implementing their water plan will successfully achieve this goal.

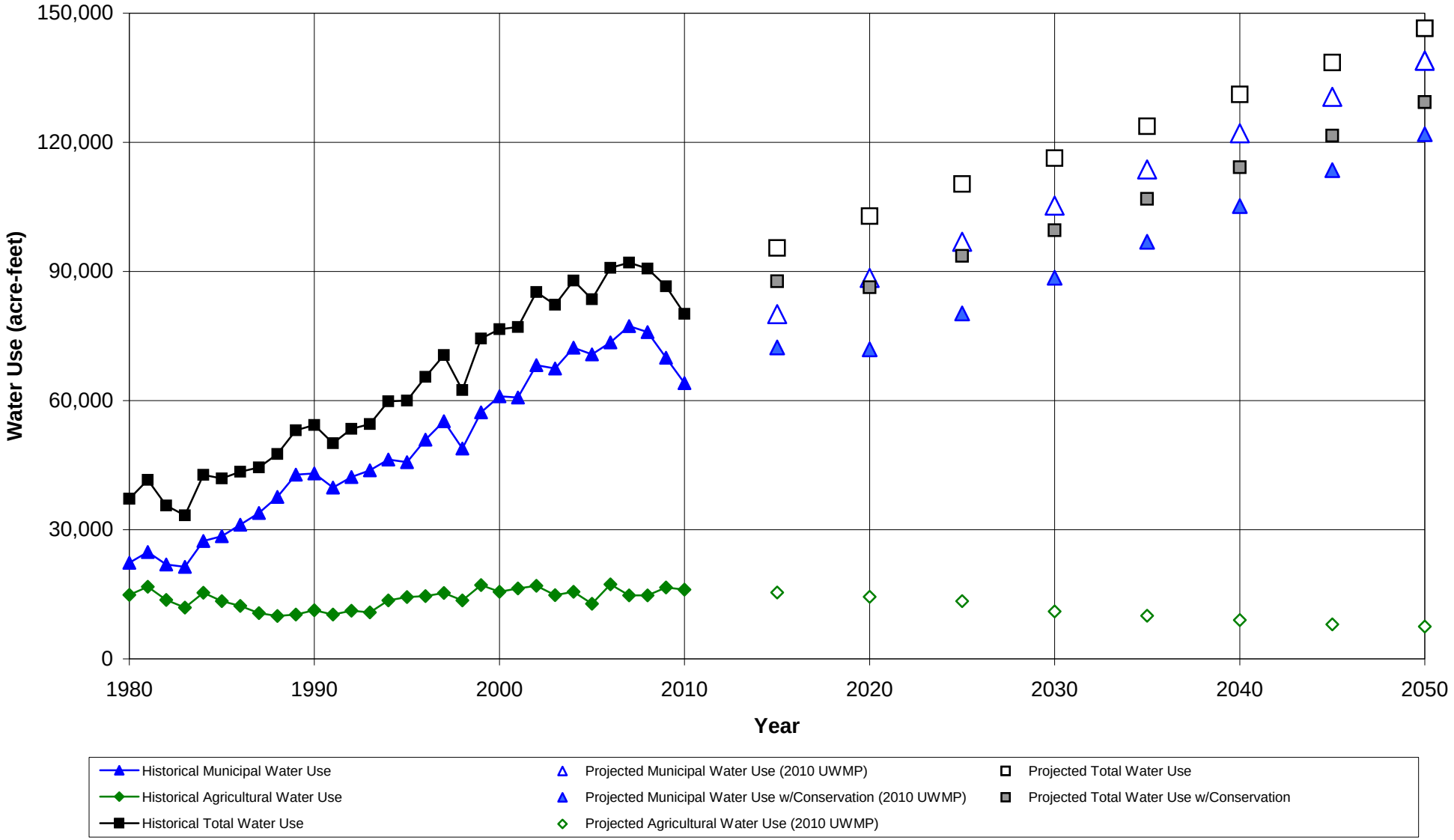

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Figure 4-1
Historical and Projected Water Use
Santa Clarita Valley

5. Water Conservation

The California Urban Water Conservation Council (CUWCC) was formed in 1991 through the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. The urban water conservation Best Management Practices (BMPs) included in the MOU are intended to reduce California's long-term urban water demands. While the BMPs are currently implemented by the MOU signatories on a voluntary basis, they are specified as part of the Demand Management Measures section of the Urban Water Management Planning Act. Water conservation can achieve a number of goals, such as:

- meeting legal mandates
- reducing average annual potable water demands
- reducing sewer flows
- reducing demands during peak seasons
- meeting drought restrictions
- reducing carbon footprint, waste water flows and urban runoff.

CLWA signed the urban MOU in 2001 on behalf of its wholesale service area, and pledged to implement several BMPs at a wholesale support level (listed below). NCWD signed the MOU in 2002 and VWC signed the MOU in 2006, both on behalf of their respective retail service areas. As separate MOU signatories and in their respective roles as retailers, NCWD and VWC are committed to implementing all BMPs that are feasible and applicable in their service areas. Efforts are made to coordinate with CLWA and the other Purveyors wherever possible to maximize efficiency and ensure the cost effectiveness of NCWD's and VWC's conservation program.

In coordination with the Purveyors, CLWA has been implementing the following BMPs (which pertain to wholesalers) for several years (some prior to signing the MOU in 2001) on a Valley-wide scale:

Foundational BMPs:
BMP 1 Utility Operation Programs
BMP 2 Education Programs

Programmatic BMPs:
BMP 3 Residential
BMP 4 Commercial, Industrial and Institutional
BMP 5 Landscape

In addition to these efforts, as discussed in Chapter 1, CLWA installed a weather station at its headquarters adjacent to the Rio Vista Water Treatment Plant in 2006 to augment precipitation records and provide a local reference for irrigation water management. This station became part a network of over 120 automated weather stations in the state of California that make up the California Irrigation Management Information System (CIMIS). The Department of Water Resources (DWR) manages the system which has a primary purpose of making available to the public, free of charge, information useful in estimating crop water use for irrigation scheduling.

Additional savings are occurring Valley-wide due to state interior plumbing code requirements that have been in effect since 1992, as well as due to changes in lot size and reduction in exterior square footage of new housing and commercial developments. The City of Santa Clarita and County of Los Angeles have also taken a more active conservation role and have begun implementing water efficient devices and practices on the properties they own and manage. All of these efforts have begun to impact overall demand in the Valley, as can be seen in the significant decline in total water demand over the last three years. The Valley's water suppliers continue to monitor water demand trends through time to assess those factors that are accounting for the reduction, and to attempt to quantify them.

More recently with regard to water conservation, CLWA and the retail water Purveyors entered into an MOU in 2007 to prepare a Santa Clarita Valley Water Use Efficiency Strategic Plan (the Plan). The purpose of the plan is to prepare a comprehensive long-term conservation plan for the Santa Clarita Valley by adopting objectives, policies and programs designed to promote proven and cost effective conservation practices. The Plan provides a detailed study of existing residential and commercial water use and recommends programs designed to reduce the overall Valley-Wide water demand by 10 percent by 2030. The programs are designed to provide Valley residents with the tools and education to use water more efficiently. The six programs identified in the Plan are:

- High Efficiency Toilet Rebate Program
- CII Audits & Customized Incentive Program
- Large Landscape Audits & Customized Incentive Program
- Landscape Contractor Certification and Weather Based Irrigation Controller Program
- High Efficiency Washer Rebate Program
- Public Information and Education Programs

In addition to the six programs designed for existing customers, the Plan also identifies three other key factors that will help reduce the valley's overall water demand: passive conservation, inflation, and new more water-efficient building ordinances.

Finally, the Plan includes an Appendix with more aggressive water use efficiency measures designed to meet a potential 20 percent reduction in water use. This includes funding more active conservation programs, retrofit on resale legislation, water rate reform, water budget based rates, and a more aggressive recycled water program. Implementation of the majority of the programs identified in the Plan began in 2010 through funding by CLWA on behalf of all the Purveyors.

In addition to this effort, the water Purveyors worked with City and County agencies to implement the new State Model Efficient Landscape ordinance for the Santa Clarita Valley. This ordinance focused primarily on new construction aimed at reducing overall water demands by requiring efficient landscape design and delivery systems. Implementation of the ordinances occurred in 2010.

Finally, in 2008, Governor Schwarzenegger issued a proclamation for all Californians to reduce their per capita water consumption by 20 percent by the year 2020. In November 2009, the Governor and California's legislature reached an historic agreement ensuring long-term water supply reliability for California, as well as restoring and protecting the Sacramento-San Joaquin Delta and other ecologically sensitive areas. The agreement is comprised of four policy bills and an $11.4 billion bond measure. One of the policy bills (SBx7-7) identifies reporting criteria and guidelines for water utilities to track and measure progress toward achieving the 20 percent per capita demand reduction goal. Water utilities are required to implement strategies and report progress in their Urban Water Management Plans. In 2010, DWR provided guidance and criteria for implementing the provisions of this new law; that guidance provided clarification regarding individual (per-capita) and broader (Valley-wide) conservation goals, which was utilized in the preparation of the 2010 update of the UWMP for the Santa Clarita Valley.

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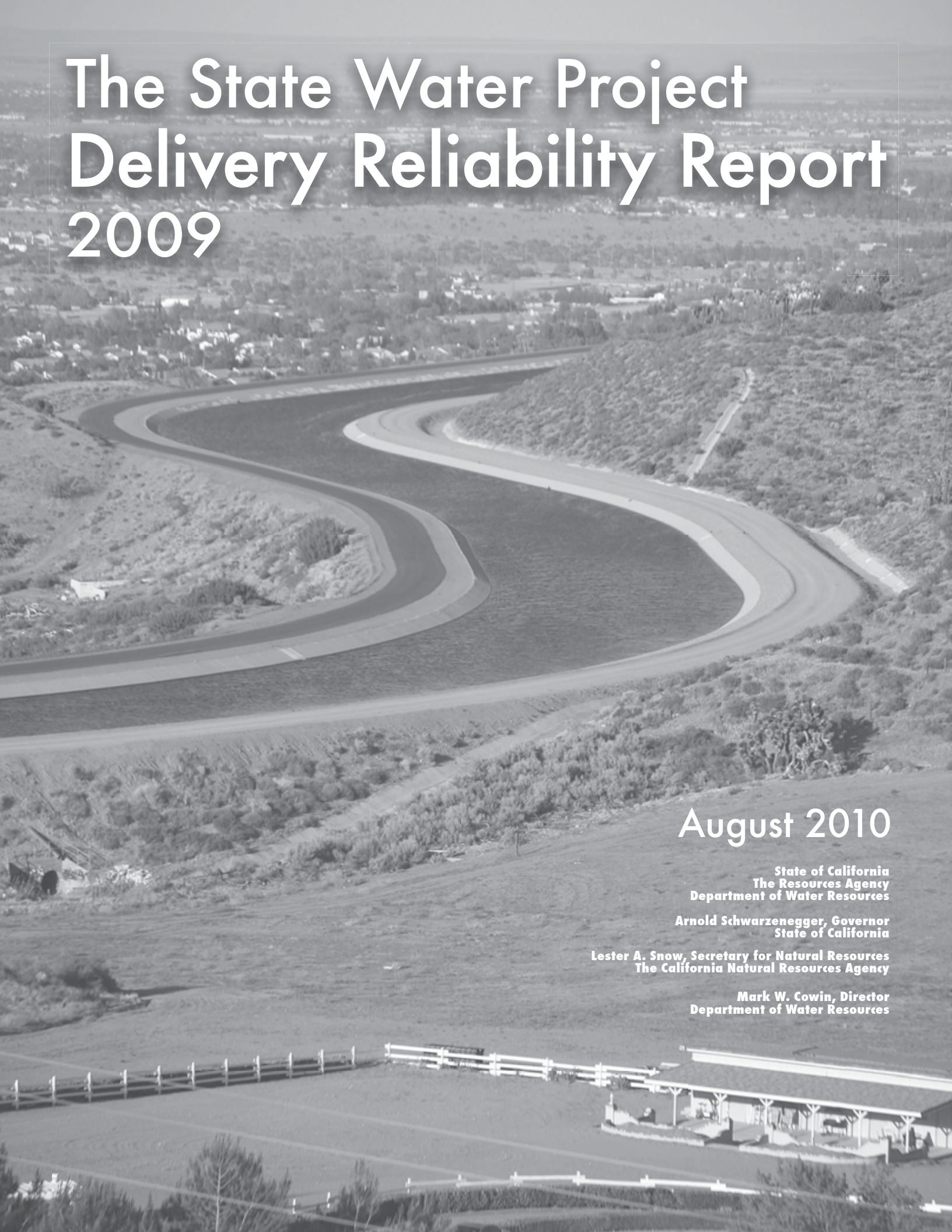
The State Water Project Delivery Reliability Report 2009



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Foreword

The *2009 State Water Project Delivery Reliability Report (2009 Report)* is a bi-annual report on the current and future for State Water Project (SWP) water supply conditions, if no significant improvements are made to convey water past the Sacramento-San Joaquin Delta (Delta) or to store the more-variable run-off that is expected with climate change.

The report shows a continuing erosion of the ability of the SWP to deliver water. For current conditions, the dominant factor for these reductions is the restrictive operational requirements contained in the federal biological opinions. For future conditions, it is these requirements and the forecasted effects of climate change.

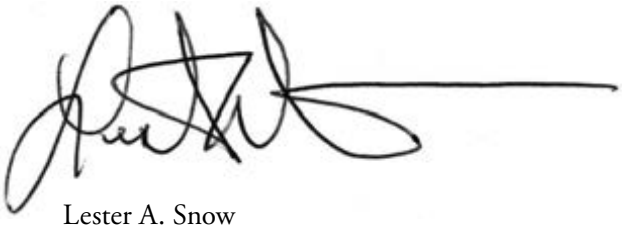
Deliveries estimated for the *2009 Report* are reduced by the operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service in December 2008 and the National Marine Fisheries Service in June 2009 governing the SWP and Central Valley Project operations. The *2007 Report* incorporates the interim, and less restrictive, operation rules established by federal Judge Wanger in 2007. The *2005 Report* is based upon much less restrictive operational rules contained in the biological opinions issued in 2005.

To illustrate the effect, the median value estimated for the primary component of SWP Table A annual deliveries for Current Conditions in the *2005 Report* is 3,170 thousand acre feet (taf). In the *2007 Report* it is 2,980 taf, and in the *2009 Report*, it is 2,680 taf. This is an overall reduction of almost 500 taf.

The studies used in this series of reports to estimate future deliveries now also include the potential effects of climate change. The studies for the *2005 Report* did not include any of these potential effects. For the *2007 Report*, the changes in run-off patterns and amounts were incorporated into the analyses. For the 2009 studies, the changes in run-off patterns and amounts are included along with a potential rise in sea level. Sea level rise has the potential to require more water to be released to repel salinity from entering the Delta in order to meet the water quality objectives established for the Delta.

The effect of the operational restrictions in addition to the incorporation of potential climate changes impacts amounts to an estimated reduction of 970 taf when the median value for annual SWP deliveries for Future Conditions in the *2005 Report* (3,570 taf) is compared to the updated value in the *2009 Report* (2,600 taf).

The *2009 Report* compares the updated values to those contained in the *2007 Report* and provides greater detail on the analytical method used to calculate the estimates. The results of the studies are designed to assist water planners and managers in updating their water management and infrastructure development plans. These results emphasize the need for local agencies to develop a resilient and robust water supply, and a distribution and management system to maximize the efficient use of our variable supply. They also illustrate the urgent need to improve the method of conveying water past the Delta in a more sustainable manner that meets the dual goals of increasing water supply reliability and improving the conditions for endangered and threatened fish species.



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California Department of Water Resources
December 2009

Contents

13 Chapter 1: Introduction
14 Background
14 Purpose
14 Reporting Requirements
14 Previous Reports
15 Context
15 The State Water Project
16 The Sacramento-San Joaquin Delta
19 Chapter 2: Water Delivery Reliability
19 Calculating SWP Delivery Reliability
19 Factors Affecting Water Delivery Reliability
19 Availability of Source Water
19 Factors of Uncertainty
20 Treating Availability of Source Water Issues in CALSIM II Studies
21 Ability to Convey Source Water to the Desired Point of Delivery
21 Factors of Uncertainty
21 Treating SWP Conveyance Issues in CALSIM II Simulations
22 Demand for System Water
23 Factors of Uncertainty
23 Treating Water Demand Issues in CALSIM II Simulations
23 Limitations to Estimating Future Water Delivery Reliability
23 Studies Must Rely on Assumptions
23 Studies Assume Repeating Historical Weather Patterns
24 Other Important Assumptions
25 Chapter 3: Status of Planning Activities That May Affect SWP Delivery Reliability
25 2009 Comprehensive Water Package
25 Delta Vision
26 Delta Risk Management Strategy
26 CALFED Ecosystem Restoration Program Conservation Strategy
27 Bay Delta Conservation Plan
27 Delta Habitat Conservation and Conveyance Program
27 2-Gates Fish Protection Demonstration Project
29 Chapter 4: Areas of Significant Uncertainty for SWP Delivery Reliability
29 Climate Change and Sea Level Rise
29 Previous Assessment of Climate Change Impacts on SWP Delivery Reliability
30 Selection of Climate Change Scenario for Updated Reliability Assessment
31 Vulnerability of Delta Levees to Failure
31 Delta Risk Management Strategy
32 Potential Interruption/Disruption of SWP Deliveries Due to Earthquakes
32 Potential Interruption/Disruption of SWP Deliveries Due to Floods
33 Potential Interruption/Disruption of SWP Deliveries Due to "Sunny Day" Event
33 Combined Potential Interruption/Disruption of SWP Deliveries
33 Delta Flood Emergency Preparedness and Response Plan

34 National Marine Fisheries Service and Fish and Wildlife Service Biological Opinions
34 USFWS biological opinion
34 NMFS biological opinion
37 Chapter 5: General Approach for Assessing SWP Delivery Reliability
37 General Solution Techniques and Incorporating Operational Constraints
37 Hydrology
38 Demands
38 North of Delta
38 South of Delta
38 Meeting Delta Water Quality Standards
38 CALSIM II Priorities in Water Deliveries
39 SWP Table A and SWP Article 21 Deliveries
39 CALSIM II Performance
39 Recent Improvements to CALSIM II Simulations
41 Chapter 6: Assessment of Present and Future SWP Delivery Reliability
41 Assessment of SWP Delivery Reliability under Current Conditions
41 Availability of Source Water
42 Demand for Delta Water
42 Ability to Convey Source Water to the Desired Point of Delivery
42 Annual Estimates of SWP Deliveries
43 SWP Table A Deliveries under Different Hydrologic Scenarios
44 SWP Article 21 Deliveries under Different Hydrologic Scenarios
45 SWP Table A Delivery Probability
46 Assessment of SWP Delivery Reliability under Future Conditions
46 Availability of Source Water
47 Demand for Delta Water
47 Ability to Convey Source Water to the Desired Point of Delivery
48 Presentation of CALSIM II Results
48 SWP Table A Deliveries under the Future Hydrologic Scenario
49 SWP Article 21 Deliveries under Different Hydrologic Scenarios
50 SWP Table A Delivery Probability
52 Comparing Current and Future SWP Delivery Reliability
52 SWP Table A Deliveries under Different Hydrologic Scenarios
54 SWP Article 21 Deliveries under Different Hydrologic Scenarios
54 SWP Table A Delivery Probability
57 Chapter 7: Interpreting and Applying the Results for Local Planning Use
57 Example
58 How to Calculate Supplies
59 Appendix A. CALSIM II Modeling Assumptions
69 Appendix A-1. Incorporation of U.S. Fish and Wildlife Service Biological Opinions into CALSIM II
73 Appendix A-2. Incorporation of National Marine Fisheries Service Biological Opinion into CALSIM II
83 Appendix B. Results of Report CALSIM II Studies
84 Study Results
95 Appendix C. State Water Project Table A Amounts
97 Appendix D. Recent State Water Project Deliveries
97 SWP Contract Water Types

97 SWP Table A Water
97 SWP Article 21 Water
97 Turnback Pool Water
97 Carryover Water
97 Updated Historical Deliveries
109 Appendix E. Comment Letter and the Department's Response on the Draft Report
139 References

Tables and Figures

42 Table 6.1 SWP Table A demands from the Delta under Current Conditions
42 Table 6.2 SWP Article 21 demands from the Delta under Current Conditions
43 Table 6.3 SWP Table A delivery from the Delta under Current Conditions
43 Table 6.4 Average and dry period SWP Table A deliveries from the Delta under Current Conditions
44 Table 6.5 Average and wet years SWP Table A delivery from the Delta under Current Conditions
44 Table 6.6 Annual SWP Article 21 delivery from the Delta under Current Conditions
45 Table 6.7 Average and dry year SWP Article 21 delivery under Current Conditions (taf/year)
45 Table 6.8 Average and wet year SWP Article 21 delivery under Current Conditions (taf/year)
46 Figure 6.1 SWP Table A delivery probability under Current Conditions
46 Table 6.9 Highlighted SWP Table A delivery percent exceedence values under Current Conditions
47 Table 6.10 SWP Table A demands from the Delta under Future Conditions
47 Table 6.11 SWP Article 21 demands from the Delta under Future Conditions
48 Table 6.12 SWP Table A delivery from the Delta under Future Conditions
49 Table 6.13 Average and dry period SWP Table A deliveries from the Delta under Future Conditions
49 Table 6.14 Average and wet period SWP Table A deliveries from the Delta under Future Conditions
50 Figure 6.2 Delta SWP Table A delivery probability under Future Conditions
50 Table 6.15 Annual SWP Article 21 delivery from the Delta under Future Conditions
51 Table 6.16 Average and dry year SWP Article 21 delivery under Future Conditions (taf/year)
51 Table 6.17 Average and wet year SWP Article 21 delivery under Future Conditions (taf/year)
52 Table 6.18 Highlighted SWP Table A delivery percent exceedence values under Future Conditions
53 Table 6.19 SWP Table A delivery from the Delta under Current and Future Conditions
53 Table 6.20 Average and dry period SWP Table A deliveries from the Delta under Current and Future Conditions
53 Table 6.21 Average and wet period SWP Table A deliveries from the Delta under Current and Future Conditions
54 Table 6.22 Annual SWP Article 21 delivery from the Delta under Current and Future Conditions
55 Table 6.23 Average and dry year SWP Article 21 delivery under Current and Future Conditions
55 Table 6.24 Average and wet year SWP Article 21 delivery under Current and Future Conditions
56 Table 6.25 Highlighted SWP Table A delivery percent exceedence values under Current and Future Conditions
56 Figure 6.3 Current and future SWP Table A delivery probability from the 2007 SWP Delivery Reliability Report
56 Figure 6.4 Updated current and future SWP Table A delivery probability
57 Table 7.1 Average SWP Table A delivery from the Delta in five-year intervals for Studies 2009 and 2029
58 Table 7.2 Average annual SWP deliveries assuming a maximum SWP Table A amount of 100,000 acre-feet
60 Table A.1 *2009 Report* CALSIM II modeling assumptions
64 Table A.2 2009 Study American River demand assumptions
66 Table A.3 2029 Study American River Demand Assumptions
76 Table A-2.1 NCP Flow Schedule with Relaxation
77 Figure A-2.2 Minimum Stanislaus instream flow schedule as prescribed in Appendix 2-E of the NMFS biological opinion (June 2009)

78 Table A-2.3 New Melones Allocations to Meet Minimum Instream Flow Requirements
78 Table A-2.5 Delta Cross Channel Gate Operation Triggers and Actions as Modeled in CALSIM II
79 Table A-2.4 NMFS biological opinion Delta Cross Channel Gate Operation Triggers and Actions
80 Table A-2.6 Minimum Flow Required at Vernalis During April and May
81 Table A-2.7 Maximum Combined CVP and SWP Export during April and May
84 Table B.1 Summary of CALSIM II simulations used to update SWP delivery estimates
85 Table B.2 Average and dry year SWP Table A delivery from the Delta
86 Table B.3 SWP Table A deliveries under Current Conditions
Derived values for estimating probability curve
88 Table B.4 SWP Table A deliveries from the Delta under Future Conditions
MPI-ECHAM5 Model with A2 Emissions
90 Table B.5 SWP Table A deliveries from the Delta under Future Conditions
Derived values for estimating probability curve
91 Table B.6 SWP Article 21 deliveries under Current Conditions
92 Table B.7 SWP Article 21 deliveries under Future Conditions
MPI-ECHAM5 Model with A2 Emissions
93 Table B.8 Highlighted SWP Table A delivery percent exceedence values under
Current and Future Conditions
93 Figure B.1 SWP Table A delivery probability under Current Conditions
93 Figure B.2 SWP Table A delivery probability under Future Conditions
94 Table B.9 Comparing SWP Table A deliveries under Current Conditions from updated studies
to deliveries from *2007 Report*
96 Table C.1 Maximum annual SWP Table A amounts (acre-feet)
98 Table D.1 Historical SWP Deliveries: 1999
99 Table D.2 Historical SWP Deliveries: 2000
100 Table D.3 Historical SWP Deliveries: 2001
101 Table D.4 Historical SWP Deliveries: 2002
102 Table D.5 Historical SWP Deliveries: 2003
103 Table D.6 Historical SWP Deliveries: 2004
104 Table D.7 Historical SWP Deliveries: 2005
105 Table D.8 Historical SWP Deliveries: 2006
106 Table D.9 Historical SWP Deliveries: 2007
107 Table D.10 Historical SWP Deliveries: 2008

Introduction 1

The State Water Project (SWP) is primarily a water storage and delivery system intended to help close the gap in California between when and where precipitation primarily falls and when and where most water demands occur. Water from the SWP is a critical component of water supply for the 29 state water contractors, who may also receive water from other sources. While each of the water supply contracts defines the maximum amount of water to be delivered annually, the amount of water actually delivered may be less due to such factors as variable precipitation and runoff, physical and institutional limits on storage and conveyance, and contractors' variable water demands. For communities receiving SWP water, the reliability of SWP water deliveries is a key factor for local planners and government officials estimating their own water supply reliability.

The *2009 State Water Project Delivery Reliability Report (2009 Report)* updates the information contained in the *2007 Report* by estimating the amounts of water deliveries for Current Conditions and conditions twenty years in the future. These estimates incorporate restrictions on SWP and Central Valley Project (CVP) operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) issued on Dec. 15, 2008 and June 4, 2009, respectively. The estimates for Future Conditions also incorporate potential changes in hydrology due to climate change projections recommended by the Climate Action Team and sea level rise.

This report briefly describes the SWP and the Sacramento-San Joaquin Delta (Delta), the hub of water deliveries in California. It discusses the general topic of water delivery reliability and how Department of Water Resources (DWR) calculates delivery reliability for the SWP. It then summarizes key planning activities that may affect future SWP delivery reliability. Three areas of significant uncertainty for SWP delivery reliability are discussed. They are climate change and sea level rise, the vulnerability of Delta levees to failure, and operation restrictions imposed by the USFWS and NMFS in response to decreasing populations of endangered fish species. Next, the general approach taken to simulate SWP operations using CALSIM II is discussed.

This report presents the results of CALSIM II studies and compares them to previous estimates. Finally, this report provides guidance on how to apply the delivery estimates to water management plans. Presented in appendices are detailed CALSIM II simulation assumptions and results and recent SWP deliveries.

This report does not include analyses of how specific water agencies should integrate SWP water supply into their water supply equation. This topic requires extensive information about local facilities, local water resources, and local water use, which is beyond the scope of this report. Moreover, such an analysis would require decisions about water supply and use that traditionally have been made locally. DWR believes that local officials should continue to fill this role.

Background

Purpose

This report is intended to help local agencies, cities, and counties that use SWP water to develop adequate and affordable water supplies for their communities now and in the future. A water management plan, such as the Urban Water Management Plans required by Water Code Sections 10610-10656, is usually prepared by these entities to help them responsibly manage and develop their water supplies. The information in this report can be used by local agencies in preparing or amending their water management plans and identifying the new facilities or programs that may be necessary to meet future water demands. Local agencies and governments will also find in this report useful information for conducting analyses mandated by laws requiring water retailers to demonstrate whether their water supplies are sufficient for certain proposed subdivisions and development projects subject to the California Environmental Quality Act.

November 2009 legislative changes (Senate Bill X7.7, Steinberg) has amended and repealed some sections of the Water Code and may affect the reporting requirements under the Urban Water Management Planning Act and other government codes. DWR has a program to assist urban water suppliers in meeting the requirements of the Act. Program staff assists urban water suppliers with preparing comprehensive and useful water management plans, implementing water conservation programs, and understanding the requirements of the Act. The next cycle of Plans (2010) is due July 1, 2011. It is expected that the *2010 Urban Water Management Plan Guidebook* will be available in late 2010. Information on Urban Water Management Plans is posted at **www.water.ca.gov/urbanwatermanagement**. Any changes in the Urban Water Management Planning Act between now and 2011 will also be posted at this site.

Reporting Requirements

As a result of a court-approved settlement agreement executed by the Planning and Conservation League, DWR, state water contractors and other entities in the wake of the 3rd Circuit Court of Appeals ruling in the "Monterey Amendments" case in 2000, DWR has a legal duty to prepare SWP delivery reliability reports every two years. In that agreement, DWR committed to the following:

> *Commencing in 2003, and every two years thereafter, the Department of Water Resources (DWR) shall prepare and deliver to all State Water Project (SWP) contractors, all city and county planning departments, and all regional and metropolitan planning departments within the project service area a report which accurately sets forth, under a range of hydrologic conditions, the then existing overall delivery capability of the project facilities and the allocation of that capacity to each contractor. The range of hydrologic conditions shall include the historic extended dry cycle and long-term average. The biennial report shall also disclose, for each of the ten years immediately preceding the report, the total amount of project water delivered and the amount of project water delivered to each contractor. The information presented in each report shall be presented in a manner readily understandable by the public. (Settlement Agreement Attachment B)*

Previous Reports

The *2009 Report* is the fourth report of this type. The previous reports in 2003, 2005, and 2007 defined and calculated delivery reliability in the same manner as this report, with output from DWR's CALSIM II model. This report differs from those earlier reports because it includes revised estimates of reductions to SWP delivery reliability due to future climate changes and sea level rise and also due to restricted operations to comply with USFWS and NMFS biological opinions. This report also discusses the risk of conveyance disruption due to Delta levee failure.

Context

The State Water Project

The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants that extends for more than 600 miles. Its main purpose is to divert and store surplus water during wet periods and distribute it to areas in Northern California, the San Francisco Bay area, the San Joaquin Valley, the Central Coast, and Southern California. It is also used for recreation and to control floods, generate power, protect fish and wildlife, and manage water quality in the Delta.

The keystone of the SWP is Lake Oroville, which conserves water from the Feather River watershed. It is the SWP's largest storage facility with a capacity of about 3.5 million acre feet (maf). Releases from Lake Oroville flow down the Feather River into the Sacramento River, which drains the northern portion of California's Central Valley. The Sacramento River flows into the Delta, comprised of 738,000 acres of land interlaced with channels that receive runoff from about 40% of the state's land area. The SWP and the CVP rely on Delta channels as a conduit to move water from the Sacramento River inflow to the points of diversion in the south Delta. Thus, the Delta is actually part of the SWP conveyance system, making the Delta a key component in SWP deliveries. The significance of the Delta to SWP deliveries is described in more detail below.

From the northern Delta, Barker Slough Pumping Plant diverts water for delivery to Napa and Solano counties through the North Bay Aqueduct. Near Byron in the southern Delta, the SWP diverts water into Clifton Court Forebay for delivery south of the Delta. Banks pumping plant lifts water from Clifton Court Forebay into the California Aqueduct, which channels the water to Bethany Reservoir. The water delivered to Bethany Reservoir from Banks Pumping Plant is either delivered into the South Bay Aqueduct for use in the San Francisco Bay Area or continues down the California Aqueduct to O'Neil Forebay, Gianelli Pumping-Generating Plant, and San Luis Reservoir.

San Luis Reservoir is jointly operated by DWR and Reclamation and has a storage capacity of more than 2 maf. DWR's share of gross storage in the reservoir is about 1.062 maf. Generally, water is pumped into San Luis Reservoir during late fall through early spring, and is temporarily stored for release back to the California Aqueduct to meet summertime peaking demands for SWP and CVP contractors.

SWP water not stored in San Luis Reservoir and water eventually released from San Luis continues to flow south through the San Luis Canal, a portion of the California Aqueduct jointly owned by DWR and Reclamation. As water flows through the San Joaquin Valley, deliveries of CVP water are made through numerous turnouts to farmlands in the service areas of the CVP. Near Kettleman City, the Coastal Branch Aqueduct splits from the California Aqueduct for water delivery to agricultural areas to the west and municipal and industrial water users in San Luis Obispo and Santa Barbara counties.

The remaining water conveyed by the California Aqueduct travels farther in the San Joaquin Valley to agriculture users such as Kern County Water Agency before reaching Edmonston Pumping Plant, which raises the water high enough to travel across the Tehachapi Mountains into Antelope Valley. In Antelope Valley, the Aqueduct divides into the East and West Branches. The East Branch carries water into Silverwood Lake and Lake Perris. Water in the West Branch flows to Quail Lake, Pyramid Lake, and Castaic Lake.

Twenty-nine state water contractors have signed long-term water supply contracts with DWR for 4,173 maf per year. Signed in the 1960s, all contracts are in effect to at least 2035 and are essentially uniform. Each contract contains a schedule of the maximum amount of water the contractor can receive annually. This schedule is contained in SWP Table A. The annual amount was designed to increase each year, with most contractors reaching

their maximum amount in 1990. In most cases, SWP water is an important component of local water supplies. Five contractors use SWP water primarily for agricultural purposes and the remaining 24 contractors use SWP water primarily for municipal purposes. All available water is allocated annually in proportion to each contractor's annual SWP Table A amount. Appendix C contains additional information about SWP Table A.

The Sacramento-San Joaquin Delta

The Sacramento-San Joaquin Delta is a network of natural and artificial channels and reclaimed islands at the confluence of the Sacramento and San Joaquin rivers. The Delta forms the eastern portion of the San Francisco estuary, receiving runoff from more than 40% of the state's land area. It is a low-lying region where over the years sediment from the Sacramento, San Joaquin, Mokelumne, Cosumnes, and Calaveras rivers mingled with organic matter deposited by marsh plants. Covering 738,000 acres interlaced with hundreds of miles of waterways, much of the land is below sea level and relies on more than 1,100 miles of rather fragile levees for protection against flooding.

Because the SWP and the CVP use Delta channels to convey water to the southern Delta for diversion, the Delta is the focal point for water distribution throughout the state. In fact, the Delta is one of the few estuaries in the world that is used as a major source of drinking water supply: about one-quarter of California's drinking water comes from the Delta; and two-thirds of Californians get some portion of their drinking water from the Delta. The Delta also provides a unique estuarine habitat for many resident and migratory fish and birds, some of which are listed as threatened or endangered. Most of the native fish either migrate through the Delta or move into it for spawning. Resident native fish are mainly present in areas strongly influenced by inflow from the Sacramento River.

The CVP pumps at Jones Pumping Plant have a capacity of 4,600 cubic feet per second (cfs) and divert water directly from Old River. The CVP has contracts to divert 3.3 maf annually from the Delta for primarily agricultural use south of the Delta. The SWP pumps at Banks Pumping Plant have a combined pumping capacity of 10,300 cfs; however, diversions into the buffering Clifton Court Forebay are restricted to 13,870 acre-feet (af) daily and 13,250 af per day over a three-day average. A rate of 13,250 af per day equates to an average pumping of 6,680 cfs.

CVP and SWP reservoir releases and Delta exports follow the Coordinated Operating Agreement, which sets guidelines for the sharing of supply and responsibility for meeting water quality standards in the Delta. Most of the water exported by the SWP depends on water rights derived from Lake Oroville storage; however, the SWP can also divert water considered in excess in the Delta. These excess conditions in the Delta usually result when there is sufficient inflow to meet all beneficial needs and the SWP is not required to make supporting releases from Lake Oroville. Diversions during excess Delta conditions are still governed by various determinations and rules.

In addition to the state and federal projects' diversions, irrigation water for use in the Delta is taken from channels and sloughs through approximately 1,800 diversions which can total more than 5,000 cfs in July and August.

Delta water quality is primarily governed by the 1995 *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta*. This plan established beneficial uses, associated water quality objectives, and an implementation program. The State Water Resources Control Board's Water Rights Decision 1641 (D-1641) assigned primary responsibility for meeting many of the Delta water quality objectives to the SWP and CVP. Key factors in determining water quality in the western Delta are the quality of important Delta inflows and the intrusion of ocean-derived salts associated with daily tides. The extent of this intrusion is primarily determined by the magnitude of Delta inflows, export pumping rates, and operation of the Delta Cross Channel.

Delta inflows are normally regulated by upstream reservoir operations.

The water flowing in Delta channels is constrained by an extensive levee system that protects Delta islands from flooding. This protection is critical because land subsidence in the Delta, primarily due to the consuming oxidation of aerated peat soils, has placed most of the land in the Delta below sea level. In fact, the elevation of Delta islands can be more than 20 feet below sea level. The resulting difference between the elevations of Delta lands and the water surface in adjacent channels makes Delta levees vulnerable to failure. Land subsidence in the Delta is expected to continue, which will increase the vulnerability of levees to failure and subsequent island flooding.

Water Delivery Reliability

2

As mentioned in the Introduction, estimates of SWP delivery reliability are intended to help local SWP water users assess their water supply reliability, a key measure of a system's ability to match water supplies with demand. Just how water delivery reliability is assessed is critical to whether it is a meaningful guide for such an analysis. This chapter presents DWR's method for calculating SWP delivery reliability, the factors affecting SWP delivery reliability, and the limitations to estimating future water delivery reliability.

Calculating SWP Delivery Reliability

For this report, "water delivery reliability" is defined as the annual amount of water that can be expected to be delivered with a certain frequency. SWP delivery reliability is calculated using computer simulations based on 82 years of historical data. The annual amounts of SWP water deliveries are ranked from smallest to largest and a probability is calculated for each amount. These results are often displayed as a graph, commonly referred to as an exceedence plot. They can also be presented in a table.

Factors Affecting Water Delivery Reliability

The amount of the SWP water supply delivered to the state water contractors in a given year depends on the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal constraints on SWP operation. Expressed in more general terms, water delivery reliability depends on three general factors: the availability of water at the source, the ability to convey water from the source to the desired point of delivery, and the magnitude of demand for the water.

Availability of Source Water

The availability of water at the source depends on the amount of rain and snow and water use in the source areas. For the SWP, the size of the April 1 snowpack in the Feather River watershed and the storage in Lake Oroville are key components of the annual estimation of the SWP's delivery capabilities from April through September.

Factors of Uncertainty The inherent yearly variable location, timing, amount, and form of precipitation in California introduce some uncertainty to the availability of future SWP source water and hence future SWP deliveries. Simulating an 82-year sequence based on historical weather patterns restricts the analytical approach to no more extreme droughts or severe storms than have historically occurred. However, the 82-year sequence of weather patterns does produce a wide range of hydrologic events with which to evaluate the ability of the SWP to deliver water.

Climate change is another factor in source-water uncertainty. Current literature suggests that global warming is likely to significantly affect the hydrologic cycle, changing California's precipitation pattern and amount from that shown by the historical record. In

fact, there is evidence that some changes have already occurred, such as Sierra snowmelt starting earlier, more runoff shifting from the spring to the winter, and an increase in winter flooding frequency. These changes would place more stress on the reliability of existing flood management and water supply systems, such as the SWP.

Treating Availability of Source Water Issues in CALSIM II Studies The SWP operation analyses in this report are based on operation simulations under an extended record of historical precipitation and adjusted historical runoff. The 82-year record of 1922-2003 runoff patterns in the studies simulating 2009 and 2029 scenarios have been adjusted as needed to reflect the current and future levels of development in the source areas by analyzing land use patterns and projecting future land and water use. These series of data are then used to forecast the amount of water available to the SWP under Current and Future Conditions.

Climate change is expected to modify rainfall and runoff, which in turn will effect SWP operations. In the 2009 DWR Report, *Using Future Climate Projections to Support Water Resources Decision Making in California*, possible climate change effects to SWP and CVP operations were assessed using 12 future climate projections at mid-century and end-of-century (Chung et al., 2009). The range of results for the 12 projections is detailed throughout that report. Uncertainties in the results increase as the projections move further into the future. These studies assumed that no changes were made to the existing SWP and CVP infrastructure in the future. Future system operations used D-1641 regulations (SWRCB, 1995). Operations guidelines that are subject to change, such as restrictions on Delta exports contained in Endangered Species Act biological opinions, were not included in these studies due to the high uncertainty of how such restrictions may be applied 50 or 100 years from now.

In the 2009 climate change assessment, a three-step streamflow adjustment method was used to estimate inflows to major SWP and CVP reservoirs. An 82-year sequence of reservoir inflows that reflects a wide range of hydrologic variability was determined for each of the 12 future climate projections for both the mid-century and end-of-century analysis periods. Because some water allocation and water quality regulations are based on water year type designations (for example, wet or dry years), these designations were modified as necessary to reflect the future climate projections. Agricultural crop and urban outdoor water demands were adjusted to reflect changes in precipitation. Although there is a wide range of uncertainty in sea level rise projections, for simplicity's sake, sea level rise estimates of 1 foot for the mid-century and 2 feet for the end of the century were chosen for these impact studies. The reliability of the SWP and CVP water supply systems is expected to be reduced for the range of future climate projections studied.

In addition to the mid-century and end-of-the-century analysis described above, for this report DWR has estimated potential deliveries for 2029 using one future climate projection which is representative of median effects on the SWP and CVP system based on results from all 12 projections. The 2029 delivery estimates are based on the assumption that the two projects will be operated to meet the requirements of the recently issued Biological Opinions from the USFWS and the NMFS.[1] Estimates do not assume any changes in the way water is conveyed across the Delta. These assumptions are not a prediction of the future but an assessment of the future if these factors do not change. In addition, these estimates must be viewed with caution given the uncertainty of the effects of climate change in the future and the simplifying assumptions required for the analyses.

[1]USFWS Delta Smelt Biological Opinion December 15, 2008. NMFS Biological and Conference Opinion on the Long-Term Operations of the CVP and SWP June 4, 2009.

Ability to Convey Source Water to the Desired Point of Delivery

The ability to convey source water to the desired point of delivery refers to the availability of facilities to capture and convey water and any institutional limitations placed upon the facilities. Uncertainty in SWP deliveries may be, in part, due to uncertainty in the ability to convey water. For the SWP, this uncertainty centers on the Delta.

Factors of Uncertainty In general, SWP operations are closely regulated by Delta water quality standards established by the State Water Resources Control Board (SWRCB) in D-1641. In addition SWP and CVP operations are further constrained by requirements in the USFWS and NMFS biological opinions. The requirements in both biological opinions are based on physical and biological phenomena that do not lend themselves to simulations using a monthly time step. Much scientific and modeling judgment has been employed to represent the implementation of the biological opinions. The modeled representation of the requirements is the best possible, given the current scientific understanding of environmental factors enumerated in the biological opinions and the limited historical data for some of these factors. Turbidity, water temperature, and the presence of fish are examples of environmental factors that must be approximated in the model.

Another potential uncertainty for SWP water conveyance through the Delta is the risk of interruptions in SWP diversions from the Delta due to levee failures. SWP source water enters the Delta through the Sacramento River and is conveyed to Banks Pumping Plant via Delta channels lined with fragile levees. If a levee fails, depending on the location and the size of the adjacent island, the flow of water from nearby channels onto the affected island can draw saline water from Suisun and San Pablo bays into the central Delta. In such an incident, SWP pumping at Banks Pumping Plant may have to be curtailed or stopped for a period to prevent drawing saline water into the south Delta. Additional releases from Lake Oroville may also be necessary to flush the Delta of the saline water. As discussed in Chapter 4, the likelihood of levee failures in the future is expected to increase.

Treating SWP Conveyance Issues in CALSIM II Simulations The 2009 base study in this report assumes current facilities and institutional limitations, which include D-1641, export curtailments for the Vernalis Adaptive Management Plan, as well as the operational restrictions contained in the USFWS and NMFS biological opinions. Chapter 6 has a more detailed description of these assumptions. For comparison, the 2029 studies in this report assume the same institutional limitations as the 2009 simulations regarding requirements for Delta water quality flows and fish protection will be in place in 20 years; no facility improvements, expansions, or additions will be made to the SWP; and conveying water through the Sacramento-San Joaquin Delta will not be significantly interrupted by levee failures. These assumptions are not a prediction of the future but an assessment of the future if these conditions do not change. As discussed in Chapter 3, there are several efforts focused on improving the Delta ecosystem and water supply reliability in the near and long term. The 2029 studies also incorporate assumptions about climate change and sea level rise.

Also not included in this report are CALSIM II studies that reflect risk of levee failures. The effect on SWP deliveries due to a single or multiple levee failure is highly dependent on where the levees fail and the Delta conditions at the time. As the *Delta Risk Management Strategy (DRMS), Phase 1: Risk Analysis* (DWR, 2008) indicates, the effect on SWP deliveries can range from relatively minor to catastrophic with extensive levee failures, depending on whether an earthquake occurs under dry or wet Delta conditions. However, the same report points out that if multiple Delta islands are left flooded with openings to adjacent channels, after a large-scale levee failure, the volume of water that would move in and out of the Delta over a tidal cycle could actually increase, resulting in higher salinities in the west

Delta. If Delta water quality standards remain unchanged, releases from Lake Oroville would then most likely need to increase above current levels to enable the same level of SWP pumping. The Delta Risk Management Strategy report also indicates that multiple levee failures and Delta island flooding due to flood flows may not significantly affect SWP deliveries due to the fresh water Delta-wide conditions that would exist at the time of flood flows. Chapter 4 addresses in more detail Delta levee vulnerability to failure.

Demand for System Water

Water demand in the delivery service area is affected by such factors as the magnitude and types of water demands, the extent of water conservation measures, local weather patterns, and water costs. Supply from a water system may be sufficiently reliable at a low level of demand but become less reliable as the demand increases. In other cases, the reliability of a water supply system to meet a higher demand may be maintained at its past level because new facilities have been added or the operation of the system has been changed. In general, the higher and the more time-concentrated the water demands, the more need for storage and conveyance capacity to achieve the same delivery reliability. For example, if the demand occurs only three months in the summer, a water system with a sufficient annual supply but insufficient water storage may not be able to reliably meet the demand. If, however, the same total amount of demand is distributed over the year, the same system could more easily meet the demand because the need for water storage is reduced.

Demand levels for the SWP water users in this report are derived from historical data and information from the SWP contractors. Annual demand on the SWP is nearing the maximum contract amount (referred to as the "Maximum SWP Table A amount"). Each SWP contract contains a SWP Table A, which states the maximum annual delivery amount from the SWP over the period of the contract. These annual amounts usually increase over time. Most contractors' SWP Table A amounts reached a maximum in 1990. The total of all contractors' maximum SWP Table A amounts is 4,173 maf per year. SWP Table A is used to define each contractor's portion of the available water supply that DWR will allocate and deliver to that contractor. The SWP Table A amounts in any particular contract are not guarantees of annual delivery amounts but are used to allocate individual contractors' portion of the total delivery amount available. Estimates of each contractor's amount of water delivered are determined by the factors described in this report. See Appendix C for additional explanation and listing of the maximum SWP Table A amounts.

Of the 29 SWP contractors, Yuba City, Butte County, and the Plumas County Flood Control and Water Conservation District are north of the Delta. Their total maximum SWP Table A amounts is 0.040 maf per year. The total maximum SWP Table A amounts for the remaining 26 contractors, who all receive their supply from the Delta, is 4.133 maf per year. This report focuses on SWP deliveries from the Delta because the amount of water pumped from the Delta by the SWP is the most significant component of the total amount of SWP deliveries. The results presented in this report in terms of estimated delivered water supplies as a percent of SWP Table A deliveries apply to contractors north of the Delta in the same manner as those contractors receiving supply from the Delta.

SWP contractors may also receive water under SWP Article 21 of their contract. It is available only if it does not interfere with SWP operations or Table A allocations, excess water is available in the Delta, and it will not be stored in the SWP system. Because an SWP contractor must have an immediate use for SWP Article 21 supply or a place to store it outside of the SWP, not all SWP contractors can take advantage of this additional supply. For those SWP contractors who are able to store their wet weather supplies, SWP Article 21 supply can be stored by being put directly into a reservoir or by offsetting other water that would have been

withdrawn from storage, such as local groundwater. In the absence of storage, SWP Article 21 water is not likely to contribute significantly to local water supply reliability. Incorporating supplies received under SWP Article 21 into the assessment of water supply reliability is a local decision based on specific local circumstances, facts, and level of water supply reliability required. This report presents information on SWP Article 21 water separately so local agencies can determine whether it is appropriate to incorporate this supply into their analyses.

Factors of Uncertainty Estimating future demand for SWP water requires assumptions be made about population growth, water conservation, recycling efforts, other sources of supply available to the SWP contractors, and climate change. The estimates also depend on the cost to the SWP contractor for each of the components of their integrated water management plan. These factors are considered by the SWP contractors in the estimates of their current and future demands.

Treating Water Demand Issues in CALSIM II Simulations SWP Table A and SWP Article 21 demands in the 2009 study have increased from those in the Study 2007 from the *2007 Report*. SWP Table A and SWP Article 21 demands in the 2029 study have also increased from those in the Study 2027 from the *2007 Report*. Specific values used in the CALSIM II studies are contained in Appendix A.

Limitations to Estimating Future Water Delivery Reliability

Studies Must Rely on Assumptions

Actual, historical water deliveries cannot always be used with a significant degree of certainty to predict future water deliveries. As discussed earlier, there are continual, significant changes over time in the determinants of water delivery for a specific water supply system. These changes include water storage and delivery facilities, water use in the source areas, water demand in the receiving areas, and the regulatory constraints on the operation of facilities for the delivery of water. Given the highly significant changes that have occurred for the SWP over the past 40 years, past deliveries are not a good predictor of SWP current deliveries, much less of future deliveries.

For example, the demand 30 years ago for water from the SWP was lower than it is now or expected to be in the future. Lower demand for SWP water resulted in less water transported through the SWP during normal and wet times than could have been—or would have been if the demand for water had been higher. Less water was delivered then because less water was needed; the amount of source water and conveyance capabilities weren't limiting factors for deliveries. Conversely, the recently issued biological opinions' restrictions on SWP exports from the Delta are estimated to reduce annual deliveries from what has been delivered in the recent past. Analyses estimating future SWP deliveries must include assumptions about Future Conditions. Some assumptions are very important to the analyses and are key to understanding the resulting estimates of annual water deliveries. A discussion of the important assumptions for the studies in this report follows.

Studies Assume Repeating Historical Weather Patterns

One of the most significant assumptions for water planning in general is how wet, dry and variable the weather will be. Until recently, assuming the future weather pattern would be similar to the past was sufficient for many planning purposes. Given the evolving information on the potential effects of global climate change in the future, this approach is no longer adequate. Incorporating climate change into future projections is difficult because of the many ways the patterns of rain, snow and temperature could shift. A way to measure some of the uncertainty is to analyze many potential climate change scenarios in order to capture the range of

water supply effects.

This report contains estimates of future SWP deliveries under one selected median-impacts climate change projection. The historical record of precipitation information for the Central Valley for the period 1922 through 2003 is modified to reflect the future climate projection. The amount and timing of rainfall and runoff is adjusted but the sequence of dry years or wet years is the same for all scenarios. Evaluating how water management systems will respond under severely dry periods is limited to assuming the worst droughts in the period of historical record. The worst multiyear drought on record is 1928 through 1934, although the brief drought from 1976 through 1977 was more acutely dry.

Other Important Assumptions

To identify the assumptions with the most effect on the estimates of SWP deliveries, DWR conducted a sensitivity analysis for assumptions in CALSIM II model studies. In a sensitivity analysis, an assumption such as the amount of water used in the watershed above Lake Oroville is varied over several studies and the results for SWP deliveries are compared. This is done to assess how each assumption affects study results. The *2005 State Water Project Delivery Reliability Report* presents and discusses the results of DWR's study. The parameters having the largest net effect on SWP Delta deliveries are SWP Table A demands and Banks Pumping Plant limits. The most elastic parameters (i.e., parameters causing the most percent change in SWP deliveries per percent change in value) are SWP Table A demands and Lake Oroville inflow. The estimates for the future inflow to Lake Oroville depend on what is assumed for climate change. Legal limitations are one of the factors defining the rules for operating Banks Pumping Plant. Therefore, the assumptions for climate change and the restrictions of the USFWS' and NMFS' biological opinions directly affecting Banks Pumping Plant operations will significantly affect SWP delivery estimates.

Status of Planning Activities That May Affect SWP Delivery Reliability

3

As discussed earlier, the Delta is an essential part of the conveyance system for the SWP. SWP pumping at Banks Pumping Plant is regulated to protect the many uses of the Delta. However, today's uses in the Delta are not sustainable over the long term under current management practices and regulatory requirements. A comprehensive plan to meet the Delta's and California's water challenges was approved by Governor Schwarzenegger in November 2009. That plan and the key planning efforts involving the Delta are discussed below.

2009 Comprehensive Water Package

In November 2009, four legislative bills and the supporting bond bill, creating a comprehensive water package designed to meet California's water challenges, were approved by Governor Schwarzenegger. The legislation establishes the governmental framework to achieve the co-equal goals of providing a more reliable water supply to California and restoring and enhancing the Delta ecosystem. The package includes requirements to improve the management of our water resources by monitoring groundwater basins, developing agricultural water management plans, reducing statewide per capita water consumption 20 percent by 2020, and reporting water diversions and uses in the Delta. It also appropriates $250 million for grants and expenditures for projects to reduce dependence on the Delta.

The Safe, Clean, and Reliable Drinking Water Supply Act of 2010 will come before the California voters in November 2010. If enacted, it would provide funding for California's aging water infrastructure and for projects and programs to improve the ecosystem and water supply reliability for California. The bond bill includes $2.25 billion for actions improving Delta sustainability. These investments will help to reduce seismic risk to Delta water supplies, protect drinking water quality, and reduce conflict between water management and environmental protection.

Delta Vision

In September 28, 2006, Governor Schwarzenegger signed an executive order to establish an independent Blue Ribbon Task Force to develop a durable vision for sustainable management of the Sacramento-San Joaquin Bay Delta. The Delta Vision process concluded at the end of 2008 with a suite of strategic recommendations for long-term, sustainable management of the Delta. Their recommendations were based upon seven broad goals. These goals helped to guide the development of the 2009 Comprehensive Water Package and are:

- Legally acknowledge the equal goals of restoring the Delta ecosystem and creating a more reliable water supply for California.
- Recognize and enhance the unique cultural, recreational, and agricultural values of the California Delta.

- Restore the Delta ecosystem as the heart of a healthy estuary.
- Promote statewide water conservation, efficiency, and sustainable use.
- Build facilities to improve the existing water conveyance system and expand statewide storage, and operate both to achieve the equal goals.
- Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land used, and strategic levee investments.
- Establish a new governance structure with the authority, responsibility, accountability, science support, and secure funding to achieve these goals.

Delta Risk Management Strategy

The Delta Risk Management Strategy was initiated as a component of the 2000 CALFED Record of Decision. In 2005, the Legislature passed and the governor signed AB 1200, which requires DWR to evaluate the potential effects on water supply derived from the Delta based on 50-, 100-, and 200-year projections for possible effects on the Delta due to subsidence, earthquakes, floods, climate change, and combinations of these. The assessment of risks and the associated consequences to the State are contained in the *Delta Risk Management Strategy (DRMS), Phase 1: Risk Analysis* (DWR, 2008) report, completed in February 2009.

In Phase 2 of the Delta Risk Management Strategy, DWR and DFG must determine the principal options for reducing the risks to, among other things, prevent the disruption of water supplies derived from the Delta, improve the water quality of drinking water supplies from the Delta, and maintain Delta water quality for Delta users. DFG is to evaluate and comparatively rate each option for its ability to restore salmon and other fisheries that use the Delta. The study is to be completed by Summer 2010.

The Delta Risk Management Strategy is a major source of scientific and technical information on the Delta and Suisun Marsh levees for other major studies and initiatives.

CALFED Ecosystem Restoration Program Conservation Strategy

The Ecosystem Restoration Program Conservation Strategy has been developed by the California Department of Fish and Game (DFG) in collaboration with the NMFS and USFWS, the three implementing agencies for the program. It provides the foundation for regional implementation of the Ecosystem Restoration Program guided by a science based adaptive management approach designed to improve aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of fish and wildlife species. It represents a "single blueprint" for conservation and recovery of species and will integrate the NMFS recovery plan for Central Valley salmonids and the USFWS Delta Native Fishes Recovery Plan, once these plans are completed. While the Ecosystem Restoration Program Conservation Strategy currently focuses on the Delta and Suisun Marsh it will be expanded to include the tributaries to the Delta.

The Ecosystem Restoration Program Conservation Strategy represents the perspectives of the three fish and wildlife agencies on what is needed at a programmatic level to achieve biological conservation and management goals in the Delta. It serves to guide more detailed planning efforts such as the Bay Delta Conservation Plan. The Bay Delta Conservation Plan is currently evaluating specific detailed actions which would implement at least in part those described more generally in the Ecosystem Restoration Program Conservation Strategy. In particular, Bay Delta Conservation Plan will be addressing the issues of conveyance and flows as a component of ecosystem restoration.

Bay Delta Conservation Plan

The Bay Delta Conservation Plan is being developed to promote the recovery of endangered, threatened and sensitive fish and wildlife species and their habitats in the Delta in a way that will also protect and restore water supplies.

The Bay Delta Conservation Plan is:

- Identifying conservation strategies to improve the overall ecological health of the Delta.
- Identifying ecologically friendly ways to move fresh water through and/or around the Delta.
- Addressing toxic pollutants, invasive species, and impairments to water quality.
- Establishing a framework and funding to implement the Plan over time.

The Bay Delta Conservation Plan is being developed in compliance with the Federal Endangered Species Act and the California Natural Communities Conservation Planning Act. When completed, the Bay Delta Conservation Plan would provide the basis for the issuance of endangered species permits for the operation of the state and federal water projects. The plan would be implemented over the next 50 years. The heart of the Bay Delta Conservation Plan is a long-term conservation strategy that sets guidelines for the actions needed for a healthy Delta.

State and federal agencies are developing a joint Environmental Impact Report/Statement under the Delta Habitat Conservation and Conveyance Program. The Environmental Impact Report/Statement will determine the potential environmental impacts of the proposed Bay Delta Conservation Plan. The draft Environmental Impact Report/Statement is expected to be ready for public review and comment by mid-2012 and the Bay Delta Conservation Plan Habitat Conservation Plan is scheduled to be delivered early in 2011.

Delta Habitat Conservation and Conveyance Program

The Delta Habitat Conservation and Conveyance Program is a partnership between DWR and the U.S. Bureau of Reclamation (Reclamation) to evaluate the ecosystem restoration and water conveyance alternative identified by the Bay Delta Conservation Plan along with other conveyance alternatives. The evaluation culminates in the completion of a joint Environmental Impact Report/Statement. The State and federal lead agencies for the Environmental Impact Report/Statement are DWR, Reclamation, the USWS, and the NMFS. Development of the Environmental Impact Report/Statement is being done in cooperation with the DFG, the U.S. Environmental Protection Agency, and the U.S. Army Corps of Engineers. The draft Delta Habitat Conservation and Conveyance Program Environmental Impact Report/Statement is scheduled to be completed mid-2012.

2-Gates Fish Protection Demonstration Project

The 2-Gates Fish Protection Demonstration Project is proposed to be installed for 5 years to test its ability to control flows and thereby protect delta smelt and other sensitive aquatic species through reduced entrainment at the SWP and CVP Delta pumping facilities. The 2-Gates Fish Protection Demonstration Project would install and operate removable gate structures in two key locations in the central Delta; in Old River between Bacon Island and Holland Tract, and in Connection Slough between Mandeville Island and Bacon Island. The structures would be opened and closed in conjunction and coordination with operation criteria established by state and federal water quality and environmental regulators. An extensive water quality and fish monitoring program is proposed, using existing and new monitoring actions, to support the validation of the project.

The structures would be temporary and removed after a five-year evaluation period. These facilities include sheet pile dikes extending from each channel bank to the gates, a pile-supported boat ramp to reduce effects to recreational boating and limited dredging and ground disturbance to minimize other biological effects. Barge-mounted gates will be fabricated off-site, floated to the site, and installed by ballasting each gate in place adjacent to the sheet pile dikes.

The project lead is the Reclamation. Public review of the draft environmental assessment and a finding of no significant impacts closed on November 30, 2009. A final environmental assessment and a finding of no significant impacts may follow.

Areas of Significant Uncertainty for SWP Delivery Reliability

4

There are three significant factors contributing to uncertainty in the delivery reliability of the SWP: possible effects from climate change and sea level rise, the vulnerability of Delta levees to failure, and greater operation restrictions imposed by the USFWS and NMFS in response to decreasing populations of endangered fish species. Each of these uncertainties is discussed below.

Climate Change and Sea Level Rise

Climate change is identified in the *California Water Plan Update 2009* as one of the key considerations in planning for the state's water management. California's reservoirs and water delivery systems were developed based on historical hydrology and, under climate change, the past may no longer be a good guide for the future. In fact, changes have already been observed in California's climate over the past 100 years (DWR, 2009). Air temperatures have risen about 1 degree Fahrenheit with the greatest changes occurring at night and at higher elevations. Early spring snowpack in the Sierra Nevada, a key natural reservoir for California's water supply, has decreased about 10% resulting in a loss of about 1.5 maf of water storage. Sea levels along the California coast have risen by about 7 inches.

The climate is expected to continue changing in the future (DWR, 2009). Mean temperatures are predicted to increase by 1.5 degrees to 5.0 degrees Fahrenheit by mid-century and 3.5 degrees to 11 degrees by the end of the century. These rising air temperatures are expected to continue to reduce snowpack, especially in low elevation watersheds where more precipitation may fall as rain rather than snow (Chung et al., 2009). Reduced snow pack is expected to lead to higher winter runoff and lower spring runoff. This could increase flooding during the winter and reduce river flows in the spring and summer, which may require water managers to evaluate the tradeoffs between flood protection and water supply. Future sea level rise estimates range from 4 to 16 inches by mid-century and 7 to 55 inches by the end of the century (DWR, 2009). Higher sea levels could threaten the existing levee system in the Delta. Salinity intrusion into the Delta could also require increased releases of freshwater from upstream reservoirs to maintain compliance with water quality standards.

For the SWP, these climate changes have the potential to simultaneously affect the availability of source water, the ability to convey water, and users' demands for water. This may exacerbate the existing mismatch in California between where and when precipitation occurs and where and when people use water.

Previous Assessment of Climate Change Impacts on SWP Delivery Reliability To better understand how the future reliability of the SWP and CVP may be affected by climate change, DWR examined possible effects for 12 future climate scenarios in a report titled *Using Future Climate Projections to Support Water Resources Decision Making in California* (Chung et al., 2009). The 12 scenarios represent projections from six Global Climate Models for a higher and a lower future

greenhouse gas emissions scenario. The studies also took into account Delta salinity intrusion due to sea level rise and resulting changes in reservoir operations to maintain Delta water quality. Shifts in both water supply and water demands were considered. Several factors related to water supply reliability were examined: annual Delta exports, reservoir carryover storage, Sacramento Valley groundwater pumping, and additional water supplies needed to reduce the frequency and extent of system vulnerability to operational interruption. For the range of future climate projections studied, the reliability of the SWP and CVP water supply systems is expected to be reduced. Although the analysis examined both mid-century and end-of-the-century effects, only mid-century effects are discussed in this report.

One indicator of the amount of water that the SWP can supply south of the Delta is annual Delta exports, which is the total amount of water transferred (exported) south of the Delta through the SWP's Banks Pumping Plant and the CVP's Jones Pumping Plant over the course of one year. At mid-century, median Delta exports are reduced by 7% for the lower greenhouse gas emissions scenario and by 10% for the higher emissions scenario. It is important to note that the full range of mid-century changes in Delta exports for the 12 future climate scenarios spans an increase of 2% to a decrease of 19%. These decreases in annual Delta exports would reduce water deliveries south of the Delta.

An important factor in California's water supply reliability is the amount of water stored in reservoirs from one year to the next. This stored water is like a water supply savings account that allows water managers flexibility during tough times. This water supply savings account is called reservoir carryover storage, and it is the amount of water remaining in a reservoir at the end of September that is available (carries over) for use the next water year. At mid-century, median reservoir carryover storage is reduced by 15% for the lower greenhouse gas emissions scenario and by 19% for the higher emissions scenario. These reductions in reservoir carryover storage would reduce the systems' flexibility during water shortages.

In the Sacramento Valley, reduced surface water supplies are assumed to be augmented by increased groundwater pumping. For agricultural and urban areas where there is access to both surface water and groundwater, surface water diversions are assumed to be used first up to the maximum amount allowed by current contracts. Any unmet demand is then supplied by groundwater pumping. For areas where there is no surface water access, all demands are met by groundwater pumping. At mid-century the median Sacramento Valley groundwater pumping increases by 5% for the lower greenhouse gas emissions scenario and by 9% for the higher emissions scenario.

Under climate change and in some years, water levels in the main supply reservoirs (Shasta, Oroville, Folsom, and Trinity) could fall below the lowest release outlets making the system vulnerable to operational interruption. By mid-century, it is expected that a water shortage worse than the one during the 1977 drought could occur in 1 out of every 6-8 years. In those years, it is estimated that an additional 575-850 taf of water would be needed to meet current regulatory requirements and to maintain minimum system operations. This water could be obtained through additional water supplies, reductions in water demands, or a combination of the two. For current conditions, the report concludes the system is not considered vulnerable to this type of operational interruption.

Selection of Climate Change Scenario for Updated Reliability Assessment For the purposes of this report, the 2029 delivery estimates are based upon a single median-impact future climate projection. To identify this projection, a separate analysis was conducted of the 12 mid-century climate projections contained in *Using Future Climate Projections to Support Water Resources Decision Making in California* (Chung et al., 2009), and their resulting water supply effects to determine which one most closely represented the "central" or "median" projection. The metrics used for comparison consist-

ed of projected climate and hydrology variables, and their effects on CVP/SWP system exports; namely, temperature, precipitation, total inflow to major reservoirs, shifts in timing of run-off, and Delta exports. Using these metrics, the future climate projection from the MPI-ECHAM5 global climate model run for the higher greenhouse gas emissions scenario was selected to be representative of median SWP-CVP effects, and thus is used for the analyses presented in this report.

Vulnerability of Delta Levees to Failure

Delta levees provide constant protection from flooding because most lands in the Delta are below sea level. Most Delta levees, however, do not meet modern engineering standards and are highly susceptible to failure. Levees are subject to failure at times of high flood flows, but also at any time of the year due to seepage or the piping of water through the levee, slippage or sloughing of levee material, or sudden failure due to an earthquake. According to the URS Corp./Jack R. Benjamin & Associates report, *Delta Risk Management Strategy (DRMS), Phase 1: Risk Analysis* (DWR, 2008), the risk of levee failure in the Delta is significant, as shown by the fact that most islands in the Delta have flooded at least once over the past 100 years, with many flooding at least twice. Since 1900, there have been 158 levee failures.

A breach of one or more levees and island flooding may affect Delta water quality and water operations. Depending on the hydrology and the size and locations of the breaches and flooded islands, a significant amount of saline water may be drawn into the interior Delta from Suisun and San Pablo bays. At the time of island flooding, exports may be drastically reduced or ceased to evaluate the salinity distribution in the Delta and to avoid drawing higher saline water toward the pumps. The introduced salinity then could become dispersed and degrade Delta water quality for a prolonged period because of complex relationships between Delta inflows, tidal mixing, and the time taken to repair the breaches.

A large earthquake in the Delta causing significant levee failures and island flooding could lead to multiyear disruptions in water supply, significant water quality degradation, as well as permanent flooding of several islands. Such permanent multi-island flooding would probably lead to increased salt water intrusion into the Delta during seasonal low inflows. Maintaining Delta water quality when several islands are flooded and breaches are open would require additional Delta inflow because the volume of water coming into the Delta on the flood tide would increase, requiring more fresh water from the rivers to prevent the saline water from extending into the Delta. When SWP and CVP pumping are restarted, Delta inflow would need to increase again beyond the pumping amount in order to prevent water quality degradation in the Delta. This chain of events would significantly affect water supply reliability by limiting pumping and requiring additional reservoir releases to generate the needed higher Delta inflows. A worst case scenario for water supply effects would be a moderate or large earthquake causing extensive levee failure in the late summer or fall of a dry year.

The levee break on Middle River and subsequent flooding of Upper Jones Tract in 2004 is a small-scale example of this phenomenon. Following the break, Delta pumping was curtailed for several days to prevent seawater intrusion. Water shipments down the California Aqueduct were continued through unscheduled releases from San Luis Reservoir. Also, Shasta and Oroville reservoir releases were increased to provide for salinity control in the Delta.

A growing concern about the long-term viability of the Delta's levee system led to the initiation of the Delta Risk Management Strategy.

Delta Risk Management Strategy The Delta Risk Management Strategy is being developed in two phases. Phase 1 is the analysis of the risk of levee failures and the associated potential economic, environmental, and public health and safety effects.

The final Phase 1 Report was completed in February 2009. Phase 2, expected to be completed by Summer 2010, is to develop and evaluate strategies to reduce risks from levee failures. The risk analysis includes the likely occurrence of earthquakes of varying magnitudes in the region, future rates of subsidence given continued farming practices, the likely magnitude and frequency of storms, and the potential effects associated with global climate change (sea level rise, climate change, temperature change). Estimated risks to the Delta were made for 50-, 100-, and 200-year projections since risk can be expected to increase with time.

The Delta Risk Management Strategy looks at several hazards to levees: seismic events that cause levee failures, flood flows that can overtop levees or cause levee failure by increased pressure and seepage, undetected problems during non-flood flow periods, and erosion due to high wind waves. The level of risk of failure of Delta levees was determined by considering: the frequency of different magnitudes of hazards that can challenge the integrity of Delta levees, how vulnerable different levee reaches are to hazards, how hazards and levee vulnerabilities combine to produce levee failure, and the economic and ecosystem effects due to levee failure. The analysis assumes that existing regulatory and management practices will continue.

Potential Interruption/Disruption of SWP Deliveries Due to Earthquakes A strong earthquake affecting the Delta could cause simultaneous levee failures on several islands, with these islands flooding simultaneously. Preliminary analysis indicates that some water may not be treatable by municipal agencies for many months due to high organic carbon concentrations. This would extend the period that Delta water supply would be unavailable for urban users.

Key findings of the Phase 1 report on possible effects on SWP deliveries due to earthquakes are:

- A moderate to large earthquake capable of causing multiple levee failures could happen in the next 25 years.
- There is about a 40% chance of 27 or more islands simultaneously failing during a major earthquake.
- Extensive levee failure would most likely occur in the west and central Delta.
- Levee repairs could take more than 2.5 years and exports from the Delta could be disrupted for about a year with a loss of up to 8 maf of water.
- By 2050, the risk of island flooding from seismic events is expected to increase by 35% over 2007 conditions, if a seismic event has not occurred.

Potential Interruption/Disruption of SWP Deliveries Due to Floods During an average year, about 85% of the total Delta inflow comes from the Sacramento River and 10% comes from the San Joaquin River. The remaining Delta inflow primarily comes from three eastside tributaries. Inflow from the Sacramento and San Joaquin rivers depends on reservoir releases, precipitation, and snowmelt. Over the long-term, many different combinations of high flood flows in the Sacramento and San Joaquin rivers are possible because of the large geographical extent of the two rivers' watersheds and the variability in storm paths. The Phase 1 analysis considers the magnitude and frequency of flooding in different parts of the Delta from different sources to evaluate the probability of these high flows. This approach allows the inclusion in the risk analysis of floods that, while possible, are larger than any in the historic record. If the analysis solely relied upon the historical data, the analysts believe the risk would be underestimated.

Potential disruption of Delta exports due to floods and levee failures would depend on the number of flooded islands, the timing and size of the flood flows, and the water quality in the Delta and Suisun Bay at the time of the flood. However, during such high flows, there would normally be little or no effect on the water quality of the exports due to levee failures and Delta Risk Management Strategy assumes no significant effect on Delta exports.

Key findings of the Phase 1 report on possible effects to SWP deliveries due to flood flows by the year 2050 are:

- Delta flood hazard would increase from a sea level rise and more frequent high flows.
- The frequency of island flooding would increase from 2007 conditions.
- The frequency of floods is expected to increase by 35%.
- Levees are expected to become more vulnerable to flooding due to increased seepage and stability problems associated with more subsidence and sea level rise.

The combined effects of increased levee vulnerability and flood flows indicate an expected 80% increase in island flooding from flood flows.

Potential Interruption/Disruption of SWP Deliveries Due to "Sunny Day" Event A "sunny day" levee failure is a failure that occurs during non-flood times and is not caused by an earthquake. Possible causes of levee failure include wave action, animal activity, and seepage. The Delta Risk Management Strategy reports that, on average, there will be about 10 sunny-day breaches with 100 years of exposure in the Delta. These types of levee failures are not expected to involve the simultaneous multi-levee events as could happen with high flood flows or a large earthquake.

Combined Potential Interruption/Disruption of SWP Deliveries The Delta Risk Management Strategy evaluated combined risk of levee failure due to earthquakes, floods, and "sunny day events" as well as how risks may change in the future. Key findings by the Delta Risk Management Strategy are:

- Levee hazards are expected to increase due to pressure from sea level rise and more frequent flood flows.
- The overall likelihood of a major Delta event causing extensive levee failure is increasing, as is the magnitude of the consequences from a given event.
- There is a possible range of sea level rise of 0.7 to 4.6 feet over the next 100 years, depending on the assumed future greenhouse gas emissions and the forecast model used. Current estimates by the Intergovernmental Panel on Climate Change indicate that sea level will rise from 0.6 to 1.9 feet over the next 100 years. The CALFED Independent Science Board has recommended that planning that incorporates sea level rise should use the full range of variability of 20-55 inches.

Delta Flood Emergency Preparedness and Response Plan As part of its efforts to reduce effects to the SWP should a levee failure occur, DWR has initiated the development of the DWR Delta Flood Emergency Preparedness and Response Plan. DWR has emergency response procedures for a Delta levee failure in place but the DWR Delta Flood Emergency Preparedness and Response Plan will enhance the state's ability to prepare for, respond to, and recover from a catastrophic Delta levee failure. This new scalable plan will provide DWR with updated techniques and procedures should a catastrophic Delta levee failure occur. This plan will be DWR's roadmap for coordinating the protection of life and property with our local, state, and federal partners in a levee disaster while protecting the state's water system.

DWR has completed the first of two phases of engineering design work intended to enhance the state's ability to respond to large-scale levee failures or floods in the Delta. In the first phase, DWR conducted a discovery process to analyze previously developed plans and procedures and to identify current DWR capabilities for response to emergencies and disasters in the Delta. In the second phase, DWR will further engage its response partners in local, state, and federal government, and in the private sector to develop a more detailed DWR Delta Flood Emergency Preparedness and Response Plan. This response plan will be consistent with and in compliance with California's Standardized Emergency Management System and with the National Incident Management System[2]. The main goal of this

plan is to reduce the recovery time from a catastrophic levee failure of Delta water users. This will be achieved through the development of new response tools, enhanced response methods, and clarifying response roles in the Delta.

National Marine Fisheries Service and Fish and Wildlife Service Biological Opinions

Over the past 5 years and in response to declining fish populations, the rules defined by the federal biological opinions issued under the Endangered Species Act for the operation of the SWP and CVP in the Delta have become more and more restrictive. In December 2008, the USFWS issued a new biological opinion for delta smelt. In June 2009, the NMFS issued a new biological opinion covering winter-run and spring-run Chinook salmon, steelhead, green sturgeon, and killer whales. The biological opinions imposed additional operational requirements that restrict the amount of water supply that can be exported from the Delta. Below are some highlights of each biological opinion.

USFWS biological opinion The USFWS biological opinion includes additional requirements in all but two months of the year. From December to June, an adaptively managed flow restriction is in place for the average Old River and Middle River flow. The flow restriction can begin as early as December 1 based on USFWS' determination. However, the restriction is more likely to start after December 20 and is based on turbidity and salvage triggers. The restriction has three phases that are intended to protect delta smelt at various life stages. The actual Old River and Middle River flow target is dependent on delta smelt survey information. The USFWS determines the required target flow. Managing Old River and Middle River flow is accomplished primarily by reducing the CVP and SWP exports. Because determining an Old River and Middle River restriction is based on fish location and decisions by USFWS staff, predicting an Old River and Middle River restriction and corresponding export pumping with any great certainty poses a challenge.

The USFWS biological opinion also imposes an additional salinity requirement in the Delta for September and October in wet and above-normal water years. In these years, fresher water must be maintained at locations further west than during the other types of water years. In November during years when this requirement is in place, inflow into the SWP and CVP reservoirs will be passed downstream to augment the outflow until the prior-month's required location for the fresher water is reached.

NMFS biological opinion The requirements contained in the NMFS' biological opinion also added an Old River and Middle River requirement. However, we expect that the USFWS Old River and Middle River requirements will satisfy or be sufficiently protective of the listed species under the NMFS biological opinion.

The NMFS' biological opinion also expands the duration of a Springtime operation which combines a significant reduction in Delta exports with a pulse flow on the San Joaquin River from one month to two months. The requirement would likely result in total exports being limited to 1,500 cfs except in extremely wet cases during April and May.

Under the biological opinion, the Delta Cross Channel gates are closed more frequently from October through December 14, and completely closed between December 15 and January 31. Previously, as defined by Water Right Decision 1641, the Delta Cross Channel was closed up to 45 days between November 1 and January 31. This operation can require additional export reductions in order to meet the water quality objectives contained in the water right permits for the SWP and CVP.

There are a number of additional actions under the biological opinion that require temperature, flow

[2] California's Standardized Emergency Management System is an emergency management system required by California Government Code Section 8607(a) for managing incidents involving multiple jurisdictions and agencies. The National Incident Management System is a nationwide, federal emergency management approach, for managing incidents with all levels of government, private-sector, and nongovernmental organizations working together. For more information, please visit: www.oes.ca.gov.

and storage requirements on the CVP system. These additional actions or requirements could have an effect on real-time SWP operations.

General Approach for Assessing SWP Delivery Reliability

5

CALSIM II, a computer model jointly developed by DWR and Reclamation, simulates much of the water resource infrastructure in the Central Valley and Delta region of California. CALSIM II models all areas that contribute flow to the Delta. The geographical coverage includes the Sacramento River Valley, the San Joaquin River Valley, the Delta, the Upper Trinity River, and the CVP and SWP service areas. CALSIM II simulates operation of the CVP-SWP system using a monthly time step. The model assumes that facilities, land use, water supply contracts, and regulatory requirements are constant over this period.

General Solution Techniques and Incorporating Operational Constraints

CALSIM II routes water through a CVP-SWP system network representation. The network includes more than 300 nodes and more than 900 arcs, representing 24 surface reservoirs and the interconnected flow system. CALSIM II uses logic for determining deliveries to north-of-Delta and south-of-Delta CVP and SWP contractors. The delivery logic uses runoff forecast information that incorporates uncertainty and standardized rules that relate forecasted supplies to estimate the water available for delivery and reservoir carryover storage. The assumed delivery levels are updated monthly within the model for the periods January 1 through May 1 for the SWP and March 1 through May 1 for the CVP to correspond to the updated runoff forecasts. The south-of-Delta SWP and CVP deliveries are based on water supply parameters and operational constraints.

Hydrology

A range of hydrologic conditions based on the historical flow record is used to represent the possible range of water supply conditions. The hydrology used by CALSIM II was developed jointly by DWR and Reclamation by adjusting the historical flow record to account for the influence of land-use changes and upstream flow regulation. Sacramento Valley and tributary basin hydrologies are developed by adjusting the historical sequence of monthly stream flows to represent a sequence of flows at a current or future level of development. Adjustments to historical water supplies are determined by imposing the current or future level land use on historical meteorological and hydrologic conditions. San Joaquin River basin hydrology is developed in a different manner and uses fixed annual demands and a regression analysis to develop flow accretions and depletions. The resulting hydrology represents the water supply available from Central Valley streams to the CVP and SWP at a current or future level of development. Groundwater is modeled as a series of interconnected basins. Groundwater pumping, recharge from irrigation, stream-aquifer interaction and interbasin flow are calculated dynamically by the model.

The hydrology for the 2029 level of development

that was used in the studies in this report has been modified to incorporate effects of climate change for a selected median-impact future climate projection. The effects of climate change on inflows to major SWP and CVP reservoirs was estimated using the method from *Using Future Climate Projections to Support Water Resources Decision Making in California* (Chung et al., 2009). This method adjusts the base hydrologic sequence to reflect projected changes in the timing and volume of inflow. For each month of the year, streamflows based on the future climate projection were compared to historical streamflows to estimate how much higher or lower future streamflows may be than historical flows. The monthly values for the reservoir inflows were then adjusted to represent the monthly trends for the future climate projection. Further adjustments are made to the hydrology to represent projected changes in annual runoff volume.

Demands

North of Delta

For both the 2009 and 2029 scenarios agricultural and outdoor urban land use based demands are calculated from an assumed cropping pattern and a soil-moisture budget. For the 2009 level study the land use based demands have been estimated using fixed 2009 land use and historical hydrology. For the 2029 level study the land use based demands have been estimated using fixed 2029 land use but the hydrology in the Sacramento Valley has been modified to incorporate effects of climate change under a selected representative climate change projection. This modification procedure is similar to what was used to modify inflows to major SWP and CVP reservoirs as discussed in *Using Future Climate Projections to Support Water Resources Decision Making in California* (Chung et al., 2009). Both land use based demands and estimated contract amounts serve as upper bounds on deliveries.

South of Delta

South of Delta demands, unlike North of Delta demands, are contract based. SWP Table A and SWP Article 21 demands for the 2009 scenario are preprocessed independent of CALSIM II and vary annually according to hydrologic conditions. SWP Table A demands for the 2029 scenario are assumed to be at maximum entitlement annually. SWP Article 21 demands in the 2029 scenario, however, vary annually according to hydrologic conditions.

Meeting Delta Water Quality Standards

CALSIM II uses DWR's Artificial Neural Network model to simulate the flow-salinity relationships for the Delta. The Artificial Neural Network model correlates salinity at key locations in the Delta with Delta inflows, Delta exports, and Delta Cross Channel operations. The model estimates salinity at four locations for modeling Delta water quality standards. These locations are Old River at Rock Slough, San Joaquin River at Jersey Point, Sacramento River at Emmaton, and Sacramento River at Collinsville.

CALSIM II Priorities in Water Deliveries

CALSIM II allocates water according to four priorities, in order of priority:

1. Prior-right water users, minimum instream flow requirements, and water quality requirements.
2. SWP Table A contractors and CVP contractors.
3. Reservoir storage for the next year (carryover).
4. SWP Article 21 deliveries.

While CVP and SWP contractor deliveries take precedence over next year's reservoir storage, a balance between the two is struck in the allocation decision to ensure that enough water is left in storage at the end of the year in case of impending drought.

SWP Table A and SWP Article 21 Deliveries

The CALSIM II simulations in this report estimate SWP delivery amounts for SWP Table A and Article 21. As mentioned in Chapter 2, SWP Table A is the contractual method for allocating available supply and the total of all maximum SWP Table A amounts for deliveries from the Delta is 4.133 maf per year. SWP Article 21 refers to a provision in the contract for delivering water that is available in addition to SWP Table A amounts. SWP Article 21 contracts allow contractors to receive additional water deliveries only under specific conditions. These conditions are:

1. The water is available only when it does not interfere with SWP Table A allocations and SWP operations.
2. The water is available only when excess water is available in the Delta.
3. The water is available only when conveyance capacity is not being used for SWP purposes or scheduled SWP deliveries.
4. The water cannot be stored in the SWP system. In other words, the contractors must be able to use the SWP Article 21 water directly or be able to store it in their own system.

CALSIM II Performance

Some of the comments to the draft *2003 State Water Project Delivery Reliability Report* expressed concern about the accuracy of CALSIM II and the credibility of conclusions about SWP delivery reliability that are based on CALSIM II simulations. To respond to these concerns, DWR conducted several CALSIM II studies. In one study, results from a CALSIM II simulation using historical input from 1975 to 1998 were compared to historical operations. This study is documented in the report *CALSIM II Simulation of Historical SWP-CVP Operations, Technical Memorandum Report*, *November 2003* and was provided in Appendix E of the *2005 State Water Project Delivery Reliability Report*. In a second study, a sensitivity analysis was performed to quantify the effects of various inputs on CALSIM II results. Two performance measures were used, a Sensitivity Index and Elasticity Index, to quantify the sensitivity of 12 model output responses to 12 different model input parameters. This sensitivity study was also provided in Appendix E of the *2005 State Water Project Delivery Reliability Report.*

In a follow-up study, DWR staff conducted a more detailed analysis of the sensitivity results, focusing on the delivery reliability of the SWP system. The results of this analysis are documented in an internal memorandum report, *Supplemental Technical Memorandum to CalSim-II Model Sensitivity Analysis Study, October 2005*, dated April 30, 2007. The purpose of this analysis was to assist SWP contractors and other interested parties in evaluating the effect of model input parameters on SWP Delta deliveries, SWP north-of-Delta deliveries, and SWP deliveries under SWP Article 21, with respect to a selected subset of input parameters.

Recent Improvements to CALSIM II Simulations

The CALSIM II model is modified in response to new in water system operational requirements, updated information, or improvements in computational methods. Changes to the model are discussed in Appendix A. Enhancements to CALSIM II of note are:

- **Greater resolution in the representation of the Delta channel configuration and of the distribution of Net Delta Island Consumptive Use (Net DICU).** The representation of the Delta Channels was reconfigured to mimic the flow dynamics in the interior Delta, specifically to capture the flow effects in the Old and Middle Rivers. Channel configurations and flow regressions were taken from the paper *A Model to Estimate Combined Old & Middle River Flows* (Paul Hutton, Ph.D., P.E., Metropolitan Water District of Southern California, April 2008).

- **Article 56 Extended Carryover deliveries.** Article 56 Extended Carryover deliveries is a category of water delivery available to SWP Table A contractors that was not represented in the previous model used in the *2007 Report*. Modeling this category of water delivery gives a more realistic representation of real world export patterns throughout the delivery contract year.

- **Three-pattern deliveries.** The practice of the SWP delivering water based on three delivery patterns submitted by the SWP contractors for 30%, 50%, and 100% allocations is now modeled. Modeling the three delivery patterns based on the level of allocation gives a more realistic representation of real world export patterns throughout the delivery contract year.

- **Improved modeling of flow-salinity relationships in the Delta.** The previous Artificial Neural Network used to estimate flow-salinity relationships has been replaced with a newer more accurate version. The new Artificial Neural Network and its accompanying implementation to the CALSIM II model produces salinities that match more closely the Delta Simulation Model 2 salinities.

- **X2 positions and flow requirements estimated using an Artificial Neural Network.** The X2 positions and flow requirements were previously estimated using the Kimmerer-Monismith Equation. The new Artificial Neural Network used to estimate X2 position more closely matches the Delta Simulation Model 2 model X2 position.

- **Sea Level Rise.** The phenomenon of sea level rise and its effect on Delta salinities is now modeled. Artificial Neural Networks were developed to estimate flow-salinity relationships in the Delta with an assumed increment of sea level rise for a mid-century condition.

- **SWP South of the Delta Allocations.** The SWP South of the Delta Allocation logic has been modified so that adjustments to the Water Supply Index-Delivery Index based allocations are made to account for the export restrictions imposed by the new Biological Opinions. The Biological Opinions dictate that San Joaquin River flows are now the determining factor for export capacity from the Delta. This new logic forecasts export capacity based on San Joaquin River wetness and then develops allocations from them.

Assessment of Present and Future SWP Delivery Reliability

6

These updated estimates of the current and future delivery reliability of the SWP reflect the changes in project operation due to the requirements contained in the USFWS' biological opinion issued in December 2008 and the NMFS' biological opinion issued in June 2009. These opinions are discussed in more detail in Chapter 4. The estimates for the future delivery amounts also incorporate assumptions regarding rainfall, runoff, and water supply demand based upon changed climatic conditions.

The updated estimates are presented alongside results from the *2007 Report* to help identify and explain impacts to delivery reliability due to the biological opinions' requirements and future climate change with sea level rise. At the end of the chapter, a comparison of the estimated SWP deliveries under Current Conditions to those under Future Conditions is presented. This chapter contains tables summarizing the updated estimated delivery amounts of the studies for the entire study period (1922-2003), dry years, and wet years and presents information on the estimated probability of annual SWP Table A delivery amounts currently and 20 years in the future. The annual values for SWP deliveries estimated by all the CALSIM II simulations are listed in tables in Appendix B. These tables also show the annual SWP Table A demands assumed for each study.

The results indicate potentially significant differences between the updated studies and studies done for the *2007 Report* under both Current and Future Conditions for estimated deliveries during some periods. In general, updated estimates of both current and future SWP Table A deliveries are less than the deliveries presented in the *2007 Report*, during near-normal to wet years. The updated studies generally show slightly lower SWP Table A deliveries under Future Conditions when compared to Current Conditions. There are, however, some larger decreases in deliveries in the future during multiple dry-year periods. This is primarily due to the effects of the assumed climate change scenario that includes sea level rise. In comparison, the *2007 Report* showed frequent increases in future deliveries.

Assessment of SWP Delivery Reliability under Current Conditions

Current Conditions refer to those conditions in effect in 2009. They are described below. Corresponding results from the *2007 Report* are presented throughout this section for comparison. Appendix A presents a detailed discussion of the study assumptions for this report.

Availability of Source Water

The 2005 level of development (level of water use in the source areas) is assumed to be representative of 2009. The hydrologic sequence of simulated years is based upon historical precipitation and runoff patterns and is from water years 1922 through 2003.

Demand for Delta Water

The SWP contractors' SWP Table A demands for deliveries from the Delta assumed for 2009 are shown in **Table 6.1**. A range in SWP Table A demands is shown because the demand is assumed to vary each year with the weather. The assumed demands for 2009 are higher than the ones used in the corresponding Study 2007 in the *2007 Report*. Differences between the values in updated studies and the Study 2007 are due to increased SWP Table A water demand for municipal uses.

The potential demands for SWP Article 21 water are assumed for study purposes to be very high and are more than double the amounts assumed in the *2007 Report* as shown in **Table 6.2**. The SWP Article 21 demands are increased in the 2009 updated studies to match the amounts assumed in the studies conducted for the biological opinions. Assuming very large SWP Article 21 demands in the studies for the biological opinions was done to capture the upper bound of the potential impact of SWP Article 21 exports upon the Delta ecosystem. This assumption reflects a condition in which SWP contractors are able to use essentially any available SWP Article 21 water when conveyance capacity for SWP Article 21 water exists in the SWP delivery system.

Ability to Convey Source Water to the Desired Point of Delivery

The CALSIM II simulation assumes that current Delta water quality regulations, contained in the D-1641, are in place for the Current Condition study. The simulation also incorporates the requirements of the USFWS' and NMFS' biological opinions. Additional information on the characterization of the biological opinions in the model is found in Appendix A. The amount of exports allowed while achieving the Old River and Middle River flow targets are assumed to be shared equally between the CVP and the SWP. Combined CVP and SWP exports also are assumed constrained according to the NMFS biological opinion Action 4.2.1 during April 1 to May 31. The specific rules for this restriction are included in Appendix A.

The simulation of Current Conditions in the *2007 Report* assumes the same D-1641 requirements for Delta water quality, but instead assumes an April 15 to May 15 export restriction and Old River and Middle River flow targets from the interim operating rules ordered by the federal court.

Annual Estimates of SWP Deliveries

The CALSIM II estimates for the SWP Table A and SWP Article 21 annual deliveries for the

Table 6.1 SWP Table A demands from the Delta under Current Conditions

Study of Current Conditions	Average Demand		Maximum Demand		Minimum Demand	
	taf /year	% of maximum SWP Table A[1]	taf /year	% of maximum SWP Table A[1]	taf /year	% of maximum SWP Table A[1]
2007 Report, Study 2007	3308	80%	3864	94%	2323	56%
Study 2009	3711	90%	4115	100%	3007	73%

[1]/ 4,133 taf /year.

Table 6.2 SWP Article 21 demands from the Delta under Current Conditions

Study of Current Conditions	Maximum SWP Article 21 demand (taf/month)[1]	
	December - March	April - November
2007 Report, Study 2007	184	84
Study 2009	414	214

[1]/ The CALSIM II simulations deliver up to these demands in any month in which appropriate conditions exist. However, the actual capability of SWP water contractors to take this amount of SWP Article 21 is not the sum of these maximum monthly values.

Current Condition are presented in Appendix B. These values are analyzed in the following sections.

SWP Table A Deliveries under Different Hydrologic Scenarios

Table 6.3 contains the average, maximum, and minimum estimates of SWP Table A deliveries from the Delta under Current Conditions from the *2007 Report* and under 2009 assumptions that include the biological opinions' requirements. The estimated probabilities for a given amount of annual SWP delivery under Current Conditions are presented in Figure 6.1.

Table 6.3 shows that under updated Current Conditions, average SWP annual delivery amounts may decrease 3% of maximum SWP Table A when compared to the earlier estimate, from 63% to 60%. This decrease is about 110 taf and is primarily due to the required actions in the biological opinions reducing the amount of Delta water available for export by the SWP in comparison to the effect of the Old River and Middle River flow targets in the Study 2007. The maximum delivery of 90% for the Study 2007 is reduced by 370 taf to 81% for the updated study. The estimate of minimum SWP Table A delivery actually increases slightly.

Table 6.4 includes estimates of SWP Table A deliveries for Current Conditions under an assumed repetition of historical drought periods. The years are identified as dry by the Eight River Index, a good indicator of the relative amount of water supply available to the SWP. The Eight River Index is the sum of the unimpaired runoff from the four rivers in the Sacramento Basin used to define water conditions in the basin plus the four rivers in the San Joaquin Basin, which correspondingly define water conditions in that basin. The eight rivers are the Sacramento, Feather, Yuba, American, Stanislaus, Tuolumne, Merced, and San Joaquin. Table 6.4 also includes the average deliveries for comparison purposes.

Table 6.4 shows that estimates of updated SWP deliveries under Current Conditions during dry periods are about the same as earlier estimates. The four-year drought of 1931-1934 is estimated to provide 34% of maximum SWP Table A; a reduction of 41 taf/year when compared to the 2007 estimate. The two-year drought of 1976-1977 is an exception with SWP deliveries estimated to increase 2% of maximum SWP Table A, from 34% to 36%. This increase in delivery in 1976-1977 is due to the use of Article 56 carryover storage in the 2009 studies for this report. In the Current Condition study, 470 taf

Table 6.3 SWP Table A delivery from the Delta under Current Conditions

Study of Current Conditions	Average Delivery		Maximum Delivery		Minimum Delivery	
	taf / year	% of maximum SWP Table A[1]	taf / year	% of maximum SWP Table A[1]	taf / year	% of maximum SWP Table A[1]
2007 Report, Study 2007[2]	2595	63%	3711	90%	243	6%
Study 2009	2483	60%	3338	81%	301	7%

1/ 4,133 taf /year
2/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

Table 6.4 Average and dry period SWP Table A deliveries from the Delta under Current Conditions

Study of Current Conditions	SWP Table A delivery from the Delta (in percent of maximum SWP Table A[1])					
	Long-term Average	Single dry year 1977	2-year drought 1976-1977	4-year drought 1931-1934	6-year drought 1987-1992	6-year drought 1929-1934
2007 Report, Study 2007[2]	63%	6%	34%	35%	35%	34%
Study 2009	60%	7%	36%	34%	35%	34%

1/ 4,133 taf /year
2/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

of water allocated in 1975 is carried over and used in January through March of 1976. Article 56 carryover storage was not modeled for *2007 Report* studies.

Table 6.5 summarizes SWP Table A deliveries under an assumed repetition of historical wet periods under Current Conditions. As with drought years, the Eight River Index is used to identify wet years. **Table 6.5** shows that estimates of SWP deliveries under updated Current Conditions may either increase or decrease from earlier estimates during wet years. Decreases in SWP deliveries for these wet periods generally range from 0 to 5% of maximum SWP Table A (0 to 206 taf/year). These decreases are due to the requirements of the biological opinions. The increases in delivery in 1983 and 1982-1983 are due to an assumed increase in demand compared to the *2007 Report*.

SWP Article 21 Deliveries under Different Hydrologic Scenarios

SWP water delivery is a combination of both SWP Table A deliveries and the use of SWP Article 21 by some contractors to store water locally at times when extra water and capacity is available beyond that needed by normal SWP operations. **Table 6.6** contains the average, maximum, and minimum SWP Article 21 deliveries over the 1922-2003 period for the earlier study and the updated simulation. Comparing the estimates of SWP Article 21 deliveries, the updated estimates show higher delivery amounts for the maximum delivery over the simulation period. The estimated maximum SWP Article 21 delivery is increased by 260 taf. This increase is due to the higher SWP Article 21 demands assumed for the 2009 studies. The minimum SWP Article 21 delivery for the updated study is 2 taf/yr compared to 0 taf/yr for the *2007 Report*. This higher minimum delivery is due to a revised assumption in the updated studies that allows the diversion of SWP Article 21 water to the North Bay Aqueduct whenever such water is available in the Delta. In the *2007 Report*, SWP Article 21 deliveries to North Bay Aqueduct were assumed to be dependent on the availability of Banks pumping capacity to serve all SWP Article 21 demands. The estimated average SWP Article 21 deliveries are the same under the updated Current Conditions compared to the *2007 Report*.

Because SWP Article 21 exports happen sporadically, it is best to evaluate the effects by looking at specific years. **Table 6.7** shows the updated and earlier estimates of SWP Article 21 deliveries by year during dry periods. Under the updated Current Conditions, SWP Article 21 deliveries are estimated to be significantly increased during the years 1932 and 1933. These increases are primarily the result of the assumed higher SWP Article 21 demand. **Table 6.7** illustrates that opportunities for delivering SWP Article 21 water exist even during drought periods,

Table 6.5 Average and wet years SWP Table A delivery from the Delta under Current Conditions

Study of Current Conditions	Percent of maximum (4,133 taf /year) SWP Table A delivery from the Delta					
	Long-term Average	Single wet year 1983	2-year wet 1982-1983	4-year wet 1980-1983	6-year wet 1978-1983	10-year wet 1978-1987
2007 Report, Study 2007[1]	63%	60%	66%	68%	73%	71%
Study 2009	60%	68%	71%	68%	68%	67%

[1]/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

Table 6.6 Annual SWP Article 21 delivery from the Delta under Current Conditions

Study of Current Conditions	Average delivery (taf)	Maximum delivery (taf)	Minimum delivery (taf)
2007 Report, Study 2007[1]	85	590	0
Study 2009	85	850	2

[1]/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

Table 6.8 shows the updated and earlier estimates of SWP Article 21 deliveries by year during the 1978-1987 wet period. Under Current Conditions, updated estimated SWP Article 21 delivery can increase up to 450 taf in an individual year, compared to earlier estimates. Once again, the increases in SWP Article 21 are due to the high level of assumed demand. In two years, 1978 and 1982, the estimated Article 21 deliveries decrease when compared to earlier estimates.

SWP Table A Delivery Probability

The probability that a given level of SWP Table A amount will be delivered from the Delta is shown for Current Conditions in **Figure 6.1**. Results from the *2007 Report* and updated estimates for 2009 are shown. Probability values for Current Conditions are presented in Appendix B. To use **Figure 6.1**, one would first locate the value for the specific percent exceedence along the horizontal axis (x-axis) of the graph, move vertically upward to the curve, then horizontally to the vertical axis (y-axis) and read the annual delivery. For example, for a 50% exceedence, the corresponding annual SWP Delta deliveries would be about 2,980 taf (72% of maximum SWP Table A) from previous estimates and 2,675 taf (65% of maximum SWP Table A) for the updated estimates. The numerical data for this figure is included in Appendix B and should be referenced for specific values corresponding to specific exceedences.

Figure 6.1 shows that under Current Conditions, for probabilities of exceedence less than 55%, updated annual SWP Table A deliveries can be 300 to 400 taf less than the earlier estimates. Annual SWP Table A deliveries associated with exceedences greater than 70% are generally more than the Study 2007 by about 200 taf. **Table 6.9** contains the values for SWP Delta deliveries corresponding to 25%, 50%, and 75% exceedence. The information in **Table 6.9** can be stated as follows:

Table 6.7 Average and dry year SWP Article 21 delivery under Current Conditions (taf/year)

Year	*2007 Report*, Study 2007[1]	Study 2009
1929	0	10
1930	0	10
1931	0	8
1932	0	160
1933	40	390
1934	0	8
1976	5	9
1977	0	2
1987	0	9
1988	0	10
1989	0	10
1990	0	10
1991	0	12
1992	0	10
Long-term average	85	85

[1]/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

Table 6.8 Average and wet year SWP Article 21 delivery under Current Conditions (taf/year)

Year	*2007 Report*, Study 2007[1]	Study 2009
1978	100	2
1979	0	120
1980	190	190
1981	0	8
1982	490	460
1983	400	850
1984	460	510
1985	0	2
1986	30	140
1987	0	9
1978-87 Average	170	230
Long-term Average	85	85

[1]/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

For any given year,

- 25% chance of SWP deliveries at or above 2,920 taf.
- 50% chance of SWP deliveries above or below 2,675 taf.
- 75% chance of SWP deliveries above 2,397 taf (or 25% chance that deliveries will be below 2,397 taf).

Assessment of SWP Delivery Reliability under Future Conditions

Future Conditions refer to conditions that are assumed in effect in the year 2029. These conditions as described below include effects of climate change and the same requirements of the biological opinions assumed under Current Conditions. Results from the CALSIM II simulations for the *2007 Report* under 2027 future scenario (Study 2027) are presented throughout this section for comparison purposes. A detailed list of the study assumptions for this report is presented in Appendix A.

Availability of Source Water

DWR's 2009 report, *Using Future Climate Projections to Support Water Resources Decision Making in California* (Chung et al., 2009) evaluates possible future effects on California water supply through CALSIM II simulations with hydrologic sequences which reflect different scenarios of climate change. The 82-year hydrologic sequence used to develop the delivery estimations for the 2029 study discussed below is based upon the methods used in *Using Future Climate Projections to Support Water Resources Decision Making in California*. The method for developing the hydro-

Figure 6.1 SWP Table A delivery probability under Current Conditions

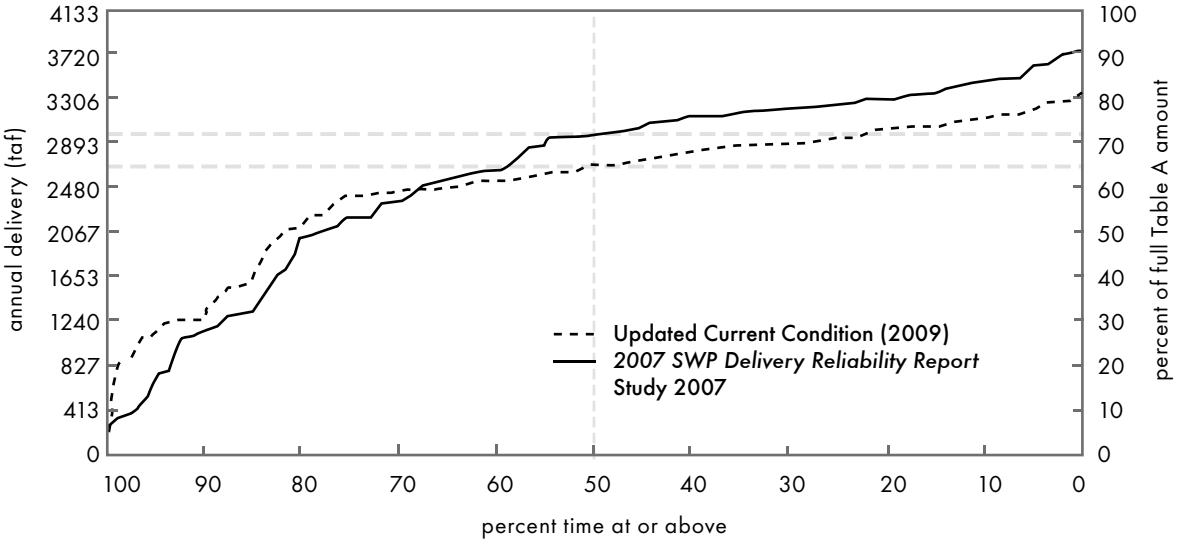


Table 6.9 Highlighted SWP Table A delivery percent exceedence values under Current Conditions

Exceedence	Annual SWP Table A Delivery (taf)		Change in delivery compared to *2007 Report* (taf)
	2007 Report, Study 2007 [1]	Study 2009	
25%	3218	2920	- 298
50%	2976	2675	- 301
75%	2168	2397	+ 229

[1]/ Values reflect averaging annual deliveries from the two scenarios of Old and Middle River flow targets.

logic sequence for 2029 is described in Appendix B.

It was pointed out earlier in Chapter 4 of this report that the studies in *Using Future Climate Projections to Support Water Resources Decision Making in California* of potential climate changes by mid-century indicate a potential for operational interruptions due to one or more reservoirs reaching minimum levels of storage. The study for 2029 conditions indicates a slight increase in system vulnerability when compared with the 2009 study but it does not approach the levels forecasted in *Using Future Climate Projections to Support Water Resources Decision Making in California*. For the 2029 study, it is assumed that actions such as a program to acquire water to meet Delta water quality objectives would be implemented to maintain system operation.

Demand for Delta Water

The SWP contractors' SWP Table A demands for deliveries from the Delta assumed for 2029 and for Study 2027 are shown in Table 6.10. The maximum annual SWP Table A demand of 4,133 taf is assumed in all 82 years of the simulation. There is no variation in demand due to different annual hydrologic conditions. The assumed demands for 2029 are the same as the demands presently developed for the Bay Delta Conservation Plan.

The assumed SWP Article 21 demands, shown in Table 6.11, are higher than the demands assumed for Study 2027 and are at the same level as the SWP Article 21 demands assumed for the 2009 study. This assumption reflects a condition in which SWP contractors are able to use essentially any available SWP Article 21 water when conveyance capacity for SWP Article 21 water exists in the SWP delivery system.

Ability to Convey Source Water to the Desired Point of Delivery

One of the most significant assumptions regarding SWP conveyance is that the rules and facilities related to Delta conveyance will remain at the status quo. That is, no new facilities are assumed to be in place to convey water through or around the Delta. As noted in Chapter 3, there are several processes under way to identify modifications to the existing method of conveying water through the Delta to reduce the conflict between fishery concerns and water supply reliability. However, these programs are not at a stage where such changes can be used in this report. The CALSIM II simulations for 2029 scenarios assume the current Delta water quality regulations, contained in D-1641, are in place as well as the requirements of the USFWS and NMFS biological opinions. The exports resulting from meeting Old River and Middle River flow targets related to delta

Table 6.10 SWP Table A demands from the Delta under Future Conditions

Study of Future Conditions	Average Demand		Maximum Demand		Minimum Demand	
	taf / year	% of maximum SWP Table A[1]	taf / year	% of maximum SWP Table A[1]	taf / year	% of maximum SWP Table A[1]
2007 Report, Study 2027	4111	99%	4133	100%	3935	95%
Study 2029	4133	100%	4133	100%	4133	100%

[1]/ 4,133 taf /year.

Table 6.11 SWP Article 21 demands from the Delta under Future Conditions

Study of Future Conditions	Maximum SWP Article 21 demand (taf/month) [1]	
	December - March	April - November
2007 Report, Study 2027	184	84
Study 2029	414	214

[1]/ The CALSIM II simulations deliver up to these demands in any month in which appropriate conditions exist. However, the actual capability of SWP water contractors to take this amount of SWP Article 21 is not the sum of these maximum monthly values.

smelt are again assumed shared equally between the CVP and the SWP.

The simulations of Future Conditions in the *2007 Report* (Study 2027) also assumed D-1641 Delta water quality requirements but it assumed that flow restrictions for Old River and Middle River ordered by the federal court in December 2007 were in place.

To simulate the assumed 2029 conditions, two CALSIM II simulations are needed: a scenario with climate change and a scenario assuming no climate change. SWP deliveries derived from these two simulations were modified as explained below before being used to describe Future Conditions.

Presentation of CALSIM II Results

For the purpose of describing SWP deliveries under Future Conditions in this chapter, the annual deliveries with climate change simulated by CALSIM II have been adjusted to better estimate deliveries reflecting 2029 conditions. The climate change scenario for Future Conditions assumes projections of climate and hydrology for the year 2050. Currently, 2029 climate change projections are not available. In order to estimate SWP deliveries 20 years in the future with potential changes in climate, annual SWP deliveries were interpolated between deliveries from the CALSIM II simulation with the climate change scenario and deliveries from the CALSIM II simulation which assumes no climate change. Both CALSIM II simulations for future conditions assume a 2029 SWP demand level.

The following tables and graph contain the interpolated values from these two simulations. The annual SWP Table A and SWP Article 21 deliveries for the two simulations upon which the information in this section is based are presented in Appendix B.

SWP Table A Deliveries under the Future Hydrologic Scenario

Table 6.12 contains the average, maximum, and minimum estimates of SWP Table A deliveries from the Delta under Future Conditions of Study 2027 from the *2007 Report* and under the updated 2029 assumptions. The estimated probabilities for a given amount of annual SWP delivery under Future Conditions and those for the 2027 conditions are presented in **Figure 6.4**.

Table 6.12 shows that under the updated Future Conditions, average SWP delivery amounts may decrease from 6 to 9% of maximum SWP Table A (240 taf /yr to 360 taf/yr) when compared to the earlier estimates. This decrease in deliveries is primarily due to the effect of the biological opinions' requirements in reducing the amount of Delta water available for export by the SWP in comparison to the effect of the Old River and Middle River flow targets assumed for the Study 2027. Differences in the assumed hydrologic changes associated with climate change could also affect deliveries. The estimate of minimum annual SWP Table A delivery for the updated study is shown to increase from 4 to 5% of maximum SWP Table A amounts (165 taf/yr to 200 taf/yr). Minimum annual deliveries are associated with the conditions simulated for year 1977, the driest year on record.

Table 6.13 includes estimates of SWP Table A deliveries for a single-year and multiyear droughts. It

Table 6.12 SWP Table A delivery from the Delta under Future Conditions

Study of Future Conditions	Average Delivery		Maximum Delivery		Minimum Delivery	
	taf / year	% of maximum SWP Table A[1]	taf / year	% of maximum SWP Table A[1]	taf / year	% of maximum SWP Table A[1]
2007 Report, Study 2027 [2]	2724–2850	66–69%	4133	100%	255–293	6–7%
Study 2029	2487	60%	3999	97%	458	11%

[1]/ 4,133 taf /year
[2]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

also includes the average of the SWP Table A deliveries for comparison purposes. Estimates of updated SWP deliveries under Future Conditions during dry periods are about the same as the *2007 Report* for four-year and six-year droughts. The six-year drought of 1987-1992 is estimated to provide 32% of maximum SWP Table A, a reduction of 1% to 3% when compared to the 2007 estimate. Updated SWP deliveries in the 1976-1977 drought increase by 11% to 12% of maximum SWP Table A (about 450 taf/yr) compared to the earlier studies. About 180 taf of this increase is due to water allocated in 1975 and delivered in 1976 under the Article 56 carryover program.

Table 6.14 summarizes SWP Table A deliveries under an assumed repetition of historical wet periods under Future Conditions. As with drought years, the Eight River Index is used to identify wet years. SWP deliveries increase in 1983 compared to earlier studies by 3% of maximum SWP Table A due to an assumed increase in demand. Reductions in delivery amounts are significant for the two-, four-, six-, and 10-year wet periods. The highest reduction occurs in the 1978-1987 period and ranges from 8% to 11% of maximum SWP Table A. This is a reduction of 330 taf/yr to 450 taf/yr.

SWP Article 21 Deliveries under Different Hydrologic Scenarios

Table 6.15 contains the average, maximum, and minimum SWP Article 21 delivery estimates over the 1922-2003 period for the updated simulations of Future Conditions. Comparing the estimates of SWP Article 21 deliveries, the updated estimates show more delivery amounts on average and for the maximum annual delivery over the simulation period. Estimated average SWP Article 21 delivery under the updated Future Conditions is 30 taf/yr more than the corresponding estimate in the *2007 Report*. Estimated maximum annual SWP Article 21 delivery is increased about 120 taf. These increases are due to the assumed higher SWP Article 21 demands in the 2029 studies. The minimum SWP Article 21 delivery for the updated study is 1 taf/yr compared to 0 taf/yr for the *2007 Report*. This higher minimum delivery is due to a revised assumption in the updated studies that allows the diversion of SWP Article 21 water to the North Bay Aqueduct whenever such water is available in the Delta. In the *2007*

Table 6.13 Average and dry period SWP Table A deliveries from the Delta under Future Conditions

Study of Future Conditions	Percent of maximum (4,133 taf /year) SWP Table A delivery from the Delta					
	Long-term Average	Single dry year 1977	2-year drought 1976-1977	4-year drought 1931-1934	6-year drought 1987-1992	6-year drought 1929-1934
2007 Report, Study 2027[1]	66–69%	6–7%	26–27%	32–37%	33–35%	33–36%
Study 2029	60%	11%	38%	35%	32%	36%

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.14 Average and wet period SWP Table A deliveries from the Delta under Future Conditions

Study of Future Conditions	Percent of maximum (4,133 taf /year) SWP Table A delivery from the Delta					
	Long-term Average	Single wet year 1983	2-year wet 1982-1983	4-year wet 1980-1983	6-year wet 1978-1983	10-year wet 1978-1987
2007 Report, Study 2027[1]	66–69%	94%	97%	86–87%	84–87%	80–83%
Study 2029	60%	97%	93%	82%	79%	72%

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Report, SWP Article 21 deliveries to North Bay Aqueduct were assumed to be dependent on the available Harvey O. Banks pumping capacity to serve all SWP Article 21 demands.

Table 6.16 contains the estimates for SWP Article 21 deliveries during historical dry periods. The SWP Article 21 deliveries for the updated 2029 study have a dry period maximum of 370 taf/yr compared to 90 taf/yr for the 2027 studies. Table 6.16 illustrates that opportunities for delivering SWP Article 21 water exist even during drought periods.

Table 6.17 shows updated and earlier estimates of SWP Article 21 deliveries by year during the 1978-1987 wet period. The availability of SWP Article 21 deliveries is also increased for this wet period. The average SWP Article 21 delivery for the 1978-1987 period under Future Conditions is 140 taf/yr, compared to a range of 90 taf/yr to 100 taf/yr for the 2027 studies.

SWP Table A Delivery Probability

The probability that a given level of SWP Table A amount will be delivered from the Delta is shown for Future Conditions in Figure 6.4. Results of the 2027 studies from the *2007 Report* and the updated 2029 study are shown. Probabilities for 2027 conditions are shown as a set of dotted lines representing the four climate change scenarios analyzed in the *2007 Report*.

Figure 6.2 shows that under Future Conditions, for probabilities of exceedence under 60%, updated annual SWP Table A deliveries can be significantly less than the earlier estimates. For example, a delivery estimate which has a 40% chance of being larger is reduced to about 2,700 taf/yr (65% of maximum SWP Table A) in the updated study from the earlier estimates of about 3,260 taf to 3,450 taf annually (79-83% of maximum SWP Table A). Figure 6.2 is based on information for the updated Future Condi-

Figure 6.2 Delta SWP Table A delivery probability under Future Conditions

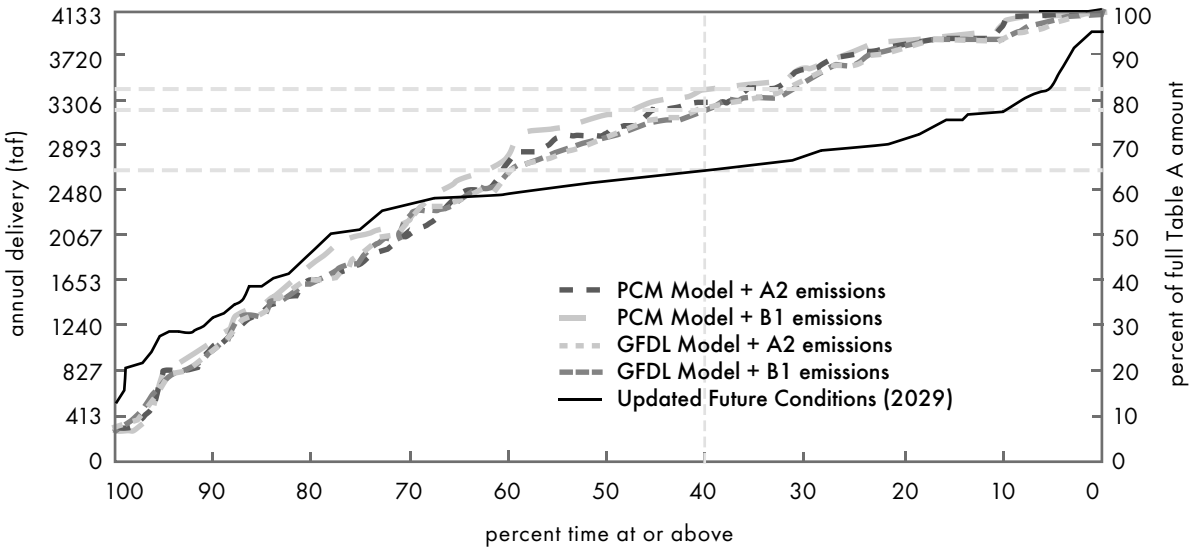


Table 6.15 Annual SWP Article 21 delivery from the Delta under Future Conditions

Study of Future Conditions	Average delivery (taf)	Maximum delivery (taf)	Minimum delivery (taf)
2007 Report, Study 2027[1]	30	410–420	0
Study 2029	60	540	1

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.16 Average and dry year SWP Article 21 delivery under Future Conditions (taf/year)

Year	*2007 Report*, Study 2027[1]	Study 2029
1929	0	160
1930	0	10
1931	0	8
1932	0–40	370
1933	20–90	230
1934	0–10	70
1976	0	12
1977	0–10	3
1987	0	60
1988	0	60
1989	0	6
1990	0	11
1991	0	13
1992	0	9
Long-term Average	30	60

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.17 Average and wet year SWP Article 21 delivery under Future Conditions (taf/year)

Year	*2007 Report*, Study 2027[1]	Study 2029
1978	40–150	70
1979	0	11
1980	90–130	30
1981	0	14
1982	0	100
1983	270–290	510
1984	410– 420	540
1985	0	9
1986	0–10	50
1987	0	60
1978-87 Average	90–100	140
Long-term Average	30	60

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

tion contained in **Tables B.4** and **B.5** in Appendix B.

Table 6.18 presents the SWP Table A annual deliveries associated with 25%, 50%, and 75% exceedence illustrated in **Figure 6.2** and contained in **Table B.5**. The information in **Table 6.18** can be stated as follows:

For any given year,

- 25% chance of SWP deliveries at or above 2,915 taf.
- 50% chance of SWP deliveries above or below 2,596 taf.
- 75% chance of SWP deliveries above 2,137 taf (or 25% chance that deliveries will be below 2,137 taf).

Comparing Current and Future SWP Delivery Reliability

The results presented earlier in this chapter compare updated delivery projections for both the current and future scenarios with those contained in the *2007 Report.* The comparisons show that deliveries are estimated to be less than projected in the *2007 Report* due to implementing the requirements of the recent biological opinions and, for the future projection, a change in the assumed climate change scenario. This section presents the same CALSIM II simulation-based results as a comparison of current reliability, projected for 2009, to the future reliability, projected for 2029. Comparisons to the results of the *2007 Report* are also included.

SWP Table A Deliveries under Different Hydrologic Scenarios

Tables 6.19, **6.20**, and **6.21** summarize the estimated SWP Table A deliveries from the Delta under Current and Future Conditions from the *2007 Report* and as derived from the updated CALSIM II simulations for this report. A significant observation involves the change over the twenty-year period of the average amount of projected SWP Table A deliveries. In the *2007 Report*, average future SWP deliveries are projected to increase 3 to 6 percent of maximum SWP Table A whereas, under the updated estimate, the average delivery does not change. The updated average annual delivery is estimated to remain at 60% of maximum SWP Table A in the future.

In both the *2007 Report* and this updated report, the changes between current and future deliveries fluctuate within 4 percentage points during dry periods greater than 2 years (**Table 6.20**), and increase during wet periods (**Table 6.21**). The increases during the wet periods for both sets of studies become less as the wet periods lengthen. For the *2007 Report*, these increases range from 34% of maximum SWP Table A for a single year to 9% for the 10-year period. For the updated study, the increases range from 29% for the single year to 5% for the 10-year period. The amounts of the increases for the updated estimates are consistently less than those for the *2007 Report*. This is primarily due to the SWP demands assumed for the updated study for current conditions and the climate change scenario assumed for the updated future condition that now includes sea level rise. The assumed demands are very similar between the current and future updated studies whereas the assumed demand for the Study 2027 is significantly higher than the assumed demand in the Study 2007.

Table 6.18 Highlighted SWP Table A delivery percent exceedence values under Future Conditions

Exceedence	*2007 Report*, Study 2027[1]	Study 2029[2]	Delivery changes in updated studies compared to *2007 Report* (taf)
25%	3687–3815	2915	- 772 to - 900
50%	2967–3205	2596	- 371 to - 609
75%	1860–2077	2137	+ 60 to + 277

1/ Range in value reflects four modified scenarios of climate change.
2/ Annual SWP Table A deliveries were interpolated between year 2050 with climate change and no climate change scenarios.

Table 6.19 SWP Table A delivery from the Delta under Current and Future Conditions

	Average Delivery		Maximum Delivery		Minimum Delivery	
	taf /year	% of maximum SWP Table A[1]	taf /year	% of maximum SWP Table A[1]	taf /year	% of maximum SWP Table A[1]
2007 Report Current (2007) Future (2027) [2]	2595 2724–2850	63% 66–69%	3711 4133	90% 100%	243 255–293	6% 6–7%
Updated Studies Current (2009) Future (2029)	2483 2487	60% 60%	3338 3999	81% 97%	301 458	7% 11%

[1]/ 4,133 taf /year
[2]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.20 Average and dry period SWP Table A deliveries from the Delta under Current and Future Conditions

	Percent of maximum (4,133 taf /year) SWP Table A delivery from the Delta					
	Long-term Average	Single dry year 1977	2-year drought 1976-1977	4-year drought 1931-1934	6-year drought 1987-1992	6-year drought 1929-1934
2007 Report Current (2007) Future (2027) [1]	63% 66–69%	6% 6–7%	34% 26–27%	35% 32–37%	35% 33–35%	34% 33–36%
Updated studies Current (2009) Future (2029)	60% 60%	7% 11%	36% 38%	34% 35%	35% 32%	34% 36%

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.21 Average and wet period SWP Table A deliveries from the Delta under Current and Future Conditions

	Percent of maximum (4,133 taf /year) SWP Table A delivery from the Delta					
	Long-term Average	Single wet year 1983	2-year wet 1982-1983	4-year wet 1980-1983	6-year wet 1978-1983	10-year wet 1978-1987
2007 Report Current (2007) Future (2027) [1]	63% 66–69%	60% 94%	66% 97%	68% 86–87%	73% 84–87%	71% 80–83%
Update studies Current (2009) Future (2029)	60% 60%	68% 97%	71% 93%	68% 82%	68% 79%	67% 72%

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

The projections for the single-year and 2-year drought periods are very sensitive to the assumed conditions immediately preceding the drought and the operational rules for the SWP. Two key factors are the reservoir storages assumed at the beginning of the period and the amount of water allocated under SWP Table A for the previous year being carried over into the subsequent year. Under a 2-year drought condition (1976-1977), the *2007 Report* estimates the future SWP Table A deliveries as being lower than the projected current deliveries by as much as 8% of maximum SWP Table A (Table 6.20).

The updated estimates indicate that future SWP Table A deliveries under the 2-year drought period could be slightly higher than under Current Conditions (Table 6.20). The updated future SWP Table A deliveries for a single dry year are estimated to be higher than the 2009 study by 4% of maximum SWP Table A.

SWP Article 21 Deliveries under Different Hydrologic Scenarios

Tables 6.22, 6.23, and 6.24 contain summaries and highlights of estimated SWP Article 21 deliveries from the Delta under Current and Future Conditions from the *2007 Report* and as derived from updated CALSIM II simulations for this report. The studies for the *2007 Report* and this updated report conclude lower amounts of deliveries will be made in the future under SWP Article 21. Updated estimates of future SWP Article 21 deliveries may increase over updated current values for specific years; however, the long-term average future SWP Article 21 delivery is reduced to about two-thirds of the estimate for the Current Conditions. Because the updated studies include the assumption that the SWP water contractors have a much greater ability receive water under SWP Article 21, the updated studies show greater annual variation in the amount of SWP Article 21 deliveries when compared to the *2007 Report*.

SWP Table A Delivery Probability

The current and future probability that a given level of SWP Table A amount will be delivered from the Delta is shown in Figure 6.3 from the *2007 Report* and in Figure 6.4 for updated studies for this report. In the *2007 Report*, future SWP Table A deliveries exceeded current deliveries at exceedence levels less than 60%. Under the updated simulations for this report, future SWP Table A deliveries exceed current estimated deliveries at exceedence levels less than 15%. Above this exceedence, future deliveries are generally smaller than current deliveries; with the most significant reduction being exceedence levels of 70% and 80%. The SWP demands are very similar for the current and future scenarios in the updated studies. Therefore, the differences in SWP Table A delivery amounts for the updated studies are primarily due to the climate change scenario that is assumed.

Table 6.25 presents SWP Table A delivery values which correspond to 25%, 50%, and 75% exceedence for Current and Future Conditions. Previously in the *2007 Report*, future annual SWP deliveries were estimated to be larger than the estimated current deliveries by approximately 500 taf to 600 taf for 25% exceedence and 0 taf to 200 taf for 50% exceedence. At 75% exceedence, future Study 2027 deliveries were estimated to be less than current Study 2007 deliveries by about 100 taf to 300 taf. For the updated studies, future SWP Table A deliveries associated with the 25%, 50%, and 75% exceedence levels are about the same or lower than for the deliveries at the current level (2009). The most significant reduction in updated future deliveries occurs at the 75% exceedence level where future deliveries are about 260 taf less than under Current Conditions. As previously mentioned, this difference is primarily due to the climate change scenario included under Future Conditions.

Table 6.22 Annual SWP Article 21 delivery from the Delta under Current and Future Conditions

	Average delivery (taf)	Maximum delivery (taf)	Minimum delivery (taf)
2007 Report			
Current (2007)	85	590	0
Future (2027) [1]	30	410–420	0
Updated studies			
Current (2009)	85	850	2
Future (2029)	60	540	1

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.23 Average and dry year SWP Article 21 delivery under Current and Future Conditions (taf/year)

Year	*2007 Report*		Updated Studies	
	Current (2007)	Future (2027)[1]	Current (2009)	Future (2029)
1929	0	0	10	160
1930	0	0	10	10
1931	0	0	8	8
1932	0	0–40	160	370
1933	40	20–90	390	230
1934	0	0–10	8	70
1976	5	0	9	12
1977	0	0–10	2	3
1987	0	0	9	60
1988	0	0	10	60
1989	0	0	10	6
1990	0	0	10	11
1991	0	0	12	13
1992	0	0	10	9
Long-term Average	85	30	85	60

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.24 Average and wet year SWP Article 21 delivery under Current and Future Conditions (taf/year)

Year	*2007 Report*		Updated Studies	
	Current (2007)	Future (2027) [1]	Current (2009)	Future (2029)
1978	100	40–150	2	70
1979	0	0	120	11
1980	190	90 - 130	190	30
1981	0	0	8	14
1982	490	0	460	100
1983	400	270–290	850	510
1984	460	410–420	510	540
1985	0	0	2	9
1986	30	0–10	140	50
1987	0	0	9	60
1978-87 Average	170	90–100	230	140
Long-term Average	85	30	85	60

[1]/ Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Table 6.25 Highlighted SWP Table A delivery percent exceedence values under Current and Future Conditions

Exceedence	Annual SWP Table A Delivery (taf)			
	2007 Report		Updated Studies	
	Current (2007)	Future (2027) [1]	Current (2009)	Future (2029)
25%	3218	3687–3815	2920	2915
50%	2976	2967–3205	2675	2596
75%	2168	1860–2077	2397	2137

[1] Range in values reflects four modified scenarios of climate change: annual SWP Table A deliveries were first interpolated between full 2050 level and no climate change scenarios, then averaged over the two scenarios of Old and Middle River flow targets.

Figure 6.3 Current and future SWP Table A delivery probability from the 2007 SWP Delivery Reliability Report

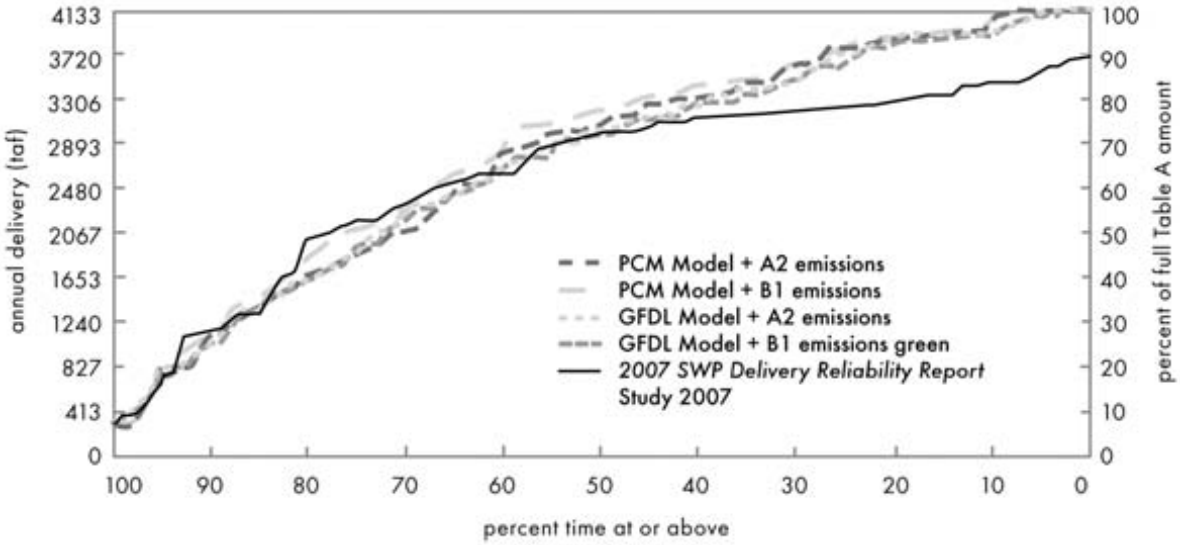
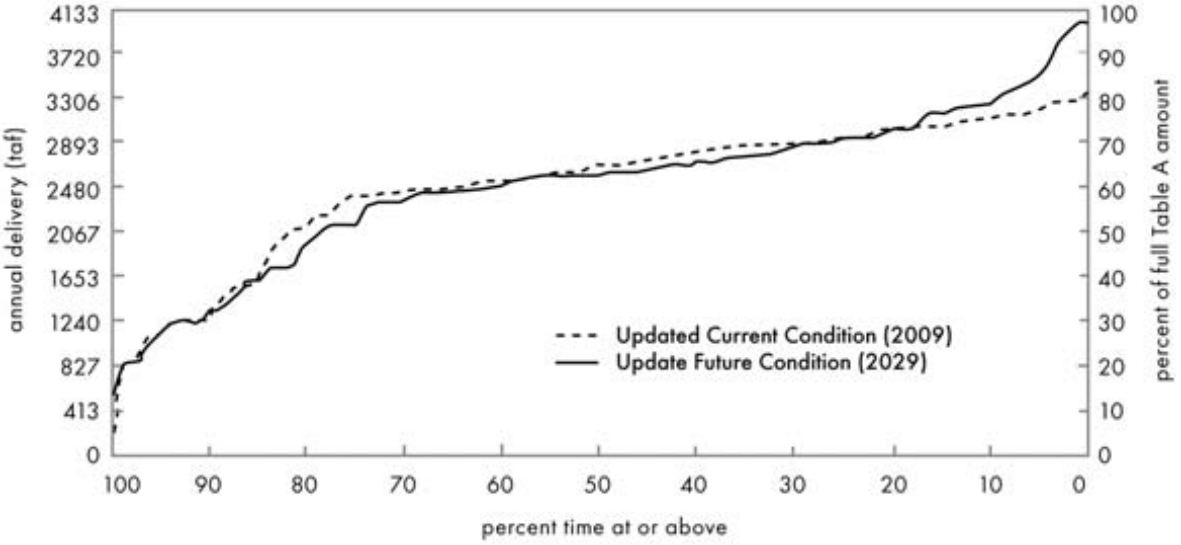


Figure 6.4 Updated current and future SWP Table A delivery probability



Interpreting and Applying the Results for Local Planning Use

7

Chapter 6 presents estimates for current-level deliveries and for deliveries 20 years in the future. Chapter 6 and Appendix B explain how these estimates are developed. This chapter provides guidance on how to apply the delivery estimates to water management plans.

All results in this report are presented as percentages of the maximum SWP Table A amount for SWP deliveries from the Delta of 4,133 taf/yr. In previous delivery reliability reports, all the percentage values of maximum SWP Table A presented in the report were directly applicable to individual contractors. In this report however, the CALSIM II simulations model the practice of certain contractors to carry over water supply from the year in which it was allocated and have it delivered in the following year, as allowed by Article 56 of their contract. See Appendix D for a discussion of Article 56 carryover storage.

The long-term average percentage values of SWP Table A deliveries in this report continue to be directly applicable to all water contractors but values for individual years or averages over shorter periods of time, such as a dry-year period or a wet-year period, should be applied with caution as they may be affected by the amount of water assumed to be held over from one year and delivered in the next under Article 56. For values other than the long-term averages, we recommend individual contractors contact the Department of Water Resources' Bay-Delta Office at (916) 653-1099 to obtain the values specific to their water agency or download the information directly from the SWP Delivery Reliability website at **http://baydeltaoffice.water.ca.gov/swpreliability/index.cfm**. The Bay-Delta Office should also be contacted with other questions regarding the use of the information contained in this report.

The following example illustrates how to incorporate the long-term average values into a local water management plan. It is developed for a hypothetical SWP contractor with a maximum SWP Table A amount of 100,000 af per year.

Table 7.1 Average SWP Table A delivery from the Delta in five-year intervals for Studies 2009 and 2029

Year	Average percent of maximum (4,133 taf /year) SWP Table A delivery from the Delta
2009	60%
2014	60%
2019	60%
2024	60%
2029	60%

Example

This example uses data directly from Table 6.20 for updated current and future estimates of SWP Table A deliveries for the long-term average. Table 7.1 shows the long-term current and future averages of Delta SWP Table A deliveries interpolated for 5-year periods. Since the long-term average SWP Table A value is 60% of maximum SWP Table A for both the current and future estimates, the interpolated value for each 5-year period is also 60%. Although the values shown in Tables 7.1 and 7.2 are for the period 2009 – 2029, they are the best estimates available for use in

developing water management plans for the period 2010-2030.

How to Calculate Supplies

In order to estimate delivery amounts for each 5-year increment from 2009 to 2029, multiply the contractor's maximum SWP Table A amount for a particular year by the corresponding delivery percentages for that year from Table 7.1. The maximum SWP Table A amounts of each contractor are listed in Appendix C. SWP Table A amounts can be amended and a contractor's SWP Table A amount over the next 20 years may be less than its maximum over some or all of this period. In this case, the contractor should use the amended SWP Table A amounts for the corresponding years during this period.

Table 7.2 shows the SWP Table A deliveries projected to be available to a hypothetical contractor with a maximum SWP Table A amount of 100,000 af during average hydrologic conditions. Although the estimates for the SWP delivery amount is constant over the 20-year period, estimates for the long-term average delivery for the other sources of supply could change over the twenty-year period and, therefore, produce different estimates for the total water supply available to an individual contractor for each 5-year period.

Data for other year types can also be presented this way. As mentioned previously, SWP contractors should contact the Bay Delta Office for their specific percentages to be used in estimating deliveries for a specific year or for wet or dry-year periods.

Table 7.2 Average annual SWP deliveries assuming a maximum SWP Table A amount of 100,000 acre-feet

Water Supply Source	2009	2014	2019	2024	2029
SWP Table A	60,000	60,000	60,000	60,000	60,000
SWP Article 21[1]					
Groundwater					
Local Surface Water					
Transfers					
Exchanges					
Reclaimed Water					
Other (identify)					
Total					

[1]/ Annual Article 21 amounts vary significantly from year to year. Without the ability to store Article 21 supply, it is not likely to contribute to local supply. See discussion of Article 21 supply in Chapter 5.

Appendix A. CALSIM II Modeling Assumptions

The SWP operation simulations in this report use the CALSIM II model developed for the 2009 DWR-Reclamation CALSIM II Benchmark Studies of the State Water Project that was then modified specifically for these studies. The CALSIM II Benchmark Studies of the State Water Project model was developed from the 2008 Operations Criteria and Plan model and the 2008 Common Assumptions model. Additional information on these models is available at **http://baydeltaoffice.water.ca.gov/swpreliability/index.cfm**. The main difference between the 2009 CALSIM II Benchmark Studies of the State Water Project and the 2008 Operations Criteria and Plan and the 2008 Common Assumptions models is the representation of the 2008 USFW biological opinion for Proposed Coordinated Operation of the CVP and the SWP and the 2009 NMFS biological opinion on the Long Term Operations of the CVP and the SWP.

The 2008 Operations Criteria and Plan model version was also modified to include the following changes:

1. Replacement of the previous Artificial Neural Network with a more accurate version. Implementation of the new Artificial Neural Network in the CALSIM II model produces salinities that more closely match those of Delta Simulation Model 2.

2. More detailed representation of Delta channel configuration. This was done to capture the flow effects in Old and Middle Rivers.

3. Modeling of Article 56 extended carryover deliveries that are available to SWP Table A contractors.

4. Use of three delivery patterns (based on 30%, 50% and 100% allocations) which provides a more accurate representation of SWP deliveries.

5. Estimation of X2 position and flow requirements using an Artificial Neural Network. X2 positions are now more similar to those calculated in Delta Simulation Model 2.

6. The phenomenon of sea level rise and its effect on Delta salinities is now modeled. Artificial Neural Networks were developed to estimate flow-salinity relationships in the Delta with an assumed increment of sea level rise for a mid-century condition.

7. Modified SWP South of the Delta allocation logic to account for export restrictions that are established by the new biological opinions.

All studies assume current SWP Delta diversion limits (often referred to as "Banks Pumping Plant capacity"), existing conveyance capacity of the upper Delta-Mendota Canal/California Aqueduct system, and current SWP/CVP operations agreements. Table A.1 is a complete list of the study assumptions. Tables A.2 and A.3 provide the assumptions for American River demands.

Table A.1 *2009 Report* CALSIM II modeling assumptions

	Period of Simulation: 82 years (1922-2003)	
	Study 2009	Study 2029
HYDROLOGY		
Level of Development (Land Use)	2005 Level, *DWR Bulletin 160-98*[1]	2020 Level, *DWR Bulletin 160-98*[2]
Sacramento River Region (excluding American River) Demands		
CVP	Land Use based, limited by Full Contract	Land Use based, full build-out of contract amounts
SWP (FRSA)	Land Use based, limited by Full Contract	
Non-Project	Land Use based	
Davis-Woodland	None	Proposal 2B from EIR/S
Antioch	Pre-1914 water right	
CVP Refuges	Recent Historical Level 2 water needs	Firm Level 2 water needs
American River Basin Demands		
Water rights	2005 Level[3]	2020 Level[4]
CVP	2005 Level, including Freeport Regional Water Project	2020 Level, full contracts including Freeport Regional Water Project and Sacramento River Water Reliability Project
San Joaquin River Basin Demands		
Friant Unit	Limited by contract amounts, based on current allocation policy	
Lower Basin	Land-use based, based on district level operations and constraints	
Stanislaus River Basin [5]	Land-use based, based on New Melones Interim Operations Plan and NMFS biological opinion (June 2009), Actions 3.1.2 and 3.1.3 [11]	
South of Delta Demands		
CVP	Full Contract	
Contra Costa Water District	140 taf/yr [6]	195 taf/yr [6]
SWP (with North Bay Aqueduct)	3.0-4.1 maf/yr	4.1 maf/yr
SWP Article 21 Demand	Metropolitan Water District of Southern California up to 200 taf/month (Dec-Mar), KCWA demand up to 180 taf/month and others up to 34 taf/month	
FACILITIES		
Red Bluff Diversion Dam	Diversion dam with gates out (except Jun 15–Aug 31), NMFS biological opinion (Jun 2009), Action I.3.2; assume interim facilities in place	Diversion dam with gates out all year, NMFS biological opinion (Jun 2009), Action I.3.1; assume permanent facilities in place
Freeport Regional Water Project	Included [7]	
Banks Pumping Capacity	Physical capacity is 10,300 cfs, 6,680 cfs permitted capacity up to 8,500 cfs (Dec 15th–Mar 15th) depending on Vernalis flow conditions [8]; additional capacity of 500 cfs (up to 7,180 cfs) allowed for Jul–Sep for reducing impact of NMFS biological opinion on SWP (Jun 2009), Action 4.2.1[11]	
Jones (Tracy) Pumping Capacity	Permit capacity is 4,600 cfs, exports limited to 4,200 cfs plus diversions upstream of Delta-Mendota Canal constriction	Exports up to 4,600 cfs permit capacity in all months (allowed for by the Delta-Mendota Canal/California Aqueduct Intertie)
REGULATORY STANDARDS		
Trinity River		
Minimum Flow below Lewiston Dam	Trinity EIS Preferred Alternative (369-815 taf/yr)	
Trinity Reservoir End-of-September Minimum Storage	Trinity EIS Preferred Alternative (600 taf as able)	

REGULATORY STANDARDS		
Clear Creek		
Minimum Flow below Whiskeytown Dam	Downstream water rights, 1963 Reclamation Proposal to USFWS and NPS, predetermined Central Valley Project Improvement Act 3406(b)(2) flows and NMFS biological opinion (June 2009) Action I.1.1[11]	
Upper Sacramento River		
Shasta Lake End-of-September Minimum Storage	NMFS 2004 Winter-run biological opinion (1900 taf), predetermined Central Valley Project Improvement Act 3406(b)(2) flows, and NMFS biological opinion (Jun 2009) Action I.2.1 [11]	
Minimum Flow below Keswick Dam	Flows for SWRCB Water Rights Order 90-5 and 1993 Winter-run biological opinion temperature control, predetermined Central Valley Project Improvement Act 3406(b)(2) flows, and NMFS biological opinion (Jun 2009), Action I.2.2 [11]	
Feather River		
Minimum Flow below Thermalito Diversion Dam	2006 Settlement Agreement (700 / 800 cfs)	
Minimum Flow below Thermalito Afterbay outlet	1983 DWR, DFG Agreement (750–1700 cfs)	
Yuba River		
Minimum flow below Daguerre Point Dam	D-1644 Operations (Lower Yuba River Accord) [9]	
American River		
Minimum Flow below Nimbus Dam	American River Flow Management as required by NMFS biological opinion (Jun 2009), Action 2.1 [11]	American River Flow Management [10] as required by anticipated SWRCB order
Minimum Flow at H Street Bridge	SWRCB D-893	
Lower Sacramento River		
Minimum Flow near Rio Vista	SWRCB D-1641	
Mokelumne River		
Minimum Flow below Camanche Dam	Federal Energy Regulatory Commission 2916-029, 1996 (Joint Settlement Agreement) (100 – 325 cfs)	
Minimum Flow below Woodbridge Diversion Dam	Federal Energy Regulatory Commission 2916-029, 1996 (Joint Settlement Agreement) (25 – 300 cfs)	
Stanislaus River		
Minimum Flow below Goodwin Dam	1987 Reclamation, DFG agreement, and flows required for NMFS biological opinion (Jun 2009) Actions III.1.2 and III.1.3 [11]	
Minimum Dissolved Oxygen	SWRCB D-1422	
Merced River		
Minimum Flow below Crocker-Huffman Diversion Dam	Davis-Grunsky (180 – 220 cfs, Nov – Mar), and Cowell Agreement	
Minimum Flow at Shaffer Bridge	Federal Energy Regulatory Commission 2179 (25 – 100 cfs)	
Tuolumne River		
Minimum Flow at Lagrange Bridge	Federal Energy Regulatory Commission 2299-024, 1995 (Settlement Agreement) (94–301 taf/yr)	
San Joaquin River		
Maximum Salinity near Vernalis	SWRCB D-1641	
Minimum Flow near Vernalis	SWRCB D-1641, NMFS biological opinion (Jun 2009), Action 4.2.1 [11]	
Sacramento River-San Joaquin River Delta		
Delta Outflow Index (Flow and Salinity)	SWRCB D-1641, USFWS biological opinion (Dec 2008), Action 4 [11]	
Delta Cross Channel Gate Operation	SWRCB D-1641, NMFS biological opinion (Jun 2009) Action 4.1.2 [11]	
Delta Exports	SWRCB D-1641, NMFS biological opinion (Jun 2009) Action 4.2.1 [11]	
Combined Flow in Old and Middle River	USFWS biological opinion (Dec 2008), Actions 1–3 and NMFS biological opinion (Jun 2009), Action 4.2.3 [11]	

OPERATIONS CRITERIA	
Subsystem	
Upper Sacramento River	
Flow Objective for Navigation (Wilkins Slough)	NMFS biological opinion (Jun 2009) Action I.4 [11]; 3,250 – 5,000 cfs based on CVP water supply condition
American River	
Folsom Dam Flood Control	Variable 400/670 (without outlet modifications)
Feather River	
Flow at Mouth	Maintain the DFG/DWR flow target above Verona or 2800 cfs for Apr– Sep dependent on Oroville inflow and FRSA allocation
Stanislaus River	
Flow below Goodwin Dam	NMFS biological opinion (Jun 2009) Actions III.1.2 and III.1.3 [11]
System-wide	
CVP Water Allocation	
CVP Settlement and Exchange	100% (75% in Shasta Critical years)
CVP Refuges	100% (75% in Shasta Critical years)
CVP Agriculture	100% - 0% based on supply; additionally limited due to D-1641, USFWS biological opinion (Dec 2008) and NMFS biological opinion (Jun 2009) export restrictions [11]
CVP Municipal & Industrial	100% - 50% based on supply; additionally limited due to D-1641, USFWS biological opinion (Dec 2008) and NMFS biological opinion (Jun 2009) export restrictions [11]
SWP Water Allocation	
North of Delta (FRSA)	Contract specific
South of Delta	Based on supply, Monterey Agreement; allocations limited due to D-1641, USFWS biological opinion (Dec2008) and NMFS biological opinion (Jun 2009) export restrictions [11]
CVP/SWP Coordinated Operations	
Sharing of Responsibility for In-Basin-Use	1986 Coordinated Operations Agreement
Sharing of Surplus Flows	1986 Coordinated Operations Agreement
Sharing of Restricted Export Capacity	Equal sharing of export capacity under SWRCB D-1641, USFWS biological opinion (Dec 2008) and NMFS biological opinion (Jun 2009) export restrictions [11]
Transfers	
Lower Yuba River Accord [12]	Yuba River acquisitions for reducing impact of NMFS biological opinion export restrictions [11] on SWP
Dry Year Program	None
Phase 8	None
Metropolitan Water District of Southern California/CVP Settlement Contractors	None
CVP/SWP Integration	
Dedicated Conveyance at Banks	None
NOD Accounting Adjustments	None

[1]The Sacramento Valley hydrology used in the Existing Conditions CALSIM II model reflects nominal 2005 land-use assumptions. The nominal 2005 land-use was determined by interpolation between the 1995 and projected 2020 land-use assumptions associated with Bulletin 160-98. The San Joaquin Valley hydrology reflects 2005 land-use assumptions developed by Reclamation. Existing-level projected land-use assumptions are being coordinated with the California Water Plan Update for future models.
[2] The Sacramento Valley hydrology used in the Future Conditions CALSIM II model reflects 2020 land-use assumptions associated with Bulletin 160-98. The San Joaquin Valley hydrology reflects draft 2030 land-use assumptions developed by Reclamation. Development of future-level projected land-use assumptions are being coordinated with the California Water Plan Update for future models.
[3] Presented in Table A.2.
[4] Presented in Table A.3.
[5] The CALSIM II model representation for the Stanislaus River does not necessarily represent Reclamation's current or future operational policies. A suitable plan for supporting flows has not been developed for NMFS biological opinion (Jun 2009), Action 3.1.3.
[6] The actual amount diverted is operated in conjunction with supplies from the Los Vaqueros project. The existing Los Vaqueros storage capacity is 100 taf. Associated water rights for Delta excess flows are included.
[7] Mokelumne River flows are modified to reflect modified operations associated with East Bay Municipal Utility District supplies from the Freeport Regional Water Project.
[8] Current US Army Corps of Engineers permit for Harvey O. Banks Pumping Plant allows for an average diversion rate of 6,680 cfs in all months. Diversion rate can increase up to 1/3 of the rate of San Joaquin River flow at Vernalis during Dec 15th–Mar 15th up to a maximum diversion of 8,500 cfs, if Vernalis flow exceeds 1,000 cfs.
[9] D-1644 and the Lower Yuba River Accord are assumed to be implemented for Existing and Future Conditions. The Yuba River is not dynamically modeled in CALSIM II. Yuba River hydrology and availability of water acquisitions under the Lower Yuba River Accord are based on modeling performed and provided by the Lower Yuba River Accord EIS/EIR study team.
[10] Under Existing Conditions, the flow components of the proposed American River Flow Management are as required by the NMFS biological opinion (June 4, 2009). Under Future Conditions, the American River Flow Management is treated as a SWRCB permit term.
[11] In cooperation with USBR, NMFS, USFWS, and DGF, the DWR has developed assumptions for implementation of the USFWS biological opinion (December 15, 2008) and NMFS biological opinion (June 4, 2009) in CALSIM II. The USFWS biological opinion and NMFS biological opinion assumptions are included as separate appendices.
[12] Acquisitions of Component 1 water under the Lower Yuba River Accord, and use of 500 cfs dedicated capacity at Banks Pumping Plant during Jul–Sep, are assumed to be used to reduce as much of the effect of the April–May Delta export actions on SWP contractors as possible.

Table A.2 2009 Study American River demand assumptions

CVP Contractor	ALLOCATION TYPE (taf/yr)				DIVERSION LIMITS (taf/yr) if Folsom Unimpaired Inflow = Total taf (Mar to Nov)			Notes
	CVP AG	CVP M&I	Settlement / Exchange	Water Rights / Non-CVP	> 1600	> 950	< 400	
Auburn Dam Site								
Placer County Water Agency	–	–	–	35.5	35.5	35.5	35.5	
Total	0	0	0	35.5	35.5	35.5	35.5	
Folsom Reservoir								
Sacramento Suburban	–	–	–	17	17	–	–	
City of Folsom (Public Law 101-514)	–	7	–	27	34	34	34	1
Folsom Prison	–	–	–	2	2	2	2	
San Juan Water District (Placer County)	–	–	–	17	17	17	17	
San Juan Water District (Sac County, Public Law 101-514)	–	24.2	–	33	44.2	44.2	44.2	1
El Dorado Irrigation District	–	7.55	–	–	7.55	7.55	7.55	1
El Dorado County (Public Law 101-514)	–	15	–	–	4	4	4	1
City of Roseville	–	32	–	5	37	37	37	1
Placer County Water Agency	–	–	–	–	–	–	–	
Total	0	85.75	0	101	162.8	145.8	145.8	
Folsom South Canal								
So. Cal WC/ Arden Cordova WC	–	–	–	5	5	5	5	
California Parks and Recreation	–	5	–	–	1	1	1	1
SMUD (export)	–	30	–	15	20	20	20	1
Canal Losses	–	–	–	1	1	1	1	
Total	0	35	0	21	27	27	27	
Lower American River								
City of Sacramento	–	–	–	58	58	58	50	
Arcade Water District	–	–	–	–	–	–	–	
Carmichael Water District	–	–	–	12	12	12	12	
Total	0	0	0	70	70	70	62	
Lower Sacramento River								
City of Sacramento	–	–	–	62.3	62.3	62.3	70.3	
Sacramento County Water Agency (SMUD transfer)	–	10	–	–	10	10	10	
	–	20	–	–	20	20	20	
Sacramento County Water Agency (assumed Appropriated Water)	–	–	–	31.3	0	–	–	2
Sacramento County Water Agency (Public Law 101-514)	–	15	–	–	15	15	15	
EBMUD (export)	–	133	–	–	–	–	–	3
Total	0	178	0	93.6	107.3	107.3	115.3	
Total from the American River	0	298.75	0	321.10				

[1] When the CVP Contract quantity exceeds the quantity of the Diversion Limit minus the Water Right (if any), the diversion modeled is the quantity allocated to the CVP Contract (based on the CVP contract quantity shown times the CVP M&I allocation percentage) plus the Water Right (if any), but with the sum limited to the quantity of the Diversion Limit.

[2] Sacramento County Water Agency targets 68 taf of surface water supplies annually. The portion unmet by CVP contract water is assumed to come from two sources:

- Delta "excess" water averages 16.5 taf annually, but varies according to availability. Sacramento County Water Agency is assumed to divert excess flow when it is available, and when there is available pumping capacity.
- "Other" water, derived from transfers and/or other appropriated water, averaging 14.8 taf annually but varying according remaining unmet demand.

[3] East Bay Municipal Utility District CVP diversions are governed by the Amendatory Contract, stipulating:

- 133 taf maximum diversion in any given year.
- 165 taf maximum diversion amount over any 3 year period.
- Diversions allowed only when EBMUD total storage drops below 500 taf.
- 155 cfs maximum diversion rate.

Table A.3 2029 Study American River Demand Assumptions

CVP Contractor	ALLOCATION TYPE (taf/yr)				DIVERSION LIMITS (taf/yr) if Folsom Unimpaired Inflow = Total taf (Mar to Nov)			Notes
	CVP AG	CVP M&I	Settlement / Exchange	Water Rights / Non-CVP	> 1600	> 950	< 400	
Auburn Dam Site								
Placer County Water Agency	–	–	–	35.5	35.5	35.5	35.5	
Total	0	0	0	35.5	35.5	35.5	35.5	
Folsom Reservoir								
Sacramento Suburban	–	–	–	–	–	–	–	
City of Folsom (Public Law 101-514)	–	7	–	27	34	34	34	1
Folsom Prison	–	–	–	5	5	5	5	
San Juan Water District (Placer County)	–	–	–	24	24	24	24	
San Juan Water District (Sac County, Public Law 101-514)	–	24.2	–	33	57.2	57.2	57.2	1
El Dorado Irrigation District	–	7.55	–	17	24.55	24.55	24.55	1
El Dorado County (Public Law 101-514)	–	15	–	–	15	15	15	1
City of Roseville	–	32	–	–	32	32	32	1
Placer County Water Agency	–	35	–	–	35	35	35	
Total	0	120.8	0	106	226.8	226.8	226.8	
Folsom South Canal								
So. Cal WC/ Arden Cordova WC	–	–	–	5	5	5	5	
California Parks and Recreation	–	5	–	–	5	5	5	1
SMUD (export)	–	30	–	15	45	45	45	1
Canal Losses	–	–	–	1	1	1	1	
Total	0	35	0	21	56	56	56	
Lower American River								
City of Sacramento	–	–	–	96.3	96.3	96.3	50	
Arcade Water District	–	–	–	–	–	–	–	
Carmichael Water District	–	–	–	12	12	12	12	
Total	0	0	0	108.3	108.3	108.3	62	
Lower Sacramento River								
City of Sacramento	–	–	–	51.9	51.9	51.9	98.2	
Sacramento County Water Agency (SMUD transfer)	–	10	–	–	10	10	10	
	–	20	–	–	20	20	20	
Sacramento County Water Agency (assumed Appropriated Water)	–	–	–	31.2	–	–	–	2
Sacramento County Water Agency (Public Law 101-514)	–	15	–	–	15	15	15	
EBMUD (export)	–	133	–	–	–	–	–	3
Total	0	178	0	83.1	96.9	96.9	143.2	
Total from the American River	0	333.75	0	353.9				

[1] When the CVP Contract quantity exceeds the quantity of the Diversion Limit minus the Water Right (if any), the diversion modeled is the quantity allocated to the CVP Contract (based on the CVP contract quantity shown times the CVP M&I allocation percentage) plus the Water Right (if any), but with the sum limited to the quantity of the Diversion Limit.

[2] Sacramento County Water Agency targets 68 taf of surface water supplies annually. The portion unmet by CVP contract water is assumed to come from two sources:

- Delta "excess" water averages 16.5 taf annually, but varies according to availability. Sacramento County Water Agency is assumed to divert excess flow when it is available, and when there is available pumping capacity.
- "Other" water, derived from transfers and/or other appropriated water, averaging 14.8 taf annually but varying according remaining unmet demand.

[3] East Bay Municipal Utility District CVP diversions are governed by the Amendatory Contract, stipulating:

- 133 taf maximum diversion in any given year.
- 165 taf maximum diversion amount over any 3 year period.
- Diversions allowed only when EBMUD total storage drops below 500 taf.
- 155 cfs maximum diversion rate.

Appendix A-1. Incorporation of U.S. Fish and Wildlife Service Biological Opinions into CALSIM II

The Reasonable and Prudent Action (RPA) in the USFW biological opinions consists of required actions based on physical and biological phenomena that do not lend themselves readily to simulations using a monthly time step. Much scientific and modeling judgment has been employed to represent the implementation of the RPA actions. The interagency staff has developed modifications to the CALSIM II model to represent the RPA actions as best as possible, given the scientific understanding of

RPA Component 1			
Action 1	Limit Exports so ⊗ 14-day average Old River and Middle River flows are greater than or equal to –2,000 cfs ⊗ 5-day running average is greater than 25%		
Period	14 days		
Trigger 1	December 1-20 low entrainment risk	*and*	USFWS discretion turbidity, flows, Fall Midwater Trawl, salvage
Trigger 2	After December 20 high entrainment risk	*and*	Turbidity 3-day average is greater than or equal to 12 NTU at Prisoner's Pt., Holland Cut AND Victoria Canal
		or	Salvage Daily salvage index value is greater than or equal to 0.5 *Daily delta smelt salvage greater than half of the prior year Fall Midwater Trawl index value.*
Off-ramp	Temperature Mossdale, Antioch AND Rio Vista stations' daily mean water temperature is greater than or equal to 12° C	*or*	Biological Onset of spawning *Presence of spent females in Spring Kodiak Trawl, Banks OR Jones Pumping Plants.*

Proposed CALSIM implementation

Using a turbidity trigger, based on a flow surrogate of Sacramento River Index less than 20,000 cfs

⊗ Set Old River and Middle River target at –2,000 cfs.

⊗ If turbidity trigger first occurs:

December ➲ assume Action 1 starts December 21
background Old River and Middle River target of –8,000 cfs Dec 1-20

January ➲ assume Action 1 starts January 1

February ➲ assume Action 1 starts February 1

March ➲ assume Action 1 starts March 1

⊗ Action 1, once triggered, continues for 14 days.

⊗ When converting to weighted month, use surrogate temperature trigger for off-ramping.

⊗ For CALSIM II 5-day running averages, use Paul Hutton's method (*Water Supply Impact Analysis of December 2008 Delta Smelt Biological Opinion,* Feb 2009) to accurately compare to 14-day averages.

environmental factors enumerated in the biological opinion (e.g., turbidity, water temperature, and the presence of fish) and the limited historical data for some of these factors. It is further noted that there are on-going discussions on the interpretation of some of RPA actions which have potential to change modeling assumptions, and the resulting project operations.

Given the relatively generalized representation of the RPA actions assumed for CALSIM II modeling, much caution is required when interpreting outputs from the model.

RPA Component 1			
Action 2	Limit Exports so ⊗ Old River and Middle River flows are greater than or equal to –1,200 to –5,000 cfs ⊗ they are determined weekly by the Smelt Working Group		
Trigger	Action 1	*or*	If Action 1 not implemented, Smelt Working Group will determine start date
Suspension	Flow *3 day average* Sacramento River at Rio Vista greater than or equal to 90,000 cfs	*and*	Flow *3 day average* San Joaquin River at Vernalis greater than or equal to 10,000 cfs
Off-ramp	Temperature Mossdale, Antioch AND Rio Vista stations' daily average water temperature is greater than or equal to 12° C	*or*	Biological Onset of spawning *Presence of spent females in Spring Kodiak Trawl, Banks OR Jones Pumping Plants.*

Proposed CALSIM implementation

⊗ Action 2 is always triggered by the end of Action 1

⊗ Assume Old River and Middle River criteria based on the previous month's X2.

Sacramento Valley 40-30-30 Index Water Year Type	When X2 is East of Roe (cfs)	When X2 is West of Roe (cfs)	No Action 1 (cfs)
Wet	–3,500	–5,000	–99,999
Above Normal	–3,500	–5,000	–99,999
Below Normal	–3,500	–5,000	–99,999
Dry	–3,500	–5,000	–99,999
Critical	–3,500	–5,000	–99,999

⊗ When converting to weighted month, use surrogate temperature trigger for off-ramping.

⊗ When using surrogate conditions for suspension (less than 50% frequency of 3-day average), use Paul Hutton's method (*Water Supply Impact Analysis of December 2008 Delta Smelt Biological Opinion,* Feb 2009) for determining frequency of high flows.

⊗ For CALSIM II 5-day running averages, use Paul Hutton's method (*Water Supply Impact Analysis of December 2008 Delta Smelt Biological Opinion,* Feb 2009) to accurately compare to 14-day averages.

RPA Component 1			
Action 3	Limit Exports so ⊗ 14-day average Old River and Middle River flows are greater than or equal to –1,200 to –5,000 cfs ⊗ 5-day running average is greater than 25%		
Trigger	Temperature Mossdale, Antioch AND Rio Vista stations' daily average water temperature is greater than or equal to 12° C	*or*	Biological Onset of spawning *Presence of spent females in Spring Kodiak Trawl, Banks OR Jones Pumping Plants.*
Off-ramp	End of period June 30	*or*	Temperature Clifton Court Forebay daily average water temperature of 25° C for 3 consecutive days

Proposed CALSIM implementation

⊗ When converting to weighted month, use surrogate temperature trigger and specific dates for initiating (no later than April 1).

⊗ Assume Old River and Middle River criteria based on the previous month's X2. (Use April X2 for June.)

Sacramento Valley 40-30-30 Index Water Year Type	When X2 is East of Chipps (cfs)	When X2 is between Chipps & Roe (cfs)	When X2 is West of Roe (cfs)
Wet	–1,250	–3,500	–5,000
Above Normal	–1,250	–3,500	–5,000
Below Normal	–1,250	–3,500	–5,000
Dry	–1,250	–3,500	–5,000
Critical	–1,250	–3,500	–5,000

⊗ Assume more constraining Old River and Middle River or Vernalis Adaptive Management Plan for the period of April 15–May 15.

⊗ For CALSIM II 5-day running averages, use Paul Hutton's method (*Water Supply Impact Analysis of December 2008 Delta Smelt Biological Opinion,* Feb 2009) to accurately compare to 14-day averages.

RPA Component 1			
Action 4	Manage X2 position in the Fall through ⊗ increasing Delta outflow when the preceding year was wetter than normal		
Period	Average monthly position		
Trigger 1	September, October, OR November	*and*	Wet or Above Normal preceding water year Sacramento Valley 40-30-30 Index Water Year Type
Off-ramp	In November, manage the X2 position by limiting monthly release volumes to the natural monthly inflow into the reservoirs		

Proposed CALSIM implementation

⊗ In fall months following Wet or Above Normal years, implement the following action.
74 km in Wet years, 81 km in Above Normal years

September ➲ Meet monthly average X2 requirement

October ➲ Meet monthly average X2 requirement

November ➲ Increase reservoir releases up to natural inflow as needed to meet monthly average X2 requirement

Appendix A-2. Incorporation of National Marine Fisheries Service Biological Opinion into CALSIM II

The RPA in the NMFS biological opinion consists of required actions based on physical and biological phenomena that do not lend themselves readily to simulations using a monthly time step. Much scientific and modeling judgment has been employed to represent the implementation of the RPA actions. The interagency staff has developed modifications to CALSIM II model to represent the RPA actions as best as possible at this time, given the scientific understanding of environmental factors enumerated in the biological opinion (e.g., turbidity, water temperature, and the presence of fish) and the limited historical data for some of these factors. It is further noted that there are on-going discussions on the interpretation of some of RPA actions which have potential to change modeling assumptions, and the resulting project operations.

Given the relatively generalized representation of the RPA actions assumed for CALSIM II modeling, much caution is required when interpreting outputs from the model.

Action Suite 1.1 Clear Creek

Action 1.1.1 Spring Attraction Flows

Reclamation must annually conduct at least two pulse flows in Clear Creek in May and June of at least 600 cfs for at least three days for each pulse, to attract adult spring-run holding in the Sacramento River main stem.

Action 1.1.1 Assumptions for CALSIM II Modeling Purposes

Model is modified to meet 600 cfs for 3 days twice in May. In the CALSIM II analysis, flows sufficient to increase flow up to 600 cfs for a total of 6 days are added to the flows that would have otherwise occurred in Clear Creek.

Action 1.1.5. Thermal Stress Reduction

Reclamation must manage Whiskeytown releases to meet a daily water temperature of: 1) 60°F at the Igo gage from June 1 through September 15; and 2) 56°F at the Igo gage from September 15 to October 31.

Action 1.1.5 Assumptions for CALSIM II Modeling Purposes

It is assumed that temperature operations can perform reasonably well with flows included in model.

Action Suite 1.2 Shasta Operations

Action 1.2.1 Performance Measures

To ensure a sufficient cold water pool to provide suitable temperatures, long-term performance measures for temperature compliance points and EOS carryover storage at Shasta Reservoir must be

attained. Performance measures for minimum EOS carryover storage at Shasta Reservoir are as follows for:

- 87% of years: 2.2 maf
- 82% of years: 2.2 maf
- 82% of years: 3.8 maf end-of-April in following year to meet Balls Ferry compliance point
- 40% of years: 3.2 maf to meet Jelly's Ferry compliance point in following year

Performance measures (measured as a 10-year running average) for temperature compliance points during summer season are:

- Clear Creek: 95%
- Balls Ferry: 85%
- Jelly's Ferry: 40%
- Bend Bridge: 15%

Action 1.2.1 Assumptions for CALSIM II Modeling Purposes

Performance measures will be met using an iterative approach where full models will be run, model results will be post-processed to assess performance, and then model will be re-run with adjustments to operations until performance measures are met.

Operations adjustments may include changes in rules for delivery allocation, Delta export operations, storage balancing between the CVP north-of-Delta reservoirs, and/or triggering of other USFWS and NMFS biological opinion actions. Currently there are no reiterations of runs being performed to ensure that performance measures are being met.

Action 1.2.2 November through February Keswick Release Schedule (Fall Actions)

1. Depending on EOS carryover storage and hydrology, Reclamation must develop and implement a Keswick release schedule.

2. Reclamation must reduce deliveries and exports as needed to achieve performance measures.

Action 1.2.2 Assumptions for CALSIM II Modeling Purposes

Keswick flows based on operation of Central Valley Project Improvement Act 3406(b)(2) releases in 2008 Operations Criteria and Plan Study 7.1 (for Existing) and Study 8 (for Future) are used in CALSIM II. These flows will be reviewed for appropriateness under this action. A post-process based evaluation similar to what has been explained in Action 1.2.1 will be conducted. Currently there are no reiterations of runs being performed to ensure that performance measures are being met.

Action 1.2.3 February Forecast; March – May 14 Keswick Release Schedule (Spring Actions)

1. Reclamation must make its February 15 forecast of deliverable water based on an estimate of precipitation and runoff within the Sacramento River basin at least as conservative as the 90% probability of exceedance. Subsequent updates of water delivery commitments must be based on monthly forecasts at least as conservative as the 90% probability of exceedance.

2. Reclamation must make releases to maintain a temperature compliance point not in excess of 56 degrees between Balls Ferry and Bend Bridge from April 15 through May 15.

Action 1.2.3 Assumptions for CALSIM II Modeling Purposes

It is assumed that temperature operations can perform reasonably well with flows included in model.

Action 1.2.4
May 15 through October Keswick Release Schedule (Summer Action)

Reclamation must manage operations to achieve daily average water temperatures in the Sacramento River between Keswick Dam and Bend Bridge as follows:

1. Not in excess of 56°F at compliance locations between Balls Ferry and Bend Bridge from May 15 through September 30 for protection of winter-run, and not in excess of 56°F at the same compliance locations between Balls Ferry and Bend Bridge from October 1 through October 31 for protection of mainstem spring run, whenever possible.

2. Reclamation must operate to a final Temperature Management Plan starting May 15 and ending October 31.

Action 1.2.4
Assumptions for CALSIM II Modeling Purposes

It is assumed that temperature operations can perform reasonably well with flows included in model. If time permits, a temperature modeling and post-process based approach will be followed to verify temperatures are met at the compliance points. In the long-term approach, for a complete interpretation of the action, development of temperature model runs are needed to develop flow schedules if needed for implementation into CALSIM II.

Action Suite 1.3
Red Bluff Diversion Dam Operations

Action 1.3.1
Operations after May 14, 2012 Operate Red Bluff Diversion Dam with Gates Out

No later than May 15, 2012, Reclamation must operate Red Bluff Diversion Dam with gates out all year to allow unimpeded passage for listed anadromous fish.

Action 1.3.1
Assumptions for CALSIM II Modeling Purposes

Adequate permanent facilities for diversion are assumed; therefore no constraint on diversion schedules is included in the future condition modeling.

Action 1.3.2
Interim Operations

Until May 14, 2012, Reclamation must operate Red Bluff Diversion Dam according to the following schedule:

- Sep 1–Jun 14: Gates open. No emergency closures of gates are allowed.
- Jun 15–Aug 31: Gates may be closed at Reclamation's discretion, if necessary to deliver water to TCCA.

Action 1.3.2
Assumptions for CALSIM II Modeling Purposes

Adequate interim/temporary facilities for diversion are assumed; therefore no constraint on diversion schedules is included in the Existing condition modeling.

Action 1.4
Wilkins Slough Operations

The Sacramento River Temperature Task Group must make recommendations for Wilkins Slough minimum flows for anadromous fish in critically dry years, in lieu of the current 5,000 cfs navigation criterion to NMFS by December 1, 2009. In critically dry years, the Sacramento River Temperature Task Group will make a recommendation.

Action 1.4
Assumptions for CALSIM II Modeling Purposes

Current rules for relaxation of NCP in CALSIM II (based on 2008 Operations Criteria and Plan biological assessment models) will be used. In

CALSIM II, NCP flows are relaxed depending on allocations for agricultural contractors. Table A-2.1 is used to determine the relaxation.

Table A-2.1 NCP Flow Schedule with Relaxation

CVP AG Allocation (%)	NCP Flow (cfs)
<10	3250
10-25	3500
25-40	4000
40-65	4500
>65	5000

Action 2.1 Lower American River Flow Management

Implement the flow schedule specified in the Water Forum's Flow Management Standard, which is summarized in Appendix 2-D of the NMFS biological opinion.

Action 2.1 Assumptions for CALSIM II Modeling Purposes

The American Falls Resource Management Plan Minimum Release Requirements range from 800 to 2,000 cfs based on a sequence of seasonal indices and adjustments as in 2008 Operations Criteria and Plan biological assessment models. The minimum Nimbus Dam release requirement is determined by applying the appropriate water availability index (Index Flow). Three water availability indices (i.e., Four Reservoir Index, Sacramento River Index, and the Impaired Folsom Inflow Index) are applied during different times of the year, which provides adaptive flexibility in response to changing hydrological and operational conditions.

During some months, Prescriptive Adjustments may be applied to the Index Flow, resulting in the Minimum Release Requirements . If there is no Prescriptive Adjustment, the Minimum Release Requirements is equal to the Index Flow.

Discretionary Adjustments for water conservation or fish protection may be applied during the period extending from June through October. If Discretionary Adjustments are applied, then the resultant flows are referred to as the Adjusted Minimum Release Requirement.

The Minimum Release Requirements and Adjusted Minimum Release Requirements may be suspended in the event of extremely dry conditions, represented by "conference years" or "off-ramp criteria." Conference years are defined when the projected March through November unimpaired inflow into Folsom Reservoir is less than 400,000 af. Off-ramp criteria are triggered if forecasted Folsom Reservoir storage at any time during the next twelve months is less than 200,000 af.

Action 2.2 Lower American River Temperature Management

Reclamation must develop a temperature management plan that contains:

1. forecasts of hydrology and storage;
2. a modeling run or runs, using these forecasts, demonstrating that the temperature compliance point can be attained (see Coldwater Management Pool Model approach in Appendix 2-D);
3. a plan of operation based on this modeling run that demonstrates that all other non-discretionary requirements are met; and
4. allocations for discretionary deliveries that conform to the plan of operation.

Action 2.2 Assumptions for CALSIM II Modeling Purposes

It is assumed that temperature operations can perform reasonably well with flows included in model. The flows in the model reflect the American Falls Resource Management Plan implemented under Action 2.1

Action Suite 3.1 Stanislaus River / Eastside Division Actions

Action 3.1.2 Provide Cold Water Releases to Maintain Suitable Steelhead Temperatures

Reclamation must manage the cold water supply within New Melones Reservoir and make cold water releases from New Melones Reservoir to provide suitable temperatures for Central Valley steelhead rearing, spawning, egg incubation smoltification, and adult migration in the Stanislaus River downstream of Goodwin Dam.

Action 3.1.2 Assumptions for CALSIM II Modeling Purposes

It is assumed that temperature operations can perform reasonably well with flow operations resulting from the minimum flow requirements described in Action 3.1.3.

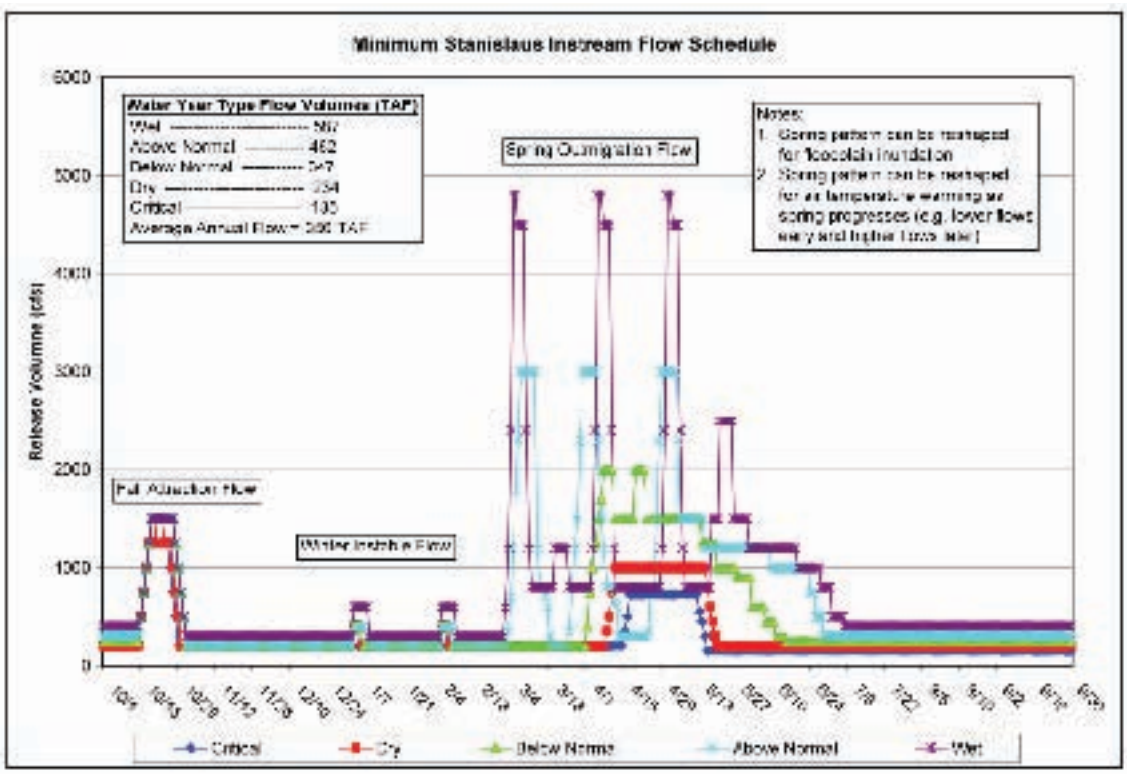
Action 3.1.3 Operate the East Side Division Dams to Meet the Minimum Flows, as Measured at Goodwin Dam

Reclamation must operate releases from the East Side Division reservoirs to achieve a minimum flow schedule as prescribed in NMFS biological opinion Appendix 2-E (Figure A-2.2). When operating at higher flows than specified, Reclamation must implement ramping rates for flow changes that will avoid stranding and other adverse effects on Central Valley steelhead.

Action 3.1.3 Assumptions for CALSIM II Modeling Purposes

Minimum flows based on Appendix 2-E flows are assumed consistent to what was modeled by

Figure A-2.2 Minimum Stanislaus instream flow schedule as prescribed in Appendix 2-E of the NMFS biological opinion (June 2009)



NMFS (5/14/09 and 5/15/09 CALSIM II models provided by NMFS; relevant logic merged into baselines models). The NMFS model assumes an allocation scheme for New Melones releases similar to what is included in the Interim Operations Plan.

Annual allocation in New Melones is modeled to ensure availability of required instream flows (Table A-2.3) based on a water supply forecast that is comprised of end-of-February New Melones storage (taf) plus forecasted inflow to New Melones from March 1 to September 30 (taf). The "forecasted inflow" is calculated using perfect foresight in the model. Allocated volume of water is released according to water year type following the monthly flow schedule illustrated in Figure 11-1 from Appendix 2-E of the NMFS biological opinion.

Table A-2.3 New Melones Allocations to Meet Minimum Instream Flow Requirements

New Melones index (taf)	Annual allocation required for instream flows (taf)
<1000	0-98.9
1,000 - 1,399	98.9
1,400 - 1,724	185.3
1,725 – 2,177	234.1
2,178 - 2,386	346.7
2,387 – 2,761	461.7
2,762 – 6,000	586.9

Action Suite 4.1 Delta Cross Channel Gate Operation, and Engineering Studies of Methods to Reduce Loss of Salmonids in Georgiana Slough and Interior Delta

Action 4.1.2 Delta Cross Channel Gate Operation

During the period between November 1 and June 15, Delta Cross Channel gate operations will be modified from the proposed action to reduce loss of emigrating salmonids and green sturgeon. From December 1 to January 31, the gates will remain closed, except as operations are allowed using the implementation procedures/modified Salmon Decision Tree.

- Timing ➲ Nov 1–Jun 15
- Triggers ➲ Action triggers and description of action as defined in NMFS biological opinion are presented in Table A-2.4.

Action 4.1.2 Assumptions for CALSIM II Modeling Purposes

The Delta Cross Channel gate operations for October 1 through January 31 were layered on top of the D-1641 gate operations already included in

Table A-2.5 Delta Cross Channel Gate Operation Triggers and Actions as Modeled in CALSIM II

Date	Modeled Action Triggers	Modeled Action Responses
Oct 1-Dec 14	⊗ Sacramento River daily flow at Wilkins Slough exceeding 7,500 cfs ⊗ Flow assumed to flush salmon into the Delta	Each month, the Delta Cross Channel gates are closed for number of days estimated to exceed the threshold value.
	⊗ Water quality conditions at Rock Slough subject to D-1641 standards	Each month, the Delta Cross Channel gates are not closed if it results in violation of the D-1641 standard for Rock Slough. If Delta Cross Channel gates are not closed due to water quality conditions, exports during the days in question are restricted to 2,000 cfs.
Dec 15–Jan 31	⊗ Dec 15-Jan 31	Delta Cross Channel gates closed

Table A-2.4 NMFS biological opinion Delta Cross Channel Gate Operation Triggers and Actions

Date	Action Triggers			Action Responses
Oct 1–Nov 30	Water quality criteria per D-1641 are met	*and*	either the Knights Landing Catch Index or the Sacramento Catch Index are greater than 3 fish per day but less than or equal to 5 fish per day.	Within 24 hours of trigger, Delta Cross Channel gates are closed. Gates will remain closed for 3 days.
	Water quality criteria per D-1641 are met	*and*	either the Knights Landing Catch Index or Sacramento Catch Index is greater than 5 fish per day	Within 24 hours, close the Delta Cross Channel gates and keep closed until the catch index is less than 3 fish per day at both the Knights Landing and Sacramento monitoring sites.
	The Knights Landing Catch Index or Sacramento Catch Index triggers are met	*but*	water quality criteria are not met per D-1641 criteria.	Delta Operations for Salmonids and Sturgeon reviews monitoring data and makes recommendation to NMFS and WOMT per procedures in Action 4.5.
Dec 1–Dec 14	Water quality criteria are met per D-1641.			Delta Cross Channel gates are closed. If Chinook salmon migration experiments are conducted during this time period (e.g., Delta Action 8 or similar studies), the Delta Cross Channel gates may be opened according to the experimental design, with NMFS' prior approval of the study.
	Water quality criteria are not met	*but*	both the Knights Landing Catch Index and Sacramento Catch Index are less than 3 fish per day.	Delta Cross Channel gates may be opened until the water quality criteria are met. Once water quality criteria are met, the Delta Cross Channel gates will be closed within 24 hours of compliance.
	Water quality criteria are not met	*but*	either of the Knights Landing Catch Index or Sacramento Catch Index is greater than 3 fish per day.	Delta Operations for Salmonids and Sturgeon reviews monitoring data and makes recommendation to NMFS and WOMT per procedures in Action 4.5
Dec 15–Jan 31	Dec 15-Jan 31			Delta Cross Channel gates closed.
	NMFS-approved experiments are being conducted.			Agency sponsoring the experiment may request gate opening for up to five days. NMFS will determine whether opening is consistent with ESA obligations.
	One-time event Dec 15–Jan 5, when necessary to maintain Delta water quality in response to the astronomical high tide, coupled with low inflow conditions.			Upon concurrence of NMFS, Delta Cross Channel Gates may be opened one hour after sunrise to one hour before sunset, for up to 3 days, then return to full closure. Reclamation and DWR will also reduce Delta exports down to a health and safety level during the period of this action.
Feb 1–May 15	D-1641 mandatory gate closure.			Gates closed, per WQCP criteria
May 16–Jun 15	D-1641 gate operations criteria.			Delta Cross Channel gates may be closed for up to 14 days during this period, per 2006 WQCP, if NMFS determines it is necessary.

the CALSIM II model. The general assumptions regarding the NMFS Delta Cross Channel operations are summarized in Table A-2.5.

Timing	➲ Oct 1–Jan 31
Trigger	➲ It is assumed that during Oct 1–Dec 14, the Delta Cross Channel will be closed if Sacramento River daily flow at Wilkins Slough exceeds 7,500 cfs. It is assumed that during Dec 15–Jan 31 that the Delta Cross Channel gates are closed under all flow conditions.
Water Quality	➲ It is assumed that during Oct 1–Dec 14 the Delta Cross Channel gates may remain open if water quality is a concern. Using the CALSIM II-ANN flow-salinity model for Rock Slough, current month's chloride level at Rock Slough is estimated assuming Delta Cross Channel closure per NMFS biological opinion. The estimated chloride level is compared against the Rock Slough chloride standard (monthly average). If estimated chloride level exceeds the standard, the gate closure is modeled per D1641 schedule (for the entire month). It is assumed that during December 15 through January 31 that the Delta Cross Channel gates are closed under all water quality conditions.
Export Restriction	➲ During Oct 1–Dec 14 period, if the flow trigger condition is such that additional days of Delta Cross Channel gates closed is called for, however water quality conditions are a concern and the Delta Cross Channel gates remain open, then Delta exports are limited to 2,000 cfs for each day in question. A monthly Delta export restriction is calculated based on the trigger and water quality conditions described above.

Action Suite 4.2 Delta Flow Management

Action 4.2.1 San Joaquin River Inflow to Export Ratio

The Phase 1 – Interim Operations in 2010-2011 are assumed. From Apr 1–May 31, Interim flow operations:

1. Reclamation must continue to implement the Goodwin flow schedule for the Stanislaus River prescribed in Action 3.1.3 and Appendix 2-E of the NMFS biological opinion and increases in releases at Goodwin Reservoir, if necessary, in order to meet the flows required at Vernalis (as provided in table 1 of NMFS biological opinion page 642); and

2. Combined CVP and SWP exports must be restricted to 1,500 cfs for Vernalis flows from 0–6,000 cfs, 4:1 (Vernalis flow:export ratio) for Vernalis flows 6,000 cfs – 21,750 cfs, and unrestricted for Vernalis flows above 21,750 cfs.

Action 4.2.1 Assumptions for CALSIM II Modeling Purposes

Flows at Vernalis are assumed consistent to what was modeled by NMFS (5/15/09 CALSIM II models provided by NMFS; relevant logic merged into baselines models). In addition, Delta exports are restricted as stated above.

Minimum flow schedule for Vernalis (Apr 1–May 31) is modeled in NMFS CALSIM II model as illustrated in Table A-2.6.

In addition to prescribed minimum flow

Table A-2.6 Minimum Flow Required at Vernalis During April and May

New Melones index (taf)	Minimum Flow Required at Vernalis (cfs)
<1000	No new requirements
1000 - 1,399	1,500
1,400 - 1,999	3,000
2,000 - 2,499	4,500
>2,500	6,000

requirement at Vernalis, exports are also restricted as illustrated in Table A-2.7.

Table A-2.7 Maximum Combined CVP and SWP Export during April and May

Flows at Vernalis (cfs)	Combined CVP and SWP Export
0 - 6,000	1,500 cfs
6,000 – 21,750	4:1 Vernalis flow export ratio
>21,750	Unrestricted until flood recedes below 21,570 cfs

Action 4.2.3 Old and Middle River Flow Management

From Jan 1–Jun 15, reduce exports as necessary, to limit negative flows to -2,500 to -5,000 cfs in Old and Middle Rivers, depending on the presence of salmonids. The reverse flow will be managed within this range to reduce flows toward the pumps during periods of increased salmonid presence. Refer to NMFS biological opinion document for the negative flow objective decision tree.

Action 4.2.3 Assumptions for CALSIM II Modeling Purposes

Old and Middle River flows required in this biological opinion are assumed to be covered by Old River and Middle River flow requirements developed for Actions 1 through 3 of the USFWS biological opinion actions in Appendix A-2.

Appendix B. Results of Report CALSIM II Studies

The model studies selected for this report are intended to estimate current SWP delivery reliability and future SWP delivery reliability in the year 2029. Estimating current SWP delivery reliability assumes that SWP and CVP operations incorporate the RPA actions defined in two biological opinions on the proposed long-term operations of the CVP and SWP. The biological opinions are the USFWS biological opinion released on December 15, 2008, and the NMFS biological opinion and conference opinion released on June 4, 2009. The USFWS' biological opinion has RPA actions to protect threatened Delta smelt. The NMFS biological opinion and conference opinion have RPA actions to protect the following federally listed species:

- Sacramento River winter-run Chinook salmon *Endangered*
- Central Valley spring-run Chinook salmon *Threatened*
- Central Valley steelhead *Threatened*
- Southern Distinct Population Segment of North American green sturgeon *Threatened*
- Southern Resident killer whale

The RPA actions from the two biological opinions are summarized below. Details regarding how the RPA actions are incorporated into CALSIM II are found in Appendices A-2 and A-3.

1. Restrict upstream flow in Old River and Middle River.
2. Implement fall X2 requirements.
3. Provide spring attraction flows in Clear Creek.
4. Implement water temperature requirements for Whiskeytown Lake releases.
5. Implement end-of-September carryover storage criteria for Shasta Lake.
6. Implement November through February Keswick Dam release schedule.
7. Base Reclamation's February 15 forecast for Sacramento River basin runoff on 90% probability of exceedence.
8. Implement water temperature criteria between Balls Ferry and Bend Bridge from April 15 through October 31.
9. Operate Red Bluff Diversion Dam with gates out of the water.
10. Implement Wilkins Slough minimum flow criteria in critically dry years.
11. Implement Nimbus Dam minimum release requirements.
12. Provide cold water releases to maintain suitable water temperatures for steelhead downstream of Goodwin Dam.
13. Implement minimum flow schedule at Goodwin Dam.
14. Modify Delta Cross Channel gate operations.
15. Implement San Joaquin River inflow to export ratio.

Estimating future SWP delivery reliability in 2029 assumes an altered hydrology due to climate change, sea-level rise, no new facilities or improvements to existing facilities, an increased SWP water demand, and existing institutional requirements, including the RPA actions.

As listed in Table B.1, a total of three CALSIM II simulations were used in this report: one for estimating current (2009) SWP delivery reliability and two for estimating future (2029) SWP delivery reliability.

Table B.1 Summary of CALSIM II simulations used to update SWP delivery estimates

Time Frame	Climate Change Model	Greenhouse Gas Emissions Scenario
Current	None	None
Future	None	None
Future	MPI-ECHAM5[1]	A2[2]

[1] MPI-ECHAM5 refers to the most recent version of ECHAM which is the Global Climate Model developed by the Max Planck Institute for Meteorology.
[2] A2 emissions scenario assumes high growth in population, regional based economic growth, and slow technological changes, which results in significantly higher greenhouse gas emissions.

Two CALSIM II simulations were needed to estimate future (2029) reliability due to the need to adjust CALSIM II results to account for the climate change scenario assuming a 2050 level of emissions. The two CALSIM II simulations were used to generate one sequence of future (2029) SWP deliveries which is used to describe future SWP delivery reliability in Chapter 6 of this report. This process consisted of interpolating between sequences to estimate SWP deliveries under climate change affects for 2029 instead of 2050. The A2 greenhouse gas emissions scenario assumes a 2050 level of emissions. Scenarios for 2029 were not available at the time of composing this report. A key assumption in estimating 2029 SWP delivery reliability for this report is that SWP deliveries for a CALSIM II simulation which assumes 2029 SWP demands and 2029 climate change, would fall somewhere between CALSIM II simulations which assume 2029 SWP demands and no climate change and 2029 SWP demands and climate change corresponding to 2050 emissions. Just where these SWP deliveries would fall is estimated in this report by interpolating between each sequence from a scenario which assumes 2050 emissions and a scenario which assumes no climate change. The interpolation is as follows:

Future (2029) annual SWP delivery = NCC + (20/41) (CC – NCC)

Where

NCC = annual SWP delivery for future, no climate change scenario

CC = annual SWP delivery for future, with climate change scenario which assumes 2050 emission levels

The ratio of 20/41 corresponds to the ratio of calendar years: (2029-2009)/(2050-2009).

The key study assumptions are described in detail in Chapter 6 and Appendix A.

Study Results

The annual SWP Table A delivery amounts estimated by the three CALSIM II simulations are contained in Table B.3 through Table B.7. The tables show the demand level, the amount of delivery from the Delta, and percent of maximum total SWP Table A amounts for the SWP contractors receiving water from the Delta. Of the 29 SWP contractors, 26 receive their deliveries from the Delta. The total maximum SWP Table A amount for all SWP contractors is 4,173 taf/year. Of this amount, 4,133 taf/yr is the maximum Delta SWP Table A amount. Also presented are the results of interpolating SWP delivery sequences which provide the information used in Chapter 6 in assessing future SWP delivery reliability. Current and future SWP deliveries are presented both in time sequence and by ranking to correspond to the data presented in the summary/highlight tables and used to generate the probability curves in Chapter 6.

These values must be interpreted within the context of the assumptions upon which they are calculated. For example, for the year 1958 in the 2029

study the annual delivery is calculated to be 3,503 taf or 85% of maximum Delta SWP Table A (see **Table B.4**). This result should be stated as follows:

The SWP would deliver approximately 3,503 taf, or 85% of maximum Delta SWP Table A, given:

- Rainfall that was similar to what it was in 1958 but modified to reflect climate change effects.
- The level of water use in the source area is increased to the level it would be in 2029.
- SWP facilities and operation requirements are the same as they are today with the RPA actions in effect.
- SWP contractor demands are at their maximum Delta SWP Table A level.

Actually, the conditional statement associated with the result for any particular year is even more complicated than this because the result is also dependent upon the rainfall that has occurred in previous years. For example, if the previous year (1957) was wet, runoff for 1958 for the same amount of rainfall would be greater than if 1957 were dry. In addition, reservoir storage for the beginning of 1958 varies depending upon the weather conditions in 1957. Thus, each year's simulation is dependent on the previous year's simulation and, hence, any year in the entire historical sequence is linked to all previous years.

Table B.2 summarizes the delivery estimates for the SWP for important dry sequences computed in the studies for Current and Future conditions. The percentages of maximum SWP Table A amounts are based on current deliveries and interpolating future annual SWP Table A deliveries as previously discussed. This information can be helpful in analyzing the delivery reliability of a specific water system that receives a portion of its water supply from the SWP. The series of data contained in **Tables B.3** through **B.5** are also helpful in analyzing longer periods of time that contain not only dry periods but wetter periods which can replenish water supplies.

Table B.6 presents the annual SWP Article 21 deliveries under Current Conditions and **Table B.7** presents the annual SWP Article 21 deliveries under Future Conditions.

Probability distribution curves derived from the CALSIM II simulations used in this report are presented in **Figures B.1** and **B.2** to visually show the estimated percentage of years a given annual delivery is equaled or exceeded. In this report, this value represents the probability of receiving at least a given level of delivery in any particular year. As a reference, probability distribution curves for the 2007 and 2027 studies from the *2007 Report* are presented along with the curves from the 2009 and 2029 studies in this report. SWP Table A delivery values for 25%, 50%, and 75% exceedences are shown for all scenarios in **Table B.8**.

Finally, the SWP Table A delivery amounts under current conditions as calculated in the *2007 Report* and the 2009 updated report are presented in **Table B.9** to show the estimated impact on SWP Table A deliveries due to the RPA actions.

Table B.2 Average and dry year SWP Table A delivery from the Delta

	SWP Table A delivery from the Delta (in percent of maximum SWP Table A[1])					
	Long-term Average	Single dry year 1977	2-year drought 1976-1977	4-year drought 1931-1934	6-year drought 1987-1992	6-year drought 1929-1934
Updated Studies (2009)	60%	7%	36%	34%	35%	34%
Updated Studies (2029)	60%	11%	38%	35%	32%	36%

[1]/ 4,133 taf /year

Table B.3 SWP Table A deliveries under Current Conditions
Derived values for estimating probability curve

Year	SWP Table A demands (taf)	SWP Table A deliveries for 2009 studies		Probability Curve[1]			
		annual volume (taf)	percent of max SWP Table A[2]	Year	SWP Table A Delivery (taf)	Exceedence Frequency	percent of max SWP Table A[2]
1922	3,407	2,451	59%	1998	3,338	0%	81%
1923	3,717	2,849	69%	1974	3,267	1%	79%
1924	3,961	841	20%	1938	3,262	2%	79%
1925	3,940	1,845	45%	1996	3,247	4%	79%
1926	3,777	2,080	50%	1997	3,191	5%	77%
1927	3,543	2,680	65%	1943	3,174	6%	77%
1928	3,897	2,836	69%	1942	3,142	7%	76%
1929	3,952	1,210	29%	1999	3,140	9%	76%
1930	3,922	1,571	38%	1958	3,090	10%	75%
1931	3,971	1,255	30%	1970	3,082	11%	75%
1932	3,673	1,543	37%	1984	3,070	12%	74%
1933	3,938	1,569	38%	1982	3,054	14%	74%
1934	3,981	1,239	30%	1975	3,023	15%	73%
1935	3,697	2,412	58%	1986	3,023	16%	73%
1936	3,769	2,749	67%	1939	3,021	17%	73%
1937	3,451	2,995	72%	1953	3,013	19%	73%
1938	3,418	3,262	79%	1979	2,996	20%	72%
1939	3,673	3,021	73%	1956	2,995	21%	72%
1940	3,713	2,524	61%	1937	2,954	22%	71%
1941	3,013	2,608	63%	1952	2,927	23%	71%
1942	3,583	3,140	76%	1995	2,924	25%	71%
1943	3,632	3,174	77%	1980	2,907	26%	70%
1944	3,563	2,396	58%	1968	2,894	27%	70%
1945	3,612	2,612	63%	1985	2,875	28%	70%
1946	3,710	2,875	70%	1946	2,869	30%	69%
1947	3,954	2,780	67%	1965	2,867	31%	69%
1948	3,959	2,427	59%	2000	2,858	32%	69%
1949	3,864	2,444	59%	1923	2,855	33%	69%
1950	3,812	2,222	54%	1947	2,854	35%	69%
1951	3,779	2,671	65%	1928	2,849	36%	69%
1952	3,078	2,924	71%	1983	2,836	37%	69%
1953	3,790	3,013	73%	1969	2,811	38%	68%
1954	3,833	2,535	61%	1936	2,811	40%	68%
1955	3,761	2,095	51%	1993	2,780	41%	67%
1956	3,639	2,954	71%	1967	2,768	42%	67%
1957	3,759	2,475	60%	1966	2,749	43%	67%
1958	3,481	3,090	75%	1959	2,731	44%	66%
1959	4,055	2,544	62%	1971	2,724	46%	66%
1960	4,115	2,211	54%	1927	2,712	47%	66%
1961	4,115	2,461	60%	1951	2,692	48%	65%
1962	3,689	2,494	60%	1976	2,680	49%	65%
1963	3,634	2,569	62%	2003	2,671	51%	65%
1964	3,907	2,858	69%	1945	2,612	52%	63%
1965	3,586	2,731	66%	1941	2,608	53%	63%

Year	SWP Table A demands (taf)	SWP Table A deliveries for 2009 studies		Probability Curve[1]			
		annual volume (taf)	percent of max SWP Table A[2]	Year	SWP Table A Delivery (taf)	Exceedence Frequency	percent of max SWP Table A[2]
1966	3,722	2,867	69%	1978	2,606	54%	63%
1967	3,439	2,768	67%	1964	2,576	56%	62%
1968	3,792	2,907	70%	2002	2,569	57%	62%
1969	3,157	2,854	69%	1981	2,544	58%	62%
1970	3,714	3,082	75%	1954	2,535	59%	61%
1971	3,837	2,712	66%	1940	2,532	60%	61%
1972	4,012	2,409	58%	1973	2,524	62%	61%
1973	3,611	2,477	60%	1957	2,494	63%	60%
1974	3,649	3,247	79%	1961	2,477	64%	60%
1975	3,720	3,023	73%	1963	2,475	65%	60%
1976	4,014	2,692	65%	1962	2,461	67%	60%
1977	3,948	301	7%	1922	2,451	68%	59%
1978	3,126	2,606	63%	1949	2,444	69%	59%
1979	3,527	3,023	73%	1972	2,427	70%	59%
1980	3,197	2,869	69%	1935	2,412	72%	58%
1981	3,834	2,532	61%	1944	2,409	73%	58%
1982	3,451	3,054	74%	1989	2,399	74%	58%
1983	3,007	2,811	68%	1994	2,396	75%	58%
1984	3,692	3,070	74%	1948	2,310	77%	56%
1985	3,753	2,894	70%	1950	2,222	78%	54%
1986	3,345	2,996	72%	1960	2,211	79%	54%
1987	3,904	1,957	47%	1926	2,095	80%	51%
1988	4,026	902	22%	1955	2,080	81%	50%
1989	4,097	2,399	58%	1987	1,957	83%	47%
1990	3,961	1,241	30%	1925	1,845	84%	45%
1991	3,957	1,102	27%	1933	1,571	85%	38%
1992	3,880	1,061	26%	1932	1,569	86%	38%
1993	3,559	2,724	66%	1930	1,543	88%	37%
1994	3,739	2,310	56%	2001	1,409	89%	34%
1995	3,451	2,927	71%	1931	1,255	90%	30%
1996	3,692	3,267	79%	1929	1,241	91%	30%
1997	3,559	3,191	77%	1992	1,239	93%	30%
1998	3,451	3,338	81%	1990	1,210	94%	29%
1999	3,692	3,142	76%	1934	1,102	95%	27%
2000	3,720	2,855	69%	1991	1,061	96%	26%
2001	3,961	1,409	34%	1988	902	98%	22%
2002	4,097	2,576	62%	1924	841	99%	20%
2003	3,720	2,811	68%	1977	301	100%	7%
Avg	**3,711**	**2,483**	**60%**		**2,483**		**60%**
Min	**3,007**	**301**	**7%**		**301**		**7%**
Max	**4,115**	**3,338**	**81%**		**3,338**		**81%**

1/ Percent of time at or about given value 2/ 4,133 taf/year

Table B.4 SWP Table A deliveries from the Delta under Future Conditions
MPI-ECHAM5 Model with A2 Emissions

Year	SWP Table A demands (taf)	No Climate Change		MPI-ECHAM5 model with A2 Emissions		Estimated Delivery Interpolated to 2029[2]	
		SWP Table A Delivery (taf)	percent of max SWP Table A[2]	SWP Table A Delivery (taf)	percent of max SWP Table A[2]	SWP Table A Delivery (taf)	percent of max SWP Table A[2]
1922	4,133	2,633	64%	2,488	60%	2,562	62%
1923	4,133	2,692	65%	2,469	60%	2,583	63%
1924	4,133	1,017	25%	701	17%	863	21%
1925	4,133	1,822	44%	1,606	39%	1,717	42%
1926	4,133	2,384	58%	1,860	45%	2,128	51%
1927	4,133	2,695	65%	2,866	69%	2,779	67%
1928	4,133	2,783	67%	2,736	66%	2,760	67%
1929	4,133	1,243	30%	1,663	40%	1,448	35%
1930	4,133	1,754	42%	1,663	40%	1,710	41%
1931	4,133	1,257	30%	1,174	28%	1,217	29%
1932	4,133	1,605	39%	1,579	38%	1,592	39%
1933	4,133	1,599	39%	1,600	39%	1,599	39%
1934	4,133	1,138	28%	1,500	36%	1,315	32%
1935	4,133	2,711	66%	2,508	61%	2,612	63%
1936	4,133	2,893	70%	2,531	61%	2,716	66%
1937	4,133	3,533	85%	2,905	70%	3,226	78%
1938	4,133	4,088	99%	3,906	94%	3,999	97%
1939	4,133	2,409	58%	1,587	38%	2,008	49%
1940	4,133	2,577	62%	2,525	61%	2,551	62%
1941	4,133	3,162	77%	2,746	66%	2,959	72%
1942	4,133	2,791	68%	2,725	66%	2,759	67%
1943	4,133	3,079	74%	2,770	67%	2,928	71%
1944	4,133	2,559	62%	1,952	47%	2,263	55%
1945	4,133	2,882	70%	2,882	70%	2,882	70%
1946	4,133	2,755	67%	2,458	59%	2,610	63%
1947	4,133	2,631	64%	2,033	49%	2,339	57%
1948	4,133	2,359	57%	2,509	61%	2,432	59%
1949	4,133	2,454	59%	2,208	53%	2,334	56%
1950	4,133	2,312	56%	2,537	61%	2,422	59%
1951	4,133	2,964	72%	2,791	68%	2,880	70%
1952	4,133	3,724	90%	2,982	72%	3,362	81%
1953	4,133	2,408	58%	2,726	66%	2,563	62%
1954	4,133	2,368	57%	2,491	60%	2,428	59%
1955	4,133	2,106	51%	1,421	34%	1,772	43%
1956	4,133	3,347	81%	2,965	72%	3,161	76%
1957	4,133	2,484	60%	2,383	58%	2,435	59%
1958	4,133	3,656	88%	3,343	81%	3,503	85%
1959	4,133	2,089	51%	2,153	52%	2,120	51%
1960	4,133	2,170	53%	1,694	41%	1,938	47%
1961	4,133	2,556	62%	1,668	40%	2,123	51%
1962	4,133	2,525	61%	2,849	69%	2,683	65%
1963	4,133	2,435	59%	2,532	61%	2,483	60%
1964	4,133	2,526	61%	2,618	63%	2,571	62%
1965	4,133	2,707	65%	2,732	66%	2,719	66%

Year	SWP Table A demands (taf)	No Climate Change		MPI-ECHAM5 model with A2 Emissions		Estimated Delivery Interpolated to 2029[2]	
		SWP Table A Delivery (taf)	percent of max SWP Table A[2]	SWP Table A Delivery (taf)	percent of max SWP Table A[2]	SWP Table A Delivery (taf)	percent of max SWP Table A[2]
1966	4,133	2,765	67%	2,502	61%	2,637	64%
1967	4,133	3,731	90%	2,660	64%	3,208	78%
1968	4,133	2,234	54%	2,705	65%	2,464	60%
1969	4,133	3,862	93%	3,919	95%	3,890	94%
1970	4,133	3,130	76%	2,701	65%	2,920	71%
1971	4,133	2,707	65%	2,336	57%	2,526	61%
1972	4,133	2,349	57%	2,433	59%	2,390	58%
1973	4,133	2,691	65%	2,530	61%	2,612	63%
1974	4,133	3,354	81%	2,654	64%	3,012	73%
1975	4,133	2,885	70%	2,811	68%	2,849	69%
1976	4,133	2,560	62%	2,812	68%	2,683	65%
1977	4,133	226	5%	701	17%	458	11%
1978	4,133	2,962	72%	3,039	74%	3,000	73%
1979	4,133	2,976	72%	2,815	68%	2,897	70%
1980	4,133	3,516	85%	3,143	76%	3,334	81%
1981	4,133	2,472	60%	2,701	65%	2,583	63%
1982	4,133	3,861	93%	3,525	85%	3,697	89%
1983	4,133	3,950	96%	4,031	98%	3,990	97%
1984	4,133	3,071	74%	3,065	74%	3,068	74%
1985	4,133	2,884	70%	2,731	66%	2,810	68%
1986	4,133	3,514	85%	2,762	67%	3,147	76%
1987	4,133	1,302	32%	1,139	28%	1,223	30%
1988	4,133	927	22%	1,537	37%	1,224	30%
1989	4,133	2,665	64%	2,028	49%	2,355	57%
1990	4,133	806	19%	986	24%	894	22%
1991	4,133	986	24%	1,344	33%	1,161	28%
1992	4,133	1,192	29%	787	19%	994	24%
1993	4,133	2,806	68%	2,424	59%	2,619	63%
1994	4,133	2,356	57%	2,536	61%	2,444	59%
1995	4,133	3,304	80%	3,124	76%	3,216	78%
1996	4,133	2,890	70%	2,617	63%	2,757	67%
1997	4,133	3,503	85%	2,939	71%	3,228	78%
1998	4,133	3,271	79%	3,549	86%	3,407	82%
1999	4,133	3,046	74%	2,824	68%	2,938	71%
2000	4,133	2,767	67%	2,715	66%	2,742	66%
2001	4,133	1,491	36%	1,199	29%	1,348	33%
2002	4,133	2,827	68%	2,475	60%	2,656	64%
2003	4,133	2,583	63%	2,424	59%	2,506	61%
Avg	**4,133**	**2,565**	**62%**	**2,406**	**58%**	**2,487**	**60%**
Min	**4,133**	**226**	**5%**	**701**	**17%**	**458**	**11%**
Max	**4,133**	**4,088**	**99%**	**4,031**	**98%**	**3,999**	**97%**

[1]/ As described in Appendix B [2]/ 4,133 taf/year

Table B.5 SWP Table A deliveries from the Delta under Future Conditions
Derived values for estimating probability curve

Ranking of calculated SWP Table A deliveries for probability curve							
Exceedence Frequency	**Year**	**SWP Table A delivery (taf)**	**percent of max SWP Table A[1]**	**Exceedence Frequency**	**Year**	**SWP Table A Delivery (taf)**	**percent of max SWP Table A[1]**
0%	1983	3,999	97%	53%	1922	2,571	62%
1%	1938	3,990	97%	54%	1964	2,563	62%
2%	1969	3,890	94%	56%	1940	2,562	62%
4%	1982	3,697	89%	57%	1953	2,551	62%
5%	1998	3,503	85%	58%	1971	2,526	61%
6%	1958	3,407	82%	59%	1993	2,506	61%
7%	1980	3,362	81%	60%	1963	2,483	60%
9%	1952	3,334	81%	62%	1948	2,464	60%
10%	1995	3,228	78%	63%	1957	2,444	59%
11%	1997	3,226	78%	64%	1954	2,435	59%
12%	1937	3,216	78%	65%	2003	2,432	59%
14%	1956	3,208	78%	67%	1968	2,428	59%
15%	1967	3,161	76%	68%	1972	2,422	59%
16%	1986	3,147	76%	69%	1994	2,390	58%
17%	1984	3,068	74%	70%	1947	2,355	57%
19%	1974	3,012	73%	72%	1950	2,339	57%
20%	1941	3,000	73%	73%	1944	2,334	56%
21%	1951	2,959	72%	74%	1949	2,263	55%
22%	1978	2,938	71%	75%	1961	2,128	51%
23%	1970	2,928	71%	77%	1959	2,123	51%
25%	1943	2,920	71%	78%	1939	2,120	51%
26%	1999	2,897	70%	79%	1926	2,008	49%
27%	1945	2,882	70%	80%	1960	1,938	47%
28%	1979	2,880	70%	81%	1925	1,772	43%
30%	1975	2,849	69%	83%	1955	1,717	42%
31%	1985	2,810	68%	84%	1930	1,710	41%
32%	1927	2,779	67%	85%	1933	1,599	39%
33%	1942	2,760	67%	86%	1932	1,592	39%
35%	1928	2,759	67%	88%	1929	1,448	35%
36%	1996	2,757	67%	89%	2001	1,348	33%
37%	1965	2,742	66%	90%	1934	1,315	32%
38%	2000	2,719	66%	91%	1988	1,224	30%
40%	1976	2,716	66%	93%	1931	1,223	30%
41%	2002	2,683	65%	94%	1987	1,217	29%
42%	1962	2,683	65%	95%	1992	1,161	28%
43%	1935	2,656	64%	96%	1991	994	24%
44%	1946	2,637	64%	98%	1924	894	22%
46%	1973	2,619	63%	99%	1990	863	21%
47%	1936	2,612	63%	100%	1977	458	11%
48%	1981	2,612	63%		**Avg**	**2,487**	**60%**
49%	1923	2,610	63%		**Min**	**458**	**11%**
51%	1966	2,583	63%		**Max**	**3,999**	**97%**
52%	1989	2,583	63%				

[1]/ 4,133 taf/year

Table B.6 SWP Article 21 deliveries under Current Conditions

Year	Article 21 Demand (taf)	Article 21 Delivery (taf)
1922	3,368	16
1923	3,368	12
1924	3,368	56
1925	3,368	436
1926	3,368	7
1927	3,368	67
1928	3,368	8
1929	3,368	10
1930	3,368	10
1931	3,368	8
1932	3,368	156
1933	3,368	393
1934	3,368	8
1935	3,368	14
1936	3,368	12
1937	3,368	184
1938	3,368	443
1939	3,368	2
1940	2,726	14
1941	1,442	2
1942	3,368	6
1943	3,368	10
1944	3,368	7
1945	3,368	288
1946	3,368	14
1947	3,368	8
1948	3,368	12
1949	3,368	12
1950	3,368	17
1951	2,726	485
1952	1,442	50
1953	3,368	8
1954	3,368	14
1955	3,368	14
1956	3,368	704
1957	3,368	12
1958	3,368	18
1959	3,368	4
1960	3,368	12
1961	3,368	10
1962	3,368	10
1963	3,368	18
1964	3,368	10
1965	3,368	16
1966	3,368	11
1967	3,368	18
1968	2,726	8
1969	1,442	191
1970	3,368	238
1971	3,368	9
1972	3,368	20
1973	3,368	16
1974	3,368	12
1975	3,368	11
1976	3,368	9
1977	2,726	2
1978	1,442	2
1979	2,726	124
1980	1,442	189
1981	3,368	9
1982	2,726	463
1983	1,442	853
1984	3,368	507
1985	2,726	2
1986	1,442	140
1987	3,368	9
1988	3,368	10
1989	3,368	10
1990	3,368	10
1991	3,368	12
1992	3,368	10
1993	3,368	14
1994	2,726	6
1995	1,442	2
1996	3,368	6
1997	2,726	47
1998	1,442	201
1999	3,368	123
2000	3,368	8
2001	3,368	14
2002	3,368	25
2003	3,368	16
Avg	**3,086**	**85**
Min	**1,442**	**2**
Max	**3,368**	**853**

Table B.7 SWP Article 21 deliveries under Future Conditions
MPI-ECHAM5 Model with A2 Emissions

Year	Article 21 Demand (taf)	Article 21 Delivery (taf)		
		no climate change	MPI-ECHAM5 A2 Emissions	interpolated to 2029[1]
1922	3,368	16	16	16
1923	3,368	15	16	15
1924	3,368	22	72	46
1925	3,368	449	431	440
1926	3,368	15	8	11
1927	3,368	14	14	14
1928	3,368	12	10	11
1929	3,368	10	324	163
1930	3,368	10	10	10
1931	3,368	8	8	8
1932	3,368	401	336	369
1933	3,368	431	21	231
1934	3,368	10	129	68
1935	3,368	10	10	10
1936	3,368	12	17	15
1937	3,368	98	114	106
1938	3,368	9	13	11
1939	3,368	8	8	8
1940	2,726	14	12	13
1941	1,442	2	2	2
1942	3,368	14	18	16
1943	3,368	12	16	14
1944	3,368	10	12	11
1945	3,368	265	240	253
1946	3,368	18	18	18
1947	3,368	10	10	10
1948	3,368	10	8	9
1949	3,368	10	17	13
1950	3,368	18	19	19
1951	2,726	364	24	198
1952	1,442	1	2	1
1953	3,368	16	17	17
1954	3,368	14	12	13
1955	3,368	13	12	13
1956	3,368	383	601	490
1957	3,368	17	19	18
1958	3,368	9	32	20
1959	3,368	10	12	11
1960	3,368	10	12	11
1961	3,368	8	9	8
1962	3,368	8	8	8
1963	3,368	19	15	17
1964	3,368	16	12	14
1965	3,368	15	14	14
1966	3,368	16	15	15
1967	3,368	12	18	15
1968	2,726	13	11	13
1969	1,442	38	34	36
1970	3,368	102	16	60
1971	3,368	14	18	16
1972	3,368	20	18	19
1973	3,368	16	22	19
1974	3,368	15	14	15
1975	3,368	13	18	16
1976	3,368	12	12	12
1977	2,726	2	4	3
1978	1,442	2	135	67
1979	2,726	12	10	11
1980	1,442	32	35	34
1981	3,368	15	12	14
1982	2,726	187	13	102
1983	1,442	549	468	509
1984	3,368	547	530	539
1985	2,726	8	10	9
1986	1,442	94	2	49
1987	3,368	12	107	58
1988	3,368	10	125	66
1989	3,368	6	6	6
1990	3,368	11	12	11
1991	3,368	12	14	13
1992	3,368	10	8	9
1993	3,368	12	19	16
1994	2,726	10	8	9
1995	1,442	1	2	2
1996	3,368	14	16	15
1997	2,726	79	156	117
1998	1,442	24	2	13
1999	3,368	250	14	135
2000	3,368	14	12	13
2001	3,368	14	14	14
2002	3,368	12	43	27
2003	3,368	16	12	14
Avg	**3,086**	**62**	**58**	**60**
Min	**1,442**	**1**	**2**	**1**
Max	**3,368**	**549**	**601**	**539**

[1]/ As described in Appendix B

Table B.8 Highlighted SWP Table A delivery percent exceedence values under Current and Future Conditions

Exceedence	Annual SWP Table A Delivery (taf)						
	2007 Report					Updated Studies	
	Current (2007)	Future (2027)[1]				Current (2009)	Future (2029)[2]
		GFDL + A2	GFDL + B1	PCM + A2	PCM + B1		
25%	3218	3703	3686	3782	3813	2920	2915
50%	2976	3017	2967	3084	3205	2675	2596
75%	2168	1883	1966	1860	2077	2397	2137

[1]/ Based upon SWP Table A deliveries that have been interpolated between the "no climate change" scenario and the climate change scenarios determined by climate change model (GFDL or PCM) and greenhouse gas emissions scenario (A2 or B1). SWP Table A deliveries for two scenarios of Old and Middle River flow targets were then averaged.
[2]/ Based upon SWP Table A deliveries that have been interpolated between the "no climate change" scenario and the climate change scenario determined by climate change model MPI-ECHAM5 and greenhouse gas emissions scenario A2.

Figure B.1 SWP Table A delivery probability under Current Conditions

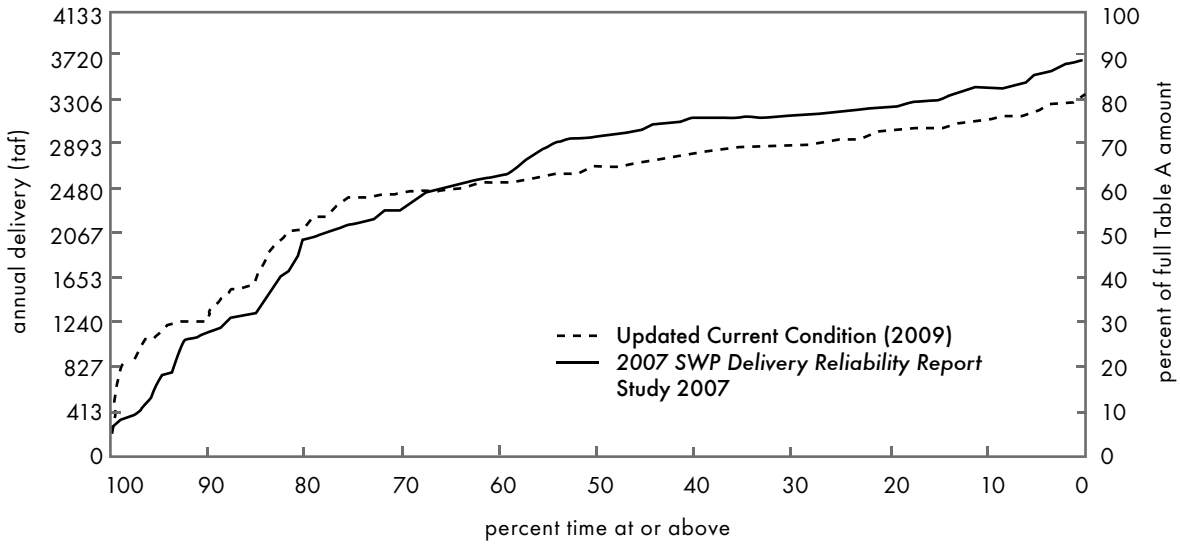


Figure B.2 SWP Table A delivery probability under Future Conditions

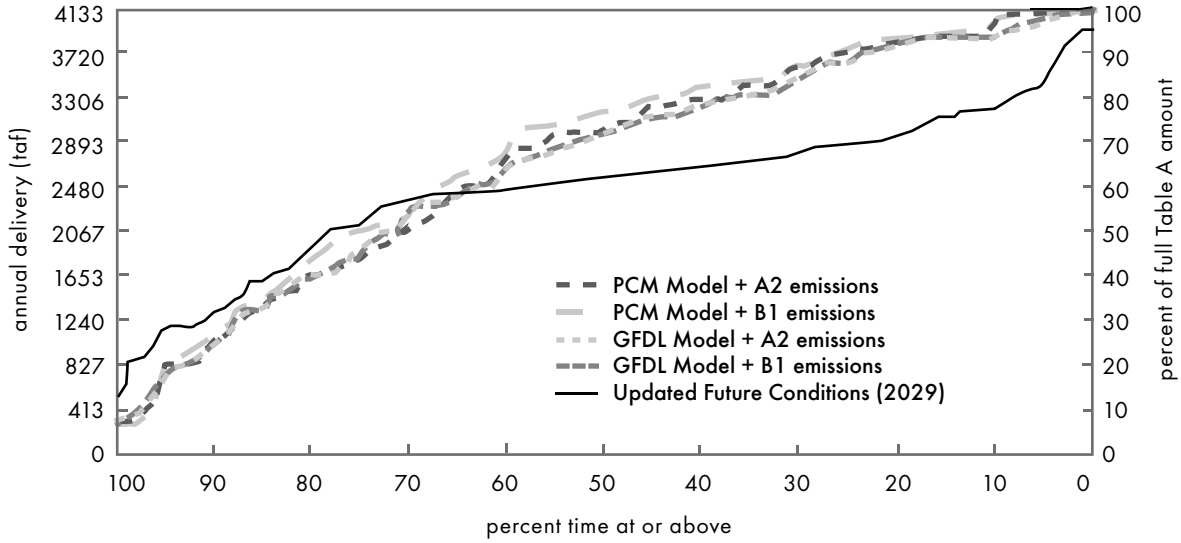


Table B.9 Comparing SWP Table A deliveries under Current Conditions from updated studies to deliveries from *2007 Report*

Year	SWP Table A Deliveries (taf)		
	Study 2007, *2007 Report*	**Updated Study 2009**	**Change in Deliveries**
1922	3,674	2,451	-1,223
1923	3,159	2,849	-310
1924	400	841	441
1925	1,644	1,845	202
1926	2,186	2,080	-107
1927	3,699	2,680	-1,019
1928	2,059	2,836	777
1929	753	1,210	457
1930	2,028	1,571	-457
1931	1,105	1,255	150
1932	1,305	1,543	238
1933	1,981	1,569	-412
1934	1,315	1,239	-75
1935	3,334	2,412	-923
1936	3,124	2,749	-374
1937	3,219	2,995	-223
1938	3,394	3,262	-133
1939	3,256	3,021	-235
1940	3,165	2,524	-641
1941	2,526	2,608	82
1942	3,167	3,140	-27
1943	3,154	3,174	20
1944	2,930	2,396	-533
1945	3,085	2,612	-472
1946	3,199	2,875	-324
1947	2,314	2,780	466
1948	2,609	2,427	-182
1949	1,271	2,444	1,173
1950	2,462	2,222	-240
1951	3,497	2,671	-827
1952	2,585	2,924	339
1953	3,323	3,013	-310
1954	3,201	2,535	-667
1955	1,137	2,095	958
1956	3,581	2,954	-627
1957	2,545	2,475	-70
1958	3,030	3,090	60
1959	3,465	2,544	-921
1960	1,460	2,211	751
1961	2,357	2,461	104
1962	2,962	2,494	-467

Year	SWP Table A Deliveries (taf)		
	Study 2007, *2007 Report*	**Updated Study 2009**	**Change in Deliveries**
1963	3,406	2,569	-837
1964	2,211	2,858	648
1965	2,861	2,731	-130
1966	3,265	2,867	-399
1967	2,990	2,768	-222
1968	3,297	2,907	-390
1969	2,626	2,854	228
1970	3,257	3,082	-176
1971	3,317	2,712	-604
1972	1,707	2,409	701
1973	3,085	2,477	-608
1974	3,184	3,247	63
1975	3,218	3,023	-195
1976	2,604	2,692	88
1977	243	301	58
1978	3,599	2,606	-993
1979	3,128	3,023	-106
1980	2,710	2,869	159
1981	3,128	2,532	-596
1982	2,940	3,054	114
1983	2,497	2,811	314
1984	3,227	3,070	-157
1985	3,198	2,894	-304
1986	2,294	2,996	701
1987	2,825	1,957	-868
1988	477	902	426
1989	3,130	2,399	-732
1990	360	1,241	882
1991	729	1,102	373
1992	1,087	1,061	-26
1993	3,711	2,724	-987
1994	2,105	2,310	206
1995	2,993	2,927	-66
1996	3,440	3,267	-172
1997	3,101	3,191	90
1998	3,008	3,338	330
1999	3,439	3,142	-297
2000	3,451	2,855	-596
2001	1,164	1,409	245
2002	2,162	2,576	414
2003	2,943	2,811	-133

Appendix C. State Water Project Table A Amounts

The contracts between the DWR and the 29 SWP water contractors define the terms and conditions governing the water delivery and cost repayment for the SWP. SWP Table A is an exhibit to these contracts. Comprehension of Table A is important in understanding the information in this report. To understand the table, it is necessary to understand how the contracts work.

All water-supply related costs of the SWP are paid by the contractors, and SWP Table A serves as a basis for allocating some of the costs among the contractors. In addition, SWP Table A plays a key role in the annual allocation of available supply among contractors. When the SWP was being planned, the amount of water projected to be available for delivery to the contractors was 4,173 taf per year. This was referred to as the maximum project yield, and it was recognized that in some years the project would be unable to deliver that amount and in other years project supply could exceed that amount. This amount was used as the basis for apportioning available supply to each contractor and as a factor in calculating each contractor's share of the project's costs. This apportionment is accomplished by SWP Table A in each contract. SWP Table A lists by year and acre-feet the portion of the 4,173 taf deliverable to each contractor. Other contract provisions permit changes to an individual contractor's SWP Table A under special circumstances. The total of the maximums in all the contracts now equals 4,173 taf.

A copy of the consolidated SWP Table A from all the contracts follows this explanation. The amounts listed in SWP Table A cannot be viewed as an indication of the SWP water delivery reliability, nor should these amounts be used to support an expectation that a certain amount of water will be delivered to a contractor in any particular time span. SWP Table A is simply a tool for apportioning available supply and cost obligations under the contract. In this report, reference to "SWP Table A amounts" means the amounts listed in SWP Table A. Contractors also receive other classifications of water from the project, as distinguished from SWP Table A (for example, Article 21 water, and turnback pool water). These other contract provisions are discussed in Appendix D.

Table C.1 Maximum annual SWP Table A amounts (acre-feet)

Contractor	Maximum SWP Table A
North Bay	
Napa County FC&WCD	29,025
Solano County WA	47,756
Subtotal	**76,781**
South Bay	
Alameda County FC&WCD, Zone 7	80,619
Alameda County WD	42,000
Santa Clara Valley WD	100,000
Subtotal	**222,619**
San Joaquin Valley	
Oak Flat WD	5,700
Kings County	9,305
Dudley Ridge WD	57,343
Empire West Side ID	3,000
Kern County WA	998,730
Tulare Lake Basin WSD	95,922
Subtotal	**1,170,000**
Central Coastal	
San Luis Obispo County FC&WCD	25,000
Santa Barbara County FC&WCD	45,486
Subtotal	**70,486**
Southern California	
Antelope Valley-East Kern WA	141,400
Castaic Lake WA	95,200
Coachella Valley WD	121,100
Crestline-Lake Arrowhead WA	5,800
Desert WA	50,000
Littlerock Creek ID	2,300
Mojave WA	75,800
Metropolitan WDSC	1,911,500
Palmdale WD	21,300
San Bernardino Valley MWD	102,600
San Gabriel Valley MWD	28,800
San Gorgonio Pass WA	17,300
Ventura County FCD	20,000
Subtotal	**2,593,100**
Delta Delivery Total	**4,132,986**
Feather River	
Butte County	27,500
Plumas County FC&WCD	2,700
Yuba City	9,600
Subtotal	**39,800**
Total	**4,172,786**

Appendix D. Recent State Water Project Deliveries

SWP Contract Water Types

The SWP contracts define several classifications of water available for delivery to contractors under specific circumstances. All classifications are considered "project" water. Many contractors make frequent use of these additional water types to increase or decrease the amount available to them under SWP Table A.

SWP Table A Water

Each contract's SWP Table A is the amount in acre-feet that is used to determine the portion of available supply to be delivered to that contractor. SWP Table A water is water delivered according to this apportionment methodology and is given first priority for delivery.

SWP Article 21 Water

SWP Article 21 of the contracts permits delivery of water excess to delivery of SWP Table A and some other water types to those contractors requesting it. It is available under specific conditions discussed in Chapter 5. SWP Article 21 water is apportioned to those contractors requesting it in the same proportion as their SWP Table A.

Turnback Pool Water

Contractors may choose to offer their allocated SWP Table A water excess to their needs to other contractors through two pools in February and March. Contributing contractors receive a reduction in charges, and taking contractors pay extra.

Carryover Water

Pursuant to the long-term water supply contracts, contractors have the opportunity to carry over a portion of their allocated water approved for delivery in the current year for delivery during the next year. Contractors can carry over water under Article 56C with advanced notice when they submit their initial request for SWP Table A water, or within the last three months of the delivery year, under Article 12E for various reasons, including local wet conditions and exchange and transfer arrangements. The carryover program was designed to encourage the most effective and beneficial use of water and to avoid obligating the contractors to use or lose the water by December 31 of each year. The water supply contracts state the criteria of carrying over SWP Table A water from one year to the next. Normally, carryover water is water that has been exported during the year, has not been delivered to the contractor during that year, and has remained stored in the SWP share of San Luis Reservoir to be delivered during the following year. Storage for carryover water no longer becomes available to the contractors if it interferes with storage of SWP water for project needs.

Updated Historical Deliveries

Table D.1 through D.10 list annual historical deliveries by various water classifications for each contractor for 1999 through 2008. Similar delivery tables for years 1997 through 2006 are included in *Report 2007*.

Table D.1 Historical SWP Deliveries: 1999

Sacramento River Index	1				
Year Type	Wet				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	286	0	0	0	286
Plumas County FC&WCD					
Yuba City	1,096	0	0	0	1,096
Napa County FC&WCD	4,550	754	0	0	5,304
Solano County WA	37,753	0	0	0	37,753
Alameda County FC&WCD, Zone 7	46,000	2,910	0	0	48,910
Alameda County WD	34,871	2,781	0	0	37,652
Santa Clara Valley WD	67,465	15,480	0	0	82,945
Oak Flat WD	4,871	0	0	0	4,871
Kings County	4,000	0	0	0	4,000
Dudley Ridge WD	51,870	4,990	6,566	0	63,426
Empire West Side ID	3,000	176	0	0	3,176
Kern County WA	1,077,755	58,241	42,154	0	1,178,150
Little Rock Creek ID	342	0	0	0	342
Tulare Lake Basin WSD	118,500	49,898	121,337	0	289,735
San Luis Obispo County FC&WCD	3,743	0	0	0	3,743
Santa Barbara County FC&WCD	20,137	0	0	0	20,137
Antelope Valley-East Kern WA	69,073	0	0	0	69,073
Castaic Lake WA (+Rch 31A, 5 & 7)	32,899	0	0	0	32,899
Coachella Valley WD	23,100	0	27,380	0	50,480
Crestline-Lake Arrowhead WA	1,132	0	0	0	1,132
Desert WA	38,100	0	20,000	0	58,100
Mojave WA	5,144	0	0	0	5,144
Metropolitan WDSC	829,777	22,840	0	0	852,617
Palmdale WD	13,278	0	0	0	13,278
San Bernardino Valley MWD	12,874	0	0	0	12,874
San Gabriel Valley MWD	18,000	0	0	0	18,000
San Gorgonio Pass WA					
Ventura County FCD	1,850	0	0	0	1,850
Totals	2,521,466	158,070	217,437	0	2,896,973
Total South of Delta	2,520,084	158,070	217,437	0	2,895,591

Table D.2 Historical SWP Deliveries: 2000

Sacramento River Index	2				
Year Type	Above Normal				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	586	0	0	0	586
Plumas County FC&WCD					
Yuba City	901	0	0	0	901
Napa County FC&WCD	3,136	297	0	1,525	4,958
Solano County WA	32,882	1,040	0	1,417	35,339
Alameda County FC&WCD, Zone 7	53,877	3,740	0	0	57,617
Alameda County WD	33,598	2,380	0	0	35,978
Santa Clara Valley WD	70,433	18,381	0	13,174	101,988
Oak Flat WD	4,494	0	0	14	4,508
Kings County	3,600	0	0	0	3,600
Dudley Ridge WD	38,673	7,454	12,193	2,884	61,204
Empire West Side ID	1,271	528	0	0	1,799
Kern County WA	825,856	78,908	233,202	13,193	1,151,159
Little Rock Creek ID					
Tulare Lake Basin WSD	98,595	56,818	27,073	15,827	198,313
San Luis Obispo County FC&WCD	3,962	0	0	0	3,962
Santa Barbara County FC&WCD	22,741	0	0	0	22,741
Antelope Valley-East Kern WA	83,577	0	0	0	83,577
Castaic Lake WA (+Rch 31A, 5 & 7)	40,680	0	0	0	40,680
Coachella Valley WD	20,790	17,820	3,713	0	42,323
Crestline-Lake Arrowhead WA	1,194	0	0	0	1,194
Desert WA	34,290	17,820	6,124	0	58,234
Mojave WA	9,135	0	0	0	9,135
Metropolitan WDSC	1,273,729	103,124	0	169,529	1,546,382
Palmdale WD	8,221	0	0	839	9,060
San Bernardino Valley MWD	18,399	0	0	0	18,399
San Gabriel Valley MWD	14,000	475	0	0	14,475
San Gorgonio Pass WA					
Ventura County FCD	4,050	0	0	0	4,050
Totals	2,702,670	308,785	282,305	218,402	3,512,162
Total South of Delta	2,701,183	308,785	282,305	218,402	3,510,675

Table D.3 Historical SWP Deliveries: 2001

Sacramento River Index	4				
Year Type	Dry				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	513	0	0	0	513
Plumas County FC&WCD					
Yuba City	1,065	0	0	0	1,065
Napa County FC&WCD	4,293	996	82	1,723	7,094
Solano County WA	17,756	2,304	0	1,021	21,081
Alameda County FC&WCD, Zone 7	22,307	0	308	5,990	28,605
Alameda County WD	13,695	10	107	4,192	18,004
Santa Clara Valley WD	35,689	0	0	12,233	47,922
Oak Flat WD	2,089	0	22	101	2,212
Kings County	1,560	0	0	0	1,560
Dudley Ridge WD	18,467	933	347	6,815	26,562
Empire West Side ID	0	253	0	1,107	1,360
Kern County WA	363,204	23,233	6,502	92,052	484,991
Little Rock Creek ID					
Tulare Lake Basin WSD	40,830	8,755	769	7,889	58,243
San Luis Obispo County FC&WCD	4,184	0	99	0	4,283
Santa Barbara County FC&WCD	14,285	396	296	0	14,977
Antelope Valley-East Kern WA	45,071	0	899	0	45,970
Castaic Lake WA (+Rch 31A, 5 & 7)	30,471	850	618	0	31,939
Coachella Valley WD	9,009	0	91	0	9,100
Crestline-Lake Arrowhead WA	1,057	0	0	0	1,057
Desert WA	14,859	0	151	0	15,010
Mojave WA	4,433	0	0	0	4,433
Metropolitan WDSC	686,545	10,415	7,949	200,000	904,909
Palmdale WD	8,170	0	0	2,257	10,427
San Bernardino Valley MWD	26,488	0	0	0	26,488
San Gabriel Valley MWD	6,534	0	0	0	6,534
San Gorgonio Pass WA					
Ventura County FCD	1,850	0	0	0	1,850
Totals	1,374,424	48,145	18,240	335,380	1,776,189
Total South of Delta	1,372,846	48,145	18,240	335,380	1,774,611

Table D.4 Historical SWP Deliveries: 2002

Sacramento River Index	4				
Year Type	Dry				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	419	0	0	0	419
Plumas County FC&WCD					
Yuba City	1,181	0	0	0	1,181
Napa County FC&WCD	2,022	827	283	3,743	6,875
Solano County WA	28,223	2,242	0	0	30,465
Alameda County FC&WCD, Zone 7	40,707	1,484	556	8,113	50,860
Alameda County WD	24,250	83	862	2,331	27,526
Santa Clara Valley WD	55,896	202	2,053	3,311	61,462
Oak Flat WD	3,841	50	76	134	4,101
Kings County	2,800	0	54	0	2,854
Dudley Ridge WD	38,688	1,861	1,177	1,994	43,720
Empire West Side ID	1,278	26	0	101	1,405
Kern County WA	670,884	21,951	20,543	15,680	729,058
Little Rock Creek ID					
Tulare Lake Basin WSD	73,785	3,749	2,289	5,385	85,208
San Luis Obispo County FC&WCD	4,355		0	0	4,355
Santa Barbara County FC&WCD	24,166	436	324	3,455	28,381
Antelope Valley-East Kern WA	53,907		1,008	3,256	58,171
Castaic Lake WA (+Rch 31A, 5 & 7)	61,880	280		6,657	68,817
Coachella Valley WD	16,170	111	474	0	16,755
Crestline-Lake Arrowhead WA	2,189	0	0	0	2,189
Desert WA	26,670	189	781	0	27,640
Mojave WA	4,346	0	0	0	4,346
Metropolitan WDSC	1,273,205	9,624	14,335	97,940	1,395,104
Palmdale WD	8,359	0	437	0	8,796
San Bernardino Valley MWD	68,268	0	0	3,801	72,069
San Gabriel Valley MWD	18,353	0	0	4,698	23,051
San Gorgonio Pass WA					
Ventura County FCD	4,998	0	0	0	4,998
Totals	2,510,840	43,115	45,252	160,599	2,759,806
Total South of Delta	2,509,240	43,115	45,252	160,599	2,758,206

Table D.5 Historical SWP Deliveries: 2003

Sacramento River Index	2				
Year Type	Above Normal				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	551	0	0	0	551
Plumas County FC&WCD					
Yuba City	1,324	0	0	0	1,324
Napa County FC&WCD	6,026	376	180	1,055	7,637
Solano County WA	25,135	2,280	0	1,918	29,333
Alameda County FC&WCD, Zone 7	30,695	0	656	13,099	44,450
Alameda County WD	31,086	0	354	5,150	36,590
Santa Clara Valley WD	90,620	936	841	14,104	106,501
Oak Flat WD	4,059	19	48	140	4,266
Kings County	3,600	58	34	0	3,692
Dudley Ridge WD	49,723	1,928	482	1,452	53,585
Empire West Side ID	1,074	175	0	187	1,436
Kern County WA	841,697	27,891	8,419	22,380	900,387
Little Rock Creek ID					
Tulare Lake Basin WSD	94,376	6,243	938	4,284	105,841
San Luis Obispo County FC&WCD	4,417	36	0	0	4,453
Santa Barbara County FC&WCD	24,312	339	43	2,274	26,968
Antelope Valley-East Kern WA	52,730	0	250	7,049	60,029
Castaic Lake WA (+Rch 31A, 5 & 7)	49,895	991	90	4,760	55,736
Coachella Valley WD	14,045	204	194	0	14,443
Crestline-Lake Arrowhead WA	1,563	0	0	0	1,563
Desert WA	23,168	330	321	0	23,819
Mojave WA	10,907	0	0	3,528	14,435
Metropolitan WDSC	1,550,356	17,622	16,920	134,845	1,719,743
Palmdale WD	9,701	0	0	1,846	11,547
San Bernardino Valley MWD	25,371	200	0	1,844	27,415
San Gabriel Valley MWD	13,034	200	0	0	13,234
San Gorgonio Pass WA	116	0	0	0	116
Ventura County FCD	5,000	0	0	0	5,000
Totals	2,964,581	59,828	29,770	219,915	3,274,094
Total South of Delta	2,962,706	59,828	29,770	219,915	3,272,219

Table D.6 Historical SWP Deliveries: 2004

Sacramento River Index	3				
Year Type	Below Normal				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	1,440	0	0	0	1,440
Plumas County FC&WCD					
Yuba City	1,434	0	0	0	1,434
Napa County FC&WCD	5,030	1,450	52	1,602	8,134
Solano County WA	17,991	7,787	0	47	25,825
Alameda County FC&WCD, Zone 7	39,898	0	0	11,466	51,364
Alameda County WD	20,956	0	214	6,714	27,884
Santa Clara Valley WD	52,867	2,983	508	0	56,358
Oak Flat WD	4,324	0	29	276	4,629
Kings County	5,850	3,157	46	0	9,053
Dudley Ridge WD	36,377	7,393	291	2,185	46,246
Empire West Side ID	1,310	626	0	1,626	3,562
Kern County WA	640,190	86,513	5,075	40,120	771,898
Little Rock Creek ID					
Tulare Lake Basin WSD	58,575	15,299	489	5,638	80,001
San Luis Obispo County FC&WCD	4,096	69	0	0	4,165
Santa Barbara County FC&WCD	29,566	0	122	0	29,688
Antelope Valley-East Kern WA	50,532	0	0	9,199	59,731
Castaic Lake WA (+Rch 31A, 5 & 7)	46,358	1,618	0	35,785	83,761
Coachella Valley WD	8,631	0	89	6,745	15,465
Crestline-Lake Arrowhead WA	2,006	0	0	0	2,006
Desert WA	9,966	0	102	11,122	21,190
Mojave WA	11,176	0	0	0	11,176
Metropolitan WDSC	1,195,807	91,601	10,223	215,000	1,512,631
Palmdale WD	10,549	0	0	1,613	12,162
San Bernardino Valley MWD	35,522	0	0	20,631	56,153
San Gabriel Valley MWD	15,600	0	0	0	15,600
San Gorgonio Pass WA	841	0	0	0	841
Ventura County FCD	5,250	0	0	0	5,250
Totals	2,312,142	218,496	17,240	369,769	2,917,647
Total South of Delta	2,309,268	218,496	17,240	369,769	2,914,773

Table D.7 Historical SWP Deliveries: 2005

Sacramento River Index Year Type	2 Above Normal				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	527	0	0	0	527
Plumas County FC&WCD					
Yuba City	1,894	0	0	0	1,894
Napa County FC&WCD	5,322	606	0	1,741	7,669
Solano County WA	24,515	10,421	0	83	35,019
Alameda County FC&WCD, Zone 7	38,388	0	275	7,849	46,512
Alameda County WD	36,469	846	943	6,341	44,599
Santa Clara Valley WD	89,476	6,298	342	11,899	108,015
Oak Flat WD	4,067	0	127	0	4,194
Kings County	8,100	11,504	202	0	19,806
Dudley Ridge WD	51,609	28,197	1,286	821	81,913
Empire West Side ID	1,448	1,799	0	587	3,834
Kern County WA	893,439	453,078	22,397	9,851	1,378,765
Little Rock Creek ID					
Tulare Lake Basin WSD	86,604	47,267	2,158	3,973	140,002
San Luis Obispo County FC&WCD	4,006	245	0	0	4,251
Santa Barbara County FC&WCD	22,981	0	155	0	23,136
Antelope Valley-East Kern WA	57,205	0	0	2,626	59,831
Castaic Lake WA (+Rch 31A, 5 & 7)	54,303	2,451	0	2,702	59,456
Coachella Valley WD	26,984	0	2,716	12,819	42,519
Crestline-Lake Arrowhead WA	807	0	0	0	807
Desert WA	33,168	0	1,122	14,799	49,089
Mojave WA	10,360	0	0	1,201	11,561
Metropolitan WDSC	1,247,183	168,300	6,530	106,032	1,528,045
Palmdale WD	10,174	0	0	1,538	11,712
San Bernardino Valley MWD	31,211	56	0	283	31,550
San Gabriel Valley MWD	10,500	0	0	0	10,500
San Gorgonio Pass WA	655	15	22	0	692
Ventura County FCD	1,665	0	0	0	1,665
Totals	2,753,060	731,083	38,275	185,145	3,707,563
Total South of Delta	2,750,639	731,083	38,275	185,145	3,705,142

Table D.8 Historical SWP Deliveries: 2006

Sacramento River Index	1				
Year Type	Wet				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	468	0	0	0	468
Plumas County FC&WCD					
Yuba City	4,148	1,194	0	0	5,342
Napa County FC&WCD	7,312	300	0	172	7,784
Solano County WA	12,070	18,195	0	390	30,655
Alameda County FC&WCD, Zone 7	50,785	0	491	2,252	53,528
Alameda County WD	0	2,375	39,373	1,331	43,079
Santa Clara Valley WD	47,344	26,769	0	524	74,637
Oak Flat WD	4,118	0	107	17	4,242
Kings County	8,991	366	173	0	9,530
Dudley Ridge WD	55,343	18,515	1,068	0	74,926
Empire West Side ID	1,500	1,124	0	658	3,282
Kern County WA	961,882	256,634	18,610	5,418	1,242,544
Little Rock Creek ID					
Tulare Lake Basin WSD	48,361	59,424	1,787	0	109,572
San Luis Obispo County FC&WCD	3,382	827	0	0	4,209
Santa Barbara County FC&WCD	19,255	4,020	0	0	23,275
Antelope Valley-East Kern WA	76,623	0	0	3,761	80,384
Castaic Lake WA (+Rch 31A, 5 & 7)	56,758	2,089	0	3,905	62,752
Coachella Valley WD	121,100	0	0	0	121,100
Crestline-Lake Arrowhead WA	257	0	0	0	257
Desert WA	50,000	0	0	0	50,000
Mojave WA	32,496	238,478	11,638	1,518	34,014
Metropolitan WDSC	1,103,538	238,478	11,638	136,424	1,490,078
Palmdale WD	10,374	1,653	130	335	12,492
San Bernardino Valley MWD	31,902	0	0	3,427	35,329
San Gabriel Valley MWD	13,524	0	0	0	13,524
San Gorgonio Pass WA	4,262	0	0	0	4,262
Ventura County FCD	1,850	0	0	0	1,850
Totals	2,727,643	631,963	73,377	160,132	3,593,115
Total South of Delta	2,723,027	630,769	73,377	160,132	3,587,305

Table D.9 Historical SWP Deliveries: 2007

Sacramento River Index	4				
Year Type	Dry				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	956	0	0	0	956
Plumas County FC&WCD					
Yuba City	2,327	0	0	0	2,327
Napa County FC&WCD	6,362	3,597	0	998	10,957
Solano County WA	14,892	8,217	0	1,822	24,931
Alameda County FC&WCD, Zone 7	32,972	912	378	2,895	37,157
Alameda County WD	16,541	550	197	2,103	19,391
Santa Clara Valley WD	38,812	4,840	469	8,161	52,282
Oak Flat WD	3,430	41	27	69	3,567
Kings County	4,924	474	43	0	5,441
Dudley Ridge WD	28,457	8,953	269	2,000	39,679
Empire West Side ID	397	1,172	0	515	2,084
Kern County WA	592,423	99,861	4,683	19,645	716,612
Little Rock Creek ID	1,380	0	0	0	1,380
Tulare Lake Basin WSD	57,272	12,902	450	16,459	87,083
San Luis Obispo County FC&WCD	3,752	24	0	0	3,776
Santa Barbara County FC&WCD	24,760	1,070	0	1,390	27,220
Antelope Valley-East Kern WA	74,459	0	0	4,364	78,823
Castaic Lake WA (+Rch 31A, 5 & 7)	44,974	0	0	4,216	49,190
Coachella Valley WD	72,660	0	568	0	73,228
Crestline-Lake Arrowhead WA	1,768	0	0	0	1,768
Desert WA	30,000	0	234	0	30,234
Mojave WA	45,372	0	0	737	46,109
Metropolitan WDSC	1,146,900	166,517	8,962	28,098	1,350,477
Palmdale WD	12,780	843	100	985	14,708
San Bernardino Valley MWD	57,116	0	0	0	57,116
San Gabriel Valley MWD	10,000	0	0	0	10,000
San Gorgonio Pass WA	4,009	0	0	0	4,009
Ventura County FCD	3,000	0	0	0	3,000
Totals	2,332,695	309,973	16,380	94,457	2,753,505
Total South of Delta	2,329,412	309,973	16,380	94,457	2,750,222

Table D.10 Historical SWP Deliveries: 2008

Sacramento River Index Year Type	5 Critical				
	SWP Table A	SWP Article 21	Turnback	Carryover	Total
Butte County	9,436	0	0	0	9,436
Plumas County FC&WCD	243	0	0	0	243
Yuba City	1,923	0	0	0	1,923
Napa County FC&WCD	3,636	1,219	21	7,363	12,239
Solano County WA	10,436	1,510	0	12,389	24,335
Alameda County FC&WCD, Zone 7	13,633	0	0	15,400	29,033
Alameda County WD	4,206	0	37	8,659	12,902
Santa Clara Valley WD	11,133	0	88	21,188	32,409
Oak Flat WD	1,929	0	5	0	1,934
Kings County	3,187	0	8	0	3,195
Dudley Ridge WD	12,260	0	51	5,949	18,260
Empire West Side ID	0	0	0	915	915
Kern County WA	271,636	0	883	6,815	279,334
Little Rock Creek ID	805	0	0	0	805
Tulare Lake Basin WSD	32,302	0	85	281	32,668
San Luis Obispo County FC&WCD	8,512	0	0	0	8,512
Santa Barbara County FC&WCD	11,311	0	40	2,532	13,883
Antelope Valley-East Kern WA	31,082	0	125	10,381	41,588
Castaic Lake WA (+Rch 31A, 5 & 7)	18,710	0	0	12,146	30,856
Coachella Valley WD	42,385	0	107	0	42,492
Crestline-Lake Arrowhead WA	1,159	0	0	689	1,848
Desert WA	17,500	0	44	0	17,544
Mojave WA	26,288	0	0	108	26,396
Metropolitan WDSC	654,304	0	1,689	0	655,993
Palmdale WD	4,226	0	19	0	4,245
San Bernardino Valley MWD	30,562	0	0	4,444	35,006
San Gabriel Valley MWD	10,080	0	0	0	10,080
San Gorgonio Pass WA	5,419	0	0	300	5,719
Ventura County FCD	3,798	0	0	0	3,798
Totals	1,242,101	2,729	3,202	109,559	1,357,591
Total South of Delta	1,230,499	2,729	3,202	109,559	1,345,989

Appendix E. Comment Letter and the Department's Response on the Draft Report

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

March 4, 2010

Ms. Cynthia Pierson
California Department of Water Resources
SWP Delivery Reliability Report Attn: Cynthia Pierson
P.O. Box 942836
Sacramento, CA 94236-0001

Dear Ms. Pierson:

State Water Project Delivery Reliability Report 2009 December 2009 Draft

The Metropolitan Water District of Southern California (Metropolitan) has reviewed the Department's December 2009 draft of the State Water Project (SWP) Delivery Report. The report updates estimates of current (2009) and future (2029) SWP delivery reliability and incorporates the operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service (USFWS) in December 2008 and the National Marine Fisheries Service (NMFS) in June 2009 governing the SWP and Central Valley Project operations.

The updated estimates of both current and future SWP Table A deliveries are less than the deliveries presented in the 2007 report during near-normal to wet years. The decreases in deliveries are primarily driven by the effects of the fish restrictions and the incorporation of potential climatic changes. As mentioned in the Draft 2009 report, uncertainty surrounds both of these drivers and "much scientific and modeling judgment has been employed to represent the implementation of the BOs" and impacts of climate change. Metropolitan acknowledges that the Department has made efforts to best represent these factors in their analysis given the current scientific understanding.

Given the uncertainty surrounding the potential effects of climate change, sea level rise and the limited historical data regarding operational compliance with the new biological opinions, Metropolitan is requesting that the Department make available a range of estimated deliveries for both Table A and Article 21 deliveries. This range would be based on the upper and lower limits with respect to the fish restrictions with and without potential climate impacts. The approach would be similar to what was done for the 2007 Report that presented "more restrictive" and "least restrictive" operating levels to capture the 2007 federal court ruling impacts on Delta exports. The attached table illustrates our request. Metropolitan appreciates the opportunity to provide comments and believes augmenting the 2009 Report with a range of possible deliveries would assist our integration of the SWP water supply reliability into our planning and water management decision making process.

Very truly yours,

Devendra N. Upadhyay
Manager, Water Resource Management

Enclosure

DJP:jc

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

SWP Delivery Reliability Report 2009 Comments Summary of requested information

We are requesting an upper and lower range for the six delivery estimates already provided in Tables B.3, B.4, B.6, and B.7. This will result in 12 additional delivery estimates as shown below:

Study - Delivery Climate Scenario	PROVIDED	REQUESTED	
	No Range	Least Restrictive	Most Restrictive
2009 - Table A Without Climate Change	1 (Table B.3)	1	1
2009 Article 21 Without Climate Change	1 (Table B.6)	1	1
2029 Table A Without Climate Change	1 (Table B.4)	1	1
2029 - Article 21 Without Climate Change	1 (Table B.7)	1	1
2029 - Table A With Climate Change	1 (Table B.4)	1	1
2029 – Article 21 With Climate Change	1 (Table B.7)	1	1
# of Model Runs	6	12	

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

July 14, 2010

Devendra N. Upadhyay
Manager, Water Resources Management
The Metropolitan Water District of Southern California
PO Box 54153
Los Angeles, California 90054-0153

Dear Mr. Upadhyay:

This letter responds to your letter dated March 4, 2010 providing comments of the Metropolitan Water District of Southern California on the draft of the 2009 State Water Project Delivery Reliability Report (Draft 2009 Report).

In your letter, you acknowledge that the Department of Water Resources (Department) has made efforts to best represent the effects of the requirements of the federal biological opinions and potential climatic changes. Due to the uncertainty surrounding the potential effects of climate change, sea level rise and the application of the operational requirements of the biological opinions, you have requested the Department make available a range of estimated Table A and Article 21 deliveries. The range of deliveries you suggest would be based on the upper and lower limits of the operational restrictions in the biological opinions, both with and without potential climate change.

We have conducted the six additional CalSim II studies specified in your request. These studies use the conditions contained in Table 1 (attached). The assumptions for the Least Restrictive Old and Middle Rivers (OMR) criteria include target flows of -8,000 cfs for December 1-17 and -5,000 cfs for December 18-31. The criteria are set at -5,000 cfs for the January through June period. The assumptions for the Most Restrictive OMR criteria include target flows of -2,000 cfs for December 1-17 and -1,250 cfs for December 18-31. The flow requirement is set at -1,250 cfs for January through June. Both the Least Restrictive OMR and the Most Restrictive OMR criteria include the minimum Delta export requirement of 1,500 cfs in April and May.

Also attached are tables and exceedence curves of the model simulation results. Tables 2 through 7 present the estimated State Water Project (SWP) Table A deliveries along with the sorted delivery values used to develop exceedence curves. Tables 2 and 3 present the estimated Table A deliveries for 2009 conditions for the Least Restrictive and Most Restrictive OMR flow criteria, respectively. Tables 4 and 5 present the estimated Table A deliveries for 2029 conditions for the Least Restrictive and Most Restrictive OMR flow criteria without climate change. Tables 6 and 7 present the

estimated Table A deliveries for the Least Restrictive and Most Restrictive OMR flow criteria under assumed climate change interpolated to 2029 conditions. Tables 8 through 10 present the corresponding estimated SWP Article 21 deliveries.

Figures 1 through 3 compare the SWP Table A delivery values estimated for the Draft 2009 Report with the estimates using the Least Restrictive OMR flow criteria, and the Most Restrictive OMR flow criteria. These comparisons are made under current conditions, future conditions without climate change, and future conditions with deliveries interpolated to the assumed 2029 climate change condition.

In each of the figures, the estimates associated with the Draft 2009 Report track very closely to the estimates for the Least Restrictive OMR flow criteria. The studies done for the Draft 2009 Report incorporate a dynamic OMR requirement. The rules used to simulate the implementation of the OMR actions were defined in close coordination with the fish biologists associated with the biological opinions. The OMR requirements are first triggered with a flow surrogate for turbidity and the OMR flow target level is set based upon an estimate of Delta salinity. Typically, during wetter conditions OMR is allowed to be less restrictive (down to -5000 cfs) and during drier conditions OMR is more restrictive (up to -1250 cfs).

The new Least Restrictive OMR simulation assumes a constant restriction (-5000 cfs) throughout the time period defined in the biological opinion. However, in dry periods the simulated exports are not being restricted by this OMR requirement, but rather are restricted by the lack of water in the system. The coincidental consequence is that the resulting OMR flows often emulate those found in the Draft 2009 Report simulation.

So, although the approaches of the simulations for the Draft 2009 Report and the Least Restrictive scenario are quite different, the resulting exports and the associated SWP deliveries of the two simulations are very similar.

It is worthwhile to note that the studies used for the Draft 2009 Report utilize an earlier version of the assumptions for the studies for the Bay-Delta Conservation Plan (BDCP). Since then, the relevant BDCP studies have evolved with several refinements and adjustments in the interpretation of the biological opinions and in other study assumptions. The assumptions used in the current BDCP studies are very similar to those for the Draft 2009 DRR Report and produce very similar estimates for SWP deliveries.

The final 2009 Report will be issued soon and will include an appendix containing the comment letters on the draft report and the Department's responses. Thank you for your comments. If you wish to discuss this report further, please contact me at (916) 653-1099 or kkelly@water.ca.gov. To discuss the details of these studies, please contact Sushil Arora, Chief of the Central Valley Water Resources System Modeling Section, at (916) 653-6921.

Sincerely,

Katherine F. Kelly, Chief
Bay-Delta Office

Attachment

Table 1. CalSim II additional study assumptions

Operating Criteria	Conditions
Least Restrictive OMR criteria	Current Conditions
	Future Conditions without Climate Change
	Future Conditions with deliveries interpolated to the assumed 2029 Climate Change conditions
Most Restrictive OMR criteria	Current Conditions
	Future Conditions without Climate Change
	Future Conditions with deliveries interpolated to the assumed 2029 Climate Change conditions

Table 2. SWP Table A Deliveries under current (2009) conditions and Least Restrictive OMR criteria

2009 Least Restrictive OMR						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1922	2,410	58%	1996	3,350	0%	81%
1923	2,845	69%	1943	3,317	1%	80%
1924	1,086	26%	1974	3,262	2%	79%
1925	1,899	46%	1998	3,237	4%	78%
1926	2,311	56%	1938	3,236	5%	78%
1927	2,612	63%	1942	3,236	6%	78%
1928	2,814	68%	1997	3,195	7%	77%
1929	1,095	26%	1999	3,140	9%	76%
1930	1,800	44%	1937	3,103	10%	75%
1931	1,303	32%	1958	3,095	11%	75%
1932	1,489	36%	1970	3,082	12%	75%
1933	1,572	38%	1984	3,070	14%	74%
1934	995	24%	1982	3,065	15%	74%
1935	2,456	59%	1939	3,042	16%	74%
1936	2,851	69%	1946	3,034	17%	73%
1937	3,103	75%	1953	3,032	19%	73%
1938	3,236	78%	1979	3,027	20%	73%
1939	3,042	74%	1995	2,961	21%	72%
1940	2,636	64%	1956	2,948	22%	71%
1941	2,649	64%	1952	2,946	23%	71%
1942	3,236	78%	1968	2,920	25%	71%
1943	3,317	80%	1975	2,892	26%	70%
1944	2,624	63%	1980	2,883	27%	70%
1945	2,630	64%	1986	2,878	28%	70%
1946	3,034	73%	1947	2,875	30%	70%
1947	2,875	70%	1985	2,875	31%	70%
1948	2,645	64%	2003	2,860	32%	69%
1949	2,457	59%	1936	2,851	33%	69%
1950	2,539	61%	1923	2,845	35%	69%
1951	2,696	65%	1969	2,826	36%	68%
1952	2,946	71%	1965	2,817	37%	68%
1953	3,032	73%	1928	2,814	38%	68%
1954	2,555	62%	1983	2,811	40%	68%
1955	1,780	43%	1966	2,809	41%	68%
1956	2,948	71%	1964	2,803	42%	68%
1957	2,495	60%	1967	2,766	43%	67%
1958	3,095	75%	2000	2,757	44%	67%
1959	2,569	62%	1993	2,725	46%	66%
1960	2,438	59%	1971	2,718	47%	66%
1961	2,397	58%	1951	2,696	48%	65%
1962	2,440	59%	1941	2,649	49%	64%
1963	2,601	63%	1948	2,645	51%	64%
1964	2,803	68%	1940	2,636	52%	64%
1965	2,817	68%	1945	2,630	53%	64%

Table 2. (cont.) SWP Table A Deliveries under current (2009) conditions and Least Restrictive OMR criteria

2009 Least Restrictive OMR						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1966	2,809	68%	1944	2,624	54%	63%
1967	2,766	67%	1978	2,619	56%	63%
1968	2,920	71%	1927	2,612	57%	63%
1969	2,826	68%	1989	2,611	58%	63%
1970	3,082	75%	1963	2,601	59%	63%
1971	2,718	66%	2002	2,588	60%	63%
1972	2,418	59%	1959	2,569	62%	62%
1973	2,557	62%	1973	2,557	63%	62%
1974	3,262	79%	1954	2,555	64%	62%
1975	2,892	70%	1950	2,539	65%	61%
1976	2,480	60%	1957	2,495	67%	60%
1977	299	7%	1976	2,480	68%	60%
1978	2,619	63%	1949	2,457	69%	59%
1979	3,027	73%	1935	2,456	70%	59%
1980	2,883	70%	1962	2,440	72%	59%
1981	2,426	59%	1960	2,438	73%	59%
1982	3,065	74%	1981	2,426	74%	59%
1983	2,811	68%	1972	2,418	75%	59%
1984	3,070	74%	1922	2,410	77%	58%
1985	2,875	70%	1961	2,397	78%	58%
1986	2,878	70%	1926	2,311	79%	56%
1987	1,983	48%	1994	2,250	80%	54%
1988	878	21%	1987	1,983	81%	48%
1989	2,611	63%	1925	1,899	83%	46%
1990	934	23%	1930	1,800	84%	44%
1991	1,313	32%	1955	1,780	85%	43%
1992	1,198	29%	2001	1,624	86%	39%
1993	2,725	66%	1933	1,572	88%	38%
1994	2,250	54%	1932	1,489	89%	36%
1995	2,961	72%	1991	1,313	90%	32%
1996	3,350	81%	1931	1,303	91%	32%
1997	3,195	77%	1992	1,198	93%	29%
1998	3,237	78%	1929	1,095	94%	26%
1999	3,140	76%	1924	1,086	95%	26%
2000	2,757	67%	1934	995	96%	24%
2001	1,624	39%	1990	934	98%	23%
2002	2,588	63%	1988	878	99%	21%
2003	2,860	69%	1977	299	100%	7%
Avg	2,506	61%	Avg	2,506		61%
Min	299	7%	Min	299		7%
Max	3,350	81%	Max	3,350		81%

Table 3. SWP Table A Deliveries under current (2009) conditions and Most Restrictive OMR criteria

2009 Most Restrictive OMR						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1922	2,186	53%	1938	3,102	0%	75%
1923	1,837	44%	1970	3,028	1%	73%
1924	741	18%	1984	2,947	2%	71%
1925	1,952	47%	1956	2,935	4%	71%
1926	1,785	43%	1982	2,905	5%	70%
1927	2,433	59%	1958	2,901	6%	70%
1928	1,809	44%	1997	2,861	7%	69%
1929	404	10%	1983	2,781	9%	67%
1930	1,680	41%	1969	2,777	10%	67%
1931	1,015	25%	1980	2,752	11%	67%
1932	1,102	27%	1998	2,727	12%	66%
1933	1,579	38%	1999	2,712	14%	66%
1934	364	9%	1952	2,709	15%	66%
1935	2,396	58%	1995	2,706	16%	65%
1936	1,982	48%	1986	2,676	17%	65%
1937	2,448	59%	1996	2,526	19%	61%
1938	3,102	75%	1974	2,461	20%	60%
1939	2,204	53%	1937	2,448	21%	59%
1940	2,012	49%	1951	2,444	22%	59%
1941	2,292	55%	1967	2,438	23%	59%
1942	2,398	58%	1927	2,433	25%	59%
1943	2,425	59%	1943	2,425	26%	59%
1944	1,731	42%	1985	2,405	27%	58%
1945	2,386	58%	1989	2,399	28%	58%
1946	2,185	53%	1942	2,398	30%	58%
1947	1,967	48%	1935	2,396	31%	58%
1948	2,017	49%	1945	2,386	32%	58%
1949	1,780	43%	1965	2,385	33%	58%
1950	1,839	44%	1973	2,356	35%	57%
1951	2,444	59%	1978	2,328	36%	56%
1952	2,709	66%	1993	2,320	37%	56%
1953	2,040	49%	1975	2,318	38%	56%
1954	1,790	43%	1979	2,310	40%	56%
1955	1,347	33%	1941	2,292	41%	55%
1956	2,935	71%	2002	2,271	42%	55%
1957	1,828	44%	1939	2,204	43%	53%
1958	2,901	70%	1963	2,198	44%	53%
1959	1,675	41%	1922	2,186	46%	53%
1960	1,663	40%	1946	2,185	47%	53%
1961	1,907	46%	1964	2,131	48%	52%
1962	1,928	47%	2003	2,075	49%	50%
1963	2,198	53%	1953	2,040	51%	49%
1964	2,131	52%	2000	2,027	52%	49%
1965	2,385	58%	1948	2,017	53%	49%

Table 3. (cont.) SWP Table A Deliveries under current (2009) conditions and Most Restrictive OMR criteria

2009 Most Restrictive OMR						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1966	1,774	43%	1940	2,012	54%	49%
1967	2,438	59%	1936	1,982	56%	48%
1968	1,959	47%	1971	1,976	57%	48%
1969	2,777	67%	1947	1,967	58%	48%
1970	3,028	73%	1981	1,962	59%	47%
1971	1,976	48%	1968	1,959	60%	47%
1972	1,688	41%	1925	1,952	62%	47%
1973	2,356	57%	1962	1,928	63%	47%
1974	2,461	60%	1961	1,907	64%	46%
1975	2,318	56%	1950	1,839	65%	44%
1976	1,598	39%	1923	1,837	67%	44%
1977	268	6%	1957	1,828	68%	44%
1978	2,328	56%	1928	1,809	69%	44%
1979	2,310	56%	1954	1,790	70%	43%
1980	2,752	67%	1926	1,785	72%	43%
1981	1,962	47%	1949	1,780	73%	43%
1982	2,905	70%	1966	1,774	74%	43%
1983	2,781	67%	1944	1,731	75%	42%
1984	2,947	71%	1972	1,688	77%	41%
1985	2,405	58%	1930	1,680	78%	41%
1986	2,676	65%	1959	1,675	79%	41%
1987	1,073	26%	1960	1,663	80%	40%
1988	687	17%	1976	1,598	81%	39%
1989	2,399	58%	1933	1,579	83%	38%
1990	828	20%	1994	1,543	84%	37%
1991	1,029	25%	1955	1,347	85%	33%
1992	863	21%	2001	1,106	86%	27%
1993	2,320	56%	1932	1,102	88%	27%
1994	1,543	37%	1987	1,073	89%	26%
1995	2,706	65%	1991	1,029	90%	25%
1996	2,526	61%	1931	1,015	91%	25%
1997	2,861	69%	1992	863	93%	21%
1998	2,727	66%	1990	828	94%	20%
1999	2,712	66%	1924	741	95%	18%
2000	2,027	49%	1988	687	96%	17%
2001	1,106	27%	1929	404	98%	10%
2002	2,271	55%	1934	364	99%	9%
2003	2,075	50%	1977	268	100%	6%
Avg	2,017	49%	Avg	2,017		49%
Min	268	6%	Min	268		6%
Max	3,102	75%	Max	3,102		75%

Table 4. SWP Table A Deliveries under 2029 conditions and Least Restrictive OMR criteria without climate change

2029 Least Restrictive OMR without Climate Change						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1922	2,622	63%	1938	4,040	0%	98%
1923	2,678	65%	1983	3,950	1%	96%
1924	1,105	27%	1969	3,862	2%	93%
1925	1,765	43%	1982	3,861	4%	93%
1926	2,299	56%	1952	3,818	5%	92%
1927	2,916	71%	1958	3,722	6%	90%
1928	2,755	67%	1967	3,707	7%	90%
1929	1,013	25%	1980	3,549	9%	86%
1930	1,876	45%	1937	3,528	10%	85%
1931	1,416	34%	1997	3,504	11%	85%
1932	1,603	39%	1986	3,403	12%	82%
1933	1,600	39%	1974	3,384	14%	82%
1934	1,205	29%	1956	3,349	15%	81%
1935	2,884	70%	1995	3,348	16%	81%
1936	2,882	70%	1943	3,260	17%	79%
1937	3,528	85%	1941	3,253	19%	79%
1938	4,040	98%	1998	3,176	20%	77%
1939	2,407	58%	1970	3,128	21%	76%
1940	2,628	64%	1951	3,088	22%	75%
1941	3,253	79%	1978	3,079	23%	75%
1942	2,836	69%	1984	3,071	25%	74%
1943	3,260	79%	1999	3,045	26%	74%
1944	2,613	63%	1946	2,958	27%	72%
1945	2,882	70%	1979	2,943	28%	71%
1946	2,958	72%	1947	2,918	30%	71%
1947	2,918	71%	1927	2,916	31%	71%
1948	2,614	63%	1993	2,903	32%	70%
1949	2,120	51%	1996	2,901	33%	70%
1950	2,743	66%	1965	2,895	35%	70%
1951	3,088	75%	1935	2,884	36%	70%
1952	3,818	92%	1936	2,882	37%	70%
1953	2,271	55%	1945	2,882	38%	70%
1954	2,475	60%	2002	2,881	40%	70%
1955	1,785	43%	1989	2,876	41%	70%
1956	3,349	81%	1942	2,836	42%	69%
1957	2,518	61%	1975	2,822	43%	68%
1958	3,722	90%	2000	2,790	44%	68%
1959	2,173	53%	1928	2,755	46%	67%
1960	2,369	57%	1973	2,754	47%	67%
1961	2,299	56%	1985	2,754	48%	67%
1962	2,508	61%	1950	2,743	49%	66%
1963	2,567	62%	1971	2,707	51%	66%
1964	2,551	62%	1966	2,707	52%	65%
1965	2,895	70%	1923	2,678	53%	65%

Table 4. (cont.) SWP Table A Deliveries under 2029 conditions and Least Restrictive OMR criteria without climate change

2029 Least Restrictive OMR without Climate Change						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1966	2,707	65%	2003	2,670	54%	65%
1967	3,707	90%	1940	2,628	56%	64%
1968	2,165	52%	1922	2,622	57%	63%
1969	3,862	93%	1948	2,614	58%	63%
1970	3,128	76%	1944	2,613	59%	63%
1971	2,707	66%	1963	2,567	60%	62%
1972	2,435	59%	1964	2,551	62%	62%
1973	2,754	67%	1957	2,518	63%	61%
1974	3,384	82%	1962	2,508	64%	61%
1975	2,822	68%	1954	2,475	65%	60%
1976	2,469	60%	1976	2,469	67%	60%
1977	231	6%	1981	2,458	68%	59%
1978	3,079	75%	1972	2,435	69%	59%
1979	2,943	71%	1939	2,407	70%	58%
1980	3,549	86%	1960	2,369	72%	57%
1981	2,458	59%	1926	2,299	73%	56%
1982	3,861	93%	1961	2,299	74%	56%
1983	3,950	96%	1953	2,271	75%	55%
1984	3,071	74%	1994	2,250	77%	54%
1985	2,754	67%	1959	2,173	78%	53%
1986	3,403	82%	1968	2,165	79%	52%
1987	1,435	35%	1949	2,120	80%	51%
1988	1,022	25%	1930	1,876	81%	45%
1989	2,876	70%	1955	1,785	83%	43%
1990	805	19%	1925	1,765	84%	43%
1991	1,158	28%	1932	1,603	85%	39%
1992	1,239	30%	1933	1,600	86%	39%
1993	2,903	70%	2001	1,562	88%	38%
1994	2,250	54%	1987	1,435	89%	35%
1995	3,348	81%	1931	1,416	90%	34%
1996	2,901	70%	1992	1,239	91%	30%
1997	3,504	85%	1934	1,205	93%	29%
1998	3,176	77%	1991	1,158	94%	28%
1999	3,045	74%	1924	1,105	95%	27%
2000	2,790	68%	1988	1,022	96%	25%
2001	1,562	38%	1929	1,013	98%	25%
2002	2,881	70%	1990	805	99%	19%
2003	2,670	65%	1977	231	100%	6%
Avg	2,595	63%	Avg	2,595		63%
Min	231	6%	Min	231		6%
Max	4,040	98%	Max	4,040		98%

Table 5. SWP Table A Deliveries under 2029 conditions and Most Restrictive OMR criteria without climate change

2029 Most Restrictive OMR without Climate Change						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1922	2,269	55%	1983	3,958	0%	96%
1923	1,855	45%	1969	3,860	1%	93%
1924	789	19%	1938	3,515	2%	85%
1925	1,894	46%	1956	3,321	4%	80%
1926	1,804	44%	1982	3,315	5%	80%
1927	2,479	60%	1980	3,068	6%	74%
1928	1,942	47%	1997	3,019	7%	73%
1929	267	6%	1952	3,019	9%	73%
1930	1,682	41%	1984	3,016	10%	73%
1931	1,036	25%	1967	2,882	11%	70%
1932	1,137	28%	1958	2,881	12%	70%
1933	1,504	36%	1995	2,827	14%	68%
1934	420	10%	1986	2,740	15%	66%
1935	2,548	62%	1999	2,677	16%	65%
1936	1,954	47%	1998	2,662	17%	64%
1937	2,603	63%	1978	2,607	19%	63%
1938	3,515	85%	1937	2,603	20%	63%
1939	1,651	40%	1935	2,548	21%	62%
1940	1,977	48%	1974	2,537	22%	61%
1941	2,519	61%	1943	2,525	23%	61%
1942	2,200	53%	1941	2,519	25%	61%
1943	2,525	61%	1945	2,512	26%	61%
1944	1,622	39%	1927	2,479	27%	60%
1945	2,512	61%	1970	2,465	28%	60%
1946	2,155	52%	1989	2,397	30%	58%
1947	2,097	51%	1951	2,392	31%	58%
1948	1,920	46%	1985	2,355	32%	57%
1949	1,859	45%	1973	2,345	33%	57%
1950	1,825	44%	1996	2,335	35%	56%
1951	2,392	58%	2002	2,329	36%	56%
1952	3,019	73%	1975	2,305	37%	56%
1953	1,723	42%	1922	2,269	38%	55%
1954	1,774	43%	1993	2,246	40%	54%
1955	1,345	33%	1965	2,239	41%	54%
1956	3,321	80%	1979	2,209	42%	53%
1957	1,779	43%	1942	2,200	43%	53%
1958	2,881	70%	1946	2,155	44%	52%
1959	1,687	41%	2000	2,149	46%	52%
1960	1,720	42%	1971	2,135	47%	52%
1961	1,771	43%	1963	2,100	48%	51%
1962	2,035	49%	1947	2,097	49%	51%
1963	2,100	51%	2003	2,074	51%	50%
1964	2,060	50%	1964	2,060	52%	50%
1965	2,239	54%	1962	2,035	53%	49%

Table 5. (cont.) SWP Table A Deliveries under 2029 conditions and Most Restrictive OMR criteria without climate change

2029 Most Restrictive OMR without Climate Change						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1966	1,868	45%	1981	2,028	54%	49%
1967	2,882	70%	1940	1,977	56%	48%
1968	1,566	38%	1936	1,954	57%	47%
1969	3,860	93%	1928	1,942	58%	47%
1970	2,465	60%	1948	1,920	59%	46%
1971	2,135	52%	1925	1,894	60%	46%
1972	1,649	40%	1966	1,868	62%	45%
1973	2,345	57%	1949	1,859	63%	45%
1974	2,537	61%	1923	1,855	64%	45%
1975	2,305	56%	1950	1,825	65%	44%
1976	1,596	39%	1926	1,804	67%	44%
1977	189	5%	1957	1,779	68%	43%
1978	2,607	63%	1954	1,774	69%	43%
1979	2,209	53%	1961	1,771	70%	43%
1980	3,068	74%	1953	1,723	72%	42%
1981	2,028	49%	1960	1,720	73%	42%
1982	3,315	80%	1959	1,687	74%	41%
1983	3,958	96%	1930	1,682	75%	41%
1984	3,016	73%	1939	1,651	77%	40%
1985	2,355	57%	1972	1,649	78%	40%
1986	2,740	66%	1944	1,622	79%	39%
1987	1,020	25%	1976	1,596	80%	39%
1988	712	17%	1994	1,569	81%	38%
1989	2,397	58%	1968	1,566	83%	38%
1990	813	20%	1933	1,504	84%	36%
1991	1,066	26%	1955	1,345	85%	33%
1992	878	21%	1932	1,137	86%	28%
1993	2,246	54%	1991	1,066	88%	26%
1994	1,569	38%	2001	1,049	89%	25%
1995	2,827	68%	1931	1,036	90%	25%
1996	2,335	56%	1987	1,020	91%	25%
1997	3,019	73%	1992	878	93%	21%
1998	2,662	64%	1990	813	94%	20%
1999	2,677	65%	1924	789	95%	19%
2000	2,149	52%	1988	712	96%	17%
2001	1,049	25%	1934	420	98%	10%
2002	2,329	56%	1929	267	99%	6%
2003	2,074	50%	1977	189	100%	5%
Avg	2,060	50%	Avg	2,060		50%
Min	189	5%	Min	189		5%
Max	3,958	96%	Max	3,958		96%

Table 6. SWP Table A Deliveries for the Least Restrictive OMR criteria with climate change interpolated to 2029 conditions

2029 Least Restrictive OMR Estimated Delivery Interpolated to 2029						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1922	2,534	61%	1983	3,988	0%	96%
1923	2,550	62%	1938	3,969	1%	96%
1924	983	24%	1969	3,874	2%	94%
1925	1,705	41%	1982	3,720	4%	90%
1926	2,047	50%	1958	3,559	5%	86%
1927	2,897	70%	1952	3,420	6%	83%
1928	2,739	66%	1980	3,384	7%	82%
1929	1,325	32%	1998	3,289	9%	80%
1930	1,863	45%	1997	3,259	10%	79%
1931	1,308	32%	1937	3,247	11%	79%
1932	1,591	38%	1967	3,198	12%	77%
1933	1,600	39%	1995	3,184	14%	77%
1934	1,371	33%	1956	3,162	15%	76%
1935	2,734	66%	1986	3,119	16%	75%
1936	2,769	67%	1943	3,093	17%	75%
1937	3,247	79%	1974	3,082	19%	75%
1938	3,969	96%	1984	3,068	20%	74%
1939	2,090	51%	1941	3,061	21%	74%
1940	2,607	63%	1979	3,011	22%	73%
1941	3,061	74%	1951	2,996	23%	73%
1942	2,815	68%	1978	2,978	25%	72%
1943	3,093	75%	1999	2,951	26%	71%
1944	2,383	58%	1970	2,909	27%	70%
1945	2,882	70%	1927	2,897	28%	70%
1946	2,843	69%	1945	2,882	30%	70%
1947	2,531	61%	1946	2,843	31%	69%
1948	2,554	62%	1965	2,821	32%	68%
1949	2,167	52%	1942	2,815	33%	68%
1950	2,691	65%	1975	2,804	35%	68%
1951	2,996	73%	1996	2,800	36%	68%
1952	3,420	83%	2000	2,771	37%	67%
1953	2,472	60%	1936	2,769	38%	67%
1954	2,457	59%	1928	2,739	40%	66%
1955	1,532	37%	1935	2,734	41%	66%
1956	3,162	76%	1985	2,726	42%	66%
1957	2,537	61%	1993	2,716	43%	66%
1958	3,559	86%	1950	2,691	44%	65%
1959	2,164	52%	2002	2,687	46%	65%
1960	2,198	53%	1973	2,684	47%	65%
1961	1,996	48%	1962	2,672	48%	65%
1962	2,672	65%	1966	2,622	49%	63%
1963	2,612	63%	1976	2,620	51%	63%
1964	2,557	62%	1963	2,612	52%	63%
1965	2,821	68%	1940	2,607	53%	63%

Table 6. (cont.) SWP Table A Deliveries for the Least Restrictive OMR criteria with climate change interpolated to 2029 conditions

2029 Least Restrictive OMR Estimated Delivery Interpolated to 2029						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1966	2,622	63%	1971	2,584	54%	63%
1967	3,198	77%	2003	2,572	56%	62%
1968	2,410	58%	1964	2,557	57%	62%
1969	3,874	94%	1989	2,554	58%	62%
1970	2,909	70%	1948	2,554	59%	62%
1971	2,584	63%	1923	2,550	60%	62%
1972	2,435	59%	1957	2,537	62%	61%
1973	2,684	65%	1922	2,534	63%	61%
1974	3,082	75%	1947	2,531	64%	61%
1975	2,804	68%	1981	2,480	65%	60%
1976	2,620	63%	1953	2,472	67%	60%
1977	469	11%	1954	2,457	68%	59%
1978	2,978	72%	1972	2,435	69%	59%
1979	3,011	73%	1968	2,410	70%	58%
1980	3,384	82%	1944	2,383	72%	58%
1981	2,480	60%	1994	2,247	73%	54%
1982	3,720	90%	1960	2,198	74%	53%
1983	3,988	96%	1949	2,167	75%	52%
1984	3,068	74%	1959	2,164	77%	52%
1985	2,726	66%	1939	2,090	78%	51%
1986	3,119	75%	1926	2,047	79%	50%
1987	1,351	33%	1961	1,996	80%	48%
1988	1,279	31%	1930	1,863	81%	45%
1989	2,554	62%	1925	1,705	83%	41%
1990	887	21%	1933	1,600	84%	39%
1991	1,373	33%	1932	1,591	85%	38%
1992	1,072	26%	1955	1,532	86%	37%
1993	2,716	66%	2001	1,401	88%	34%
1994	2,247	54%	1991	1,373	89%	33%
1995	3,184	77%	1934	1,371	90%	33%
1996	2,800	68%	1987	1,351	91%	33%
1997	3,259	79%	1929	1,325	93%	32%
1998	3,289	80%	1931	1,308	94%	32%
1999	2,951	71%	1988	1,279	95%	31%
2000	2,771	67%	1992	1,072	96%	26%
2001	1,401	34%	1924	983	98%	24%
2002	2,687	65%	1990	887	99%	21%
2003	2,572	62%	1977	469	100%	11%
Avg	2,520	61%	Avg	2,520		61%
Min	469	11%	Min	469		11%
Max	3,988	96%	Max	3,988		96%

Table 7. SWP Table A Deliveries for the Most Restrictive OMR criteria with climate change interpolated to 2029 conditions

2029 Most Restrictive OMR Estimated Delivery Interpolated to 2029						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1922	2,055	50%	1983	3,992	0%	97%
1923	1,936	47%	1969	3,752	1%	91%
1924	758	18%	1938	3,249	2%	79%
1925	1,586	38%	1982	3,204	4%	78%
1926	1,768	43%	1956	3,120	5%	76%
1927	2,480	60%	1984	2,963	6%	72%
1928	1,838	44%	1980	2,864	7%	69%
1929	611	15%	1997	2,842	9%	69%
1930	1,636	40%	1958	2,738	10%	66%
1931	996	24%	1998	2,717	11%	66%
1932	1,226	30%	1952	2,706	12%	65%
1933	1,398	34%	1967	2,624	14%	63%
1934	718	17%	1995	2,587	15%	63%
1935	2,421	59%	1978	2,568	16%	62%
1936	1,900	46%	1999	2,522	17%	61%
1937	2,425	59%	1945	2,507	19%	61%
1938	3,249	79%	1986	2,489	20%	60%
1939	1,532	37%	1927	2,480	21%	60%
1940	2,008	49%	1937	2,425	22%	59%
1941	2,331	56%	1935	2,421	23%	59%
1942	2,092	51%	1943	2,386	25%	58%
1943	2,386	58%	1974	2,341	26%	57%
1944	1,507	36%	1941	2,331	27%	56%
1945	2,507	61%	1951	2,323	28%	56%
1946	2,064	50%	1985	2,322	30%	56%
1947	1,958	47%	1973	2,322	31%	56%
1948	2,070	50%	1970	2,233	32%	54%
1949	1,628	39%	1996	2,208	33%	53%
1950	1,898	46%	1965	2,206	35%	53%
1951	2,323	56%	1962	2,205	36%	53%
1952	2,706	65%	1989	2,198	37%	53%
1953	1,753	42%	1979	2,173	38%	53%
1954	1,746	42%	1975	2,119	40%	51%
1955	1,116	27%	1993	2,102	41%	51%
1956	3,120	76%	1942	2,092	42%	51%
1957	1,846	45%	2003	2,086	43%	50%
1958	2,738	66%	1963	2,074	44%	50%
1959	1,696	41%	1948	2,070	46%	50%
1960	1,656	40%	1946	2,064	47%	50%
1961	1,538	37%	1922	2,055	48%	50%
1962	2,205	53%	2002	2,019	49%	49%
1963	2,074	50%	1971	2,014	51%	49%
1964	2,003	48%	1940	2,008	52%	49%
1965	2,206	53%	1964	2,003	53%	48%

Table 7. (cont.) SWP Table A Deliveries for the Most Restrictive OMR criteria with climate change interpolated to 2029 conditions

2029 Most Restrictive OMR Estimated Delivery Interpolated to 2029						
Year	SWP Table A Delivery		Probability Curve			
	(TAF)	Percent of Maximum Table A	Year	SWP Table A Delivery (TAF)	Exceedence Frequency	Percent of Maximum Table A
1966	1,861	45%	2000	1,978	54%	48%
1967	2,624	63%	1947	1,958	56%	47%
1968	1,742	42%	1923	1,936	57%	47%
1969	3,752	91%	1936	1,900	58%	46%
1970	2,233	54%	1950	1,898	59%	46%
1971	2,014	49%	1981	1,875	60%	45%
1972	1,620	39%	1966	1,861	62%	45%
1973	2,322	56%	1957	1,846	63%	45%
1974	2,341	57%	1928	1,838	64%	44%
1975	2,119	51%	1976	1,798	65%	44%
1976	1,798	44%	1926	1,768	67%	43%
1977	391	9%	1953	1,753	68%	42%
1978	2,568	62%	1954	1,746	69%	42%
1979	2,173	53%	1968	1,742	70%	42%
1980	2,864	69%	1959	1,696	72%	41%
1981	1,875	45%	1960	1,656	73%	40%
1982	3,204	78%	1930	1,636	74%	40%
1983	3,992	97%	1949	1,628	75%	39%
1984	2,963	72%	1972	1,620	77%	39%
1985	2,322	56%	1994	1,603	78%	39%
1986	2,489	60%	1925	1,586	79%	38%
1987	901	22%	1961	1,538	80%	37%
1988	988	24%	1939	1,532	81%	37%
1989	2,198	53%	1944	1,507	83%	36%
1990	813	20%	1933	1,398	84%	34%
1991	1,125	27%	1932	1,226	85%	30%
1992	904	22%	1991	1,125	86%	27%
1993	2,102	51%	1955	1,116	88%	27%
1994	1,603	39%	1931	996	89%	24%
1995	2,587	63%	1988	988	90%	24%
1996	2,208	53%	2001	944	91%	23%
1997	2,842	69%	1992	904	93%	22%
1998	2,717	66%	1987	901	94%	22%
1999	2,522	61%	1990	813	95%	20%
2000	1,978	48%	1924	758	96%	18%
2001	944	23%	1934	718	98%	17%
2002	2,019	49%	1929	611	99%	15%
2003	2,086	50%	1977	391	100%	9%
Avg	1,994	48%	Avg	1,994		48%
Min	391	9%	Min	391		9%
Max	3,992	97%	Max	3,992		97%

Table 8. SWP Article 21 Deliveries under current (2009) conditions for the Least and Most Restrictive OMR criteria

2009 Least Restrictive OMR		2009 Most Restrictive OMR	
Year	Article 21 Delivery (TAF)	Year	Article 21 Delivery (TAF)
1922	16	1922	16
1923	12	1923	18
1924	8	1924	11
1925	454	1925	16
1926	11	1926	8
1927	14	1927	14
1928	8	1928	16
1929	10	1929	12
1930	10	1930	10
1931	6	1931	8
1932	10	1932	12
1933	451	1933	12
1934	10	1934	12
1935	15	1935	14
1936	11	1936	18
1937	112	1937	16
1938	535	1938	16
1939	2	1939	2
1940	14	1940	14
1941	2	1941	2
1942	6	1942	14
1943	9	1943	14
1944	11	1944	13
1945	147	1945	16
1946	12	1946	20
1947	6	1947	12
1948	10	1948	14
1949	12	1949	12
1950	18	1950	21
1951	539	1951	14
1952	2	1952	2
1953	8	1953	16
1954	14	1954	15
1955	42	1955	16
1956	747	1956	267
1957	18	1957	20
1958	139	1958	18
1959	5	1959	12
1960	11	1960	13
1961	8	1961	12
1962	12	1962	13
1963	18	1963	18
1964	8	1964	16
1965	45	1965	14
1966	10	1966	17
1967	21	1967	18

Table 8. (cont.) SWP Article 21 Deliveries under current (2009) conditions for the Least and Most Restrictive OMR criteria

2009 Least Restrictive OMR		2009 Most Restrictive OMR	
Year	Article 21 Delivery (TAF)	Year	Article 21 Delivery (TAF)
1968	6	1968	14
1969	205	1969	109
1970	250	1970	10
1971	9	1971	16
1972	18	1972	20
1973	16	1973	15
1974	97	1974	18
1975	14	1975	18
1976	10	1976	16
1977	2	1977	4
1978	44	1978	2
1979	4	1979	9
1980	146	1980	87
1981	16	1981	16
1982	443	1982	87
1983	853	1983	883
1984	483	1984	168
1985	2	1985	3
1986	127	1986	2
1987	12	1987	12
1988	10	1988	11
1989	67	1989	10
1990	10	1990	12
1991	12	1991	14
1992	8	1992	10
1993	14	1993	14
1994	10	1994	10
1995	2	1995	2
1996	6	1996	14
1997	60	1997	14
1998	234	1998	6
1999	132	1999	8
2000	14	2000	16
2001	14	2001	16
2002	65	2002	16
2003	12	2003	14
Avg	86	Avg	31
Min	2	Min	2
Max	853	Max	883

Table 9. SWP Article 21 Deliveries under 2029 Conditions for the Least and Most Restrictive OMR criteria without climate change

2029 Least Restrictive OMR without Climate Change		**2029 Most Restrictive OMR without Climate Change**	
Year	Article 21 Delivery (TAF)	Year	Article 21 Delivery (TAF)
1922	16	1922	16
1923	15	1923	18
1924	9	1924	10
1925	500	1925	14
1926	141	1926	6
1927	91	1927	14
1928	12	1928	14
1929	10	1929	12
1930	10	1930	10
1931	8	1931	8
1932	155	1932	12
1933	409	1933	12
1934	10	1934	10
1935	44	1935	10
1936	12	1936	16
1937	56	1937	15
1938	63	1938	12
1939	10	1939	12
1940	14	1940	14
1941	2	1941	2
1942	14	1942	14
1943	12	1943	16
1944	10	1944	14
1945	86	1945	17
1946	18	1946	19
1947	10	1947	10
1948	10	1948	12
1949	11	1949	12
1950	18	1950	16
1951	276	1951	14
1952	1	1952	2
1953	16	1953	16
1954	14	1954	14
1955	11	1955	18
1956	513	1956	69
1957	17	1957	20
1958	8	1958	15
1959	10	1959	10
1960	8	1960	12
1961	8	1961	10
1962	10	1962	12
1963	19	1963	20
1964	14	1964	17
1965	14	1965	14
1966	16	1966	15

Table 9. (cont.) SWP Article 21 Deliveries under 2029 Conditions for the Least and Most Restrictive OMR criteria without climate change

2029 Least Restrictive OMR without Climate Change		**2029 Most Restrictive OMR without Climate Change**	
Year	Article 21 Delivery (TAF)	Year	Article 21 Delivery (TAF)
1967	12	1967	15
1968	12	1968	13
1969	30	1969	0
1970	119	1970	18
1971	14	1971	15
1972	15	1972	20
1973	16	1973	16
1974	15	1974	16
1975	14	1975	14
1976	12	1976	14
1977	4	1977	4
1978	2	1978	2
1979	12	1979	14
1980	8	1980	48
1981	14	1981	16
1982	185	1982	12
1983	549	1983	510
1984	532	1984	181
1985	8	1985	9
1986	145	1986	2
1987	10	1987	12
1988	11	1988	13
1989	53	1989	8
1990	10	1990	14
1991	12	1991	14
1992	8	1992	10
1993	12	1993	14
1994	10	1994	10
1995	1	1995	1
1996	14	1996	14
1997	95	1997	14
1998	58	1998	4
1999	258	1999	14
2000	14	2000	16
2001	14	2001	15
2002	81	2002	13
2003	16	2003	14
Avg	63	Avg	22
Min	1	Min	0
Max	549	Max	510

Table 10. SWP Article 21 Deliveries for the Least and Most Restrictive OMR criteria with climate change interpolated to 2029 conditions

2029 Least Restrictive OMR interpolated to 2029 Climate Change		**2029 Most Restrictive OMR interpolated to 2029 Climate Change**	
Year	2029 Interpolated Delivery (TAF)	Year	2029 Interpolated Delivery (TAF)
1922	16	1922	16
1923	17	1923	18
1924	10	1924	12
1925	440	1925	16
1926	77	1926	8
1927	174	1927	15
1928	11	1928	14
1929	76	1929	12
1930	69	1930	11
1931	7	1931	8
1932	203	1932	13
1933	272	1933	12
1934	27	1934	10
1935	28	1935	10
1936	15	1936	19
1937	78	1937	17
1938	38	1938	12
1939	9	1939	12
1940	13	1940	14
1941	2	1941	2
1942	16	1942	15
1943	14	1943	16
1944	11	1944	15
1945	152	1945	19
1946	19	1946	20
1947	10	1947	10
1948	9	1948	12
1949	44	1949	13
1950	19	1950	18
1951	182	1951	15
1952	1	1952	2
1953	17	1953	16
1954	13	1954	13
1955	11	1955	16
1956	541	1956	56
1957	17	1957	21
1958	50	1958	15
1959	10	1959	11
1960	9	1960	12
1961	17	1961	11
1962	10	1962	10
1963	17	1963	18
1964	12	1964	16

Table 10. (cont.) SWP Article 21 Deliveries for the Least and Most Restrictive OMR criteria with climate change interpolated to 2029 conditions

2029 Least Restrictive OMR interpolated to 2029 Climate Change		**2029 Most Restrictive OMR interpolated to 2029 Climate Change**	
Year	2029 Interpolated Delivery (TAF)	Year	2029 Interpolated Delivery (TAF)
1965	14	1965	15
1966	15	1966	17
1967	15	1967	16
1968	11	1968	13
1969	28	1969	1
1970	69	1970	18
1971	16	1971	16
1972	17	1972	21
1973	18	1973	19
1974	15	1974	17
1975	16	1975	17
1976	12	1976	13
1977	4	1977	3
1978	1	1978	1
1979	23	1979	12
1980	5	1980	25
1981	14	1981	15
1982	101	1982	13
1983	510	1983	448
1984	531	1984	181
1985	9	1985	9
1986	75	1986	2
1987	52	1987	12
1988	139	1988	11
1989	30	1989	9
1990	11	1990	14
1991	88	1991	14
1992	9	1992	10
1993	17	1993	16
1994	9	1994	10
1995	1	1995	2
1996	15	1996	16
1997	103	1997	13
1998	30	1998	4
1999	139	1999	16
2000	12	2000	15
2001	14	2001	17
2002	115	2002	14
2003	14	2003	13
Avg	62	Avg	21
Min	1	Min	1
Max	541	Max	448

Figure 1. SWP Table A delivery probability under current conditions

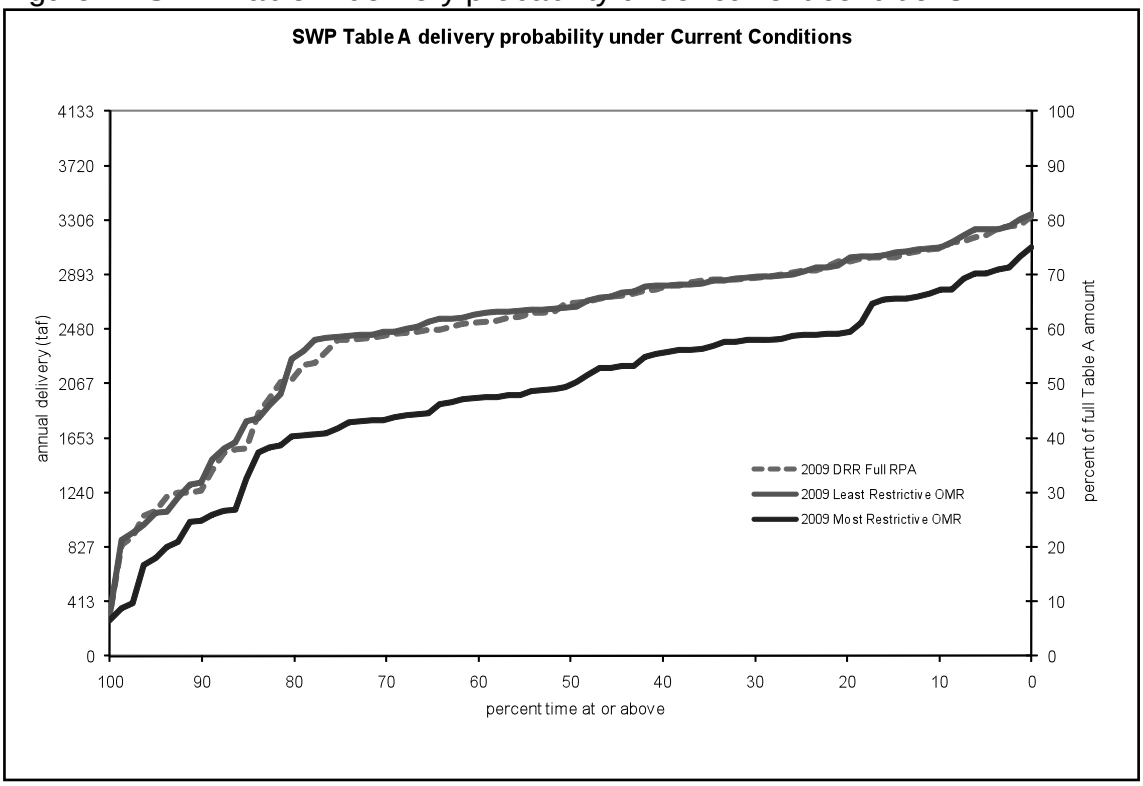


Figure 2. SWP Table A delivery probability under Future Conditions without Climate Change

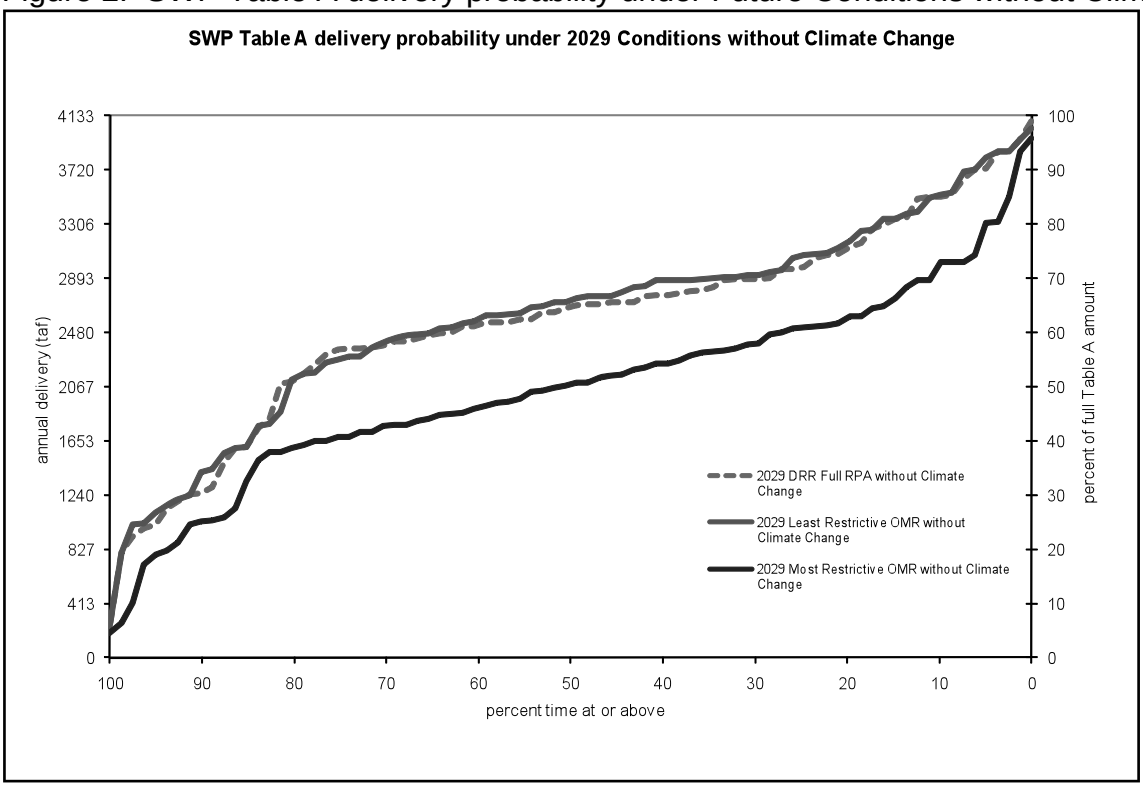
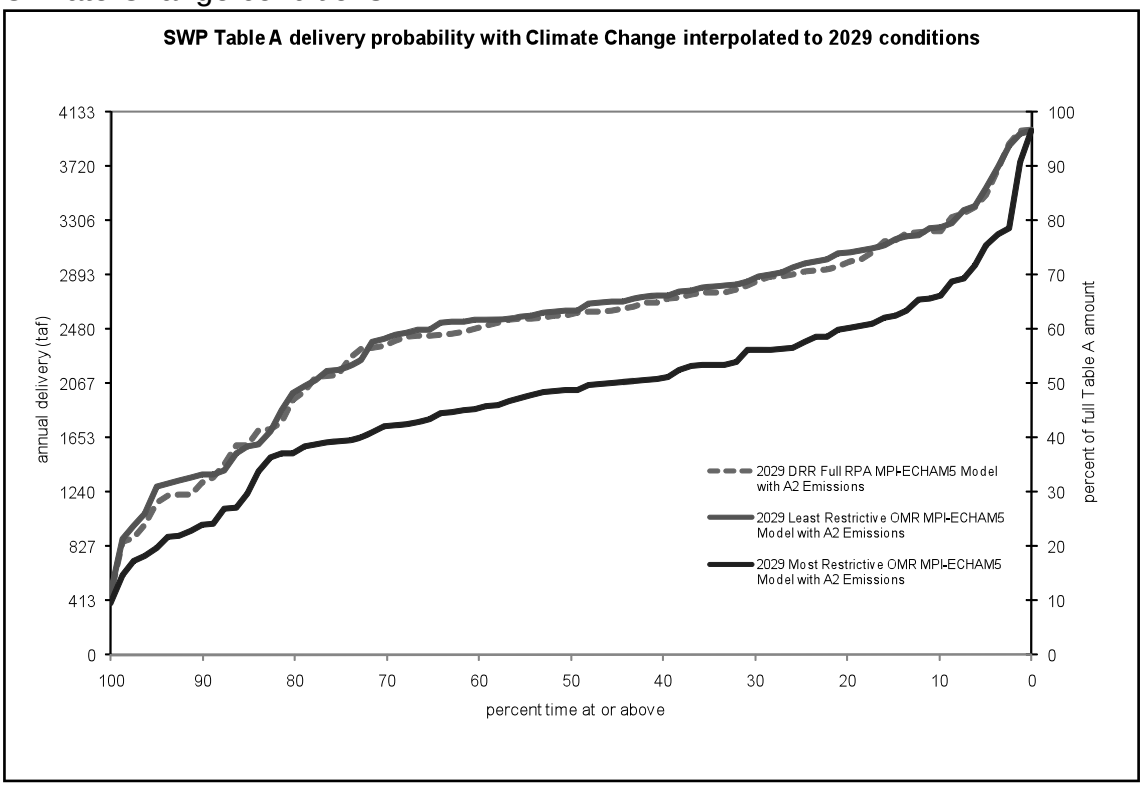


Figure 3. SWP Table A delivery probability under Future Conditions interpolated to assumed 2029 Climate Change conditions



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Letter from Valencia Water Company to Los Angeles County, June 8, 2011, Regarding Well 201

Valencia Water Company

24631 Avenue Rockefeller • Valencia, CA 91355-3907
(661) 294-0828 • Fax (661) 294-3806

June 8, 2011

William T. Fujioka
Chief Executive Officer
County of Los Angeles
500 West Temple Street
Los Angeles, CA 90012

Re: Valencia Water Company's Well 201

Dear Mr. Fujioka:

This letter is to inform the County of Los Angeles (County) that Valencia Water Company (Valencia) notified the Whittaker-Bermite property owners that Valencia will seek remediation funds to clean-up a closed well, located east of I-5, near City Hall in Santa Clarita, following routine water quality testing that detected low levels of perchlorate. The remediation funds are being sought under a 2007 settlement agreement among Castaic Lake Water Agency (CLWA), Newhall County Water District, Santa Clarita Water Division, Valencia Water Company, and Whittaker Corporation and others to address clean-up of impacted wells from the former munitions site. Under the settlement agreement, the closed well, Well 201, is eligible for "rapid response" funding. The balance of this letter provides further background, including plans for installation of wellhead treatment at Well 201.

Valencia's Well 201 is a Saugus municipal-supply well. In August, 2010, Valencia Water Company detected perchlorate in Well 201. Although the perchlorate levels were within safe drinking water standards, Valencia immediately took the well out of service and notified the California Department of Public Health. The Department requested that Valencia test the well on a quarterly basis. Valencia continued to monitor the inactive well on a monthly basis and the latest testing has confirmed that perchlorate is still present and that wellhead treatment is needed as outlined in the 2007 settlement agreement with Whittaker.

CLWA and the Whittaker-Bermite property owners negotiated the settlement of litigation over perchlorate contamination of a portion of the groundwater basin in April 2007. As part of the settlement, certain wells were identified as potentially threatened by perchlorate, including Valencia Well 201. As a result, the settlement included "rapid response" funding in the event that one or more of those wells were impacted by perchlorate in the future. This funding, from Whittaker, will be used to install wellhead treatment that removes perchlorate from the water, so that it meets safe drinking water standards. In April 2005, Valencia successfully worked with

the Department of Public Health in implementing wellhead treatment at Well Q2, utilizing the same treatment technology contemplated for Well 201. As a result, Well Q2 was returned to water supply service by October 2005. Since then, Valencia's Well Q2 has had no perchlorate detection, and has been regularly tested and monitored as specified by the Department of Public Health.

The removal of Well 201 from service will not have any near-term or long-term impacts on the quality or cost of water to the end users. Those costs will be addressed under the 2007 settlement agreement and the "rapid response" funding provisions in that agreement. The closing of the well also will not impact the Santa Clarita Valley water suppliers' ability to adequately provide water to customers. CLWA and the water retailers continue to ensure that all drinking water quality standards are met and solutions are put in place to address the presence of perchlorate in small portions of the Valley's groundwater aquifers.

In addition, the perchlorate detected in Valencia's Well 201 will be examined in detail in the pending update of 2010 Santa Clarita Valley Urban Water Management Plan. Based on the analysis already conducted for the draft 2010 UWMP, temporarily taking Well 201 out of service, while wellhead treatment is permitted and installed, will have no impact on the Valley's water supplies, which are sufficient to meet the current and projected water demands in the Santa Clarita Valley, even after taking into account the impacted well.

Last year, a $13 million treatment facility near Bouquet Canyon Road and the Santa Clara River came on line to treat perchlorate in groundwater emanating from the Whittaker-Bermite property site. This treatment facility is part of a larger regulatory program that includes the restoration of two perchlorate-impacted wells to extract contaminated groundwater and control the migration of perchlorate in the Saugus Formation aquifer. The cost of that "pump and treat" system also is covered under the 2007 settlement agreement, which protects the public from paying for the remediation costs.

As stated above, as part of the settlement, certain wells were identified as potentially threatened by perchlorate, including Well 201, due to their location. Thus, while the now-operational pump and treat system is intended to control migration of perchlorate, the possibility of further contamination in the direction of groundwater flow was recognized before installation of the pump and treat system, and provisions were incorporated in the overall program to treat additional wells impacted by perchlorate. Initial operation of the pump and treat system is functioning as planned, and is still applicable for both of its objectives, namely to control contaminant migration near the source, and to extract perchlorate from the Saugus formation aquifer. In short, the detection of perchlorate at Well 201 does not reflect any change in the anticipated long-term effectiveness of the pump and treat system.

Since 1997, seven wells in the Santa Clarita Valley, including this most recent well, have been impacted by perchlorate. Three of those wells have been successfully treated and returned to service, two have been replaced, one is planned to be replaced, and this most recent well will have treatment installed.

Perchlorate is a regulated drinking water contaminant in California with a maximum contaminant level of 6 parts per billion (ppb). Valencia's test in August 2010 at well 201 was 5 ppb. During the last several months, readings have varied from 5.7 ppb to 12 ppb in the most recent test.

Perchlorate is both a naturally occurring and a man-made ion used to form a variety of salts. The primary man-made use of perchlorate is as an oxidizer in solid rocket fuel and other propellants and to a lesser extent, in fireworks, explosives, and air-bag inflators. It is highly soluble in water and has been detected in groundwater and surface water in 26 states. It also has been detected in water supplies in close proximity to sites where solid rocket fuel is manufactured or used, such as in Santa Clarita, where the former Whittaker-Bermite company used rocket fuel on its site during World War II. Based on testing and other published data, Valencia believes the origin of the perchlorate found in well 201 is from the former Whittaker-Bermite site, located at 22116 West Soledad Canyon Road, Santa Clarita Valley, Los Angeles County, California. This site has been the subject of federal, state, and local oversight by several regulatory agencies. Ongoing monitoring of all active municipal wells near the former Whittaker-Bermite site has shown no detection of perchlorate in any other active well.

We believe the preemptive actions taken by Valencia Water Company, in coordination with the other water suppliers in the Santa Clarita Valley, ensure the safety and adequacy of the Valley's groundwater supplies. If you should have any questions, please call me at (661) 295-6501.

Sincerely,

Keith Abercrombie

Keith Abercrombie
General Manager

cc: Eric Lardiere, General Counsel, Whittaker Corporation
Dan Masnada, General Manager, Castaic Lake Water Agency
Mauricio Guardado, Retail Manager, Santa Clarita Water Division
Steve Cole, General Manager, Newhall County Water District
Adam Ariki, District Engineer, Los Angeles County Department of Public Works

Letters to Valencia Water Company
and Newhall County Water District Regarding Well Monitoring
from the California Department of Public Health, dated August 4, 2011

State of California—Health and Human Services Agency
California Department of Public Health

RON CHAPMAN, MD, MPH
Director

EDMUND G. BROWN JR.
Governor

August 4, 2011

Mr. Keith Abercrombie
General Manager
Valencia Water Company
24631 Avenue Rockefeller
P.O. Box 5904
Valencia, CA 91385

Dear Mr. Abercrombie:

SYSTEM NO. 1910240 – REQUEST TO INCREASE PERCHLORATE MONITORING AT WELLS N, N7, N8, S6, S7, S8, 160, AND 205 FROM ANNUALLY TO QUARTERLY

Due to the initial perchlorate detection of 5 ug/L in August 2010, Well 201 has since been taken out of service and monitored on a monthly basis. The recent testing continues to show the presence of perchlorate with levels ranging from 5.7 ug/L to 12 ug/L in the well water. Because of this finding, the Department requests that perchlorate monitoring frequency be increased to quarterly at additional sources in proximity that may be vulnerable to perchlorate contamination. These wells include Wells N, N7, N8, S6, S7, S8, 160, and 205. Please begin quarterly monitoring at these wells immediately in the third quarter of 2011 and continue monitoring Well 201 for perchlorate on a monthly basis, and Well Q2 on a quarterly basis.

Please be reminded of the regulatory requirements related to the monitoring and compliance of perchlorate. Per Title 22, Section 64432.3 (d), you are required to do the following whenever you have an MCL exceedance in a single sample of perchlorate:

- Require your laboratory to notify you within 48 hours of the result whenever the level of perchlorate in single sample exceeds the MCL.
- Collect and analyze a confirmation sample within 48 hours of the notification of the original sample.
- Calculate the average of the original and confirmation samples.
- If the average exceeds the MCL, report the results to the Department within 48 hours and issue a Tier 1 notice to your customers within 24 hours after you learn of the violation.

In addition to perchlorate detections, VOCs have also been recently detected at the nearby CLWA Saugus Wells 1 and 2 below the MCLs. It is important that you continue to monitor all of your wells annually for VOCs in order to identify any impact of VOCs on your wells. When any VOCs are detected, you are required to increase the monitoring frequency to quarterly per Title 22, Section 64445.1(c). Please also notify the Department of any VOC detections at your wells immediately.

If you have any questions, please call Karen Wong at (818) 551-2037.

Sincerely,

Jeff O'Keefe, P.E.
District Engineer
Metropolitan District

cc: Mr. Dan Masnada
General Manager
Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, CA 91350

Mr. Jose Diaz
Project Manager
Cal-EPA – DTSC Brownfields and Environmental Restoration
9211 Oakdale Avenue
Chatsworth, CA 91311

State of California—Health and Human Services Agency
California Department of Public Health

RON CHAPMAN, MD, MPH
Director

EDMUND G. BROWN JR.
Governor

August 4, 2011

Mr. Stephen L. Cole
General Manager
Newhall County Water District
23780 North Pine Street
P.O. Box 220970
Santa Clarita, CA 91322-0970

Dear Mr. Cole:

SYSTEM NO. 1910096 – REQUEST TO INCREASE PERCHLORATE MONITORING AT WELLS 12 AND 13 FROM ANNUALLY TO QUARTERLY

Due to confirmed perchlorate detections at Valencia Well 201, the Department requests that perchlorate monitoring frequency be increased to quarterly at additional sources in proximity that may be vulnerable to perchlorate contamination. These wells include Newhall County Water District – Newhall System Wells 12 and 13. Please begin quarterly monitoring at these wells immediately in the third quarter of 2011.

Please be reminded of the regulatory requirements related to the monitoring and compliance of perchlorate. Per Title 22, Section 64432.3 (d), you are required to do the following whenever you have an MCL exceedance in a single sample of perchlorate:

- Require your laboratory to notify you within 48 hours of the result whenever the level of perchlorate in single sample exceeds the MCL.
- Collect and analyze a confirmation sample within 48 hours of the notification of the original sample.
- Calculate the average of the original and confirmation samples.
- If the average exceeds the MCL, report the results to the Department within 48 hours and issue a Tier 1 notice to your customers within 24 hours after you learn of the violation.

In addition to perchlorate detections, VOCs have also been recently detected at the nearby CLWA Saugus Wells 1 and 2 below the MCLs. It is important that you continue to monitor all of your wells annually for VOCs in order to identify any impact of VOCs on your wells. When any VOCs are detected, you are required to increase the monitoring

frequency to quarterly per Title 22, Section 64445.1(c). Please also notify the Department of any VOC detections at your wells immediately.
If you have any questions, please call Karen Wong at (818) 551-2037.

Sincerely,

Jeff O'Keefe, P.E.
District Engineer
Metropolitan District

cc: Mr. Dan Masnada
General Manager
Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, CA 91350

Mr. Jose Diaz
Project Manager
Cal-EPA – DTSC Brownfields and Environmental Restoration
9211 Oakdale Avenue
Chatsworth, CA 91311

Summary of Water Quality Compliance Monitoring Results for Valencia Commerce Center Well E-15, 2006–2009

1101 Central Avenue, P.O. Box 8043
Wasco, California 93280-0877

Telephone: (661) 758-5113
Bakersfield: (661) 327-7144
Facsimile: (661) 758-3219
Email: mail@semitropic.com

Newhall Land & Farming Company
Attention: Beverly Langeveldt
25124 Springfield Court, Suite 300
Valencia, CA 91355

Dear Ms. Langeveldt:

As of December 31, 2010, Newhall Land and Farming has 23,167Acre Feet (AF) of water stored in Semitropic Water Storage District.

Please let me know if you need further information.

Sincerely,

Judy Burns

Judy Burns
Accounting Supervisor

NEWHALL LAND

April 27, 2011

Sam Dea
Supervising Regional Planner
County of Los Angeles
Department of Regional Planning
320 West Temple Street, 13th floor
Room 1362
Los Angeles, CA, 90012-3225

Dear Mr. Dea:

This correspondence and attachments are provided in compliance with the Newhall Ranch Specific Plan Final EIR Mitigation Measure 4.11-15 (below) to provide an annual report indicating the amount of groundwater used in Los Angeles County for irrigation.

4.11-15 Groundwater historically and presently used for crop irrigation on the Newhall Ranch Specific Plan site and elsewhere in Los Angeles County shall be made available by the Newhall Land and Farming Company, or its assignee, to partially meet the potable water demands of the Newhall Ranch Specific Plan. The amount of groundwater pumped for this purpose shall not exceed 7,038 AFY. This is the amount of groundwater pumped historically and presently by the Newhall Land and Farming Company in Los Angeles County to support its agricultural operations. Pumping this amount will not result in a net increase in groundwater use in the Santa Clarita Valley. <u>To monitor groundwater use, the Newhall Land and Farming Company, or its assignee, shall provide the County an annual report indicating the amount of groundwater used in Los Angeles County and the specific land upon which that groundwater was historically used for irrigation</u>. For agricultural land located off the Newhall Ranch Specific Plan site in Los Angeles County, at the time agricultural groundwater is transferred from agricultural uses on that land to Specific Plan uses, The Newhall Land and Farming Company, or its assignee, shall provide a verified statement to the County's Department of Regional Planning that Alluvial aquifer water rights on that land will now be used to meet Specific Plan demand. (emphasis added)

The information provided in the attached chart depicts the amount of irrigation water used on Newhall's Los Angeles County farm fields for crop season 2010, using the same methodology from the Final EIR (FEIR). Revised Table 2.5-32 from the FEIR is also attached showing the original information for the years 1996 – 2000 that served as the baseline for determining the estimated annual average usage of 7,038 acre feet. A map is also attached showing the specific land in Los Angeles County upon which the groundwater has historically been used.

Newhall's annual water use varies based upon the amount of irrigated acres, the type of irrigated crops and their water demand as determined by California Irrigation Management Information System.

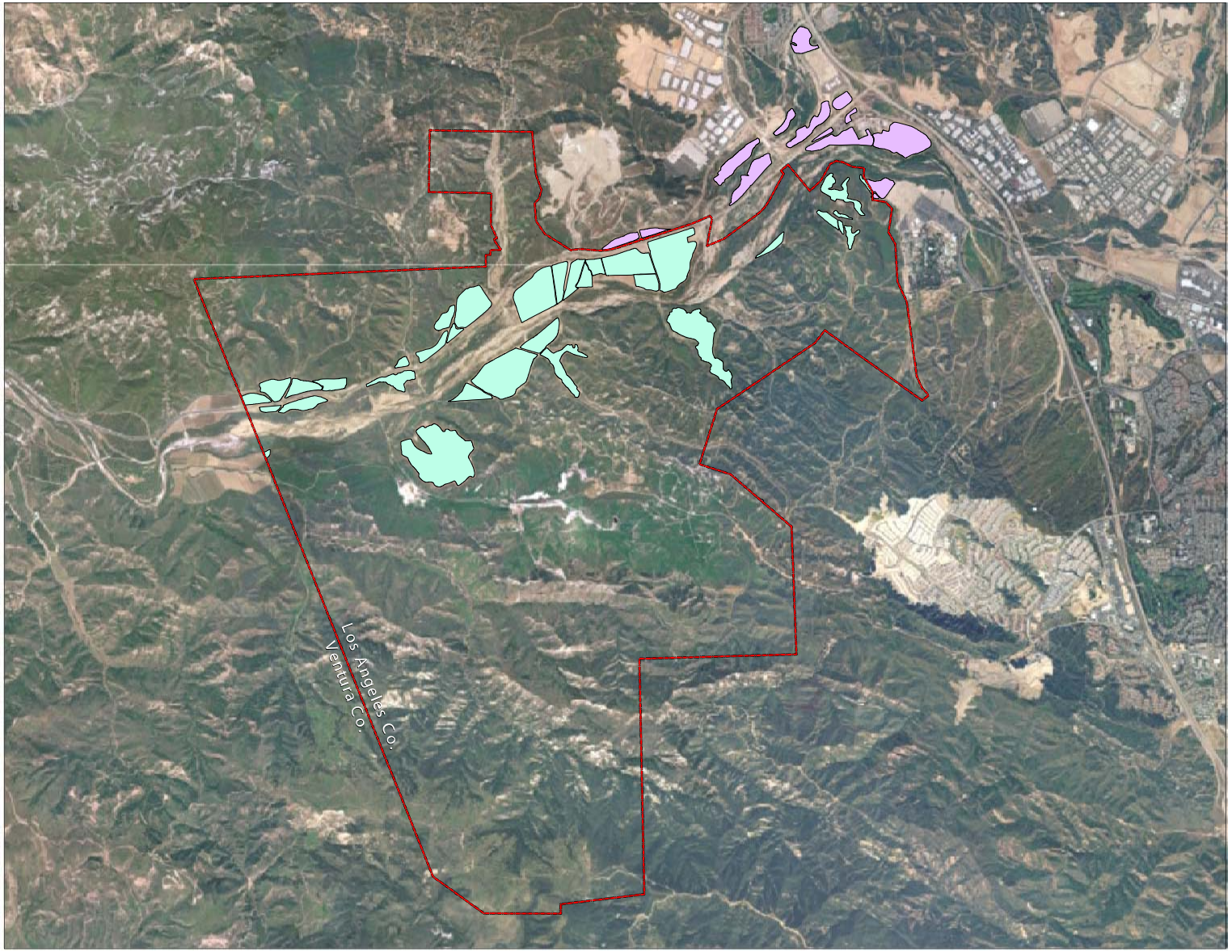
If you have any questions regarding this letter or the attached exhibits please contact me at (661) 255-4449.

Newhall Land

Alex Herrell
Director, Community Development

Newhall Ranch Specific Plan
2010 Annual Report
Los Angeles County Agriculture Water Use
Mitigation Measure 4.11 -15

Crop Type	Total Irrigated Acres	Adjusted CIMIS Water Use (af/ac)	Adjusted CIMIS Water Use (af/yr)	%of Water use by Crop	Total Pumped Water Based on SCE (af)	Allocation of Total Pumped Water By Crop (af/yr)	Acre Feet/ Year per Acre of Crop	LA Co. Irrigated Crops (acres)	LA Co. Crop Share Of Actual Pumped Water (af/yr)	LA Co. Crop Share Using Adjusted CIMIS (af/yr)
Citrus	273	4.33	1182	9.43%	11421	1077	3.95			
Alfalfa	82	7.07	580	4.63%		528	6.44	82	528	580
Irrigated Hay	28	7.07	198	1.58%		180	6.44			
Sudan Grass (double Crop)		0	0	0.00%		0				
Irrigated Pasture	231	8.25	1906	15.21%		1737	7.52	231	1737	1906
Vegetables	975	7.07	6893	55.00%		6282	6.44	281	1810	1987
Sod	164	7.07	1159	9.25%		1057	6.44	164	1057	1159
Nursery	199	3.09	615	4.91%		560	2.82			
Totals				**100.00%**		**11,421**		**758**	**5,132**	**5,632**



L E G E N D

- Newhall Ranch Specific Plan Boundary
- Irrigated Agricultural Lands - NRSP
- Irrigated Agricultural Lands - outside NRSP

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

FORMA

04-07-2003
agricultural_acres_040703.mxd

Newhall Land Historically Irrigated Agricultural Areas within Los Angeles County

2010 Urban Water Management Plan

Final

Prepared for:

Castaic Lake Water Agency (CLWA)

CLWA Santa Clarita Water Division

Newhall County Water District

Valencia Water Company

(Los Angeles County Waterworks District No. 36/Cooperating Agency)

Prepared by:

Kennedy/Jenks Consultants

Nancy Clemm , P.E.

Luhdorff & Scalmanini Consulting Engineers

Stacy Miller Public Affairs

June 2011

Table of Contents

List of Tables ..... *vi*

List of Figures ..... *viii*

List of Appendices ..... *ix*

List of Abbreviations and Acronyms ..... *ix*

Adoption Resolutions

Castaic Lake Water Agency and Santa Clarita Water Division, Resolution 2809 June 22, 2011
Newhall County Water District, Resolution 2011-10 June 22, 2011
Valencia Water Company, Resolution June 27, 2011

Section 1: Introduction 1-1

1.1 Overview 1-1
1.2 Purpose 1-1
1.3 Implementation of the Plan 1-3
1.3.1 Joint Preparation of the Plan 1-3
1.3.2 Plan Adoption 1-6
1.3.3 Public Outreach 1-6
1.3.4 Resources Maximization 1-8
1.4 Water Suppliers of the Santa Clarita Valley 1-8
1.4.1 Castaic Lake Water Agency 1-8
1.4.2 Retail Water Purveyors 1-10
1.5 Climate 1-12
1.6 Potential Effects of Climate Change 1-13

Section 2: Water Use 2-1

2.1 Overview 2-1
2.2 Demographics 2-1
2.3 Historical Water Use 2-2
2.4 Projected Water Use 2-3
2.4.1 Purveyor Projections 2-3
2.5 Population 2-9
2.5.1 Historical Population 2-9
2.5.2 Population Projections 2-12
2.5.3 Comparison to City and County Planning 2-13
2.6 Existing and Targeted Per Capita Water Use 2-15
2.6.1 Base Daily Per Capita Water Use for SBX7-7 Reduction 2-15
2.6.2 Urban Water Use Targets for SBX7-7 Reduction 2-17
2.6.3 Purveyor Projections and SBX7-7 Objectives 2-21
2.6.3.1 Low Income Projected Water Demands 2-23
2.7 Other Factors Affecting Water Usage 2-25
2.7.1 Weather Effects on Water Usage 2-25
2.7.2 Conservation Effects on Water Usage 2-25

Table of Contents (cont'd)

Section 3: Water Resources 3-1

3.1 Overview 3-1
3.2 Wholesale (Imported) Water Supplies 3-3
3.2.1 State Water Project Supplies 3-3
3.2.1.1 Background 3-3
3.2.1.2 SWP Table A Supply Assessment 3-7
3.2.1.3 Recent Changes to Factors Affecting SWP Supplies 3-10
3.2.2 Other Imported Supplies 3-13
3.2.2.1 Buena Vista-Rosedale 3-13
3.2.2.2 Nickel Water - Newhall Land 3-13
3.3 Groundwater 3-15
3.3.1 Santa Clara River Groundwater Basin – East Subbasin 3-15
3.3.2 Adopted Groundwater Management Plan 3-15
3.3.2.1 Available Groundwater Supplies 3-20
3.3.2.2 Alluvium 3-24
3.3.2.3 Saugus Formation 3-29
3.3.3 Existing and Planned Groundwater Pumping 3-34
3.3.3.1 Impacted Well Capacity 3-34
3.3.3.2 Alluvium 3-34
3.3.3.3 Saugus Formation 3-35
3.3.3.4 Summary 3-35
3.4 Transfers and Exchanges 3-38
3.4.1 Core Transfers 3-39
3.4.2 Spot Market Transfers 3-39
3.4.3 Option Contracts 3-39
3.4.4 Future Market Transfers 3-39
3.5 Groundwater Banking Programs 3-39
3.5.1 Semitropic Banking Program 3-40
3.5.2 Rosedale-Rio Bravo Banking Program 3-40
3.5.3 Semitropic Banking Program – Newhall Land 3-41
3.5.4 Other Opportunities 3-41
3.6 Planned Water Supply Projects and Programs 3-42
3.7 Development of Desalination 3-42
3.7.1 Opportunities for Brackish Water and/or Groundwater Desalination 3-42
3.7.2 Opportunities for Seawater Desalination 3-43

Section 4: Recycled Water 4-1

4.1 Recycled Water Master Plan 4-1
4.2 Existing Wastewater Treatment Facilities 4-4
4.3 Wastewater Treatment Facility Improvements and Expansions 4-7
4.4 Recycled Water Supply 4-9
4.4.1 Alternative Water Resources Management Program 4-11
4.5 Other Potential Sources of Recycled Water 4-12

Table of Contents (cont'd)

4.6 Recycled Water Demand 4-13
4.7 Recycled Water Comparison 4-14
4.8 Methods to Encourage Recycled Water Use 4-14
4.9 Implementation Plan for the Recycled Water Plan 4-14
4.10 Additional Considerations Relating to the Use of Recycled Water 4-15
4.10.1 Salt and Nutrient Management Plan 4-15
4.10.2 Basin Plan 4-16
4.10.3 Nutrients 4-18
4.10.4 Projected Salt Levels from Recycled Water 4-18

Section 5: Water Quality 5-1

5.1 Overview 5-1
5.2 Water Quality Constituents of Interest 5-1
5.2.1 Perchlorate 5-2
5.2.2 Metals and Salts 5-5
5.2.3 Disinfection By-Products 5-6
5.2.4 Hardness 5-6
5.2.5 Microbiological 5-6
5.2.6 Radiological Tests 5-7
5.2.7 Organic Compounds 5-7
5.3 Imported Water Quality 5-7
5.4 Surface Water Quality 5-8
5.5 Groundwater Quality 5-8
5.5.1 Water Quality - Alluvium 5-9
5.5.2 Water Quality - Saugus Formation 5-9
5.6 Aquifer Protection 5-10
5.7 Water Quality Impacts on Reliability 5-12

Section 6: Reliability Planning 6-1

6.1 Overview 6-1
6.2 Reliability of Water Supplies 6-1
6.3 Normal, Single-Dry, and Multiple-Dry Year Planning 6-2
6.3.1 Groundwater 6-2
6.3.2 Recycled Water 6-3
6.3.3 State Water Project Table A Supply 6-3
6.3.3.1 Flexible Storage Account 6-4
6.3.4 Buena Vista-Rosedale 6-4
6.3.5 Nickel Water - Newhall Land 6-4
6.3.6 Semitropic Banking Program 6-4
6.3.7 Semitropic Banking Program - Newhall Land 6-5
6.3.8 Rosedale-Rio Bravo Banking Program 6-5
6.3.9 Additional Planned Banking 6-6
6.4 Supply and Demand Comparisons 6-6
6.4.1 Normal Water Year 6-6

Table of Contents (cont'd)

6.4.2 Single-Dry Year 6-9
6.4.3 Multiple-Dry Year 6-12
6.4.4 Summary of Comparisons 6-15

Section 7: Water Demand Management Measures 7-1

7.1 Overview 7-1
7.2 Castaic Lake Water Agency 7-2
7.2.1 Utility Operations 7-3
7.2.1.1 Conservation Coordinator 7-3
7.2.1.2 Wholesale Agency Assistance Programs 7-4
7.2.1.3 Water Loss Control 7-4
7.2.2 Education 7-4
7.2.2.1 Public Information 7-4
7.2.2.2 School Education 7-5
7.3 Regional BMP Implementation 7-5
7.4 Santa Clarita Water Division 7-6
7.4.1 Foundational BMPs 7-6
7.4.1.1 Utility Operations 7-6
7.4.1.2 Education 7-8
7.4.2 Programmatic BMPs 7-9
7.4.2.1 Residential Programs 7-9
7.4.2.2 Commercial, Industrial, and Institutional (CII) BMPs 7-10
7.4.2.3 Landscape 7-11
7.4.3 SCWD DMM and SBX7-7 Implementation Plan 7-11
7.5 Valencia Water Company 7-14
7.5.1 Foundational BMPs 7-15
7.5.1.1 Utility Operations 7-15
7.5.1.2 Education 7-17
7.5.2 Programmatic BMPs 7-18
7.5.2.1 Residential Programs 7-18
7.5.2.2 Commercial, Industrial, and Institutional (CII) 7-21
7.5.2.3 Large Landscape 7-22
7.5.3 VWC DMM and SBX7-7 Implementation Plan 7-23
7.6 Newhall County Water District 7-26
7.6.1 Foundational BMPs 7-27
7.6.1.1 Utility Operations 7-27
7.6.1.2 Education 7-28
7.6.2 Programmatic BMPs 7-29
7.6.2.1 Residential Programs 7-29
7.6.2.2 Commercial, Industrial, and Institutional (CII) 7-31
7.6.2.3 Large Landscape 7-31
7.6.3 NCWD DMM and SBX7-7 Implementation Plan 7-32

Section 8: Water Shortage Contingency Planning 8-1

Table of Contents (cont'd)

8.1 Overview 8-1
8.2 Coordinated Planning 8-1
8.2.1 CLWA and the Retail Water Purveyors 8-1
8.3 Stages of Action to Respond to Water Shortages 8-1
8.4 Minimum Water Supply Available During Next Three Years 8-3
8.5 Actions to Prepare for Catastrophic Interruption 8-4
8.5.1 General 8-4
8.5.2 SWP Emergency Outage Scenarios 8-4
8.5.2.1 Scenario 1: Levee Breach Near Banks Pumping Plant 8-6
8.5.2.2 Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley 8-7
8.5.2.3 Scenario 3: Complete Disruption of the West Branch of the California Aqueduct 8-7
8.5.2.4 Assessment of Worst-Case Scenario 8-8
8.5.3 Recommendations for Emergency Storage 8-11
8.5.4 Regional Power Outage Scenarios 8-12
8.5.4.1 CLWA 8-12
8.5.4.2 SCWD 8-12
8.5.4.3 NCWD 8-12
8.5.4.4 VWC 8-13
8.6 Mandatory Prohibitions During Shortages 8-13
8.7 Consumptive Reduction Methods During Restrictions 8-14
8.7.1 Supply Shortage Triggering Levels 8-14
8.7.2 Consumption Limits 8-14
8.7.3 New Demand 8-15
8.8 Penalties for Excessive Use 8-15
8.8.1 SCWD 8-15
8.8.2 NCWD 8-15
8.8.3 VWC 8-16
8.9 Financial Impacts of Actions During Shortages 8-16
8.9.1 SCWD 8-17
8.9.2 NCWD 8-17
8.9.3 VWC 8-18
8.10 Water Shortage Contingency Resolution 8-18
8.11 Mechanism to Determine Reductions in Water Use 8-18
8.11.1 Demand 8-18
8.11.2 Production 8-18
8.11.3 Stage 1 and 2 Water Shortages 8-18
8.11.4 Stage 3 and 4 Water Shortages 8-19
8.11.5 Disaster Shortage 8-19

Section 9: References 9-1

Table of Contents (cont'd)

List of Tables

1-1 Agency Coordination Summary
1-2 Public Participation Timeline
1-3 Retail Water Service Connections
1-4 Climate Data for the Santa Clarita Valley
1-5 Annual Precipitation Record for Santa Clarita Valley
2-1 Historical Water Use by Retail Water Purveyors
2-2 Summary of Projected Water Demands
2-3 Los Angeles County Waterworks District 36 Current and Projected Water Deliveries by Customer Type
2-4 Newhall County Water District Current and Projected Water Deliveries by Customer Type
2-5 Santa Clarita Water Division Current and Projected Water Deliveries by Customer Type
2-6 Valencia Water Company Current and Projected Water Deliveries by Customer Type
2-7 Historical Water Use by Retail Purveyor Service Area
2-8 Summary of Historical Population by Retail Purveyor Service Area
2-9 Projected Population
2-10 Population Comparison
2-11 Newhall County Water District - Base Daily per Capita Water Use
2-12 Santa Clarita Water Division - Base Daily per Capita Water Use
2-13 Valencia Water Company - Base Daily per Capita Water Use
2-14 Option 3 – 95 Percent of State Hydrologic Region Target
2-15 NCWD – Components of Target Daily Per Capita Water Use
2-16 NCWD – SBX7-7 Conservation Savings Summary
2-17 SCWD – Components of Target Daily Per Capita Water Use
2-18 SCWD – SBX7-7 Conservation Savings Summary
2-19 VWC – Components of Target Daily Per Capita Water Use
2-20 VWC – SBX7-7 Conservation Savings Summary
2-21 LACWWD 36 – Conservation Savings
2-22 Normal Year SBX7-7 Demand Calculations
2-23 Low Income Demands
3-1 Summary of Current and Planned Water Supplies and Banking Programs
3-2 SWP Table A Supply Reliability
3-3 Historical Imported Supply Deliveries

Table of Contents (cont'd)

3-4 CLWA Demand Projections Provided To Wholesale Suppliers
3-5 Groundwater Operating Plan for the Santa Clarita Valley
3-6 Recent Historical Groundwater Production
3-7 Projected Groundwater Production (Normal Year)
3-8 Active Municipal Groundwater Source Capacity - Alluvial Aquifer Wells
3-9 Municipal Groundwater Source Capacity - Saugus Formation Wells
3-10 Average/Normal Year Existing and Planned Groundwater Usage in Upper Santa Clara River Basin
3-11 Single-Dry Year Existing and Planned Groundwater Usage in Upper Santa Clara River Basin
3-12 Multiple-Dry Year Existing and Planned Groundwater Usage in Upper Santa Clara River Basin
3-13 Future Reliability Enhancement Programs
3-14 Transfer and Exchange Opportunities
3-15 Existing and Proposed Seawater Desalination Facilities along the California Coast
4-1 Participating Agencies
4-2 Projected Wastewater Flows
4-3 Projected Wastewater Generation Available for Recycled Water Use
4-4 Recycled Water Uses - 2005 Projection Compared With 2010 Use
4-5 Potential Recycled Water Supplies and Demands
4-6 Water Quality Objectives for Waters in the Santa Clara River Watershed
4-7 TMDL for Ammonia on the Santa Clara River
4-8 TMDL for Nitrate Plus Nitrite on the Santa Clara River
4-9 Estimated Salt Above Potable Levels by Recycled Water Users
5-1 Status of Impacted Wells
5-2 Current and Projected Water Supply Changes Due To Water Quality Percentage Change
6-1 Basis of Water Year Data
6-2 Projected Average/Normal Year Supplies and Demands
6-3 Projected Single-Dry Year Supplies and Demands
6-4 Projected Multiple-Dry Year Supplies and Demands
7-1 School Education (Number of Students)
7-2 Revenue
7-3 SCWD Outreach Events
7-4 School Education (Number of Students)
7-5 DMM GPCD Target Calculations

Table of Contents (cont'd)

7-6 Annual Compliance Targets
7-7 Compliance Targets
7-8 Quantity Rates and Service Charges
7-9 Revenue
7-10 Summary of Outreach Activities
7-11 School Education (Number of Students)
7-12 Residential Surveys and Retrofits
7-13 Toilet Rebate and Replacement Programs
7-14 CII Survey Program
7-15 DMM GPCD Target Calculations
7-16 Annual Compliance Targets
7-17 Compliance Targets
7-18 Revenue
7-19 Summary of Outreach Activities
7-20 School Education (Number of Students)
7-21 Residential Surveys and Retrofits
7-22 Toilet Rebate Programs
7-23 DMM GPCD Target Calculations
7-24 Annual Compliance Targets
7-25 Compliance Targets
8-1 Rationing and Reduction Goals
8-2 Per Capita Health and Safety Water Quantity Calculations
8-3 Estimate of Minimum Supply for the Next Three Years
8-4 Projected Supplies and Demands During a Six Month Disruption of Imported Supply
8-5 Water Deficiency Triggering Levels

List of Figures

1-1 Castaic Lake Water Agency Service Area
2-1 Historical Water Use
2-2 Historical Water Use and Precipitation
3-1 Santa Clara River Valley, East Groundwater Subbasin
3-2 Municipal Alluvial Well Locations Santa Clara River Valley, East Groundwater Subbasin
3-3 Saugus Well Locations Santa Clara River Valley, East Groundwater Subbasin
4-1 Santa Clarita Valley Sanitation District Flow Projections by Water Purveyor Service Area

Table of Contents (cont'd)

4-2 Recycled Water Master Plan Phases 2A, 2B, 2C
8-1 Primary SWP Facilities

List of Appendices

A DWR Checklist
B Public Outreach Materials
C Purveyor Supply and Demand Tables
D Recent Factors Affecting SWP Supplies
E Demand Management Measures
F Draft Water Shortage Contingency Plans/Ordinances
G CLWA Groundwater Management Plan (provided on CD)
H Historical Imported Water Deliveries by Purveyor
I Perchlorate Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley

List of Abbreviations and Acronyms

The following abbreviations and acronyms are used in this report.

AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
Act	California Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
Agency	Castaic Lake Water Agency
APA	Administrative Procedure Act
AWRM	Alternative Water Resources Management Program
AWWARF	American Water Works Association Research Foundation
Basin	Santa Clara River Valley Groundwater Basin, East Subbasin
BDCP	Bay Delta Conservation Plan
BMPs	Best Management Practices
BO	Biological Opinion
BVWSD	Buena Vista Water Storage District
CCF	One Hundred Cubic Feet

Table of Contents (cont'd)

CCR	Consumer Confidence Report
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CLWA	Castaic Lake Water Agency
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DBP	Disinfection by-products
D/DBP	Disinfectants and Disinfectant By-Products
Delta	Sacramento-San Joaquin Delta
DFG	California Department of Fish and Game
DHS	California Department of Health Services
District	Los Angeles County Waterworks District No. 36
DMM	Demand Management Measure
DOF	Department of Finance
DPH	Department of Public Health
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	Electrical conductivity
Edison	Southern California Edison
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ETo	evapotranspiration
FWS	United States Fish and Wildlife Service
GPCD	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
GSWI	groundwater and surface water interaction model
GWMP	Groundwater Management Plan
HAA5	Haloacetic Acids
KCWA	Kern County Water Agency
LACDRP	Los Angeles County Department of Regional Planning
LACSD	Sanitation Districts of Los Angeles County
LACWWD 36	Los Angeles County Waterworks District No. 36

Table of Contents (cont'd)

M&I	Municipal and Industrial
MCL	Maximum contaminant level
Metropolitan	Metropolitan Water District of Southern California
MAF	million acre-feet
mgd	million gallons per day
mg/L	milligrams per liter
MOU	Memorandum of Understanding Regarding Water Conservation in California
MWD	Metropolitan Water District of Southern California
NCWD	Newhall County Water District
NEPA	National Environmental Protection Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OVOV	One Valley One Vision
Plan	Urban Water Management Plan 2010
PPHH	persons-per-household
PUC	California Public Utilities Commission
Purveyor	Supplier of drinking water at the retail level (also retailer and retail purveyor)
RAP	Remedial Action Plan
RO	Reverse Osmosis
RRB	Rosedale-Rio Bravo
RRBWSD	Rosedale-Rio Bravo Water Storage District
RPA	Reasonable and Prudent Alternative
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCLLC	Santa Clarita LLC
SCOPE	Santa Clarita Organization for Planning the Environment
SCVSD	Santa Clarita Valley Sanitation District
SCWD	Santa Clarita Water Division
SRWS	self-regenerating water-softeners
Semitropic	Semitropic Water Storage District
SSO	site specific objective
SOC	Synthetic organic compounds
SWP	State Water Project
Suppliers	CLWA and purveyors collectively

Table of Contents (cont'd)

SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
THM	Trihomethanes
TTHM	Total Trihalomethanes
TOC	Total Organic Carbon
umhos/cm	Micromhos per centimeter
USCR	Upper Santa Clara River
UWMP	Urban Water Management Plan
Valley	Santa Clarita Valley
VOC	Volatile organic compounds
VWC	Valencia Water Company
WTP	Wastewater Treatment Plant
WRP	Water Reclamation Plant
WQOs	Water Quality Objectives

RESOLUTION NO. 2809

RESOLUTION OF THE CASTAIC LAKE WATER AGENCY BOARD OF DIRECTORS ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Urban Water Management Planning Act, Water Code Section 10610, et seq. (the Act) mandates that every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and adopt an updated urban water management plan (UWMP) at least once every five years on or before December 31, in years ending five and zero; and

WHEREAS, the Castaic Lake Water Agency (CLWA), which includes the CLWA Santa Clarita Water Division (SCWD), is an urban water supplier for purposes of the Act, and in 2005 approved and adopted its most recent UWMP and submitted its 2005 UWMP to the California Department of Water Resources (DWR); and

WHEREAS, the Water Conservation Act of 2009, Water Code Section 10608 et seq. (SBX7-7), extended the time by which urban retail water suppliers must adopt 2010 UWMPs to July 1, 2011 to permit coordination between urban wholesale water suppliers and urban retail water suppliers and, among other things, established requirements for urban retail water suppliers to prepare urban water use targets in accordance with the goals of SBX7-7 to reduce statewide daily per capita water use by 15 percent by the year 2015 and 20 percent by the year 2020; and

WHEREAS, the SCWD is an "urban retail water supplier" for purposes of SBX7-7 because it directly provides potable municipal water to more than 3,000 end users; and

WHEREAS, Section 10620(d)(1) of the Act encourages urban water suppliers to satisfy the requirements of the Act by participation in area wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use; and

WHEREAS, CLWA, in cooperation with SCWD, Newhall County Water District (NCWD) and the Valencia Water Company (VWC), prepared a document labeled "Public Review Draft 2010 Urban Water Management Plan" for the CLWA service area (Draft 2010 UWMP), upon which Los Angeles County Waterworks District No. 36 (LACWWD #36) participated as a cooperating agency; and

WHEREAS, in accordance with applicable law, including the requirements of the Act and of SBX7-7, CLWA has prepared the Draft 2010 UWMP and has undertaken certain agency coordination, public notice, public involvement and outreach, public comment, and other procedures in relation to the Draft 2010 UWMP; and

WHEREAS, as authorized by Section 10620(e) of the Act, CLWA has prepared its Draft 2010 UWMP with its own staff, with the assistance of consulting professionals and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its Draft 2010 UWMP, and has, in part, utilized and relied upon the DWR Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (March 2011) and the DWR Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (For the Consistent Implementation of the Water Conservation Act of 2009) (February 2011) in preparing its Draft 2010 UWMP; and

WHEREAS, CLWA began its public outreach and community involvement in the preparation of the Draft 2010 UWMP in May 2010, with its first scheduled community workshop, followed by five more community workshops and three public hearings; and

WHEREAS, pursuant to Section 10621(b) of the Act, on March 3, 2011, CLWA notified the City of Santa Clarita and the Counties of Ventura and Los Angeles that it would be preparing its 2010 UWMP, and that it would be releasing the Draft 2010 UWMP in April 2011, and subsequently met with, consulted with and obtained comments from the City of Santa Clarita, the United Water Conservation District and the County of Los Angeles; and

WHEREAS, in accordance with applicable law, including Water Code Sections 10608.26 and 10642, and Government Code Section 6066, CLWA made its Draft 2010 UWMP available for public inspection, and provided notice of the time and place of each joint public hearing on the Draft UWMP; and

WHEREAS, on March 23, 2011, CLWA and NCWD held a joint public hearing, properly noticed pursuant to Section 10642 of the Act and Government Code Section 6066, at which time CLWA's Board of Directors reviewed draft sections and tables for inclusion in the Draft 2010 UWMP, and, as part of that review, considered a presentation regarding the Draft 2010 UWMP by its staff and consultants, and oral and written public comments; and

WHEREAS, on May 18, 2011, CLWA and NCWD held a second joint public hearing, properly noticed pursuant to Section 10642 of the Act and Government Code Section 6066, at which time CLWA's Board of Directors considered further oral and written public comments, and responses to those comments by its staff and consultants, which included a presentation of the changes that had been made in the Public Review Draft 2010 UWMP; and

WHEREAS, on June 15, 2011, CLWA circulated to each of the members of its Board of Directors a Final Draft 2010 UWMP; and

WHEREAS, on June 22, 2011, CLWA and NCWD held a properly noticed joint public meeting and public hearing to consider adoption of the Final Draft 2010 UWMP, at which time CLWA's Board of Directors considered further oral and written public comments, and responses to those comments by its staff and consultants, which included a presentation of the changes that had been made in the Final Draft 2010 UWMP, and reviewed and considered adoption of the Final Draft 2010 UWMP; and

WHEREAS, pursuant to Water Code Section 10620(d)(2), CLWA coordinated the preparation of its Draft 2010 UWMP and Final Draft 2010 UWMP with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies and relevant public agencies, to the extent practicable; and

WHEREAS, pursuant to Water Code Section 10620(f), CLWA describes in the Draft 2010 UWMP and in the Draft Final 2010 UWMP water management tools and options used by CLWA that will maximize resources and minimize the need to import water from other regions; and

WHEREAS, pursuant to Water Code Section 10641, CLWA consulted with and obtained comments from those public agencies or persons with special expertise with respect to demand management methods and techniques; and

WHEREAS, CLWA has encouraged the active involvement of diverse social, cultural and economic elements of the population within the Agency's service area with regard to the preparation of the Draft UWMP and Final Draft UWMP, allowed input by members of the public and any other interested party regarding all aspects of the Draft 2010 UWMP and Final Draft 2010 UWMP, allowed community input regarding SCWD's implementation plan for complying with SBX7-7, considered the economic impacts of the SCWD's implementation plan for complying with SBX7-7 and adopted Method 1 under Water Code Section 10608.20(b) for determining its urban water use targets; and

WHEREAS, to assure public participation in the process, CLWA has exceeded the requirements of the Act, by holding more than one public hearing; and

WHEREAS, the CLWA Board of Directors has considered the public and Board comments made at the three public hearings, as well as all written public comments on the Draft 2010 UWMP and the Final Draft 2010 UWMP distributed to the Board of Directors; and

WHEREAS, the CLWA Board of Directors has carefully reviewed the Final Draft 2010 UWMP, any errata, revisions and modifications made at the hearing; and

WHEREAS, the CLWA Board of Directors has carefully reviewed and considered the purposes and requirements of the Act and SBX7-7, the contents of the Final Draft 2010 UWMP, any errata, revisions and modifications made at the hearing, the documentation contained in the administrative record in support of the Final Draft 2010 UWMP, and all public and agency input received with regard to the Final Draft 2010 UWMP, and has determined that the factual analyses and conclusions set forth in the 2010 UWMP are supported by substantial evidence.

NOW THEREFORE, BE IT RESOLVED that this Board of Directors of Castaic Lake Water Agency does hereby adopt Method 1 under Water Code Section 10608.20(b) for determining its urban water use targets, and the Final Draft 2010 UWMP attached hereto as Exhibit "A" and incorporated herein by this reference, including any errata, revisions and modifications made at the hearing, is hereby approved and adopted as CLWA's 2010 Urban Water Management Plan, and filed with the Secretary of the Board; and

RESOLVED FURTHER that the General Manager of the Agency is hereby authorized and directed to include a copy of this Resolution in the Agency's 2010 Urban Water Management Plan and, in accordance with Water Code Section 10644(a), to file the 2010 Urban Water Management Plan with the California Department of Water Resources, the California State Library, and any city or county within which the Agency provides water supplies within thirty (30) days of this adoption date; and

RESOLVED FURTHER that in accordance with Water Code Section 10645, the General Manager is hereby authorized and directed to make the 2010 Urban Water Management Plan available for public review during normal business hours at CLWA's administrative offices at 27234 Bouquet Canyon Road, Santa Clarita, CA, not later than thirty (30) days after filing a copy thereof with the California Department of Water Resources; and

RESOLVED FURTHER that in accordance with Water Code Section 10635(b), the General Manager is hereby authorized and directed to provide that portion of the 2010 Urban Water Management Plan prepared pursuant to Water Code Section 10635(a) to any city or county within which the Agency provides water supplies not later than sixty (60) days after filing a copy thereof with the California Department of Water Resources; and

RESOLVED FURTHER in accordance with the Urban Water Management Planning Act and SBX7-7, including, but not limited to, the Agency's Water Conservation Programs and its Water Shortage Contingency Plan, the General Manager is hereby authorized and directed to implement the components of the 2010 Urban Water Management Plan; and

RESOLVED FURTHER that the General Manager is authorized and directed to recommend to the Board of Directors additional steps necessary or appropriate to effectively carry out the implementation of the 2010 Urban Water Management Plan, the Urban Water Management Planning Act and SBX7-7.

Vice President

I, the undersigned, hereby certify I am the duly appointed and acting Secretary of the Castaic Lake Water Agency and at a regular meeting of the Board of Directors of said Agency held on Wednesday, June 22, 2011, the foregoing Resolution No. 2809 was duly and regularly adopted by said Board, and that said resolution has not been rescinded or amended since the date of its adoption, and it is now in full force and effect.

DATED: June 22, 2011

April Jacobs, Secretary

EXHIBIT "A"

FINAL DRAFT 2010 UWMP
(Attached hereto)

RESOLUTION NO. 2011-10

RESOLUTION OF THE BOARD OF DIRECTORS OF NEWHALL COUNTY WATER DISTRICT ADOPTING ITS 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Urban Water Management Planning Act, Water Code Section 10610, et seq. (the Act) mandates that every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and adopt an updated urban water management plan (UWMP) at least once every five years on or before December 31, in years ending five and zero; and

WHEREAS, the Newhall County Water District (NCWD) is an urban water supplier for purposes of the Act, and in 2005 approved and adopted its most recent UWMP and submitted its 2005 UWMP to the California Department of Water Resources (DWR); and

WHEREAS, the Water Conservation Act of 2009, Water Code section 10608 et seq. (SBX7-7), extended the time by which urban retail water suppliers must adopt 2010 UWMPs to July 1, 2011 and, among other things, established requirements for urban retail water suppliers to prepare urban water use targets in accordance with the goals of SBX7-7 to reduce statewide daily per capita water use by 15 percent by the year 2015 and 20 percent by the year 2020; and

WHEREAS, SBX7-7 was amended in 2010, extending the time by which urban water wholesale suppliers must adopt 2010 UWMPs to July 1, 2011, to permit coordination between urban wholesale water suppliers and urban retail water suppliers; and

WHEREAS, section 10620(d)(1) of the Act encourages urban water suppliers to satisfy the requirements of the Act by participation in area wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use; and

WHEREAS, NCWD, Castaic Lake Water Agency (CLWA), Santa Clarita Water Division (SCWD) and the Valencia Water Company (VWC) collectively referred to as the Water Suppliers, prepared a document labeled "Public Review Draft 2010 Urban Water Management Plan" (Draft 2010 UWMP), upon which Los Angeles County Waterworks District No. 36 (LACWWD #36) participated as a cooperating agency; and

WHEREAS, in accordance with applicable law, including the requirements of the Act and of SBX7-7, the Water Suppliers have prepared the Draft 2010 UWMP and have undertaken certain agency coordination, public notice, public involvement and outreach, public comment, and other procedures in relation to the Draft 2010 UWMP; and

WHEREAS, as authorized by Section 10620(e) of the Act, the Water Suppliers have prepared the Draft 2010 UWMP with their own staff, with the assistance of consulting professionals and in cooperation with other governmental agencies, and have utilized and relied upon industry standards and the expertise of industry professionals in preparing the Draft 2010 UWMP, and have, in part, utilized and relied upon the DWR Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (March 2011) and the DWR Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (For the

Consistent Implementation of the Water Conservation Act of 2009) (February 2011) in preparing the Draft 2010 UWMP; and

WHEREAS, the Water Suppliers began public outreach and community involvement in the preparation of the Draft 2010 UWMP in May 2010, with the first scheduled community workshop, followed by five more community workshops and three public hearings; and

WHEREAS, pursuant to Section 10621(b) of the Act, on March 3, 2011, the Water Suppliers notified the City of Santa Clarita and the Counties of Ventura and Los Angeles that they would be preparing the 2010 UWMP, and that they would be releasing the Draft 2010 UWMP in April 2011; and, in addition the Water Suppliers subsequently met with, consulted with and obtained comments on the 2010 UWMP from the City of Santa Clarita, the United Water Conservation District and the County of Los Angeles; and

WHEREAS, in accordance with applicable law, including Water Code sections 10608.26 and 10642, and Government Code section 6066, the Water Suppliers made the Draft 2010 UWMP available for public inspection, and published notice of the time and place of each joint public hearing on the Draft UWMP; and

WHEREAS, on March 23, 2011, NCWD and CLWA held a joint public hearing, properly noticed pursuant to Section 10642 of the Act and Government Code section 6066, at which time NCWD's Board of Directors reviewed draft sections and tables for inclusion in the Draft 2010 UWMP, and, as part of that review, considered a presentation regarding the Draft 2010 UWMP by staff and consultants, and oral and written public comments; and

WHEREAS, on May 18, 2011, NCWD and CLWA held a second joint public hearing, properly noticed pursuant to Section 10642 of the Act and Government Code section 6066, at which time NCWD's Board considered further oral and written public comments, and responses to those comments by staff and consultants, which included a presentation of the changes that had been made in the Public Review Draft 2010 UWMP; and

WHEREAS, on June 15, 2011, NCWD circulated to each of the members of its Board of Directors a Final Draft 2010 UWMP; and

WHEREAS, on June 22, 2011, CLWA and NCWD held a properly noticed joint public meeting and public hearing to consider adoption of the Final Draft 2010 UWMP, at which time NCWD's Board of Directors considered further oral and written public comments, and responses to those comments by staff and consultants, which included a presentation of the changes that had been made in the Final Draft 2010 UWMP and reviewed and considered adoption of the Final Draft 2010 UWMP; and

WHEREAS, pursuant to Water Code Section 10620(d)(2), the Water Suppliers coordinated the preparation of the Draft 2010 UWMP and Final Draft 2010 UWMP with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies and relevant public agencies, to the extent practicable; and

WHEREAS, pursuant to Water Code Section 10620(f), the Water Suppliers describe in the Draft 2010 UWMP and in the Draft Final 2010 UWMP water management tools and options used by the Water Suppliers which will maximize resources and minimize the need to import water from other regions; and

WHEREAS, pursuant to Water Code Section 10641, the Water Suppliers consulted with and obtained comments from those public agencies or persons with special expertise with respect to demand management methods and techniques; and

WHEREAS, the Water Suppliers have encouraged the active involvement of diverse social, cultural and economic elements of the population within NCWD's service areas and surrounding communities, with regard to the preparation of the Draft UWMP and Final Draft UWMP, allowed input by members of the public and any other interested party regarding all aspects of the Draft 2010 UWMP and Final Draft 2010 UWMP, allowed community input regarding NCWD's implementation plan for complying with SBX7-7, considered the economic impacts of NCWD's implementation plan for complying with SBX7-7 and adopted Method 1 under Water Code section 10608.20(b) for determining its urban water use targets; and

WHEREAS, to assure public participation in the process, the Water Suppliers have exceeded the requirements of the Act, by holding more than one public hearing; and

WHEREAS, the NCWD Board of Directors has considered the public and Board comments made at the three public hearings, as well as all written public comments on the Draft 2010 UWMP and the Final Draft 2010 UWMP distributed to the Board of Directors; and

WHEREAS, the NCWD Board of Directors has carefully reviewed and considered the purposes and requirements of the Act and SBX7-7, the contents of the Final Draft 2010 UWMP, any errata, revisions and modifications made at the hearing, the documentation contained in the administrative record in support of the Final Draft 2010 UWMP, and all public and agency input received with regard to the Final Draft 2010 UWMP, and has determined that the factual analyses and conclusions set forth in the 2010 UWMP are supported by substantial evidence.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of Newhall County Water District do hereby adopt Method 1 under Water Code section 10608.20(b) for determining its urban water use targets, and the Final Draft 2010 UWMP attached hereto as Exhibit "A" and incorporated herein by this reference, including any errata, revisions and modifications made at the hearing, is hereby approved and adopted as NCWD's 2010 Urban Water Management Plan, and ordered filed with the Secretary of the Board; and

RESOLVED FURTHER that the General Manager of the District is hereby authorized and directed to include a copy of this Resolution in the District's 2010 Urban Water Management Plan and, in accordance with Water Code section 10644(a), to file the 2010 Urban Water Management Plan with the California Department of Water Resources, the California State Library, and any city or county within which the District provides water supplies, within thirty (30) days of this adoption date; and

RESOLVED FURTHER that in accordance with Water Code section 10645, the General Manager is hereby authorized and directed to make the 2010 Urban Water Management Plan available for public review during normal business hours at NCWD's administrative offices at 23780 North Pine Street, Santa Clarita, CA, not later than thirty (30) days after filing a copy thereof with the California Department of Water Resources; and

RESOLVED FURTHER that in accordance with Water Code section 10635(b), the General Manager is hereby authorized and directed to provide that portion of the 2010 Urban Water Management Plan prepared pursuant to Water Code section 10635(a) to any city or county

within which the District provides water supplies not later than sixty (60) days after filing a copy thereof with the California Department of Water Resources; and

RESOLVED FURTHER in accordance with the Urban Water Management Planning Act and SBX7-7, including, but not limited to, the District's Water Conservation Programs and its Water Shortage Contingency Plan, the General Manager is hereby authorized and directed to implement the components of the 2010 Urban Water Management Plan; and

RESOLVED FURTHER that the General Manager is authorized and directed to recommend to the Board of Directors additional steps necessary or appropriate to effectively carry out the implementation of the 2010 Urban Water Management Plan, the Urban Water Management Planning Act and SBX7-7.

RESOLVED FURTHER that the General Manager and District staff are hereby authorized and directed to take such other and further actions as may be necessary or appropriate to carry out the purposes of this resolution, the Act and SBX7-7.

PASSED, APPROVED AND ADOPTED at a Special Meeting of the Board of Directors of Newhall County Water District held on June 22, 2011. Resolution No. 2011-10 was adopted by the following vote:

AYES: **Directors** ATKINS, COLLEY, GUTZEIT, MORTENSEN, PLAMBECK

NOES: **Directors** NONE

ABSTAIN: **Directors** NONE

Dan Mortensen, President,
Board of Directors of the
Newhall County Water District

ATTEST:

Karin J. Russell
Secretary of the Board of Directors

EXHIBIT "A"

2010 UWMP
(Attached hereto)

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I, Karin J. Russell, Secretary of the Newhall County Water District, DO HEREBY CERTIFY that the foregoing is full, true and correct copy of Resolution No. 2011-10 of the Board of Directors of Newhall County Water District adopted at a Special Meeting held on June 22, 2011, and that the same has not been amended or repealed.

Karin J. Russell
Secretary of the Board of Directors

DATED: 6-22-2011 (SEAL)

VALENCIA WATER COMPANY
BOARD OF DIRECTORS MEETING (JUNE 27, 2011)
RESOLUTION ADOPTING
THE 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Urban Water Management Planning Act, Water Code Section 10610, et seq. (the Act) mandates that every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and adopt an updated urban water management plan (UWMP) at least once every five years on or before December 31, in years ending five and zero; and

WHEREAS, the Valencia Water Company (VWC) is an urban water supplier for purposes of the Act, and in 2005 approved and adopted its most recent UWMP and submitted its 2005 UWMP to the California Department of Water Resources (DWR); and

WHEREAS, the Water Conservation Act of 2009, Water Code Section 10608 et seq. (SBX7-7), extended the time by which urban retail water suppliers must adopt 2010 UWMPs to July 1, 2011 to permit coordination between urban wholesale water suppliers and urban retail water suppliers and, among other things, established requirements for urban retail water suppliers to prepare urban water use targets in accordance with the goals of SBX7-7 to reduce statewide daily per capita water use by 15 percent by the year 2015 and 20 percent by the year 2020; and

WHEREAS, the VWC is an "urban retail water supplier" for purposes of SBX7-7 because it directly provides potable municipal water to more than 3,000 end users; and

WHEREAS, Section 10620(d)(1) of the Act encourages urban water suppliers to satisfy the requirements of the Act by participation in area wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use; and

WHEREAS, Valencia Water Company, in cooperation with Castaic Lake Water Agency (CLWA), the CLWA Santa Clarita Water Division (SCWD), and Newhall County Water District (NCWD), prepared a document labeled "Public Review Draft 2010 Urban Water Management Plan" for the CLWA service area (Draft 2010 UWMP), upon which Los Angeles County Waterworks District No. 36 (LACWWD #36) participated as a cooperating agency; and

WHEREAS, in accordance with applicable law, including the requirements of the Act and of SBX7-7, CLWA has prepared the Draft 2010 UWMP and has undertaken certain agency coordination, public notice, public involvement and outreach, public comment, and other procedures in relation to the Draft 2010 UWMP; and

WHEREAS, as authorized by Section 10620(e) of the Act, CLWA and the retail purveyors have prepared the Draft 2010 UWMP with their own staff, with the assistance of consulting professionals and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its Draft 2010 UWMP, and have, in part, utilized and relied upon the DWR Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (March 2011) and the DWR Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (For the Consistent Implementation of the Water Conservation Act of 2009) (February 2011) in preparing the Draft 2010 UWMP; and

WHEREAS, CLWA and the retail purveyors began the public outreach and community involvement in the preparation of the Draft 2010 UWMP in May 2010, with the first scheduled community

workshop, followed by five more community workshops and three public hearings; and

WHEREAS, pursuant to Section 10621(b) of the Act, on March 3, 2011, CLWA notified the City of Santa Clarita and the Counties of Ventura and Los Angeles that it would be preparing the 2010 UWMP, and that the Draft 2010 UWMP would be released in April 2011, and subsequently met with, consulted with and obtained comments from the City of Santa Clarita, the United Water Conservation District and the County of Los Angeles; and

WHEREAS, in accordance with applicable law, including Water Code Sections 10608.26 and 10642, and Government Code Section 6066, the Draft 2010 UWMP was made available for public inspection, and notice was provided of the time and place of each joint public hearing on the Draft UWMP; and

WHEREAS, on March 23, 2011, CLWA and NCWD held a joint public hearing, properly noticed pursuant to Section 10642 of the Act and Government Code Section 6066, at which time CLWA's Board of Directors reviewed draft sections and tables for inclusion in the Draft 2010 UWMP, and, as part of that review, considered a presentation regarding the Draft 2010 UWMP by its staff and consultants, and oral and written public comments; and

WHEREAS, on May 18, 2011, CLWA and NCWD held a second joint public hearing, properly noticed pursuant to Section 10642 of the Act and Government Code Section 6066, at which time CLWA's Board of Directors considered further oral and written public comments, and responses to those comments by its staff and consultants, which included a presentation of the changes that had been made in the Public Review Draft 2010 UWMP; and

WHEREAS, on June 3, 2011, the VWC Board Secretary sent each Board of Director the Draft 2010 UWMP, Public Review Draft, dated April 2011, along with six public workshop presentations, two public hearing presentations and transcripts and eight letters/emails received to date from the public commenting on the Plan. At the time, the Secretary informed the Board that a secondary transmittal of information would be forthcoming on June 24, 2011;

WHEREAS, on June 15, 2011, CLWA circulated to each of the members of its Board of Directors a Final Draft 2010 UWMP; and

WHEREAS, on June 22, 2011, CLWA and NCWD held a properly noticed joint public meeting and public hearing to consider adoption of the Final Draft 2010 UWMP, at which time CLWA's Board of Directors considered further oral and written public comments, and responses to those comments by its staff and consultants, which included a presentation of the changes that had been made in the Final Draft 2010 UWMP, and reviewed and considered adoption of the Final Draft 2010 UWMP; and

WHEREAS, on June 24, 2010, the VWC Board received and reviewed a second transmittal, dated June 24, 2011, with additional information about the 2010 UWMP process, further 2010 UWMP documents, and the 2010 UWMP timeline;

WHEREAS, pursuant to Water Code Section 10620(d)(2), VWC coordinated the preparation of the Draft 2010 UWMP and Final Draft 2010 UWMP with CLWA and other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies and relevant public agencies, to the extent practicable; and

WHEREAS, pursuant to Water Code Section 10620(f), the Draft 2010 UWMP and in the Draft Final 2010 UWMP describe the water management tools and options used by CLWA and the retail purveyors that will maximize resources and minimize the need to import water from other regions; and

WHEREAS, pursuant to Water Code Section 10641, CLWA and the retail purveyors consulted with and obtained comments from those public agencies or persons with special expertise with respect to demand management methods and techniques; and

WHEREAS, CLWA and the retail purveyors have encouraged the active involvement of diverse social, cultural and economic elements of the population within the CLWA service area with regard to the preparation of the Draft UWMP and Final Draft UWMP, allowed input by members of the public and any other interested party regarding all aspects of the Draft 2010 UWMP and Final Draft 2010 UWMP, allowed community input regarding the implementation plan for complying with SBX7-7, considered the economic impacts of the implementation plan for complying with SBX7-7 and adopted Method 1 under Water Code Section 10608.20(b) for determining its urban water use targets; and

WHEREAS, to assure public participation in the process, CLWA and the retail purveyors have exceeded the requirements of the Act, by holding more than one public hearing; and

WHEREAS, the VWC Board of Directors has considered the public and Board comments made at the three public hearings, as well as all written public comments on the Draft 2010 UWMP and the Final Draft 2010 UWMP distributed to the Board of Directors; and

WHEREAS, the VWC Board of Directors has carefully reviewed the Final Draft 2010 UWMP, any errata, revisions and modifications made at the final public hearing; and

WHEREAS, the VWC Board of Directors has carefully reviewed and considered the purposes and requirements of the Act and SBX7-7, the contents of the Final Draft 2010 UWMP, any errata, revisions and modifications made at the final public hearing, the documentation contained in the administrative record in support of the Final Draft 2010 UWMP, and all public and agency input received with regard to the Final Draft 2010 UWMP, and has determined that the factual analyses and conclusions set forth in the 2010 UWMP are supported by substantial evidence.

NOW THEREFORE, BE IT RESOLVED that the VWC Board of Directors does hereby adopt Method 1 under Water Code Section 10608.20(b) for determining urban water use targets, and the Final Draft 2010 UWMP, incorporated herein by this reference, including any errata, revisions and modifications made at the final public hearing, is hereby approved and adopted as the 2010 Urban Water Management Plan, and filed with the Secretary of the Board; and

RESOLVED FURTHER that the General Manager is hereby authorized and directed to include a copy of this Resolution in the 2010 Urban Water Management Plan and, in accordance with Water Code Section 10644(a), to file the 2010 Urban Water Management Plan with the California Department of Water Resources, the California State Library, and any city or county within which the Valencia Water Company provides water supplies within thirty (30) days of this adoption date; and

RESOLVED FURTHER that in accordance with Water Code Section 10645, the General Manager is hereby authorized and directed to make the 2010 Urban Water Management Plan available for public review during normal business hours at VWC's offices not later than thirty (30) days after filing a copy thereof with the California Department of Water Resources; and

RESOLVED FURTHER that in accordance with Water Code Section 10635(b), the General Manager is hereby authorized and directed to provide that portion of the 2010 Urban Water Management Plan prepared pursuant to Water Code Section 10635(a) to any city or county within which the Valencia Water Company provides water supplies not later than sixty (60) days after filing a copy thereof with the California Department of Water Resources; and

RESOLVED FURTHER in accordance with the Act and SBX7-7, including, but not limited to, the Water Conservation Programs and the Water Shortage Contingency Plan, the General Manager is hereby authorized and directed to implement the components of the 2010 Urban Water Management Plan; and

RESOLVED FURTHER that the General Manager is authorized and directed to recommend to the Board of Directors additional steps necessary or appropriate to effectively carry out the implementation of the 2010 Urban Water Management Plan, the Act, and SBX7-7.

I, the undersigned, hereby certify that I am the duly appointed Secretary of the Valencia Water Company, and that at a regular meeting of the Board of Directors of said Company held on Monday, June 27, 2011, the foregoing Resolution was duly and regularly adopted by said Board, and that said resolution has not been rescinded or amended since the date of its adoption, and that it is in full force and effect.

July 8, 2011

Greg Milleman

Greg Milleman, Secretary

Section 1: Introduction

1.1 Overview

This volume presents the Urban Water Management Plan 2010 (Plan) for the Castaic Lake Water Agency (Agency, CLWA) service area, which includes four retail water purveyors. These retail water purveyors are the Santa Clarita Water Division of CLWA, Newhall County Water District, Valencia Water Company and Los Angeles County Waterworks District 36. Together CLWA and the purveyors are the Santa Clarita Valley's 'water suppliers'. This chapter describes the general purpose of the Plan, discusses Plan implementation and provides general information about CLWA, the retail purveyors and service area characteristics.

1.2 Purpose

An Urban Water Management Plan (UWMP) is a planning tool that generally guides the actions of urban water suppliers. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan include a section which "…describes the opportunities for exchanges or water transfers on a short-term or long-term basis." (Wat. Code, § 10631, subd. (d)). The identification of such opportunities and the inclusion of those opportunities in a plan's general water service reliability analysis neither commits an urban water supplier to pursue a particular water exchange/transfer opportunity, nor precludes it from exploring exchange/transfer opportunities never identified in its plan. Before an urban water supplier is able to implement any potential future sources of water supply identified in a plan, detailed project plans are prepared and approved, financial and operational plans are developed and all required environmental analysis is completed.

"A plan is intended to function as a planning tool to guide broad-perspective decision making by the management of water suppliers." (*Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal. App. 4th 33, 39.) It should not be viewed as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty and planning projections may change in response to a number of factors. "[L]ong-term water planning involves expectations and not certainties. Our Supreme Court has recognized the uncertainties inherent in long-term land use and water planning and observed that the generalized information required . . . in the early stages of the planning process are replaced by firm assurances of water supplies at later stages." (*Id.*, at 41.) From this perspective, it is appropriate to look at the UWMP as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is the reasonable probable yield from them?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these "framework" questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands.

The water suppliers will explore enhancing basic supplies from traditional sources such as the State Water Project (SWP) as well as other options. These include groundwater extraction, water exchanges and transfers, water conservation, recycling, brackish water desalination and water banking/conjunctive use. Specific planning efforts will be undertaken in regard to each option, involving detailed evaluations of how each option would fit into the overall supply/demand framework, how each option would impact the environment and how each option would affect customers. The objective of these more detailed evaluations would be to find the optimum mix of conservation and supply programs that ensure that the needs of the customers are met.

The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five year increments. (CLWA and the purveyors are going beyond the requirements of the Act by developing a plan which spans forty years.)
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry and multiple-dry years.
- Implements conservation and efficient use of urban water supplies.

Additionally, newly passed State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7), was signed into law in November 2009, which calls for progress towards a 20 percent reduction in per capita water use statewide by 2020. As a result, the legislation now mandates each urban retail supplier to develop and report a water use target in the retailer's 2010 UWMP. The legislation further requires that retailers report an interim 2015 water use target, their baseline daily per capita use and 2020 compliance daily per capita use, along with the basis for determining those estimates.

SBX7-7 provides four possible methods for an urban retail water supplier to use to calculate its water use target. The California Department of Water Resources (DWR) has also developed methodologies for calculating base daily per capita water use; baseline commercial, industrial and institutional water use; compliance daily per capita water use; gross water use; service area population; indoor residential water use and landscape area water use.

Also of importance is Assembly Bill (AB) 1420. AB 1420, passed in 2007 and in effect as of January 2009, changes the funding eligibility requirements of Section 10631.5 of the Water Code. For any urban water supplier to be eligible for grant or loan funding administered by DWR, the State Water Resources Control Board (SWRCB) or the Bay-Delta Authority (such as those funding programs Propositions 50 and 84), the supplier must show implementation of water use efficiency demand management measures/best management practices (DMMs/BMPs) listed and described in the Act and the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), or show the schedules and budgets by which the supplier will begin implementing the DMMs/BMPs. Any supplier not implementing the measures based on cost-effectiveness must submit proof showing why the measures are not cost-effective. Tables ensuring compliance with AB 1420 are provided in Appendix E.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A.

It is the stated goal of CLWA and the retail water purveyors to deliver a reliable and high quality water supply to their customers, even during dry periods. Based on conservative water supply and demand assumptions over the next forty years in combination with conservation of non-essential demand during normal water years, the UWMP successfully achieves this goal.

1.3 Implementation of the Plan

CLWA has a contract with the State of California, through DWR, to acquire and distribute SWP water to its four local retail water purveyors in the Santa Clarita Valley: CLWA Santa Clarita Water Division (SCWD), Newhall County Water District (NCWD), Valencia Water Company (VWC) and Los Angeles County Waterworks District No. 36 (LACWWD 36). This Plan is required for CLWA and three of the purveyors, SCWD, NCWD and VWC. The fourth purveyor, LACWWD 36, is not required to prepare an UWMP because the District does not provide water to more than 3,000 customers or supply more than 3,000 acre-feet (AF) of water annually; however, LACWWD 36 participated in the development of the Plan on an “ad-hoc” basis. This subsection provides the cooperative framework within which the Plan will be implemented including agency coordination, public outreach and resources maximization.

1.3.1 Joint Preparation of the Plan

Water suppliers are permitted by the State to work together to develop a cooperative regional plan for the CLWA service area. This approach has been adopted by the water suppliers in the Santa Clarita Valley (Valley), which are jointly sponsoring the current Plan. Water resource specialists with expertise in water resource management were retained to assist the local water suppliers in preparing the details of the Plan. Agency coordination for this Plan is summarized in Table 1-1.

TABLE 1-1
AGENCY COORDINATION SUMMARY

	Participated in UWMP Development	Received Copy of Draft	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Notice of Intent to Adopt	Invited/Not Involved
Aquilar Landscape				X			
Atkins Environmental Help				X			
Assembly Member Audra Strickland (representatives)							X
Assembly Member Cameron Smyth (representatives)				X			
Assembly Member Jeff Gorell (representatives)				X			
Associated Builders and Contractors of CA				X			
Building Industry Association – Los Angeles/Ventura Chapter				X			
Burbank Water and Power				X			
California Department of Water Resources (SoCal; Glendale; retired)				X	X		
Castaic Lake Water Agency	X			X			
Castaic Area Town Council				X			
City of Los Angeles				X			
City of Santa Clarita Department of Planning and Building Services		X		X		X	
City of Santa Clarita Intergovernmental Relations				X		X	
CLWA Santa Clarita Water Division	X			X			
College of the Canyons				X			
Congressman Howard McKeon (representatives)				X			
Friends of the Santa Clara River			X				X
Grass Is Greener Landscape Design				X			
Impact Sciences				X	X		
Integrated Property Services Group, Inc.				X			
Los Angeles County Flood Control Department				X			
Los Angeles County Department of Public Works				X			
Los Angeles County Department of Regional Planning		X		X	X	X	
Los Angeles County LAFCO		X		X			
Los Angeles County Supervisor Mike Antonovich (representatives)				X		X	

	Participated in UWMP Development	Received Copy of Draft	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Notice of Intent to Adopt	Invited/Not Involved
Los Angeles County Waterworks District 36	X			X			
Metropolitan Water District of Southern California					X		
Newhall County Water District	X			X			
Santa Clarita Organization for Planning the Environment – SCOPE			X	X			
Santa Clarita Valley Chamber of Commerce				X			
Santa Clarita Valley Fair Elections Committee			X	X			
Santa Clarita Valley Residents Mr. and Mrs. Dunn			X	X			
Santa Clarita Valley Resident Mr. Naoum			X				
Santa Clarita Valley Resident Ms. Nolltemeyer			X	X			
Santa Clarita Valley Sanitation District				X	X		
Santa Clarita Valley Well Owners Association							X
Sierra Club Angeles Chapter			X				
Southern California Association of Governments							X
State Senator George Runner (representatives)				X			
State Senator Sharon Runner (representatives)				X			
State Senator Tony Strickland							X
Sutters Home Owners Association				X			
United Water Conservation District		X			X		
Valley Industrial Association of Santa Clarita							X
Valencia Water Company	X			X			
Ventura County LAFCO		X					
Ventura County Resource Management Agency		X				X	X
Vista Ridge Homeowners Association				X			
Waterwise				X			
West Ranch Town Council				X			
Whittaker Bermite Citizens Advisory Group			X	X			

1.3.2 Plan Adoption

CLWA and the retail purveyors began preparation of this Plan for the CLWA service area in November 2009. The final draft of the Plan was adopted by the Agency Board on June 22, 2011 and submitted to DWR within thirty days of Board approval. NWCD's Board adopted the final draft of the Plan on June 22, 2011. VWC's Board adopted the final draft of the Plan on June 27, 2011. This plan includes all information necessary to meet the requirements of Water Conservation Act of 2009 (Wat. Code, §§ 10608.12-10608.64) and the Urban Water Management Planning Act (Wat. Code, §§ 10610-10656).

1.3.3 Public Outreach

The water suppliers have encouraged community participation in water planning. For the current Plan, five public workshop sessions were held to solicit input on the Draft Plan before its adoption. Interested groups were informed about the development of the Plan along with the schedule of public activities. Notices of public meetings were published in the local press and at the water supplier websites. Copies of the Draft Plan were made available at the water suppliers' offices and websites, local public libraries and sent to the City of Santa Clarita, the County of Los Angeles and the County of Ventura, as well as to interested parties as identified in Table 1-1. The water suppliers also convened meetings with various interests to gather data concerning planned development and the probable implementation of approved development. Such informed data gathering on important issues is a means of checking the short-term "reality" of official projections and understanding the concerns of various groups.

CLWA contracted with a local public relations firm to coordinate preparation of the Plan with the local community and stakeholders. CLWA notified the cities and counties within its service area of the opportunity to provide input regarding the Plan. Table 1-2 presents a timeline for public participation during the development of the Plan. A copy of the public outreach materials, including paid advertisements, newsletter covers, website postings and invitation letters are attached in Appendix B.

TABLE 1-2
PUBLIC PARTICIPATION TIMELINE

Public Workshops and Hearings	Date	Public Participation Task
1st Public Workshop	May 25, 2010	Presented UWMP requirements and Plan outline
2nd Public Workshop	July 27, 2010	Progress update on UWMP requirements and process, discuss supplies
Presentation to the Upper Santa Clara River IRWMP Stakeholder Group	November 9, 2010	UWMP requirements, process, preliminary SBX7-7 calculations
3rd Public Workshop	November 16, 2010	Discussed Santa Clarita Valley supplies and demands, reliability analysis and SBX7-7 calculations
4th Public Workshop	January 25, 2011	Discussed supply and demand analysis and SBX7-7 calculations
5th Public Workshop	March 8, 2011	Discussed supply and demand analysis
1st Public Hearing	March 23, 2011	Presented overview of Draft 2010 UWMP
2nd Public Hearing	May 18, 2011	Discussed comments on Public Draft 2010 UWMP
3rd Public Hearing	June 22, 2011	Discussed comments on Public Draft 2010 UWMP
Plan Adoption	June 22, 2011	Adoption Hearing for CLWA and NCWD for Final Draft 2010 UWMP
Plan Adoption	June 27, 2011	Adoption of Final Draft 2010 UWMP by VWC's Board of Directors
Plan Submittal	July 21, 2011	File 2010 UWMP with DWR within thirty days of adoption

The components of public participation include:

<u>Local Media</u>

- Paid advertisements in local newspapers
- Meeting(s) with local editorial boards (*The Signal*)

<u>Community-Based Outreach</u>

- Building Industry Association
- Castaic Town Council
- Santa Clarita Valley Chamber of Commerce
- Friends of the Santa Clara River
- Santa Clarita Valley Well Owners Association
- Santa Clarita Organization for Planning the Environment
- Sierra Club
- Valley Industrial Association of Santa Clarita Valley
- West Ranch Town Council

Water Suppliers Public Participation

- Presentations to NCWD Board
- Presentations to CLWA Board

City/County Outreach

- Meeting with City of Santa Clarita Planning Division
- Meeting with Los Angeles County Department of Regional Planning
- Meeting with Supervisor Antonovich representatives Rosalind Wayman and Edel Vizcarra

Public Availability of Documents

- Water suppliers' offices and websites
- City Hall
- Local libraries

1.3.4 Resources Maximization

Several documents were developed to enable the water suppliers to maximize the use of available resources and minimize use of imported water, including the 2005 CLWA UWMP, CLWA's 2009 Water Supply Reliability Plan Update, the 2008 Integrated Regional Water Management Plan for the Upper Santa Clara River, the 2009 Santa Clarita Valley Water Report, DWR's 2009 State Water Project Delivery Reliability Report, the 2002 Draft Recycled Water Master Plan, the 2009 Basin Yield Analysis by Luhdorff and Scalmanini Consulting Engineers and GSI Water Solutions, Inc., the 2010 Data Document[1] and the 2003 Groundwater Management Plan (GWMP). Chapter 3 of this Plan describes in detail the water resources available to CLWA and the retail purveyors for the forty-year period covered by the Plan. A complete reference list is provided in Section 9 of this Plan.

1.4 Water Suppliers of the Santa Clarita Valley

1.4.1 Castaic Lake Water Agency

CLWA was formed in 1962 for the purpose of contracting with DWR to acquire and distribute imported SWP water to the water purveyors in the Valley. CLWA serves an area of 195 square miles in Los Angeles and Ventura Counties.

Adequate planning for, and the procurement of, a reliable water supply is a fundamental function of CLWA. CLWA obtains its water supply for wholesale purposes principally from the

[1] CLWA regularly updates its Data Document as the basis for establishing its facility capacity fees. Several significant developments since the last Data Document update in 2008 were incorporated into the 2010 Update: water conservation legislation that could significantly affect water demand projections and the cost of water conservation programs; the need to coordinate water supply and demand projections with the preparation of the 2010 Urban Water Management Plan; establishment of Total Maximum Daily Load allocations for the Santa Clara River that could affect recycled water availability; judicial and regulatory determinations for the Delta that affect SWP reliability; engineering studies completed since the 2008 Data Document, particularly those related to emergency and operating storage, recycled water, and transmission system improvements; and updated cost allocation issues from the 2008 Document.

SWP and currently has a Water Supply Contract with DWR for 95,200 acre-feet per year (AFY) of SWP Table A Amount[2]. The maximum annual Table A Amount in CLWA's SWP Water Supply Contract with DWR was originally 23,000 AF, but was amended to 41,500 AF in 1966. In 1991 CLWA purchased 12,700 AF of annual Table A Amount from a Kern County water district and in 1999 CLWA purchased 41,000 AF of annual Table A Amount from another Kern County water district, for the current total of 95,200 AFY. CLWA also imports water from two other water districts in Kern County. Under the 2007 Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista, BVWSD) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo, RRBWSD), Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within the Rosedale-Rio Bravo's service area on an ongoing basis. CLWA receives 11,000 AF of these supplies annually through either exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal. All imported water is delivered to Castaic Lake through SWP facilities. From Castaic Lake, which serves as the terminal reservoir of the SWP's West Branch, the water is treated at either CLWA's Earl Schmidt Filtration Plant or Rio Vista Water Treatment Plant and delivered to the retail water purveyors through transmission lines owned and operated by CLWA.

CLWA is able to meet approximately half of the Valley's urban demand with imported water. However, the availability of SWP supply is variable. It fluctuates from year to year depending on precipitation, regulatory restrictions, legislative restrictions and operational conditions and is subject to severe curtailment during dry years. Of particular concern is the recent (2007) U.S. District Court ruling whereby the SWP was held in violation of the federal Endangered Species Act due to potential pumping impacts on populations of the Delta smelt, a fish species living in the Sacramento-San Joaquin Delta, resulting in the order to curb water imports from the Delta by up to 35 percent from the SWP and the Central Valley Project. A similar court decision was rendered in 2009 involving endangered salmon. The results of these impacts on environmental resources in the Delta, when combined with recent socioeconomic conditions and hydrology changes, have already reduced the utilization of SWP and other imported supplies in the Region from a high in 2004 of about 47,500 AF to approximately 38,700 AF in 2009. Recently (December 14, 2010), the court overturned these rulings and has required new analysis of Delta pumping requirements. While the results are unknown at this time, it is expected that some level of SWP pumping restrictions will continue into the future. Further, in June 2008, Governor Arnold Schwarzenegger declared California to be in a statewide drought condition, and called for a reduction in statewide water uses by 20 percent by the year 2020, which resulted in the passage of SBX7-7 in late 2009.

CLWA and the retail purveyors mainly meet the balance of their demands with local groundwater and a small amount of recycled water. CLWA has evaluated the long-term water needs (water demand) within its service area based on applicable county and city land use plans and has compared these needs against existing and potential water supplies. Results indicate that as CLWA's water requirements utilize increased proportions of its SWP Table A Amount, conjunctive use, water conservation, water transfers, recycled water and water banking are becoming increasingly more important water management elements for CLWA's long-term water supply strategy.

[2] Table A is a schedule of annual water amounts as set forth in long-term SWP delivery contracts. Table A defines the annual volume of water that could be delivered to a SWP contractor in a given year under regular contract provisions without consideration of surplus SWP water deliveries or other supplies available to a SWP contractor.

Since the preparation of the 2005 Plan, DWR has prepared updates to the SWP Reliability Report in 2007 and 2009. Also, the water demand projections within CLWA's service area have been updated based on detailed information provided by CLWA's retail purveyors. In addition, based on DWR estimates of SWP supply reliability, CLWA has developed additional water supplies as well as capacity in groundwater banks. Together with its SWP Table A supply and the flexible storage allowed under the Monterey Amendments to the SWP Water Supply Contracts, these additional water management strategy elements have created a series of water management options that are addressed in this UWMP Update.

1.4.2 Retail Water Purveyors

Four retail purveyors provide water service to most residents of the Valley.

1. LACWWD 36's service area includes the Hasley Canyon area in the unincorporated community of Val Verde. During most years, the District obtains its water supply from CLWA.

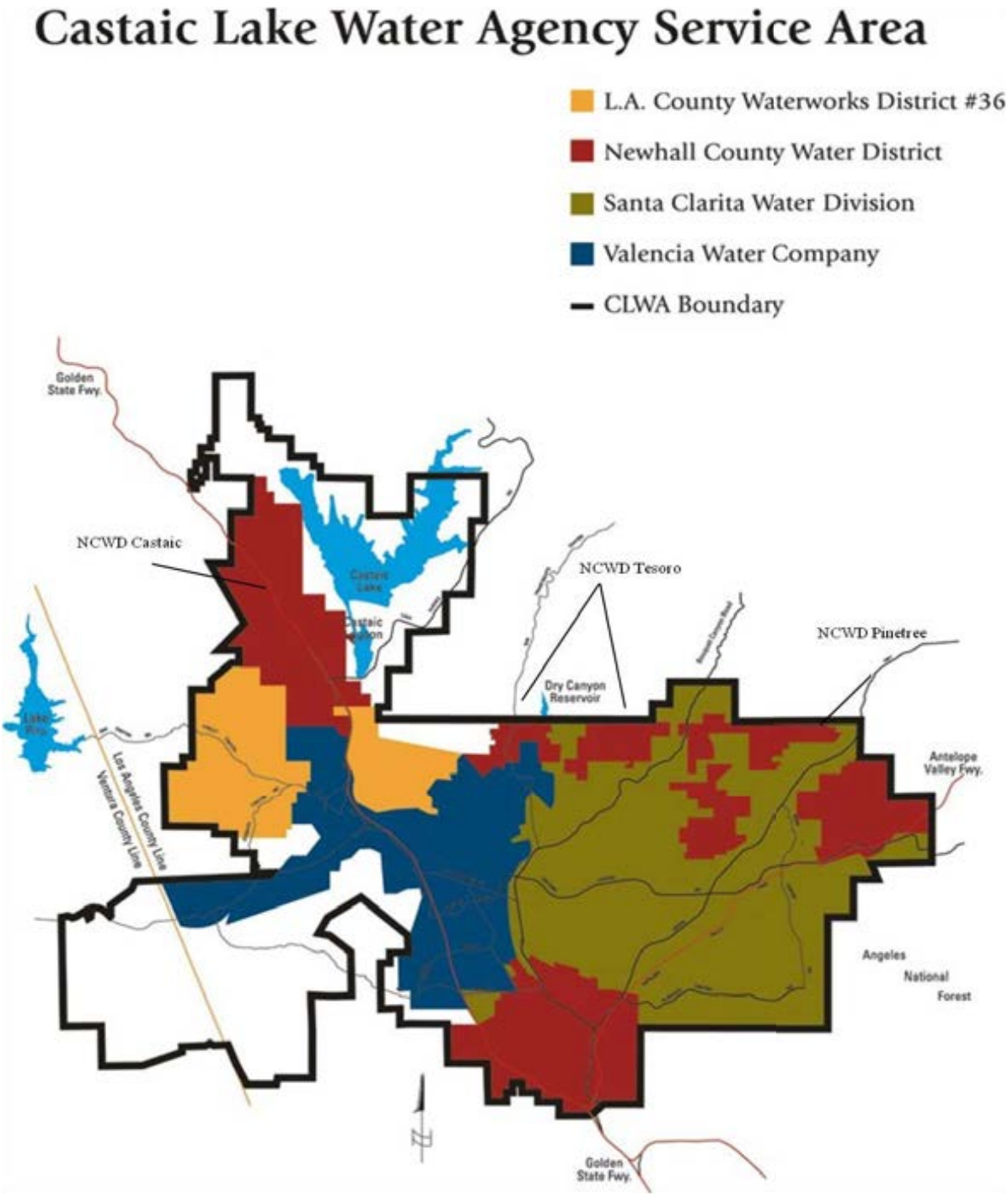
2. NCWD's service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Castaic, Newhall, Valencia and Canyon Country. The District supplies water from local groundwater and CLWA imported water.

3. SCWD's service area includes portions of the city of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Canyon Country, Newhall and Saugus. SCWD supplies water from local groundwater and CLWA imported water.

4. VWC's service area includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Valencia, Stevenson Ranch and portions of Castaic, Saugus and Newhall. VWC supplies water from local groundwater, CLWA imported water and recycled water.

The service area for CLWA and the retail water purveyors is shown on Figure 1-1.

FIGURE 1-1


Castaic Lake Water Agency Service Area
L.A. County Waterworks District #36
Newhall County Water District
Santa Clarita Water Division
Valencia Water Company
CLWA Boundary
Golden State Fwy.
NCWD Castaic
NCWD Tesoro
NCWD Pinetree
Dry Canyon Reservoir
Antelope Valley Fwy.
Los Angeles County Line
Ventura County Line
Angeles National Forest
Golden State Fwy.

The four retail purveyors – (1) SCWD, (2) NCWD, (3) VWC and (4) LACWWD 36 – deliver these waters to primarily municipal and industrial (M&I) users within the Valley. Together, as shown below in Table 1-3, the purveyors provide water to nearly 70,000 service connections (2009 Santa Clarita Valley Water Report, May 2010).

TABLE 1-3
RETAIL WATER SERVICE CONNECTIONS

Retail Water Purveyor	Connections
LACWWD 36	1,400
NCWD	9,600
SCWD	28,700
VWC	30,000
Total Connections	**69,700**

Source: 2009 Santa Clarita Valley Water Report (May 2010)

1.5 Climate

The climate in CLWA's service area is generally semi-arid and warm. Summers are dry with temperatures as high as 110°F. Winters are somewhat cool with temperatures as low as 20°F. Average rainfall since 1980 is about 17.3 inches per year in the flat areas and about 25 to 30 inches in the mountains. The region is subject to wide variations in annual precipitation and also experiences periodic wildfires. The region's average climate conditions are presented in Tables 1-4 and 1-5.

TABLE 1-4
CLIMATE DATA FOR THE SANTA CLARITA VALLEY

Month	Standard Monthly Avg. ETo (in.)	Avg. Max. Temperature (Fahrenheit)
Jan	3.43	65.4
Feb	3.08	67.7
Mar	5.6	74.6
Apr	6.5	79.4
May	7.94	85.5
Jun	8.36	90.3
Jul	9.15	95.8
Aug	8.76	95.5
Sep	6.75	88.7
Oct	5.24	79.5
Nov	4.03	73.9
Dec	2.58	64.3
Annual	**71.42**	**80.0**

Source: California Irrigation Management System (CIMIS) data provided from Santa Clarita Station No. 204, Los Angeles region, January 2007 to December 2010 http://wwwcimis.water.ca.gov/cimis/welcome.jsp.
ETo = evapotranspiration

TABLE 1-5
ANNUAL RAINFALL RECORD FOR THE SANTA CLARITA VALLEY

Year	Annual Rainfall (in.)	Year	Annual Rainfall (in.)
1980	24.3	1995	29.2
1981	13.4	1996	15.8
1982	20.2	1997	7.1
1983	39.1	1998	28.2
1984	12.9	1999	9.0
1985	8.4	2000	13.6
1986	18.0	2001	18.8
1987	14.5	2002	7.8
1988	16.9	2003	15.6
1989	7.6	2004	22.8
1990	7.0	2005	37.2
1991	17.2	2006	13.9
1992	32.0	2007	5.8
1993	22.1	2008	18.2
1994	10.3	2009	11.6
		Average	**17.3**

Source: Data provided from rain gage Newhall-Soledad 32c, January 1980 to January 2009

1.6 Potential Effects of Climate Change

A topic of growing concern for water planners and managers is climate change and the potential impacts it could have on California's future water supplies. Climate change models have predicted that potential effects from climatic changes will result in increased temperature, reduction in Sierra Nevada snowpack depth, early snow melt and a rise in sea level.

In June 2005, Governor Arnold Schwarzenegger issued Executive Order S-3-05, which requires biennial reports on climate change impacts in several areas, including water resources. The Climate Action Team (CAT) was formed in response to Executive Order S-3-05. To help unify analysis across topic areas, the CAT worked with scientists from the California Applications Program's California Climate Change Center to select a set of future climate projections to be used for analysis. In the assessment *"Using Future Climate Projections to Support Water Resources Decision Making in California,"* the CAT selected six different global climate change models to evaluate climate change impacts, assuming two different greenhouse gas emission levels (a high end and a low end), for a total of 12 scenarios. The results of the study indicated that climate change has already been observed, in that in the last 100 years air temperatures have risen about one degree Fahrenheit and there has been a documented greater variance in precipitation, with greater extremes in both heavy flooding and severe droughts.

In July 2006, DWR issued "*Progress on Incorporating Climate Change into Management of California's Water Resources*," as required by Executive Order S-3-05. That report demonstrated how various analytical tools could be used to address issues related to climate change. The report presents analysis results showing potential impacts on SWP operations, including reservoir inflows, delivery reliability, and average annual carryover storage, as well as many other operational parameters. Some of the main impacts include changes to south-of-Delta SWP deliveries (from an increase of about one percent in a wetter climate change scenario to about a ten percent reduction for a drier scenario), increased winter runoff and lower

SWP allocations in the three driest scenarios, lower carryover storage in drier scenarios and higher carryover storage in the wetter scenario.

In the 2009 update of the DWR *California Water Plan*, multiple scenarios of future climate conditions are evaluated. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. The *California Water Plan* identifies the following probable impacts due to changes in temperature and precipitation:

- Decrease in snowpack, which is a major part of annual water storage, due to increasing winter temperatures.
- More winter runoff and less spring/summer runoff due to warmer temperatures.
- Greater extremes in flooding and droughts.
- Greater water demand for irrigation and landscape water due to increased temperatures and their impacts on plant water needs.
- Increased sea level rise, further endangering the functions of the SWP, which can depend on movement of water through the low-lying channels of the low-lying Sacramento-San Joaquin Delta. Sea level rise could also require the SWP to release additional storage water to avoid sea water intrusion into the Delta.

In its *State Water Project Delivery Reliability Report (Reliability Report)* (2009), DWR included the potential effects of climate change in its analysis of SWP delivery reliability under future conditions. For that report, DWR used a single climate change scenario, selecting a scenario with median effects out of a number of climate change scenarios it analyzed in 2009.

Even without population changes, water demand could increase. Precipitation and temperature influence water demand for outdoor landscaping and irrigated agriculture. Outdoor water use is a large component of Santa Clarita Valley water demands. Lower spring rainfall increases the need to apply irrigation water. Further, warmer temperatures increase crop evapotranspiration, which increases water demand.

These effects and their potential to impact the supplies available to the Santa Clarita Valley have been evaluated indirectly in DWR's *Reliability Report*, and their potential to impact demand is considered in CLWA's assessment of demands in Chapter 2 of this UWMP.

Section 2: Water Use

2.1 Overview

This chapter describes historic and current water usage and the methodology used to project future demands within CLWA's service area. Water usage is divided into sectors such as residential, industrial, commercial, landscape, agricultural, and other purposes. To undertake this evaluation, existing land use data and new housing construction information were compiled from each of the retail water purveyors and projections evaluated from each retailer's master planning documents. This information was then compared to historical trends for new water service connections and customer water usage information. In addition, weather and water conservation effects on historical water usage were considered in the evaluation.

Several factors can affect demand projections, including:

- Land use revisions
- New regulations
- Consumer choice
- Economic conditions
- Transportation needs
- Highway construction
- Environmental factors
- Conservation programs
- Building and plumbing codes

The foregoing factors affect the amount of water needed, as well as the timing of when it is needed. During an economic recession, there is a major downturn in development and a subsequent slowing of the projected demand for water. The projections in this Plan do not attempt to forecast recessions or droughts. Likewise, no speculation is made about future building and plumbing codes or other regulatory changes. However, the projections do include water conservation consistent with new legislative requirements calling for a 20 percent reduction in per capita demand by 2020 (SBX7-7).

An analysis was performed that combined growth projections with water use data to forecast total water demand in future years. Water uses were broken out into specific categories and assumptions made about each to more accurately project future use. Three separate data sets were collected and included in the model: historical water use by land use type, current population and projected population.

2.2 Demographics

Water service is provided to residential, commercial, industrial, institutional, recreational, and agricultural customers and for environmental and other uses, such as fire protection and landscaping.

The total demand trend on water supplies is expected to continue to rise within the Valley area (along with most of California) because of population, economic activity, environmental and water quality needs and regulatory requirements.

2.3 Historical Water Use

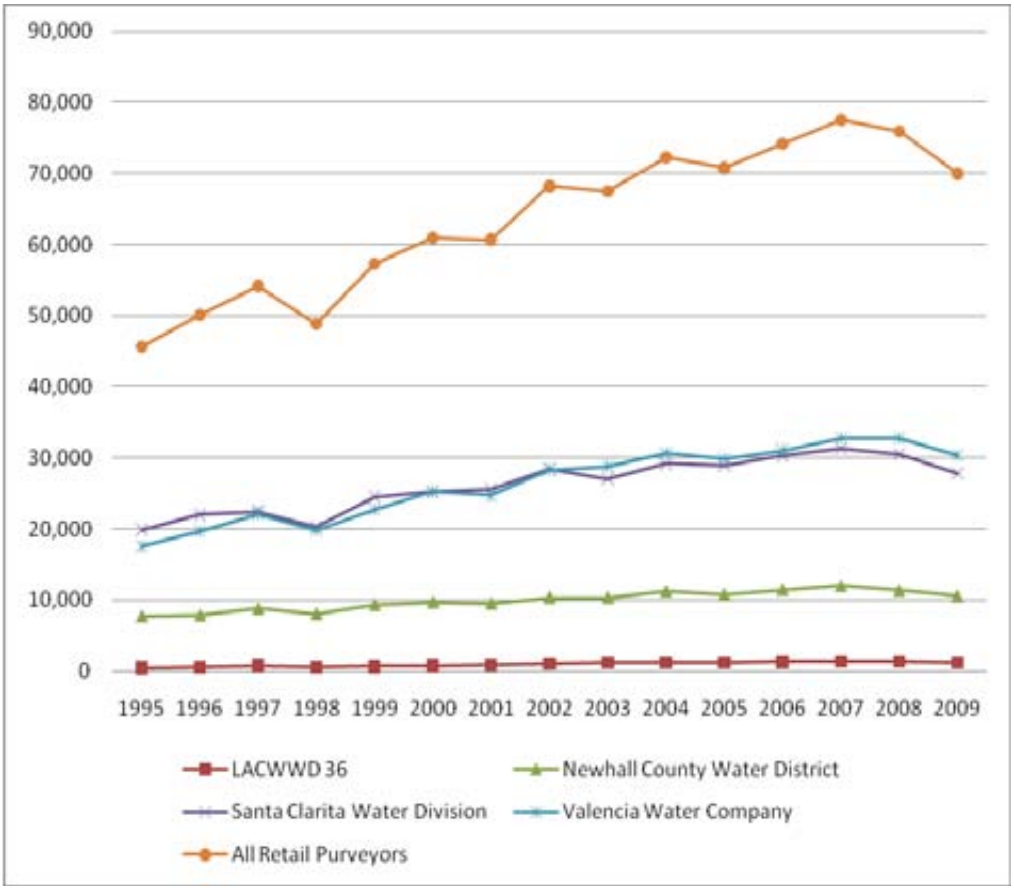
Predicting future water supply requires accurate historic water use patterns and water usage records. The historical use of all water supplies used to meet municipal water requirements, including the use of local groundwater, imported water supplies and recycled water, are summarized in Table 2-1. Figure 2-1 illustrates this use, which shows an increasing trend in Valley water demand since 1995 with a downturn in recent years likely due to weather conditions, response by customers to dry-year conservation efforts and economic conditions.

TABLE 2-1
HISTORICAL WATER USE BY RETAIL WATER PURVEYORS

Year	LACWWD 36	Newhall County Water District	Santa Clarita Water Division	Valencia Water Company	All Retail Purveyors
1995	477	7,755	19,898	17,543	45,673
1996	533	7,887	22,006	19,721	50,147
1997	785	8,801	22,456	22,131	54,173
1998	578	8,087	20,319	19,874	48,858
1999	654	9,348	24,513	22,735	57,250
2000	800	9,718	25,280	25,190	60,988
2001	907	9,525	25,544	24,715	60,691
2002	1,069	10,362	28,434	28,360	68,225
2003	1,175	10,351	27,092	28,829	67,447
2004	1,234	11,217	29,191	30,654	72,296
2005	1,200	10,756	28,921	29,891	70,768
2006	1,289	11,470	30,302	31,065	74,126
2007	1,406	11,975	31,355	32,756	77,492
2008	1,354	11,340	30,476	32,730	75,900
2009	1,243	10,560	27,816	30,355	69,974

Source: 2009 Santa Clarita Valley Water Report (May 2010)

FIGURE 2-1
HISTORICAL WATER USE



Source: 2009 Santa Clarita Valley Water Report (May 2010)

2.4 Projected Water Use

2.4.1 Purveyor Projections

Each of the four retail water purveyors provided projected water demands based on development projects that are under evaluation, in the planning process or the result of its own water planning efforts for its service area. The purveyors maintain historical data, as well as work closely with property owners and developers in their service areas, to ensure they have an adequate water supply and the necessary infrastructure to provide water service.

Since there are only four purveyors in the service area, there is close coordination and exchange of data. SCWD's engineering department continually updates expected demands and infrastructure needs. NCWD's master plans provide the basis for projected demands. VWC is an investor-owned utility regulated by the California Public Utilities Commission (PUC) and is required to regularly provide its service plan for rate increases and service area changes.

The projected water demands provided by the four purveyors are shown in Tables 2-3 through 2-6, for LACWWD 36, NCWD, SCWD and VWC, respectively. These tables show current and projected water demand, by customer type and in total, through 2050. Table 2-2 provides a summary from these tables of each purveyor's projected total water demands through 2050.

TABLE 2-2
SUMMARY OF PROJECTED WATER DEMANDS[(a)(b)(c)]

	2010	2015	2020	2025	2030	2035	2040	2045	2050	Annual Increase
Water Demands										
LACWWD 36[(d)]	1,243	1,759	2,189	2,619	3,048	3,478	3,908	4,338	4,768	3.5%
NCWD	10,560	12,571	14,246	15,922	17,598	19,273	20,949	22,624	24,300	2.2%
SCWD	27,816	31,633	34,814	37,995	41,176	44,357	47,538	50,719	53,900	1.7%
VWC	30,354	34,107	37,235	40,362	43,490	46,617	49,745	52,872	56,000	1.6%
Total Demand	69,973	80,070	88,484	96,898	105,313	113,725	122,141	130,553	138,968	1.8%

Notes:
(a) Summary of demands from Tables 2-3 to 2-6.
(b) Reflects existing and projected demands in CLWA service area only. CLWA's Annexation Policy requires annexing parties to provide additional fully reliable supplies.
(c) Demands exclude non-purveyor demands. Similarly, supplies evaluated in this UWMP exclude non-purveyor supplies.
(d) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

TABLE 2-3
LOS ANGELES COUNTY WATERWORKS DISTRICT 36
CURRENT AND PROJECTED WATER DELIVERIES BY CUSTOMER TYPE

Year	Water Use Sectors	Single Family Residential[(a)]	Multi Family Residential[(a)]	Commercial	Construction/ Industrial	Institutional/ Government	Landscape	Total[(b)]
2010	No. of Accounts	1,527	6	5	6	6	6	1,555
	Deliveries (AF)	1,168	35	1	4	24	13	1,243
2015	No. of Accounts	2,155	8	5	8	8	8	2,194
	Deliveries (AF)	1,649	49	1	5	33	23	1,759
2020	No. of Accounts	2,682	10	5	10	10	10	2,729
	Deliveries (AF)	2,052	61	1	6	42	28	2,189
2025	No. of Accounts	3,209	12	5	12	12	12	3,264
	Deliveries (AF)	2,455	73	1	7	50	34	2,619
2030	No. of Accounts	3,735	14	5	14	14	14	3,797
	Deliveries (AF)	2,857	85	1	9	58	39	3,048
2035	No. of Accounts	4,262	17	6	17	17	17	4,333
	Deliveries (AF)	3,260	97	1	10	66	45	3,478
2040	No. of Accounts	4,788	19	6	19	19	19	4,863
	Deliveries (AF)	3,663	109	1	11	74	50	3,908
2045	No. of Accounts	5,315	21	7	21	21	21	5,405
	Deliveries (AF)	4,066	121	1	12	82	56	4,338
2050	No. of Accounts	5,842	23	8	23	23	23	5,940
	Deliveries (AF)	4,469	133	1	14	91	61	4,768

Notes:
(a) Projected Single Family and Multi-Family residential accounts have been adjusted to reflect dwelling units.
(b) Totals do not include fire services.

TABLE 2-4
NEWHALL COUNTY WATER DISTRICT
CURRENT AND PROJECTED WATER DELIVERIES BY CUSTOMER TYPE

Year	Water Use Sectors	Single Family Residential[a]	Multi Family Residential[a]	Commercial	Construction/ Industrial	Institutional/ Government	Landscape	Total[b]
2010 [c]	No. of Accounts	8,500	4,893	400	80	70	250	14,193
	Deliveries (AF)	6,400	1,500	560	100	400	1,600	10,560
2015	No. of Accounts	10,135	4,955	476	95	83	298	16,042
	Deliveries (AF)	7,631	1,785	655	119	476	1,906	12,571
2020	No. of Accounts	11,485	5,003	540	108	94	337	17,568
	Deliveries (AF)	8,647	2,023	742	135	540	2,159	14,246
2025	No. of Accounts	12,620	5,093	600	135	120	375	18,493
	Deliveries (AF)	9,665	2,261	831	151	603	2,412	15,922
2030	No. of Accounts	14,188	5,100	667	133	117	417	20,621
	Deliveries (AF)	10,682	2,499	917	168	667	2,666	17,598
2035	No. of Accounts	15,538	5,148	730	146	128	456	22,146
	Deliveries (AF)	11,699	2,737	1,005	182	730	2,920	19,273
2040	No. of Accounts	16,889	5,196	794	159	139	496	23,673
	Deliveries (AF)	12,716	2,975	1,091	198	793	3,175	20,949
2045	No. of Accounts	18,241	5,245	857	171	150	536	25,200
	Deliveries (AF)	13,733	3,213	1,179	214	857	3,428	22,624
2050	No. of Accounts	19,591	5,293	921	184	161	575	26,725
	Deliveries (AF)	14,750	3,452	1,266	230	920	3,681	24,300

Notes:
(a) Projected Single Family and Multi-Family residential accounts have been adjusted from the 2005 UWMP to reflect dwelling units.
(b) Totals do not include fire services.
(c) Year 2010 projection based on 2009 actual data. Growth to 2015 reflects six years of data.

TABLE 2-5
SANTA CLARITA WATER DIVISION
CURRENT AND PROJECTED WATER DELIVERIES BY CUSTOMER TYPE

Year	Water Use Sectors	Single Family Residential[(a)]	Multi Family Residential[(a)]	Commercial	Construction/ Industrial	Institutional/ Government	Landscape	Total[(b)]
2010[(c)]	No. of Accounts	24,382	13,151	726	71	107	890	39,327
	Deliveries (AF)	16,189	4,200	1,029	445	862	5,090	27,816
2015	No. of Accounts	26,368	14,311	781	135	117	990	42,702
	Deliveries (AF)	18,410	4,776	1,170	506	982	5,789	31,633
2020	No. of Accounts	29,019	15,750	859	148	129	1,089	46,994
	Deliveries (AF)	20,261	5,257	1,288	558	1,079	6,371	34,814
2025	No. of Accounts	31,670	17,188	938	162	141	1,189	51,288
	Deliveries (AF)	22,111	5,737	1,406	608	1,178	6,955	37,995
2030	No. of Accounts	34,320	18,627	1,016	175	152	1,288	55,578
	Deliveries (AF)	23,962	6,217	1,523	659	1,276	7,539	41,176
2035	No. of Accounts	36,971	20,066	1,095	189	164	1,388	59,873
	Deliveries (AF)	25,813	6,697	1,641	715	1,375	8,116	44,357
2040	No. of Accounts	39,622	21,504	1,174	203	176	1,487	64,166
	Deliveries (AF)	27,664	7,177	1,759	761	1,479	8,698	47,538
2045	No. of Accounts	42,273	22,943	1,252	216	188	1,587	68,459
	Deliveries (AF)	29,514	7,658	1,876	812	1,579	9,280	50,719
2050	No. of Accounts	44,930	24,385	1,331	230	200	1,687	72,763
	Deliveries (AF)	31,370	8,139	1,994	862	1,671	9,864	53,900

Notes:
(a) Projected Single Family and Multi-Family residential accounts have been adjusted from the 2005 UWMP to reflect dwelling units.
(b) Totals do not include fire services.
(c) Year 2010 projection based on 2009 actual data. Growth to 2015 reflects six years of data.

TABLE 2-6
VALENCIA WATER COMPANY
CURRENT AND PROJECTED WATER DELIVERIES BY CUSTOMER TYPE

Year	Water Use Sectors	Single Family Residential[a]	Multi Family Residential[a]	Commercial	Industrial	Institutional/ Government	Landscape[b]	Total[c]
2010[d]	No. of Accounts	25,386	8,854	1,546	451	646	13	36,896
	Deliveries (AF)	14,384	1,845	6,981	1,856	4,586	702	30,354
2015	No. of Accounts	26,497	11,956	1,598	485	647	362	41,545
	Deliveries (AF)	14,883	2,993	7,203	1,990	4,595	2,442	34,107
2020	No. of Accounts	27,423	14,542	1,641	514	648	652	45,419
	Deliveries (AF)	15,299	3,949	7,389	2,101	4,603	3,894	37,235
2025	No. of Accounts	28,348	17,127	1,684	542	650	943	49,294
	Deliveries (AF)	15,715	4,906	7,575	2,213	4,611	5,343	40,362
2030	No. of Accounts	29,274	19,713	1,727	570	651	1,233	53,168
	Deliveries (AF)	16,130	5,862	7,760	2,324	4,619	6,794	43,490
2035	No. of Accounts	30,200	22,298	1,770	599	652	1,524	57,042
	Deliveries (AF)	16,546	6,818	7,946	2,436	4,627	8,244	46,617
2040	No. of Accounts	31,125	24,883	1,813	627	653	1,814	60,917
	Deliveries (AF)	16,962	7,775	8,131	2,548	4,635	9,696	49,745
2045	No. of Accounts	32,051	27,469	1,856	656	654	2,105	64,791
	Deliveries (AF)	17,378	8,731	8,317	2,659	4,643	11,144	52,872
2050	No. of Accounts	32,977	30,054	1,900	684	655	2,395	68,665
	Deliveries (AF)	17,793	9,687	8,503	2,771	4,650	12,596	56,000

Notes:
(a) Projected Single Family and Multi-Family residential accounts have been adjusted from the 2005 UWMP to reflect dwelling units.
(b) Landscape customers consist of potable and recycled water users for outdoor irrigation.
(c) Totals do not include fire services.
(d) Year 2010 projection based on 2009 actual data. Growth to 2015 reflects six years of data.

2.5 Population

2.5.1 Historical Population

The methodology for estimating the historical populations of areas served by the water purveyors is prescribed by DWR[3]. The method enables those suppliers whose service areas are not fully contained in existing city boundaries to obtain service area population from a data source such as a regional planning agency or an association of governments (such as Southern California Association of Governments, SCAG), assuming that their estimates use the State Department of Finance (DOF) or U.S. Census Bureau data as a basis. In such situations water suppliers must use DOF, Census or SCAG data to a define persons per Single Family (SF) and Multi-Family (MF) residential connection factor, and then calculate yearly populations based on the number of SF and MF connections each year. This calculation of historical population must cover each year of the period 1995 to 2010.

Accordingly, each purveyor provided an accounting of its historical SF residential and MF residential dwelling units for the years 1995 to 2009 (LACWWD 36 provided 2000-2009 data). Planning assumptions utilized the 2000 U.S. Census, SCAG's 2012 Regional Transportation Plan (RTP) growth forecast (baseline 2008) and the DOF 2000 and 2010 datasets to capture both City of Santa Clarita and the northern portion of unincorporated Los Angeles County within the CLWA service area. Actual data for 2010 SF and MF dwelling units were provided by the purveyors.

The population for each purveyor was estimated by taking the number of accounts for SF and MF in a given year and multiplying by a persons-per-household (PPHH) factor for the number of people living at each type of account, and then summing the result. Using a PPHH factor of 3.11[4] and a growth rate of 0.53 percent, annual historical populations were calculated for each purveyor from 1995, as shown in Table 2-7. The total of these estimates, as summarized in Table 2-8, reflect the total population within the CLWA service area.

[3] See Appendix A in "*Methodologies for Calculating Baseline and Compliance per Capita Urban Water Use"* (DWR 2010).
[4] The PPHH of 3.11 was anchored to the purveyors' year 2000 residential connections and then projected backward to 1995 and forward to 2010 using the calculated growth rate.

TABLE 2-7
HISTORICAL POPULATION BY RETAIL PURVEYOR SERVICE AREA

	NCWD			SCWD		
Year	SF Residential Units[a]	MF Residential Units[a]	Population[b][c]	SF Residential Units[a]	MF Residential Units[a]	Population[b][c][d]
1995	5,680	4,552	30,898	17,632	10,062	83,628
1996	5,723	4,589	31,323	17,812	10,100	84,784
1997	6,035	4,612	32,533	17,856	9,842	84,634
1998	6,037	4,622	32,764	18,222	9,884	86,394
1999	6,202	4,651	33,561	18,671	9,994	88,642
2000	6,255	4,713	34,121	19,408	10,527	93,128
2001	6,428	4,768	35,041	20,145	10,985	97,430
2002	6,777	4,823	36,526	20,691	11,458	101,230
2003	7,199	4,852	38,178	21,278	11,685	104,427
2004	7,873	4,870	40,618	22,152	12,104	109,189
2005	8,163	4,875	41,814	23,035	12,479	113,897
2006	8,292	4,875	42,490	23,620	13,066	118,385
2007	8,431	4,875	43,206	24,347	13,195	121,903
2008	8,450	4,875	43,539	24,398	13,133	122,631
2009	8,492	4,875	43,951	24,374	13,126	123,302
2010	8,500	4,893	44,316	24,382	13,151	124,192

Notes:
(a) Single Family (SF) and Multi-Family (MF) residential units provided by each retail purveyor.
(b) Population estimated for non-census years assuming consistent exponential growth 1990-2000 and 2000-2010.
(c) Population derived from DOF population data for City of Santa Clarita. Table 1 Total Population 2000 and 2010 Incorporated Cities by County in California and Table 1 Population Change 1990-2000 Incorporated Cities by County, and City of Santa Clarita, 2000-2010 U.S. Census Bureau, 2000 Summary File 1 (SF1) 100 Percent Data, City of Santa Clarita, 2000, SCAG, Adopted 2008 RTP.
(d) SCWD data for 2010 population based on 2009 population and SCWD Water Master Plan (2008).
(e) LACWWD 36, rather than calculating population based on dwelling units, provided its historical population for 2000-2010.

TABLE 2-7 CON'T
HISTORICAL POPULATION BY RETAIL PURVEYOR SERVICE AREA

	VWC			LACWWD 36		
Year	SF Residential Units[a]	MF Residential Units[a]	Population[b][c]	SF Residential Units[a]	MF Residential Units[a]	Population[e]
1995	14,696	4,184	57,012	-	-	-
1996	15,433	4,285	59,895	-	-	-
1997	16,276	4,285	62,826	-	-	-
1998	17,311	5,191	69,168	-	-	-
1999	18,264	5,457	73,353	-	-	-
2000	19,179	5,725	77,476	948	5	2,965
2001	20,631	6,342	84,420	1,093	5	3,393
2002	21,818	6,941	90,556	1,177	5	4,232
2003	22,822	7,676	96,618	1,251	5	4,508
2004	24,193	7,949	102,451	1,278	5	4,600
2005	24,953	8,405	106,983	1,289	5	4,624
2006	25,044	8,437	108,043	1,300	5	4,660
2007	25,131	8,537	109,324	1,303	5	4,681
2008	25,211	8,590	110,443	1,310	5	4,688
2009	25,171	8,854	111,876	1,310	5	4,684
2010	25,386	8,854	113,296	1,527	6	4,947

Notes:
(a) Single Family (SF) and Multi-Family (MF) residential units provided by each retail purveyor.
(b) Population estimated for non-census years assuming consistent exponential growth 1990-2000 and 2000-2010.
(c) Population derived from DOF population data for City of Santa Clarita. Table 1 Total Population 2000 and 2010 Incorporated Cities by County in California and Table 1 Population Change 1990-2000 Incorporated Cities by County, and City of Santa Clarita, 2000-2010 U.S. Census Bureau, 2000 Summary File 1 (SF1) 100 Percent Data, City of Santa Clarita, 2000, SCAG, Adopted 2008 RTP.
(d) SCWD data for 2010 population based on 2009 population and SCWD Water Master Plan (2008).
(e) LACWWD 36, rather than calculating population based on dwelling units, provided its historical population for 2000-2010.

TABLE 2-8
SUMMARY OF HISTORICAL POPULATION BY RETAIL PURVEYOR SERVICE AREA[(a)]

Year	NCWD	SCWD	VWC	LACWWD 36[(b)]	Total CLWA Service Area
1995	30,898	83,628	57,012	-	**171,537**
1996	31,323	84,784	59,895	-	**176,002**
1997	32,533	84,634	62,826	-	**179,994**
1998	32,764	86,394	69,168	-	**188,326**
1999	33,561	88,642	73,353	-	**195,556**
2000	34,121	93,128	77,476	2,965	**207,690**
2001	35,041	97,430	84,420	3,393	**220,284**
2002	36,526	101,230	90,556	4,232	**232,544**
2003	38,178	104,427	96,618	4,508	**243,730**
2004	40,618	109,189	102,451	4,600	**256,857**
2005	41,814	113,897	106,983	4,624	**267,318**
2006	42,490	118,385	108,043	4,660	**273,578**
2007	43,206	121,903	109,324	4,681	**279,114**
2008	43,539	122,631	110,443	4,688	**281,301**
2009	43,951	123,302	111,876	4,684	**283,813**
2010	44,316	124,192	113,296	4,947	**286,750**

Notes:
(a) Summary of population from Table 2-7.
(b) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

2.5.2 Population Projections

The population for the CLWA service area was projected for the years 2010 to 2050 using the connection-PPHH method described in Section 2.5.1. The purveyors provided their projections of SF and MF residential dwelling units within their service areas for the years 2010 to 2050, as estimated in their master planning documents. SCWD, rather than providing dwelling units, provided its projections of population at build-out of its service area in 2050.

Using a PPHH factor of 3.31[5] (increased by the growth rate from 3.11 PPHH in year 2000), assumed constant over the projection period, projections of population for years out to 2050 were calculated. The results of these calculations are shown in Table 2-9.

Based on these results, population in the CLWA service area is projected to grow at an average annual rate of approximately 1.5 percent per year over the 40-year planning period to 2050.

[5] The PPHH of 3.31 was projected forward from the year 2000 PPHH of 3.11, using the calculated growth rate.

TABLE 2-9
PROJECTED POPULATION

Year	NCWD[(a)]	SCWD[(b)]	VWC[(a)]	LACWWD 36[(a)]	Total CLWA Service Area
2010	44,316	124,192	113,296	4,947	**286,750**
2015	49,933	133,868	127,241	7,157	**318,199**
2020	54,559	143,544	138,862	8,908	**345,873**
2025	58,612	153,220	150,477	10,658	**372,967**
2030	63,824	162,896	162,098	12,405	**401,223**
2035	68,450	172,572	173,716	14,159	**428,897**
2040	73,079	182,248	185,330	15,906	**456,564**
2045	77,715	191,924	196,952	17,657	**484,248**
2050	82,341	201,600	208,570	19,407	**511,918**

Notes:
(a) Based on average household size calculated over the census decade to 3.31 persons per household, and remaining fixed through 2050.
(b) SCWD data based on SCWD Water Master Plan (2008).

2.5.3 Comparison to City and County Planning

One Valley, One Vision (OVOV) is a joint planning effort by the City of Santa Clarita and Los Angeles County representing the build-out of the entire Santa Clarita Valley, including Canyon Country, Newhall, Saugus and Valencia and the County communities of Stevenson Ranch, Castaic, Val Verde, Agua Dulce and the future Newhall Ranch. The OVOV includes both City and County jurisdictions in its planning effort which are the development of a General Plan and associated EIR. Both the OVOV area and the Santa Clarita Valley planning area (defined by SCAG) are slightly larger than the CLWA service area and factors into the modest differences in population projections. As the overwhelming majority of the OVOV population is located in the CLWA service area, it is appropriate to compare the CLWA service area population projections to the OVOV projections, as shown in Table 2-10.

TABLE 2-10
POPULATION COMPARISON

Year	Total CLWA Service Area[a]	OVOV[b]	Santa Clarita Valley Planning Area
2010	286,750	252,000[c]	267,299[d]
2015	318,199	278,000 - 280,750	319,715[d]
2020	345,873	304,000 - 309,500	352,336[d]
2025	372,967	330,000 - 338,250	384,217[d]
2030	401,223	356,000 - 367,000	397,112[d][e]
2035	428,897	382,000 - 395,750	410,008[d]
2040	456,564	408,000 - 424,500	448,228[f]
2045	484,248	434,000 - 453,250	490,011[f]
2050	511,918	460,000 - 482,000	535,689[f]

Notes:
(a) See Table 2-9.
(b) OVOV General Plan EIR.
(c) The OVOV estimated population in 2008 was 252,000 which, for this analysis, was assumed to occur in 2010.
(d) 2010 and 2035 Projection for Santa Clarita Valley Planning Area are the sums of the City of Santa Clarita and unincorporated Los Angeles area. The unincorporated area provided by the County of Los Angeles Department of Planning from adjusted GIS data from U.S. Census Bureau & SCAG data provided by email communication, April 5, 2011.
(e) Year 2030 value adjusted. Actual GIS data had 2030 value of 414,612 which was higher than 2035 value. Used growth rate assumptions to correct.
(f) Years 2040-2050 assumed 2010-2035 growth rates.

In Table 2-10, the OVOV projections and SCAG projections indicate a 1.6 to 1.8 percent annual growth rate of population for the Santa Clarita Valley. The purveyor projections of population growth are just slightly below that with a 1.5 percent annual growth rate. These population growth rates align with the annual rate of increase in the purveyors' projected water demands of 1.8 percent, as shown in Table 2-2.

Based on a detailed analysis of the OVOV Planning Area conducted by traffic analysis zones, County and City staff have determined that population of the Santa Clarita Valley at full build-out of the uses shown on the land use map of the Area Plan will be approximately 460,000 to 482,000 residents.

County staff has also provided updated and adjusted 2010 and 2035 population projections using SCAG data for the unincorporated areas of CLWA's service area (using year 2000 Census base data). Based on these projections for the unincorporated area and SCAG's projections for the City, projections for the Santa Clarita Valley at full build-out are about 535,700 persons.

The total population projected in this UWMP for the CLWA service area in 2050 is approximately 512,000 residents. The difference between this and OVOV projections may be due to some purveyors' master planning efforts taking a more conservative approach to ensure an adequate supply of water for all future uses.

2.6 Existing and Targeted Per Capita Water Use

2.6.1 Base Daily Per Capita Water Use for SBX7-7 Reduction

As described in Senate Bill 7 of Special Extended Session 7 (SBX7-7), it is the intent of the California legislature to increase water use efficiency and the legislature has set a goal of a twenty percent per capita reduction in urban water use statewide by 2020. As SBX7-7 applies to retail water suppliers, NCWD, SCWD and VWC must comport with its requirements. Consistent with SBX7-7, the 2010 UWMP must provide an estimate of Base Daily Per Capita Water Use. This estimate utilizes information on population as well as base gross water use. For the purposes of this UWMP, population was estimated as described in the previous section. Base gross water use is defined as the total volume of water, treated or untreated, entering the distribution systems of the retail purveyors, excluding (1) recycled water, (2) net volume of water placed into long-term storage and (3) water conveyed to another urban water supplier. This calculation of base daily per capita water use is limited to the NCWD, SCWD and VWC retail service areas.

The UWMP Act allows urban water retailers to evaluate their base daily per capita water use using two base periods, a 10 or 15-year continuous period is used to calculate baseline per capita water use. A 5-year base period is used to determine whether the 2020 per capita water use target meets the legislation's minimum water use reduction requirements of at least a 5 percent reduction per capita water use for those suppliers with baseline water use above 100 GPCD. The legislation provided some flexibility in what actual periods of time are used to establish these baselines, to account for short-term water demand variations resulting from weather influences, as well as acknowledging the advances of water suppliers that have already begun using recycled water to reduce potable demands. The 15-year base period within the range January 1, 1990 to December 31, 2010 is allowed if recycled water made up ten percent or more of 2008 retail water deliveries. If recycled water did not make up ten percent or more of the 2008 retail water deliveries, then a retailer must use a 10-year base period within the range January 1, 1995 to December 31, 2010. Recycled water did not make up ten percent of 2008 deliveries by NCWD, SCWD or VWC, and for this reason base daily per capita water use has been based on a 10-year period. The 5-year period required by SBX7-7 must be within the range January 1, 2003 to December 31, 2010.

Tables 2-11 to 2-13 provide the data used to calculate the base daily per capita water use in GPCD, and the 10-year and 5-year base periods for each purveyor. Tables 2-15, 2-17 and 2-19 provide the data used to determine whether the purveyor's 2015 and 2020 per capita water use targets meet the legislation's minimum water use reduction requirement of five percent. If the 2020 target is greater than the 5-year value, the target is reduced to this value. These tables show that the 2020 targets do not exceed these minimum values. Per SBX7-7 requirements, the 2015 interim targets were therefore set to the mid-point between the 10-year baseline per capita water use and the 2020 target.

TABLE 2-11
NEWHALL COUNTY WATER DISTRICT - BASE DAILY PER CAPITA WATER USE

Base Period Year		Distribution System Population	Annual System Gross Water Use (AFY)	Annual Daily Per Capita Water Use (GPCD)	10-Year Average (GPCD)	5-Year Average (GPCD)
Sequence Year	*Calendar Year*					
1	1995	30,898	7,755	224		
2	1996	31,323	7,887	225		
3	1997	32,533	8,801	242		
4	1998	32,764	8,087	220		
5	1999	33,561	9,348	249		
6	2000	34,121	9,718	254		
7	2001	35,041	9,525	243		
8	2002	36,526	10,362	253		
9	2003	38,178	10,351	242		
10	2004	40,618	11,217	247	240	
11	2005	41,814	10,756	230	240	
12	2006	42,490	11,470	241	242	
13	2007	43,206	11,975	247	243	241
14	2008	43,539	11,340	233	244	239
15	2009	43,951	10,560	214	240	233
				Period Selected	**244**	**241**

Note: Shaded cells show calendar years used in selected 5-year average.

TABLE 2-12
SANTA CLARITA WATER DIVISION - BASE DAILY PER CAPITA WATER USE

Base Period Year		Distribution System Population	Annual System Gross Water Use (AFY)	Annual Daily Per Capita Water Use (GPCD)	10-Year Average (GPCD)	5-Year Average (GPCD)
Sequence Year	*Calendar Year*					
1	1995	83,628	19,898	212		
2	1996	84,784	22,006	232		
3	1997	84,634	22,456	237		
4	1998	86,394	20,319	210		
5	1999	88,642	24,513	247		
6	2000	93,128	25,280	242		
7	2001	97,430	25,544	234		
8	2002	101,230	28,434	251		
9	2003	104,427	27,092	232		
10	2004	109,189	29,191	239	234	
11	2005	113,897	28,921	227	235	
12	2006	118,385	30,302	229	235	
13	2007	121,903	31,355	230	234	231
14	2008	122,631	30,476	222	235	229
15	2009	123,302	27,816	201	231	222
				Period Selected	**235**	**231**

Note: Shaded cells show calendar years used in selected 5-year average.

TABLE 2-13
VALENCIA WATER COMPANY - BASE DAILY PER CAPITA WATER USE

Base Period Year		Distribution System Population	Annual System Gross Water Use (AFY)[(a)]	Annual Daily Per Capita Water Use (GPCD)	10-Year Average (GPCD)	5-Year Average (GPCD)
Sequence Year	*Calendar Year*					
1	1995	57,012	17,543	275		
2	1996	59,895	19,721	294		
3	1997	62,826	22,131	314		
4	1998	69,168	19,874	257		
5	1999	73,353	22,735	277		
6	2000	77,476	25,190	290		
7	2001	84,420	24,715	261		
8	2002	90,556	28,360	280		
9	2003	96,618	28,779	266		
10	2004	102,451	30,234	263	278	
11	2005	106,983	29,473	246	275	
12	2006	108,043	30,646	253	271	
13	2007	109,324	32,286	264	266	258
14	2008	110,443	32,419	262	266	258
15	2009	111,876	30,027	240	263	253
				Period Selected	**278**	**258**

Notes: Shaded cells show calendar years used in selected 5-year average.

(a) Excludes recycled water use in years 2003-2009.

2.6.2 Urban Water Use Targets for SBX7-7 Reduction

In addition to calculating base gross water use, SBX7-7 requires that NCWC, SCWD and VWC, as retail purveyors, identify their demand reduction targets for year 2015 and 2020 by utilizing one of four options:

- Option 1. 80 percent of baseline GPCD water use (i.e., a 20 percent reduction).
- Option 2. The sum of the following performance standards: indoor residential use (provisional standard set at 55 GPCD); plus landscape use, including dedicated and residential meters or connections equivalent to the State Model Landscape Ordinance (80 percent ETo existing landscapes, 70 percent of ETo for future landscapes); plus 10 percent reduction in baseline commercial, industrial institutional use by 2020.
- Option 3. 95 percent of the applicable state hydrologic region target as set in the DWR "20x2020 Water Conservation Plan" (February, 2010) (20x2020 Plan).
- Option 4. Savings by Water Sector: this provisional method developed by DWR, identifies water savings obtained through identified practices and subtracts them from the base daily per capita water use value identified for the water supplier.

Option 2 and Option 4 were considered and not selected because they required data not currently being collected within the purveyors service areas.

The CLWA service area is within the South Coast Hydrologic Region (#4) as defined by DWR and this hydrologic region has been assigned a 2020 water use target of 149 GPCD per the DWR 20x2020 Plan. Therefore, in order to use Option 3, each purveyor's daily per capita water use for the 5-year base period would have to be close to 95 percent of the 149 GPCD target, or 142 GPCD. Since none of the purveyors 5-year base period is within this limit, as shown in Table 2-14, none of the purveyors chose this option as the target method.

TABLE 2-14
OPTION 3 – 95 PERCENT OF STATE HYDROLOGIC REGION TARGET

Purveyor	5-Year Base Period	95% of 5-Year Base Period (149 GPCD)
NCWD	241	229 > 149
SCWD	231	219 > 149
VWC	258	245 > 149

Option 1 is the simplest of the options provided and requires reduction to 80 percent of baseline per capita water use. Option 1 is also the most conservative of the four Options provided. Each of the purveyors selected Option 1 to calculate its SBX7-7 target.

This results in the 2020 GPCD targets for the purveyors as shown in Tables 2-15, 2-17, and 2-19. Each purveyor plans to meet the proposed 20X2020 water use targets implementing conservation methods that are discussed in Chapter 7 Demand Management Measures, as well as with recycled water as described in Chapter 4, Recycled Water. Tables 2-16, 2-18, and 2-20, show the calculation of reduction in demand required by each purveyor. SBX7-7 allows for both conservation and recycled water supply to assist in meeting these SBX7-7 conservation requirements.

The 2015 and 2020 projected consumption without additional reduction shown in Tables 2-16, 2-18, to 2-20 are calculated in accordance with SBX7-7 and, therefore, do not match the projected deliveries in Tables 2-4, 2-5 and 2-6 which are based on purveyors' master planning documents.

TABLE 2-15
NCWD - COMPONENTS OF TARGET DAILY PER CAPITA WATER USE

Period	Value		Unit	
10-year period selected for baseline GPCD	First Year	1999	Last Year	2008
5-year period selected for maximum allowable GPCD	First Year	2003	Last Year	2007
Highest 10-year Average	244		GPCD	
Highest 5-year Average	241		GPCD	
Compliance Water Use Target (20% Reduction on 10yr)	195		GPCD	
Minimum Water Use Reduction Requirement (5% Reduction 5yr)	229		GPCD	
2020 Target	**195**		GPCD	
2015 Interim Target	**219**		GPCD	
Methodology Used	**Option #1**			

TABLE 2-16
NCWD - SBX7-7 CONSERVATION SAVINGS SUMMARY

Description	Units	2015 Interim Target	2020 Compliance Target
Base Daily Water Use	GPCD	244	244
Population	GPCD	49,933	54,559
Method 1 Compliance Target	GPCD	219	195
GPCD Reduction		24	49
% Reduction		10%	20%
Projected Consumption w/out additional Reduction	AFY	13,647	14,912
Projected Consumption at Goal	AFY	12,283	11,929
Reduction to Meet Target	AFY	1,365	2,982

TABLE 2-17
SCWD - COMPONENTS OF TARGET DAILY PER CAPITA WATER USE

Period	Value		Unit	
10-year period selected for baseline GPCD	First Year	1997	Last Year	2006
5-year period selected for maximum allowable GPCD	First Year	2003	Last Year	2007
Highest 10-year Average	235		GPCD	
Highest 5-year Average	231		GPCD	
Compliance Water Use Target (20% Reduction on 10yr)	188		GPCD	
Minimum Water Use Reduction Requirement (5% Requirement 5yr)	219		GPCD	
2020 Target	**188**		GPCD	
2015 Interim Target	**212**		GPCD	
Methodology Used	**Option #1**			

TABLE 2-18
SCWD - SBX7-7 CONSERVATION SAVINGS SUMMARY

Description	Units	2015 Interim Target	2020 Compliance Target
Base Daily Water Use	GPCD	235	235
Population	GPCD	133,868	143,544
Method 1 Compliance Target	GPCD	212	188
GPCD Reduction		24	47
% Reduction		10%	20%
Projected Consumption w/out additional Reduction	AFY	35,239	37,786
Projected Consumption at Goal	AFY	31,715	30,229
Reduction to Meet Target	AFY	3,524	7,557

TABLE 2-19
VWC - COMPONENTS OF TARGET DAILY PER CAPITA WATER USE

Period	Value		Unit	
10-year period selected for baseline GPCD	First Year	1995	Last Year	2004
5-year period selected for maximum allowable GPCD	First Year	2003	Last Year	2007
Highest 10-year Average	278		GPCD	
Highest 5-year Average	258		GPCD	
Compliance Water Use Target (20% Reduction on 10yr)	222		GPCD	
Minimum Water Use Reduction Requirement (5% Reduction 5yr)	245		GPCD	
2020 Target	**222**		GPCD	
2015 Interim Target	**250**		GPCD	
Methodology Used	**Option #1**			

TABLE 2-20
VWC – SBX7-7 CONSERVATION SAVINGS SUMMARY

Description	Units	2015 Interim Target	2020 Compliance Target
Base Daily Water Use	GPCD	278	278
Population	GPCD	127,241	138,862
Method 1 Compliance Target	GPCD	250	222
GPCD Reduction		28	56
% Reduction		10%	20%
Projected Consumption w/out additional Reduction	AFY	39,623	43,242
Projected Consumption at Goal	AFY	35,661	34,593
Reduction to Meet Target	AFY	3,962	8,648

LACWWD 36 is not required to comport with the requirements of SBX7-7. However the District does implement conservation measures and will contribute to the conservation savings as indicated in Table 2-21.

TABLE 2-21
LACWWD 36 – CONSERVATION SAVINGS

Description	Units	2015	2020
Projected Consumption w/out additional Reduction	AFY	1,759	2,189
Projected Consumption at Goal	AFY	1,583	1,751
Reduction to Meet Target	AFY	176	438

2.6.3 Purveyor Projections and SBX7-7 Objectives

Table 2-22 summarizes the retail purveyors' projected water demands through 2050. This summary includes demands without conservation, based on the purveyors' projected water demands shown in Table 2-2, and with conservation, using the SBX7-7 requirements discussed previously in Section 2.6.2. Appendix C includes demand projections for a single-dry water year and a multiple-dry year period, assuming a ten percent increase in demand without conservation in dry years. It should be noted that the SBX7-7 conservation requirements do not change for different year types, so those requirements in the dry years shown in Appendix C are the same as SBX7-7 requirements shown in Table 2-22.

The demand reductions required to comply with SBX7-7 may be achieved through a combination of water conservation measures and the use of recycled water. The anticipated increase in recycled water use after 2020 could potentially reduce the quantity of water conservation needed to achieve the SBX7-7 goals. However, the water conservation amounts achieved by 2020 are assumed in this Plan to be maintained through 2050. These amounts plus planned recycled water use will exceed the SBX7-7 water reduction requirements for the period 2020-2050. Thus potable water reductions shown in Table 2-22 exceed the requirements of SBX7-7.

TABLE 2-22
NORMAL YEAR SBX7-7 DEMAND CALCULATIONS (AF)

	2015	2020	2025	2030	2035	2040	2045	2050
Water Demands w/ and w/o Conservation[a]								
LACWWD 36[b]								
Demand w/o Conservation[c]	1,759	2,189	2,619	3,048	3,478	3,908	4,338	4,768
Anticipated Conservation Objective[d]	176	438	524	610	696	782	868	954
Reduction from Recycled Water[e]	0	50	50	50	50	50	50	50
Net Anticipated Water Conservation[f]	176	388	474	560	646	732	818	904
Demand w/ Conservation[g]	1,583	1,801	2,145	2,489	2,833	3,177	3,520	3,864
SBX7-7 Compliance Calculations								
NCWD								
Demand w/o Conservation[c]	12,571	14,246	15,922	17,598	19,273	20,949	22,624	24,300
20x2020 Reduction[h]	1,365	2,982	3,204	3,489	3,742	3,995	4,248	4,501
Reduction from Recycled Water[e]	200	500	1,000	1,275	1,775	2,275	2,775	3,275
Reduction from Water Conservation[i]	1,165	2,482	2,482	2,482	2,482	2,482	2,482	2,482
Demand w/ Conservation[j]	11,406	11,764	13,440	15,115	16,791	18,466	20,142	21,818
SCWD								
Demand w/o Conservation[c]	31,633	34,814	37,995	41,176	44,357	47,538	50,719	53,900
20x2020 Reduction[k]	3,524	7,557	8,067	8,576	9,085	9,595	10,104	10,614
Reduction from Recycled Water[e]	100	500	1,500	2,275	2,775	3,775	4,775	5,775
Reduction from Water Conservation[i]	3,424	7,057	7,057	7,057	7,057	7,057	7,057	7,057
Demand w/ Conservation[j]	28,209	27,757	30,938	34,119	37,300	40,481	43,662	46,843
VWC								
Demand w/o Conservation[c]	34,107	37,235	40,362	43,490	46,617	49,745	52,872	56,000
20x2020 Reduction[l]	3,962	8,648	9,372	10,095	10,819	11,542	12,266	12,990
Reduction from Recycled Water[e]	1,000	2,000	3,000	4,500	6,000	8,000	10,000	12,200
Reduction from Water Conservation[i]	2,962	6,648	6,648	6,648	6,648	6,648	6,648	6,648
Demand w/ Conservation[j]	31,145	30,586	33,714	36,841	39,969	43,097	46,224	49,352
Regional Summary								
Demand w/o Conservation[c]	80,070	88,484	96,898	105,312	113,726	122,140	130,554	138,968
20x2020 Reduction	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[m]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation	72,343	71,908	80,236	88,564	96,892	105,220	113,549	121,877

Notes:

(a) Reflects existing and projected demands in CLWA service area only. CLWA's Annexation Policy requires annexing parties to provide additional fully reliable supplies. Known parties potentially seeking annexation include Legacy/Stevenson Ranch Phase 5, Tapia Canyon and Tesoro Del Valle.
(b) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.
(c) Demand w/o Conservation from Table 2-2.
(d) LACWWD 36 conservation objective estimated at 20% of projected demand commencing 2020; see Table 2-21.
(e) Recycled water projections from Table 4-3.
(f) Net Anticipated Conservation for LACWWD 36 is Anticipated Conservation Objective minus Reduction from Recycled Water.
(g) Demand w/ Conservation for LACWWD 36 is Demand w/o Conservation minus Net Anticipated Conservation.
(h) NCWD 20x2020 Reduction from Table 2-16. The 20 percent conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(i) Reduction from Water Conservation is 20x2020 Reduction minus Reduction from Recycled Water for 2015 and 2020; the quantity of water conservation remains at least at 2020 amounts through 2050.
(j) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.
(k) SCWD 20x2020 Reduction from Table 2-18. The 20 percent conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(l) VWC 20x2020 Reduction from Table 2-20. The 20 percent conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(m) Recycled water reductions do not include demands from Honor Rancho.

2.6.3.1 Low Income Projected Water Demands

Senate Bill 1087 requires that water use projections of a UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county general plan in the service area of the supplier.

Housing elements rely on the Regional Housing Needs Allocation (RHNA) generated by the State Department of Housing and Community Development (HCD) to allocate the regional need for housing to the regional Council of Governments (COG) (or a HCD for cities and counties not covered by a COG) for incorporation into housing element updates. Before the housing element is due, the HCD determines the total regional housing need for the next planning period for each region in the state and allocates that need. The COGs then allocate to each local jurisdiction its "fair share" of the RHNA, broken down by income categories – very low, low, moderate and above moderate – over the housing element's planning period.

Jurisdictions located within the region covered by the Southern California Association of Governments (SCAG), including the County of Los Angeles, were required to submit their adopted Housing Elements to the State Department of Housing and Community Development by July 1, 2008.

The City of Santa Clarita and the County last updated their housing elements in 2008, and it covers the planning period 2008-2014. These elements incorporate the formally transmitted Los Angeles County housing allocation that was incorporated into the Final RHNA approved by the SCAG Regional Council on July 12, 2007[6]. The allocation for very low and low income classes as defined by the California Health and Safety Code were the following for the City of Santa Clarita:

- Very Low – 26.0%
- Low – 16.2%

Neither the SCAG RHNA nor the City of Santa Clarita and County housing elements further classify the allocation of low income households into single-family and multi-family residential housing units. For this reason, it is not possible to project water use for lower income households by this specific land use category. However, to remain consistent with the intent of the SB 1087 legislation and also to comply with the UWMP Planning Act, the water use projections for very low and low residential income households based on the income category were identified and their classification percentage was applied to the purveyor's calculated demand projections as shown in Table 2-23 on the following page.

Note that the current planning period for the RHNA is January 1, 2006 to June 30, 2014. The next RHNA planning cycle will cover January 1, 2011 to September 30, 2021. Thus, the 2015 UWMP update will need to be updated with the next RHNA planning cycle and classification percentages.

[6] Final Regional Housing Need Allocation Plan - Planning Period (January 1, 2006 - June 30, 2014) for Jurisdictions within the Six-County SCAG Region (approved by the SCAG Regional Council on July 12, 2007); http://www.scag.ca.gov/housing/pdfs/rhna/RHNA_FinalAllocationPlan071207.pdf

The City of Santa Clarita and/or County will not deny or condition approval of water services, or reduce the amount of services applied for by any proposed development unless one of the following occurs:

- City of Santa Clarita and the County specifically finds that it does not have sufficient water supply.
- City of Santa Clarita and the County is subject to a compliance order issued by the State Department of Public Health (DPH) that prohibits new water connections.
- The applicant has failed to agree to reasonable terms and conditions relating to the provision of services.

TABLE 2-23
LOW INCOME DEMANDS[(a)(b)]

	2015	2020	2025	2030	2035	2040	2045	2050
LACWWD 36								
Demand w/ Conservation[(c)]	1,583	1,801	2,145	2,489	2,833	3,177	3,520	3,864
Very Low[(d)]	412	468	558	647	737	826	915	1,005
Low[(e)]	256	292	347	403	459	515	570	626
Subtotal	*668*	*760*	*905*	*1,050*	*1,195*	*1,341*	*1,486*	*1,631*
NWCD								
Demand w/ Conservation[(c)]	11,406	11,764	13,440	15,115	16,791	18,466	20,142	21,818
Very Low[(d)]	2,966	3,059	3,494	3,930	4,366	4,801	5,237	5,673
Low[(e)]	1,848	1,906	2,177	2,449	2,720	2,992	3,263	3,534
Subtotal	*4,813*	*4,964*	*5,672*	*6,379*	*7,086*	*7,793*	*8,500*	*9,207*
SCWD								
Demand w/ Conservation[(c)]	28,209	27,757	30,938	34,119	37,300	40,481	43,662	46,843
Very Low[(d)]	7,334	7,217	8,044	8,871	9,698	10,525	11,352	12,179
Low[(e)]	4,570	4,497	5,012	5,527	6,043	6,558	7,073	7,589
Subtotal	*11,904*	*11,713*	*13,056*	*14,398*	*15,741*	*17,083*	*18,425*	*19,768*
VWC								
Demand w/ Conservation[(c)]	31,145	30,586	33,714	36,841	39,969	43,097	46,224	49,352
Very Low[(d)]	8,098	7,952	8,766	9,579	10,392	11,205	12,018	12,831
Low[(e)]	5,045	4,955	5,462	5,968	6,475	6,982	7,488	7,995
Subtotal	*13,143*	*12,907*	*14,227*	*15,547*	*16,867*	*18,187*	*19,507*	*20,826*
Total	**30,529**	**30,345**	**33,860**	**37,374**	**40,889**	**44,403**	**47,917**	**51,432**

Notes:
(a) Demands already included within purveyor projections.
(b) 2007 Adopted SCAG RHNA; allocation for very low income (26.0%) and low income (16.2%).
(c) From Table 2-22.
(d) 26.0% of total purveyor Demand w/ Conservation.
(e) 16.2% of total purveyor Demand w/ Conservation.

2.7 Other Factors Affecting Water Usage

A major factor that affects water usage is weather. Historically, when the weather is hot and dry, water usage increases. The amount of increase varies according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool, wet years, historical water usage has decreased, reflecting less water usage for exterior landscaping. This factor is discussed below in detail.

2.7.1 Weather Effects on Water Usage

California faces the prospect of significant water management challenges due to a variety of issues including population growth, regulatory restrictions and climate change. Climate change is of special concern because of the range of possibilities and their potential impacts on essential operations, particularly operations of the SWP. The most likely scenarios involve increased temperatures, which will reduce the Sierra Nevada snowpack and shift more runoff to winter months, and accelerated sea level rise. These changes can cause major problems for the maintenance of the present water export system since water supplies are conveyed through the fragile levee system of the Sacramento-San Joaquin Delta. The other much-discussed climate scenario or impact is an increase in precipitation variability, with more extreme drought and flood events posing additional challenges to water managers[7].

Figure 2-2 shows the purveyors overall water use since 2000 as well as total precipitation occurring over the same time period. Past studies have indicated that during dry years within the Santa Clarita Valley, demands can increase from between five to ten percent. This analysis assumes a conservative ten percent increase in per capita demands during dry periods.

Figure 2-3 shows the purveyors average annual monthly water use since 2002. In the Santa Clarita Valley, the largest amount of water use occurs during the end of summer and in the beginning of fall months (July, August and September). Water is used least in the cooler months leading into spring (February, March). This variation gives some indication about how weather affects water demands in the CLWA service area.

2.7.2 Conservation Effects on Water Usage

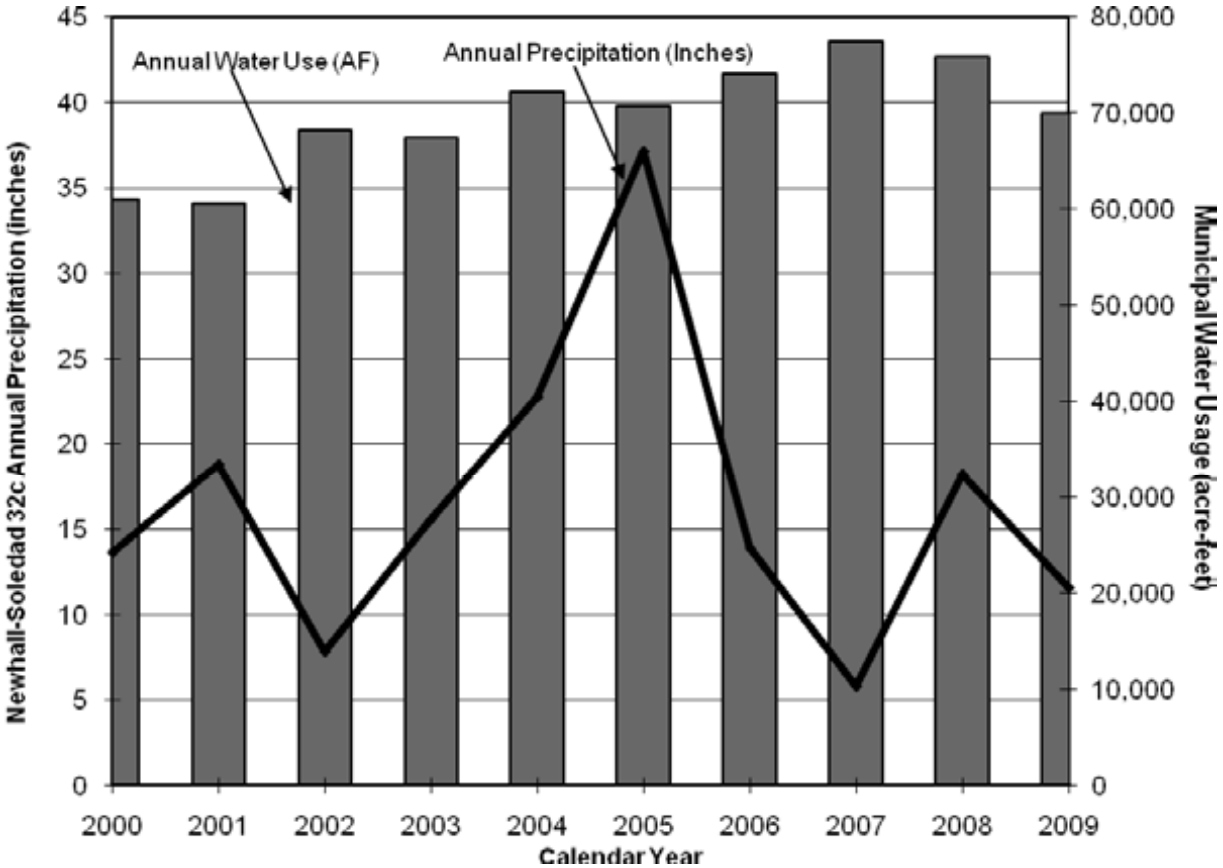
In recent years, water conservation has become an increasingly important factor in water supply planning in California. Since the 2005 UWMP there have been a number of regulatory changes related to conservation including new standards for plumbing fixtures, a new landscape ordinance, a state universal retrofit ordinance, new Green Building standards, demand reduction goals and more. The California plumbing code has also instituted requirements for new construction that mandate the installation of ultra low-flow toilets and low-flow showerheads.

During the 1987 to 1992 drought period, overall water requirements due to the effects of hot, dry weather were projected to increase by approximately ten percent. As a result of extraordinary conservation measures enacted during the period, the overall water requirements actually decreased by more than ten percent.

[7] Final California Water Plan Update 2009 Integrated Water Management: Bulletin 160.

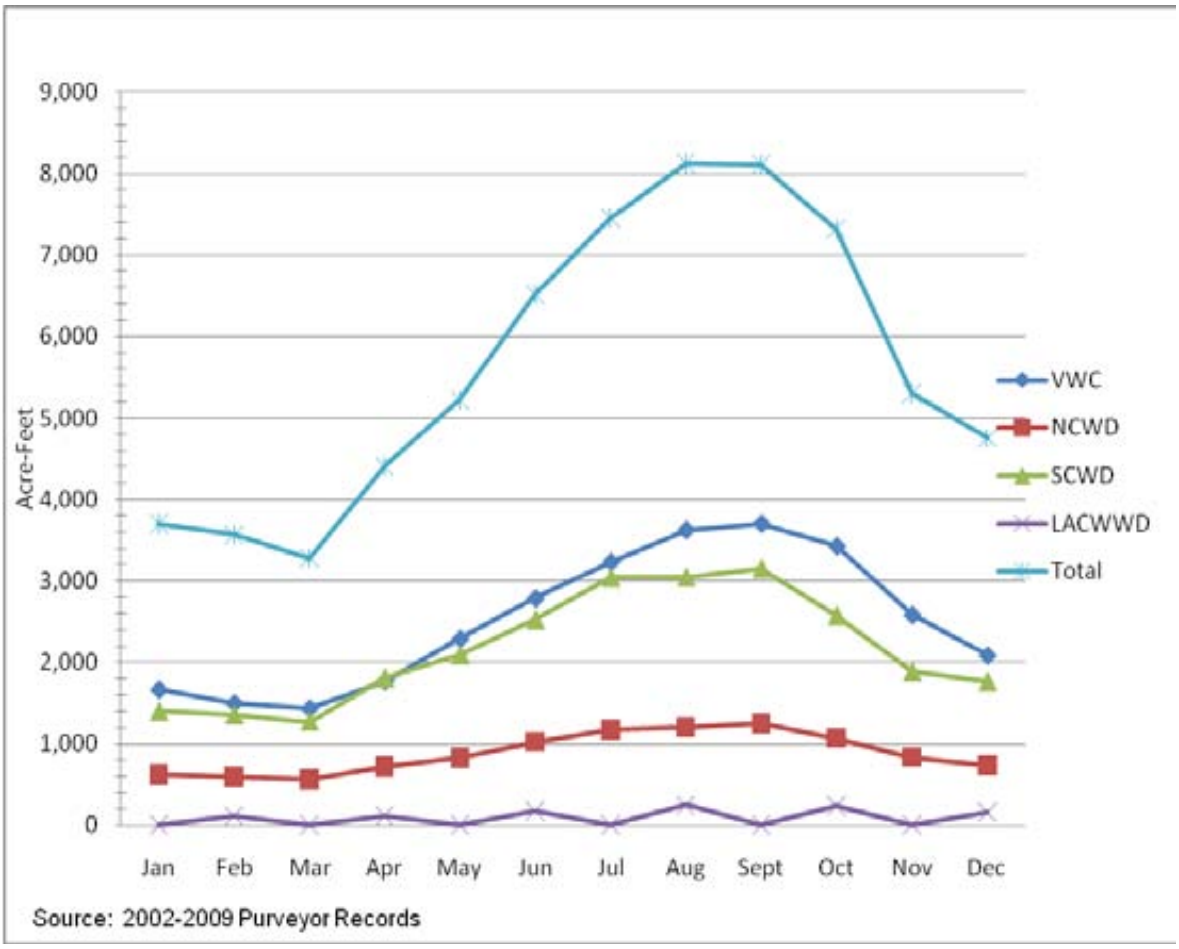
Residential, commercial, and industrial usage can be expected to decrease as a result of the implementation of more aggressive water conservation practices. In southern California, the greatest opportunity for conservation is in developing greater efficiency and reduction in landscape irrigation. The irrigation demand can typically represent as much as seventy percent of the water demand for residential customers depending on lot size and amount of irrigated turf and plants. Conservation efforts will increasingly target this component of water demand.

FIGURE 2-2
HISTORICAL WATER USE AND PRECIPITATION



Sources: Precipitation data provided from rain gage Newhall-Soledad 32c. Total water use from Table 2-1.

FIGURE 2-3
AVERAGE MONTHLY RETAIL CONSUMPTION



Section 3: Water Resources

3.1 Overview

This section describes the water resources available to CLWA and the purveyors for the next forty years. The suppliers' existing water resources include wholesale (imported) supplies, local groundwater, recycled water and water from existing groundwater banking programs. Planned supplies include new groundwater production as well as additional banking programs. These existing and planned supplies are summarized in Table 3-1 and discussed in more detail in this section.

The distribution of water supplies presented in this UWMP does not represent an allocation of water rights among the retail water purveyors. Local and imported water resources in the Santa Clarita Valley are managed cooperatively between CLWA and the purveyors. Just as the demands on the sources of supply were identified on an individual purveyor basis in Section 2, the existing and planned sources of supply have also been broken down by source on an individual purveyor basis. These tables have been included in Appendix C.

TABLE 3-1
SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES AND BANKING PROGRAMS[a]

	2010	2015	2020	2025	2030	2035	2040	2045	2050
Existing Supplies									
Existing Groundwater[b]									
Alluvial Aquifer	24,385	24,000	24,000	24,000	25,000	25,000	25,000	25,000	25,000
Saugus Formation[c]	6,725	9,225	10,225	10,225	10,225	10,225	10,225	10,225	10,225
Total Groundwater	**31,110**	**33,225**	**34,225**	**34,225**	**35,225**	**35,225**	**35,225**	**35,225**	**35,225**
Recycled Water[d] **Total Recycled**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**
Imported Water									
State Water Project[e]	58,300	58,100	57,900	57,600	57,400	57,400	57,400	57,400	57,400
Flexible Storage Accounts[f]	6,060	6,060	4,680	4,680	4,680	4,680	4,680	4,680	4,680
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Total Imported	**76,967**	**76,767**	**75,187**	**74,887**	**74,687**	**74,687**	**74,687**	**74,687**	**74,687**
Existing Banking Programs[g]									
Rosedale Rio-Bravo	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Semitropic	15,000	15,000	15,000	-	-	-	-	-	-
Semitropic - Newhall Land	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
Total Banking	**39,950**	**39,950**	**39,950**	**24,950**	**24,950**	**24,950**	**24,950**	**24,950**	**24,950**
Planned Supplies									
Future Groundwater[h]									
Alluvial Aquifer	-	-	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Saugus Formation	-	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375
Total Groundwater	**-**	**1,375**	**2,375**	**3,375**	**4,375**	**5,375**	**6,375**	**7,375**	**8,375**
Recycled Water[i] Total Recycled	**-**	**975**	**2,725**	**5,225**	**7,775**	**10,275**	**13,775**	**17,275**	**20,975**
Banking Programs Total Banking Programs	**-**	**-**	**-**	**10,000**	**10,000**	**20,000**	**20,000**	**20,000**	**20,000**

Notes:

(a) The values shown under "Existing Supplies" and "Planned Supplies" are projected to be available in average/normal years. The values shown under "Existing Banking Programs" and "Planned Banking Programs" are the maximum capacity of program withdrawals.

(b) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-10, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.

(c) SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.

(d) Represents recycled water being delivered in 2010 with existing facilities. CLWA currently has 1,700 AFY under contract.

(e) SWP supplies are based on the Department of Water Resources "*2009 State Water Project Delivery Reliability Report*."

(f) Includes both CLWA and Ventura County entities flexible storage accounts. Initial term of agreement with Ventura County entities expires after 2015.

(g) Supplies shown are annual amounts that can be withdrawn and would typically be used only during dry years.

(h) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production remains within the sustainable ranges identified in Table 3-8 of 2009 Groundwater Basin Yield Analysis. As indicated in Table 3-10, existing and planned groundwater pumping remain within the basin operating plan shown on Table 3- 5.

(i) See Table 4-3. Total Purveyor Recycled Water less Existing Recycled Supply.

The term "dry" is used throughout this chapter and in subsequent chapters concerning water resources and reliability as a measure of supply availability. As used in this Plan, dry years are those years when supplies are the lowest, which occurs primarily when precipitation is lower than the long-term average precipitation. The impact of low precipitation in a given year on a particular source of supply may differ based on how low the precipitation is, or whether the year follows a high-precipitation year or another low-precipitation year. For the SWP, a low-precipitation year may or may not affect supplies, depending on how much water is in SWP storage at the beginning of the year. Also, dry conditions can differ geographically. For example, a dry year can be local to the Valley area (thereby affecting local groundwater replenishment and production), local to northern California (thereby affecting SWP water deliveries), or statewide (thereby affecting both local groundwater and the SWP). When the term "dry" is used in this Plan, statewide drought conditions are assumed, affecting both local groundwater and SWP supplies at the same time.

3.2 Wholesale (Imported) Water Supplies

CLWA's imported water supplies consist primarily of SWP supplies, which were first delivered to CLWA in 1980. From the SWP, CLWA also has access to water from Flexible Storage Accounts in Castaic Lake, which are planned for dry-year use, but are not strictly limited as such. More detail on SWP supplies is provided in Section 3.2.1. In addition to its SWP supplies, CLWA has an imported surface supply from the Buena Vista Water Storage District (BVWSD) and Rosedale Rio-Bravo Water Storage District (RRBWSD) in Kern County, which was first delivered to CLWA in 2007. More information on this supply is provided in Section 3.2.2. CLWA wholesales both these imported supplies to each of the local retail water purveyors. Additionally, Newhall Land has acquired a water transfer supply from a source in Kern County. This supply, referred to as Nickel water, would be made available to VWC through CLWA.

3.2.1 State Water Project Supplies

3.2.1.1 Background

3.2.1.1.1 SWP Facilities

The SWP is the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most initial facilities completed by 1973. Today, the SWP includes 28 dams and reservoirs, 26 pumping and generating plants and approximately 660 miles of aqueducts. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Oroville Dam on the Feather River flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side of the San Joaquin Valley to Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains and the aqueduct then divides into the East and West Branches. CLWA takes delivery of its SWP water at Castaic Lake, a terminal reservoir of the West Branch. From Castaic Lake, CLWA delivers its SWP supplies to the local retail water purveyors through an extensive transmission pipeline system.

3.2.1.1.2 SWP Water Supply Contracts

SWP Water Supplies

In the early 1960s, DWR entered into individual SWP Water Supply Contracts with urban and agricultural public water supply agencies located throughout northern, central and southern California for SWP water supplies. CLWA is one of 29 water agencies (commonly referred to as "contractors") that have an SWP Water Supply Contract with DWR. Each SWP contractor's SWP Water Supply Contract contains a "Table A," which lists the maximum amount of contract water supply, or "Table A water," an agency may request each year throughout the life of the contract. The Table A Amounts in each contractor's SWP Water Supply Contract ramped up over time, based on projections at the time the contracts were signed of future increases in population and water demand, until they reached a maximum Table A Amount. Most contractor's Table A Amounts reached their maximum levels in the early to mid 1990s. Table A Amounts are used in determining each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year.

The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 MAF. The initial SWP storage facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional storage facilities planned as demands increased. However, essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of some Table A amount by two agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now totals about 4.17 MAF. Currently, CLWA's annual Table A Amount is 95,200 AF[8].

The primary supply of SWP water made available under the SWP Water Supply Contracts is allocated Table A supply. An estimation of Table A supply availability is provided in Section 3.2.1.2. Each contractor has some flexibility in managing the Table A supply allocated to it in a given year. A contractor may take delivery of that supply for direct use or storage within its service area, store that water outside its service area for later withdrawal and use within its service area, or carry over a portion of that supply for storage on an as-available-basis in SWP reservoirs, for delivery the following year.

[8] CLWA's original SWP Water Supply Contract with DWR was amended in 1966 for a maximum annual Table A Amount of 41,500 AF. In 1991, CLWA purchased 12,700 AF of annual Table A Amount from a Kern County water district, and in 1999 purchased an additional 41,000 AF of annual Table A Amount ("41K transfer") from another Kern County water district, for a current total annual Table A Amount of 95,200 AF. Later in 1999 legal action was filed challenging the sufficiency of the Environmental Impact Report ("EIR") prepared in connection with the 41K transfer. (*Friends of the Santa Clara River v. Castaic Lake Water Agency*, LASC Case No. BS 056954.) In late 2004, CLWA approved a revised EIR for the 41K transfer ("2004 EIR"). In 2005, new legal actions were filed (and subsequently consolidated) in the Los Angeles County Superior Court (LASC) challenging the sufficiency of the 2004 EIR. (*Planning & Conservation League v. Castaic Lake Water Agency*, LASC Consolidated Case No. BS 098724.) On December 17, 2009, the Court of Appeal, Second District, issued a published decision upholding the sufficiency of the 2004 EIR under the California Environmental Quality Act ("CEQA"). (*Planning & Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210) Remittitur was issued on March 19, 2010, and final Judgment was entered on July 12, 2010. The entry of final Judgment by the LASC concluded eleven years of legal challenges concerning the sufficiency of the 41K transfer EIRs prepared by CLWA, and it resolved all issues that may have remained concerning the adequacy of the 2004 EIR and the finality of the 41K transfer.

In addition to Table A supplies, the SWP Water Supply Contracts provide for additional types of water that may periodically be available, including "Article 21" water and Turnback Pool water. Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. The Turnback Pool is a program through which contractors with allocated Table A supplies in excess of their needs in a given year may "turn back" that excess supply for purchase by other contractors who need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic years, although generally less excess water is turned back in dry years. As urban contractor demands have increased, the amount of water turned back and available for purchase has diminished.

The availability of Article 21 water and Turnback Pool water is uncertain. When available, these supplies provide additional water that CLWA may be able to use, either directly to meet demands or for later use after storage in its groundwater banking programs. Due to the uncertainty in availability of Article 21 water and Turnback Pool water, supplies of these types of SWP water are not included in this report. However, to the extent CLWA is able to make use of these supplies when available, CLWA may be able to improve the reliability of its SWP supplies beyond the values used throughout this Plan.

While not specifically provided for in the SWP Water Supply Contracts, DWR has in critically dry years created Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies. The availability of these supplies is uncertain, and are therefore not included in this report. However, CLWA's access to these supplies when they are available would enable it to improve the reliability of its dry-year supplies beyond the values used throughout this report.

Flexible Storage Account

As part of its water supply contract with DWR, CLWA has access to a portion of the storage capacity of Castaic Lake. This Flexible Storage Account allows CLWA to utilize up to 4,684 AF of the storage in Castaic Lake. Any of this amount that CLWA borrows must be replaced by CLWA within five years of its withdrawal. CLWA manages this storage by keeping the account full in normal and wet years and then delivering that stored amount (or a portion of it) during dry periods. The account is refilled during the next year that adequate SWP supplies are available to CLWA to do so. In 2005, CLWA negotiated with Ventura County SWP contractor agencies to obtain the use of their Flexible Storage Account. This allows CLWA access to another 1,376 AF of storage in Castaic Lake. CLWA access to this additional storage is available on a year-to-year basis through 2015. While it is expected that CLWA and Ventura County will extend the existing flexible storage agreement beyond the 2015 term, it is not assumed to be available beyond 2015 in this Plan.

3.2.1.1.3 Factors Affecting SWP Table A Supplies

While Table A identifies the maximum annual amount of Table A water a SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each

year is dependent on a number of factors and can vary significantly from year to year. The primary factors affecting SWP supply availability include: the availability of water at the source of supply in northern California, the ability to transport that water from the source to the primary SWP diversion point in the southern Delta and the magnitude of total contractor demand for that water.

Availability of SWP Source Water

SWP supplies originate in northern California, primarily from the Feather River watershed. The availability of these supplies is dependent on the amount of precipitation in the watershed, the amount of that precipitation that runs off into the Feather River, water use by others in the watershed and the amount of water in storage in the SWP's Lake Oroville at the beginning of the year. Variability in the location, timing, amount and form (rain or snow) of precipitation, as well as how wet or dry the previous year was, produces variability from year to year in the amount of water that flows into Lake Oroville. However, Lake Oroville acts to regulate some of that variability, storing high inflows in wetter years that can be used to supplement supplies in dry years with lower inflows.

As discussed in Section 1.6 and in DWR's *2009 Reliability Report*, climate change adds another layer of uncertainty in estimating the future availability of SWP source water. Current literature suggests that global warming may change precipitation patterns in California from the patterns that occurred historically. While different climate change models show differing effects, potential changes could include more precipitation falling in the form of rain rather than snow and earlier snowmelt, which would result in more runoff occurring in the winter rather than spread out over the winter and spring.

Ability to Convey SWP Source Water

As discussed previously, water released from Lake Oroville flows down natural river channels into the Delta. The Delta is a network of channels and reclaimed islands at the confluence of the Sacramento and San Joaquin rivers. The SWP and the federal Central Valley Project (CVP) use Delta channels to convey water to the southern Delta for diversion, making the Delta a focal point for water distribution throughout the state.

A number of issues affecting the Delta can impact the ability to divert water supplies from the Delta, including water quality, fishery protection and levee system integrity. Water quality in the Delta can be adversely affected by both SWP and CVP diversions, which primarily affect salinity, as well as by urban discharge and agricultural runoff that flows into the Delta, which can increase concentrations of constituents such as mercury, organic carbon, selenium, pesticides, toxic pollutants and reduce dissolved oxygen. The Delta also provides a unique estuarine habitat for many resident and migratory fish species, some of which are listed as threatened or endangered. The decline in some fish populations is likely the result of a number of factors, including water diversions, habitat destruction, degraded water quality and the introduction of non-native species. Delta islands are protected from flooding by an extensive levee system. Levee failure and subsequent island flooding can lead to increased salinity requiring the temporary shut down of SWP pumps.

In order to address some of these issues, SWP and CVP operations in the Delta are limited by a number of regulatory and operational constraints. These constraints are primarily incorporated

into the State Water Resources Control Board's (SWRCB) Water Rights Decision 1641 (D-1641), which establishes Delta water quality standards and outflow requirements that the SWP and CVP must comply with. In addition, SWP and CVP operations are further constrained by requirements included in Biological Opinions (BOs) for the protection of threatened and endangered fish species in the Delta, issued by the United States Fish and Wildlife Service (FWS) in December 2008 and the National Marine Fishery Service (NMFS) in June 2009. The requirements in the BOs are based on real-time physical and biological phenomena (such as turbidity, water temperature and location of fish), which results in uncertainty in estimating potential impacts on supply of the additional constraints imposed by the BOs.

Demand for SWP Water

The reliability of SWP supplies is affected by the total amount of water requested and used by SWP contractors, since an increase in total requests increases the competition for limited SWP supplies. As previously mentioned, contractor Table A Amounts in the SWP Water Supply Contracts ramped up over time, based on projected increases in population and water demand at the time the contracts were signed. Urban SWP contractors' requests for SWP water were low in the early years of the SWP, but have increased steadily over time, although more slowly than the ramp-up in their Table A Amounts, which reached a maximum for most contractors in the early to mid 1990s. Since that time, urban contractors' requests for SWP water have continued to increase until recent years when nearly all SWP contractors are requesting their maximum Table A Amounts.

Consistent with other urban SWP contractors, SWP deliveries to CLWA have increased as its requests for SWP water have increased. Historical total SWP deliveries to CLWA are shown at the end of this Section 3.2 in Table 3-3. The table shows deliveries to the service area for supply to the purveyors, as well as delivery to storage programs outside the service area. A breakdown of Table 3-3 showing how much imported supply was delivered to each purveyor is provided in Appendix H. SWP demand projections provided by CLWA to DWR are shown at the end of this Section 3.2 in Table 3-4. CLWA demand projections provided to DWR are typically conservative in order to maximize water deliveries available to CLWA in any given year for both deliveries to purveyors and current and future storage programs.

3.2.1.2 SWP Table A Supply Assessment

The "*State Water Project Delivery Reliability Report*" (*Reliability Report*), prepared biennially by DWR, assists SWP contractors and local planners in assessing the reliability of the SWP component of their overall supplies. In its 2009 update of the *Reliability Report*, DWR provides SWP supply estimates for SWP contractors to use in their planning efforts, including for preparing their 2010 Urban Water Management Plans. The 2009 *Reliability Report* includes DWR's estimates of SWP water delivery reliability under both current (2009) and future (2029) conditions.

3.2.1.2.1 Analysis Assumptions

DWR's estimates of SWP deliveries are based on a computer model that simulates monthly operations of the SWP and CVP systems. Key inputs to the model include the facilities included in the system, hydrologic inflows to the system, regulatory and operational constraints on system operations and contractor demands for SWP water. In conducting its model studies, DWR must make assumptions regarding each of these key inputs.

In the model studies for the 2009 *Reliability Report*, DWR assumed existing facilities for the analyses of both current and future conditions, with no additional storage or significant improvements to convey water through or past the Delta. Hydrologic inflows to the model are based on 82 years of historical inflows (1922 through 2003), adjusted to reflect current and future levels of development in the source areas. Hydrologic inflows for the future conditions analysis were further adjusted to reflect potential impacts due to climate change and accompanying sea level rise. The 2009 *Reliability Report* model studies include current regulatory and operational constraints in the analyses of both current and future conditions, including D-1641, the 2008 FWS BO and the 2009 NMFS BO. Contractor demands for SWP water used in the analysis of current conditions are derived from recent historical data and information from the contractors. Contractor demands for the future conditions analysis are assumed at maximum Table A Amounts in all 82 years of the simulation.

3.2.1.2.2 Analysis Results

DWR's 2009 *Reliability Report* estimates that for all contractors combined, the SWP can deliver a total Table A supply of 60 percent of total maximum Table A Amounts on a long-term average basis, under both current and future conditions. In the worst-case single critically dry year, DWR estimates the SWP can deliver a total Table A supply of seven percent of total maximum Table A Amounts under current conditions and eleven percent under future conditions. During multiple-year dry periods, DWR estimates the SWP can deliver a total Table A supply averaging 34 to 36 percent of total maximum Table A Amounts under current conditions and 28 to 32 percent under future conditions.

The results DWR presents in its 2009 *Reliability Report* are of total SWP Table A deliveries, which it also expresses as a percentage of total maximum Table A Amounts. However, these percentages are SWP-wide averages and do not reflect the differences among contractors in assumed SWP requests and use, and the differing allocations to individual contractors that result. For this reason, DWR also made available on its website more detailed results from the same model studies presented in the 2009 *Reliability Report*, showing SWP deliveries to each contractor (http://baydeltaoffice.water.ca.gov/swpreliability/index.cfm).

For this Plan, SWP Table A supplies to CLWA were taken from DWR's more detailed, contractor-specific delivery data from its analyses for the 2009 *Reliability Report*. DWR's analysis of current (2009) conditions is used in this Plan to estimate 2010 SWP supplies and its analysis of future (2029) conditions is used to estimate 2030-2050 SWP supplies. As suggested by DWR, SWP supplies for the five-year increments between 2010 and 2030 are interpolated between these values. Since SWP demands cannot increase beyond the maximum demands assumed in the future conditions analysis, SWP supplies for years beyond 2030 are assumed to be the same as for 2030.

Table 3-2 shows CLWA's contractor-specific SWP supplies projected to be available in average/normal years (based on the average delivery over the study's historic hydrologic period from 1922 through 2003). Table 3-2 also summarizes estimated SWP supply availability in a single dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple dry year period (based on a repeat of the historic four-year drought of 1931 through 1934).

TABLE 3-2
SWP TABLE A SUPPLY RELIABILITY (AF)[(a)(b)]

Wholesaler (Supply Source)	2010	2015	2020	2025	2030-2050
Average Water Year[(c)]					
DWR (SWP)					
Table A Supply	58,300	58,100	57,900	57,600	57,400
% of Table A Amount[(d)]	61%	61%	61%	61%	60%
Single Dry Year[(e)]					
DWR (SWP)					
Table A Supply	12,800	11,900	11,000	10,000	9,100
% of Table A Amount	13%	12%	12%	11%	10%
Multi-Dry Year[(f)]					
DWR (SWP)					
Table A Supply	32,800	32,900	32,900	33,000	33,000
% of Table A Amount	34%	35%	35%	35%	35%

Notes:
(a) Supplies to CLWA provided by DWR from detailed delivery results from the analyses presented in DWR's "*2009 SWP Delivery Reliability Report*." As indicated in the 2009 *Reliability Report*, the supplies are based on existing SWP facilities and current regulatory and operational constraints.
(b) Table A supplies include supplies allocated in one year that are carried over for delivery the following year.
(c) Based on average deliveries over the study's historic hydrologic period of 1922 through 2003.
(d) Supply as a percentage of CLWA's Table A Amount of 95,200 AF.
(e) Based on the worst case historic single dry year of 1977.
(f) Supplies shown are annual averages over four consecutive dry years, based on the historic four-year dry period of 1931-1934.

3.2.1.2.3 Potential Future SWP Supplies

An ongoing planning effort to increase long-term supply reliability for both the SWP and CVP is taking place through the Bay Delta Conservation Plan (BDCP) process. The co-equal goals of the BDCP are to improve water supply and restore habitat in the Delta. The BDCP is being prepared through a collaboration of state, federal and local water agencies, state and federal fish agencies environmental organizations and other interested parties. Several "isolated conveyance system" alternatives are being considered in the plan that would divert water from the north Delta to the south Delta where water is pumped into the south-of-Delta stretches of the SWP and CVP. The new conveyance facilities would allow for greater flexibility in balancing the needs of the estuary with reliable water supplies.

In December 2010, DWR released a "Highlights of the BDCP" document that summarizes the activities and expected outcomes of the BDCP. The results of preliminary analysis included in the document indicate the proposed conveyance facilities may increase the combined average long-term water supply to the SWP and CVP from 4.7 MAF per year to 5.9 MAF/year. This would represent an increase in SWP supply reliability from 60 to 75 percent. Planned completion of the BDCP and corresponding environmental analysis documents is early 2013.

DWR estimates of SWP supply reliability in its 2009 *Reliability Report* are based on existing facilities, and so do not include the proposed conveyance facilities that are part of the BDCP. Since this Plan uses DWR's 2009 *Reliability Report* to estimate SWP supplies to CLWA, the improvements in SWP supply reliability that would result from the proposed facilities are not included in this Plan. Any of the proposed facilities that are completed would increase SWP reliability beyond the values used throughout this Plan.

3.2.1.3 Recent Changes to Factors Affecting SWP Supplies

Since the last round of UWMPs were prepared in 2005, DWR has twice updated its *Reliability Report*. In each of its updates, DWR has projected further reductions in average SWP water deliveries than were projected in 2005. The 2009 *Reliability Report* is the most recent update, and identifies several emerging factors that have the potential to affect the availability and reliability of SWP supplies. Although the 2009 *Reliability Report* presents a conservative projection of SWP delivery reliability, particularly in light of events occurring since its release, it remains the best available information concerning the SWP. Following is information and a brief summary of several factors identified in the 2009 *Reliability Report* having the potential to affect the availability and reliability of SWP supplies. A more detailed discussion of the factors discussed below is attached as Appendix D.

A. <u>FWS and NMFS Biological Opinions</u>

As discussed previously in Subsection 3.2.1.1.3, in December 2008 and June 2009, respectively, the FWS and NMFS issued BOs, with each agency concluding that the operation of the SWP and CVP as proposed by DWR and the Bureau of Reclamation would jeopardize the continued existence of protected species.[9] As required by the Endangered Species Act (ESA), FWS and NMFS each developed a Reasonable and Prudent Alternative (RPA) to the proposed SWP and CVP operations, and included that RPA in its respective BO. If the RPA terms are fully implemented, the resulting SWP and CVP operations are deemed to be in compliance with the ESA.

The RPAs developed and adopted by FWS and NMFS impose many new restrictions and requirements on SWP and CVP operations which can result in substantially reduced water exports from the Delta. Preliminary estimates prepared by DWR indicate that implementation of the RPAs in both BOs could reduce SWP deliveries by 28 to 39 percent during average and dry conditions, respectively. Supply impacts resulting from the BO RPAs can vary from year to year, since the operating restrictions in them are dependent upon highly variable factors such as hydrologic and flow conditions in the Delta, migratory and reproductive patterns of the protected species and numerous other non-SWP and non-CVP factors that impact the abundance of the species. Moreover and as further discussed below, legal challenges have been filed against the FWS and NMFS BOs and, should a court conclude the RPA restrictions are invalid, SWP exports could return to higher levels.

1. <u>FWS BO Litigation</u>

In early 2009, the State Water Contractors, the San Luis Delta-Mendota Water Authority and several individual State and Federal contractor water agencies filed legal challenges against the FWS Delta smelt BO (*The Consolidated Delta Smelt Cases*, E.D. Cal. 1:09-CV-00407-OWW-GSA). Plaintiffs claim that the federal defendants violated the National Environmental Policy Act (NEPA) by failing to perform NEPA analysis prior to provisionally adopting and implementing the FWS BO and RPA and that FWS violated the ESA and the Administrative Procedure Act (APA) in adopting the BO's RPA. In December 2010, the court issued a memorandum decision that invalidated the BO and RPA in several respects and remanded the matter to FWS. Further proceedings are expected to address interim operations of the SWP and CVP while the BO and RPA are revised by FWS.

[9] The December 15, 2008 FWS B.O. evaluated impacts to the Delta smelt. The June 4, 2009 NMFS B.O. evaluated impacts to winter-run and spring-run Chinook salmon, steelhead, green sturgeon and resident killer whales.

2. NMFS BO Litigation

After issuance of the NMFS BO in June 2009, the State Water Contractors and other water agencies filed legal challenges against the NMFS salmonid BO (*The Consolidated Salmon Cases*, E.D. Cal. 1:09-CV-1053-OWW-DLB). In May 2010, the court ruled that the federal defendants violated NEPA by failing to analyze the impact of the BO and RPA on humans and the human environment and authorized the SWP and CVP to operate in accordance with D-1641 until the end of June 2010, unless there was a showing of jeopardy to the species or adverse modification of its critical habitat. Motions for summary judgment to obtain a final ruling in the cases were heard in mid-December 2010 and a decision is expected in 2011.

B. Consistency Determination Litigation

Because the Delta smelt and salmon species are also protected under California's ESA (CESA), the SWP and CVP are required to obtain take authorization for SWP and CVP operations from the California Department of Fish and Game (DFG). In July 2009 and September 2009, respectively, DFG issued "consistency determinations" pursuant to CESA and determined that SWP and CVP operations do not violate that statute to the extent the operations are in compliance with the RPAs set forth in the FWS and NMFS BOs. Because the consistency determinations pose a risk that the SWP could remain bound to the terms of the RPAs even if the BOs are overturned by a federal court, DFG's decisions were challenged in state court by the State Water Contractors and Kern County Water Agency. The cases are currently stayed pending the outcome of *The Consolidated Delta Smelt Cases* and *The Consolidated Salmon Cases* (above).[10]

C. Longfin Smelt Protections

Regulatory actions related to longfin smelt also have the potential to affect the availability and reliability of SWP supplies. In February 2008, longfin smelt were listed as a "candidate" species under CESA and DFG imposed certain interim restrictions on the SWP for protection of the longfin smelt and its critical habitat. In February 2009, shortly before longfin smelt were officially listed as a "threatened" species under CESA, DFG issued Incidental Take Permit No. 2081-2009-001-03 (the Permit) to DWR, which imposes terms and conditions on the ongoing and long-term operations of SWP facilities in the Delta. The operating restrictions under the Permit are based in large part on the restrictions imposed on the SWP by the new FWS BO for Delta smelt (see above). The resulting water supply reductions under the Permit depend on several variable factors, such as Delta hydrology, migratory and reproductive patterns of longfin smelt and other factors affecting species abundance in the Delta. Notably, DWR has not indicated whether any particular reductions in SWP exports are likely to result from the Permit. In March 2009, a legal challenge was filed against the Permit.[11] Although that litigation is currently stayed pursuant to a stipulation of the parties, the challenge puts DFG's ability to enforce the Permit into question.

[10] See, e.g., State Water Contractors v. Cal. Dept. of Fish and Game, Sac. Sup. Ct. Case No. 34-2010-80000552; State Water Contractors v. Cal. Dept. of Fish and Game, Sac. Sup. Ct. Case No. 34-2010-80000560.
[11] See State Water Contractors v. California Dept. of Fish and Game, et al., Sac. Sup. Ct. Case No. 34-2009-80000203.

D. Development of Delta Plan and Delta Flow Criteria Pursuant to New State Laws

In November 2009, the California Legislature enacted SBX7-1 as part of a multi-pronged water package related to water supply reliability, ecosystem health and the Delta.[12] Among other things, SBX7-1 creates the Delta Stewardship Council (Council) and directs the Council to develop a comprehensive management plan for the Delta by January 1, 2012 (the Delta Plan). In addition, the State Water Resources Control Board (SWRCB) was directed to develop flow criteria for the Delta to protect public trust resources, including fish, wildlife, recreation and scenic enjoyment and DFG was required to identify quantifiable biological objectives and flow criteria for species of concern in the Delta.

In August 2010, the SWRCB adopted Resolution No. 2010-0039 approving its report entitled "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem" (Flow Criteria). The SWRCB report concludes that substantially higher flows are needed through the Delta than in have occurred in previous decades in order to benefit zooplankton and various fish species.[13] Separately, in September 2010, DFG issued a draft report entitled "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (DFG Report). The DFG Report is based on similar biological objectives and recommends Delta flows similar to those set forth in the SWRCB's Flow Criteria.[14] Notably, both the SWRCB and DFG recognize that their recommended flow criteria for the Delta do *not* balance the public interest or the need to provide an adequate and reliable water supply.[15] Also of importance, both the SWRCB and DFG acknowledge that their recommended flow criteria do not have any regulatory or adjudicatory effect; however, they may be used to inform the Council as it prepares the Delta Plan and may be considered as the BDCP process moves forward.[16]

E. Resulting Effect on SWP Supplies

DWR's latest published report on SWP supply reliability, the 2009 *Reliability Report*, includes assumptions to account for the institutional, environmental, regulatory and legal factors affecting SWP supplies, including but not limited to water quality constraints, fishery protections, other D-1641 requirements and the operational limitations imposed by the FWS and NMFS BOs. The *Reliability Report* assumes that all of these restrictions and limitations will remain in place over the next twenty-year period and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes and new legal requirements for Delta improvements are currently underway (i.e., BDCP, Delta Vision, Delta Plan, etc.). Further, DWR's future conditions analysis incorporates assumptions to account for potential supply impacts related to global climate change.[17] These and other factors result in DWR presenting a conservative projection of SWP delivery reliability in its 2009 *Reliability Report*.

[12] SBX7-1 became effective February 3, 2010 and adds Division 35 to the California Water Code (commencing with Section 85300). Division 35 is referred to as the Sacramento-San Joaquin Delta Reform Act of 2009.
[13] (Flow Criteria at 5-8.)
[14] (DFG Report at 13.)
[15] (Flow Criteria at 4; DFG Report at 16.)
[16] (Flow Criteria at 3, 10; DFG Report at ES-4.)
[17] (*See*, *e.g.*, DWR Report at 19, 29-30, Appendices A-B.)

Conservative projections are useful from a long-range urban water supply planning perspective.[18] But it is noted that recent rulings in various legal actions and other factors described above, among others, support higher estimates of average annual SWP deliveries than projected in DWR's 2009 *Reliability Report*. While this may lead DWR to increase its projections in its next update of the *Reliability Report*, the 2009 *Reliability Report* remains the best available information concerning the long-term delivery reliability of SWP supplies. Therefore, the conservative estimates from the 2009 *Reliability Report* are used in this Plan.

3.2.2 Other Imported Supplies

The following supplies are now available to CLWA and the purveyors through transfers that have been executed since 2005. These supplies are now part of the imported supplies available to the service area.

3.2.2.1 Buena Vista-Rosedale

CLWA has executed a long-term transfer agreement for 11,000 AFY with BVWSD and RRBWSD. These two districts, both located in Kern County, joined together to develop a program that provides both a firm water supply and a water banking component. Both districts are member agencies of the Kern County Water Agency (KCWA), a SWP contractor and both districts have contracts with KCWA for SWP Table A Amounts. The supply is based on existing long-standing Kern River water rights held by BVWSD, and is delivered by exchange of the two districts' SWP Table A supplies. This water supply is firm; that is, the total amount of 11,000 AFY is available in all water year types based on the Kern River water right. CLWA began taking delivery of this supply in 2007 as shown in Table 3-3.

3.2.2.2 Nickel Water - Newhall Land

Newhall Land has acquired a water transfer from Kern County sources known as the Nickel water. This source of supply totals 1,607 AFY. The Nickel water comes from a firm source of supply. This source of supply was acquired in anticipation of the Newhall Ranch Specific Plan development. In this UWMP it is anticipated that the water supply will be available to the VWC.

[18] *See*, *e.g.*, *Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal.App.4th 33; *Watsonville Pilots Association v. City of Watsonville* (2010) 183 Cal.App.4th 1059; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.

TABLE 3-3
HISTORICAL IMPORTED SUPPLY DELIVERIES (AF)

Year	SWP Deliveries to CLWA Service Area[a]	SWP Deliveries to Out-of-Service Area Storage[b]	Withdrawals from Out-of-Service Area Storage[b]	Other Imported Deliveries to CLWA Service Area[c]	Total Imported Supplies to CLWA Service Area
1980	1,210	-	-	-	1,210
1981	5,761	-	-	-	5,761
1982	9,516	-	-	-	9,516
1983	9,476	-	-	-	9,476
1984	11,477	-	-	-	11,477
1985	12,401	-	-	-	12,401
1986	13,928	-	-	-	13,928
1987	16,167	-	-	-	16,167
1988	18,904	-	-	-	18,904
1989	21,719	-	-	-	21,719
1990	22,139	-	-	-	22,139
1991	7,357	-	-	-	7,357
1992	14,812	-	-	-	14,812
1993	13,787	-	-	-	13,787
1994	14,919	-	-	-	14,919
1995	17,747	-	-	-	17,747
1996	18,448	-	1,256	-	19,704
1997	21,586	1,256	-	-	21,586
1998	19,782	-	-	-	19,782
1999	28,813	-	-	-	28,813
2000	31,085	-	2,589	-	33,674
2001	35,632	2,589	-	-	35,632
2002	42,080	24,000	395	-	42,475
2003	44,967	-	-	-	44,967
2004	47,463	32,522	-	-	47,463
2005	36,747	20,000	-	-	36,747
2006	39,622	20,395	-	-	39,622
2007	34,919	8,200	-	11,000	45,919
2008	31,878	-	-	11,000	42,878
2009	26,096	-	1,650	11,000	38,746

Sources: DWR Bulletin 132, Management of the California State Water Project; and DWR delivery files.
Notes:
(a) Includes deliveries of Table A supplies, carryover water, Article 21 water, Turnback Pool water, local supply (from West Branch reservoirs) and water purchased through DWR.
(b) Out-of-service area storage includes flexible storage in Castaic Lake, the Semitropic Banking Program and the Rosedale-Rio Bravo Banking Program.
(c) Deliveries from Buena Vista-Rosedale.

TABLE 3-4
CLWA DEMAND PROJECTIONS PROVIDED TO WHOLESALE SUPPLIERS[(a)] (AF)

Wholesaler (Supply Source)	2015	2020	2025	2030	2035	2040	2045	2050
DWR (SWP)[(b)]	95,200	95,200	95,200	95,200	95,200	95,200	95,200	95,200
BVWSD/RRBWSD (Kern River)[(c)]	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000

Notes:
(a) Nickel Water is excluded from this table because it is not contractually a CLWA supply. It is a Newhall Land supply that would be conveyed by CLWA and made available to VWC. Under Newhall Land's agreement for this fixed water supply, the provider is required to provide the amount contracted for every year.
(b) CLWA has provided demand projections to DWR through 2035 based on its maximum Table A Amount and anticipates that its demands beyond 2035 will also be at maximum Table A Amounts.
(c) Under the agreement for this fixed water supply, the wholesale provider is required to provide the amount contracted for every year. Therefore, no demand projections are actually provided to BVWSD and RRBWSD.

3.3 Groundwater

This section presents information about the purveyors groundwater supplies, including a summary of the adopted groundwater management plan (GWMP).

3.3.1 Santa Clara River Groundwater Basin – East Subbasin

The sole source of local groundwater for urban water supply in the Valley is the groundwater Basin identified in the DWR Bulletin 118, 2003 Update as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin) (Basin No. 4-4.07). The Basin is comprised of two aquifer systems, the Alluvium and the Saugus Formation. The Alluvium generally underlies the Santa Clara River and its several tributaries, to maximum depths of about 200 feet; and the Saugus Formation underlies practically the entire Upper Santa Clara River area, to depths of at least 2,000 feet. There are also some scattered outcrops of Terrace deposits in the Basin that likely contain limited amounts of groundwater. However, since these deposits are located in limited areas situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers for municipal water supply; consequently they have not been developed for any significant water supply in the Basin and are not included as part of the existing or planned groundwater supplies described in this UWMP. Figure 3-1 illustrates the mapped extent of the Santa Clara River Valley East Subbasin in DWR Bulletin 118 (2003), which approximately coincides with the outer extent of the Alluvium and Saugus Formation. The CLWA service area is also shown on Figure 3-1.

3.3.2 Adopted Groundwater Management Plan

As part of legislation authorizing CLWA to provide retail water service to individual municipal customers, Assembly Bill (AB) 134 (2001) included a requirement that CLWA prepare a GWMP in accordance with the provisions of Water Code Section 10753, which was originally enacted by AB 3030. The general contents of CLWA's GWMP were outlined in 2002, and a detailed plan was adopted in 2003 to satisfy the requirements of AB 134. The plan both complements and formalizes a number of existing water supply and water resource planning and management activities in CLWA's service area, which effectively encompasses the East Subbasin of the Santa Clara River Valley Groundwater Basin. Notably, CLWA's GWMP (provided on CD as Appendix G) also includes a basin-wide monitoring program, the results of which provide input to annual reporting on water supplies and water resources in the Basin, as well as input to assessment of Basin yield for water supply as described herein. The existing

groundwater monitoring program will be reflected in the upcoming groundwater reporting to DWR as part of SBX7-6 implementation.

The GWMP contains four management objectives, or goals, for the Basin including (1) development of an integrated surface water, groundwater and recycled water supply to meet existing and projected demands for municipal, agricultural and other water uses; (2) assessment of groundwater basin conditions to determine a range of operational yield values that use local groundwater conjunctively with supplemental SWP supplies and recycled water to avoid groundwater overdraft; (3) preservation of groundwater quality, including active characterization and resolution of any groundwater contamination problems and (4) preservation of interrelated surface water resources, which includes managing groundwater to not adversely impact surface and groundwater discharges or quality to downstream basin(s).

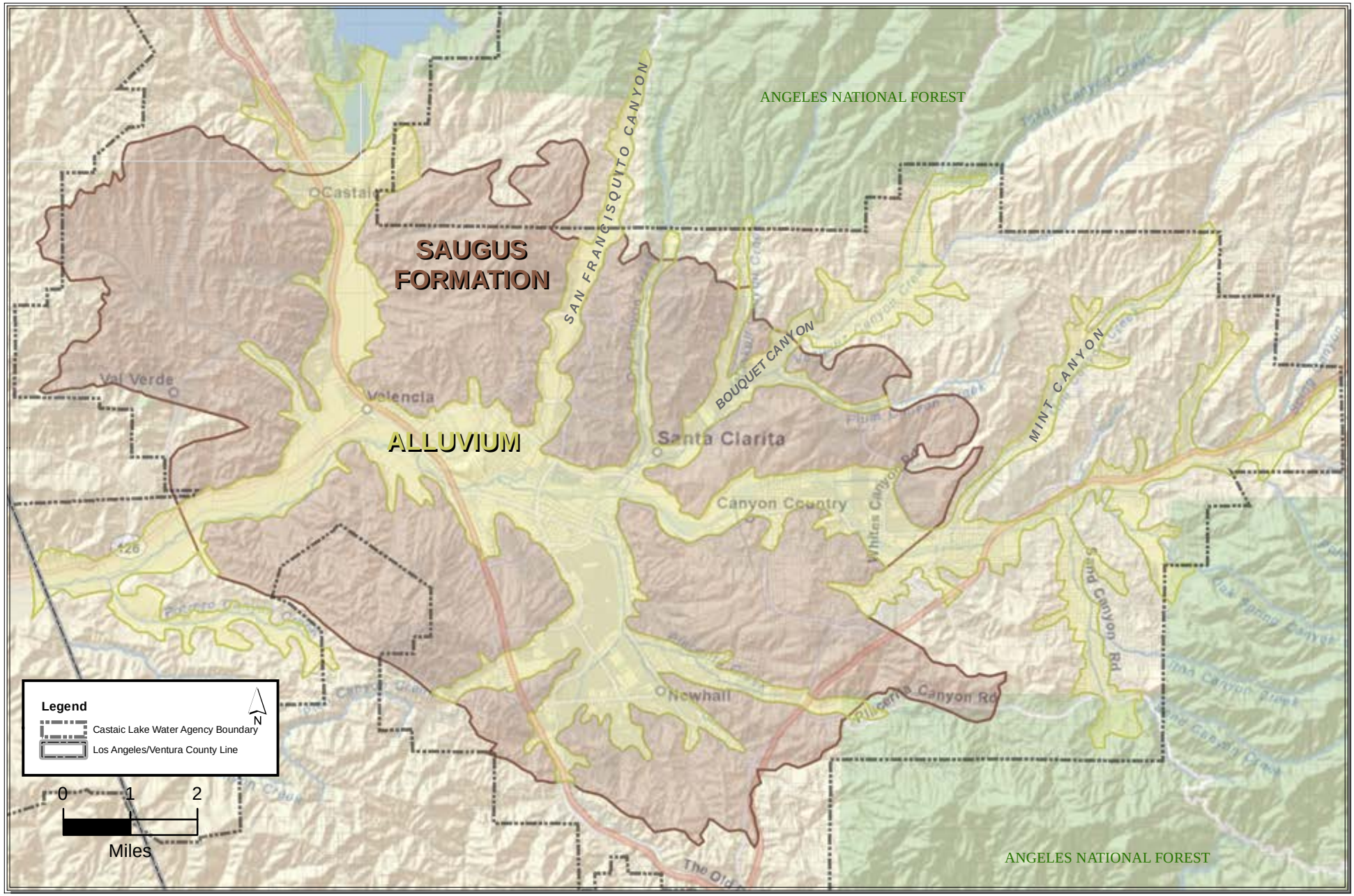


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Figure 3-1
Santa Clara River Valley, East Groundwater Subbasin

Prior to preparation and adoption of the GWMP, a local Memorandum of Understanding (MOU) process among CLWA, the retail water purveyors and United Water Conservation District (UWCD) in neighboring Ventura County, downstream of the East Subbasin of the Santa Clara River Valley, had produced the beginning of local groundwater management, now embodied in the GWMP. Prepared and implemented in 2001, the MOU was a collaborative and integrated approach to several of the aspects of water resource management included in the GWMP. As a result of the MOU, the cooperating agencies integrated their respective database management efforts and continued to monitor and report on the status of Basin conditions, as well as on geologic and hydrologic aspects of their respective parts of the overall stream-aquifer system. Following adoption of the GWMP, the water suppliers developed and utilized a numerical groundwater flow model for analysis of groundwater basin yield and for analysis of extraction and containment of groundwater contamination. The results of those basin yield and contamination analyses, most recently updated in 2009 (Basin Yield Analysis, 2009), are bases for the amounts and allocations of groundwater supplies in this UWMP.

The adopted GWMP includes 14 elements intended to accomplish the Basin management objectives listed above. In summary, the plan elements include:

- Monitoring of groundwater levels, quality, production and subsidence
- Monitoring and management of surface water flows and quality
- Determination of Basin yield and avoidance of overdraft
- Development of regular and dry-year emergency water supply
- Continuation of conjunctive use operations
- Long-term salinity management
- Integration of recycled water
- Identification and mitigation of soil and groundwater contamination, including involvement with other local agencies in investigation, cleanup and closure
- Development and continuation of local, state and federal agency relationships
- Groundwater management reports
- Continuation of public education and water conservation programs
- Identification and management of recharge areas and wellhead protection areas
- Identification of well construction, abandonment and destruction policies
- Provisions to update the groundwater management plan

Work on a number of the GWMP elements had been ongoing for some time prior to the formal adoption of the GWMP, and expanded work on implementation of the GWMP continues on an ongoing basis. The results of some of that work were incorporated in the last UWMP, and subsequent analyses of the groundwater basin are reflected in this current UWMP. Notable in the implementation of the GWMP has been the annual preparation of a Santa Clarita Valley Water Report that summarizes (1) water requirements, (2) all three sources of water supply (groundwater, imported surface water and recycled water, all as part of the GWMP's overall management objectives) and (3) projected water supply availability to meet the following year's projected water requirements.

3.3.2.1 Available Groundwater Supplies

The groundwater component of overall water supply in the Valley derives from a groundwater operating plan developed and analyzed over the last 25 years to meet water requirements (municipal, agricultural, small domestic) while maintaining the Basin in a sustainable condition, specifically no long-term depletion of groundwater or interrelated surface water. The operating plan also addresses groundwater contamination issues in the Basin, all consistent with the GWMP described above. The groundwater operating plan is based on the concept that pumping can vary from year to year to allow increased groundwater use in dry periods and increased recharge during wet periods to collectively assure that the groundwater Basin is adequately replenished through various wet/dry cycles. As ultimately formalized in the GWMP, the operating yield concept has been quantified as ranges of annual pumping volumes to capture year-to-year pumping fluctuations in response to both hydrologic conditions and customer demand.

Ongoing work through implementation of the GWMP has produced three detailed technical reports in addition to the annual Water Reports (the most recent of which, for 2009, was the twelfth annual report). The first report (CH2M Hill, April 2004) documents the construction and calibration of the groundwater flow model for the Valley. The second report (CH2M Hill and LSCE, August 2005) presents the initial modeling analysis of the purveyors' original groundwater operating plan. The most recent report, an updated analysis of the basin (LSCE and GSI, August, 2009) presents the modeling analysis of the current groundwater operating plan, including restoration of contaminated wells for municipal supply after treatment and also presents a range of potential impacts deriving from climate change considerations. All those results are reflected in this UWMP. The primary conclusion of the modeling analysis is that the groundwater operating plan will not cause detrimental short or long term effects to the groundwater and surface water resources in the Valley and is therefore sustainable. The analysis of sustainability for groundwater and interrelated surface water is described in detail in "Analysis of Groundwater Supplies and Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin," prepared by Luhdorff and Scalmanini, Consulting Engineers and GSI Water Solutions, Inc. August 2009 (Basin Yield Analysis, 2009).

The updated groundwater operating plan, summarized in Table 3-5, is as follows:

- **Alluvium:** Pumping from the Alluvial Aquifer in a given year is governed by local hydrologic conditions in the eastern Santa Clara River watershed. Pumping ranges between 30,000 and 40,000 AFY during normal and above-normal rainfall years. However, due to hydrogeologic constraints in the eastern part of the Basin, pumping is reduced to between 30,000 and 35,000 AFY during locally dry years.

- **Saugus Formation:** Pumping from the Saugus Formation in a given year is tied directly to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping ranges between 7,500 and 15,000 AFY. Planned dry-year pumping from the Saugus Formation ranges between 15,000 and 25,000 AFY during a drought year and can increase to between 21,000 and 25,000 AFY if SWP deliveries are reduced for two consecutive years and between 21,000 and 35,000 AFY if SWP deliveries are reduced for three consecutive years. Such high pumping would be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 AFY, to further enhance the effectiveness of natural recharge processes that would recover water levels and groundwater storage volumes after the higher pumping during dry years.

TABLE 3-5
GROUNDWATER OPERATING PLAN FOR THE SANTA CLARITA VALLEY

	Groundwater Production (AF)			
Aquifer	**Normal Years**	**Dry Year 1**	**Dry Year 2**	**Dry Year 3**
Alluvium	30,000 to 40,000	30,000 to 35,000	30,000 to 35,000	30,000 to 35,000
Saugus Formation	7,500 to 15,000	15,500 to 25,000	21,000 to 25,000	21,000 to 35,000
Total	**37,500 to 55,000**	**45,000 to 60,000**	**51,000 to 60,000**	**51,000 to 70,000**

Within the groundwater operating plan, three factors affect the availability of groundwater supplies: sufficient source capacity (wells and pumps), sustainability of the groundwater resource to meet pumping demand on a renewable basis and protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. The first two factors are briefly discussed below, and more completely addressed in the 2009 Annual Water Report and the aforenoted Basin Yield Analysis (2009).

Protection of groundwater sources and provisions for treatment in the event of contamination are discussed further in Chapter 5.

Recent historical groundwater pumping by the retail water purveyors and other groundwater users is summarized in Table 3-6. Planned future groundwater pumping in normal years, by the retail water purveyors as well as by other groundwater users, is summarized in Table 3-7. Existing and planned groundwater pumping by the retail water purveyors as well as by other groundwater users, for normal, single-dry and multiple-dry years, are summarized in Section 3.3.3.4 and in Tables 3-10 through 3-12 below.

TABLE 3-6
RECENT HISTORICAL GROUNDWATER PRODUCTION[a]

Basin Name	Groundwater Pumped (AF)				
	2005	2006	2007	2008	2009
Santa Clara River Valley East Subbasin					
SCWD	12,408	13,156	10,686	11,878	10,077
Alluvium	12,408	13,156	10,686	11,878	10,077
Saugus Formation	0	0	0	0	0
LACWWD 36	343	0	0	0	0
Alluvium	343	0	0	0	0
Saugus Formation	0	0	0	0	0
NCWD	4,824	5,572	5,497	5,912	5,728
Alluvium	1,389	2,149	1,806	1,717	1,860
Saugus Formation	3,435	3,423	3,691	4,195	3,868
VWC	14,741	14,333	15,570	16,094	15,295
Alluvium	12,228	11,884	13,140	14,324	12,459
Saugus Formation	2,513	2,449	2,367	1,770	2,836
Total Purveyor	**32,316**	**33,061**	**31,690**	**33,884**	**31,100**
Alluvium	**26,368**	**27,189**	**25,632**	**27,919**	**24,396**
Saugus Formation	**5,948**	**5,872**	**6,058**	**5,965**	**6,704**
Agricultural and Other[b]	12,785	17,312	14,768	14,750	16,564
Alluvium	12,280	15,872	13,141	13,797	15,590
Saugus Formation	505	1,440	1,627	953	974
Total Basin	**45,101**	**50,373**	**46,458**	**48,634**	**47,664**
Alluvium	**38,648**	**43,061**	**38,773**	**41,716**	**39,986**
Saugus Formation	**6,453**	**7,312**	**7,685**	**6,918**	**7,678**
Groundwater Fraction of Total Municipal Water Supply	**46%**	**45%**	**41%**	**45%**	**44%**

Notes:
(a) From 2009 Santa Clarita Valley Water Report (May 2010).
(b) Includes agricultural and other small private well pumping.

TABLE 3-7
PROJECTED GROUNDWATER PRODUCTION (NORMAL YEAR)[a]

	Groundwater Pumping (AF)							
Basin Name	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Santa Clara River Valley								
East Subbasin								
LACWWD 36								
Alluvium	0	0	0	0	0	0	0	0
Saugus Formation	500	500	500	500	500	500	500	500
NCWD								
Alluvium	1,825	1,825	1,825	1,825	1,825	1,825	1,825	1,825
Saugus Formation	4,400	4,400	4,400	4,400	4,400	4,400	4,400	4,400
SCWD								
Alluvium	10,500	10,500	10,500	11,500	11,500	11,500	11,500	11,500
Saugus Formation	2,850	3,350	3,350	3,350	3,350	3,350	3,350	3,350
VWC								
Alluvium	11,675	12,675	13,675	14,675	15,675	16,675	17,675	18,675
Saugus Formation	2,850	3,350	3,350	3,350	3,350	3,350	3,350	3,350
Total Purveyor								
Alluvium	**24,000**	**25,000**	**26,000**	**28,000**	**29,000**	**30,000**	**31,000**	**32,000**
Saugus Formation	**10,600**	**11,600**	**11,600**	**11,600**	**11,600**	**11,600**	**11,600**	**11,600**
Agricultural and Other[b]								
Alluvium	14,500	13,500	12,500	10,100	9,100	8,100	7,100	6,600
Saugus Formation	900	900	900	900	900	900	900	900
Total Basin								
Alluvium	**38,500**	**38,500**	**38,500**	**38,100**	**38,100**	**38,100**	**38,100**	**38,600**
Saugus Formation	**11,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**

Notes:
(a) Existing and planned pumping by individual purveyors is shown in Appendix C. The distribution of pumping does not represent a formal allocation of water resources among the retail purveyors.
(b) Agricultural and other small private well pumping, including Newhall Land, Robinson Ranch Golf Course, Wayside Honor Rancho, Valencia Golf Course and proposed Palmer Golf Course.

As reflected in Table 3-7, the groundwater operating plan recognizes ongoing pumping for the two major uses of groundwater in the Basin, municipal and agricultural water supply. Consistent with the groundwater operating plan, projected groundwater pumping includes an ongoing conversion of pumping, coincident with planned land-use changes, from agricultural to municipal water supply. This is shown in Table 3-7, with projected pumping by agricultural and other users decreasing as purveyor pumping increases by a similar amount, resulting in total pumping remaining essentially constant through 2050. The groundwater operating plan and projected pumping also includes other small private domestic and related pumping (discussed further below). As shown in Table 3-7, total projected groundwater pumping by all users within each aquifer is within the ranges for normal year pumping identified in the groundwater operating plan (Table 3-5).

During preparation of the 2005 Plan, the Santa Clarita Valley Well Owners' Association submitted some limited information about the nature and magnitude of private well pumping. This included a detailed estimate of private well pumping in the San Francisquito Canyon portion of the Basin – a total of 85 AFY by 73 individual private pumpers, or nearly 1.2 AFY per private well pumper. As a result of that input, it continues to be recognized that total private pumping is likely well within the 500 AFY estimates of small private well pumping in recent annual Water Reports, or about 1 percent of typical Alluvial Aquifer pumping by the purveyors

and other known private well owners, e.g. agricultural pumpers, combined. Thus, while the small private wells are not explicitly modeled in the Basin yield analysis described herein because their locations and operations are not known, their operation creates a pumping stress that is essentially negligible at the scale of the regional model. Ultimately, implementation of the GWMP to maintain overall pumping within the operating plan, including private pumping, will result in sustainable groundwater conditions to support the combination of municipal (purveyor), agricultural and small private groundwater use on an ongoing basis.

Another change that has affected the UWMP is the requirement by DWR pursuant to the UWMP Act to provide estimates of the projected groundwater use of each of the purveyors. For the purposes of this report and compliance with the UWMP Act, the retail water purveyors have each set forth their estimates of projected groundwater use. The Agency and the retail water purveyors recognize that these estimates of projected groundwater use are subject to adjustment based on various factors and conditions occurring from time to time. These estimates are provided for the planning purposes of this report and the UWMP, and do not constitute an allocation of groundwater from the local groundwater basins.

3.3.2.2 Alluvium

Based on a combination of historical operating experience and recent (2005 and 2009) groundwater modeling analyses, the Alluvial Aquifer can supply groundwater on a long-term sustainable basis in the overall range of 30,000 to 40,000 AFY, with a probable reduction in dry years to a range of 30,000 to 35,000 AFY. Both of those ranges include about 15,000 AFY of Alluvial pumping for current agricultural and other non-municipal water uses. The dry year reduction is a result of practical constraints in the eastern part of the Basin, where lowered groundwater levels in dry periods have the effect of reducing pumping capacities in that shallower portion of the aquifer. Over time, directly related to the rate of suburban development and corresponding decrease in agricultural land use the amount of Alluvial pumping for agricultural water supply is expected to decrease, with an equivalent increase in the amount of Alluvial pumping for municipal water supply. On an overall basis, Alluvial pumping is intended to remain within the sustainable ranges in the groundwater operating plan.

Adequacy of Supply

For municipal water supply, with existing wells and pumps, the three retail water purveyors with Alluvial wells (NCWD, SCWD and VWC) have a combined pumping capacity from active wells of nearly 42,000 gallons per minute (gpm), which translates into a current full-time Alluvial source capacity of approximately 67,000 AFY. Alluvial pumping capacity from all the active municipal supply wells is summarized in Table 3-8. The locations of the various municipal Alluvial wells throughout the Basin are illustrated on Figure 3-2.

In terms of adequacy and availability, the combined active Alluvial groundwater source capacity of municipal wells, approximately 67,000 AFY, is more than sufficient to meet the current and potential future municipal, or urban, component of groundwater supply from the Alluvium, which in the near term is about 24,000 to 26,000 AFY of the total planned Alluvial pumping of 30,000 to 40,000 AFY. The higher individual and cumulative pumping capacities are, of course, primarily for operational reasons (i.e., to meet daily and other fluctuations from average day to maximum day and peak hour system demands). As noted above, the balance of Alluvial pumping in the operating plan is for agricultural and other non-municipal, including small private, pumping.

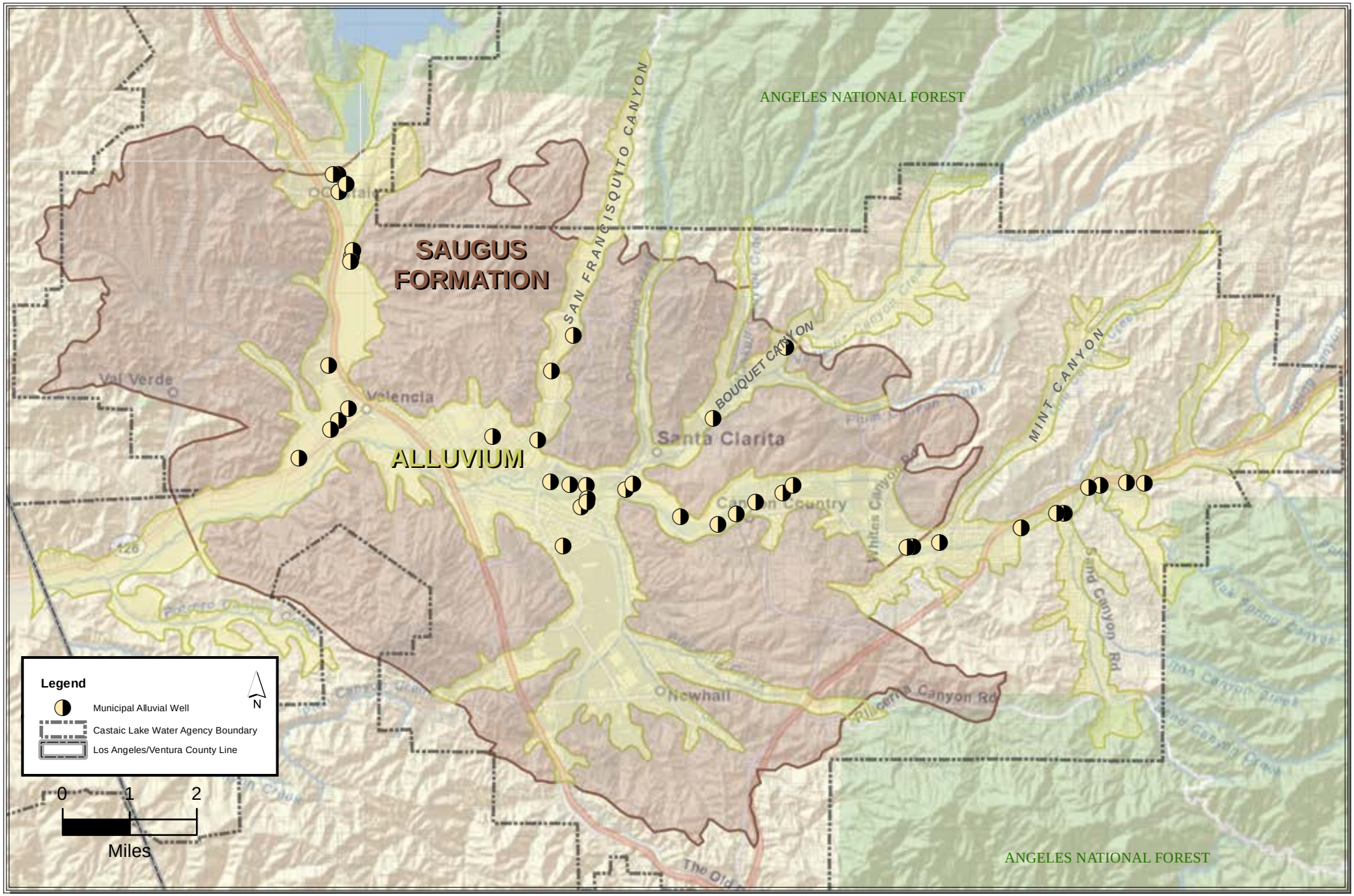

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Figure 3-2
Municipal Alluvial Well Locations
Santa Clara River Valley, East Groundwater Subbasin

TABLE 3-8
ACTIVE MUNICIPAL GROUNDWATER SOURCE CAPACITY — ALLUVIAL AQUIFER WELLS

	Well	Pump Capacity (gpm)	Max. Annual Capacity (AF)	Normal Year Production[(a)] (AF)	Dry-Year Production[(a)] (AF)
NCWD					
	Castaic 1	650	1,040	350	250
	Castaic 2	450	720	100	100
	Castaic 4	270	430	100	0
	Castaic 7	1,450	2,330	300	200
	Pinetree 1	300	480	150	0
	Pinetree 3	550	880	350	300
	Pinetree 4	400	640	300	200
	Pinetree 5	550	880	300	200
	NCWD Subtotal	*4,620*	*7,400*	*1,950*	*1,250*
SCWD					
	Clark	600	960	700	700
	Guida	1,000	1,610	1,300	1,200
	Honby	950	1,530	1,000	700
	Lost Canyon 2	850	1,370	300	0
	Lost Canyon 2A	825	1,330	300	0
	Mitchell 5A	950	1,530	500	200
	Mitchell 5B	700	1,120	800	300
	N. Oaks Central	1,275	2,050	850	700
	N. Oaks East	950	1,530	800	700
	N. Oaks West	1,300	2,290	800	700
	Sand Canyon	1,050	1,690	200	0
	Santa Clara	1,500	2,420	1,200	1,200
	Sierra	1,500	2,420	1,100	700
	Valley Center	1,200	1,930	1,200	1,200
	SCWD Subtotal	*14,650*	*23,580*	*11,050*	*8,300*
VWC					
	Well D	1,050	1,690	880	880
	Well E-15	1,400	2,250	800	800
	Well N	1,250	2,010	650	650
	Well N7	2,500	4,030	1,160	1,160
	Well N8	2,500	4,030	1,160	1,160
	Well Q2	1,200	1,930	1,100	1,100
	Well S6	2,000	3,220	1,000	1,000
	Well S7	2,000	3,220	500	500
	Well S8	2,000	3,220	500	500
	Well T7	1,200	1,930	750	750
	Well U4	1,000	1,610	800	800
	Well U6	1,250	2,010	800	800
	Well W9	800	1,290	1,000	1,000
	Well W10	1,500	2,420	800	800
	Well W11	1,000	1,610	950	950
	VWC Subtotal	*22,650*	*36,470*	*12,850*	*12,850*
Total Purveyors		**41,920**	**67,450**	**25,850**	**22,400**

Note:
(a) Production amounts simulated in the updated Basin Yield analysis (LSCE & GSI, 2009).

Sustainability

Until 2003, the long-term renewability of Alluvial groundwater was empirically determined from approximately 60 years of pumping and groundwater level records. Generally, those long-term observations included stability in groundwater levels and storage, with some dry-period fluctuations in the eastern part of the Basin, over a historical range of total Alluvial pumpage from as low as about 20,000 AFY to as high as about 43,000 AFY. Those empirical observations have since been complemented by the development and application of a numerical groundwater flow model, which has been used to simulate aquifer response to the planned operating ranges of pumping. The numerical groundwater flow model has also been used to analyze the control of perchlorate contaminant migration under selected pumping conditions that have now been implemented to restore, with treatment, pumping capacity that was formerly inactivated due to perchlorate contamination detected in some wells in the Basin. To examine the yield of the Alluvium, or the sustainability of the Alluvium on a renewable basis, the original groundwater flow model was used to examine the long-term projected response of the aquifer to pumping for municipal and agricultural uses in the 30,000 to 40,000 AFY range under average/normal and wet conditions and in the 30,000 to 35,000 AFY range under locally dry conditions, documented in the "Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California, prepared for the Upper Basin Water Purveyors" (2005 Basin Yield Analysis), prepared by CH2M Hill & LSCE, 2005). To examine the response of the entire aquifer system, the original model also incorporated pumping from the Saugus Formation in accordance with the normal (7,500 to 15,000 AFY) and dry year (15,000 to 35,000 AFY) operating plan for that aquifer. The model was run over a synthetic 78-year hydrologic period, which was selected from actual historical precipitation to examine a number of hydrologic conditions expected to affect both groundwater pumping and groundwater recharge.

Simulated Alluvial Aquifer response to the range of hydrologic conditions and pumping stresses was essentially a long-term repeat of the historical conditions that have resulted from similar pumping over the last several decades. The resultant response included (1) generally constant groundwater levels in the middle to western portion of the Alluvium, and fluctuating groundwater levels in the eastern portion as a function of wet and dry hydrologic conditions, (2) variations in recharge that directly correlate with wet and dry hydrologic conditions and (3) no long-term decline in groundwater levels or storage. Consequently, the Alluvial Aquifer was considered in the 2005 UWMP to be a sustainable water supply source to meet the Alluvial portion of the operating plan for the groundwater Basin.

In 2008, partly in preparation for this 2010 UWMP, and partly in response to concerns about events expected to impact the future reliability of supplemental water supply from the SWP, an updated analysis was undertaken to assess groundwater development potential and possible augmentation of the groundwater operating plan. In addition to extending the model's calibration, the updated analysis simulated the historical record of climate and incorporated SWP deliveries for those climatic conditions for an 86-year period from 1922 through 2007, in place of the original model's synthetic 78-year hydrologic period that had been developed prior to the availability of combined climate and SWP deliveries since 1922. While the overall operating plan ranges in the updated basin yield analysis did not change from the original operating plan, prevailing land-use conditions and the specific distributions of pumping reflected in Tables 3-8 and 3-9 were found to produce the same kinds of resultant Alluvial groundwater conditions as concluded to be sustainable in 2005 – (1) no long-term declines in Alluvial groundwater levels and storage; (2) multi-year periods of locally declining, or locally increasing, groundwater levels in response to cycles of below-normal and above-normal precipitation and

(3) short-term impacts on pumping capacities in eastern parts of the basin due to declining groundwater levels during dry periods, mitigable by some redistribution of pumping (reflected in pumping volumes included in this UWMP) and by conformance with the dry-period reduction in Alluvial pumping in the operating plan (Table 3-5). Based on the results of the updated basin yield analysis (LSCE & GSI, 2009), the operating plan is considered to reflect ongoing sustainable groundwater supply rates. In the Alluvium, sustainability was found via explicit simulation of pumping in wet/normal years near the upper end of the operating plan range. In dry years, sustainability was found via explicit simulation of pumping throughout the dry-year operating plan range, with the additional consideration that some pumping redistribution (reflected in this UWMP) be implemented to achieve pumping rates near the upper end of the dry-period range.

3.3.2.3 Saugus Formation

Based on historical operating experience and recent (2005 and 2009) groundwater modeling analysis, the Saugus Formation can supply water on a long-term sustainable basis in a normal range of 7,500 to 15,000 AFY, with intermittent increases to 25,000 to 35,000 AF in dry years. The dry-year increases, based on limited historical observation and modeled projections, demonstrate that a small amount of the large groundwater storage in the Saugus Formation can be pumped over a relatively short (dry) period. This would be followed by recharge (replenishment) of that storage during a subsequent normal-to-wet period when pumping would be reduced.

Adequacy of Supply

For municipal water supply with existing wells, the three retail water purveyors with Saugus wells (NCWD, SCWD and VWC) have a combined pumping capacity from active wells of nearly 17,000 gpm, which translates into a full-time Saugus source capacity of about 27,000 AFY. Saugus pumping capacity from all the active municipal supply wells is summarized in Table 3-9; the locations of the various active municipal Saugus wells are illustrated on Figure 3-3. These capacities include two Saugus wells contaminated by perchlorate (Saugus 1 and 2), which have now been returned to service with treatment facilities for use of the treated water for municipal supply under permit from the State Department of Public Health. They also reflect the most recent replacement well, VWC's Well 207, in a non-impacted part of the basin. Excluded from these capacities is VWC Well 201 that was recently impacted by the detection of perchlorate. The well represents a total of 2,400 gpm of pumping capacity (for a dry-year production capacity of 3,777 AFY). VWC has removed Well 201 from service.

TABLE 3-9
MUNICIPAL GROUNDWATER SOURCE CAPACITY—SAUGUS FORMATION WELLS

Well	Pump Capacity (gpm)	Max. Annual Capacity (AF)	Normal Year Production[(a)] (AF)	Dry-Year Production[(a)] (AF)
NCWD				
12	2,400	3,870	1,765	2,494
13	2,250	3,630	1,765	2,494
NCWD Subtotal	*4,650*	*7,500*	*3,530*	*4,988*
VWC				
159	500	800	50	50
160	2,000	3,220	500	830
205	2,700	4,350	1,211	4,038
206	2,500	4,030	1,175	3,500
207	2,500	4,030	1,175	3,500
VWC Subtotal	*10,200*	*16,430*	*4,111*	*11,918*
SCWD				
Saugus 1	1,100	1,770	1,772	1,772
Saugus 2	1,100	1,770	1,772	1,772
SCWD Subtotal	*2,200*	*3,540*	*3,544*	*3,544*
Total Purveyors	**17,050**	**27,470**	**11,185**	**20,450**

Note:
(a) Production amounts simulated in the updated Basin Yield analysis (LSCE & GSI, 2009).

In terms of adequacy and availability, the combined active Saugus groundwater source capacity of municipal wells of 27,000 AFY is more than sufficient to meet the planned use of Saugus groundwater in normal years of 7,500 to 15,000 AFY. This currently active capacity is more than sufficient to meet water demands, in combination with other sources. In order to supplement near term dry-year supplies, VWC Well 201 could be brought back into service within two years utilizing treatment technologies currently being used in the Santa Clarita Valley (See Section 5). This estimate is conservative because, in 2005, VWC Well Q2 was restored to service in October 2005, six months after perchlorate was detected in the well in April 2005. In addition, in 2005 there was no third-party funding initially available to pay for the cost of putting the well back into service; VWC negotiated a separate agreement with the Whittaker-Bermite property owners to pay for the cost. Also in May 2007, the perchlorate litigation settlement agreement was executed, which established a "Rapid Response Fund" to immediately treat any additional wells that could be become impacted by perchlorate.

With the restored capacity of the VWC Well 201, the Saugus Formation groundwater source capacity of municipal wells would be increased to 31,000 AFY. In order to accommodate longer-term dry-year needs, additional Saugus wells are planned by 2020 and expected to have a combined capacity of 10,000 AFY.

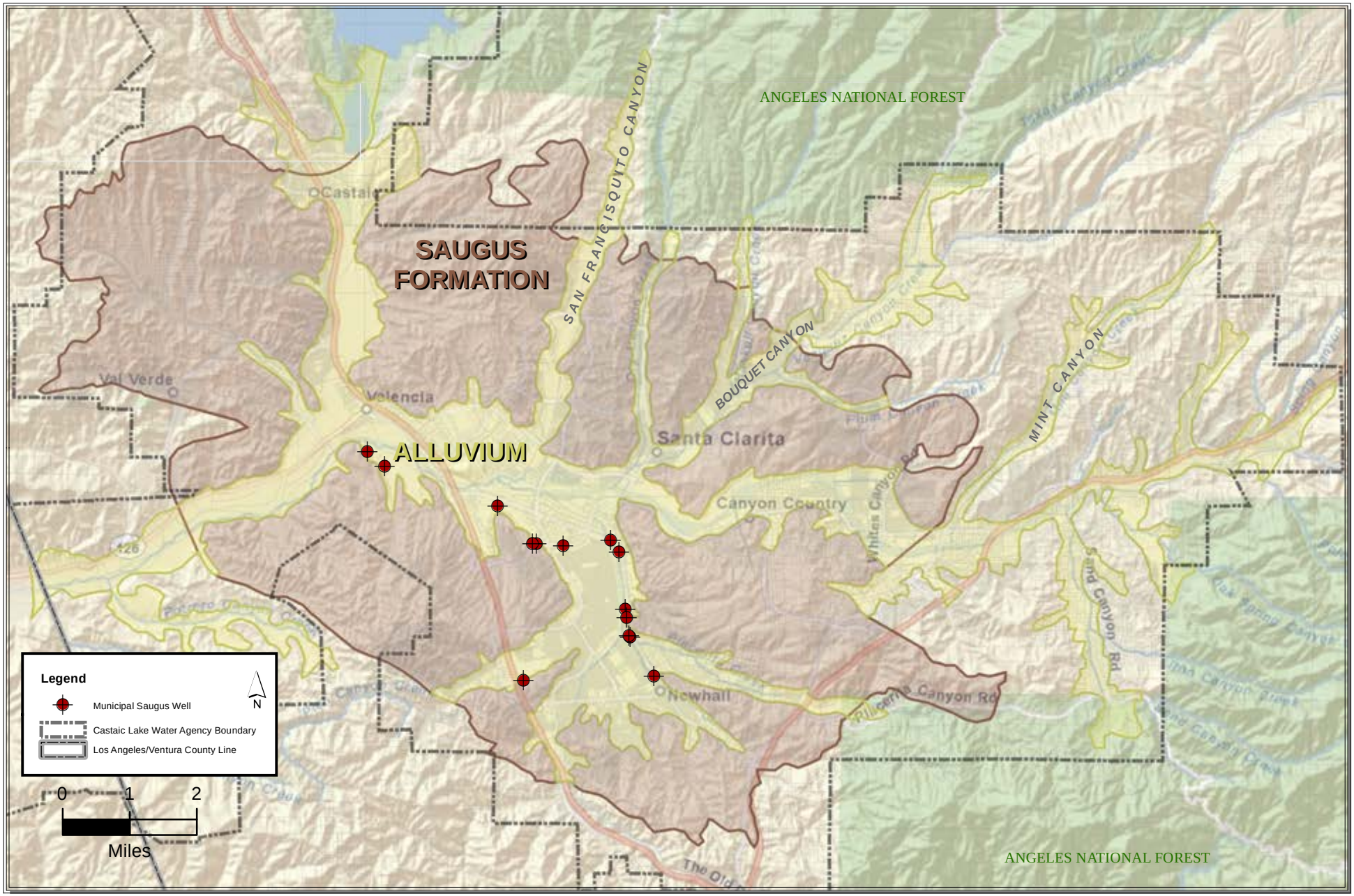

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Figure 3-3
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

Sustainability

Until 2003, the long-term sustainability of Saugus groundwater was empirically estimated from limited historical experience. Historically (and continuing to the present), pumping from the Saugus has been fairly low in most years, with one four-year period of increased pumping up to about 15,000 AFY that had short-term water level impacts but produced no long-term depletion of the substantial groundwater storage in the Saugus. Those empirical observations have now been complemented by the development and application of the numerical groundwater flow model, which has been used to examine aquifer response to the operating plan for pumping from both the Alluvium and the Saugus and also to examine the effectiveness of pumping for both contaminant extraction and control of contaminant migration within the Saugus Formation. The latter aspects of Saugus pumping were being studied at the time of the 2005 UWMP, and were thus reflected at that time as groundwater extraction capacity to be restored. As discussed in Section 3.3.3 those restoration efforts have been undertaken and that pumping is thus reflected in this UWMP as part of the Saugus operating plan (Table 3-5) and pumping distribution (Table 3-9).

To examine the yield of the Saugus Formation, or its sustainability on a renewable basis, the original groundwater flow model was used to examine long-term projected response to pumping from both the Alluvium and the Saugus over the synthetic 78-year period of hydrologic conditions that incorporated alternating wet and dry periods as have historically occurred (CH2M Hill and LSCE, 2005). The pumping simulated in the model was in accordance with the then-current operating plan for the Basin. For the Saugus, simulated pumping included the then-planned restoration of historic pumping from the perchlorate-impacted wells.

The originally simulated Saugus Formation response to the ranges of operating plan pumping under assumed recurrent historical hydrologic conditions was consistent with actual experience under smaller pumping rates: (1) short-term declines in groundwater levels and storage near pumped wells during dry-period pumping, (2) recovery of groundwater levels and storage after cessation of dry-period pumping and (3) no long-term decreases or depletion of groundwater levels or storage. The combination of actual experience with Saugus recharge and pumping up to about 15,000 AFY, complemented by modeled projections of aquifer response that showed long-term utility of the Saugus at 7,500 to 15,000 AFY in normal years and rapid recovery from higher pumping rates during intermittent dry periods, was the basis for concluding that the Saugus Formation could be considered a sustainable water supply source to meet the Saugus portion of the operating plan for the groundwater Basin.

As discussed under Sustainability of the Alluvium above, an updated basin yield analysis was undertaken in 2008 to assess groundwater development potential and possible augmentation of the groundwater operating plan. After extended and updated model calibration and incorporation of extended historical records, the overall operating plan (Table 3-5) and specific distribution of Saugus pumping (Table 3-9) were found to produce the same kinds of resultant Saugus groundwater conditions as concluded to be sustainable in 2005 – (1) long-term stability of groundwater levels, with no sustained declines; (2) groundwater levels slightly below historic Saugus levels, in response to greater long-term utilization of the Saugus and (3) maintenance of sufficiently high Saugus groundwater levels to ensure achievement of planned individual pumping capacities (Table 3-9). Thus, the operating plan for the Saugus, with fairly low pumping in wet/normal years and increased pumping through dry periods, is concluded to reflect sustainable groundwater supply rates.

3.3.3 Existing and Planned Groundwater Pumping

3.3.3.1 Impacted Well Capacity

As discussed in the 2000 UWMP Perchlorate Contamination Amendment, and again in the 2005 UWMP, certain wells in the Basin were impacted by perchlorate contamination and thus represented a temporary loss of well capacity within CLWA's service area. Six wells were ultimately taken out of service upon the detection of perchlorate including four Saugus wells and two Alluvial wells. All have either been (1) abandoned and replaced, (2) returned to service with the addition of treatment facilities that allow the wells to be used for municipal water supply as part of the overall water supply systems permitted by the State Department of Public Health (DPH) or (3) will be replaced under an existing perchlorate litigation settlement agreement (See Section 5). The restored wells (two Saugus wells and one Alluvial well) and the replacement wells (one Saugus and one Alluvial well), which collectively restore much of the temporarily lost well capacity, are now included as parts of the active municipal groundwater source capacities delineated in Tables 3-8 and 3-9. An additional two wells will be drilled to fully restore 4,200 gpm (6,776 AFY) of the impacted well capacity, thus restoring the operational flexibility that existed prior to the perchlorate being discovered. The cost of drilling the remaining two wells will be fully reimbursed under the terms of the perchlorate litigation settlement agreement. Additional information concerning water quality issues and maintenance of pumping capacity is provided in Section 5.

Most recently, in August 2010, VWC's Well 201, located downgradient from the Whittaker-Bermite site and downgradient from the initially impacted Saugus 1, Saugus 2 and V157 wells, had detectable concentrations of perchlorate and the well was taken out of service. Water sampling tests from August 2010 through April 2011 also confirmed the presence of perchlorate over the adopted regulatory standard. This well was immediately taken out of service in August 2010 and its capacity is not included in active groundwater sources delineated in Table 3-9. VWC plans to actively seek remediation under the settlement agreement and restore the impacted well capacity in the near term.

3.3.3.2 Alluvium

In terms of adequacy and availability, the combined active Alluvial Aquifer groundwater sources of municipal wells, approximately 67,000 AFY, are more than sufficient to meet the current and potential future urban component of the groundwater supply from the Alluvium. The potential future urban component of groundwater from the Alluvium in the near-term is about 24,000 to 26,000 AFY of the total planned Alluvial pumping of 30,000 to 40,000 AFY. The higher individual and cumulative pumping capacities of the purveyors are for operational reasons (i.e., to meet daily and other fluctuations from average day to maximum day and peak hour system demands).

Tables 6-2, 6-3 and 6-4 as well as Tables C-2, C-5 and C-8 include planned Alluvial Aquifer supplies. These planned supplies do not increase the quantity of water being withdrawn from Alluvial Aquifer, but represent anticipated or potential shifts in pumping involving different or new wells.

For example, VWC's planned Alluvial Aquifer supplies represent a shifting of pumping from Newhall Land agricultural uses to VWC for the anticipated Newhall Ranch project. While new or improved wells would be required, no net change in Alluvial Production would be anticipated. There is also a potential that SCWD may require additional well capacity to meet the total

anticipated pumping for a single dry year as described in Tables C-4 and C-5. Overall purveyor and non-purveyor supplies remain consistent with the operating plan shown on Table 3-5.

3.3.3.3 Saugus Formation

In terms of adequacy and availability, the combined active Saugus groundwater source municipal well capacity of 27,000 AFY is more than sufficient to meet the planned use of Saugus groundwater in normal years of 7,500 to 15,000 AFY. This current active capacity is also more than sufficient to meet water demands, in combination with other sources. In order to supplement near term dry-year supplies, VWC Well 201 could conservatively be brought back into service within two years utilizing treatment technologies currently being used in the Santa Clarita Valley (see Section 5). In order to accommodate the longer-term demands, additional Saugus wells would be required to meet the planned use of 35,000 AFY of Saugus groundwater during a multiple-dry year period.

Tables 6-2, 6-3 and 6-4 as well as Tables C-2, C-5 and C-8 include planned Saugus Formation supplies. Planned Saugus Formation pumping would only increase the quantity of water being withdrawn from Saugus Formation to levels consistent with the operating plan shown on Table 3-5. To obtain full Saugus Formation supplies of 35,000 AFY in certain dry years, restoration of the perchlorate impacted well (VWC Well 201) along with additional wells with a collective combined total production of approximately 14,000 AFY would be required.

LACWWD 36 anticipates planned Saugus Formation supplies of 500 AFY to be available beginning in 2011. This planned supply included in Tables C-2, C-5 and C-8 is incorporated into Tables 6-2, 6-3 and 6-4; however, the total purveyor and non-purveyor Saugus Formation supplies remain consistent with the operating plan shown on Table 3-5.

There is also a potential that NCWD may require additional well capacity to meet anticipated pumping levels included in Tables C-2, C-5 and C-8 and incorporated into Tables 6-2, 6-3 and 6-4. Overall NCWD existing and planned Saugus Formation supplies, along with the supplies of the other purveyors and non-purveyors, are consistent with the operating plan shown on Table 3-5.

As previously discussed in this section, VWC expects to remediate the capacity from its recently impacted Well 201 in the near term under conservative projections (i.e., within two years utilizing replacement well construction and/or treatment technologies currently being used in the Santa Clarita Valley; see Section 5).

The need for additional new Saugus Formation wells to achieve full dry-year pumping has been planned for some time. Most notably, as part of the 2009 Updated Basin Yield Analysis, three new Saugus wells were simulated in the western part of the basin, remote from the Whittaker-Bermite site and perchlorate-impacted Saugus wells. The conclusion of the analysis that Saugus pumping is sustainable included multiple dry-year pumping at a combined capacity for the three wells of 9,750 AFY.

3.3.3.4 Summary

Overall, the total municipal supply in this Plan includes a groundwater component that is, in turn, part of the overall groundwater supply of the Valley. As such, the municipal groundwater supply, distributed among the retail purveyors, recognizes the existing and projected future uses of groundwater by overlying interests in the Valley such that the combination of municipal and

all other groundwater pumping remains within the groundwater operating plan (Table 3-5) that has been analyzed for sustainability. The distribution of groundwater among the purveyors are detailed in Appendix C and aggregated for all the purveyors in Chapter 6 for normal years, single dry years and multiple dry years. Relative to the 2009 Groundwater Basin Yield Analysis, total groundwater pumping, by all other pumpers as well as by the purveyors from their existing and planned wells, is summarized in Tables 3-10 through 3-12 for normal, single-dry and multiple-dry years.

TABLE 3-10
AVERAGE/NORMAL YEAR EXISTING AND PLANNED GROUNDWATER USAGE IN UPPER SANTA CLARA RIVER BASIN (AF)

Alluvium Supplies	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Purveyors Existing	24,000	24,000	24,000	25,000	25,000	25,000	25,000	25,000
Purveyors Planned	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Purveyors Existing and Planned	24,000	25,000	26,000	28,000	29,000	30,000	31,000	32,000
Non purveyors	14,500	13,500	12,500	10,100	9,100	8,100	7,100	6,600
Total Alluvium Production	**38,500**	**38,500**	**38,500**	**38,100**	**38,100**	**38,100**	**38,100**	**38,600**
Alluvium Yield	*38,600*	*38,600*	*38,600*	*38,600*	*38,600*	*38,600*	*38,600*	*38,600*

Saugus Formation Supplies	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Purveyors Existing	9,225	10,225	10,225	10,225	10,225	10,225	10,225	10,225
Purveyors Planned	1375	1375	1375	1375	1375	1375	1375	1375
Purveyors Existing and Planned	10,600	11,600	11,600	11,600	11,600	11,600	11,600	11,600
Non Purveyors	900	900	900	900	900	900	900	900
Total Saugus	**11,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**
Saugus Yield	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*

TABLE 3-11
SINGLE-DRY YEAR EXISTING AND PLANNED GROUNDWATER USAGE IN UPPER SANTA CLARA RIVER BASIN (AF)

Alluvium Supplies	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Purveyors Existing	20,300	20,250	20,200	21,050	21,050	21,025	21,000	20,650
Purveyors Planned	200	1,250	2,300	3,850	4,850	5,875	6,900	7,750
Purveyors Existing and Planned	20,500	21,500	22,500	24,900	25,900	26,900	27,900	28,400
Non purveyors	14,350	13,350	12,350	9,950	8,950	7,950	6,950	6,450
Total Alluvium Production	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**
Alluvium Yield	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*

Saugus Formation Supplies	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Purveyors Existing	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400
Purveyors Planned (Restored Well)	825	3,777	3,777	3,777	3,777	3,777	3,777	3,750
Purveyors Planned (New Wells)	2,875	9,923	9,923	9,923	9,923	9,923	9,923	9,950
Purveyors Existing and Planned	24,100	34,100	34,100	34,100	34,100	34,100	34,100	34,100
Non purveyors	900	900	900	900	900	900	900	900
Total Saugus	**25,000**	**35,000**	**35,000**	**35,000**	**35,000**	**35,000**	**35,000**	**35,000**
Saugus Yield	*25,000*	*35,000*	*35,000*	*35,000*	*35,000*	*35,000*	*35,000*	*35,000*

TABLE 3-12
MULTIPLE-DRY YEAR EXISTING AND PLANNED GROUNDWATER USAGE IN UPPER SANTA CLARA RIVER BASIN (AF)

Alluvium Supplies	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Purveyors Existing	20,425	20,425	20,425	21,825	21,825	21,825	21,825	21,325
Purveyors Planned	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Purveyors Existing and Planned	20,425	21,425	22,425	24,825	25,825	26,825	27,825	28,325
Non purveyors	14,425	13,425	12,425	10,025	9,025	8,025	7,025	6,525
Total Alluvium Production	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**	**34,850**
Alluvium Yield	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*	*34,850*

Saugus Formation Supplies	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Purveyors Existing	19,700	19,700	19,700	19,700	19,700	19,700	19,700	19,700
Purveyors Planned (Restored Well)	2,375	1,625	1,500	1,400	1,275	1,125	1,000	875
Purveyors Planned (New Wells)	2,250	10,325	10,450	10,550	10,675	10,825	10,950	11,075
Purveyors Existing and Planned	24,325	31,650	31,650	31,650	31,650	31,650	31,650	31,650
Non purveyors	900	900	900	900	900	900	900	900
Total Saugus	**25,225**	**32,550**	**32,550**	**32,550**	**32,550**	**32,550**	**32,550**	**32,550**
Saugus Yield	*25,225*	*32,550*	*32,550*	*32,550*	*32,550*	*32,550*	*32,550*	*32,550*

3.4 Transfers and Exchanges

An opportunity available to CLWA to increase water supplies is to participate in voluntary water transfer programs. Since the drought of 1987-1992, the concept of water transfer has evolved into a viable supplemental source to improve supply reliability. The initial concept for water transfers was codified into law in 1986 when the California Legislature adopted the “Katz” Law (California Water Code, Sections 1810-1814) and the Costa-Isenberg Water Transfer Law of 1986 (California Water Code, Sections 470, 475, 480-483). These laws help define parameters for water transfers and set up a variety of approaches through which water or water rights can be transferred among individuals or agencies.

Up to 27 MAF of water are delivered for agricultural use every year. Over half of this water use is in the Central Valley, and much of it is delivered by, or adjacent to, SWP and CVP conveyance facilities. This proximity to existing water conveyance facilities could allow for the voluntary transfer of water to many urban areas, including CLWA, via the SWP. Such water transfers can involve water sales, conjunctive use and groundwater substitution and water sharing. They usually occur as a form of spot, option or core transfers agreements. The costs of a water transfer would vary depending on the type, term and location of the transfer. The most likely voluntary water transfer programs would probably involve the Sacramento or southern San Joaquin Valley areas.

One of the most important aspects of any resource planning process is flexibility. A flexible strategy minimizes unnecessary or redundant investments (or stranded costs). The voluntary transfer of water between willing sellers and buyers can be an effective means of achieving flexibility. However, not all water transfers have the same effectiveness in meeting resource

needs. Through the resource planning process and ultimate implementation, several different types of water transfers could be undertaken.

3.4.1 Core Transfers

Core transfers are agreements to purchase a defined quantity of water every year. These transfers have the benefit of more certainty in costs and supply, but in some years can be surplus to imported water (available in most years) that is already paid for.

3.4.2 Spot Market Transfers

Spot market transfers involve water purchased only during the time of need (usually a drought). Payments for these transfers occur only when water is actually requested and delivered, but there is usually greater uncertainty in terms of costs and availability of supply. Examples of such transfers were the Drought Water Banks of 1991, 1992 and 1994 and DWR Dry Year Water Purchase Programs in 2001 through 2004 and 2008. An additional risk of spot market transfers is that the purchases may be subject to institutional limits or restricted access (e.g., requiring the purchasing agency to institute rationing before it is eligible to participate in the program).

3.4.3 Option Contracts

Option contracts are agreements that specify the amount of water needed and the frequency or probability that the supply will be called upon (an option). Typically, a relatively low up-front option payment is required and, if the option is actually called upon, a subsequent payment would be made for the amount called. These transfers have the best characteristics of both core and spot transfers. With option contracts, the potential for redundant supply is minimized, as are the risks associated with cost and supply availability.

3.4.4 Future Market Transfers

The most viable types of water transfers are core and option transfers and, as such, represent CLWA's long-term strategy. The most recent costs for this type of transfer is estimated to be about $300 per AFY (equivalent to $5,500 per AF for Table A Amount) for core transfers.

3.5 Groundwater Banking Programs

With recent developments in conjunctive use and groundwater banking, significant opportunities exist to improve water supply reliability for CLWA. Conjunctive use is the coordinated operation of multiple water supplies to achieve improved supply reliability. Most conjunctive use concepts are based on storing surface supplies in groundwater basins in times of surplus for withdrawal and use during dry periods and drought when surface water supplies would likely be reduced.

Groundwater banking programs involve storing available SWP surface water supplies during wet years in groundwater basins in, for example, the San Joaquin Valley. Water would be stored either directly by surface spreading or injection, or indirectly by supplying surface water to farmers for their use in lieu of their intended groundwater pumping. During water shortages, the stored water could be pumped out and conveyed through the California Aqueduct to CLWA

as the banking partner, or used by the farmers in exchange for their surface water allocations, which would be delivered to CLWA as the banking partner through the California Aqueduct.

CLWA is a partner in two existing groundwater banking programs, the Semitropic Banking Program and RRBWSD Banking Program, discussed below in Sections 3.5.1 and 3.5.2, respectively. Newhall Land is also a partner in the Semitropic Banking Program, as discussed in Section 3.5.3, with its supplies assumed to be available to VWC. In addition, CLWA has updated its plan to enhance its overall supply reliability, including the need for additional banking programs, as discussed in Section 3.5.4.

3.5.1 Semitropic Banking Program

Semitropic Water Storage District (Semitropic) provides SWP water to farmers for irrigation. Semitropic is located in the San Joaquin Valley in the northern part of Kern County immediately east of the California Aqueduct. Using its available groundwater storage capacity (approximately one MAF), Semitropic has developed a groundwater banking program, that takes available SWP supplies in wet years and returns the water in dry years. As part of this dry-year return, Semitropic can leave its SWP water in the Aqueduct for delivery to a banking partner and increase its groundwater production for its farmers. Semitropic constructed facilities so that groundwater can be pumped into a Semitropic canal and, through reverse pumping plants, be delivered to the California Aqueduct. Semitropic currently has six long-term first priority banking partners: the Metropolitan Water District of Southern California (Metropolitan), Santa Clara Valley Water District, Alameda County Water District, Alameda County Flood Control and Water Conservation District Zone 7, Vidler Water Company and Newhall Land and Farming. The total amount of storage under contract is approximately one MAF.

In 2002, CLWA entered into a temporary storage agreement with Semitropic, and stored an available portion of its Table A supply (24,000 AF) in an account in Semitropic's program. In 2004, 32,522 AF of available 2003 Table A supply was stored in a second temporary Semitropic account. In accordance with the terms of CLWA's storage agreements with Semitropic, 90 percent of the banked amount, or a total of 50,870 AF, was recoverable through 2013 to meet CLWA water demands when needed. Each account had a term of ten years for the water to be withdrawn and delivered to CLWA.[19] Of this recoverable storage, 4,950 AF has been withdrawn, with 1,650 AF delivered in 2009 and 3,300 AF delivered in 2010, leaving a balance of 45,920 AF in storage available to meet future CLWA needs. CLWA executed an amendment for a ten-year extension of each banking agreement with Semitropic in April 2010. A negative declaration for the program extension was approved by CLWA's Board of Directors on January 19, 2011 and by the Semitropic Board of Directors on April 6, 2011.

Current operational planning includes use of the water stored in Semitropic for dry-year supply. Accordingly, it is reflected in the available supplies delineated in this section, and it is also reflected as contributing only to dry-year supply reliability in Chapter 6, through 2023.

3.5.2 Rosedale-Rio Bravo Banking Program

Also located in Kern County, immediately adjacent to the Kern Water Bank, RRBWSD has developed a Water Banking and Exchange Program. CLWA has entered into a long-term agreement with RRBWSD that provides it with storage and pumpback capacity of 20,000 AFY,

[19] Thereafter, the remaining amount of project water would be forfeited from the account.

with up to 100,000 AF of storage capacity. CLWA began storing water in this program in 2005 and has since reached the program's maximum storage capacity, with 100,000 AF currently available for withdrawal.

This project is a water management program to improve the reliability of CLWA's existing dry-year supplies; it is not an annual supply that could support growth. Accordingly, it is reflected in the available supplies delineated in this section and it is also reflected as contributing only to dry-year supply reliability in Chapter 6.

3.5.3 Semitropic Banking Program – Newhall Land

As mentioned above, one of Semtropic's long-term groundwater banking partners is Newhall Land. In its agreement with Semitropic, Newhall Land has available to it a pumpback capacity of 4,950 AFY and a storage capacity of 55,000 AF. Newhall Land has a current storage balance of 18,828 AF. This supply is assumed to be available to VWC and is planned to be used only in dry years. Accordingly, it is reflected in the available supplies delineated in this section, and it is also reflected as contributing only to dry-year supply reliability in Chapter 6.

3.5.4 Other Opportunities

In 2003, CLWA produced a Water Supply Reliability Plan (Reliability Plan), and updated it in 2009. The Reliability Plan outlines primary elements that CLWA should include in its water supply mix to obtain maximum overall supply reliability enhancement. These elements include both conjunctive use and groundwater banking programs, which enhance the reliability of both the existing and future supplies, as well as water acquisitions. The Reliability Plan recommends water banking storage and pumpback capacity north and south of Tehachapi Mountains, the latter of which would provide an emergency supply in case of catastrophic outage along the California Aqueduct. The Reliability Plan also contains a recommended implementation plan and schedule. CLWA has made significant progress on its water supply reliability program, obtaining storage capacity in two banking programs north of the Tehachapi Mountains, with approximately 146,000 AF of water currently banked in those programs and available for withdrawal. Negotiations with one program south of the Tehachapis were initiated, but identification of a program for emergency outage storage remains ongoing.

The 2009 update of the Reliability Plan presents the implementation schedule recommended for both storage and pumpback capacity beginning in 2010 and incrementally increasing through 2050. CLWA's plans call for development of additional groundwater banking programs, with pumpback capacity of at least an additional 10,000 AF by 2025, and a second additional 10,000 AF by 2035. Table 3-13 summarizes CLWA's future reliability enhancement programs.

TABLE 3-13
FUTURE RELIABILITY ENHANCEMENT PROGRAMS

		Proposed Quantities (AF)		
Project Name	**Year Available**	**Average/ Normal Year**	**Single Dry Year[a]**	**Multiple Dry Years[b]**
Additional Planned Banking Programs	2025	0	10,000	7,500
	2035	0	20,000	15,000

Notes:
(a) Supplies shown are maximum annual withdrawal capacity.
(b) Supplies shown are average withdrawals during four consecutive dry years.

3.6 Planned Water Supply Projects and Programs

The Reliability Plan also discusses the potential for acquiring additional water supplies to meet future demands (the plan refers to these as "water transfer opportunities"). CLWA has been participating in the initial planning stages of the Garden Bar Water and Power Supply Project. This north-of-Delta water supply project is sponsored by the South Sutter Water District (SSWD). The project consists of a new dam and associated hydroelectric facilities. SSWD is investigating a reservoir with a storage capacity of between 245,000 and 350,000 AF. Table 3-14 summarizes CLWA's transfer and exchange opportunities.

TABLE 3-14
TRANSFER AND EXCHANGE OPPORTUNITIES

Source Transfer Agency	Transfer/ Exchange	Year Available	Short/Long Term	Proposed Quantity (AFY)
South Sutter Water District	Transfer	2020-2025	Long Term	TBD

3.7 Development of Desalination

The California UWMP Act requires a discussion of potential opportunities for use of desalinated water (Water Code Section 10631[i]). CLWA has explored such opportunities, and they are described in the following section, including opportunities for desalination of brackish water, groundwater and seawater. However, at this time, none of these opportunities are practical or economically feasible for CLWA and CLWA has no current plans to pursue them. Therefore, desalinated supplies are not included in the supply summaries in this Plan (e.g., Tables 3-1, 6-2, 6-3 and 6-4).

3.7.1 Opportunities for Brackish Water and/or Groundwater Desalination

As discussed in Chapter 3, the two sources of groundwater in the Santa Clarita Valley are drawn from the Alluvial Aquifer and from the Saugus Formation. Neither of these supplies can be considered brackish in nature, and desalination is not required.

However, CLWA and the retail water purveyors could team with other SWP contractors and provide financial assistance in construction of other regional groundwater desalination facilities in exchange for SWP supplies. The desalinated water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to CLWA from the SWP contractor. A list summarizing the groundwater desalination plans of other SWP contractors is not available; however, CLWA would begin this planning effort should the need arise.

In addition, should an opportunity emerge with a local agency other than a SWP contractor, an exchange of SWP deliveries would most likely involve a third party, such as Metropolitan. Most local groundwater desalination facilities would be projects implemented by retailers of SWP contractors and, if an exchange program was implemented, would involve coordination and wheeling of water through the contractor's facilities to CLWA.

3.7.2 Opportunities for Seawater Desalination

Because the Santa Clarita Valley is not in a coastal area, it is neither practical nor economically feasible for CLWA and its purveyors to implement a seawater desalination program. However, similar to the brackish water and groundwater desalination opportunities described above, CLWA and the purveyors could provide financial assistance to other SWP contractors in the construction of their seawater desalination facilities in exchange for SWP supplies.

CLWA and the purveyors have been following the existing and proposed seawater desalination projects along California's coast. Table 3-15 provides a summary of the status of several of California's municipal/domestic seawater desalination facilities.

As shown Table 3-15, most of the existing and proposed seawater desalination facilities are/would be operated by agencies that are not SWP contractors. However, in these cases as described above, an exchange for SWP deliveries would most likely involve a third party (SWP contractor), the local water agency and CLWA.

TABLE 3-15
EXISTING AND PROPOSED SEAWATER DESALINATION FACILITIES ALONG THE CALIFORNIA COAST

Project	Member Agency Service Area	AF per Year	Status
Long Beach Seawater Desalination Project	Long Beach Water Department	10,000	Pilot study
South Orange Coastal Ocean Desalination Project	Municipal Water District of Orange County	16,000-28,000	Pilot study
Carlsbad Seawater Desalination Project	San Diego County Water Authority	56,000	Permitting
West Basin Seawater Desalination Project	West Basin Municipal Water District	20,000	Pilot study
Huntington Beach Seawater Desalination Project	Municipal Water District of Orange County	56,000	Permitting
Camp Pendleton Seawater Desalination Project	San Diego County Water Authority	56,000 to 168,000	Planning
Rosarito Beach Seawater Desalination Feasibility Study	San Diego County Water Authority	28,000 to 56,000	Feasibility study
	Total AFY	**102,000-280,000**	

Source: MWD 2010 UWMP

Although not listed in Table 3-15, the Bay Area Regional Desalination Partnership, comprised of five agencies collaborating on a Regional Desalination Project in the San Francisco Bay area, is working to develop desalination as a water supply for the region. The agencies are the San Francisco Public Utilities Commission, Santa Clara Valley Water District, East Bay Municipal Utilities District, Contra Costa Water District and Alameda County Flood Control and Water Conservation District Zone 7. This regional desalination project is an example of the type of project that CLWA could participate in on an exchange basis.

To date the Partnership has completed a feasibility study to refine the institutional, technical, environmental and scientific merits of developing a regional facility and are planning to build and test a pilot plant in Contra Costa County. Construction is planned for 2012.

Section 4: Recycled Water

This section of the Plan describes the existing and future recycled water opportunities available to the CLWA service area. The description includes estimates of potential recycled water supply and demand for 2010 to 2050 in five year increments, as well as CLWA's proposed incentives and implementation plan for recycled water.

4.1 Recycled Water Master Plan

In normal years, approximately 55 percent of the demands within CLWA's service area is met with imported water. However, the reliability of the imported SWP supply is variable (due in part to its dependence on current year hydrology in northern California and prior year storage in SWP reservoirs). When sufficient imported water is not available, the balance is met with local groundwater provided by the purveyors and from water banking programs.

It is anticipated that water demands will continue to increase. Accordingly, additional reliable sources of water are necessary to meet projected water demands. CLWA recognizes that recycled water is an important and reliable source of additional water. Recycled water enhances reliability in that it provides an additional source of supply and allows for more efficient utilization of CLWA's groundwater and imported water supplies. Draft Recycled Water System Master Plans for the CLWA service area were completed in 1993 and 2002. These master plans considered significant developments affecting recycled water sources, supplies, users and demands so that CLWA could develop a cost-effective recycled water system within its service area. In 2007, CLWA completed California Environmental Quality Act (CEQA) analysis of the 2002 Recycled Water Master Plan (Recycled Plan). This analysis consisted of a Program Environmental Impact Report (EIR) covering the various phases for a recycled water system as outlined in the Recycled Plan. The Program EIR was certified by the CLWA Board in March 2007.

Table 4-1 provides a list of the agencies that participate in the implementation of the Recycled Plan.

CLWA has constructed Phase I of the Recycled Plan, which can deliver 1,700 AFY of water to the VWC service area. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips. In 2009, recycled water deliveries were 328 AF.

TABLE 4-1
PARTICIPATING AGENCIES

Participating Agencies	Role in Plan Development
Castaic Lake Water Agency	Wholesale water provider
Newhall County Water District	Retail water purveyor
Santa Clarita Water Division	Retail water purveyor
Valencia Water Company	Retail water purveyor
Los Angeles County Waterworks District No. 36	Retail water purveyor
Los Angeles County Sanitation District No. 26[20]	Recycled water supplier
Los Angeles County Sanitation District No. 32[21]	Recycled water supplier
Berry Petroleum	Potential recycled water supplier

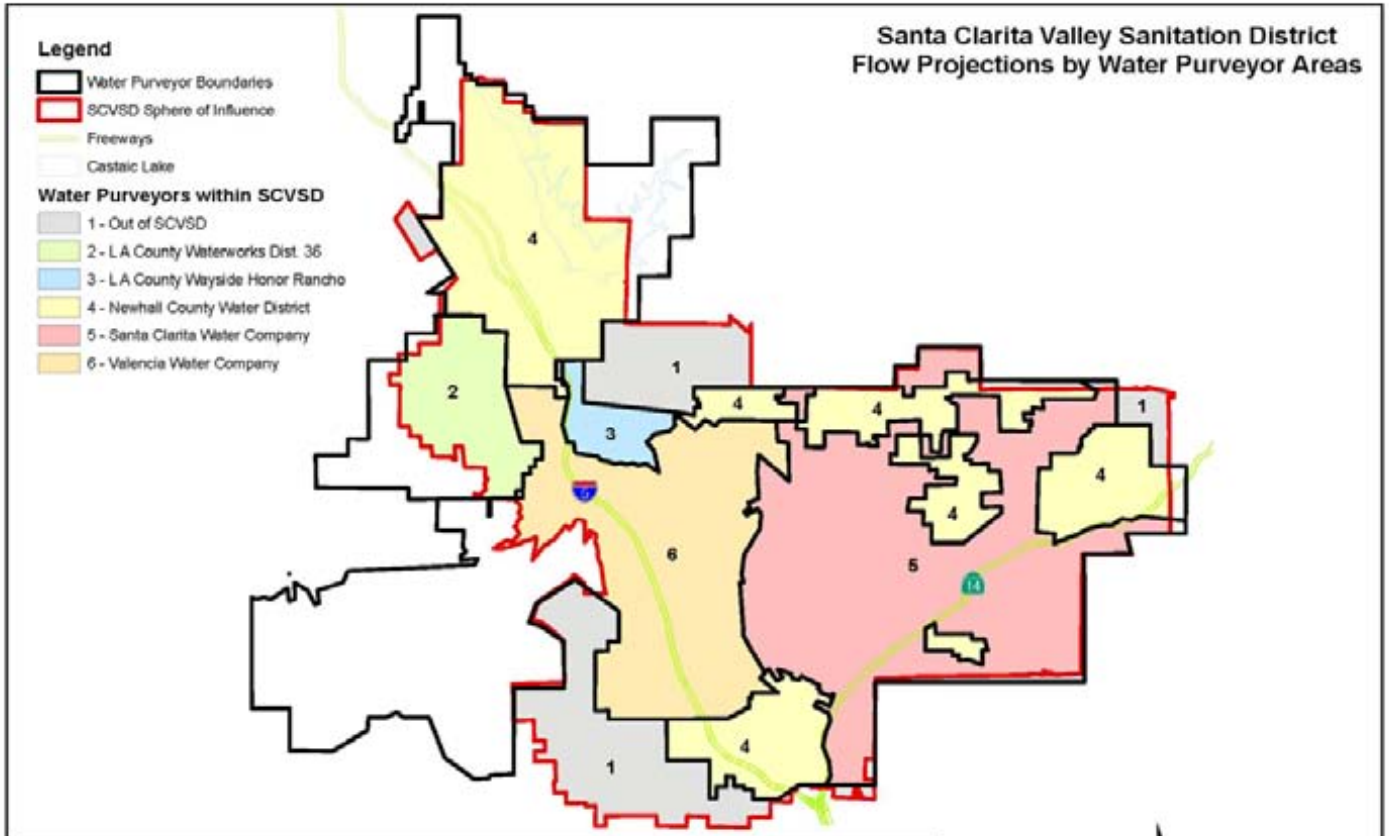
Overall, the Recycled Plan along with the Newhall Ranch development is expected to ultimately recycle up to 22,800 AF of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping and other non-potable uses.

CLWA completed a preliminary design report in 2009 on the second phase of the Recycled Plan (Phase 2A) that will take water from the Saugus Water Reclamation Plant (WRP) and distribute it to identified users to the north, across the Santa Clara River and then to the west and east. Customers included in the Phase 2A expansion will be Santa Clarita Central Park and the Bridgeport and River Village developments. Large irrigation customers will be served with this expansion with a collective design that will increase recycled water deliveries by 500 AFY.

Recycled water will be further expanded with the South End Recycled Water project (Phase 2C). VWC has initiated project design expanding the existing recycled water transmission and distribution system southerly to supply recycled water to additional customers as well as to potentially supply a source of recycled water to customers of adjacent water agencies. Phase 2C of the Recycled Plan will result in the use of 910 AFY of recycled water.

[20] Los Angeles County Sanitation District No. 26 and No. 32, the majority of which serve the City of Santa Clarita, have been consolidated into the Santa Clarita Valley Sanitation District.
[21] Ibid.

FIGURE 4-1
SANTA CLARITA VALLEY SANITATION DISTRICT FLOW PROJECTIONS BY WATER PURVEYOR SERVICE AREA



		Wastewater Flow Projection (MGD)					
Map ID	Water Purveyor	2010	2015	2020	2025	2030	2035
1	Out	0.3	1.2	1.5	1.7	1.9	2.4
2	L A County Waterworks Dist. 36	0.6	1.2	1.3	1.5	1.6	1.9
3	L A County Wayside Honor Rancho	0.0	0.0	0.0	0.1	0.1	0.1
4	Newhall County Water District	2.8	4.0	4.4	4.8	5.2	5.6
5	Santa Clarita Water Company	8.4	9.2	9.8	10.5	11.1	12.4
6	Valencia Water Company	9.3	9.7	10.5	11.2	12.0	12.7
	Total	**21.6**	**25.4**	**27.6**	**29.8**	**31.9**	**35.1**

4.2 Existing Wastewater Treatment Facilities

The Santa Clarita Valley Sanitation District (SCVSD) of Los Angeles County owns and operates two Water Reclamation Plants (WRPs), the Saugus WRP and the Valencia WRP, within the CLWA service area. The water is treated to tertiary levels and, with the exception of water used in Phase I of the Recycled Plan, is discharged to the Santa Clara River. The Newhall Ranch development is also planning to construct a WRP, and non-potable recycled water from this source may be incorporated into CLWA's recycled water system.

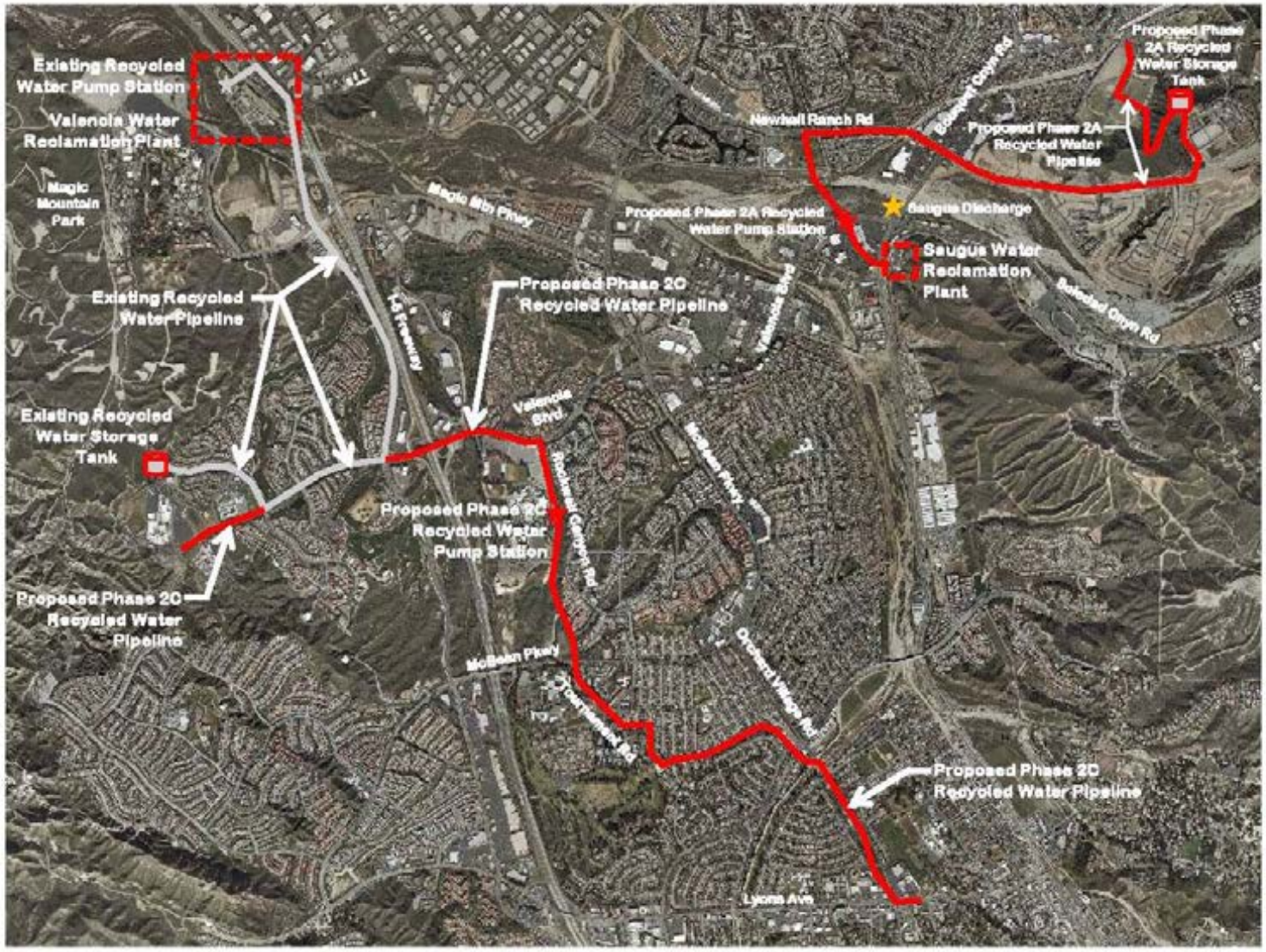
The Valencia WRP, completed in 1967, is located on The Old Road near Magic Mountain Amusement Park. The Valencia WRP has a current treatment capacity of 21.6 million gallons per day (MGD), equivalent to 24,192 AFY, developed over time in stages. In 2010, the Valencia WRP produced an average of 15.17 MGD (16,993 AFY) of tertiary recycled water. Use of recycled water from the Valencia WRP is permitted under Los Angeles Regional Water Quality Control Board (RWQCB) Order Nos. 87-48 and 97-072.

The Saugus WRP, completed in 1962, is located southeast of the intersection of Bouquet Canyon Road and Soledad Canyon Road. The Saugus WRP has a current treatment capacity of 6.5 MGD (7,280 AFY). No future expansions are possible at the plant due to space limitations at the site. In 2010, the Saugus WRP produced an average of 5.02 MGD (5,623 AFY) of tertiary recycled water. Use of recycled water from this facility is permitted under Los Angeles RWQCB Order Nos. 87-49 and 97-072.

The Saugus and Valencia WRPs operated independently until 1980, at which time the two plants were linked by a bypass interceptor. The interceptor was installed to transfer a portion of flows received at the Saugus WRP to the Valencia WRP. Together, the Valencia and Saugus WRPs have a design capacity of 28.1 MGD (31,472 AFY). In 2008 they produced an average of 20.9 MGD (23,422 AFY). The primary sources of wastewater to the Saugus and Valencia WRPs are domestic. Both plants are tertiary treatment facilities and produce high quality effluent. Historically, the effluent from the two WRPs has been discharged to the Santa Clara River. The Saugus WRP effluent outfall is located approximately 400 feet downstream (west) of Bouquet Canyon Road. Effluent from the Valencia WRP is discharged to the Santa Clara River at a point approximately 2,000 feet downstream (west) of The Old Road Bridge.

Phase 1 of the Recycled Plan has been constructed and begins with a 4,000 gpm pump station at the Valencia Water Reclamation Plant that connects to a 1.5 mg reservoir in the Westridge area with 15,600 linear feet of 24- and 20-inch pipeline. It serves landscape customers along The Old Road and the Tournament Players Club golf course, all of which are VWC customers. Phase 2C of the Recycled Plan (the South End project) would use this existing system and connect at The Old Road and Valencia Boulevard. From there it would cross the freeway and run south in Rockwell Canyon Road, ultimately reaching the intersection of Orchard Village Road and Lyons Avenue. The proposed Recycled Plan Phase 2A project would start at the Saugus WRP and cross the Santa Clara River through an existing pipeline. It would then serve customers on the north side of the river, generally along Newhall Ranch Road both west and east of Bouquet Canyon Road (Figure 4-2).

FIGURE 4-2
RECYCLED WATER MASTER PLAN PHASES 2A, 2B, 2C



4.3 Wastewater Treatment Facility Improvements and Expansions

To accommodate anticipated growth in the Santa Clarita Valley, a 6 MGD expansion of the Valencia WRP is planned as indicated in the 2015 Joint Sewerage System Facilities Plan and EIR (Los Angeles County Sanitation District [LACSD] 1998). With this expansion, the capacity of the Valencia WRP would be 27.6 MGD (30,912 AFY), a need the SCVSD projects by 2035. No expansion is planned at the Saugus WRP. The total current planned capacity for both WRPs is 34.1 MGD (38,197 AFY). Based on the Recycled Plan, reuse of the tertiary treated water from these two plants is anticipated at 15.5 MGD (17,400 AFY) by year 2030. As this UWMP plans to 2050, supplies in the Recycled Plan projected to be available by year 2030 have similarly been assumed to be available through 2050 and beyond.

A third Valley reclamation plant, the Newhall Ranch WRP, is proposed as part of the Newhall Ranch project. This proposed facility would be located near the western edge of the development project along the south side of State Route 126. The plant would be constructed in stages, with an ultimate capacity of 6.8 MGD (7,616 AFY) as stated in the RWQCB's Order R4-2007-0046. According to the Draft Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan EIS/EIR, April 2009, approximately 5,400 AFY of the tertiary treated water from this plant is projected to be used by the Newhall Ranch Project. The WRP will serve the Newhall Ranch Specific Plan and a new County Sanitation District has been created to operate and maintain the Newhall Ranch WRP.

Table 4-2 provides the projected wastewater flows in each purveyor's service area from the combined Valencia and Saugus WRP planning area and from the proposed Newhall Ranch WRP. Projected wastewater flow for the Valencia and Saugus WRPs was determined using projected populations from Table 2-9 and the wastewater generation factor SCVSD uses for planning of 86 GPCD, and for the Newhall Ranch WRP based on its projections of production capacity.

Table 4-2 does not reflect Newhall Ranch WRP production capacity from 2010 through 2024. During this interim period, Newhall Ranch-generated wastewater would be temporarily treated at the Valencia WRP based on the need to build-up an adequate, steady flow of wastewater until construction of the Newhall Ranch WRP. The Valencia WRP has sufficient capacity to tertiary-treat wastewater from Newhall Ranch during this interim period, consistent with the Interconnection Agreement approved by SCVSD in 2002.

TABLE 4-2
PROJECTED WASTEWATER FLOWS

	2010	2015	2020	2025	2030	2035	2040	2045	2050
Projected Populations									
LACWWD 36	4,947	7,157	8,908	10,658	12,405	14,159	15,906	17,657	19,407
NCWD	44,316	49,933	54,559	58,612	63,824	68,450	73,079	77,715	82,341
SCWD	124,192	133,868	143,544	153,220	162,896	172,572	182,248	191,924	201,600
VWC	113,296	127,241	138,862	150,477	162,098	173,716	185,330	196,952	208,570
Total Projected Populations[a]	**286,751**	**318,199**	**345,873**	**372,967**	**401,223**	**428,897**	**456,563**	**484,248**	**511,918**
Wastewater Generation									
LACWWD 36	476	689	858	1,027	1,195	1,364	1,532	1,701	1,869
NCWD	4,269	4,810	5,255	5,646	6,148	6,593	7,039	7,486	7,931
SCWD	11,962	12,894	13,826	14,758	15,690	16,622	17,554	18,486	19,418
VWC	10,913	12,256	13,375	14,494	15,613	16,732	17,851	18,970	20,089
Total Wastewater Generated (AF)[b]	**27,620**	**30,649**	**33,314**	**35,924**	**38,646**	**41,311**	**43,976**	**46,643**	**49,308**
WRP Production Capacity									
Saugus and Valencia WRPs									
Treatment Capacity (MGD)[c]	28.1	28.1	28.1	28.1	28.1	34.1	34.1	34.1	34.1
Treatment Capacity (AF)	31,472	31,472	31,472	31,472	31,472	38,192	38,192	38,192	38,192
Newhall Ranch WRP (MGD)[d]	-	-	-	2.0	2.0	4.0	4.0	6.8	6.8
Newhall Ranch WRP (AF)	-	-	-	2,240	2.240	4,480	4,480	7,616	7,616
Total WRP Production Capacity (AF)	**31,472**	**31,472**	**31,472**	**33,712**	**33,712**	**42,672**	**42,672**	**45,808**	**45,808**
Wastewater Treated (AF)[e]	**27,620**	**30,649**	**31,472**	**33,712**	**33,712**	**41,311**	**42,672**	**45,808**	**45,808**

Notes:
(a) From Table 2-9.
(b) Based on projected populations and SCVSD's wastewater generation planning factor of 86 GPCD.
(c) Existing WRP capacity of 28.1 MGD, plus planned Valencia WRP expansion assumed on line by 2035, for total planned capacity of 34.1 MGD. Timing for increase in WRP treatment capacity is based on SCVSD's population projections, which are lower than those presented in this table. SCVSD will continue to monitor sewer flows and expand Valencia WRP when available capacity becomes limited.
(d) Per RWQCB Order No. R4-2007-0046, the Newhall Ranch WRP will incrementally increase its design capacity to accommodate the development project as completed (2.0 MGD in Phase I, 4.0 MGD in Phase II and 6.8 MGD in Phase III). For the purposes of this analysis, Phase I begins in 2025 commensurate with increased planned recycled water demand.
(e) Lesser of Wastewater Generated and Total WRP Production Capacity.

4.4 Recycled Water Supply

The use of wastewater effluent is limited by various state water laws, codes and court decisions. These regulatory limitations are described in greater detail in the Recycled Plan.

CLWA is currently approved to use 1,700 AFY. Any additional ultimate use of existing wastewater for recycled water use is governed by, among other things, the availability of native versus foreign water as shown in Table 4-3 and the impacts to legal users of water. Native water is water that under natural conditions would contribute to a given stream or other body of water (i.e., surface water or upwelling groundwater). ”Foreign” water is water that is not natural to a watercourse and occurs in the watercourse through human efforts. Foreign water can be removed from a watercourse without infringing on the water rights of downstream water users. Use may also be restricted to protect biological resources in the river. The Santa Clarita Valley Sanitation District will need to assess the issues of water rights and protection of biological resources relative to Sections 1210 and 1211 of the Water Code as CLWA’s recycled water program expands.

In 2010, the Valley’s potable water supply was approximately less than one percent recycled water, 44 percent groundwater (native water) and 55 percent imported water (foreign water)[22]. Projected potable water demand less recycled water for 2050 is 99,077 with conservation, 56 percent derived from foreign water and 44 percent derived from native sources, in a normal year. Accordingly, the potential recycled water component would consist of approximately 56 percent (55,477 AF foreign/99,077 AF total) of projected wastewater generation. This volume is determined by multiplying the percentage of foreign water by the wastewater flow. The future foreign water portion of wastewater is 27,609 AFY (56 percent times 49,308 AFY). It is important to note that these percentages are of potable water demand only (i.e., they do not include the use of recycled water in the calculation) and as such are not percentages of total water demand. The demand numbers used for the calculation reflect the implementation of SBX7-7, which requires retailers to reduce demand by 20 percent by 2020. Although the foreign water percentage of potable water demand only increases by one percent from 2010 to 2050, actual use of foreign water increases by nearly 50 percent.

Assuming the capacities and recycled water demand (as discussed in Section 4.3), the existing and projected wastewater flows and potential recycled water use are as summarized in Table 4-3. These numbers differ slightly from those presented in the Recycled Plan and are more conservative in terms of wastewater flows. Table 4-3 also shows the associated wastewater generation through 2050.

[22] Demand for foreign water is calculated as demand with conservation, less recycled water use, less local groundwater pumping.

TABLE 4-3
PROJECTED WASTEWATER GENERATION AVAILABLE FOR RECYCLED WATER USE (AF)

	2010	2015	2020	2025	2030	2035	2040	2045	2050
Projected Wastewater Generation[a]	**27,620**	**30,649**	**33,314**	**35,924**	**38,646**	**41,311**	**43,976**	**46,643**	**49,308**
Demand w/ Conservation[b]	69,673	72,343	71,908	80,236	88,564	96,892	105,220	113,549	121,877
Recycled Water									
LACWWD 36	0	0	50	50	50	50	50	50	50
NCWD	0	200	500	1,000	1,275	1,775	2,275	2,775	3,275
SCWD	0	100	500	1,500	2,275	2,775	3,775	4,775	5,775
VWC	325	1,000	2,000	3,000	4,500	6,000	8,000	10,000	12,200
Total Purveyor	325	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Non-Purveyor (Honor Rancho)	0	0	0	0	1,500	1,500	1,500	1,500	1,500
Total Purveyor and Non-Purveyor Recycled Water[c]	**325**	**1,300**	**3,050**	**5,550**	**9,600**	**12,100**	**15,600**	**19,100**	**22,800**
Potable Demand[d]	69,348	71,043	68,858	74,686	78,964	84,792	89,620	94,449	99,077
Supplies to Meet Potable Demand									
Groundwater[e]	31,100	34,600	36,600	37,600	39,600	40,600	41,600	42,600	43,600
Imported (foreign) water[f]	38,248	36,443	32,258	37,086	39,364	44,192	48,020	51,849	55,477
Foreign % of Potable Demand	55%	51%	47%	50%	50%	52%	54%	55%	56%
Potentially Available for Recycled Water Use[g]	**15,233**	**15,722**	**15,607**	**17,838**	**19,265**	**21,531**	**23,563**	**25,605**	**27,609**

Notes:
(a) From Table 4-2.
(b) From Table 2-22.
(c) Projected recycled water demand based on implementation of complete build-out of Recycled Water Master Plan.
(d) Demand w/ Conservation minus Recycled Water.
(e) From Table 3-7.
(f) Potable Demand minus Groundwater.
(g) Projected Wastewater Generation multiplied by Foreign Percent of Potable Demand.

4.4.1 Alternative Water Resources Management Program

Salinity and nutrient management concerns in the Upper Santa Clara River Watershed are primarily driven by salt sensitive crops located downstream. High chloride levels are of particular concern since high value, chloride sensitive crops like strawberries and avocados grown in the lower watershed utilize surface waters or ground water influenced by surface water for irrigation. Findings from previous reports cite the sources of chloride as source waters and residential self-regenerating water-softeners (SRWS). In 2003, SCVSD passed an ordinance banning the installation of all new SRWSs, and by passage of Senate Bill 475, the District has authority to remove all SRWSs remaining in the Santa Clarita Valley that were installed prior to 2003.

A Total Maximum Daily Load (TMDL) for chloride in the Upper Santa Clara River (Reaches 5 and 6) was adopted by the Los Angeles RWQCB and became effective on May 5, 2005. The Basin Plan Amendment for the chloride TMDL in the Upper Santa Clara River was unanimously adopted by the RWQCB on December 11, 2008. The TMDL established waste load allocations of 100 mg/L for the Saugus and Valencia WRPs. The TMDL implementation schedule allows for several special studies to determine whether existing Water Quality Objectives (WQOs) and waste-load allocations for chloride can be revised, and provides for an 11-year schedule to attain compliance with the final water quality objectives and waste-load allocations for chloride.

In 2008, the SCVSD evaluated the Alternative Water Resources Management (AWRM) Program. This program was developed jointly between Upper Basin Water Purveyors, Ventura County agricultural and water interests and the SCVSD to comply with the chloride WQOs established by the TMDL. Stakeholders along the Los Angeles County and Ventura County stretches of the Santa Clara River collaboratively developed an alternative approach to water resources management that will achieve TMDL compliance. The AWRM uses a basin water supply management approach to achieve the final water quality objectives and waste-load allocation for chloride determined through the TMDL collaborative process. AWRM permits a TMDL for the Santa Clara River that diverges from the Basin Plan, but protects beneficial uses while establishing feasible site specific objectives (SSOs). The program requires studies that showed the alternative WQO was protective of threatened and endangered species, sensitive agriculture and groundwater under the influence of surface water. AWRM, in comparison with the conventional approach, would have a number of benefits in terms of economics, public acceptance, feasibility and environmental quality.

A groundwater and surface water interaction model (GSWI) was developed (March 2008) to evaluate the impact of WRP effluent discharges to the Santa Clara River on downstream surface water and groundwater in the Los Angeles and Ventura County portion of the watershed. The same model is now being used by the AWRM Program to study the link between imported water quality, chloride and total dissolved solids (TDS) in the Upper Santa Clara River. In the model, historical water levels, flows, concentrations and movements within the time period of 1975 through 2005 were simulated and then calibrated to assess the assimilative capacity of surface water in Reaches 4 through 6 and the underlying groundwater basins in these areas. Additional assessments were made regarding (1) the gradient of chloride concentrations from the Saugus and Valencia WRP outfalls to receiving water stations located downstream, (2) the impacts of the WRP effluent in the USCR's groundwater and (3) simulations of potential chloride impacts projected for 2007 through 2030. These findings[23]

[23] The results of the initial GSWI Study are presented in a report entitled “Task 2B-1 Numerical Model Development and Scenario Results” (CH2M Hill, 2008; Geomatrix, 2008a).

resulted in the development of the AWRM Program where chloride WQOs would be increased in select groundwater basins and reaches of the USCR watershed while being decreased in the eastern Piru Basin where the ultimate objective would be an overall reduction in chloride loading and benefits to the water supply.

Given the benefits of chloride reduction and in the context of achieving a salt balance for the watershed, RWQCB staff proposed conditional SSOs that support the AWRM, while still being protective of beneficial uses. When implemented with the AWRM Program, the conditional SSOs of 117 mg/L during normal conditions and 130 mg/L during drought conditions in Reach 4B and the underlying groundwater will protect agricultural uses in the area (USCR Chloride TMDL Conditional SSOs Staff Report, Los Angeles RWQCB 2008). These conditional SSOs apply and supersede the existing regional water quality objectives of 100 mg/L only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation provisions provided in the RWQCB's Staff Report (RWQCB 2008).

Special studies were required for the implementation of AWRM and to evaluate whether the SSOs were protective of beneficial uses. The GSWI model was used to evaluate the effectiveness of the AWRM after the program was implemented. A study using the model showed that the AWRM WQOs could meet SSOs for chloride under drought and non-drought conditions. Based on the Final Staff Report from the Los Angeles RWQCB, the additional studies showed the chloride level protective of the most chloride-sensitive organisms for which data are available and is below the U.S. Environmental Protection Agency aquatic life chloride criteria. The conditional SSOs are not expected to harm in-stream or riparian species or habitat.

Due to ratepayer concerns regarding the perceived high cost of the AWRM Program, the recommended wastewater rate increases to implement AWRM were not approved by the SCVSD Board. In response, SCVSD and the water suppliers have been exploring alternative approaches that could result in revisions to the TMDL. These evaluations are ongoing.

4.5 Other Potential Sources of Recycled Water

Oilfield produced water is a by-product of oil production generated when oil is extracted from the oil reservoir. It is generally of poor quality and unsuitable for potable, industrial or irrigation use without treatment. Because of the poor water quality, reinjection has often been the most cost-effective disposal option. Treatment processes can produce potable quality water; yet, because of the poor initial water quality and the organic constituents, it is often more appropriate for treated oilfield produced water to be used for irrigation or industrial purposes to offset potable water demand. The economics of oil production are market-driven and are different from those of drinking water supplies. As oil prices rise or drop, oilfield production is increased or decreased as dictated by economics. Also, oilfields are eventually depleted of supply and abandoned. Therefore, while oilfield produced water should be considered as long-term, it is not a completely firm supply and is not permanent.

Berry Petroleum has expressed interest in treating oilfield produced water from the Placerita Oilfield for sale to CLWA for non-potable uses. Studies of the potential reuse of treated oilfield produced water from the Placerita Oilfield have indicated that approximately 44,000 barrels per day (1.8 MGD or 2,016 AFY) of treated oilfield produced water may be available. Pilot studies performed at the Placerita Oilfield have indicated that, even with reverse osmosis (RO) treatment, some organic compounds such as naphthalene, 2-butanone and ethylbenzene can

be detected in the RO effluent. For irrigation reuse, the produced water would need to be cooled and treated to remove hardness, silica, total dissolved solids (TDS), boron, ammonia and total organic carbon (TOC).

4.6 Recycled Water Demand

Currently, recycled water is served to landscape irrigation customers, including the TPC Golf Course. Potential recycled water users have been identified through a number of sources including:

- 1993 Recycled Water Master Plan
- Water consumption records for LACWWD 36, NCWD, SCWD and VWC
- Land use maps
- General Plans and Specific Plans for the City of Santa Clarita and County of Los Angeles
- Discussions with City, County, water purveyor and land developer staff
- On-site surveys of the CLWA service area
- 2002 Recycled Water Master Plan

In order to be considered as a potential recycled water user, the user has to be located within CLWA's service area and have a potential non-potable water demand of at least 4 AFY. A total potential demand for existing and future recycled water users is 34,500 AFY for 2015 as identified in the Recycled Plan. As this volume is already greater than the anticipated source of recycled water supply, additional future recycled users were not identified at this time. However, CLWA reevaluates the list of recycled users as conditions change or during the designing of projects under the Recycled Plan including users not identified in 2002. For example, the Los Angeles County Sheriff's Honor Rancho has undertaken sod farming operations. CLWA has therefore identified it as a potential future customer for 1,500 AFY of recycled water.

The initial list of potential recycled water users was reduced by evaluating the potential users that would be most expensive to serve until potential users totaled approximately 17,400 AF. The unit cost to serve each user was calculated using the capital costs for pipelines, reservoirs and pump stations as well as operational costs for pumping. The areas retained for recycled water service have costs ranging from $120 to $5,000 per AFY. Areas eliminated from service had costs as high as $13,000 per AFY. However, only two of the proposed phases in the Recycled Plan had costs above $1,000 per AFY. In addition, the Newhall Ranch project will require about 5,400 AFY. The resulting proposed recycled water service area encompasses a large portion of CLWA's western service area.

The total potential annual recycled water demand identified in the Recycled Plan and for the Newhall Ranch project that is cost effective to serve is approximately 22,800 AFY. Of this total 21,300 AFY is projected use by purveyor customers. Implementation of the recycled water system is expected to occur over the next 40 years.

4.7 Recycled Water Comparison

The 2005 Santa Clarita Valley UWMP projected a total recycled water demand of 1,600 AFY by the year 2010. Although it did not specifically state a projected 2005 demand, CLWA had approval for 1,700 AFY of recycled water use and was in the process of constructing the necessary facilities to deliver this amount at the time the 2005 UWMP was written. Approximately 325 AFY was served in 2010 to landscape irrigation customers, including the TPC Golf Course. Current demand is lower than originally predicted due to lack of funding available to expand the recycled water distribution system. Table 4-4 provides a comparison of the 2005 projected demand versus the actual 2010 demand.

TABLE 4-4
RECYCLED WATER USES - 2005 PROJECTION COMPARED WITH 2010 USE

User Type	2005 Projection for 2010 (AF)	2010 Use (AF)
Landscape	1,600	325
Total	**1,600**	**325**

Table 4-5 provides the comparison of anticipated demands and supplies. As shown in the table, potential demand for recycled water is equal to supplies.

TABLE 4-5
POTENTIAL RECYCLED WATER SUPPLIES AND DEMANDS

Demand	Supply (AF)	Adjusted Demands (AF)
Recycled Plan	17,400	
Newhall Ranch Project	5,400	
Total	**22,800**	**22,800**

4.8 Methods to Encourage Recycled Water Use

In order to provide an incentive to recycled water users, it was recommended in the Recycled Plan that CLWA issue a monthly rebate directly to each recycled water user. CLWA plans on making recycled water available at a reduced rate relative to the cost of potable water. CLWA may consider providing financial assistance to retail water providers to offset the costs of extending the recycled water conveyance system or to existing customers to cover all or a portion of the costs to convert their potable water systems to receive recycled water.

4.9 Implementation Plan for the Recycled Water Plan

Production from the WRPs is not anticipated to be adequate to meet the total demands of the existing system. However, as potable water demands increase and, consequently, recycled water production increases, the water available to meet system demands would also increase. Therefore, it is recommended that construction of the recycled water system be phased to utilize the increases in plant production.

Oilfield produced water would also not be available immediately, nor would it be available as a permanent source of supply. Instead, this alternative water source could be used as an interim long-term supply when the field is in operation and inadequate recycled water is available from

the Valencia and Saugus WRPs. Oilfield produced water is anticipated to be available for approximately the next twenty years. Implementation phasing considers when this water source would be available. A detailed discussion of the recommended phasing plan is provided in the Recycled Plan.

Phasing implementation of the recycled water system is recommended for the following reasons:

- A number of the potential recycled water users are future users that do not yet need recycled water.
- The current flow of the Valencia WRP is not adequate to meet the total demands of the recycled water users.
- Capital funding requirements would be spread over CLWA's current planning period through 2050.
- Oilfield produced water is not immediately (nor permanently) available.
- Demand is increasing due to development of Newhall Ranch.

The recycled water system is divided into implementation phases based primarily on service zone boundaries.

In general, the following factors were considered in developing a phasing plan:

- Ease or willingness of customers to connect to recycled water
- Retrofit costs
- Regulatory requirements
- Community impacts and development requirements
- Water utility involvement/cooperation
- Funding availability
- Reliability and operational costs considerations
- System flexibility

The implementation phases are prioritized based on the status of the users (existing or future), the anticipated construction schedule of future users and the proximity of the users to the non-potable water source (e.g., Valencia WRP, Saugus WRP or Placerita Oilfield).

4.10 Additional Considerations Relating to the Use of Recycled Water

4.10.1 Salt and Nutrient Management Plan

The SWRCB adopted a statewide Recycled Water Policy (Policy) on February 3, 2009 to establish uniform requirements for the use of recycled water. The purpose of this Policy is to increase the use of recycled water from municipal wastewater sources that meet the definition in Water Code Section 13050, subdivision (n), in a manner that implements state and federal

water quality laws. As part of this Policy, the preparation of a salt and nutrient management plan for each basin/subbasin in California, including compliance with CEQA and participation by Los Angeles RWQCB staff, is required by 2014. The Policy states that salts and nutrients from all sources should be managed on a basin wide or watershed wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses.

The SWRCB finds that the appropriate way to address salt and nutrient issues is through the development of regional or sub-regional salt and nutrient management plans rather than through imposing requirements solely on individual recycled water projects. These plans shall be consistent with the DWR Bulletin 160 as appropriate and shall be locally developed. The salt and nutrient plan should include a basin/sub basin wide monitoring plan that specifies an appropriate network of monitoring locations. The monitoring plan should be site specific and must be adequate to provide a reasonable, cost-effective means of determining whether the concentrations of salt, nutrients and other constituents of concern as identified in the salt and nutrient plans are consistent with applicable water quality objectives.

CLWA, along with other Upper Santa Clara River Integrated Regional Water Management Plan participants, applied for a Proposition 84 Planning Grant that would update the IRWMP including preparation of a salt and nutrient management plan. In January 2011 CLWA was notified that its proposal was placed on the list of proposals recommended for funding. CLWA anticipates completing the study in 2012 at which time its impacts on the proposed recycled water supply and costs would be assessed.

4.10.2 Basin Plan

The Santa Clara River watershed has basin objectives established by the Regional Water Quality Control Board Los Angeles Region (Region 4). Water quality objectives were established to protect the various beneficial uses for that particular water body or reach. Table 4-6 shows the water quality objectives for salt and nutrients for the Santa Clara River watershed.

TABLE 4-6
WATER QUALITY OBJECTIVES FOR WATERS IN THE SANTA CLARA RIVER WATERSHED

	TDS (mg/L)	Chloride (mg/L)[a]	Sulfate (mg/L)	Nitrogen (mg/L)	SAR (mg/L)[b]	Boron (mg/L)
Inland Surface Waters						
Above Lang gaging station	500	50	100	5	5	0.5
Between Lang gaging station and Bouquest Canyon Road Bridge	800	100	150	5	5	1.0
Between Bouquet Canyon Road Bridge and West Pier Highway 99	1000	100	300	10	5	1.5
Between West Pier Highway 99 and Blue Cut gaging station	1000	100	400	5	10	1.5
Between Piru Creek and A Street, Fillmore[c]	1300	100	600	5	5	1.5
Between Blue Cut gaging station and Piru Creek, Fillmore[c]	1300	100	600	5	5	1.5
Between A Street, Fillmore and Freeman Diversion "Dam" near Saticoy[d]	1300	100	650	5	5	1.5
Between Freeman Diversion "Dam" near Saticoy and Highway 101 Bridge	1200	150	600	-	-	1.5
Between Highway 101 Bridge and Santa Clara River Estuary[e]			See basin plan			
Santa Paula Creek above Santa Paula Water Works diversion Dam	600	45	250	5	5	1.0
Sespe Creek above gaging station 500' downstream from Little Sespe Creek	800	60	320	5	5	1.5
Piru Creek above gaging station below Santa Felicia Dam	800	60	400	5	5	1.0
Groundwater Basins						
Acton Valley	550	100	150	10;45;10;1[f]	NA	1.0
Sierra Pelona Valley (Agua Dulce)	600	100	100	10;45;10;1[f]	NA	0.5
Upper Mint Canyon	700	100	150	10;45;10;1[f]	NA	0.5
Upper Bouquet Canyon	400	30	50	10;45;10;1[f]	NA	0.5
Green Valley	400	25	50	10;45;10;1[f]	NA	-
Lake Elizabeth-Lake Hughes area	500	50	100	10;45;10;1[f]	NA	0.5
Santa Clara-Mint Canyon	800	150	150	10;45;10;1[f]	NA	1.0
South Fork	700	100	200	10;45;10;1[f]	NA	0.5
Placerita Canyon	700	100	150	10;45;10;1[f]	NA	0.5
Santa Clara-Bouquet and San Francisquito Canyons	700	100	250	10;45;10;1[f]	NA	1.0
Castaic Valley	1000	150	350	10;45;10;1[f]	NA	1.0
Saugus Formation	-	-	-		NA	-

Notes:
(a) The RWQCB has adopted revised SSOs for chloride. See Section 4.4.1 and RWQCB Order No. R4-2008-012,
(b) SAR = Sodium adsorption ratio.
(c) The reach of the Santa Clara River between Blue Cut gaging station and A Street, Fillmore has been split into two reaches, between the confluence of Piru Creek and A Street, Fillmore and between the Blue Cut gaging station and the confluence of Piru Creek under RWQCB Resolution No. R4-2007-018.
(d) The chloride objective for this reach has been revised from 80 mg/L to 100 mg/L under RWQCB Resolution No. 2003-015.
(e) The reach between Highway 101 bridge and the Santa Clara River Estuary have not be designated with specific water quality objectives. In this case general objectives to protect specific beneficial uses are assigned in the basin plan.
(f) 10 mg/L nitrogen (as nitrate + nitrite); 45 mg/L nitrate (as NO_3); 10 mg/L nitrate-nitrogen; 1 mg/L nitrite-nitrogen

4.10.3 Nutrients

The LARWQCB found that the Santa Clara River was being impacted by ammonia and nitrate plus nitrite (nitrogen compounds) with the primary source being wastewater discharge into the river. Nitrogen compounds can cause or contribute to eutrophic effects such as low dissolved oxygen, algae blooms and reduced benthic macro invertebrates. Three reaches in the Santa Clara River have been identified as impaired due to ammonia (Reaches 3, 7 and 8), two of which exceed Basin Plan water quality objectives. These findings lead to a Basin Plan Amendment for a nitrogen compounds TMDL for the Santa Clara River that was adopted on March 23, 2004. The TMDL includes numeric targets for ammonia as listed in Table 4-7, and also for nitrate plus nitrite as shown in Table 4-8.

In 2005 the SCVSD upgraded the treatment processes at the Valencia and Saugus WRPs to include nitrification/denitrification to address nutrients. The 2010 average ammonia levels in the Valencia and Saugus WRP recycled water were 1.05 and 1.16 mg/L, respectively (SCVSD Industrial Waste Pretreatment Program, 2011). The 2010 average nitrate plus nitrite levels in Valencia and Saugus WRP recycled water were 2.41 and 4.08 mg/L, respectively (SCVSD Industrial Waste Pretreatment Program, 2011).

TABLE 4-7
TMDL FOR AMMONIA ON THE SANTA CLARA RIVER

Reach	One-hour NT (mg-N/L)	Thirty-day NT (mg-N/L)
Reach 8	14.8	3.2
Reach 7 above Valencia	4.8	2.0
Reach 7 below Valencia	5.5	2.0
Reach 7 at County Line	3.4	1.2
Reach 3 above Santa Paula	2.4	1.9
Reach 3 at Santa Paula	2.4	1.9
Reach 3 below Santa Paula	2.2	1.7

Source: LARWQCB Santa Clara River TMDL for Nitrogen Compounds Staff Report, June 2003

TABLE 4-8
TMDL FOR NITRATE PLUS NITRITE ON THE SANTA CLARA RIVER

Reach	Thirty-day Average (mg-N/L)
Reach 8	9.0
Reaches 3 and 7 above Valencia	4.5

Source: LARWQCB Santa Clara River TMDL for Nitrogen Compounds Staff Report, June 2003

4.10.4 Projected Salt Levels from Recycled Water

Salt balances depend on the amount imported and the amount exported. The total salt and nutrient loads in waste water discharges primarily depend on the levels in source waters and the type of treatment process that the water agency employs. Recycled water does not import additional salt into the watershed; instead the salt is transferred and cycled within the watershed. Recycled water generally contains salt levels 150 to 400 mg/L above potable water levels and 15 to 50 mg/L of ammonia.

Within California, agricultural irrigation is the largest consumer of recycled water followed by landscape irrigation, which are also typical uses in the Santa Clara River watershed. However, in the Los Angeles region, which is governed by RWQCB Region 4, groundwater recharge is the largest use of recycled water.

Table 4-9 represents the amount of salt above baseline levels that will need management. These levels are projected and may vary due to regulatory changes or changes in the source waters. The amounts do not represent the total loading but represent salt that will not be exported from the watershed through discharge into surface waters Management of salts and nutrients within the watershed is anticipated to be addressed through development of Salt and Nutrient Management Plans discussed in Section 4.10.1.

TABLE 4-9
ESTIMATED SALT ABOVE POTABLE LEVELS BY RECYCLED WATER USERS

	2010	2015	2020	2025	2030	2035	2040	2045	2050
Projected recycled water use (AF)[(a)]	325	1,300	3,050	5,550	9,600	12,100	15,600	19,100	22,800
Non-exported salt levels (tons/yr)[(b)(c)(d)]	121	486	1,140	2,075	3,589	4,524	5,833	7,142	8,525

Notes:
(a) From Table 4-3.
(b) Amounts are in addition to baseline levels.
(c) Assumes average salt in recycled water is 275 mg/L based on Salt Management Guide for Landscape Irrigation with Recycled Water in Coastal Southern California, A Comprehensive Literature Review. The range cited for most recycled water is 150-400 mg/L.
(d) Based on the following conversions: 456,592 mg/lb; 0.0006063 lb/L; 1,233,481 L/AF; 747.82 lb/AF; 2,000 lb/ton.

Section 5: Water Quality

5.1 Overview

The quality of any natural water is dynamic in nature. This is true for the SWP and the local groundwater of the Basin. During periods of intense rainfall or snowmelt, routes of surface water movement are changed and new constituents are mobilized and enter the water while other constituents are diluted or eliminated. The quality of water changes over the course of a year. These same basic principles apply to groundwater. Depending on water depth, groundwater will pass through different layers of rock and sediment and leach different materials from those strata. Water depth is a function of local rainfall and snowmelt. During periods of drought, the mineral content of groundwater increases. Water quality is not a static feature of water, and these dynamic variables must be recognized.

Water quality regulations also change. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology and the introduction of new treatment technology. All water suppliers are subject to drinking water standards set by the United States Environmental Protection Agency (EPA) and DPH. Additionally, investor-owned water utilities, such as VWC, are subject to water quality regulation by the PUC. CLWA provides imported water from the SWP and other sources, while local retail water purveyors combine local groundwater with treated imported water from CLWA for delivery to their customers. (While LACWWD 36 currently exclusively takes imported water from CLWA, it anticipates bringing a groundwater well into production soon). An annual Consumer Confidence Report (CCR) or Water Quality Report is provided to all Valley residents who receive water from CLWA and one of the four retail water purveyors. That report includes detailed information about the results of quality testing of the water supplied during the preceding year (Water Quality Report 2010). Water quality is also addressed in the annual Santa Clarita Valley Water Report (CLWA et. al., 2009), which describes the current water supply conditions in the Valley and provides information about the water requirements and water supplies of the Santa Clarita Valley.

The quality of water received by individual customers will vary depending on whether they receive imported water, groundwater or a blend. Some will receive only imported water at all times, while others will receive only groundwater. Others may receive water from one well at one time, water from another well at a different time, different blends of well and imported water at other times, and only imported water at yet other times. These times may vary over the course of a day, a week, or a year.

This section provides a general description of the water quality of the supplies within the Valley, aquifer protection and a discussion of potential water quality impacts on the reliability of these supplies.

5.2 Water Quality Constituents of Interest

The Santa Clarita Valley's water suppliers (Section 1.4) are committed to providing their customers with high quality water that meets all federal and state primary drinking water standards. Some contaminants are naturally-occurring minerals and radioactive material. In some cases the presence of animals or human activity can contribute to the constituents in the

source waters. The following sections address constituents reported in the 2010 CCR that may impact water quality.

5.2.1 Perchlorate

Perchlorate, a chemical used in making rocket and ammunitions propellants, has been a water quality concern in the Santa Clarita Valley since 1997 when it was originally detected in four wells operated by the purveyors in the eastern part of the Saugus Formation, near the former Whittaker-Bermite facility. In late 2002, the contaminant was detected in a fifth well, an Alluvial well (SCWD's Stadium Well) also located near the former Whittaker-Bermite site, which was immediately taken out of service. Perchlorate was detected again in early 2005 in a second Alluvial well (VWC's Well Q2) near the former Whittaker-Bermite site, and in 2006 in very low concentrations (below the detection limit for reporting) in a Saugus well (NCWD's NC-13) near one of the originally impacted wells. The maximum contaminant level (MCL) of 6 µg/L was adopted by DPH in 2007.

In August 2010, perchlorate was detected VWC's Saugus Well 201. Confirmation sampling in the months that followed confirmed the detection of perchlorate at concentrations that ranged from 5.7 to 12 micrograms per liter (µg/L). VWC removed Well 201 from service when perchlorate was first detected and is currently evaluating remediation alternatives including wellhead treatment in order to return the well to service and restore impacted well capacity. To date, perchlorate has been detected in a total of 8 wells, in both the Saugus Formation and the Alluvium. Table 5-1 summarizes the current remediation status of all wells where perchlorate has been detected.

The following is a summary of the status of perchlorate remediation and restoration of perchlorate-impacted groundwater supply. A more detailed discussion of pertinent events related to perchlorate contamination, containment, remediation and water supply restoration is included in Appendix I. As part of the evaluation of the containment system's effectiveness, the groundwater model is being updated and recalibrated using actual pumping data. These discussions are provided to illustrate that work toward the reactivation of impacted groundwater supply wells has progressed on several integrated fronts over the last ten years and is being expanded to include VWC Well 201. With the updated model VWC will be evaluating response actions to the contamination in Well 201.

TABLE 5-1
STATUS OF IMPACTED WELLS

Year Perchlorate Detected	Purveyor Well	Groundwater Aquifer	Status
1997	SCWD Saugus 1	Saugus	DPH approved well return to service in January 2011; well in active service utilizing approved perchlorate treatment.
1997	SCWD Saugus 2	Saugus	DPH approved wells return to service in January 2011; well in active service utilizing approved perchlorate treatment.
1997	VWC Well 157	Saugus	Sealed and capacity replaced by new well.
1997	NCWD Well 11	Saugus	Out of service.
2002	SCWD Stadium Well	Alluvium	Sealed and capacity replaced by new well.
2005	VWC Well Q2	Alluvium	DPH approved perchlorate treatment removal in 2007; treatment was installed in 2005 and relocated for potential future use; well remains in service.
2006	NCWD Well NC-13	Saugus	DPH approved annual monitoring, results have always been below the detection limit for reporting; well remains in service.
2010	VWC Well 201	Saugus	Out of service pending additional monitoring and evaluation of remediation alternatives.

In 2002 CLWA and the U.S. Army Corps of Engineers (ACOE) signed a cost-sharing agreement for a feasibility study of the area. Under federal and state law, the owners of the Whittaker-Bermite property have the responsibility for the groundwater cleanup. CLWA, the purveyors, and the Department of Toxic Substances Control (DTSC) signed an oversight agreement in 2003 regarding studies of treatment technologies for removing perchlorate from water supplies, and have also been working with DPH to obtain the necessary permits for these treatment processes. Treatment method pilot studies were conducted during 2003, and in 2004 CLWA and the purveyors selected ion exchange as the preferred treatment method for removing perchlorate.

Although that agreement expired in January 2005 the parties, under DTSC oversight, jointly developed a plan to “pump and treat” contaminated water from two of the purveyors’ impacted wells to stop migration of the contaminant plume and to partially restore the municipal well capacity that has been impacted by perchlorate. The containment plan specifies that wells Saugus 1 and Saugus 2 operate at a continuous pumping rate of 1,100 gpm at each well, for a combined total of 2,200 gpm from the two wells. The annual pumping volume of 1,772 AFY per well assumes that pumping will occur continuously, except for occasional maintenance purposes.

A final settlement to fund, remediate and treat the contaminated water was completed and executed by the parties in April 2007. Design of the CLWA treatment facilities and related pipelines was completed in 2007. Construction of the treatment facility and pipelines began in

November 2007 and treatment of the water began in 2010. Since January 2011 when DPH issued a permit for CLWA to serve this water, CLWA has included this water as part of its supply and has been delivering this water to purveyors. This water is shown as part of the regional supply in Section 3, and as part of NCWD's and SCWD's supply in the detailed supply tables by purveyor in Appendix C.

VWC and CLWA are pursuing the funding for evaluating remediation alternatives, including wellhead treatment of contaminated water from VWC Well 201 through the final settlement agreement. The schedule for restoring service to Well 201 is in development but is projected to be less than two years. During that time, however, the removal from service of Well 201 will not limit the ability to meet dry year target production levels from the Saugus Formation since there is sufficient capacity in the remaining, non-impacted Saugus production facilities to make up for the temporary loss of capacity from VWC Well 201 through the first two years of a multiple dry-year period. Restoration of VWC Well 201 and new Saugus well construction are planned to achieve full Saugus Formation capacity through a third year or longer dry period as discussed in Section 3.

Returning the impacted Saugus well (VWC Well 201) to municipal water supply service by installing treatment requires DPH approval before the water can be considered potable and safe for delivery to customers. The permit requirements are contained in DPH Policy Memo 97-005 for direct domestic use of impaired water sources.

Before issuing a permit to a water utility for use of an impaired source as part of the utility's overall water supply permit, DPH requires that studies and engineering work be performed to demonstrate that pumping the well and treating the water will be protective of public health for users of the water. The Policy Memo 97-005 requires that DPH review the local retail water purveyor's plan, establish appropriate permit conditions for the wells and treatment system, and provide overall approval of returning the impacted wells to service for potable use. Ultimately, VWC's plan and the DPH requirements are intended to ensure that the water introduced to the potable water distribution system has no detectable concentration of perchlorate.

The DPH Policy Memo 97-005 requires, among other things, the completion of a source water assessment for the impacted well intended to be returned to service. The purpose of the assessment is to determine the extent to which the aquifer is vulnerable to continued migration of perchlorate and other contaminants of interest from the Whittaker-Bermite site. The assessment includes the following:

- Delineation of the groundwater capture zone caused by operating the impacted wells.
- Identification of contaminants found in the groundwater at or near the impacted wells.
- Identification of chemicals or contaminants used or generated at the Whittaker-Bermite facility.
- Determination of the vulnerability of pumping the impacted wells to these contaminant sources.

The groundwater model that was developed for use in analyzing the operating yield and sustainability of groundwater in the Basin was also used for simulating the capture and control of perchlorate contamination in the originally impacted Saugus wells. The results of that work are summarized in "Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California" (CH2M Hill, December 2004). The recent detection

of perchlorate in VWC Well 201 was not totally unexpected in light of the previously identified gradient for groundwater flow (westerly) from the source location and previously impacted wells. That gradient is now being controlled by the containment and extraction program that is in operation for the originally impacted wells, as discussed in this section and in Appendix I. The analysis is expected to be used in the development of the source water assessment of VWC Well 201.

All proceedings and data are available to the public through a DTSC information repository as well as public meetings.

5.2.2 Metals and Salts

Metals and salts are tested in wells at least every three years and in Castaic Lake water every month. Small quantities of naturally occurring arsenic are found in Castaic Lake and in a few wells. Inorganic compounds such as salts and metals can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming. Arsenic levels in the Santa Clarita Valley are below the MCL (Luhdorff & Scalmanini, 2010).

Nitrate in drinking water at levels above 45 mg/L is a health risk for infants less than six months of age due to the possibility of methemoglobinemia. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Principal sources of nitrogen to a watershed typically include discharges from water reclamation plants and runoff from agricultural activities. Elevated nitrogen concentrations (ammonia, nitrate and nitrite) can cause impairments in warm water fish and wildlife habitat, along with contributing to eutrophic effects such as algae growth and low dissolved oxygen. Nitrates are tested at least annually and the drinking water meets federal and state MCL standards (CCR, 2010).

A chloride TMDL was established in 1998 due to the listing of Reaches 5 and 6 of the Upper Santa Clara River for chloride on the 303(d) list. Sources of chloride include water softeners, SWP and other imported water and wastewater effluent. The chloride TMDL includes a number of special studies to provide scientific certainty over the appropriate waste load allocations and objectives for chloride that are necessary to support various beneficial uses, including salt-sensitive agriculture, groundwater and endangered species. The special studies performed for the TMDL found that the WQO of 100 mg/L could not be achieved as adopted in 2005. As a result, conditional site specific objectives were adopted in 2008 as described by the Los Angeles RWQCB Staff Report on the Upper Santa Clara River Chloride TMDL Reconsideration and Conditional Site-Specific Objectives. To comply with the chloride TMDL, a stakeholder-driven group developed the Alternative Water Resources Management (AWRM) Plan that provides multiple benefits for stakeholders in Los Angeles and Ventura Counties. These benefits include the revision of water quality objectives that will support water recycling and thereby increase water supplies in the CLWA service area. In addition, the AWRM will implement water supply facilities in Ventura County that will allow for the conjunctive use of groundwater and surface water resources to increase water supplies and improve water quality in groundwater and surface waters of the Santa Clara River watershed. As part of the agreement, the SCVSD and CLWA plan to amend the existing recycled water agreement to expand the quantity of recycled water that can be purchased by the water suppliers from the SVCSD. The AWRM also calls for accelerated expansion of CLWA's Recycled Plan, which would reduce chloride mass loading in the Santa Clara River, particularly during dry seasons, additional information provided in Chapter 4.

SCVSD, CLWA and the retail water purveyors have been exploring alternative approaches towards developing an adaptive management strategy that could reduce the cost of implementing the AWRM.

5.2.3 Disinfection By-Products

CLWA uses ozone and chloramines to disinfect its water. Disinfection By-Products (DBPs), which include Trihalomethanes (THMs) and Haloacetic Acids (HAA5), are generated by the interaction between naturally occurring organic matter and disinfectants such as chlorine and ozone. THMs and HAA5 are measured at several points in each system and averaged once per quarter and reported as a running annual average.

Ozone is a very powerful disinfectant that not only kills organisms that no other disinfectant can, but also destroys organic chemicals that causes unpleasant tastes and odors. However, ozone can also interact with bromide, a naturally occurring salt, to produce bromate. As a result, CLWA is required to analyze the water leaving its two treatment plants for bromate once a month under federal regulations and the State's adopted Disinfectants and Disinfection Byproducts Rule (D/DBP Rule).

5.2.4 Hardness

In 2008, the VWC began a demonstration project delivering pre-softened groundwater from one of its wells to approximately 420 residents located in the Copperhill Community of Valencia. Hard water is the primary complaint from Valley customers and it is estimated that more than 50 percent have installed individual water softening units in their homes. In addition to having high operating costs, many of these units are designed to discharge a brine (salt) solution to the sanitary sewer system that is eventually discharged to the Santa Clara River. The environmental impact of such discharges was the subject of the chloride TMDL investigation which concluded with a commitment by the purveyors to achieve surface water quality goals for instream discharge from the basin. VWC's project is aimed at improving the quality of water for its customers to eliminate the need for home softening devices and to achieve the environmental benefits of reduced chloride discharge to the river.

The demonstration project utilizes softening technology that removes calcium and produces small calcium carbonate pellets that can be reused in a variety of industries. The demonstration project has now been operated for over two years and provides VWC with customer feedback and technical/financial information to assess potential future expansion of treatment to other well sites.

5.2.5 Microbiological

Microbial contaminants, such as viruses and bacteria, can be naturally occurring or result from urban storm water runoff, sewage treatment plants, septic systems, agricultural livestock operations and wildlife. Water is tested throughout the systems weekly for Total Coliform bacteria and testing for *Escherichia coli* (*E. coli*) occurs when coliform testing is positive. No *E. coli* was detected in any drinking waters in 2010. The MCL for total coliforms is 5 percent of all monthly tests showing positives for larger systems. Bacteriological tests met federal and state requirements. Additional microbiological tests for the water-borne parasites *Cryptosporidium parvum* and *Giardia lamblia* were performed on Castaic Lake water, and none were detected.

5.2.6 Radiological Tests

Radioactive compounds can be found in both ground and surface waters, and can be naturally occurring or be the result of oil and gas production and mining activities. Testing is conducted for two types of radioactivity; alpha and beta. If none is detected at concentrations above five picoCuries per liter no further testing is required. If it is detected, the water must be checked for uranium and radium. Although naturally occurring radioactivity can be detected, the levels meet the federal and state MCL standards.

5.2.7 Organic Compounds

Organic chemical contaminants, including synthetic and volatile organic chemicals, are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems. Organic compounds also include pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses. Water is tested for two types of organic compounds, volatile organic compounds (VOCs) and non-volatile synthetic organic compounds (SOCs). These organic compounds are synthetic chemicals produced from industrial and agricultural uses. Castaic Lake water is checked annually for VOCs and SOCs. Tetrachloroethylene (TCE) was found in trace levels below the MCL in groundwater in the Valley. Local wells are tested at least annually for VOCs and periodically for SOCs.

5.3 Imported Water Quality

CLWA provides SWP and other imported water to the Valley. The source of SWP water is rain and snow of the Sierra Nevada, Cascade and Coastal mountain ranges. This water travels to the Delta through a series of rivers and various SWP structures. From there it is pumped into a series of canals and reservoirs, which provide water to urban and agricultural users throughout the San Francisco Bay Area and central and southern California. The most southern reservoir on the West Branch of the SWP California Aqueduct is Castaic Lake. CLWA receives water from Castaic Lake and distributes it to the purveyors following treatment.

CLWA operates two water treatment plants, the Earl Schmidt Filtration Plant located near Castaic Lake and the Rio Vista Water Treatment Plant located in Saugus. CLWA produces water that meets drinking water standards set by the U.S. EPA and DPH. SWP water has different aesthetic characteristics than groundwater, with lower dissolved mineral concentrations (total dissolved solids) of approximately 250 to 360 mg/L, and lower hardness (as calcium carbonate) of about 105 to 135 mg/L. Historically, the chloride content of SWP water varies widely from over 100 milligrams per liter (mg/L) to below 40 mg/L, depending on Delta conditions; however as discussed below, SWP operations have changed significantly since historic levels of chloride were experienced.

Historically, the SWP delivered only surface water from the Sacramento-San Joaquin River Delta. However, CLWA and other SWP users, in anticipation of increased demand and dry periods, began “water banking” programs where SWP water could be stored or exchanged during wet years and withdrawn in dry years. The last three years have seen severe statewide drought. As a result, water has been withdrawn from the banking programs. This withdrawn water can either be delivered by exchange with SWP supplies allocated to others, or by pumping it into the SWP system. During the period of 2008 through 2010, a greater portion of water in the SWP has been this “pumped-in” water. The “pumped-in” water has met all water

quality standards established by DWR under its anti-degradation policy for the SWP. In particular, the pumped-in water serves to reduce the chloride concentration in SWP water. CLWA, on behalf of the SCVSD, is currently developing a SWP water quality model to quantify potential chloride reductions in SWP water due to "pumped-in" water. The results of this modeling will inform potential modifications to the AWRM Plan.

The SWP water chemistry may fluctuate and is influenced by its passage through the Delta in which large amounts of organic material are present and salt water from San Francisco Bay that contributes bromide and chlorides. Chloride levels from the Delta elevate chloride locally resulting in concern for local agriculture that grows chloride sensitive crops. Additionally, bromide and total organic carbon (TOC) may react with disinfectants such as ozone, chlorine, or DBPs. All constituents meet the federal and state MCL levels as reported in the CCR but remain a management concern in the watershed.

5.4 Surface Water Quality

CLWA does not deliver and treat water from the Santa Clara River as a source of supply; however, this source is a continual source of recharge to the underlying groundwater basin.

Surface water quality data for the Upper Santa Clara River in the County is based on the DWR investigation of water quality and beneficial uses conducted for the Upper Santa Clara River Hydrologic Area (DWR 1993). The investigation found that Castaic Lake and Castaic Lagoon water are influenced by thermal stratification and biochemical processes. Castaic Lake contains a high level of sodium chloride from SWP deliveries to the system; while sodium-calcium bicarbonate to sodium bicarbonate dominates Bouquet Canyon due to water deliveries from the Los Angeles Aqueduct (Mono-Owens water) that is stored in Bouquet Reservoir.

The surface water quality data in the Upper Santa Clara River are obtained from continuous sampling records at two gaging stations at the Old Highway Bridge and at the Los Angeles - Ventura County Line and historical records at two stations near Ravenna and Lang. The period of water quality records for these stations is from 1951 to 1990 (UWCD and CLWA 1996). These data have shown increasing concentrations of TDS and sulfate downstream and an overall general decrease, respectively, over the studied time period.

Nitrate ranged from 9 to 35 milligrams per liter (mg/L) nitrate at the Blue Cut gaging station near the County line but it generally occurs in very low concentrations in the undeveloped drainages north of the Santa Clara River. Chloride concentrations tend to also be relatively low in undeveloped portions of the watershed and higher in developed areas. Sources of chloride include water softeners, SWP water and wastewater effluent. Salt loading during 2001-2007 from the Saugus and Valencia WRP ranged from 23,500 pounds per day (ppd) to 28,500 ppd. SWP chloride contributions measured between 28 mg/L to 128 mg/L based on records from the past thirty years (Los Angeles RWQCB 2008) and have averaged just over 70 mg/L for the past few years.

5.5 Groundwater Quality

The groundwater basin has two sources of groundwater, the Alluvial Aquifer whose quality is primarily influenced by rainfall and stream flow, and the Saugus Formation which is a much deeper aquifer and recharged primarily by a combination of rainfall and deep percolation from the partially overlying Alluvium. A larger part of the Valley's groundwater supply is from the

Alluvial Aquifer, between 30,000 to 40,000 AFY; and a smaller portion of the Valley's water supply is drawn from the Saugus Formation, between 7,500 and 15,000 AFY in normal water years.

Local groundwater does not have microbial water quality problems. Parasites, bacteria and viruses are filtered out as the water percolates through the soil, sand and rock on its way to the aquifer. Even so, disinfectants are added to local groundwater when it is pumped by wells to protect public health. Local groundwater has very little TOC and generally has very low concentrations of bromide, minimizing potential for DPB formation. Taste and odor problems from algae are not an issue with groundwater.

The mineral content of local groundwater is very different from SWP water. The groundwater is very "hard," and it has high concentrations of calcium and magnesium (approximately 250 to 600 mg/L total hardness as $CaCO_3$). Groundwater may also contain higher concentrations of nitrates and chlorides when compared to SWP water. However, all groundwater meets drinking water standards.

5.5.1 Water Quality - Alluvium

Groundwater quality is a key factor in assessing the Alluvial Aquifer as a municipal and agricultural water supply. Groundwater quality details and long-term conditions, examined by integration of individual records from several wells completed in the same aquifer materials and in close proximity to each other, have been discussed in the annual Water Reports and in the 2005 UWMP. There were some changes in groundwater quality in 2009 that reflect fluctuations, trends or other groundwater quality conditions. Most of the trends show a significant lowering of the specific conductance values by half following the wet years of 2004-2005. Since then, those trends have returned to 2004 levels but do not exceed historical levels. In summary, those conditions include no long-term overall trend and, most notably, no long-term decline in Alluvial groundwater quality; a general groundwater quality "gradient" from east to west, with lowest dissolved mineral content to the east, increasing in a westerly direction; and periodic fluctuations in some parts of the basin, where groundwater quality has inversely varied with precipitation and stream flow. Those variations are typically characterized by increased mineral concentrations through dry periods of lower stream flow and lower groundwater recharge, followed by lower mineral concentrations through wetter periods of higher stream flow and higher groundwater recharge.

Specific conductance throughout the Alluvium is currently below the Secondary (aesthetic) MCL of 1,600 micromhos per centimeter (µmhos/cm). The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial aquifer is a viable ongoing water supply source in terms of groundwater quality.

The most notable groundwater quality issue in the Alluvium is perchlorate contamination. Section 5.2.1 describes this issue in detail.

5.5.2 Water Quality - Saugus Formation

Water quality in the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. As discussed above for the Alluvium, groundwater quality is a key factor in also assessing the Saugus Formation as a municipal and agricultural water supply. Long-term Saugus groundwater quality data are not sufficiently extensive to permit any sort of

basin-wide analysis or assessment of pumping-related impacts on quality. However, integration of individual records from several wells has been used to examine general water quality trends. Based on those records, water quality in the Saugus Formation had not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Based on available data over the last fifty years, groundwater quality in the Saugus had exhibited a slight overall increase in dissolved mineral content. More recently, several wells within the Saugus Formation exhibited an additional increase in dissolved mineral content, similar to short term changes in the Alluvium, possibly as a result of recharge to the Saugus Formation from the Alluvium. Since 2005, however, these levels have been steadily dropping or remaining constant.

Dissolved mineral concentrations in the Saugus Formation remain below the Secondary (aesthetic) MCL. Groundwater quality within the Saugus will continue to be monitored to ensure that degradation that presents concern relative to the long-term viability of the Saugus as an agricultural or municipal water supply does not occur.

As with the Alluvium, the most notable groundwater quality issue in the Saugus Formation is perchlorate contamination. Perchlorate was originally detected in four Saugus wells operated by the retail water purveyors in the eastern part of the Saugus Formation in 1997, near the former Whittaker-Bermite facility. Two of those impacted wells have now been “restored” and returned to municipal water supply service as described in Section 5.2.1. A third impacted well has been abandoned and replaced by a new well, distant from the perchlorate-impacted part of the Saugus Formation. The fourth impacted well remains out of service, with its capacity made up from the restored and other non-impacted Saugus wells. The inactivation of that well does not limit the ability of the purveyors to meet water requirements. The local retail water purveyors continue to test for perchlorate in active water supply wells near the Whittaker-Bermite site. While perchlorate was detected in a fifth Saugus well nearby, the concentration was very low and below the detection limit for reporting. The sixth Saugus well with recently detected perchlorate concentrations that exceed the maximum contaminant levels for drinking water has been taken out of service pending evaluation of remediation alternatives including wellhead treatment and reactivation. There has been no additional detection of perchlorate above the detection limit for reporting in any other municipal Saugus well.

5.6 Aquifer Protection

There has been extensive investigation of the extent of perchlorate contamination which, in combination with the groundwater modeling previously described in Section 3.3.2.1, has led to the now-implemented plan for integrated control of contamination migration and restoration of impacted pumping (well) capacity. While most of the perchlorate contamination control and restoration plan is focused on the Saugus Formation, part of that plan includes potential capture of contaminated groundwater in the Alluvium by pumping of selected Saugus wells. Specific long-term resolution of perchlorate contamination in the Alluvium, which impacted two water supply wells, had focused on a combination of temporary wellhead treatment at one well, VWC’s Well Q2, replacement of the second impacted well, SCWD’s Stadium well, and several source control methods such as on-site pumping and treatment in the northern Alluvium (at the northerly portion of the former Whittaker-Bermite site). An ongoing challenge is protection of active Alluvial wells that could be impacted, including what effect that might have on adequacy of Alluvial groundwater pumping capacity and what response will be taken.

In April 2005, perchlorate was detected in VWC’s Well Q2. VWC’s response was to remove the well from active water supply service and to rapidly seek approval for installation of wellhead

treatment and return of the well to service. As part of outlining its plan for treatment and return of the well to service, VWC analyzed the impact of the temporary inactivation of the well on its water supply capability; the analysis determined that VWC's other sources are sufficient to meet demand and that the inactivation of Well Q2 had no impact on VWC's water supply capability (LSCE, 2005). VWC proceeded through mid-2005 to gain approval for installation of wellhead treatment (ion-exchange as described below), including environmental review and completed the installation of the wellhead treatment facilities in September 2005. Well Q2 was returned to active water supply service in October 2005.

After nearly two years of operation with wellhead treatment, including regular monitoring specified by DPH, all of which resulted in no detection of perchlorate in Well Q2, Valencia requested that DPH allow treatment to be discontinued. DPH approved that request in August 2007, and treatment was subsequently discontinued. DPH-specified monitoring for perchlorate continues at Well Q2, which remains in service; there has been no detection of perchlorate since discontinuation of wellhead treatment.

Ongoing monitoring of all active municipal wells near the Whittaker-Bermite site has shown no detections of perchlorate in any active Alluvial wells. However, based on a combination of proximity to the Whittaker-Bermite site and prevailing groundwater flow directions, complemented by findings in the ongoing on-site and off-site investigations by Whittaker-Bermite and the ACOE, there is logical concern that perchlorate could impact nearby, downgradient Alluvial wells. As a result, provisions are in place to respond to perchlorate contamination if it should occur. The groundwater model was used to examine capture zones around Alluvial wells under planned operating conditions (pumping capacities and volumes) (Technical Memorandum "*Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property (Santa Clarita, California)*", CH2M Hill, December 2004). The capture zone analysis of Alluvial wells generally near the Whittaker-Bermite site suggests that inflow to those wells will either be upgradient of the contamination site, or will be from the Alluvium beyond where perchlorate is most likely to be transported, with the possible exception of the VWC's Pardee wellfield (which includes Wells N, N7 and N8). Although the capture zone analysis does not show the Pardee wells to be impacted, they are considered to be at some potential risk due to the proximity of their capture zone to the Whittaker-Bermite site.

The combined pumping capacity of VWC's Pardee wells is 6,200 gpm, which equates to about 10,000 AF of maximum annual capacity. However, in the operating plan for both normal and dry-year Alluvial pumping, the planned use of those wells represents 2,940 AFY of the total 30,000 to 40,000 AFY Alluvial groundwater supply. Thus, if the wells were to become contaminated with perchlorate, they would represent an amount of the total Alluvial supply that could be readily replaced on a short-term interim basis by utilizing an equivalent amount of imported water from CLWA or by utilizing existing capacity from other Alluvial wells. However, if the Pardee wells were to become contaminated by perchlorate contamination, VWC has made site provisions at its Pardee wellfield for installation of wellhead treatment. Such treatment would be the same methodology as installed at its Well Q2.

On the Whittaker-Bermite site, soil remediation activities in operating unit subareas started in 2005. Groundwater "pump and treat" operations in the Northern Alluvium also started in 2005 and is ongoing. Expanded pumping, intended to effect perchlorate containment as well as to treat 'hot spots' in the Northern Alluvium, became operational in October 2007.

In addition, on-site remediation, a Work Plan for a Pilot Remediation Pumping Program in the Northern Alluvium and certain on-site sub-areas east/southeast, or generally upgradient of the impacted Stadium Well, was completed in June 2005. The pilot program began sustained operation in October 2007. That program involves the establishment of containment, generally along the northern boundary of the Whittaker-Bermite site, upgradient of the Stadium Well, by continuous pumping of a former Whittaker-Bermite facility well, complemented by pumping at several groundwater "hot spots" also generally upgradient of the Stadium Well. Due to the low conductivity of the aquifer materials at the various "hot spots," pumping for containment at those locations would be from several wells at low pumping capacities. Extracted water would be treated at Whittaker-Bermite's existing on-site treatment system. Generally consistent with the Saugus restoration concept, the Northern Alluvium pumping program would have the concurrent objectives of preventing site-related contaminants from leaving the site and removing some contamination from groundwater such that it can be removed in the on-site treatment process prior to discharge of the water back to the groundwater Basin.

In February 2003, DTSC and the impacted purveyors entered into a voluntary cleanup agreement entitled *Environmental Oversight Agreement*. Under the Agreement, DTSC is providing review and oversight of the response activities being undertaken by CLWA and the purveyors related to the detection of perchlorate in the impacted wells. Under the Agreement's Scope of Work, CLWA and impacted purveyors prepared a Work Plan for sampling the production wells, a report on the results and findings of the production well sampling, a draft Human Health Risk Assessment, a draft Remedial Action Work Plan, an evaluation of treatment technologies and an analysis showing the integrated effectiveness of a project to restore impacted pumping capacity, extract perchlorate-impacted groundwater from two Saugus wells for treatment, and control the migration of perchlorate in the Saugus Formation. Environmental review of that project was completed in 2005 with adoption of a mitigated Negative Declaration. The Final Interim Remedial Action Plan for containment and extraction of perchlorate was completed and approved by DTSC in January 2006. Design and construction of the treatment facilities and related pipelines to implement the pump and treat program and to also restore inactivated municipal well capacity has been completed and the restored wells are now returned to service as part of the operational Saugus groundwater supply (see Section 3.3).

A Rapid Response Fund has also been established under the terms of the CLWA Litigation Settlement Agreement. The fund will be used if the remedy to contain perchlorate contamination in the Alluvial Aquifer and portions of the Saugus Formation does not prevent migration of the perchlorate plume towards downgradient threatened wells (VWC Wells N, N-7, N-8, S6, S7, S8, 201 and 205 and NCWD Wells NC-10, NC-12 and NC-13). The Rapid Response Fund provides up to $10 million for any additional costs of providing replacement water, associated operations and maintenance costs of treatment equipment and resin under the terms of the Agreement. As noted, VWC Well 201 was a downgradient threatened well, so it is anticipated that the fund will be used for evaluating remediation alternatives, including wellhead treatment, of perchlorate recently detected in Well 201.

5.7 Water Quality Impacts on Reliability

Three factors affecting the availability of groundwater are sufficient source capacity (wells and pumps),sustainability of the groundwater resource to meet pumping demand on a renewable basis and protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. The first two of those factors are addressed in Section 3. The resolution of contamination for aquifer protection is addressed below.

Perchlorate has been a water quality concern in the Valley since 1997 when it was originally detected in four wells operated by the purveyors in the eastern part of the Saugus Formation, near the former Whittaker-Bermite facility. Subsequent monitoring well installation has been completed; and a focused study of the Saugus Formation has ultimately been incorporated into the overall groundwater remediation and perchlorate containment. All remedial action has been reviewed by the DTSC.

Overall, the plans developed for groundwater operation will allow CLWA and the retail purveyors to meet near term and long term demand within the CLWA service area. Any well impacted by perchlorate will be removed from service in the near term and the loss of capacity will be met by near-term excess capacity in non-impacted wells or through the installation of replacement well(s), if necessary, until remediation alternatives, including wellhead treatment, and DPH approval is obtained for restoration of the impacted supply. The current removal of VWC Well 201 from service does not limit the reliability of the water supply since there is sufficient excess capacity in Saugus wells to meet water supply projections during the period required for its restoration. Therefore, no anticipated change in reliability or supply due to water quality is anticipated based on the present data, as is shown in Table 5-2.

TABLE 5-2
CURRENT AND PROJECTED WATER SUPPLY CHANGES DUE TO WATER QUALITY - PERCENTAGE CHANGE

Water source	2010	2015	2020	2025	2030	2035	2040	2045	2050
Groundwater									
Alluvial	0%	0%	0%	0%	0%	0%	0%	0%	0%
Saugus	16%[(a)]	0%	0%	0%	0%	0%	0%	0%	0%
Imported Water	0%	0%	0%	0%	0%	0%	0%	0%	0%
Recycled Water	0%	0%	0%	0%	0%	0%	0%	0%	0%
Banking Programs	0%	0%	0%	0%	0%	0%	0%	0%	0%

Note:
(a) The removal of VWC Well 201 would on a temporary basis reduce the quantity of water available from the Saugus Formation by 3,777 AFY in certain dry years. The 16% water supply impact shown in this table represents the percentage of VWC Well 201 capacity to the total 24,100 AFY single dry year well capacity from the Saugus Formation as indicated in Table 3-11. Table 8-3 illustrates that the removal of VWC Well 201 would not result in inadequate well capacity should a multi-year dry period occur in the near term. Further, Tables 6-4 and 6-5 illustrate that, for a single dry year, existing and planned water supplies exceed demand by more than 28,000 AFY and 36,000 AFY assuming 2015 levels of demand. In conclusion, the temporary loss of capacity from VWC Well 201, as discussed in Sections 3, 5, 6 and 8 and Appendices C and I, does not result in a shortage to the water suppliers.

Section 6: Reliability Planning

6.1 Overview

The Act requires urban water suppliers to assess water supply reliability that compares total projected water use with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. This chapter presents the reliability assessment for CLWA's service area.

It is the stated goal of CLWA and the retail water purveyors to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions over the next forty years in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal.

6.2 Reliability of Water Supplies

Each water supply source has its own reliability characteristics. In any given year, the variability in weather patterns around the state may affect the availability of supplies to the Valley differently. For example, from 2000 through 2002, southern California experienced dry conditions in all three years. During the same period, northern California experienced one dry year and two normal years. The Valley is typical in terms of water management in southern California; local groundwater supplies are used to a greater extent when imported supplies are less available due to dry conditions in the north, and larger amounts of imported water supplies are used during periods when northern California has wetter conditions. This pattern of "conjunctive use" has been in effect since SWP supplies first came to the Valley in 1980. SWP and other imported water supplies have supplemented the overall supply of the Valley, which previously depended solely on local groundwater supplies.

To supplement these local groundwater supplies, CLWA contracted with DWR for delivery of SWP water, providing an imported water supply to the Valley. However, the variability in SWP supplies affects the ability of the purveyors to meet the overall water supply needs for the service area. While each of the Valley's available supply sources has some variability, the variability in SWP supplies has the largest effect on overall supply reliability.

As discussed in Section 3.2, each SWP contractor's Water Supply Contract contains a Table A Amount that identifies the maximum amount of Table A water that contractor may request each year. However, the amount of SWP water actually allocated to contractors each year is dependent on a number of factors than can vary significantly from year to year. The primary factors affecting SWP supply availability include the availability of water at the source of supply in northern California, the ability to transport that water from the source to the primary SWP diversion point in the southern Delta and the magnitude of total contractor demand for that water. In many years, the availability of SWP supplies to CLWA and the other SWP contractors is less than their maximum Table A Amounts, and can be significantly less in very dry years.

DWR's *Reliability Report*, prepared biennially assists SWP contractors and local planners in assessing the reliability of the SWP component of their overall supplies. In its Reliability Reports, DWR presents the results of its analysis of the reliability of SWP supplies, based on

model studies of SWP operations. In general, DWR model studies show the anticipated amount of SWP supply that would be available for a given SWP water demand, given an assumed set of physical facilities and operating constraints, based on 82 years of historic hydrology. The results are interpreted as the capability of the SWP to meet the assumed SWP demand, over a range of hydrologic conditions, for that assumed set of physical facilities and operating constraints.

DWR's 2009 update of the *Reliability Report* presents the results of model studies for years 2009 and 2029. In these model studies, DWR assumed existing SWP facilities and operating constraints for both the 2009 and 2029 studies. The primary differences between the two studies are an increase in projected SWP contractor demands, an increase in projected upstream demands (which affects SWP supplies by reducing the amount of inflows available for the SWP), and the inclusion in the 2029 study of potential impacts on historic hydrology of the effects of climate change and accompanying sea level rise. In the report, DWR presents the SWP delivery capability resulting from these studies as a percent of maximum contractor Table A Amounts. To estimate supply capability in intermediate years between 2009 and 2029, DWR interpolates between the results of those studies.

6.3 Normal, Single-Dry, and Multiple-Dry Year Planning

The water suppliers have various water supplies available to meet demands during normal, single-dry, and multiple-dry years. The following sections elaborate on the different supplies available to the water suppliers including groundwater, recycled water and imported supplies.

6.3.1 Groundwater

In accordance with the groundwater operating plan for the basin, groundwater supplies for all uses from the Alluvial Aquifer are planned to be in the range 30,000 to 40,000 AFY in average years and 30,000 to 35,000 AFY in dry years; supplies from the Saugus Formation are projected to be 7,500 to 15,000 AFY in average years and 15,000 to 35,000 AFY in dry years. The updated Basin Yield analysis (LSCE and GSI, 2009) concluded pumping in those ranges to be sustainable. While there is sufficient Alluvial pumping capacity to achieve the Alluvial groundwater supply (Table 3-8), it is planned that VWC will develop some future capacity as it constructs municipal supply wells to replace existing agricultural wells when planned development converts existing agricultural land use to municipal land use. Existing Saugus pumping capacity is sufficient to achieve about 27,000 AFY (Table 3-9), or about 77 percent of the upper end of the Saugus operating plan. Hence, it is planned that restored capacity (VWC Well 201) and future Saugus pumping capacity (new wells) will be added to achieve the full range of the Saugus operating plan.

The existing and planned groundwater supplies used in this Plan are generally the pumping rates, within the operating plan ranges, that were analyzed in the Basin Yield update. As such, they tend toward the upper ends of the respective ranges except for normal year Saugus pumping, which is closer to mid-range of the Saugus operating plan. For the multiple-dry year period, it was assumed that pumping from the Saugus Formation would be governed by the groundwater operating plan summarized in Table 3-5, with average pumping over the 4-year dry period of about 21,500 AFY. Total projected Alluvial and Saugus pumping, including pumping by the purveyors and by agricultural and other users, is shown by year type in Tables 3-7 to

3-12 in Section 3. As shown there, total pumping in each year type remains within the pumping ranges in the groundwater operating plan.

6.3.2 Recycled Water

Recycled water is available from the Saugus WRP and Valencia WRP. Recycled water is also anticipated to be produced by the Newhall WRP for the Newhall Ranch Specific Plan development, as described in Section 4.

CLWA has completed construction of Phase I of its Recycled Plan, a multi-phased program to deliver recycled water in the Valley. Phase 1 can deliver 1,700 AFY of water through the VWC system. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips. In 2010, recycled water deliveries were approximately 325 AF.

CLWA completed a preliminary design report in 2009 on the second phase of the Recycled Plan (Phase 2A), which will take water from the Saugus WRP and distribute it to identified users to the north, across the Santa Clara River and then to the west and east. Large irrigation customers will be served with this expansion with a collective design that will increase recycled water deliveries by 500 AFY.

Recycled water will be further expanded within the region with the South End Recycled Water project (Phase 2C), which will expand the existing recycled water transmission and distribution system southerly to supply recycled water to additional VWC customers, as well as some customers served by NCWD and the SCWD. The Project includes the planning, designing and construction of Phase 2C of the region's Recycled Plan, with recycled water improvements including various recycled water pipelines and pumping stations resulting in the use of an estimated 910 AFY of recycled water.

Overall, the recycled water program is expected to ultimately deliver up to 22,800 AFY of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping and other non-potable uses. Of this total, 21,300 AFY is projected use by purveyor customers. This supply is assumed to be available in an average year, a single-dry year, and in each year of a multiple-dry year period.

6.3.3 State Water Project Table A Supply

For this Plan, the availability of SWP supplies to CLWA was based on DWR's 2009 *Reliability Report*, taken from more detailed results provided by DWR from the model studies presented in the 2009 *Reliability Report*. For the three hydrologic conditions evaluated here, the SWP deliveries to CLWA were taken from DWR's analyses based on the following: average/normal year based on the average deliveries over the studies' 82-year historical hydrologic study period (1922-2003), single-dry year based on a repeat of the worst-case historical hydrologic conditions of 1977, and multiple-dry year period based on a repeat of the historical four-year drought of 1931-1934.

As discussed in more detail in Section 3 (see Section 3.2.1.2.3), a planning effort to increase long-term supply reliability for both the SWP and CVP is taking place through the Bay Delta Conservation Plan (BDCP). While the proposed conveyance facilities that are part of the BDCP would increase SWP supply reliability, that increase is not included here. Any of the proposed

facilities that are completed would increase SWP reliability beyond the values used throughout this Plan.

6.3.3.1 Flexible Storage Account

Under the Water Supply Contracts with DWR for SWP water, the contractors that share in the repayment of Castaic Lake may access a portion of the storage in that reservoir. This accessible storage is referred to as "flexible storage." The contractors may withdraw water from flexible storage, in addition to their allocated Table A supplies, on an as-needed basis. A contractor must replace any water it withdraws from this storage within five years. As one of the three contractors sharing in the repayment of Castaic Lake, CLWA has access to this flexible storage. Its share of the total flexible storage is currently 4,684 AF. After negotiations with Ventura County water agencies in 2005, CLWA gained access to their 1,376 AF of flexible storage for ten years through 2015. While it is expected that CLWA and Ventura County will extend the existing flexible storage agreement beyond the 2015 term, in this Plan it is not assumed to be available beyond 2015.

CLWA plans to use this supply only in dry years. For the single-dry year condition, it was assumed the entire amount would be used. For the multiple-dry year condition, it was assumed that the entire amount would be used sometime during the four-year period, so the average annual supply during that period would be one fourth of the total. Any water withdrawn was assumed to be replaced in intervening average and wet years and would be available again for use in the next dry year.

6.3.4 Buena Vista-Rosedale

BVWSD and RRBWSD, both member districts of KCWA, have jointly developed a program that provides both a firm water supply of 11,000 AFY and a water banking component. This supply program provides a firm annual water supply available every year based on existing and long-standing Kern River water rights, which is delivered by exchange of Buena Vista's and Rosedale's SWP Table A supplies.

6.3.5 Nickel Water - Newhall Land

This supply is similar to Buena Vista-Rosedale supply both in regard to its source (Kern River water rights) and level of reliability. The supply from this program is up to 1,607 AFY of firm supply, which is available in every year. It was acquired by the developer of the Newhall Ranch project to supplement groundwater and recycled water sources of supply for that project, which is in the CLWA service area. In this Plan, it is anticipated that this water supply will be available to VWC.

6.3.6 Semitropic Banking Program

In 2002, CLWA stored 24,000 AF of its allocated SWP Table A supply through a groundwater banking agreement with Semitropic. In 2004, CLWA stored 32,522 AF of its 2003 allocated SWP Table A supply in a second Semitropic storage account. Under the terms of those agreements, and after consideration for losses within the groundwater basin, CLWA could withdraw up to 50,870 AF when needed within ten years of when the water was stored. Of this storage, CLWA withdrew 4,950 AF in 2009 and 2010, leaving 45,920 AF currently available for

withdrawal. CLWA executed an amendment for a ten-year extension of each banking agreement with Semitropic in April 2010.

In addition to this short-term storage for CLWA, Semitropic has a long-term groundwater banking program with several other partners. The facilities that Semitropic may use in the return of CLWA's banked water supply are the same facilities that Semitropic may use to return banked water to its long-term banking program partners. As a result, there may be competition for use of those facilities in a particularly dry year, which could limit CLWA's ability to access the water in that year.

CLWA plans to use this supply only in dry years. For the single dry year, it was assumed that competition among Semitropic's banking partners for use of return facilities would limit CLWA's supply to about one third of the storage available, or about 15,000 AF. For the multiple-dry year period, it was assumed that the entire amount would be accessible and used sometime during the four-year period, so the average annual supply during that period would be one fourth of the total available, or about 11,500 AF. Under the agreements for this program, including the agreement for the ten-year time extension, the stored water must be withdrawn within twenty years of when it was stored. Therefore, it was assumed that this supply is available only through 2023.

6.3.7 Semitropic Banking Program - Newhall Land

As was the case for the Nickel water, the banking program was entered into by the developer of the Newhall Ranch project to firm up the reliability of the water supply for the project, which is in the CLWA service area. The storage capacity of this program is 55,000 AF. Newhall Land currently has 18,892 AF stored in this program. It is anticipated that this supply will be available to VWC.

VWC plans to use this supply only in dry years. For the single-dry year, supplies were assumed at the program's maximum withdrawal capacity of 4,950 AFY. For the multiple-dry year period, supplies in each year of the dry period were assumed at the program's maximum withdrawal capacity of 4,950 AFY and that additional supplies would be banked during wetter years to allow withdrawal of this amount.

6.3.8 Rosedale-Rio Bravo Banking Program

RRBWSD has also developed a water banking and exchange program. CLWA has entered into a long-term agreement with RRBWSD which provides it with storage and withdrawal capacity of 20,000 AFY and up to 100,000 AF of storage capacity. Withdrawals from the program can be made by exchange of Rosedale's SWP Table A supply, or by pumpback into the California Aqueduct. CLWA began storing water in this program in 2005 and has since reached the program's maximum storage capacity, with 100,000 AF currently available for withdrawal.

CLWA plans to use this supply only in dry years. For the single-dry year, supplies were assumed at the program's maximum withdrawal capacity of 20,000 AF. For the multiple-dry year period, it was assumed that supplies would average at least 15,000 AFY over the dry period and that additional supplies would be banked during wetter years to allow withdrawal of at least this amount.

6.3.9 Additional Planned Banking

CLWA's 2009 update of its Reliability Plan identifies a need for additional banking programs to firm up the dry-year reliability of service area supplies, and includes an implementation schedule to increase both storage and pumpback capacity beginning in 2010 and incrementally increasing through 2050. While a specific banking program has not yet been identified, CLWA's plans call for development of additional groundwater banking programs with pumpback capacity of at least an additional 10,000 AF by 2025, and a second additional 10,000 AF by 2035. For the single-dry year, supplies were assumed at the programs' pumpback capacity. For the multiple-dry year period, it was assumed that supplies would average at least 75 percent of the pumpback capacity over the dry period.

6.4 Supply and Demand Comparisons

The available supplies and water demands for CLWA's service area were analyzed to assess the region's ability to satisfy demands during three scenarios: a normal water year, single-dry year and multiple-dry years. The tables in this section present the supplies and demands for the various drought scenarios for the projected planning period of 2015-2050 in five year increments. The available supplies and water demands broken down by purveyor during the same three scenarios were also analyzed over the project planning period, and these tables are provided in Appendix C. Table 6-1 presents the base years for the development of water year data. Tables 6-2, 6-3 and 6-4 at the end of this section summarize, respectively, Normal Water Year, Single-Dry Water Year and Multiple-Dry Year supplies.

The reader is referred to Chapter 2 for development of retail purveyor demands and current and projected water supplies are developed in Chapters 3 and 4.

TABLE 6-1
BASIS OF WATER YEAR DATA

Water Year Type	Base Years	Historical Sequence
Normal Water Year	Average	1922-2003
Single-Dry Water Year	1977	--
Multiple-Dry Water Years	1931-1934	--

6.4.1 Normal Water Year

Table 6-2 summarizes the water suppliers' supplies available to meet demands over the 40-year planning period during an average/normal year. As presented in the table, the water suppliers' water supply is broken down into existing and planned water supply sources, including wholesale (imported) water, local supplies and banking programs. Demands are shown with and without the urban demand reduction resulting from SBX7-7 conservation objectives.

See Appendix C for the breakdown by purveyor of supplies available to meet demands over the 40-year planning period during an average/normal year.

TABLE 6-2
PROJECTED AVERAGE/NORMAL YEAR SUPPLIES AND DEMANDS

	2015	2020	2025	2030	2035	2040	2045	2050
Existing Supplies								
Existing Groundwater[a]								
Alluvial Aquifer	24,000	24,000	24,000	25,000	25,000	25,000	25,000	25,000
Saugus Formation[b]	9,225	10,225	10,225	10,225	10,225	10,225	10,225	10,225
Total Groundwater	**33,225**	**34,225**	**34,225**	**35,225**	**35,225**	**35,225**	**35,225**	**35,225**
Recycled Water[c]	325	325	325	325	325	325	325	325
Imported Water								
State Water Project[d]	58,100	57,900	57,600	57,400	57,400	57,400	57,400	57,400
Flexible Storage Accounts	-	-	-	-	-	-	-	-
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Total Imported	**70,707**	**70,507**	**70,207**	**70,007**	**70,007**	**70,007**	**70,007**	**70,007**
Banking Programs[e]								
Rosedale Rio-Bravo	-	-	-	-	-	-	-	-
Semitropic	-	-	-	-	-	-	-	-
Semitropic - Newhall Land	-	-	-	-	-	-	-	-
Total Banking	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Existing Supplies	**104,257**	**105,057**	**104,757**	**105,557**	**105,557**	**105,557**	**105,557**	**105,557**
Planned Supplies								
Future Groundwater[f]								
Alluvial Aquifer	-	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Saugus Formation	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375
Total Groundwater	**1,375**	**2,375**	**3,375**	**4,375**	**5,375**	**6,375**	**7,375**	**8,375**
Recycled Water[c]	975	2,725	5,225	7,775	10,275	13,775	17,275	20,975

	2015	2020	2025	2030	2035	2040	2045	2050
Banking Programs[e]	-	-	-	-	-	-	-	-
Total Planned Supplies	**2,350**	**5,100**	**8,600**	**12,150**	**15,650**	**20,150**	**24,650**	**29,350**
Total Existing and Planned Supplies	**106,607**	**110,157**	**113,357**	**117,707**	**121,207**	**125,707**	**130,207**	**134,907**
Demand w/o Conservation[g]	80,070	88,484	96,898	105,312	113,726	122,140	130,554	138,968
20x2020 Reduction[h]	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[i]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation[j]	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation[k]	**72,343**	**71,908**	**80,236**	**88,564**	**96,892**	**105,220**	**113,549**	**121,877**

Notes:

(a) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-10, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.
(b) SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.
(c) Recycled water projections from Table 4-3.
(d) SWP supplies are based on the Department of Water Resources "2009 State Water Project Delivery Reliability Report."
(e) Not needed in average/normal years.
(f) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation. As indicated in Table 3-10, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3- 5.
(g) Demand w/o Conservation data from Table 2-2.
(h) 20x2020 Reduction for the Region from Table 2-22.
(i) Recycled Water Reduction for the Region from Table 2-22; does not include demands from Honor Rancho.
(j) Reduction from Water Conservation calculation for Region from Table 2-22.
(k) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.

6.4.2 Single-Dry Year

The water supplies and demands for the water suppliers over the 40-year planning period were analyzed in the event that a single-dry year occurs, similar to the drought that occurred in California in 1977. Table 6-3 summarizes the existing and planned supplies available to meet demands during a single-dry year. Base demand (demand without conservation) during dry years was assumed to increase by 10 percent. Demands are also shown with the urban demand reduction resulting from SBX7-7 conservation objectives.

See Appendix C for the breakdown by purveyor of supplies available to meet demands over the 40-year planning period during a single-dry year.

TABLE 6-3
PROJECTED SINGLE-DRY YEAR SUPPLIES AND DEMANDS

	2015	2020	2025	2030	2035	2040	2045	2050
Existing Supplies								
Existing Groundwater[a]								
Alluvial Aquifer	20,300	20,250	20,200	21,050	21,050	21,025	21,000	20,650
Saugus Formation	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400
Total Groundwater	**40,700**	**40,650**	**40,600**	**41,450**	**41,450**	**41,425**	**41,400**	**41,050**
Recycled Water[b]	325	325	325	325	325	325	325	325
Imported Water								
State Water Project[c]	11,900	11,000	10,000	9,100	9,100	9,100	9,100	9,100
Flexible Storage Accounts[d]	6,060	4,680	4,680	4,680	4,680	4,680	4,680	4,680
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Total Imported	**30,567**	**28,287**	**27,287**	**26,387**	**26,387**	**26,387**	**26,387**	**26,387**
Banking Programs								
Rosedale Rio-Bravo[e]	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Semitropic[f]	15,000	15,000	-	-	-	-	-	-
Semitropic - Newhall Land[g]	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
Total Banking	**39,950**	**39,950**	**24,950**	**24,950**	**24,950**	**24,950**	**24,950**	**24,950**
Total Existing Supplies	**111,542**	**109,212**	**93,162**	**93,112**	**93,112**	**93,087**	**93,062**	**92,712**
Planned Supplies								
Future Groundwater[h]								
Alluvial Aquifer	200	1,250	2,300	3,850	4,850	5,875	6,900	7,750
Saugus Formation (Restored Well)	825	3,777	3,777	3,777	3,777	3,777	3,777	3,750
Saugus Formation (New Wells)	2,875	9,923	9,923	9,923	9,923	9,923	9,923	9,950
Total Groundwater	**3,900**	**14,950**	**16,000**	**17,550**	**18,550**	**19,575**	**20,600**	**21,450**
Recycled Water[b]	975	2,725	5,225	7,775	10,275	13,775	17,275	20,975

	2015	2020	2025	2030	2035	2040	2045	2050
Banking Programs[i]	-	-	10,000	10,000	20,000	20,000	20,000	20,000
Total Planned Supplies	**4,875**	**17,675**	**31,225**	**35,325**	**48,825**	**53,350**	**57,875**	**62,425**
Total Existing and Planned Supplies	**116,417**	**126,887**	**124,387**	**128,437**	**141,937**	**146,437**	**150,937**	**155,137**
Demand w/o Conservation[j]	88,077	97,333	106,588	115,843	125,099	134,354	143,609	152,865
20x2020 Reduction[k]	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[l]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation[m]	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation[n]	**80,350**	**80,757**	**89,926**	**99,096**	**108,265**	**117,434**	**126,604**	**135,773**

Notes:

(a) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-11, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5. SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.

(b) Recycled water projections from Table 4-3.

(c) SWP supplies are based on the Department of Water Resources "*2009 State Water Project Delivery Reliability Report*."

(d) Includes both CLWA and Ventura County entities flexible storage accounts. Initial Term of agreement with Ventura County entities expires after 2015.

(e) CLWA has a maximum withdrawal capacity of 20,000 AFY and a storage capacity of 100,000 AF. As of 6/1/2011, there is 100,000 AF of recoverable water.

(f) CLWA has 45,920 AF of recoverable water as of 6/1/2011.

(g) Newhall Land has a maximum withdrawal capacity of 4,950 AFY and a storage capacity of 55,000 AF. As of 6/1/2011 there is 18,892 AF of recoverable water. Delivery of stored water from the Newhall Land's Semitropic Water Banking and Exchange Program is assumed available to VWC.

(h) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation, including 3,777 AFY of restored capacity from VWC Well 201 and approximately 10,000 AFY of new Saugus Formation well capacity. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production is consistent with the 1977 single dry-year levels identified in Table 3-8 of the 2009 Groundwater Basin Yield Analysis. As indicated in Table 3-11, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.

(i) Includes banking programs with 10,000 AF of additional pumpback capacity by 2025 and a second additional 10,000 AF by 2035.

(j) Demand w/o Conservation data from Table 2-2. Includes a 10 percent increase in demand during dry years.

(k) 20x2020 Reduction for the Region from Table 2-22.

(l) Recycled Water Reduction for the Region from Table 2-22; does not include demands from Honor Rancho.

(m) Reduction from Water Conservation calculation for Region from Table 2-22.

(n) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.

6.4.3 Multiple-Dry Year

The water supplies and demands for the water suppliers' water supply over the 40-year planning period were analyzed in the event that a four-year multiple-dry year event occurs, similar to the drought that occurred during the years 1931 to 1934. Table 6-4 summarizes the existing and planned supplies available to meet demands during multiple-dry years. Base demand during dry years was assumed to increase by 10 percent. Demands are also shown with the urban demand reduction resulting from SBX7-7 conservation objectives.

See Appendix C for the breakdown by purveyor of supplies available to meet demands over the 40-year planning period during a multiple-dry year.

TABLE 6-4
PROJECTED MULTIPLE-DRY YEAR SUPPLIES AND DEMANDS

	2015	2020	2025	2030	2035	2040	2045	2050
Existing Supplies								
Existing Groundwater[a]								
Alluvial Aquifer	20,425	20,425	20,425	21,825	21,825	21,825	21,825	21,325
Saugus Formation	19,700	19,700	19,700	19,700	19,700	19,700	19,700	19,700
Total Groundwater	**40,125**	**40,125**	**40,125**	**41,525**	**41,525**	**41,525**	**41,525**	**41,025**
Recycled Water[b]	325	325	325	325	325	325	325	325
Imported Water								
State Water Project[c]	32,900	32,900	33,000	33,000	33,000	33,000	33,000	33,000
Flexible Storage Accounts[d]	1,510	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Buena Vista-Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Total Imported	**47,017**	**46,677**	**46,777**	**46,777**	**46,777**	**46,777**	**46,777**	**46,777**
Banking Programs								
Rosedale Rio-Bravo[e]	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
Semitropic[f]	11,500	11,500	-	-	-	-	-	-
Semitropic - Newhall Land[g]	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
Total Banking	**31,450**	**31,450**	**19,950**	**19,950**	**19,950**	**19,950**	**19,950**	**19,950**
Total Existing Supplies	**118,917**	**118,577**	**107,177**	**108,577**	**108,577**	**108,577**	**108,577**	**108,077**
Planned Supplies								
Future Groundwater[h]								
Alluvial Aquifer	-	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Saugus Formation (Restored Well)	2,375	1,625	1,500	1,400	1,275	1,125	1,000	875
Saugus Formation (New Wells)	2,250	10,325	10,450	10,550	10,675	10,825	10,950	11,075
Total Groundwater	**4,625**	**12,950**	**13,950**	**14,950**	**15,950**	**16,950**	**17,950**	**18,950**
Recycled Water[b]	975	2,725	5,225	7,775	10,275	13,775	17,275	20,975

	2015	2020	2025	2030	2035	2040	2045	2050
Banking Programs[i]	-	-	7,500	7,500	15,000	15,000	15,000	15,000
Total Planned Supplies	**5,600**	**15,675**	**26,675**	**30,225**	**41,225**	**45,725**	**50,225**	**54,925**
Total Existing and Planned Supplies	**124,517**	**134,252**	**133,852**	**138,802**	**149,802**	**154,302**	**158,802**	**163,002**
Demand w/o Conservation[j]	88,077	97,333	106,588	115,843	125,099	134,354	143,609	152,865
20x2020 Reduction[k]	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[l]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation[m]	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation[n]	**80,350**	**80,757**	**89,926**	**99,096**	**108,265**	**117,434**	**126,604**	**135,773**

Notes:

(a) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-12, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5. SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.
(b) Recycled water projections from Table 4-3.
(c) SWP supplies are based on the Department of Water Resources "*2009 State Water Project Delivery Reliability Report*."
(d) Includes both CLWA and Ventura County entities flexible storage accounts. Initial Term of agreement with Ventura County entities expires after 2015.
(e) CLWA has a maximum withdrawal capacity of 20,000 AFY and a storage capacity of 100,000 AF. As of 6/1/2011, there is 100,000 AF of recoverable water.
(f) CLWA has 45,920 AF of recoverable water as of 6/1/2011.
(g) Newhall Land has a maximum withdrawal capacity of 4,950 AFY and a storage capacity of 55,000 AF. As of 6/1/2011 there is 18,892 AF of recoverable water. Delivery of stored water from the Newhall Land's Semitropic Water Banking and Exchange Program is assumed available to VWC.
(h) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation, including 3,777 AFY of restored capacity from VWC Well 201 and approximately 10,000 AFY of new Saugus Formation well capacity. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production is consistent with the 1931-1934 multiple dry-year levels identified in Table 3-8 of the 2009 Groundwater Basin Yield Analysis. As indicated in Table 3-12, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.
(i) Includes banking programs with 10,000 AF of additional pumpback capacity by 2025 and a second additional 10,000 AF by 2035.
(j) Demand w/o Conservation data from Table 2-2. Includes a 10 percent increase in demand during dry years.
(k) 20x2020 Reduction for the Region from Table 2-22.
(l) Recycled Water Reduction for the Region from Table 2-22; does not include demands from Honor Rancho.
(m) Reduction from Water Conservation calculation for Region from Table 2-22.
(n) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.

6.4.4 Summary of Comparisons

As shown in the analyses above, CLWA and the retail purveyors have adequate supplies to meet CLWA service area demands during normal, single-dry, and multiple-dry years throughout the 40-year planning period.

Section 7: Water Demand Management Measures

This section describes the water Demand Management Measures (DMMs) implemented by CLWA and the retail purveyors as a part of the effort to reduce water demand in the Valley.

7.1 Overview

CLWA and the retail purveyors are subject to the Urban Water Management Planning Act, AB1420 and SBX7-7 requirements, in addition to the commitment of compliance with the Best Management Practices (BMPs) as signatories to the Memorandum of Understanding Regarding Water Conservation in California (MOU). In the CLWA service area, demand management is addressed at both the local (retail agency) and regional (Santa Clarita Valley-wide) levels.

The MOU and BMPs were revised by the California Urban Water Conservation Council (CUWCC) in 2008. The revised BMPs now contain a category of "Foundational BMPs" that signatories are expected to implement as a matter of their regular course of business. These include Utility Operations (metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs and water waste ordinances) and Public Education (public outreach and school education programs). The remaining "Programmatic" BMPs have been placed into three categories: Residential, Large Landscape, and Commercial, Industrial, Institutional (CII) Programs and are similar to the original quantifiable BMPs. These revisions are reflected in the CUWCC reporting database starting with reporting year 2009 and the 2010 UWMP's DMM compliance requirements. The new category of foundational BMPs is a significant shift in the revised MOU. For CLWA and other wholesalers however, these changes do not represent a substantive shift in requirements.

A key intent of the recent MOU revision was to provide retail water agencies with more flexibility in meeting requirements and allow them to choose program options most suitable to their specific needs. Therefore, as alternatives to the traditional Programmatic BMP requirements, agencies may also implement the MOU Flex Track or GPCD options.

Under the Flex Track option, an agency is responsible for achieving water savings greater than or equal to those it would have achieved using only the BMP list items. The CUWCC has developed three Flex Track Menus – Residential, CII, and Landscape – and each provides a list of program options that may be implemented in part or any combination to meet the water savings goal of that BMP. Custom measures can also be developed and require documentation on how savings were realized and the method and calculations for estimating savings.

The GPCD option sets a water use reduction goal of 18 percent reduction by 2018. The MOU defines the variables involved in setting the baseline and determining final and interim targets. The GPCD option and requirements track well with the requirements of SBX7-7. All three retail suppliers – SCWD, VWC and NCWD – have chosen to implement the GPCD compliance option.

Signatories to the urban MOU are allowed by Water Code Section 10631(j) to include their biennial CUWCC BMP reports in an UWMP to meet the requirements of the DMM sections of the UWMP Act. The retail suppliers have chosen to comply with the requirements of the Act by providing the information required by the DMMs in this section of the Plan instead of attaching the 2009 and 2010 BMP Reports. CLWA has filed its 2009 and 2010 BMP reports (attached as Appendix E).

As a wholesaler MOU signatory, CLWA assists SCWD, VWC and NCWD with BMP implementation and reporting, although CLWA files BMP reports only for itself. LACWWD 36 BMP implementation and reporting is done by the County of Los Angeles on behalf of all its Waterworks Districts.

As the water wholesaler for the region, CLWA is responsible for the implementation of a subset of the BMPs. However, CLWA in partnership with the water purveyors has taken a leadership role in the implementation and support of a number of the BMPs that extend beyond a wholesaler's responsibilities in the MOU. The following sections provide more detail on the water suppliers' conservation programs and compliance with the BMPs.

7.2 Castaic Lake Water Agency

In 2001 CLWA became a signatory to the MOU and a member of the CUWCC, establishing a firm commitment to the implementation of the BMPs or DMMs. The CUWCC is a consensus-based partnership of agencies and organizations concerned with water supply and conservation of natural resources in California. By becoming a signatory, CLWA committed to implement a specific set of locally cost-effective conservation practices in its service area.

In addition to meeting its MOU commitments, CLWA is working with its retail purveyors to identify and implement water use efficiency programs that meet long-term reduction goals. In 2007, CLWA and the retail water purveyors entered into an MOU to prepare a Santa Clarita Valley Water Use Efficiency Strategic Plan (SCVWUESP). The purpose of the effort was to prepare a comprehensive long-term conservation plan for the Santa Clarita Valley by adopting objectives, policies and programs designed to promote proven and cost-effective conservation practices. A consultant was hired to prepare the SCVWUESP, which included input from stakeholders and the community at large. The SCVWUESP was completed in 2008 and provides a detailed study of existing residential and commercial water use, and recommends programs designed to reduce overall Valley-wide water demand by ten percent by 2030. The programs are designed to provide Valley residents with the tools and education to use water more efficiently. The seven programs identified in the SCVWUESP are:

1. HET Rebates (Single and Multi-Family)
2. Large Landscape Audits (with incentives)
3. CII Audits and Customized Incentives
4. Landscape Contractor Certification
5. HE Clothes Washer Rebates
6. New Construction Building Code
7. Valley-Wide Marketing

In addition to these seven programs, the SCVWUESP also identifies other key factors that will help reduce the Valley's overall water demand including passive conservation and new, more water efficient building ordinances. By 2009, CLWA and the water purveyors were implementing the majority of the programs identified in the SCVWUESP in some form.

Finally, the SCVWUESP includes an Appendix with more aggressive water use efficiency measures designed to meet a potential twenty percent reduction in water use by 2020. This

includes funding more active conservation programs, retrofit on resale ordinances, water rate reform, water budget based rates and a more aggressive recycled water program.

By implementing a portfolio of water use efficiency programs, Santa Clarita Valley water suppliers and their customers benefit in a number of ways:

- **Cost Avoidance for Purchased Water:** Although the Santa Clarita Valley has projected adequate water supply for the near future, the cost of water has risen dramatically and is expected to continue to rise. The best way to avoid purchasing expensive imported water is to use less through efficiency. Programs are an effective efficiency mechanism.
- **Limited State Resources:** California's water resources are becoming increasingly stretched due to population, housing growth and decreased water supply from state water projects. Agencies need to stretch water supplies and increase efficiencies.
- **Drought Preparedness:** It is inevitable that southern California, as well as the state, will experience another drought. The big question is when and how severe the next one will be. One way to lessen the severity of a drought's effect on Santa Clarita Valley is to prepare in advance for this event by creating a community that operates at a high level of efficiency.
- **Reduced Carbon Footprint:** The production and delivery of water requires a tremendous amount of energy on both a statewide and local level. The Santa Clarita Valley can do its part to reduce green house gases by using water more efficiently.
- **Reduced Waste Water Flows:** Sanitation plants and systems must be sized to meet historic and planned wastewater flows. Increasing the efficient use of water will result in a reduction of wastewater into the system.
- **Reduced Urban Runoff:** Achieving increased water use efficiency outdoors means less water running off landscaped areas into the streets, storm drains and ultimately into the Santa Clara River. Education efforts and installation of efficient technologies will ensure that more of our valuable water is delivered to appropriate landscaping and less of it as urban runoff.

The water suppliers are administering, managing and financing the SCVWUESP programs. Since the adoption of the SCVWUESP, SBX7-7 was enacted, which requires a more aggressive demand reduction target of 20 percent by 2020. CLWA and the purveyors are currently developing an implementation plan that builds on the SCVWUESP while accelerating and expanding its goals to identify other opportunities that will help meet long-term goals such as those required by SBX7-7. This UWMP provides an overview of the programs proposed for implementation to meet the SBX7-7 requirements.

7.2.1 Utility Operations

7.2.1.1 Conservation Coordinator

CLWA has one full time staff person that works in collaboration with its retail purveyors and exclusively on conservation programs. CLWA also employs a number of consultants to work on program development and implementation.

7.2.1.2 Wholesale Agency Assistance Programs

CLWA provides both technical and financial assistance to the retail purveyors. In addition to the requirements specified in the BMPs, CLWA provides the following support to its retail purveyors:

- **Program Planning:** CLWA hired consultants and worked closely with the purveyors to implement the programs in the SCVWUESP. CLWA is currently providing a similar service in developing implementation options for meeting SBX7-7 requirements.
- **Residential Landscape Program:** This program targets residential landscape maintenance providers in the Santa Clarita Valley and individual homeowners eligible to participate. It is primarily designed to provide gardeners incentives to install residential water efficiency devices such as weather-based irrigation controllers (WBIC). The program offers homeowners and gardeners free landscape classes. After completing the landscape class, a resident receives one free WBIC and gardeners can keep receiving WBICs after confirmation that the previous WBIC was installed properly on a property within CLWA service area. The program is projected to save 50 AF in the first year.
- **Large Landscape Program:** This program offers homeowners associations, parks and landscape maintenance divisions the opportunity for a CLWA representative to visit the site and develop a customized plan and offer rebates for items to further water conservation.
- **Commercial, Industrial and Institutional (CII) Audit and Customized Incentive Program:** The CII Program offers businesses and institutions the opportunity to save money and water by signing up for free water use check-ups. As part of the check-up, a CLWA representative visits the site and develops a customized plan and offers rebates for the items to further water conservation.
- **High Efficiency Toilet (HET) Replacement Program:** HET toilet replacement vouchers are provided to retail purveyors for distribution. Homes older than 1992 are eligible for up to $115 per toilet.
- **Landscape Education Program:** Free monthly workshops are provided in a classroom and garden setting for residents who want to learn more about gardening and conservation.
- **School and Public Information Programs:** See Section 7.2.2.

7.2.1.3 Water Loss Control

CLWA has completed AWWA's M36 Water Loss analysis, which consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, and an economic analysis of recoverable loss. Pre-screen results range from 99.5 to 100 percent. CLWA's M36 'Reporting Worksheet' for 2010 is provided in Appendix E.

7.2.2 Education

7.2.2.1 Public Information

In 2008 CLWA hired a social marketing firm to develop a Valley-wide conservation outreach plan. The "What's your water number?" campaign had its kick-off that summer and focused on proper irrigation and landscape maintenance. The campaign utilizes radio, billboards, television

and print. CLWA also distributes a monthly electronic community newsletter that addresses water conservation.

In October 2010, CLWA conducted a phone survey to measure the response to the campaign's messages to determine the most successful outlets used to deliver the messages among Santa Clarita Valley residents. Results indicated that overall campaign messaging was effective, with more than one-third of respondents stating the conservation tips made them re-think their current water use. Respondents also reported a substantial decrease in their total outdoor water use versus 2008. Eighty-seven percent of single-family home respondents said they reduced outdoor water usage already or are likely to do so in the near future. Respondents also reported a strong recall of the campaign. The majority of respondents recalled seeing or hearing conservation tips in the past six months. Results suggest that residents who previously watered every day, water every other day post-campaign.

In addition to its conservation outreach campaign, CLWA has a water-efficient landscape demonstration garden open to the public and which hosts about 60 school classes each year. CLWA also maintains an active website and Facebook page with water saving tips for residents and businesses, conservation checklists and program and incentive information.

7.2.2.2 School Education

Started in 1993, CLWA's award-winning Education Program is dedicated to helping students in school learn through age-appropriate programs, from kindergarten all the way through high school. The program provides hands-on field trips and in-class presentations for elementary and junior high school students at public and private schools in the Santa Clarita Valley (Table 7-1). In 2008, CLWA provided almost 350 class presentations and hosted 14 teacher workshops. In addition to the presentations and field trips, CLWA's Education Department administers the local high school Water Challenge scholarship program, which is open to students in grades 9 through 12. Through 2010, the Education Program has educated more than 104,000 students about the importance of efficient water use.

TABLE 7-1
SCHOOL EDUCATION (NUMBER OF STUDENTS)

Grade Level	2006	2007	2008	2009	2010
K - 3	5,677	7,320	6,290	6,686	7,296
4 - 6	3,753	4,872	4,195	4,768	5,212
7 - 8	798	1,102	1,345	1,210	315
9 - 12	0	223	141	40	491
Totals	**10,228**	**13,517**	**11,971**	**12,704**	**13,314**

7.3 Regional BMP Implementation

In 2001, the CLWA Board approved signing the CUWCC's MOU on behalf of both the wholesale and retail service areas (CLWA and SCWD), thus meeting one of the recommendations of the 2000 UWMP. Los Angeles County signed the MOU prior to the 2000 UWMP on behalf of all its Waterworks Districts; NCWD signed the MOU on its own behalf in September 2002 and VWC signed in 2006. In 2009, the CUWCC changed its policy to specify that each signatory had to join individually and that a wholesaler could no longer be a signatory on behalf of its retailers.

The following sections provide a summary of the BMP status of the retail purveyors, in addition to the SCVWUESP activities.

7.4 Santa Clarita Water Division

Programs and planning efforts that focus on demand management have increased significantly since the 2005 UWMP. These efforts have been both by SCWD individually as well as regional approaches that involve CLWA and the retailers.

In 2001, the CLWA Board approved signing the CUWCC's MOU for both the wholesale and retail service areas (CLWA and SCWD). Since that time, SCWD has been reporting and filing BMP reports as a signatory. SCWD filed BMP reports through 2008. In 2009, the CUWCC changed its policy to specify that each signatory had to join individually and that a wholesaler could no longer be a signatory on behalf of its retailers. As a result, SCWD is no longer included as member of the CUWCC.

SCWD developed a Water Conservation Plan (WCP) in April 2009 to complement the SCVWUESP adopted by the CLWA Board of Directors in February 2009. In its WCP, SCWD recognizes the need to implement the urban water conservation BMPs as described by the CUWCC and identify additional conservation measures that could accelerate savings in the SCWD service area. The WCP identified the elements, processes, costs, staff resources and activities to further promote conservation and further complement the SCVWUESP. The WCP also identified activities not addressed in the regional plan.

SCWD is implementing all of the Foundational BMPs as required in the revised MOU and UWMP Act. The Programmatic BMPs are being implemented through a GPCD approach. The BMP and SBX7-7 goals and implementation plan are discussed further in Sections 7.4.2 and 7.4.3.

The following sections describe the various programs and conservation activities currently being implemented by SCWD.

7.4.1 Foundational BMPs

7.4.1.1 Utility Operations

<u>Conservation Coordinator</u>

SCWD's conservation program is staffed in various ways. Internally, management, administration and oversight are the responsibility of the Associate Water Resources Planner. In addition, SCWD has helped fund a conservation coordinator position at CLWA since 2004; this position supports regional planning and implementation. SCWD also utilizes consultant services to support program planning and management as well as to implement the various programs including residential landscape training as well as residential, CII and large landscape audits.

<u>Water Waste Prevention</u>

SCWD supports water waste prevention activities through both direct Board activities and in collaboration with the City of Santa Clarita.

On September 10, 2008, the CLWA Board of Directors signed Resolution No. 2605 declaring an Agency-wide water supply and conservation alert. The resolution encourages residents to follow the Voluntary Water Conservation Action Plan (Plan) and achieve a ten percent overall reduction in water demand. The Plan establishes voluntary water conservation measures to be taken by residents and businesses and includes a set of guidelines and recommendations for both indoor and outdoor water use improvements.

SCWD is also actively supporting the City and County in establishing terms of service for water efficient design in new development, complaint with AB 1881. SCWD participates in compliance review of new water efficient landscaping requirements, reviewing the Water Efficient Landscape Worksheet (WELW) and, after a project is completed, conducting periodic audits and tracking consumption to ensure the project remains in compliance with the water allowance requirements.

SCWD also has a Water Shortage Contingency Plan (see Appendix F) and works closely with the City and County in supporting all local ordinances that prohibit water waste.

Water Loss Control

SCWD monitors its water losses on a monthly basis. Production losses in 2008 and 2009 were estimated at 7.9 and 6.0 percent, respectively. SCWD has completed AWWA's M36 Water Loss analysis, which consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, and an economic analysis of recoverable loss. SCWD's M36 'Reporting Worksheet' for 2009 is provided in Appendix E.

Results of the preliminary analysis show a water audit data validity score of 64 and an Infrastructure Leakage Index (ILI) of 3.79. A validity score between 51 and 70 indicates that the validity of the data is reasonable, with opportunity for improvement. According to general guidelines, an ILI between 3 and 5 is appropriate when water resources can be developed or purchased at a reasonable expense; existing water supply capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place; and water resources are believed to be sufficient but demand management measures are included in long-term planning. The audit highlights some strengths and weaknesses of the system. SCWD is evaluating the preliminary results and recommendations of the audit.

Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

All of SCWD's customers are metered and billed volumetrically. Commercial, industrial and institutional accounts and parks are encouraged to have dedicated irrigation meters, and many do. In addition, SCWD has identified the Automated Meter Reading (AMR)/ Advanced Metering Infrastructure (AMI) technologies as a conservation priority. This technology is being implemented and will be very helpful in identifying leaks, mitigating losses, and monitoring customer usage.

Retail Conservation Pricing

All of SCWD's customers are metered and billed monthly. On January 1, 2010, SCWD migrated its residential customers to a tiered rate structure and its landscape customers to a fixed rate set at the highest tier rate.

Since 2007 the proportion of revenue from fixed charge has met the BMP requirement of not to exceed 30 percent. Table 7-2 shows the portion of revenues that come from fixed charges. Total revenue includes meter, consumption, energy, purchased water and other small miscellaneous charges. Note that 2010 data are only through September and do not reflect a full year's revenue; SCWD expects to meet the threshold requirements once a full year's data is incorporated.

TABLE 7-2
REVENUE

Operating Revenues	2007	2008	2009	2010[(a)]
Fixed Charges	$ 5,880,400	$ 6,282,400	$ 6,354,900	$ 5,500,100
Volumetric Charges	$ 13,629,600	$14,401,100	$ 15,516,300	$12,261,800
% Fixed Charges	**30%**	**30%**	**29%**	**31%**

Note:
(a) Reflects revenues only through September 2010. BMP requirement anticipated to be met with complete 2010 revenue accounted for.

7.4.1.2 Education

Public Information Programs

SCWD provides informational materials to customers through media events, neighborhood expos and other activities (Table 7-3). SCWD also communicates with its customers in coordination with CLWA through a variety of media outlets including Santa Clarita Valley TV, billboards, newspapers, magazines, radio, paid advertising, bill inserts, its website (http://www.scwater.org/) and public service announcements. Conservation messages are also included on customers' monthly bills. Two tips ran in October and December 2008 and one ran on every bill issued in 2009. In 2009 SCWD instituted an automatic calling campaign to alert its customers of dry conditions and the importance of conservation. Almost 70,000 calls were made between December 2009 and October 2010.

TABLE 7-3
SCWD OUTREACH EVENTS

2009	2010
Earth Day	Earth Day
Home and Garden Expo	Water Awareness
Water Awareness	River Rally
River Rally	Make a Difference Day
Neighborhood Expo (3): Canyon County, Saugus, Newhall	Realtors' Breakfast
Emergency Expo	

School Education Programs

SCWD implements its school programs in coordination with the CLWA, reaching almost 6,400 students a year since 2007 (Table 7-4). The CLWA's award winning program is available to grades K through 8 and includes in class presentations and field trips. See Section 7.2.2.2 for more information on CLWA's school programs.

TABLE 7-4
SCHOOL EDUCATION (NUMBER OF STUDENTS)

Grade Level	2007	2008	2009	2010
K - 3	2,474	2,694	3,300	2,947
4 - 6	2,656	1,600	2,412	2,063
7 - 8	335	860	605	94
9 - 12	63	141	40	348
Totals	**5,528**	**5,295**	**6,357**	**5,452**

7.4.2 Programmatic BMPs

Prior to 2007, SCWD focused most of its conservation programs on the Foundational type of activities. In 2007, SCWD starting expanding its programs by incorporating incentives and other elements. In 2009, the SCVWUESP was adopted by the CLWA Board of Directors in February and SCWD developed its own Water Conservation Plan (WCP) in April. These documents set, for the first time, water savings goals, identified activities to meet the goals and developed a long-term conservation program. In its WCP, SCWD recognizes the need to implement the BMPs and identify additional conservation measures that could accelerate savings in the SCWD service area.

The majority of SCWD's programmatic BMPs are being implemented in collaboration with CLWA. In order to maintain consistency the SBX7-7 planning process, SCWD has chosen the GPCD alternative for complying with the MOU.

The following sections describe the programs being implemented in the service area.

7.4.2.1 Residential Programs

The largest customer class in the SCWD service area is residential, accounting for approximately 90 percent of customers and 70 percent of total use. SCWD has about 21,200 SF and 4,700 MF residential accounts. SCWD is focusing the majority of its conservation efforts on residential use.

1) **Residential Audit Program**
   SCWD's indoor residential audit program is structured to respond to customer requests but does not currently actively promote indoor audits. SCWD provides water conservation items that include low-flow showerheads, conservation materials, hose nozzles and aerators. These items are provided at festivals, fairs and other events, and are available for pick up at the SCWD office. This distribution program started in 2008; SCWD distributed about 600 conservation items in 2009 and 2010.

2) **Landscape Training and Incentive Program**
   Residential landscapes are a significant use in SCWD's service area. SCWD is working with CLWA to offer a program that combines training and fixtures in the form of landscape classes and WBICs to its residential customers. The program offers homeowners and gardeners free landscape classes; after residents or their gardeners complete the training, they receive free WBICs. They also receive free inspections of their WBIC installations and programming to ensure they are properly installed and programmed. The classes are offered in both English and Spanish and have been very

popular with residents. At the end of 2010, six classes were held and 70 WBICs have been installed and inspected within the SCWD service area.

SCWD has focused its landscape surveys on its largest users, although all customers are welcome. These are typically homeowners associations (HOAs). HOA customers with dedicated irrigation meters are classified as "irrigation" customers rather than "residential" and the program is designed to develop an appropriate water budget and help them implement it. The program is further described in Section 7.4.2.3.

3) **High Efficiency Toilet Rebate Program**
The SCVWUESP estimates that in 2008 about 62 percent of residential toilets used 1.6 gallons per flush or less. A program at least as effective as a retrofit on resale, which is the BMP threshold, requires SCWD to provide about 200 rebates per year. SCWD is currently participating in CLWA's HET voucher rebate program and has provided 900 rebates since 2007, almost 70 percent of which were rebated in 2010. The program has been ramping up steadily and the goal is to provide 600 rebates a year. Incentives valued at $115 are provided for HETs replacing models that flush at 3.5 gpf or more.

In addition, SCWD will be realizing the benefits of SB 407, effective January 1, 2014. SB 407 requires that all pre-1994 residential, multi-family and commercial customers replace non-compliant plumbing fixtures (including toilets, faucets, and showerheads) with water-conserving fixtures when making certain improvements or alterations to a building. By 2017, all single-family homes must replace non-compliant plumbing fixtures and by 2019 all multifamily and commercial buildings must have compliant water-conserving plumbing fixtures in place.

4) **WaterSense Specification for New Residential Development**
SCWD is working closely with the City of Santa Clarita's response in its development and implementation of landscape requirements that comply with AB 1881.

SCWD is supporting adoption of the 2010 California Green Building Standards Code, which went into effect January 2011. The Code sets mandatory green building measures, including a twenty percent reduction in indoor water use, as well as dedicated meter requirements and regulations addressing landscape irrigation and design. Local jurisdictions, at a minimum, must adopt the mandatory measures; the Code also identifies voluntary measures that set a higher standard of efficiency, which can also be adopted. SCWD will review the proposed standards and determine the most appropriate approach.

7.4.2.2 Commercial, Industrial, and Institutional (CII) BMPs

CII use does not account for a large portion of consumption in SCWD's service area. SCWD has about 840 CII accounts which use about 1,900 AFY, or 7 percent of total use.

In FY 2010/11 the CLWA began implementing a CII Audit and Customized Incentive Program which offers comprehensive water audits with follow-up reports that provide recommendations, information on costs, savings, payback and other implementation-oriented information. The program targets high use and high savings potential customers such as amusement parks, colleges and universities, hotels and hospitals. Recommendations include both site-specific and general opportunities. The key decision makers are identified and contacted to enlist

participation. The goal is to tailor the amount of incentive to the water savings based upon the findings of the audit. Customers are eligible to receive financial incentives to offset any investments in water use efficiency in the amount of up to $300 per AF of water saved.

To date forty large water users have been contacted and twenty within SCWD service area are moving forward.

7.4.2.3 Landscape

SCWD encourages installation of dedicated irrigation meters on all commercial, industrial and institutional accounts, parks and city landscaping. SCWD has 864 dedicated irrigation accounts, the majority of which are HOAs.

SCWD is working on developing water budgets for all its dedicated irrigation accounts; to date 188 accounts have water budgets. The budgets are developed based on historical water use data, landscape acreage and the Maximum Applied Water Allowance as defined by DWR. If the accounts exceed their budgets, SCWD contacts the customer with offers of a free audit, nozzles and/or WBICs (when available) as well as a free walk-through with the landscape contractor followed up with a report containing findings and recommendations.

SCWD is also participating in the CLWA-sponsored large landscape program which offers audits to its large landscape customers. Currently forty sites are enrolled; eighteen are within the SCWD service area where the focus is on HOA customers. The program offers large landscape customers such as HOAs, parks and landscape maintenance districts the opportunity to receive free water-use and cost-benefit analysis reports, free workshops for property management and landscapers and rebates for water-saving measures and devices. Customers are also eligible to receive financial incentives to offset any investments in landscape efficiency in the amount of up to $300 per AF of water saved. CLWA works with its retailers to select sites that meet the large landscape specifications.

To date, five sites have final reports; one site has completed recommended infrastructure modifications and has received the rebate based on an estimated potential savings of 4.21 AFY. The others will complete modifications throughout 2011 and 2012.

7.4.3 SCWD DMM and SBX7-7 Implementation Plan

SCWD recognizes the need to expand conservation programs and efforts in order to meet both its SBX7-7 and DMM requirements.

The SBX7-7 baseline and target calculations are addressed in Chapter 2. The DMM GPCD goals, shown in Table 7-5 are determined by calculating the following:

1. *Baseline GPCD = average annual Potable Water GPCD for the years 1997 through 2006*

2. *2018 GPCD Target = Baseline GPCD multiplied by 0.82 (an 18% reduction)*

3. *Biennial GPCD Targets = Baseline GPCD multiplied by that year's Target (% Baseline). A retail water agency may choose a starting point as either its Baseline GPCD or its 2006 Potable Water GPCD.*

TABLE 7-5
DMM GPCD TARGET CALCULATIONS

Year	Per Capita Water Use (GPCD)
1997	237
1998	210
1999	247
2000	242
2001	234
2002	251
2003	232
2004	239
2005	227
2006	229
Baseline	**234**
Target (2018)	**192**

Compliance is evaluated in relation to the Compliance Table below (Table7-6) and relative progress toward the goal will be acknowledged in Council Compliance Reports. The compliance tables are read as five increments with reporting goals relative to their first through fifth Compliance reports.

TABLE 7-6
ANNUAL COMPLIANCE TARGETS (IN GPCD)

Year	Compliance Report	Target	Highest Acceptable Bound
2010	1	220	234
2012	2	217	225
2014	3	209	217
2016	4	200	209
2018	5	192	192

The GPCD option for MOU compliance and the SBX7-7 targets are consistent with one another (Table 7-7) and SCWD is utilizing the SCVWUESP as well as its own WCP to implement programs that meet these goals.

TABLE 7-7
COMPLIANCE TARGETS

		Target GPCP		
	Baseline GPCD	**2015**	**2018**	**2020**
MOU/AB 1420	234		192	
SBX7-7	235	211		188

In the 2008 SCVWUESP, a comprehensive assessment of SCWD's demographics, levels of past conservation, age of housing, natural turnover, the effects of plumbing codes and more was completed to determine the potential of future conservation activities and programs.

SCWD has already begun implementing five of the seven programs identified in the SCVWUESP: HET rebates (Single family), large landscape audits (with incentives), CII audits and customized incentives, landscape contractor certification and valley-wide marketing; HET clothes washer rebates and multi-family HET rebates are planned for implementation in 2011.

Both the regional SCVWUESP and SCWD's WCP recognize the need to expand conservation programs and efforts. The adoption of SBX7-7 has increased the urgency for implementation. CLWA is in the process of reviewing its incentive programs and SCWD is currently working with CLWA as well as the other purveyors to identify programs that could be implemented regionally.

The programs identified to meet future requirements combine financial incentives, regulation and information elements, and building onto existing activities. Included in the programs being considered for implementation are the following:

Financial Incentives

1) High-Efficiency Clothes Washers (HECWs): Clothes washer rebates are on the list of programs identified for implementation in the SCVWUESP. CLWA will be expanding its program to include clothes washer rebates in FY 2011/12 and SCWD will participate.

2) Zero and Low-Flow Urinal Rebates: Rebates will include CII fixtures such as zero consumption and ultra low volume urinals as well as CII specific HETs. This program will launch in FY 2011/12.

3) Expansion of fixture rebates to CII and Multi-family customers: Currently the toilet rebate program is only available to single-family residential customers. Starting 2011, the programs will be expanded to all customers and there will be increased focus on marketing to large HOA accounts.

4) Expand rebates to include a larger variety of fixtures: Being considered for inclusion are hot water distribution tanks, pressurized water brooms and high-pressure spray nozzles.

5) Cash for Grass Rebate: Customers will be provided with an incentive of up to $1 per acre-foot of turf removed and replaced with landscape appropriate plants. The program is being considered for both residential and CII customers.

6) Expansion of large landscape program: The purveyors will be evaluating the effectiveness of the current landscape program in FY 2011/12 and adjusting depending on the results. If the program is found to be successful at meeting reduction targets, the program will be accelerated and more devices will be offered, such as Precision Nozzles.

Building Code/New Standards

The SCVWUESP developed a comprehensive list of new building standards, beyond those currently in code. Code changes that improve the efficiency of fixtures and design account for about 60 percent of the expected reduction in demand, and will therefore be a significant program priority. Some of the changes proposed will be captured in the State Model Efficient Landscape Ordinance effective January 2010, CAL Green Building Code adopted January 2011, and SB 407 and standard updates for toilets and washers that are being phased in.

Information/Tracking

Information and tracking represents a new element to the existing programs focusing on collecting and processing information and ensuring that the programs are on track to meet the goals. These activities will also help in program design by providing more robust information about customers and their water use patterns. The immediate priorities include:

1) Automatic Meter Reading (AMR): SCWD has identified AMR as a priority in its WCP and critical to obtaining real time data for water usage and utilizing it to identify customer-side leaks. This information can also help SCWD monitor the impacts of existing programs, make adjustments where necessary and develop new programs.

2) Water Use Tracking Tools: Another WCP priority, SCWD plans to design and develop database tracking tools for water savings associated with its conservation plans and increase flexibility by adding or changing program elements.

SCWD is developing a plan that includes accelerating the current programs, adding additional elements that include programmatic, regulatory and information-based activities to meet the requirements of SBX7-7. This planning process was started in 2010 and implementation will begin in 2011.

Evaluating Effectiveness of the DMMs

SCWD will continue to track all program activities including outreach activities, rebate distribution and audits. Program effectiveness and per capita use will be monitored through the billing and consumption system.

Impacts of Conservation

It is not expected that, at this time, the conservation programs currently being implemented or scheduled for implementation will have any significant negative effect on water use within SCWD's service area or affect SCWD's ability to further reduce demand. The funding for current and future programs is being identified.

Economic Impacts

Analysis of the requirements for BMP compliance yields program costs of roughly $500,000.

7.5 Valencia Water Company

VWC recognizes that conserving water is an integral component of a responsible water strategy and is committed to providing education, tools and incentives to help its customers reduce the amount of water they use. VWC is implementing programs locally as well as leveraging the conservation resources available through CLWA. In 2006, VWC became a signatory to the CUWCC MOU, establishing a firm commitment to the implementation of the BMPs or DMMs. Prior to signing the MOU, VWC had been actively engaged in conservation and implemented several of the CUWCC recommended conservation programs.

In 2007, VWC coordinated the development and execution of a MOU with the other retail water purveyors and CLWA to prepare the SCVWUESP. VWC served as the project administrator for

the Santa Clarita Valley water suppliers in developing the SCVWUESP. The SCVWUESP recommended programs to reduce the overall valley wide water demand by ten percent by 2030 (see Section 7.2 for more information), but also included more aggressive programs to achieve greater demand reductions at an accelerated pace. These programs were designed to provide Valley residents and businesses with the tools and education to use water more efficiently.

Since 2002, VWC's focus on demand management has continued to increase. In addition to the activities identified in the SCVWUESP, VWC has implemented a number of other conservation activities to meet the requirements of the MOU and SBX7-7 goals. VWC has an internal Water Use and Energy Efficiency Plan (WUEEP). The WUEEP provides a broad framework defining VWC's conservation policies as well as detailed conservation programs. The WUEEP is reviewed annually and updated every three years.

VWC is implementing all of the Foundational BMPs as required in the revised MOU and UWMP Act. The Programmatic BMPs are being implemented through a GPCD approach. The BMP and SBX7-7 goals and implementation plans are discussed further in Section 7.5.2 and 7.5.3.

The following sections describe the various programs and conservation activities implemented by VWC.

7.5.1 Foundational BMPs

7.5.1.1 Utility Operations

Conservation Coordinator

VWC has had a full-time conservation coordinator since 2005 and added a second in 2009; there are currently two full-time equivalent (FTE) positions dedicated to conservation. The coordinators manage BMP implementation and other water conservation implementation and planning activities. VWC also utilizes consultant services to implement the various programs including water audits, landscape training and public outreach. In the future, VWC plans to establish a third conservation position to focus on CII activities.

Water Waste Prohibition

VWC operates under CPUC-approved rules that include Rule No. 14.1, the Water Conservation and Rationing Plan, and Rule 11, Discontinuance and Restoration of Service.

Rule 11, Discontinuance and Restoration of Service, allows the company to restrict and/or disconnect water service for customers using water in a wasteful manner.

The PUC's methodology for water utilities to implement water conservation plans is documented in Standard Practice U-40-W, "Instructions for Water Conservation, Rationing, and Service Connection Moratoria." Water shortage contingency plans must be approved by the PUC prior to implementation by VWC. As stated in the Standard Practice U-40-W, the PUC shall authorize mandatory conservation and rationing by approving Schedule No. 14.1, Mandatory Water Conservation and Rationing. Schedule No. 14.1 sets forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect.

Water Loss Control

VWC's overall water delivery system is relatively new with a weighted average plant in service life of 11 years. As a newer system, VWC doesn't experience a significant amount of water loss. Nonetheless, VWC conducts quarterly pre-screening system audits which calculate verifiable use as a percent of total production. VWC's historic annual water loss since 2000, as a percent of total production, ranged from one to seven percent.

VWC has completed AWWA's M36 Water Loss analysis, which consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, and an economic analysis of recoverable loss. VWC's M36 'Reporting Worksheet' for 2009 and 2010 are provided in Appendix E. Results of the preliminary audits show a water audit validity score of 89 for both 2009 and 2010 and ILI of 0.62 and 0.20 for 2009 and 2010, respectively. VWC intends to refine and improve its assumptions used per M36 manual as its system expands and matures.

VWC's maintenance program also helps minimize water losses. This program helps keep the VWC production system in optimal condition, thus reducing water losses. This program includes, among other things, daily inspections of water wells and pumping equipment, weekly inspections of water tanks and exercising critical system valves. VWC also calibrates its production meters annually.

When a leak occurs, VWC responds quickly to isolate the leak and repair it. VWC tracks leaks in its GIS system, which gives it the ability to visually monitor leak locations and identify potential problem areas or trends.

VWC's meter change-out program replaces its older water meters on a regular basis to ensure metering accuracy. Based on AWWA standards and VWC's experience, this program targets change-outs at 15 years or less.

Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

All of VWC's customers are metered and billed volumetrically on a monthly basis.

Monthly water allocations (i.e., water budgets) were introduced in late 2009 under the new WaterSMART Allocation program, in which individually metered residential customers receive their monthly allocations on billing statements. In, 2011 a tiered pricing structure based on WaterSMART allocations was implemented.

Retail Conservation Pricing

On February 1, 2011 VWC changed its single volumetric rate structure to a tiered structure (Table 7-8). The tiered system was designed to support the WaterSMART Allocation (WSA) program, which sets customer specific allocations for all individually metered residential customers. Starting in 2009, customer bills included information on their allocation, allowing time for acclimation to the new approach before it was fully implemented with tiered rates in 2011.

The rate structure is designed to provide support and encourage appropriate use. If a customer's water use is within the designated "efficient" range for their allocated volume, the customer is charged standard rates. If the customer uses less than the efficient limit, the

customer is charged at a lower rate and, conversely, if the customer uses more, the customer is charged at the higher rates. There are five (5) tiers, ranging from Super Efficient at $1.144/CCF to Wasteful at $2.878/CCF. Customers are encouraged to access their allocation and billing information on the company's website.

Residential class customers were the first to be placed on WSA and the tiered rate structure as this group represents approximately 54 percent of VWC's total consumption. Dedicated landscape irrigation meters, including those at CII customer locations will be placed on WSA with a tiered rate structure in 2012. VWC will evaluate the challenges of migrating the remaining customer classifications to WSA and tiered rates in the future.

TABLE 7-8
QUANTITY RATES AND SERVICE CHARGES

Tier Name	Level	Quantity rates: Rate per 100 cubic feet
Super Efficient	Tier 1: Indoor monthly water allocation	$1.144
Efficient	Tier 2: Outdoor monthly water allocation (Tiers 1+2=100% of monthly allocation)	$1.362
Inefficient	Tier 3: 101% to 150% of monthly water allocation	$1.703
Excessive	Tier 4: 151%-200% of monthly water allocation	$2.214
Wasteful	Tier 5: Use in excess of 200% of monthly water allocation	$2.878
Non-residential	(not applicable)	$1.362

The proportion of revenue from volumetric charges meets the BMP requirement at about 71 to 73 percent (Table 7-9).

TABLE 7-9
REVENUE

	2006	2007	2008	2009	2010
Fixed Charges	NR	$5,258,800	$6,122,000	$6,150,500	$6,153,500
Volumetric Charges	NR	$13,921,300	$14,788,900	$14,784,500	$15,287,500
Total Revenue	NR	$19,180,100	$20,910,900	$20,935,000	$21,441,000
% Volumetric	**NR**	**73%**	**71%**	**71%**	**71%**

7.5.1.2 Education

Public Information

VWC implements public outreach in coordination with CLWA. See Section 7.2.2.1 for detail on specific programs administered by CLWA.

In addition to the regional activities, VWC provides information on efficient water use on customer bills and on its website. Bills show current water usage in comparison with the previous year's usage for that period, and for residential customers it shows their WaterSMART allocations. VWC maintains an active website that provides information on the various programs available to customers, conservation tips, links and full details on the WaterSMART program. In addition, VWC representatives promote conservation at local special events,

including the Emergency Expo, Earth/Arbor Day, CLWA Water Awareness, River Rally and Make a Difference Day. Outreach activities are summarized in Table 7-10.

TABLE 7-10
SUMMARY OF OUTREACH ACTIVITIES

Item	2006	2007	2008	2009	2010
Bill Inserts / Newsletters / Brochures	NR	0	1	2	1
Bill showing current water usage in comparison with prior year usage	NR	Yes	Yes	Yes	Yes
Special Events	NR	4	4	3	4
Program to coordinate with other government agencies, industry, public interest groups and media	NR	Yes	Yes	Yes	Yes

School Education

VWC's school education program is implemented in coordination with CLWA at no cost to school districts. The CLWA's award winning program is available to grades K through 12 and includes in class presentations and field trips (Table 7-11). See Section 7.2.2.2 for more information on CLWA's school programs.

VWC previously contracted with Resource Action Programs, partnering with Southern California Edison (SCE) and Southern California Gas Company (SCGC) to implement the Living Wise Program. This program was designed to teach communities about conservation and increase environmental awareness. Sixth graders received Resource Action Living Wise Activity Kits, which enabled them to perform home water/energy audits. The program was active thru mid-2009.

TABLE 7-11
SCHOOL EDUCATION (NUMBER OF STUDENTS)

Grades	2006	2007	2008	2009	2010
K-3	1,984	3,501	2,372	2,115	3,016
4 - 6	1,559	1,593	1,895	1,577	2,176
7 - 8	527	737	485	350	0
9 - 12	0	160	0	0	143
Totals	**4,070**	**5,991**	**4,752**	**4,042**	**5,335**

7.5.2 Programmatic BMPs

VWC is pursuing a GPCD approach to complying with the Programmatic BMPs. The following section describes VWC program activities.

7.5.2.1 Residential Programs

Almost 54 percent of VWC's total water use is residential, the majority of which are single-family accounts.

1) Residential Survey and Retrofit Programs

VMC has two programs that address residential surveys, – a traditional audit program and a leak only audit – to best address specific customer needs, increase responsiveness and improve water use efficiency.

Since 2007, VWC has offered a free residential water audits to its residential customers, which include both an indoor and landscape element. The program is administered and implemented by a consultant. Customers are notified of the program by consultant outreach efforts, VWC referrals and advertisement on VWC's website, reception area and at community events. The goals of the program are to provide customers with a better understanding of their water use; identify inefficient uses; and offer incentives for replacement of high-water use devices such as toilets and WBICs. The number of surveys that were conducted is summarized in Table 7-12.

In addition to the full audit, VWC initiated a supplemental program in January 2011 to specifically address leaks. This program was developed to be cost-effective, and to respond quickly and mitigate unnecessary losses resulting from leaks and other unintentional water consumption. In order to better serve its customers, VWC combines smart Automated Meter Reading (AMR) and current manual read systems to notify customers when their consumption has either registered higher than normal or if continuous flow has been detected by the meter (alerts automatically occur when the meter registers continuous flow for 24 consecutive hours). VWC customers can respond to the notification by requesting a Leak Only audit or a full residential audit to assist with the identification and quantification of the abnormal water use and to provide instructions to stabilize or reduce consumption.

VWC's device distribution programs have continued over the years (Table 7-12); devices are distributed as part of the surveys as well as through community events and the Living Wise program (described below). Devices include low-flow showerheads and aerators. In addition, CLWA distributes free water-saving devices to Valley residents at community events.

VWC previously benefited from audits conducted by students through the Living Wise Program in schools (see Section 7.5.1.2). The Living Wise surveys are each counted as the equivalent of one-third of a survey in terms of BMP reporting (only indoor use is evaluated in the program). The program was active through 2009.

TABLE 7-12
RESIDENTIAL SURVEYS AND RETROFITS

	2006	2007	2008	2009	2010
Single Family Accounts					
Surveys Offered	NR	2,520	13,969	4,308	20,901
Surveys Completed	NR	542	813	528	238
Multi-Family Accounts					
Surveys Offered	NR	0	156	0	0
Surveys Completed	NR	0	126	0	0
Devices					
Showerheads	NR	1,583	2,357	1,303	460
Aerators	NR	3,154	4,610	2,473	564

Audit and retrofit program participation is tracked through a manual spreadsheet; water savings are estimated at 32 AFY.

2) **Residential Landscape Water Survey Program**
VWC has identified landscape conservation as a priority program and has developed various tools to address irrigation use. Section 1) above describes the residential water audit programs, including both the full audit and leak only programs, which are a combined indoor and landscape audit. In addition to those programs, VWC is working with CLWA to offer a program that combines training and fixtures in the form of landscape classes and WBICs to its residential customers.

The CLWA sponsored WBIC program began in 2009. It offers homeowners and gardeners free landscape classes and, after residents or their gardeners complete the training, they receive free WBICs. The classes have been very popular with Valley residents. Classes are offered in both English and Spanish and, after completing the training, attendees, as well as their gardeners, receive official certification for attending the workshop and committing to water efficient practices at their sites. VWC is working with CLWA and the other retailers to track program participation and actual water savings in this first year of the program, and will make adjustments to the program as necessary.

For VWC customers who take the CLWA class and receive a WBIC, VWC provides free installation and programming service, which is not part of the CLWA program. At the end of 2010, there have been six classes, and 70 WBICs that have been distributed to VWC customers through the CLWA WBIC program. VWC has installed four of these WBICs through this program in December 2010. VWC encourages participation in CLWA's program.

From 2007 to late 2010, VWC held landscape irrigation courses and provided free WBICs, including installation, to customers with irrigated areas greater than 2,500 square feet. VWC terminated the WBIC program during 2010 to gain efficiencies by combining this program with the CLWA WBIC program. The VWC standalone WBIC program resulted in 338 installed WBICs at customer homes over the four years of the program. Additionally, since 2007 VWC has required developers to install WBICs in all new residential homes constructed in its service area.

3) **WaterSense Specification Toilets**
VWC and CLWA both offer rebates to VWC customers for purchase and installation of high-efficiency toilets (HETs) using 1.28 gpf or less. Rebates are up to $115 for homes built before 1993, or $50 for homes built after that year.

A summary of rebates that have been issued is provided in Table 7-13.

TABLE 7-13
TOILET REBATE AND REPLACEMENT PROGRAMS

Type	2006	2007	2008	2009	2010
Single-Family					
HET Rebate	NR	33	110	477	1,200
Multi-Family					
HET Distribution	NR	0	87	0	0

Customers are notified about the program through advertising in the lobby, high bill inquiries, water audits consultants, community events, in-store promotions and through VWC website; the program is also marketed regionally by CLWA. Program participation is being tracked through VWC. VWC is exceeding the BMP requirement by about 270 retrofits per year, and estimates that the program will provide about 300 AF of water savings (cumulative) through 2020. Additionally, in 2008 VWC provided a one-time incentive at a multi-family senior center complex and replaced 87 toilets with 1.28 gallons per flush HETs.

In addition to the rebates, VWC will be realizing the benefits of SB 407, effective January 1, 2014. SB 407 requires installation of water-conserving plumbing fixtures (including toilets, faucets, and showerheads). The saturation rate of conservation fixtures will be accelerated by compliance with SB 407. This regulation requires all residential, multi-family and commercial customers with pre-1994, non-compliant fixtures to replace them with water-conserving fixtures when making certain improvements or alterations to a building. By 2017, all single-family homes must replace non-compliant plumbing fixtures and, by 2019, all multifamily and commercial buildings must have compliant water-conserving plumbing fixtures in place.

7.5.2.2 Commercial, Industrial, and Institutional (CII)

CII water use accounts for about 44 percent of VWC's total water use. These accounts have been identified and ranked by water use.

VWC has identified approximately 1,250 meters in its CII accounts that are dedicated to irrigating landscapes. During 2011, simply as an administrative procedure, VWC will move these metered accounts from CII to Landscape customers. Regardless of the current customer classification, VWC will target its Large Landscape conservation programs to all meters that are dedicated to landscape irrigation, including those currently included in CII.

VWC provides free audits for CII customers through CLWA's Water Checkup Program (Table 7-14). The audits focus on five areas: irrigation, plumbing fixtures, cooling towers (HVAC systems), manufacturing processes and other efficiency opportunities. After audits are completed, reports are created that summarize findings and suggestions and these are discussed in-person with the customers. Customers that complete and implement the recommended conservation upgrades are eligible for $300 per AF saved rebates. Five industries with the most promising opportunities to provide water savings have been targeted for the program:

- Amusement Park
- Colleges and Universities
- Hotels (Hospitality Industry)
- Hospitals
- Restaurants

Prior to the Water Checkup Program VWC provided free indoor and landscape water audits to CII customers through a program that ended in mid-2009 (Table 7-14). The audit included testing equipment, reviewing water use patterns and sharing water use efficiency information

with the customer. After the audit, the customer received a report identifying water efficiency opportunities, recommending courses of action, estimating water savings, and providing a cost benefit analysis. The recommended efficiency measures included devices such as pre-rinse spray nozzles, efficient toilets and urinals, cooling tower conductivity controllers, high-efficiency clothes washers, irrigation clock management and use of drought tolerant plants. Audits were provided to a wide variety of customers including restaurants, schools, hotels, manufacturing companies and others.

Customers are notified about the CLWA program through VWC's website, referrals by VWC and through direct contacts from the contractor. Program participation and estimated savings for 2010 are tracked by CLWA; prior to 2010, the program participation was tracked by VWC. Limited follow-up for the CII surveys occurred during the transitional years 2009 and 2010. The CLWA program includes follow-up, so VWC anticipates customers receiving surveys will be contacted thereafter.

TABLE 7-14
CII SURVEY PROGRAM

CII Surveys	2006	2007	2008	2009	2010
Surveys Offered					
Commercial	NR	62	30	15	6
Industrial	NR	61	48	5	1
Institutional	NR	0	0	0	4
Mixed Use/Landscape	NR	124/0	86/0	8/18	4/8
Surveys Completed					
Commercial	NR	0	6	15	1
Industrial	NR	7	12	5	0
Institutional	NR	0	0	0	2
Mixed Use/Landscape	NR	7/0	20/0	8/18	0/4
Follow-up within 1 year					
Commercial	NR	2	0	0	0
Industrial	NR	3	3	0	0
Institutional	NR	2	0	0	0

7.5.2.3 Large Landscape

VWC has 13 metered accounts dedicated to irrigation in 2010 that are classified as Landscape and that account for approximately two percent of total water use. This is comprised of three potable meters and ten recycled water meters. The ten recycled water users consist of one golf course and nine street medians.

Additionally, VWC has identified approximately 1,250 meters included in its CII accounts that are dedicated to irrigating landscapes. VWC will target its Large Landscape conservation programs to all meters that are dedicated to irrigating landscapes, including those currently included in CII.

VWC is participating in the CLWA-sponsored large landscape program that offers audits to its large landscape customers. Currently 40 sites are enrolled in the program, including 17 within the VWC service area, where the focus is primarily HOA customers. The program offers large landscape customers such as HOAs and parks and landscape maintenance districts the

opportunity to receive free water-use and cost/benefit analysis reports, free workshops for property management and landscapers and rebates for water-saving measures and devices.

Targeted customers, both public and private sector, are contacted by phone to solicit participation. During the audit, the efficiency of the irrigation system is assessed and leaks and repair needs may be identified. Following the site visit, irrigation system efficiency is evaluated to determine an effective watering schedule, and a water budget is developed based on the size of the landscape. The audit report includes upgrade recommendations, available incentives, new irrigation schedules, the water budget and a benefit/cost analysis. The report is delivered in person to further educate the customer.

Customers are eligible to receive financial incentives to offset investments in landscape efficiency of up to $300 per AF of water saved. CLWA works with its retailers to select sites that meet the large landscape specifications. To date, final reports have been generated for five sites; recommended infrastructure modifications have been completed and five rebates were issued. Modifications at another site will be implemented throughout 2011 and 2012.

Currently, customers are notified about the program through VWC's website, referrals or through direct contact from the contractor. Program participation and estimated savings are tracked through the contractor administering the program.

Prior to 2010, the Large Landscape Audit program was conducted and monitored by VWC. The results of these surveys are included in Table 7-14 above.

7.5.3 VWC DMM and SBX7-7 Implementation Plan

VWC recognizes the need to expand conservation programs and efforts in order to meet both its SBX7-7 and DMM requirements.

The SBX7-7 baseline and target calculations are addressed in Chapter 2. The DMM GPCD goals, shown in Table 7-15, are determined by calculating the following:

1. *Baseline GPCD = average annual Potable Water GPCD for the years 1997 through 2006*

2. *2018 GPCD Target = Baseline GPCD multiplied by 0.82 (an 18% reduction)*

3. *Biennial GPCD Targets = Baseline GPCD multiplied by that year's Target (% Baseline). A retail water agency may choose a starting point as either its Baseline GPCD or its 2006 Potable Water GPCD.*

TABLE 7-15
DMM GPCD TARGET CALCULATIONS

Year	Per Capita Water Use (GPCD)
1997	314
1998	257
1999	277
2000	290
2001	261
2002	280
2003	266
2004	263
2005	246
2006	253
Baseline	**271**
Target (2018)	**222**

Compliance is evaluated in relation to the Compliance Table below (Table 7-16) and relative progress toward the goal will be acknowledged in Council Compliance Reports. The compliance tables are read as five increments with reporting goals relative to their first through fifth Compliance reports.

TABLE 7-16
ANNUAL COMPLIANCE TARGETS (IN GPCD)

Year	Compliance Report	Target	Highest Acceptable Bound
2010	1	254	271
2012	2	251	261
2014	3	241	251
2016	4	232	241
2018	5	222	222

The GPCD option for MOU compliance and the SBX7-7 targets are consistent with one another (Table 7-17) and VWC is currently building on the SCVWUESP as well as its WUEEP to implement programs that meet these goals.

TABLE 7-17
COMPLIANCE TARGETS

		Target GPCD		
	Baseline GPCD	2015	2018	2020
MOU/AB 1420	271		222	
SBX7-7	278	250		222

The SCVWUESP recognizes the need to expand conservation programs and efforts. The adoption of SBX7-7 and the twenty percent reduction goal has increased the urgency for

implementation. CLWA is in the process of reviewing its incentive programs and VWC is currently working with CLWA as well as the other purveyors to identify programs that could be implemented regionally. Conservation programs identified to meet future requirements combine financial incentives, regulations and informational elements, and build on the existing activities. Included in the programs considered for implementation are the following:

Financial Incentives

1) High-Efficiency Clothes Washers (HECWs): Clothes washer rebates are on the list of programs identified for implementation in the SCVWUESP. CLWA will be expanding its program to include clothes washer rebates in FY 2011/12 and VWC will participate.

2) Zero and Low-Flow Urinal Rebates: Rebates will include CII fixtures such as zero consumption and ultra low volume urinals as well as CII specific HETs. This program will launch in FY 2011/12.

3) Expansion of Fixture Rebates to CII and Multi-family Customers: Currently the CLWA toilet rebate program is only available to single-family residential customers. Starting 2011, the programs will be expanded to all customers and there will be increased focus on marketing to large HOA accounts.

4) Expand Rebates to Include a Larger Variety of Fixtures: Being considered for inclusion are hot water storage tanks, pressurized water brooms and high-pressure spray nozzles.

5) Cash for Grass Rebate: Customers would be provided with an incentive of up to $1 per square foot of turf removed and replaced with climate appropriate plants. The program is being considered for both residential and CII customers.

6) Expansion of Large Landscape Program: The purveyors will be evaluating the effectiveness of the current landscape program in FY 2011/12 and making adjustments depending on the results. If the program is found to be successful at meeting reduction targets, the program will be accelerated and more devices will be offered, such as Precision Nozzles.

Building Code/New Standards

The SCVWUESP developed a comprehensive list of new building standards beyond those currently in the building code. Code changes that improve the efficiency of fixtures and design account for about 60 percent of the expected reduction in demand, and will therefore be a significant program priority. Some of the proposed changes will be captured in the State Model Efficient Landscape Ordinance effective January 2010, CAL Green Building Code adopted in January 2011, and SB 407 and standard updates for toilets and washers that are being phased in.

In addition to conservation programs, VWC is committed to expanding recycled water in its service area to offset potable water use for landscape irrigation. Currently recycled water provides about 325 AFY. VWC plans to expand its recycled water use to 2,000 AFY by 2020.

The near term plans to expand recycled water are discussed in Section 6. Recycled water will be further expanded with the South End Recycled Water project (Phase 2C), which will expand the existing recycled water transmission and distribution system southerly to supply recycled

water to VWC, NCWD and SCWD customers. The project will result in the use of approximately 910 AFY of recycled water.

Information/Tracking

Information and tracking represents a new element to the existing programs focusing on collecting and processing information and ensuring that the programs are on track to meet the goals. VWC has already initiated this tool with the WaterSMART Allocation program for its individually metered residential customers. VWC will be expanding the WaterSMART Allocation program to its meters that are dedicated to irrigating landscapes. These activities will help program development by providing more robust information about customers and their water use patterns.

Evaluating Effectiveness of the DMMs

VWC will continue to track all program activities including outreach activities, rebate distribution, audits and leak interventions. Program effectiveness and per capita use will be monitored through the billing and consumption system.

VWC will monitor its WaterSMART Allocation program to measure its effectiveness in assisting customers to use water more efficiently.

Impacts of Conservation

It is not expected that, at this time, the conservation programs currently being implemented or scheduled for implementation will have any significant negative effect on water use within VWC's service area or affect VWC's ability to further reduce demand. The funding for current and future programs is being identified.

Economic Impacts

Analysis of the requirements for BMP compliance yields program costs of roughly $450,000 per year.

7.6 Newhall County Water District

NCWD is implementing programs locally as well as leveraging the conservation resources available through CLWA.

In 2002, NCWD became a signatory to the CUWCC MOU, establishing a firm commitment to the implementation of the BMPs or DMMs. Many of NCWD's conservation programs have been ongoing since 2003 or earlier.

NCWD subsequently joined CLWA and the other retail water purveyors in signing a 2007 MOU to prepare the SCVWUESP. The SCVWUESP recommended programs to reduce the overall valley wide water demand by ten percent by 2030 (see Section 7.2 for more information). These programs were designed to provide Valley residents with the tools and education to use water more efficiently.

NCWD is currently implementing all of the Foundational BMPs as required in the revised MOU and UWMP Act. The Programmatic BMPs are being implemented through a BMP approach. The BMP and SBX7-7 goals and implementation plan are discussed further in Sections 7.6.2 and 7.6.3.

7.6.1 Foundational BMPs

7.6.1.1 Utility Operations

Conservation Coordinator

NCWD has had a conservation coordinator since 2002, when it was half a full-time equivalent (FTE) position. The coordinator manages BMP implementation and other water conservation implementation and planning activities. Including the coordinator, NCWD has four FTE staff positions that focus part-time on conservation.

Water Waste Prohibition

NCWD adopted a water conservation ordinance in 1991. The ordinance was revised in 2005 due to water supply conditions at that time. The ordinance provides a water conservation plan to minimize the effect of water shortages on customers. It lists prohibited uses, sets irrigation hours and schedules to optimize water efficiency and states that inspection for leaks and repairs are everyone's responsibility. In addition, State of California, County of Los Angeles, and City of Santa Clarita ordinances also apply to NCWD customers.

Water Loss Control

NCWD conducts annual pre-screening system audits which calculate verifiable use as a percent of total production. NCWD also compares production and sales records monthly to identify losses.

NCWD has completed AWWA's M36 Water Loss analysis, which consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, and an economic analysis of recoverable loss. NCWD's M36 'Reporting Worksheet' for 2010 is provided in Appendix E. Results of the preliminary analysis show an Infrastructure Leakage Index (ILI) of 1.8 and a score of 96, which indicates appropriate loss control. NCWD will continue its water loss practices and review the recommendations, which include annual audits and other incremental improvements.

Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

All of NCWD's customers are metered and billed volumetrically on a monthly basis. All meters have been replaced in the past ten years and NCWD is currently updating its maintenance plans.

Retail Conservation Pricing

Since 2005, NCWD has employed a four-tier increasing block rate structure for individually three-quarter inch metered residential accounts that is designed to promote water use efficiency and conservation. Rates range from $0.80 per CCF in the first tier to $1.456 per CCF in the fourth tier. The tiers are structured differently depending on meter size.

Non-residential accounts are charged for consumption at a uniform volumetric rate. All accounts are charged a flat fee for water availability, plus variable charges based on usage for energy, infrastructure and purchased water form CLWA. The proportion of revenue from variable charges meets the BMP requirement of 70 percent Table 7-18.

TABLE 7-18
REVENUE

	2006	2007	2008	2009	2010
Fixed: Service Charge	$2,160,400	$2,619,900	$2,808,100	$2,831,100	$2,834,600
Variable	$6,056,900	$7,166,200	$7,202,900	$6,982,900	$6,656,800
Total Revenue	$8,217,300	$9,786,100	$10,011,000	$9,814,000	$9,491,300
Percentage Variable	**74%**	**73%**	**72%**	**71%**	**70%**

7.6.1.2 Education

Public Information

NCWD has had a public information program since the late 1990s. Activities are summarized in Table 7-19. NCWD distributes conservation information to new residential customers as part of a welcome package and to children through free activity books. NCWD participates in community outreach events, mails its customers quarterly newsletters that include conservation tips and provide information on available rebate programs, conservation tips and links to other conservation resources on its website. Water bills were redesigned in 2010 to show water usage for the prior 13 months and suggest potential conservation actions.

Further outreach is implemented in coordination with CLWA. Refer to the Public Information section of CLWA's DMM summary for information on specific programs administered by CLWA.

TABLE 7-19
SUMMARY OF OUTREACH ACTIVITIES

Item	2006	2007	2008	2009	2010
Paid advertising	0	0	5	2	2
Bill Inserts / Newsletters / Brochures	4	4	4	4	4
Bill showing current water usage in comparison with prior year usage	Yes	Yes	Yes	Yes	Yes
Demonstration gardens	1	1	1	1	1
Special Events	3	3	3	4	4
Program to coordinate with other government agencies, industry, public interest groups and media	Yes	Yes	Yes	Yes	Yes

School Education

NCWD's school education program is implemented by CLWA at no cost to school districts and has reached over 10,000 students in NCWD's service area since 2006 (Table 7-20). Refer to the Section 7.2.2 for CLWA's DMM summary of detailed information on age-appropriate presentations, activities and field trips offered to schools, as well as the Water Challenge scholarship program.

TABLE 7-20
SCHOOL EDUCATION (NUMBER OF STUDENTS)

Grade Level	2006	2007	2008	2009	2010
K-3	1,325	1,345	1,224	1,271	1,333
4 - 6	954	623	700	779	973
7 - 8	100	30	0	255	221
9 - 12	0	0	0	0	0
Totals	**2,379**	**1,998**	**1,924**	**2,305**	**2,527**

7.6.2 Programmatic BMPs

The Programmatic BMPs are described below. NCWD is pursuing a GPCD approach to complying with the Programmatic BMPs. The following section describes NCWD program activities.

7.6.2.1 Residential Programs

The largest customer class in the NCWD service area is residential users, accounting for approximately 72 percent of total use.

1) **Residential Survey and Retrofit Programs**
   In 2007, NCWD sent all of its single family residential customers a water use self survey that reflected the information requirements of BMPs 1 and 2. Each customer that returned a completed survey received $10 (Table 7-21). NCWD tracked the survey results with a database developed for that purpose.

TABLE 7-21
RESIDENTIAL SURVEYS AND RETROFITS

	2006	2007	2008	2009	2010
Accounts					
Surveys Offered	0	7,000	0	0	0
Surveys Completed	0	375	216	0	0
Devices					
Showerheads	105	400	171	263	312
Aerators	122	184	184	148	173

Water-saving devices are distributed by mail following surveys, or picked up at local events and from the District office; recipients of these devices are tracked in a database. NCWD customers

also receive devices from CLWA, which distributes free water-saving devices to Santa Clarita Valley residents at community events.

2) **Residential Landscape Water Survey Program**
NCWD's residential landscape water survey program was combined with the indoor water surveys described in Section 1), which are a combined indoor and landscape audit. NCWD has identified landscape conservation as a priority program and has developed various tools to address irrigation use.

NCWD offers its residential customers an ET Controller (Smart Sprinkler) Rebate Program, which started in 2006. The program is available to single family homeowners with a minimum of 1,200 square feet of irrigated landscapes and working in-ground irrigation systems operated by working timers and controllers. The rebate is $40 per active valve, up to a maximum of $480 per residence. NCWD also pays up to $120 for standard installation. At the end of 2010 there have been 48 WBICs installed and inspected within the NCWD service area.

NCWD also provides a free nozzle for each purchased spray head to replace all the sprinklers in a residential front yard turf area. These nozzles have 1/3 the flow of a conventional sprinkler and reduce irrigation application rates to less than 1 inch per hour. This reduces both water use and runoff losses. At the end of 2010 there have been 182 nozzles installed within the NCWD service area.

NCWD is also working with CLWA to offer a program that combines training and fixtures in the form of landscape classes and WBICs give-aways to its residential customers. The program offers homeowners and gardeners free landscape classes; after residents or their gardeners complete the training, they receive free WBICs. They also receive free inspections of their WBIC installations and programming to ensure they are properly installed. The classes are offered in both English and Spanish and have been very popular with residents. At the end of 2010, there have been six classes, and 13 WBICs have been installed and inspected within the NCWD service area.

After completing the training, attendees, as well as their gardeners, receive official certification for attending the workshop and committing to water efficient practices at their sites.

3) **WaterSense Specification Toilets**
NCWD participates in toilet rebate program sponsored by CLWA, which provides $50 per qualifying toilet. NCWD is also offering HET rebates of up to $115 for single family homes built prior to 1993. The EPA's list of WaterSense labeled products is used to identify qualifying equipment. As of 2008, NCWD had achieved about 65 percent saturation of ULFTs in single family homes and 48 percent in multi-family homes. A summary of rebates that have been issued is provided in Table 7-22. In 2006 NCWD stopped offering ULFT rebates and migrated its incentive program towards HETs.

Compliance with the BMP requires that NCWD rebate about 700 toilets over 10 years, for a total water savings of about 78 AF by 2020. Since 2008, NCWD rebates have been on track to meet the coverage requirement.

TABLE 7-22
TOILET REBATE PROGRAMS

Toilet Type	2006	2007	2008	2009	2010
HET (1.28 gal/flush)				126	227
ULFT Rebates (1.6 gal/flush)	26	13	126		

In addition, NCWD will be realizing the benefits SB 407, effective January 1, 2014. SB 407 requires that all pre-1994 residential, multi-family and commercial customers replace non-compliant plumbing fixtures (including toilets, faucets, and showerheads) with water-conserving fixtures when making certain improvements or alterations to a building. By 2017, all single-family homes must replace non-compliant plumbing fixtures, and by 2019, all multifamily and commercial buildings must have compliant water-conserving plumbing fixtures in place.

7.6.2.2 Commercial, Industrial, and Institutional (CII)

NCWD has about 470 CII accounts, which use about 1,300 AFY, or about 12 percent of NCWD's total water use. These accounts have been identified and ranked by water use.

NCWD provides free audits for CII customers through CLWA's Water Checkup Program. The audits focus on five areas: irrigation, plumbing fixtures, cooling towers (HVAC systems), manufacturing processes and other efficiency opportunities. After the audit is complete, a report is created that summarizes findings and suggestions, and these are discussed with the customer in-person. The report also identifies rebates that are available to provide motivation for implementing the recommended retrofits. Customers are eligible to receive financial incentives to offset any investment in efficiency opportunities in the amount of up to $300 per AF of water saved.

Customers are notified about the CLWA program through bill inserts, the District's website and direct contact from the contractor. Program participation and estimated savings are tracked by CLWA. To date two audits within the NCWD's service have been completed, both for schools.

7.6.2.3 Large Landscape

NCWD has about 230 dedicated irrigation meter accounts that use almost 1,700 AFY, or 15 percent of total use. NCWD customers can take advantage of CLWA's Water Use Efficiency Program for Large Landscapes. Currently 40 sites are enrolled in the program, including four within the NCWD service area where the focus is primarily HOA customers. The program offers large landscape customers such as HOAs, parks and landscape maintenance districts the opportunity to receive free water-use and cost-benefit analysis reports, free workshops for property management and landscapers, and rebates for water-saving measures and devices.

Targeted customers are contacted via phone to solicit participation. During the audit, the efficiency of the irrigation system is assessed and leaks and repair needs may be identified. Following the site visit, irrigation system efficiency is evaluated to determine an effective watering schedule, and a water budget is developed based on the size of the landscape. The audit report includes upgrade recommendations, available incentives, new irrigation schedules, the water budget and a benefit/cost analysis. The report is delivered in person to further educate the customer.

Customers are eligible to receive financial incentives to offset any investment in landscape efficiency in the amount of up to $300 per AF of water saved. CLWA works with its retailers to select sites that meet the large landscape specifications. To date, final reports have been generated for two sites.

Customers are notified about the program through bill inserts, the website and direct contact from the contractor. Program participation and estimated savings are tracked through the contractor administering the program.

7.6.3 NCWD DMM and SBX7-7 Implementation Plan

NCWD recognizes the need to expand conservation programs and efforts in order to meet both its SBX7-7 and DMM requirements.

The SBX7-7 baseline and target calculations are addressed in Chapter 2. The DMM GPCD goals, shown in Table 7-23 are determined by calculating the following:

1. *Baseline GPCD = average annual Potable Water GPCD for the years 1997 through 2006*

2. *2018 GPCD Target = Baseline GPCD multiplied by 0.82 (an 18% reduction)*

3. *Biennial GPCD Targets = Baseline GPCD multiplied by that year's Target (% Baseline). A retail water agency may choose a starting point as either its Baseline GPCD or its 2006 Potable Water GPCD.*

TABLE 7-23
DMM GPCD TARGET CALCULATIONS

Year	Per Capita Water Use (GPCD)
1997	242
1998	220
1999	249
2000	254
2001	243
2002	253
2003	242
2004	247
2005	230
2006	241
Baseline	**242**
Target (2018)	**199**

Compliance is evaluated in relation to the Compliance Table below (Table 7-24) and relative progress toward the goal will be acknowledged in Council Compliance Reports. The compliance tables are read as five increments with reporting goals relative to their first through fifth Compliance reports.

TABLE 7-24
ANNUAL COMPLIANCE TARGETS (GPCD)

Year	Compliance Report	Target	Highest Acceptable Bound
2010	1	228	242
2012	2	225	233
2014	3	216	225
2016	4	207	216
2018	5	199	199

The GPCD option for MOU compliance and the SBX7-7 targets are consistent with one another (Table 7-25).

TABLE 7-25
COMPLIANCE TARGETS

		Target GPCD		
	Baseline GPCD	2015	2018	2020
MOU/AB 1420	242		199	
SBX7-7	244	220		195

The regional plan, the SCVWUESP, recognizes the need to expand conservation programs and efforts. The adoption of SBX7-7 and the twenty percent reduction goal has increased the urgency for implementation. CLWA is in the process of reviewing its incentive programs, and NCWD is currently working with CLWA as well as the other purveyors to identify programs that could be implemented regionally.

Programs that NCWD has identified to meet future requirements combine financial incentives, advances in building codes and improved implementation tracking. NCWD is considering implementing of the following:

Financial Incentives

1) High-Efficiency Clothes Washers (HECWs): Clothes washer rebates are on the list of programs identified for implementation in the SCVWUESP. CLWA will be expanding its program to include clothes washer rebates in FY 2011/12 and NCWD will participate.

2) Zero and Low-Flow Urinal Rebates: Rebates will include CII fixtures such as zero consumption and ultra low volume urinals as well as CII specific HETs. This program will launch in FY 2011/12.

3) Expansion of Fixture Rebates to CII and Multi-family Customers: Currently the toilet rebate program is only available to single-family residential customers. Starting 2011, the programs will be expanded to all customers and there will be increased focus on marketing to large HOA accounts.

4) Expand Rebates to Include a Larger Variety of Fixtures: Being considered for inclusion are hot water distribution tanks, pressurized water brooms and high-pressure spray nozzles.

5) Cash for Grass Rebate: Customers will be provided with an incentive of up to $1 per acre-foot of turf removed and replaced with landscape appropriate plants. The program is being considered for both residential and CII customers.

6) Expansion of Large Landscape Program: The purveyors will be evaluating the effectiveness of the current landscape program in FY 2011/12 and adjusting depending on the results. If the program is found to be successful at meeting reduction targets, the program will be accelerated and more devices will be offered, such as Precision Nozzles.

Building Codes/New Standards

The SCVWUESP developed a comprehensive list of new building standards beyond those currently in the building code. Code changes that improve the efficiency of fixtures and design account for about 60 percent of the expected reduction in demand, and will therefore be a significant program priority. Some of the proposed changes will be captured in the State Model Efficient Landscape Ordinance effective January 2010, CAL Green Building Code, adopted in January 2011 and SB 407 and standard updates for toilets and washers that are being phased in.

Implementation Tracking

Tracking is intended to bring new accountability to existing programs. This is implemented by collecting and processing information to ensure that the programs are on track to meet the defined goals.

Evaluating Effectiveness of the DMMs

NCWD will continue to track all program activities including outreach activities, rebate distribution, audits, water-saving device distribution and ET controller distribution. Program effectiveness and per capita use will be monitored through the billing and consumption system.

Impacts of Conservation

It is not expected, at this time, that conservation programs that are currently being implemented or are scheduled for implementation will have any significant negative impact on water use within NCWD's service area or will affect NCWD's ability to further reduce demand. The funding for current and future programs is being identified.

Economic Impacts

Analysis of the requirements for BMP compliance yields program costs of roughly $430,000.

Section 8: Water Shortage Contingency Planning

8.1 Overview

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought that limits supplies, an earthquake that damages water delivery or storage facilities, a regional power outage or a toxic spill that affects water quality. This chapter of the Plan describes how CLWA and the retail water purveyors plan to respond to such emergencies promptly and equitably.

To date, both a Water Shortage Contingency Plan and a Drought Emergency Water Sharing Agreement have been prepared by CLWA and the retail purveyors. Prohibitions, penalties and financial impacts of shortages have been developed by SCWD, NCWD, and VWC and are summarized in this chapter.

8.2 Coordinated Planning

CLWA and the purveyors have coordinated efforts in the past to meet water shortages. During 1991 (the fifth year of a six-year drought), the purveyors and CLWA prepared a Water Shortage Contingency Plan. Since this plan was first prepared, the Valley has experienced two water shortages: in 1991-1992 due to the continuation of the 1987-1992 drought and in 1994 due to the January 17, 1994 Northridge earthquake. The plan worked extremely well in both instances, and minor updates were made to incorporate actual experience during these two periods. It is envisioned that the Water Shortage Contingency Plan will be implemented whenever needed in the future.

8.2.1 CLWA and the Retail Water Purveyors

During times of normal supply, the local water suppliers meet periodically to review total water supply and demand in the Valley and any new regulations affecting the water industry.

During the drought year of 1991, the local purveyors met more frequently (about once per month). Monthly water production and demand reports were produced and shared with the City of Santa Clarita Drought Committee. After the 1987-1992 drought, CLWA and the retail purveyors cooperated in sharing available water from all sources without regard to contractual or other water rights for the duration of the emergency, and to facilitate among themselves water transfers, exchanges and arrangements to use each others' distribution facilities. During the recent 2007 to 2009 drought period, the purveyors resumed the monthly meetings and monitored valley-wide water demand, and strengthened conservation planning and response planning.

8.3 Stages of Action to Respond to Water Shortages

The Saugus Formation has underground storage of approximately 1.65 MAF. In times of continued drought, the Saugus Formation can be pumped for temporary periods above its normal year production. During a dry year or an extended drought, the purveyors would temporarily increase pumping in the Saugus Formation above the normal-year production of 7,500 to 15,000 AFY, and plan to upgrade the pumping capacity of their wells, restore lost

capacity and drill additional wells to enable this increased pumping. As developed in the Valley's groundwater operating plan and presented in Table 3-5 in Section 3, production in the Saugus Formation can be as high as 25,000 to 35,000 AFY during multiple-dry year periods.

The Alluvium would be most affected by a continued local drought. As developed in the Valley's groundwater operating plan and further presented in Table 3-5, sustainable production during normal years can range from 30,000 to 40,000 AFY. However, due to operational constraints in the eastern part of the Basin, production would be reduced to approximately 30,000 to 35,000 AFY during locally dry years.

Table 8-1 presents the four-stage rationing and demand reduction goals for the Valley[24].

TABLE 8-1
RATIONING AND REDUCTION GOALS

Deficiency	Stage	Demand Reduction Goal	Type of Program
Up to 15%	1	15% reduction	Voluntary
15-25%	2	25% reduction	Mandatory
25-35%	3	35% reduction	Mandatory
35-50%	4	50+% reduction	Mandatory

Priorities for use of available water, based on Chapter 3 of the California Water Code, are:

- Health and Safety: Interior residential, sanitation and fire protection
- Commercial, Industrial, and Governmental: Maintain jobs and economic base
- Existing Landscaping: Especially trees and shrubs
- New Demand: Projects with permits when shortage declared

Water quantity calculations used to determine the interior household GPCD requirements for health and safety are provided in Table 8-2. As developed in Table 8-2, the California Water Code Stage 2, 3, and 4 health and safety allotments are 68 GPCD, or 33 CCF (100 cubic feet) per person per year. When considering this allotment and the Valley population of 286,750 in 2010 as presented in Section 2 (Table 2-8), the total annual water supply required to meet the first priority use during a water shortage is approximately 21,839 AFY.

[24] LACWWD has a nine-stage rationing and demand reduction method plan. Anticipated shortages that trigger the phases of action range from 10 percent to 50 percent, while associated conservation target reductions similarly range from 10 percent to 50 percent, with mandatory rationing after Stage 2.

TABLE 8-2
PER CAPITA HEALTH AND SAFETY WATER QUANTITY CALCULATIONS

	Non-Conserving Fixtures		Habit Changes		Conserving Fixtures	
Toilets	5 flushes x 5.5 gpf =	27.5	3 flushes x 5.5 gpf =	16.5	5 flushes x 1.6 gpf =	8.0
Showers	5 min x 4.0 gpm =	20.0	4 min x 3.0 gpm =	12.0	5 min x 2.0 gpm =	10.0
Washers	12.5 GPCD (1/3 load) =	12.5	11.5 GPCD (1/3 load) =	11.5	11.5 GPCD (1/3 load) =	11.5
Kitchens	4 GPCD =	4.0	4 GPCD =	4.0	4 GPCD =	4.0
Other	4 GPCD =	4.0	4 GPCD =	4.0	4 GPCD =	4.0
Total GPCD		68.0		48.0		37.5
CCF per capita per year		33.0		23.0		18.0

8.4 Minimum Water Supply Available During Next Three Years

The minimum water supply available during the next three years would occur during a three-year multiple-dry year event between the years 2011 and 2013. As shown in Table 8-3, the total water supply available during each of the next three years is about 128,400 AFY. When comparing these supplies to the demand projections provided in Chapter 2 of this Plan, CLWA and the purveyors have adequate supplies available to meet projected demands should a multiple-dry year period occur during the next three years.

TABLE 8-3
ESTIMATE OF MINIMUM SUPPLY FOR THE NEXT THREE YEARS

	Supply (AF)		
Source	**2011**	**2012**	**2013**
Wholesale (Imported)			
SWP Table A Supply[(a)]	30,700	30,700	30,700
Buena Vista-Rosedale	11,000	11,000	11,000
Nickel Water - Newhall Land	1,607	1,607	1,607
Flexible Storage Account (CLWA)[(b)]	1,560	1,560	1,560
Flexible Storage Account (Ventura County)[(b)]	460	460	460
Total Imported Supplies	*45,327*	*45,327*	*45,327*
Local Supplies			
Groundwater Supplies			
Alluvial Aquifer[(c)]	20,425	20,425	20,425
Saugus Formation[(c)]	19,700	19,700	19,700
Recycled Water	325	325	325
Total Local Supplies	*40,450*	*40,450*	*40,450*
Banking Programs			
Semitropic Water Bank[(d)]	15,300	15,300	15,300
Rosedale-Rio Bravo[(e)]	20,000	20,000	20,000
Semitropic Water Bank - Newhall Land[(e)]	4,950	4,950	4,950
Total Banking Programs	*40,250*	*40,250*	*40,250*
Total Supplies	**126,027**	**126,027**	**126,027**

Notes:
(a) SWP supplies to CLWA based on detailed delivery results provided by DWR from the analyses presented in DWR's *2009 SWP Delivery Reliability Report*, for the worst case three-year dry period of 1990-1992. SWP deliveries to CLWA over this three year period average 32% of CLWA's 95,200 AF of Table A Amount.
(b) Based on total amount of storage available divided by 3 (3-year dry period).
(c) Based on existing groundwater supplies available during a multiple-dry year period.
(d) Based on total amount of water currently in storage (45,920 AF) divided by 3 (3-year dry period).
(e) Based on maximum annual pumpback capacity.

8.5 Actions to Prepare for Catastrophic Interruption

8.5.1 General

The Valley is located approximately 20 miles southwest of the San Andreas Fault, which traverses the length of the southern San Joaquin Valley. A major earthquake along this portion of the San Andreas Fault would affect the Valley. The California Division of Mines and Geology has stated that two of the aqueduct systems that import water to southern California (including the California Aqueduct) could be ruptured by displacement on the San Andreas Fault. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power.

DWR has an Aqueduct Outage Plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair.

Limitations on supplies of groundwater and/or imported water for an extended period, due to power outages and/or equipment damage, could result in severe water shortages until the supplies could be restored.

Combined water storage of the local water suppliers totals approximately 190 MG of water in storage tanks, which can be gravity fed to Valley businesses and residences, even if there is a power outage. The public would be asked to reduce consumption to minimum health and safety levels, extending the supply to a minimum of seven days. This would provide sufficient time to restore a significant amount of groundwater production. After the groundwater supply is restored, the pumping capacity of the four retail purveyors could meet the reduced demand until such time that the imported water supply was reestablished. Updates on the water situation would be made as often as necessary.

The Valley's water sources are generally of good quality, and no insurmountable problems resulting from industrial or agricultural contamination are foreseen. If contamination did result from a toxic spill or similar accident, the contamination would be isolated and should not significantly impact the total water supply. In addition, such an event would be covered by the purveyors Emergency Response Plan.

8.5.2 SWP Emergency Outage Scenarios

In addition to earthquakes, the SWP could experience other emergency outage scenarios. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Banos) and various subsidence repairs needed along the East Branch of the Aqueduct since the 1980s. All these outages were short-term in nature (on the order of weeks), and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation while repairs were made. Thus, the SWP contractors experienced no interruption in deliveries.

One of the SWP's important design engineering features is the ability to isolate parts of the system. The Aqueduct is divided into "pools." Thus, if one reservoir or portion of the California Aqueduct is damaged in some way, other portions of the system can still remain in operation. The principal SWP facilities are shown on Figure 8-1.

FIGURE 8-1
PRIMARY SWP FACILITIES

Other events could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damages the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta.

The response of DWR, CLWA and other SWP contractors to such events would be highly dependent on the type and location of any such events. In typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands and the excess is stored in San Luis Reservoir. Storage in SWP aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, is also refilled during this period. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors. The SWP share of maximum storage capacity at San Luis Reservoir is 1,062,000 AF.

CLWA receives its SWP deliveries through the West Branch of the California Aqueduct at Castaic Lake. The only other contractors receiving deliveries from the West Branch are Metropolitan and Ventura County Watershed Protection District (formerly known as the Ventura County Flood Control District). The West Branch has two terminal reservoirs, Pyramid Lake and Castaic Lake, which were designed to provide emergency storage and regulatory storage (i.e., storage to help meet peak summer deliveries) for CLWA and the other two West Branch contractors. Maximum operating capacity at Pyramid and Castaic lakes is 169,900 and 323,700 AF, respectively.

In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, a number of contractors have stored water in groundwater banking programs in the San Joaquin Valley, and many also have surface and groundwater storage within their own service areas.

Three scenarios that could impact the delivery to CLWA of its SWP supply, previously banked supplies or other supplies delivered to it through the California Aqueduct are described below. For each of these scenarios, it was assumed that an outage of six months could occur. CLWA's ability to meet demands during the worst of these scenarios is presented following the scenario descriptions.

8.5.2.1 Scenario 1: Levee Breach Near Banks Pumping Plant

As demonstrated by the June 2004 Jones Tract levee breach and previous levee breaks, the Delta's levee system is fragile. The SWP's main pumping facility, Banks Pumping Plant, is located in the southern Delta. Should a major levee in the Delta near these facilities fail catastrophically, salt water from the eastern portions of San Francisco Bay would flow into the Delta, displacing the fresh water runoff that supplies the SWP. All pumping from the Delta would be disrupted until water quality conditions stabilized and returned to pre-breach conditions. The re-freshening of Delta water quality would require large amounts of additional Delta inflows, which might not be immediately available, depending on the time of year of the levee breach. The Jones Tract repairs took several weeks to accomplish and months to complete; a more severe breach could take much longer, during which time pumping from the Delta might not be available on a regular basis.

Assuming that the Banks Pumping Plant would be out of service for six months, DWR could continue making at least some SWP deliveries to all southern California contractors from water stored in San Luis Reservoir. The water available for such deliveries would be dependent on the storage in San Luis Reservoir at the time the outage occurred and could be minimal if it occurred in the late summer or early fall when San Luis Reservoir storage is typically low. In addition to supplies from San Luis Reservoir, water from the West Branch terminal reservoirs would also be available to the three West Branch contractors, including CLWA. CLWA water stored in groundwater banking programs in the San Joaquin Valley may also be available for withdrawal and delivery to CLWA.

8.5.2.2 Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley

The 1995 flood event at Arroyo Pasajero demonstrated vulnerabilities of the California Aqueduct (the portion that traverses the San Joaquin Valley from San Luis Reservoir to Edmonston Pumping Plant). Should a similar flood event or an earthquake damage this portion of the aqueduct, deliveries from San Luis Reservoir could be interrupted for a period of time. DWR has informed the SWP contractors that a four-month outage could be expected in such an event. CLWA's assumption for this Plan is a more conservative six-month outage.

Arroyo Pasajero is located downstream of San Luis Reservoir and upstream of the primary groundwater banking programs in the San Joaquin Valley. Assuming an outage at a location near Arroyo Pasajero that takes the California Aqueduct out of service for six months, supplies from San Luis Reservoir would not be available to those SWP contractors located downstream of that point. However, CLWA water stored in groundwater banking programs in the San Joaquin Valley could be withdrawn and delivered to CLWA, and water from the West Branch terminal reservoirs would also be available to the three West Branch contractors, including CLWA. Assuming an outage at a location on the California Aqueduct south of the groundwater banking programs in the San Joaquin Valley, these supplies would not be available to CLWA, but water from the West Branch terminal reservoirs would be available to the three West Branch contractors, including CLWA.

8.5.2.3 Scenario 3: Complete Disruption of the West Branch of the California Aqueduct

The West Branch of the California Aqueduct begins at a bifurcation of the Aqueduct south of Edmonston Pumping Plant, which pumps SWP water through and across the Tehachapi Mountains. From the point of bifurcation, the West Branch is an open canal through Quail Lake, a small flow regulation reservoir, to the Peace Valley Pipeline, which conveys water into Pyramid Lake. From Pyramid Lake, water is released into the Angeles Tunnel, through Castaic Powerplant into Elderberry Forebay, and then into Castaic Lake.

If a major earthquake (an event similar to or greater than the 1994 Northridge earthquake) were to damage a portion of the West Branch, deliveries could be interrupted. The exact location of such damage along the West Branch would be key to determining emergency operations by DWR and the three West Branch SWP contractors. For this scenario, it was assumed that the West Branch would suffer a single-location break and deliveries of SWP water from north of the Tehachapi Mountains or of CLWA water stored in groundwater banking programs in the San Joaquin Valley would not be available. It was also assumed that Pyramid and Castaic dams would not be damaged by the event and that water in Pyramid and Castaic Lakes would be available to the three West Branch SWP contractors, including CLWA.

In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors, and exchanges among SWP contractors, allowing delivery of one contractor's SWP or other water to another contractor, with that water being returned after the outage was over.

8.5.2.4 Assessment of Worst-Case Scenario

Of these three SWP outage scenarios, the West Branch outage scenario presents the worst-case scenario for the CLWA service area. In this scenario, the water suppliers would rely on local supplies and water available to CLWA from Pyramid and Castaic Lakes. See Section 8.5.3 below regarding recommendations for emergency outage storage using co-agreements with other SWP contractors and individual groundwater banking programs. An assessment of the supplies available to meet demands in CLWA's service area during a six-month West Branch outage and the additional levels of conservation projected to be needed are presented in Table 8-4 for 2010 through 2050.

During an outage, the local supplies available would consist of groundwater from the Alluvial Aquifer and the Saugus Formation, as well as recycled water. It was assumed that local well production would be unimpaired by the outage and that the outage would occur during a year when average/normal supplies would be available from the Alluvial Aquifer. Pumping from the Saugus was assumed to be one-half of the single-dry year supplies. Note that adequate well and aquifer capacity exists to pump at levels higher than those assumed in this assessment, particularly during a temporary period such as an outage. However, to be conservative, groundwater production was assumed to be one-half of annual supplies. Based on the assumption that additional voluntary conservation could reduce the amount of waste discharge, and therefore the amount of recycled water available, the amount of recycled water available is assumed to be available 25 percent less than average/normal year supplies.

The water available to CLWA from Pyramid and Castaic Lakes includes flexible storage available to CLWA at Castaic Lake and emergency and potentially regulatory storage available in both Pyramid and Castaic Lakes. Regulatory storage, which is used to help meet high peak summer deliveries, may or may not be available depending on what time of year an outage occurs. For this assessment, regulatory storage was assumed to be unavailable. The amount of emergency storage assumed to be available to CLWA was based on CLWA's proportionate share of usable storage in each reservoir, where usable storage is maximum operating storage, less regulatory and dead pool storage. At Castaic Lake, this usable storage determination also excludes the three West Branch contractors' total Flexible Storage Accounts. CLWA's proportionate share of usable storage was assumed to be slightly less than three percent, based on its share of capital cost repayment at each reservoir. On this cost repayment basis, the proportionate shares of the Metropolitan and Ventura County Watershed Protection District are about 96 percent and one percent, respectively.

Table 8-4 shows that, for a six-month emergency outage, additional conservation beyond SBX7-7 conservation objectives described in Chapter 2 would be required, with the additional

demand reductions ranging from one to 11 percent of total demand beginning in 2035. It is likely that potential cooperation among SWP contractors and/or temporarily increased purveyor groundwater production during such an outage could increase supplies so that lower amounts, or even no amount, of additional conservation would be needed. Further, the acquisition of emergency storage, as discussed in Section 8.5.3, could reduce or eliminate the need for additional conservation. However, even without such supply increases, these levels of additional conservation would be readily achievable. In an emergency such as this, these levels of additional conservation would likely be achieved through voluntary conservation, but mandatory measures would be enacted if needed.

TABLE 8-4
PROJECTED SUPPLIES AND DEMANDS DURING SIX MONTH DISRUPTION OF IMPORTED SUPPLY (AF)[a]

Water Supply Sources	2015	2020	2025	2030	2035	2040	2045	2050
Existing Supplies								
Groundwater								
Alluvial Aquifer[b]	12,000	12,000	12,000	12,500	12,500	12,500	12,500	12,500
Saugus Formation[c]	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200
Recycled Water[d][e]	120	120	120	120	120	120	120	120
Planned Supplies								
Future Groundwater								
Alluvial Aquifer[b]	-	500	1,000	1,500	2,000	2,500	3,000	3,500
Saugus Formation (Restored Well)[c]	425	1,900	1,900	1,900	1,900	1,900	1,900	1,875
Saugus Formation (New Wells)[c]	1,475	4,950	4,950	4,950	4,950	4,950	4,950	4,975
Recycled Water[d]	370	1,020	1,960	2,920	3,850	5,170	6,480	7,870
Total Existing and Planned Supplies	***24,590***	***30,690***	***32,130***	***34,090***	***35,520***	***37,340***	***39,150***	***41,040***
SWP West Branch Storage Available								
SWP Flexible Storage Accounts[f]	6,060	4,680	4,680	4,680	4,680	4,680	4,680	4,680
Emergency Storage								
Pyramid Lake[g]	4,370	4,370	4,370	4,370	4,370	4,370	4,370	4,370
Castaic Lake[h]	3,370	3,370	3,370	3,370	3,370	3,370	3,370	3,370
Total West Branch Storage	***13,800***	***12,420***	***12,420***	***12,420***	***12,420***	***12,420***	***12,420***	***12,420***
Total Local Supplies and West Branch Storage	**38,390**	**43,110**	**44,550**	**46,510**	**47,940**	**49,760**	**51,570**	**53,460**
Demands[i]								
Total Demand w/o Conservation	40,035	44,242	48,449	52,656	56,863	61,070	65,277	69,484
20x2020 Reduction	4,514	9,813	10,583	11,385	12,171	12,957	13,743	14,529
Reduction from Recycled Water	650	1,525	2,775	4,050	5,300	7,050	8,800	10,650
Reduction from Water Conservation	3,864	8,288	8,331	8,374	8,417	8,460	8,503	8,546
Total Demand w/ Conservation	**36,172**	**35,954**	**40,118**	**44,282**	**48,447**	**52,611**	**56,775**	**60,939**
Additional Conservation Required[j]	0	0	0	0	507	2,851	5,205	7,479
Additional Conservation as Percent of Demand[k]	0%	0%	0%	0%	1%	5%	8%	11%

Notes:
(a) Assumes complete disruption in SWP supplies and in deliveries through the California Aqueduct for six months.
(b) Pumping from the Alluvial Aquifer is assumed to be one-half of the average normal year supplies (see Table 6-2).
(c) Pumping from the Saugus Formation is assumed to be one-half of the single-dry year supplies (see Table 6-3).
(d) Recycled water supply is based on one-half of projected use.
(e) Assumes 25% reduction in waste discharge, and therefore in recycled water availability, due to additional voluntary conservation.
(f) Includes both CLWA and Ventura County entities flexible storage accounts. Initial term of agreement with the Ventura County entities expires after 2015.
(g) CLWA's share of usable storage at Pyramid Lake, based on its 2.817% proportionate share of capital cost repayment of the reservoir, and assumed usable storage of 155,100 AF.
(h) CLWA's share of usable storage at Castaic Lake, based on its 2.927% proportionate share of capital cost repayment of the reservoir, and assumed usable storage of 115,100 AF.
(i) All demand data are assumed to be one-half of average/normal year Regional Summary demands from Table 2-22.
(j) Additional Conservation Required is difference between Total Demand w/ Conservation and Total Local Supplies and West Branch Storage. A portion or all of this could be met with the acquisition of emergency storage (see Section 8.5.3).
(k) Expressed as percent of Total Demand w/o Conservation.

8.5.3 Recommendations for Emergency Storage

The various outage scenarios described in Section 8.5.2 highlight the benefit of CLWA having water stored in multiple banking programs south of the Delta. Banking programs located in Kern County, which have access to the California Aqueduct, are ideally suited to meet at least part of CLWA's emergency needs. The worst-case scenario described above (a complete disruption on the West Branch of the aqueduct) demonstrates the desirability that CLWA also has water stored in at least one water banking program geographically located south of the Tehachapi Mountains.

Storage located south of the Tehachapi Mountains may necessitate an exchange agreement with another West Branch contractor so that the contractor could be served from CLWA's banked water, and CLWA could be served by a portion of the contractor's water in Pyramid or Castaic Lake (this worst case scenario also assumes that CLWA has access to its full Flexible Storage Account in Castaic Lake, in addition to emergency storage).

The most likely and utilizable arrangement would be with the Metropolitan Water District, which retains a significant portion of the storage capacity in Castaic Lake. CLWA could store varying amounts of its water in groundwater storage or banking programs within or adjacent to Metropolitan's service area. In the event of an outage or other emergency, Metropolitan would serve its customers with CLWA's stored water and CLWA would serve its customers with a like amount of Metropolitan's water in Castaic Lake. Amounts of storage required and locations of potential banking programs are as follows:

- Emergency outage storage capacity: 5,000 AF of storage capacity in 2010, increasing to approximately 14,000 AF by 2050.
- Emergency pumpback capacity: approximately 1,000 AF per month of pumpback capacity in 2010, increasing to 2,300 AF per month by 2050.

Potential banking programs, where CLWA could be served by a portion of the contractor's water in Pyramid or Castaic Lake for a potential exchange of emergency outage storage include the following locations:

- **Semitropic-Rosamond Water Bank Authority**
  - This project is located in eastern Kern County, in the northern portion of the Antelope Valley. It is adjacent to both the East Branch of the California Aqueduct and the Los Angeles Aqueduct. This program is active and is seeking participants.
- **Antelope Valley-East Kern Water Agency Water Supply Stabilization Program and Groundwater Recharge Project**
  - This is a project proposed by the Antelope Valley-East Kern Water Agency (AVEK), a SWP wholesaler located in the Antelope Valley area of southeastern Kern County and northern Los Angeles County. The project is adjacent to the East Branch of the California Aqueduct. AVEK is conducting the environmental analysis for the proposed project.
- **Calleguas Municipal Water District Las Posas Groundwater Recharge Project**
  - This project is an in-lieu and Aquifer Storage and Recovery project located in central Ventura County, within the service area of Metropolitan. CLWA could purchase or store water in the program and in the event of an emergency outage, would

exchange the water for use in Metropolitan's service area. CLWA would then utilize a like amount of Metropolitan's water stored in Castaic Lake. This is a conceptual project.

8.5.4 Regional Power Outage Scenarios

For a major emergency such as an earthquake, Southern California Edison (Edison) has declared that in the event of an outage, power would be restored within a 24 hour period. Following the Northridge earthquake, Edison was able to restore power within 19 hours. Edison experienced extensive damage to several key power stations, yet was still able to recover within a 24-hour timeframe.

8.5.4.1 CLWA

To specifically address the concern of water outages due to loss of power, CLWA has equipped its two treatment plants with generators to produce power for treating water to comply with the California Safe Drinking Water Act and the Health and Safety Code. The Rio Vista Water Treatment Plant and Intake Pump Station emergency generator system provides electrical power to treat 30 MGD for 72 hours without fuel replacement. The Earl Schmidt Filtration Plant emergency generator system provides electrical power to treat 33 MGD for 72 hours without fuel replacement.

8.5.4.2 SCWD

SCWD has prepared emergency operations procedures for the effective use of resources during various emergency situations. Emergency situations include but are not limited to earthquakes, major fire emergencies, water outages due to loss of power, localized flooding, water contamination and acts of sabotage.

To specifically address the concerns of water outages due to loss of power, SCWD has purchased and maintains five mobile generators and has the ability to obtain emergency access to others. The current generators are trailer mounted and have the capability of supplying up to 450 Kilovolt-Amperes (KVA). This capacity provides the capability to run any facility within its service area. Most primary pumping facilities are equipped with emergency transfer switches and SCWD employees are trained regularly to install and operate the generators. The generator's run time is only limited by the amount of available diesel fuel.

SCWD has an above-ground diesel fuel storage tank with a capacity of 1,000 gallons located at its warehouse in the City of Santa Clarita. SCWD also has the assistance of a commercial fuel supplier when needed. SCWD maintains a trailer-mounted 100-gallon diesel tank that will be deployed as required to preserve services. SCWD would respond to power outages on a prioritized basis and would continue its response to the power emergency as long as necessary. In addition to the generators, SCWD has a gas driven pump capable of delivering a maximum 2,000 gpm. This pump can be installed at select facilities and run as required.

8.5.4.3 NCWD

NCWD has procedures for earthquakes, major fire emergencies, water outages due to loss of power, localized flooding, water contamination and acts of sabotage. To specifically address the concerns of water outages due to loss of power, NCWD has purchased and maintains three

mobile generators. The generators are trailer mounted and have the following capacities: 600 KVA; 300 KVA; and 180 KVA.

These capacities provide the capability to run any facility within NCWD's service area. All primary pumping facilities are equipped with emergency transfer switches, and NCWD employees are trained regularly to maximize the speed to install and operate the generators. The generator run time is only limited by the amount of available diesel fuel.

NCWD has an above ground diesel fuel storage tank with a capacity of 1,000 gallons located at its main office in the City of Santa Clarita. Multiple crew trucks are equipped with 100 gallon diesel tanks and the necessary fueling equipment to refill the generators. NCWD would respond to power outages on a prioritized basis and would continue its response to the power emergency as long as necessary. In addition to the generators, NCWD has one gas driven pump and one diesel driven pump capable of delivering 600 gpm and 1,200 gpm, respectively. All NCWD pumping facilities have been equipped with the necessary appurtenances to quickly connect the portable pumps to restore pumping operations.

8.5.4.4 VWC

In the event that a power outage occurs, VWC has two mobile generators capable of powering any of VWC's wells, turnouts or booster stations. VWC would use the generators as back-up to ensure water service remained until Edison was able to restore power. Besides the significant fuel storage capacity of each generator, VWC has access multiple sources for fuel as needed. For regional power outages, VWC would rely on Edison's reliability criteria for restoring service with the longest outage assumed not to exceed 24 hours. This length of outage would not have a significant impact on water service.

8.6 Mandatory Prohibitions During Shortages

All Valley residents live within the boundaries of the City of Santa Clarita or Los Angeles County. Several ordinances were passed in 1991, during the last long-term drought, by the various governmental entities in the Santa Clarita Valley outlawing wasteful water practices. It is expected that, if the Valley experienced another dry-year period, the same ordinances passed in 1991 would be reactivated, as follows:

- On February 14, 1991, the NCWD Board of Directors adopted Resolution No. 101 outlawing wasteful water practices. The ordinance was amended on October 15, 1991, with the adoption of Ordinance No. 102, and further amended on July 14, 2005, with the adoption of Ordinance No. 112.

- On March 13, 1991, the City of Santa Clarita adopted Ordinance No. 91-16 outlawing wasteful water practices and calling for voluntary water conservation. The ordinance was amended on October 8, 1991 by the adoption of Ordinance No. 91-48.

- On March 21, 1991, the Los Angeles County Board of Supervisors adopted Ordinance No. 91-0046U, which prohibits wasteful water practices. The Water Conservation Requirements (Ordinance No. 2008-00052U) was amended by the Los Angeles County Board of Supervisors on October 7, 2008.

Most of the ordinances mentioned above had sunset provisions that were effective January 1, 1992; however, these ordinances could be reinstituted as needed. During more recent conditions of limited supply, in 2008, CLWA adopted Resolution No. 2605 mandating a voluntary program of water conservation in the Santa Clarita Valley.

8.7 Consumptive Reduction Methods During Restrictions

8.7.1 Supply Shortage Triggering Levels

The Santa Clarita Valley water suppliers will manage water supplies to minimize the social and economic impact of water shortages. The supply shortage strategy is designed to provide a minimum 50 percent of normal supply during a severe or extended water shortage.

Demand reduction stages may be triggered by a shortage in any one of the water sources in the Valley or by shortages in a combination of supplies. The guidelines for triggering the stages are listed in Table 8-5. However, circumstances may arise where the purveyors may deviate from these guidelines, such as in a case where the Governor declares a water shortage emergency and/or institutes a statewide rationing program.

TABLE 8-5
WATER DEFICIENCY TRIGGERING LEVELS

Stage	Percent Shortage
1	Up to 15% water deficiency
2	15 to 25% water deficiency
3	25 to 35% water deficiency
4	35 to 50+% water deficiency

8.7.2 Consumption Limits

The Valley-wide consumption allocation method for each customer type is as follows:

- Single Family Hybrid of Per-capita and Percentage Reduction
- Multi Family Hybrid of Per-capita and Percentage Reduction
- Commercial Percentage Reduction
- Industrial Percentage Reduction
- Governmental Percentage Reduction
- Recreational Percentage Reduction
- Irrigation Percentage Reduction

The percentage reductions at each stage and for each customer type correspond to the figures listed in Table 8-5. In a drought situation (multiple-dry year period), individual customer allotments will be based on a normal year consumption table. The water purveyors will classify each customer and calculate each customer's allotment according to Table 8-5. Each customer will be notified of its classification and allotment by mail before the implementation of a mandatory program. New customers and connections will be notified at the time service

commences if a mandatory program is in effect. Any customer may appeal its classification on the basis of use or the allotment on the basis of incorrect calculation.

In a disaster, prior notice of allotment may not be possible. Notice will be provided by the most efficient means available, if necessary, through the terms of the water suppliers' emergency response plans.

8.7.3 New Demand

During any declared water shortage emergency requiring mandatory rationing, CLWA and the retail purveyors recommend that the City and County building departments continue to process applications for grading and building permits, but not issue the actual permits until mandatory rationing is rescinded. In Stages 3 and 4, it may be necessary to discontinue all use of grading water, even if permits have been issued, and consider banning all use of water for non-essential uses, such as new landscaping and pools.

8.8 Penalties for Excessive Use

The following section provides a summary of the penalties, if any, that are implemented for excessive water use for SCWD, NCWD and VWC.

8.8.1 SCWD

In September 2009, the CLWA Board of Directors adopted Resolution No. 2678 establishing retail water rates that encourage the responsible use of water resources. These rates took effect January 1, 2010. For single family residential customers, SCWD implemented a three tiered rate structure allowing every customer the choice to use water efficiently or pay a premium. Excessive water use results in higher cost per unit of water. Irrigation customers have a separate uniform water rate comparable to the highest Tier 3 (conservation) rate for the single family. All other customers have a uniform flat rate equal to the Tier 2 rate for the single family.

This rate structure is designed to minimize water waste; other than the rate structure, there are no excessive use penalties in place.

8.8.2 NCWD

In July 2005, NCWD's Board of Directors adopted Ordinance No. 112, which addresses water conservation, shortage, drought and emergency response procedures. NCWD's Water Conservation Action Plan states that no water user shall waste water or make, cause or permit the use of water for any purpose contrary to any provision of Ordinance No. 112, or in quantities in excess of the use permitted by the conservation stage in effect. If excessive use (water leaks and/or waste) is detected from any water user, the following enforcement plan will be followed:

- **Efficient Water Use and Stage 1 Enforcement:**
  - Any sign of water leaks and/or waste will be documented.
  - NCWD will then determine the appropriate level of action to inform the water user of the guidelines in Ordinance No. 112 and will encourage more efficient water use.

- **Stages 2, 3, and 4 Enforcement:**
  - First Violation: NCWD shall issue a verbal warning to the water user and recommend corrective action.
  - Second Violation: NCWD shall issue a written warning to the water user, and a fine of $40 shall be added to the water user's bill if the corrective action is not taken within 30 days after receiving the written warning.
  - Third Violation: A fine of $100 shall be added to the water user's bill if the corrective action is not taken within 30 days after receiving the written warning. In addition, the NCWD Board or General Manager may require installation of a flow-restricting device on the water user's service connection.
  - Fourth Violation: For the fourth and any additional violations, a fine of $250 shall be added to the water user's bill at the property where the violation occurred. NCWD may also discontinue the water user's water service at the property where the violation occurred. Reconnection shall be permitted only when there is reasonable protection against future violations, such as a flow-restricting device on the customer's service connection, as determined at NCWD's discretion.

- **NCWD Enforcement Costs:**
  - NCWD shall be reimbursed for its costs and expenses in enforcing the provisions of Ordinance No. 112, including costs incurred for staff to investigate and monitor the water user's compliance with the terms of the Ordinance. Charges for installation of flow-restricting devices or for discontinuing or restoring water service, as NCWD incurs those charges, shall be added to the water user's bill at the property where the enforcement costs were incurred.

8.8.3 VWC

VWC is regulated by the PUC. During times of threatened or actual water shortage, the PUC will require that VWC apportion its available water supply among its customers. In the absence of direction from the PUC, VWC will apportion the supply in the manner that appears most equitable under circumstances then prevailing and with the cooperation of the Valley water purveyors with due regard to public health and safety.

The PUC's methodology for water utilities to implement Water Conservation Plans is documented in Standard Practice U-40-W, "Instructions for Water Conservation, Rationing, and Service Connection Moratoria." Water shortage contingency plans must be approved by the PUC prior to implementation by VWC. As stated in the Standard Practice U-40-W, the PUC shall authorize mandatory conservation and rationing by approving Schedule No. 14.1, Mandatory Water Conservation and Rationing. Schedule No. 14.1 sets forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect.

8.9 Financial Impacts of Actions During Shortages

The following section addresses the financial impacts of actions during water shortages for SCWD, NCWD and VWC.

8.9.1 SCWD

SCWD's rates were developed to meet the cost of service. The retail water bill includes two components: a meter service charge and a commodity charge. For the FY 2010/11 Budget, the meter service charge accounts for 31 percent of SCWD's revenues and the commodity charge accounts for 69 percent of SCWD's revenues. The meter service charge is fixed and is based on the meter size. The commodity charge is variable and includes the cost for water consumption and pass-through charges for purchased water and electricity for pumping. Variable costs increase or decrease in direct proportion with the increase or decrease of water used by customers. Customers who use more water will pay a proportionately higher percentage of these costs.

Approximately 44 percent of SCWD's expenses are variable and will be reduced proportionately with any reduction of sales. Since 69 percent of SCWD's revenues are estimated to come from the commodity charges, a supply reduction of 25 percent or more would affect the financial stability of SCWD and impact its ability to meet payment obligations. A Rate Stabilization Fund was established in January 2004 and is to be funded over a ten year period. This fund is to be used when there are variations in water sales resulting from unusual seasons, major consumption reduction due to voluntary or mandatory conservation or to correct for a net loss of revenues in the event of a catastrophic loss of imported water supplies. The Rate Stabilization Fund is used to defer rate increases due to temporary reductions in water sales. Currently the Rate Stabilization Fund is set at 2 percent of annual revenues.

8.9.2 NCWD

NCWD's rates are designed with the intent that NCWD will generate adequate revenues to meet the costs of operating the water system. For FY 2010/11, it is expected that 28 percent of NCWD's total water revenues will come from the service charge and about 72 percent of the total revenues will come from the commodity charge. The service charge is based on meter size and the commodity charge is based on the quantity of water consumed.

The nature of NCWD's operation (as with any water utility) is that the majority of the operating costs are fixed in nature and do not increase or decrease in direct proportion with increases or decreases in water use by customers. For NCWD, fixed costs constitute about 57 percent of its total operating costs in a normal year. If water availability issues or shortages cause NCWD to request a voluntary reduction in the customer's water use, 57 percent of the operating costs will remain the same even though less water is sold. This would result in a substantial revenue shortfall.

In an effort to address this shortfall, NCWD established a reserve policy (Resolution 2009-10) that includes a "rate stabilization" fund to be used in situations where actual consumption of water is reduced as a direct result of a water shortage situation as defined in Table 8-1 of this Plan.

In the event of a declaration of a water shortage situation, NCWD's Board of Directors will consider options and actions intended to replenish the rate stabilization reserve to its ideal level. These actions may include but are not limited to rate increases or surcharges, per customer assessments and utilization of other reserve funds.

8.9.3 VWC

The PUC allows the investor owned water utilities it regulates to track and seek recovery of lost revenues and expense increases due to mandatory or voluntary water rationing during a drought. PUC regulated utilities' rates are set based on an assumed level of customer water usage during normal weather conditions. Therefore, when a drought occurs and customers conserve water, a utility's revenue declines and it is difficult for the utility to fully fund its operating expenses. In order to provide an incentive for utilities to promote water conservation during periods of drought, the PUC developed a mechanism whereby utilities can track lost revenues, net of reduced water production costs, as well as increases in expenses due to drought conditions. Utilities can then recover a portion of their lost revenues and expense increases via a surcharge to customers. This reduces the financial strain conservation programs place on investor owned utilities while furthering the statewide goal of water conservation during periods of drought.

8.10 Water Shortage Contingency Resolution

If a water shortage crisis reoccurs, such as the 1987-1992 drought, the Santa Clarita Valley water suppliers would call a public hearing to declare a water shortage pursuant to Sections 351 and 352 of the California Water Code.

The Los Angeles County Board of Supervisors (on behalf of LACWWD 36) and NCWD's and CLWA's (including SCWD) respective Boards of Directors would adopt ordinances, similar to those adopted in 1991, implementing the Water Shortage Contingency Plan. In February 1991 the CLWA Board of Directors adopted Resolution No. 804, which recognized reductions in requested delivery of SWP supply and mandated water conservation in the Valley.

VWC would file an advice letter with the CPUC implementing the Water Shortage Contingency Plan. The Water Shortage Contingency would become VWC's Schedule 14.1.

8.11 Mechanism to Determine Reductions in Water Use

8.11.1 Demand

NCWD, SCWD, and VWC bill their customers on a monthly basis. The prior year's consumption is included on most customer bills. This allows comparison of the total consumption from each billing period to the same billing period from the prior year.

8.11.2 Production

Under normal conditions, CLWA, NCWD, SCWD, and VWC prepare monthly production reports, which are reviewed and compared to production reports and pumping statistics from the same period of the prior year. Under water shortage conditions, these production reports could be prepared as often as daily.

8.11.3 Stage 1 and 2 Water Shortages

During Stages 1 and 2 Water Shortages, retail purveyors would review selected production reports on a daily basis, and CLWA would provide each retail purveyor with a copy of its daily

production report. The water suppliers would meet as frequent a basis as necessary to review water supply and demand in the Valley. Billing reports would be reviewed to identify users who are not abiding by the plan.

8.11.4 Stage 3 and 4 Water Shortages

During Stages 3 and 4 Water Shortages, the retail purveyors would review all production reports and pumping statistics on a daily basis. The water suppliers would continue to monitor the supply and demand in the Valley. Water transfers and agreements to use each other's distribution facilities would be implemented as needed. Billing reports would be reviewed to identify users who are not abiding by the plan.

8.11.5 Disaster Shortage

During a disaster shortage, the Santa Clarita Valley water suppliers would continually monitor production figures, and will work to transfer water and use each other's distribution facilities where feasible.

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Appendix A

DWR Checklist

APPENDIX A
Urban Water Management Plan Checklist (Organized by Legislation)

No.	UWMP requirement [a]	Calif. Water Code Reference	UWMP Location by Retail Purveyor			
			Castaic Lake Water Agency	Newhall County Water District	CLWA Santa Clarita Water Division	Valencia Water Company
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)	NA, Wholesale District	2.6.2, Tables 2-15 & 2-16, pgs 2-18 & 2-19	2.6.2, Tables 2-17 & 2-18, pg 2-19	2.6.2, Tables 2-19 & 2-20, pg 2-20
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	7.2, 7.3	1.3.3, Table 1-2, 7.6.3, pgs 1-6 to 1-8 & 7-32 to 7-34	1.3.3, Table 1-2, 7.4.3, pgs 1-6 to 1-8 & 7-11 to 7-14	1.3.3, Table 1-2, 7.5.3, pgs 1-6 to 1-8 & 7-23 to 7-26
3	Report progress in meeting urban water use targets using the standardized form.	10608.4	NA	NA	NA	NA
4	Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8
5	An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.	10620(f)	1.3.4, pg 1-8	1.3.4, pg 1-8	1.3.4, pg 1-8	1.3.4, pg 1-8
6	Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.	10621(b)	1.3.3, Table 1-1, pgs 1-3 to 1-8, Appendix B	1.3.3, Table 1-1, pgs 1-3 to 1-8, Appendix B	1.3.3, Table 1-1, pgs 1-3 to 1-8, Appendix B	1.3.3, Table 1-1, pgs 1-3 to 1-8, Appendix B
7	The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).	10621(c)	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8	1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8
8	Describe the service area of the supplier	10631(a)	1.4.1, Fig. 1-1, pgs 1-8 to 1-11	1.4.2, Fig. 1-1, pgs 1-10 to 1-11	1.4.2, Fig. 1-1, pgs 1-10 to 1-11	1.4.2, Fig. 1-1, pgs 1-10 to 1-11
9	(Describe the service area) climate	10631(a)	1.5, Table 1-4, pgs 1-12 to 1-13	1.5, Table 1-4, pgs 1-12 to 1-13	1.5, Table 1-4, pgs 1-12 to 1-13	1.5, Table 1-4, pgs 1-12 to 1-13
10	(Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . .	10631(a)	2.5; Tables 2-7, 2-8, & 2-9; pgs 2-9 to 2-14	2.5; Tables 2-7, 2-8, & 2-9; pgs 2-9 to 2-14	2.5; Tables 2-7, 2-8, & 2-9; pgs 2-9 to 2-14	2.5; Tables 2-7, 2-8, & 2-9; pgs 2-9 to 2-14
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	10631(a)	Table 2-9, pg 2-13	Table 2-9, pg 2-13	Table 2-9, pg 2-13	Table 2-9, pg 2-13
12	Describe . . . other demographic factors affecting the supplier's water management planning	10631(a)	2.2, pgs 2-1 to 2-2	2.2, pgs 2-1 to 2-2	2.2, pgs 2-1 to 2-2	2.2, pgs 2-1 to 2-2

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13	Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).	10631(b)	Table 3-1, pg 3-2	Table 3-1, pg 3-2	Table 3-1, pg 3-2	Table 3-1, pg 3-2
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	10631(b)	3.3, pgs 3-15 to 3-37	3.3, pgs 3-15 to 3-37	3.3, pgs 3-15 to 3-37	3.3, pgs 3-15 to 3-37
15	(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management. Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)	Appendix G, 3.3.2, pg 3-15	Appendix G, 3.3.2, pg 3-15	Appendix G, 3.3.2, pg 3-15	Appendix G, 3.3.2, pg 3-15
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	10631(b)(2)	3.3.1 & 3.3.2, Fig. 3-1, pgs 3-15 to 3-33	3.3.1 & 3.3.2, Fig. 3-1, pgs 3-15 to 3-33	3.3.1 & 3.3.2, Fig. 3-1, pgs 3-15 to 3-33	3.3.1 & 3.3.2, Fig. 3-1, pgs 3-15 to 3-33
17	For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board	10631(b)(2)	NA	NA	NA	NA
18	(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.	10631(b)(2)	NA	NA	NA	NA
19	For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.	10631(b)(2)	3.3.2, pgs 3-15 to 3-33	3.3.2, pgs 3-15 to 3-33	3.3.2, pgs 3-15 to 3-33	3.3.2, pgs 3-15 to 3-33
20	(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(3)	3.3.2.2 & 3.3.2.3; Table 3-6; pgs 3-22, 3-24 to 3-33	3.3.2.2 & 3.3.2.3; Table 3-6; pgs 3-22, 3-24 to 3-33	3.3.2.2 & 3.3.2.3; Table 3-6; pgs 3-22, 3-24 to 3-33	3.3.2.2 & 3.3.2.3; Table 3-6; pgs 3-22, 3-24 to 3-33
21	(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(4)	3.3.2; Tables 3-5 & 3-7; pgs 3-15 to 3-33	3.3.2; Tables 3-5 & 3-7; pgs 3-15 to 3-33	3.3.2; Tables 3-5 & 3-7; pgs 3-15 to 3-33	3.3.2; Tables 3-5 & 3-7; pgs 3-15 to 3-33
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) An average water year, (B) A single dry water year, (C) Multiple dry water years.	10631(c)(1)	3.2.1.1.3, 3.2.1.2; pgs 3-5 to 3-9, 3.3.2.2, 3.3.2.3, 6.4.1, 6.4.2, 6.4.3; pgs 3-24 to 3-33 & 6-6 to 6-14, Appendix C	3.2.1.1.3, 3.2.1.2; pgs 3-5 to 3-9, 3.3.2.2, 3.3.2.3, 6.4.1, 6.4.2, 6.4.3; pgs 3-24 to 3-33 & 6-6 to 6-14, Appendix C	3.2.1.1.3, 3.2.1.2; pgs 3-5 to 3-9, 3.3.2.2, 3.3.2.3, 6.4.1, 6.4.2, 6.4.3; pgs 3-24 to 3-33 & 6-6 to 6-14, Appendix C	3.2.1.1.3, 3.2.1.2; pgs 3-5 to 3-9, 3.3.2.2, 3.3.2.3, 6.4.1, 6.4.2, 6.4.3; pgs 3-24 to 3-33 & 6-6 to 6-14, Appendix C

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			Castaic Lake Water Agency	Newhall County Water District	CLWA Santa Clarita Water Division	Valencia Water Company
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)	3.3.2.2, 3.3.2.3; pgs 3-28 to 3-29, 3-33, 5.7; pgs 5-12 to 5-13; 6.2; pgs 6-1 to 6-2	3.3.2.2, 3.3.2.3; pgs 3-28 to 3-29, 3-33, 5.7; pgs 5-12 to 5-13; 6.2; pgs 6-1 to 6-2	3.3.2.2, 3.3.2.3; pgs 3-28 to 3-29, 3-33, 5.7; pgs 5-12 to 5-13; 6.2; pgs 6-1 to 6-2	3.3.2.2, 3.3.2.3; pgs 3-28 to 3-29, 3-33, 5.7; pgs 5-12 to 5-13; 6.2; pgs 6-1 to 6-2
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)	3.4, pgs 3-37 & 3-38	3.4, pgs 3-37 & 3-38	3.4, pgs 3-37 & 3-38	3.4, pgs 3-37 & 3-38
25	Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof;(I) Agricultural.	10631(e)(1)	NA	2.4.1, Table 2-4, pg 2-6	2.4.1, Table 2-5, pg 2-7	2.4.1, Table 2-6, pg 2-8
26	(Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) Water survey programs for single-family residential and multifamily residential customers; (B) Residential plumbing retrofit; (C) System water audits, leak detection, and repair; (D) Metering with commodity rates for all new connections and retrofit of existing connections; (E) Large landscape conservation programs and incentives; (F) High-efficiency washing machine rebate programs; (G) Public information programs; (H) School education programs; (I) Conservation programs for commercial, industrial, and institutional accounts; (J) Wholesale agency programs; (K) Conservation pricing; (L) Water conservation coordinator; (M) Water waste prohibition;(N) Residential ultra-low-flush toilet replacement programs.	10631(f)(1)	7.2 & 7.3, pgs 7-2 to 7-5	7.6, pgs 7-26 to 7-34	7.4, pgs 7-6 to 7-14	7.5, pgs 7-14 to 7-26
27	A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.	10631(f)(3)	7.2 & 7.3, pgs 7-2 to 7-5	7.6.3, pg 7-34	7.4.3, pg 7-14	7.5.3, pg 7-26
28	An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.	10631(f)(4)	7.2 & 7.3, pgs 7-2 to 7-5	7.6.3, pg 7-34	7.4.3, pg 7-14	7.5.2.3, pg 7-26
29	An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.	10631(g)	7.2 & 7.3, pgs 7-2 to 7-5	7.6.2, pgs 7-29 to 7-32, NCWD is using GPCD approach to comply with CUWCC MOU	7.4.2, pgs 7-9 to 7-11, SCWD is using GPCD approach to comply with CUWCC MOU	7.5.2, pgs 7-18 to 7-23, VWC is using GPCD approach to comply with CUWCC MOU

No.	UWMP requirement [a]	Calif. Water Code Reference	UWMP Location by Retail Purveyor			
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30	(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.	10631(h)	3.4, 3.5, & 3.6; pgs 3-37 to 3-41; 4.4, Table 4-3, pgs 4-8 to 4-9	3.4, 3.5, & 3.6; pgs 3-37 to 3-41; 4.4, Table 4-3, pgs 4-8 to 4-9	3.4, 3.5, & 3.6; pgs 3-37 to 3-41; 4.4, Table 4-3, pgs 4-8 to 4-9	3.4, 3.5, & 3.6; pgs 3-37 to 3-41; 4.4, Table 4-3, pgs 4-8 to 4-9
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	10631(i)	3.7, pgs 3-41 to 3-42	3.7, pgs 3-41 to 3-42	3.7, pgs 3-41 to 3-42	3.7, pgs 3-41 to 3-42
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	7, Appendix E	7	7	7
33	Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).	10631(k)	Table 3-4, pg 3-15	NA	NA	NA
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)	2.6.3.1, pg 2-23 to 2-24	2.6.3.1, Table 2-23, pgs 2-23 to 2-24	2.6.3.1, Table 2-23, pgs 2-23 to 2-24	2.6.3.1, Table 2-23, pgs 2-23 to 2-24
35	Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.	10632(a)	8.3, Table 8-1, pgs 8-1 to 8-3	8.3, Table 8-1, pgs 8-1 to 8-3	8.3, Table 8-1, pgs 8-1 to 8-3	8.3, Table 8-1, pgs 8-1 to 8-3
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)	8.4, Table 8-3, pg 8-3	8.4, Table 8-3, pg 8-3	8.4, Table 8-3, pg 8-3	8.4, Table 8-3, pg 8-3
37	(Identify) actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)	8.5, pgs 8-4 to 8-12	8.5, pgs 8-4 to 8-12	8.5, pgs 8-4 to 8-12	8.5, pgs 8-4 to 8-12
38	(Identify) additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)	8.6, pg 8-12	8.6, pg 8-12	8.6, pg 8-12	8.6, pg 8-12
39	(Specify) consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)	8.7, pgs 8-13 to 8-14	8.7, pgs 8-13 to 8-14	8.7, pgs 8-13 to 8-14	8.7, pgs 8-13 to 8-14

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40	(Indicated) penalties or charges for excessive use, where applicable.	10632(f)	8.8.1, pg 8-14	8.8.2, pgs 8-14 to 8-15	8.8.1, pg 8-14	8.8.3, pg 8-15
41	An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)	Appendix F	8.9.2, pg 8-16	8.9.1, pg 8-15 to 8-16	8.9.3, pg 8-16
42	(Provide) a draft water shortage contingency resolution or ordinance.	10632(h)	Appendix F	Appendix F	Appendix F	Appendix F
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)	8.11, pgs 8-17 to 8-18	8.11, pgs 8-17 to 8-18	8.11, pgs 8-17 to 8-18	8.11, pgs 8-17 to 8-18
44	Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area	10633	4.4, Table 4-3, pgs 4-8 to 4-9	4.4, Table 4-3, pgs 4-8 to 4-9	4.4, Table 4-3, pgs 4-8 to 4-9	4.4, Table 4-3, pgs 4-8 to 4-9
45	(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)	4.2, pgs 4-4 to 4-5	4.2, pgs 4-4 to 4-5	4.2, pgs 4-4 to 4-5	4.2, pgs 4-4 to 4-5
46	(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)	4.2, Table 4-3, pgs 4-4 to 4-5 and 4-9	4.2, Table 4-3, pgs 4-4 to 4-5 and 4-9	4.2, Table 4-3, pgs 4-4 to 4-5 and 4-9	4.2, Table 4-3, pgs 4-4 to 4-5 and 4-9
47	(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)	4.2 and 4.7, pgs 4-4 to 4-5 & 4-13	4.2 and 4.7, pgs 4-4 to 4-5 & 4-13	4.2 and 4.7, pgs 4-4 to 4-5 & 4-13	4.2 and 4.7, pgs 4-4 to 4-5 & 4-13
48	(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)	4.6, pg 4-12	4.6, pg 4-12	4.6, pg 4-12	4.6, pg 4-12
49	(Describe) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.	10633(e)	4.4 & 4.7, Table 4-3, pgs 4-8 to 4-11 & 4-13	4.4 & 4.7, Table 4-3, pgs 4-8 to 4-11 & 4-13	4.4 & 4.7, Table 4-3, pgs 4-8 to 4-11 & 4-13	4.4 & 4.7, Table 4-3, pgs 4-8 to 4-11 & 4-13
50	(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)	4.8, pg 4-13	4.8, pg 4-13	4.8, pg 4-13	4.8, pg 4-13
51	(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)	4.4.1, pgs 4-11 to 4-12, 4.9, pgs 4-13 to 4-14, 4.10, pgs 4-15 to 4-19	4.4.1, pgs 4-11 to 4-12, 4.9, pgs 4-13 to 4-14, 4.10, pgs 4-15 to 4-19	4.4.1, pgs 4-11 to 4-12, 4.9, pgs 4-13 to 4-14, 4.10, pgs 4-15 to 4-19	4.4.1, pgs 4-11 to 4-12, 4.9, pgs 4-13 to 4-14, 4.10, pgs 4-15 to 4-19
52	The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.	10634	5.7, Table 5-2, pg 5-12-13, Appendix I	5.7, Table 5-2, pg 5-12-13, Appendix I	5.7, Table 5-2, pg 5-12-13, Appendix I	5.7, Table 5-2, pg 5-12-13, Appendix I

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No.	UWMP requirement [a]	Calif. Water Code Reference	UWMP Location by Retail Purveyor			
			Castaic Lake Water Agency	Newhall County Water District	CLWA Santa Clarita Water Division	Valencia Water Company
53	Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)	6.4, Tables 6-2 to 6-4, pgs 6-6 to 6-15, Appendix C	6.4, Tables 6-2 to 6-4, pgs 6-6 to 6-15, Appendix C	6.4, Tables 6-2 to 6-4, pgs 6-6 to 6-15, Appendix C	6.4, Tables 6-2 to 6-4, pgs 6-6 to 6-15, Appendix C
54	The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.	10635(b)	1.3.3, pgs 1-6 to 1-8, Appendix B	1.3.3, pgs 1-6 to 1-8, Appendix B	1.3.3, pgs 1-6 to 1-8, Appendix B	1.3.3, pgs 1-6 to 1-8, Appendix B
55	Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642	1.3.1 &1.3.3, Table 1-2, pgs 1-3 to 1-8	1.3.1 &1.3.3, Table 1-2, pgs 1-3 to 1-8	1.3.1 &1.3.3, Table 1-2, pgs 1-3 to 1-8	1.3.1 &1.3.3, Table 1-2, pgs 1-3 to 1-8
56	Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.	10642	1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B	1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B	1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B	1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	10642	1.3.2, Table 1-2, pgs 1-6 to 1-7	1.3.2, Table 1-2, pgs 1-6 to 1-7	1.3.2, Table 1-2, pgs 1-6 to 1-7	1.3.2, Table 1-2, pgs 1-6 to 1-7
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	10643	1.3, pgs 1-3 to 1-8	1.3, pgs 1-3 to 1-8	1.3, pgs 1-3 to 1-8	1.3, pgs 1-3 to 1-8
59	An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.	10644(a)	Table 1-2, pg 1-7	Table 1-2, pg 1-7	Table 1-2, pg 1-7	Table 1-2, pg 1-7
60	Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.	10645	1.3.3, pgs 1-6 to 1-8	1.3.3, pgs 1-6 to 1-8	1.3.3, pgs 1-6 to 1-8	1.3.3, pgs 1-6 to 1-8

Appendix B

Public Outreach Materials

Public Outreach Record

2010 Santa Clarita Valley Urban Water Management Plan

Master List for 2010 SCV UWMP Notification of Workshops and Draft Availability

Jarrod Degonia Assemblymember Cameron Smyth 23734 Valencia Blvd. #303 Santa Clarita, CA 91355		Ernie Villegas Assemblymember Jeff Gorell 2659 Townsgate Road, Suite 236 Westlake Village, CA 91361
Dana Nielsen Assemblymember Audra Strickland 2659 Townsgate Road, Suite 236 Westlake Village, CA 91361		Kevin Korenthal Associated Builders & Contractors of CA; ABC-CCC 28005 Smyth Dr., Suite 129 Valencia, CA 91355
Holly Schroeder BIA - Los Angeles/Ventura Chapter 28480 Avenue Stanford, Suite 240 Santa Clarita, CA 91355		Sandy Sanchez BIA - Los Angeles/Ventura Chapter 28481 Avenue Stanford, Suite 240 Santa Clarita, CA 91355
David Inouye CA Department of Water Resources 770 Fairmont Avenue, Suite 102 Glendale, CA 91203-1035		Robert Kelly Castaic Area Town Council P.O. Box 325 Castaic, CA 91310
Mike Murphy City of Santa Clarita 23920 Valencia Blvd.#300 Santa Clarita, CA 91355		Jason Smisko City of Santa Clarita 23920 Valencia Blvd.#300 Valencia, CA 91355
Bruce Fortine College of the Canyons 24153 Tossano Drive Valencia, CA 91355-2010		Bob Haueter Congressman Howard McKeon 26650 The Old Road # 203 Santa Clarita, CA 91355
Chris Stephens County of Ventura Resource Management Agency 800 South Victoria Ave Ventura, CA 93009		Ron Bottorff Friends of the Santa Clara River 660 Randy Drive Newbury Park, CA 91320-3036

Mark Pestrella LA County Department of Public Works 900 South Fremont Ave Alhambra, CA 91803		Richard Bruckner LA County Department of Regional Planning 1390 Hall of Records, 320 West Temple Street Los Angeles, CA 90012
Jessica Bunker LA County WWD P.O. Box 1460 Alhambra, CA 91802-1460		Lynn Plambeck Santa Clarita Organization for Planning the Environment - SCOPE P.O. Box 1182 Canyon Country, CA 91386-1182
Robert Fleck Santa Clarita Valley Well Owners Association 16654 Soledad Canyon Road Santa Clarita, CA 91387		Terry Kingery SCV Chamber of Commerce 27451 Tourney Road, #160 Santa Clarita, CA 91355
Ed Masterson SCV Chamber of Commerce 27451 Tourney Road, #160 Santa Clarita, CA 91355		Sierra Club Angeles Chapter 3435 Wilshire Blvd # 320 Los Angeles, CA 90010-1904
Mark Butala Southern CA Association of Governments 818 W. Seventh Street, 12th Floor Los Angeles, CA 90017		Jackie Bick State Senator George Runner 23920 Valencia Blvd. Ste. 250 Santa Clarita, CA 91355
Jackie Bick State Senator Sharon Runner 23920 Valencia Blvd. Ste. 250 Santa Clarita, CA 91355		Scott Wilk Jr. State Senator Tony Strickland 2655 First St., Suite 230 Simi Valley, CA 93065
David Perry Supervisor Michael Antonovich, 5th District 23920 Valencia Blvd. # 265 Santa Clarita, CA 91355		Rosalind Wayman Supervisor Michael Antonovich, 5th District 23920 Valencia Blvd. # 265 Valencia, CA 91355

E. Michael Solomon United Water Conservation District 106 N 8th Street Santa Paula, CA 93060		Kathy Norris Valley Industrical Association of Santa Clarita (VIA) 25709 Rye Cyn Rd #105 Santa Clarita, CA 91355
Ron Mechsner West Ranch Town Council 25876 The Old Road #213 Stevenson Ranch, CA 91381		*** Orgs shaded above will receive letter return receipt requested

May 2010 UWMP Workshop
Public Outreach Record

2010 Santa Clarita Valley
Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS
Creative Solutions to Complex Situations

May 10, 2010

«AddressBlock»

Subject: 2010 Urban Water Management Plan

«GreetingLine»

The Santa Clarita Valley's water agencies, Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company have begun to prepare the 2010 Urban Water Management Plan (UWMP). The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation through the year 2035. It describes the long-range water needs of the community and the means to supply the necessary water.

In an effort to ensure all interested parties are fully informed and involved in our process, we have scheduled the first of several community workshops as follows:

Date:	Tuesday, May 25, 2010
Time:	4:00 pm
Location:	Castaic Lake Water Agency 27234 Bouquet Canyon Road

The purpose of this kick-off workshop is to present an overview of the state requirements and outline of the contents of the 2010 Urban Water Management Plan. I encourage your participation and look forward to seeing you then. If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV UWMP

Government Affairs, Public Relations & Communication
P.O. Box 55745, Valencia, CA 91385 [818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com
www.StacyMillerPA.com

Santa Clarita Valley
2010 Urban Water Management Plan

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

The Signal
5-18-10

Announce the preparation of the
2010 Urban Water Management Plan

The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation through the year 2035. It describes the long-range water needs of the community and the means to supply the necessary water. We encourage your input, interest and involvement.

Kick Off Community Workshop

Date: **Tuesday, May 25, 2010**

Time: **4:00 pm**

Location: **Castaic Lake Water Agency**
27234 Bouquet Canyon Road

Purpose:

This kick-off workshop will present an overview of the state requirements and provide an outline of the content of the 2010 UWMP. Our team will provide an overview of the many opportunities for public comment and will also be available for questions. We encourage public participation and input.

For more information
please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

Santa Clarita Valley
2010 Urban Water Management Plan

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

The Signal
Sunday
5-23-2010

Announce the preparation of the
2010 Urban Water Management Plan

The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation through the year 2035. It describes the long-range water needs of the community and the means to supply the necessary water. We encourage your input, interest and involvement

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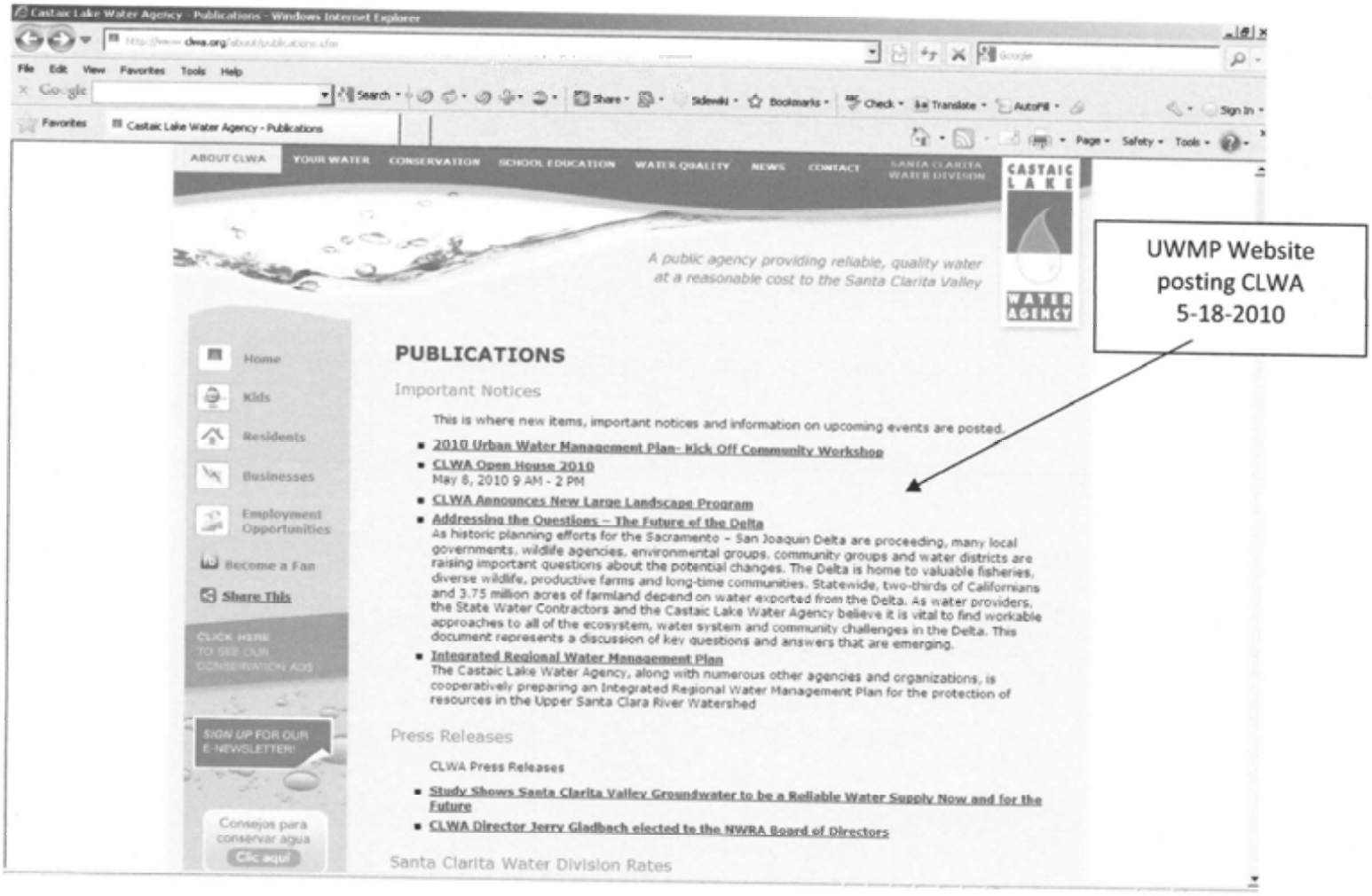
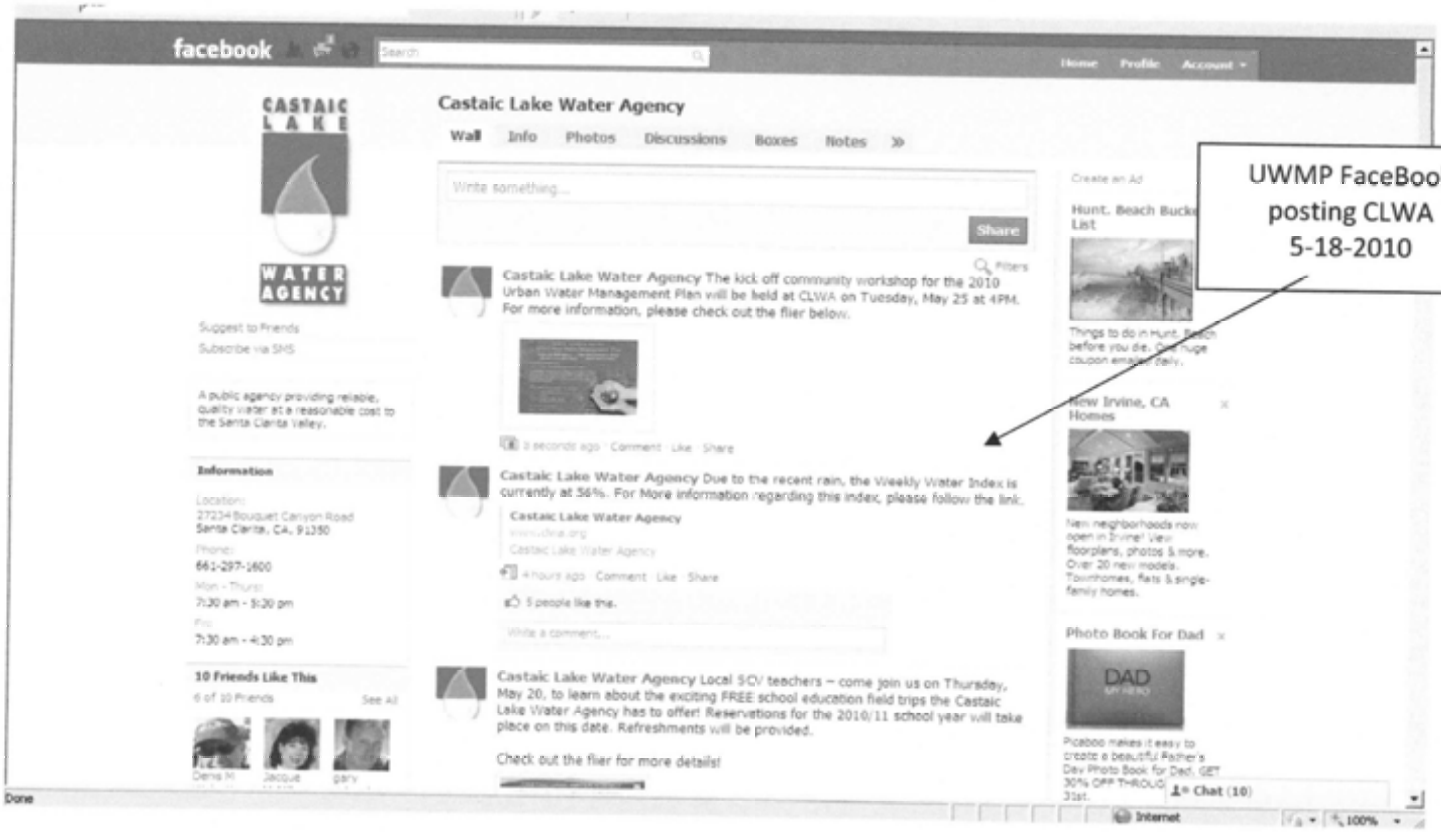
please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

UWMP May 25, 2010 Kick-off workshop
CLWA website & FaceBook postings



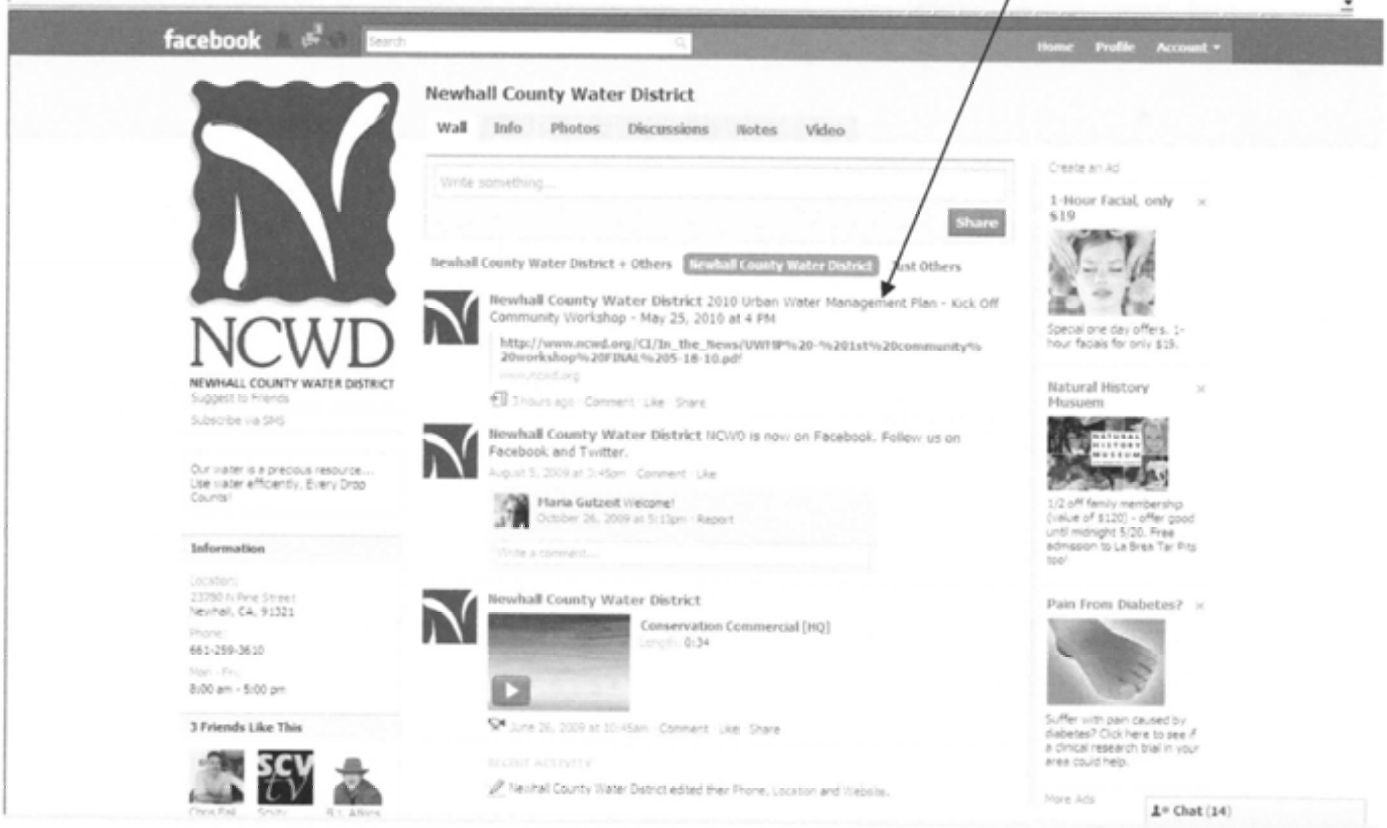
UWMP Website posting CLWA 5-18-2010



UWMP FaceBook posting CLWA 5-18-2010

UWMP May 25, 2010 Kick-off workshop
Newhall County Water District Website & FaceBook posting

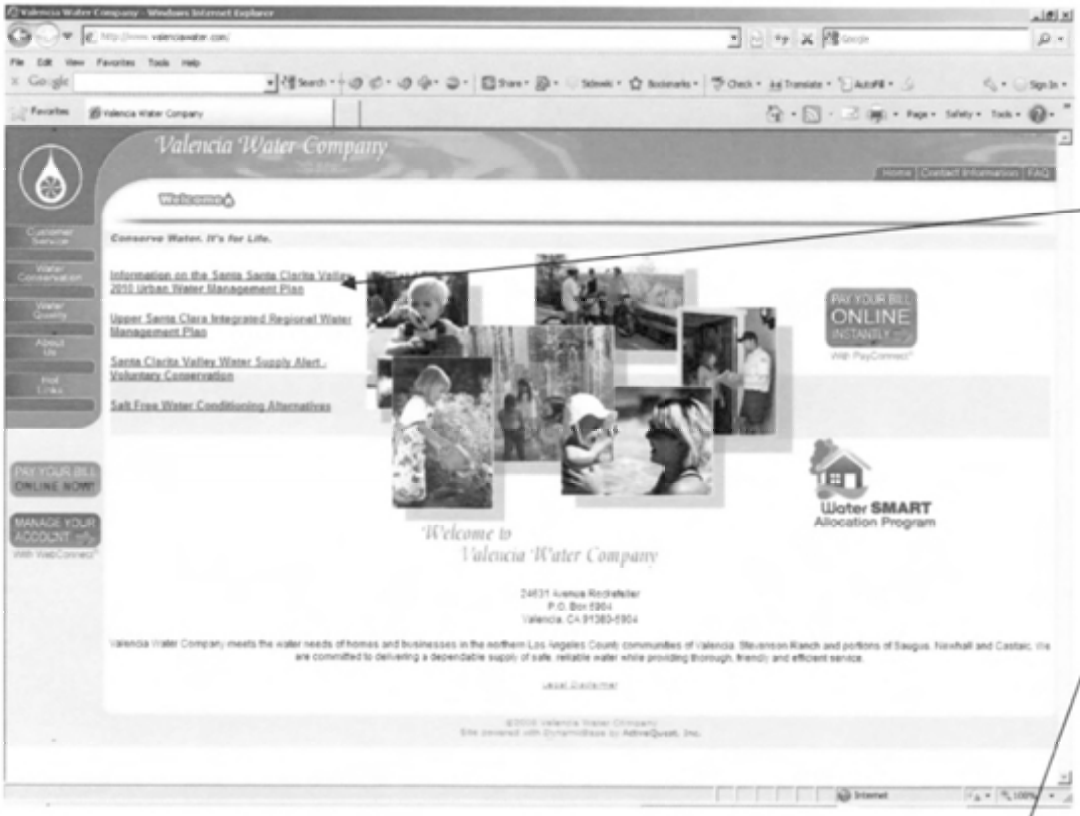
UWMP Website & FaceBook posting NCWD - 5-17-2010



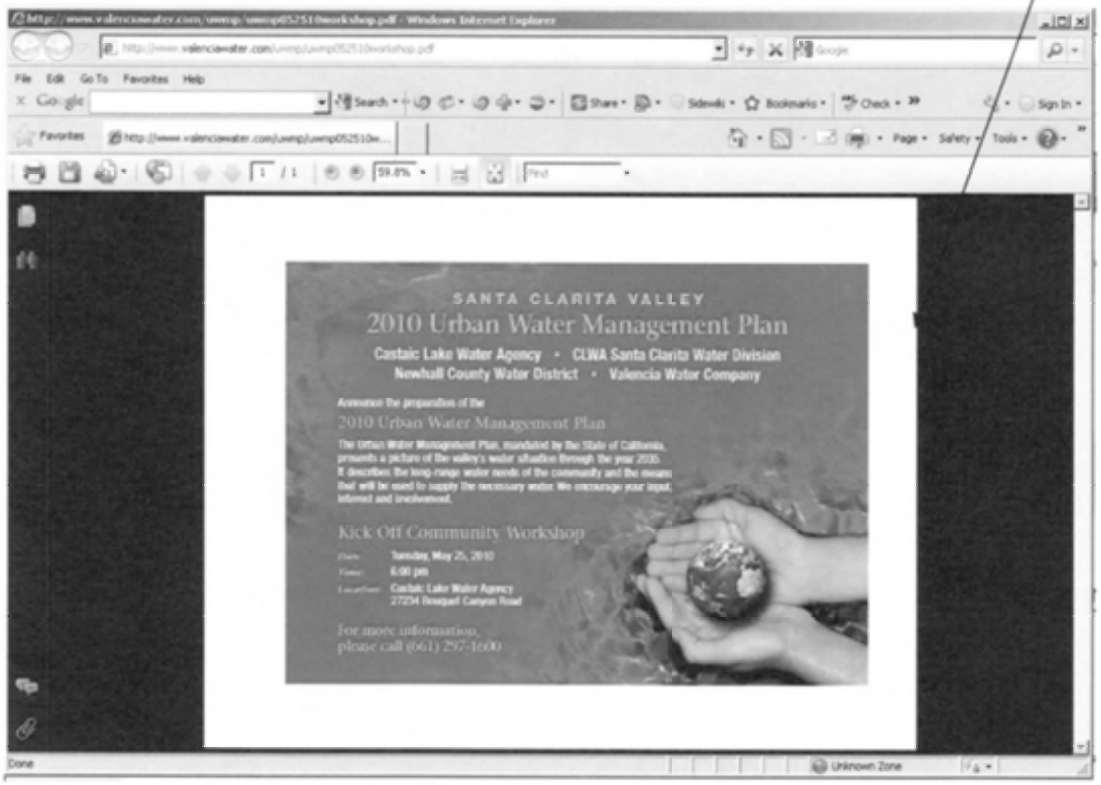
UWMP May 25, 2010 Kick-off workshop
Santa Clarita Water Division (SCWD) website postings

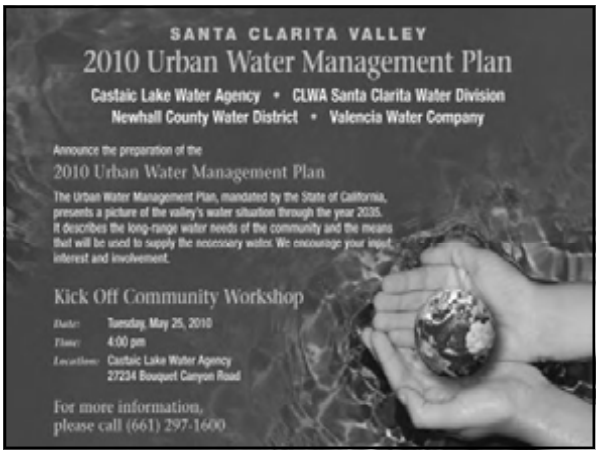
Valencia Water Co Website Posting

May 25, 2010 - UWMP Kick Off Community Workshop



UWMP Website posting
Valencia Water Co
5-17-2010




SANTA CLARITA VALLEY
2010 Urban Water Management Plan
Castaic Lake Water Agency • CLWA Santa Clarita Water Division
Newhall County Water District • Valencia Water Company
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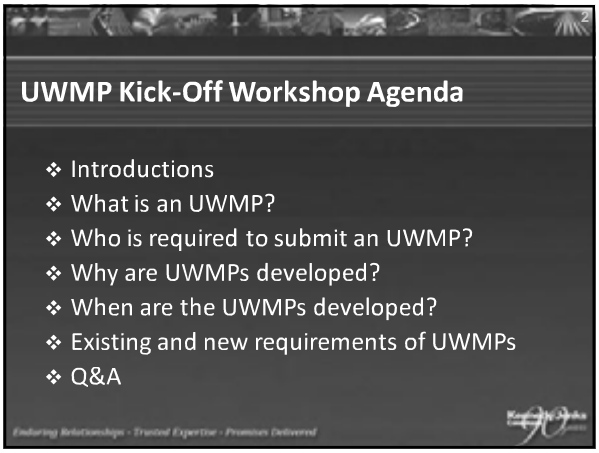
2
UWMP Kick-Off Workshop Agenda
Introductions
What is an UWMP?
Who is required to submit an UWMP?
Why are UWMPs developed?
When are the UWMPs developed?
Existing and new requirements of UWMPs
Q&A
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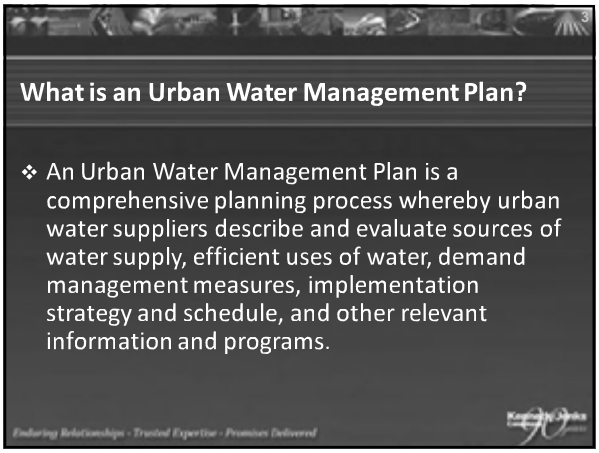
3
What is an Urban Water Management Plan?
An Urban Water Management Plan is a comprehensive planning process whereby urban water suppliers describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs.
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Who is required to prepare an UWMP?

- Publicly or privately owned water suppliers (including wholesalers), providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet annually.

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Why are UWMPs Developed?

- In adherence to the 1983 Urban Water Management Planning (UWMP) Act and subsequent legislation
- To develop a framework for agencies to integrate programs and projects that enhance the quality and quantity of regional water supplies
- To identify gaps between supply and demand through time (20-year analysis required)
- To provide detailed description of all supply sources (surface, recycled, groundwater)

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Why are UWMPs Developed? (Cont'd.)

- To identify Demand Management Measures (water conservation programs)
- To address water quality issues
- To develop water shortage contingency planning
- To describe how demand will be met through time, in all hydrologic year types (normal, multiple dry, critical dry)

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When are UWMP Plans Developed?

- Suppliers are required to update UWMP every five-years (years ending in 0 or 5).
- 2010 – current update
- July 1, 2011 for retailers (SBx7-7 extended UWMP deadline for retailers but silent on extension for wholesalers.)
  - Under current UWMP Act, wholesalers should complete UWMP by December 31, 2010. But "cleanup legislation" (AB 2776 and SB 1478) anticipated that will extend deadline to July 1, 2011 for wholesalers.

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8

Coordination and Notification Requirements

"Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practical."

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9

Coordination and Notification Requirements

Other:

- Must hold public hearing prior to adoption of UWMP
- Must give cities and counties in service area 60 days notice prior to public hearing
- Must provide cities and counties and LAFCO in service area with copies of UWMP within 30 days of adoption

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Penalties

- Ineligible for State Grant and Loan Funding (at least until plan is completed to DWR satisfaction)

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What, Who, Why, When, etc…

- Q&A/Discussion

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New Requirements for 2010 UWMP

- New Law: SBX7-7 ("20% x 2020"), reporting starts with 2010 UWMPs
  - Base gross water use in gpcd: must be calculated using one of three methodologies
  - Target reduction from base by 2020: reporting requirements differ for retailers vs. wholesalers
  - Must be calculated using one of four methodologies
  - Agencies must hold public hearing to explain how targets will be met (can be held as part of UWMP hearing)

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13

New UWMP Requirements

- Base gross water use in gpcd: calculation

  Total volume of water (treated or not) entering the retail distribution system, divided by the total population of the service area

  (Excludes: recycled water, net volume into long-term storage, water conveyed to another retailer, agricultural water)

14

New UWMP Requirements

- Base gross water use in gpcd: methodologies
  - 10-year average
    - *ending no earlier than 2004 – no later than 2010*
  - 15-year average if 10% of 2008 demand met by recycled water
    - *get to add 5 years to calculation*
  - 5-year average if agency is already close to target
    - *100 gpcd; at least 5% reduction*
    - *ending no earlier than 2007 – no later than 2010*

15

New UWMP Requirements

- Base gross water use in gallons per capita per day (gpcd)
  - Averages are determined on a rolling basis
  - Should review demands over various periods to determine hydrologic and demand year types
  - Recent economic impacts and drought response may have reduced demand!

16

New UWMP Requirements

- Target reduction methodology options
  1. 20% reduction from base (i.e., 80% of average gross water use in gpcd)
  2. Combination of state standards:
     - 55 gpcd indoor residential + landscape use at 70% -80% ETo + 10% reduction in commercial/industrial/institutional use
  3. DWR 20x2020 hydrologic region target (South Coast region = 149 gpcd)
  4. Option to be developed by October 2010

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17

New UWMP Requirements

- Reduction Target Option 4
  - Subject to DWR public process during 2010
  - Will identify targets to achieve cumulative statewide 20% reduction
  - Must allow flexibility for water supplier service area characteristics

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18

New UWMP Requirements

- Proposals for Option 4
  - DWR: developing a methodology for public review
  - CA Urban Water Conservation Council: all agencies in CA follow terms and options of the Urban MOU
  - ACWA: submitted Option 4 proposal
    - Relies on comparison to a Reference Area (an area that has met/nearly met hydrologic region target).

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19

New UWMP Requirements

- Issues: DWR will derive methodologies for calculations: population, base water use, gross water use, sector water use, Option 4, others
  - If DWR derives new methodology standards, agencies may be required to use them
  - Won't be final until October 2010 (ps. December)
  - If work has already been done, it may need to be repeated
  - If agency has already adopted UWMP, it may need to be amended
  - = Reason for UWMP deadline extension to July 1, 2011

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20

New UWMP Requirements

- Other
  - SB 1087 (Florez) - requires an UWMP to include projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier.

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21

Consultant Team

- Kennedy/Jenks Consultants
- Luhdorff and Scalmanini
- Nancy Clemm, P.E.
- Stacy Miller Public Affairs

Enduring Relationships · Trusted Expertise · Promises Delivered

Santa Clarita Valley Urban Water Management Plan
May 25, 2010 - Community Workshop Sign In Sheet

	PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1.	David Inouye	DWR. So. Region	Chief, Water Cons. Sec.	(818) 500-1615, x 246	davidi@water.ca.gov
2.	RONALD MECHSNER	WEST RANCH TOWN COUNCIL	PRESIDENT	661. 753. 6182	RMECHSNER@westranchtown council.com
3.	Cathy Holloman	SCWD	Assoc	661-259-2737	cholloman@scwater.org
4.	Mauricio Guardado	SCWD	Retail MGR	"	mguardado@scwater.org
5.	Mary Lou Cotter	KS			
6.	Patrick Bryant	City of Santa Clarita	Admin. Analyst	661-255-4902	pbryant@santa-clarita.com
7.	Jessica Bunker	LADWWD	Civil Engr - Water Resources Unit	626-300-3315	jbunker@ladpw.org
8.	Bruce Fortine	COC	Trustee	661-253-0060	fortine@earthlink.net
9.	Kevin Korenthal	ABL-CCC	E.D.	(661) 310-0769	kkorenthal@abc-ccc.org
10.	JANET KEITH	VWC	CONSER COORD.	661 295-6531	jkeith@valenciawater.com
11.	Brett Walter	Buck McKeon	Senior Field Rep	661-254-2111	brett.walter@mail.house.gov
12.	Jason Swisher	Santa Clarita	Senior Planner	661-255-4306	jswisher@santa-clarita.com
13.	Jerry Gladbach	CLWA			
14.	DIANA SHAW	DIANA SHAW for 38th Assembly	candidate		ElectDianaShaw.com
15.	Bob Diprimio	Valencia Water Co.	President	(661) 295-6501	rdiprimio@valenciawater.com
16.	ED MASTERSON	SCV CHAMBER	PRES. / CEO	(661) 702-6977	EMASTERSON@SCVCHAMBER.COM
17.	Jackie Bick	Sen. Runner	Dist Rep	661-286-1471	JACKIE.BICK@SEN.CA.GOV
18.					

July 2010 UWMP Workshop
Public Outreach Record

2010 Santa Clarita Valley
Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS

Creative Solutions to Complex Situations

July 6, 2010

«AddressBlock»

Subject: 2010 Urban Water Management Plan Workshop

«GreetingLine»

The Santa Clarita Valley's water agencies, Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company are currently preparing the 2010 Urban Water Management Plan (UWMP).

In an effort to ensure all interested parties are fully informed and involved in this process, we have scheduled our second community workshop as follows and welcome your participation:

Date:	Tuesday, July 27, 2010
Time:	4:00 pm
Location:	Castaic Lake Water Agency 27234 Bouquet Canyon Road

The Urban Water Management Plan presents a picture of the valley's water situation through the year 2035, describes the long-range water needs of the community and the means to supply the necessary water. This workshop will provide the most current information on components of the 2010 UWMP.

I encourage your participation and look forward to seeing you then. If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV Urban Water Management Plan

Government Affairs, Public Relations & Communication

P.O. Box 55745, Valencia, CA 91385 [818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com

www.StacyMillerPA.com

Post card sent to all entities with water connections in the CLWA, CLWA SCWD, VWC and NCWD service areas

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

Castaic Lake Water Agency • CLWA Santa Clarita Water Division
Newhall County Water District • Valencia Water Company

2010 Urban Water Management Plan

The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation through the year 2035. It describes the long-range water needs of the community and the means that will be used to supply the necessary water. We encourage your input, interest and involvement.

Upcoming Community Workshops

Date: Tuesday, July 27, 2010
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

Date: Tuesday, September 28, 2010
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

For more information, please call (661) 297-1600

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

The Signal
7-25-10

Date: Tuesday, July 27, 2010
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

This workshop will provide the most current information on components of the 2010 UWMP. Our team will provide an overview of the opportunities for public comment and will also be available for questions.

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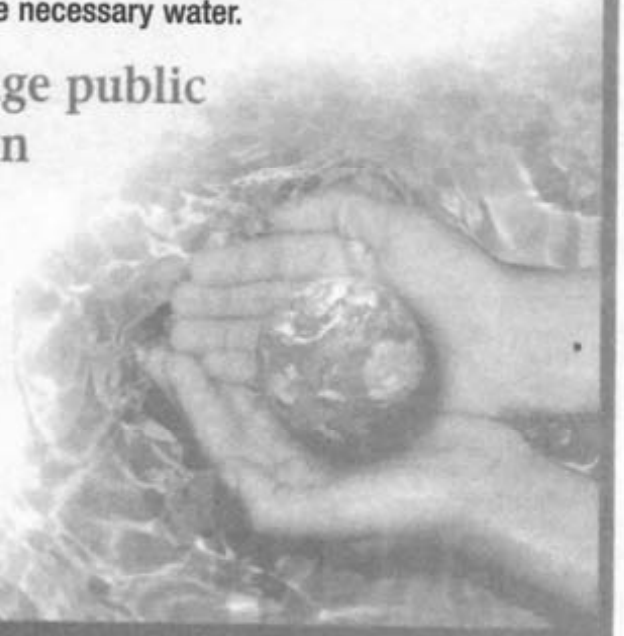
We encourage public participation and input



For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

The Signal
7-20-10

Date: Tuesday, July 27, 2010

Time: 4:00 pm

Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

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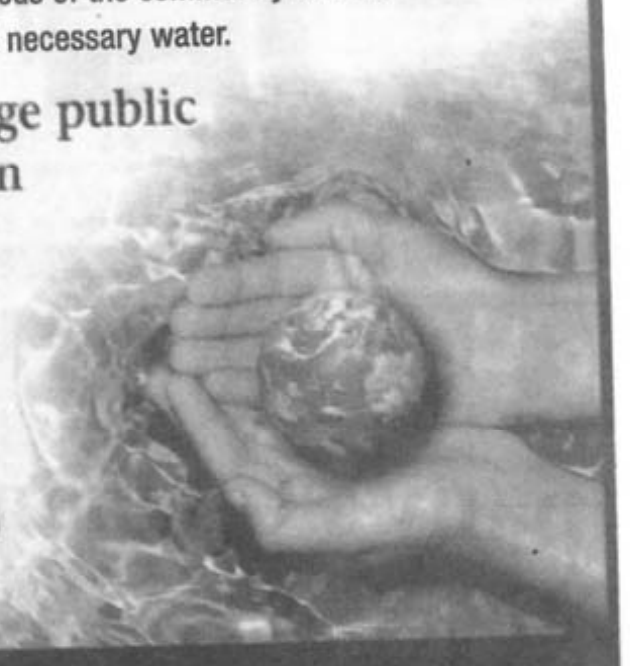
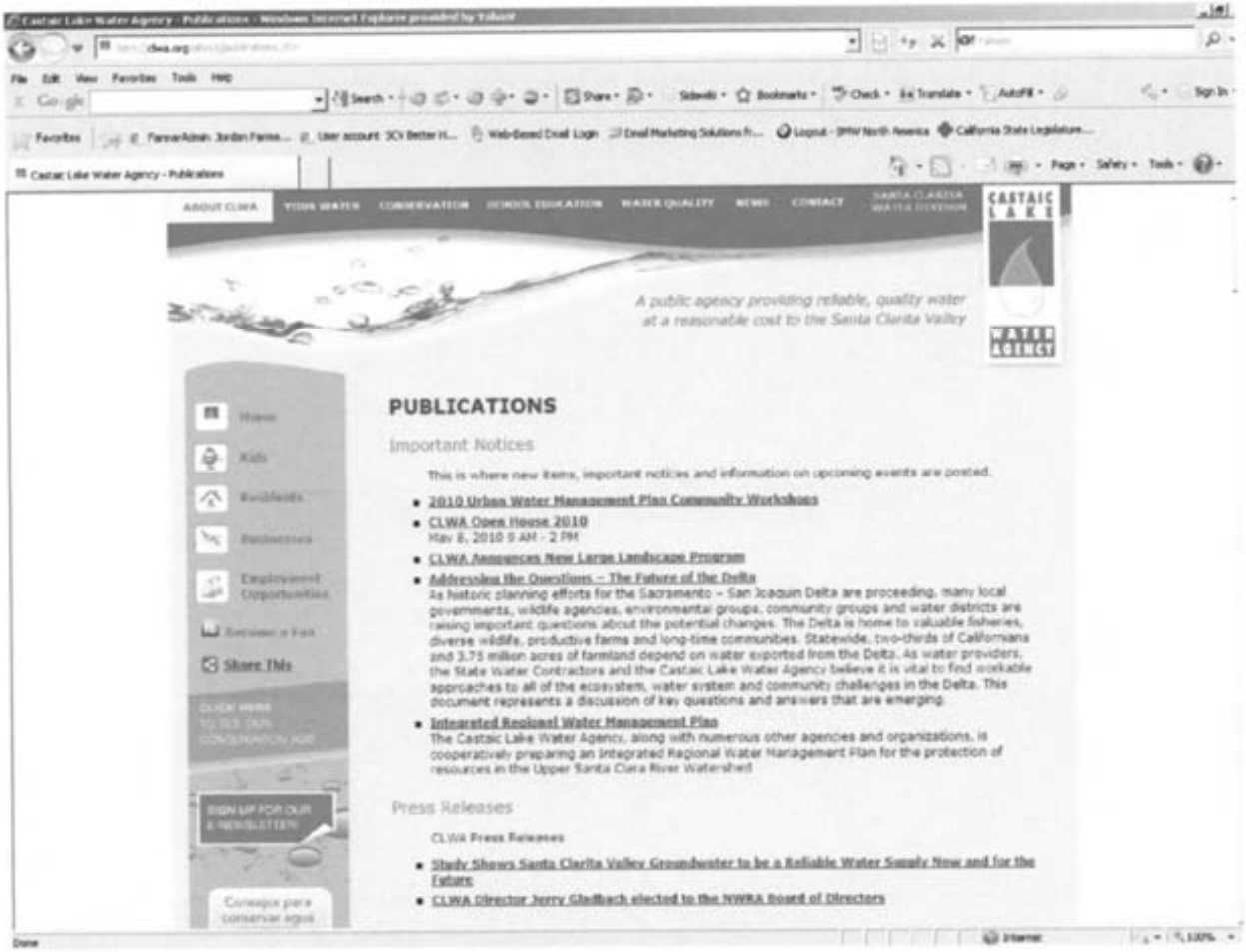
We encourage public participation and input

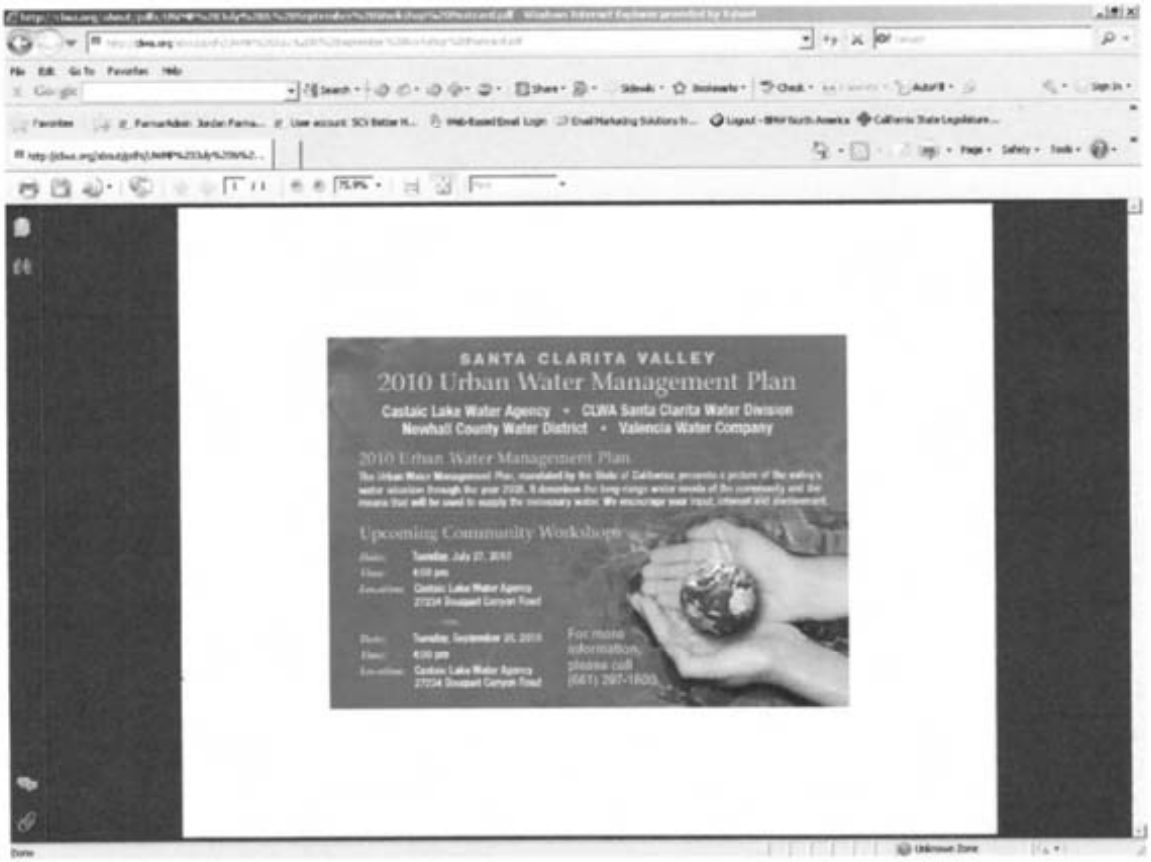


For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

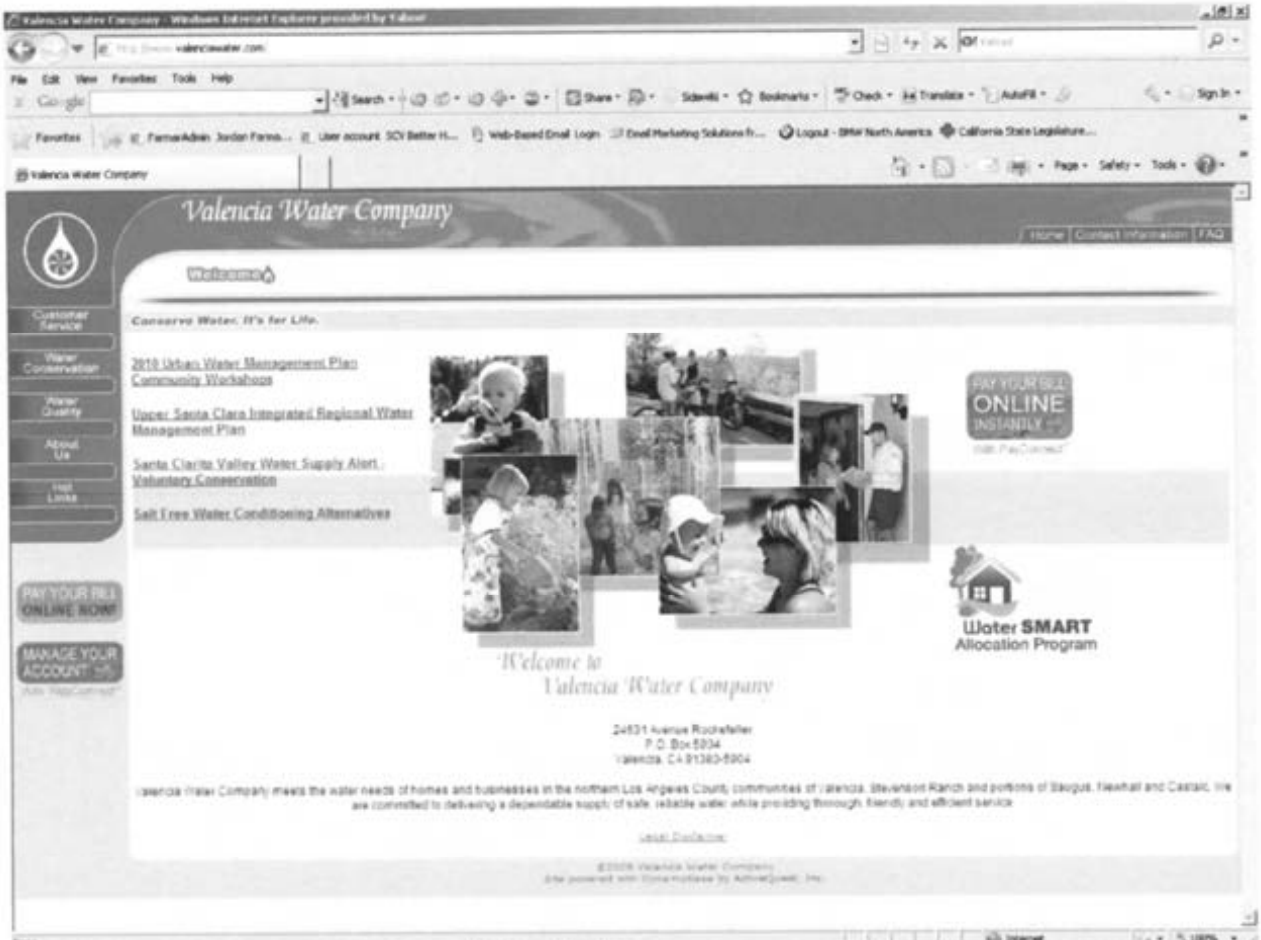
UWMP July & September 2010 Community Workshop Announcements
CLWA Website - June 28, 2010

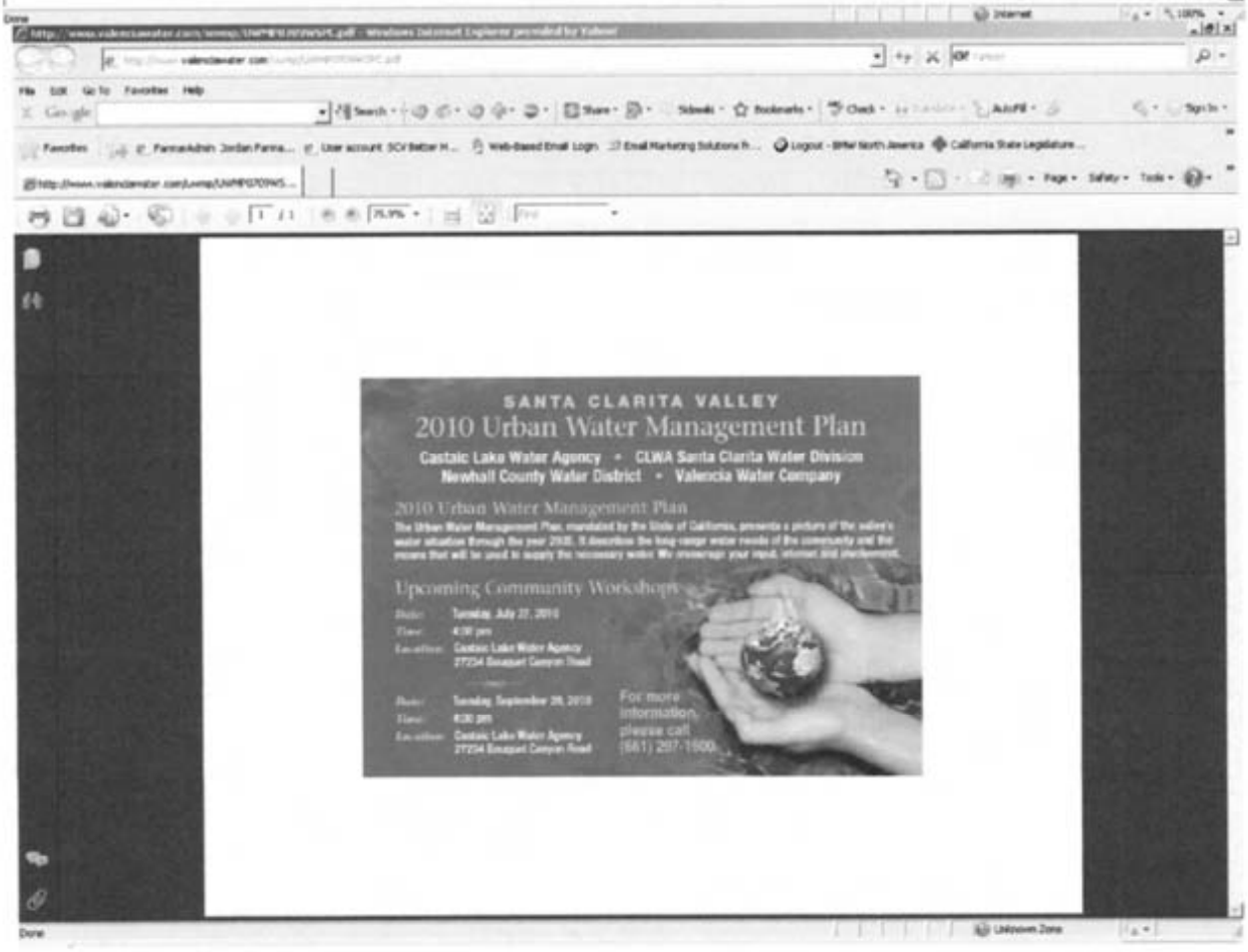




UWMP July & September 2010 Community Workshop Announcements
CLWA Facebook Post - June 28, 2010

UWMP July & September 2010 Community Workshop Announcements
Valencia Water Co Website - June 28, 2010





UWMP July & September 2010 Community Workshop Announcements
SCWD Website - June 28, 2010

Santa Clarita Water Division - Windows Internet Explorer

SCWD

SANTA CLARITA WATER DIVISION

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PUBLICATIONS
- Publications

Publications

The following is a list of commonly requested SCWD documents.

Important Notices

This is where new items, important notices and information on upcoming events are posted.

- 2010 Urban Water Management Plan- Kick Off Community Workshop
- CLWA Open House 2010
  May 8, 2010 9 AM - 2 PM
- CLWA Announces New Large Landscape Program
- Addressing the Questions – The Future of the Delta
  As historic planning efforts for the Sacramento – San Joaquin Delta are proceeding, many local governments, wildlife agencies, environmental groups, community groups and water districts are raising important questions about the potential changes. The Delta is home to valuable fisheries, diverse wildlife, productive farms and long-time communities. Statewide, two-thirds of Californians and 3.75 million acres of farmland depend on water exported from the Delta. As water providers, the State Water Contractors and the Castaic Lake Water Agency believe it is vital to find workable approaches to all of the ecosystem, water system and community challenges in the Delta. This document represents a discussion of key questions and answers that are emerging.
- Integrated Regional Water Management Plan
  The Castaic Lake Water Agency, along with numerous other agencies and organizations, is cooperatively preparing an Integrated Regional Water Management Plan for the protection of resources in the Upper Santa Clara River Watershed

Water Quality Reports

The Annual Consumer Confidence Report is provided by the Castaic Lake Water Agency and local water purveyors. The goal is to provide customers the most up-to-date information about water. Each report contains a summary of thousands of water quality tests performed in the Santa Clarita Valley.

- The Santa Clarita Valley 2007 Consumer Confidence Report
- The Santa Clarita Valley 2008 Water Quality Report

UWMP July & September 2010 Community Workshop Announcements
NCWD Website - June 28, 2010

UWMP July & September 2010 Community Workshop Announcements
NCWD Facebook Post - June 28, 2010

UWMP Community Workshop
July 27, 2010

Enduring Relationships · Trusted Expertise · Promises Delivered

Kennedy/Jenks Consultants

Agenda

- Welcome & Introductions
- SBX7-7 Requirements
- Recycled Water
- Groundwater Supplies
- State Water Project Reliability
- Questions & Answers
- Next Workshop & Timelines

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2010 UWMP SBX7-7

- Mary Lou Cotton, Kennedy/Jenks Consultants

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2010 UWMP

- New Law: SBX7-7 ("20% x 2020"), reporting starts with 2010 UWMPs, applies to retailers
  - Base gross water use in gpcd: must be calculated using one of three methodologies
  - Target reduction from base by 2020: must be calculated using one of four methodologies
  - Supplier must hold public hearing to explain how targets will be met (can be held as part of UWMP hearing)

2010 UWMP

- Base gross water use in gpcd: methodologies
  - 10-year average
    - *ending no earlier than 2004 – no later than 2010*
  - 15-year average if 10% of 2008 demand met by recycled water
    - *get to add 5 years to calculation*
  - *And*: 5-year average
    - *ending no earlier than 2007 – no later than 2010*
    - *100 gpcd; at least 5% reduction for all agencies in CA over 100 gpcd*

2010 UWMP

- Target reduction methodology options
  1. 20% reduction from base (i.e., 80% of average gross water use in gpcd)
  2. Combination of state standards:
     - 55 gpcd indoor residential + landscape use at 70% ETo + 10% reduction in commercial/industrial/institutional use
  3. DWR 20x2020 hydrologic region target (South Coast region = 149 gpcd)
  4. Option to be developed by October 2010

2010 UWMP

- Reduction Target Option 4
  - Subject to DWR public process during 2010
  - Will identify targets to achieve cumulative statewide 20% reduction
  - Must allow flexibility for water supplier service area characteristics

2010 UWMP

- Wholesalers (such as CLWA) must describe in the UWMP "an assessment of present and proposed future measures, programs and polices to help achieve the water use reductions required" of retailers in their service areas.

2010 UWMP

- DWR Public Process Issues
  - DWR will derive methodologies for SBX7-7 calculations: population, base gross water use, compliance levels, sector water use, others
  - If DWR derives new standards, agencies will be required to use them
  - Won't be final until October 2010
  - Option 4 method won't be final until December 2010.

2010 UWMP

- DWR Public Process Issues, (cont'd.)
  - If work has already been done, it may need to be repeated;
  - If agency has already adopted UWMP, it may need to be amended
  - Reason for UWMP deadline extension to July 1, 2011 (Note: wholesaler UWMPs still due by Dec 31, 2010; legislation in process to apply extension to them)

SBX7-7 Methodologies Status

- DWR has convened the Urban Stakeholder Committee ("USC")
  - Co-chaired by DWR and CUWCC
- Has formed an Agency Team: DWR, SWRCB, CPUC, CDPH, CBDA, USBR
- Has hired a consultant team (mainly economists and statisticians)

SBX7-7 Methodologies Status

- USC has held three meetings to date (next: tomorrow, 7/28/10)
- DWR has defined several technical methodologies efforts, based on statute
- DWR Legal has reviewed statute and provided guidance to DWR staff and consultant team
- Developed a set of Issue Papers for each methodology in statute
- Has created groupings according to task:

SBX7-7 Methodologies Status

- U3:
  - Gross water use
  - Service area population
  - Base daily per capita use
  - Compliance daily per capita use
  - Landscape area water use
  - Baseline CII use
  - Compliance year adjustment criteria
  - Indoor residential use

SBX7-7 Methodologies Status

- U4:Target Reduction Option 4
  - Proposal from ACWA
  - Two proposals from various CUWCC members (IRWD/City of San Luis Obispo/City of Long Beach; and Western Municipal Water District)
  - DWR/Consulting Team proposal
- U4 Workgroup set up, focus on how to formulate methodology

SBX7-7 Methodologies Status

- U5: Process Water
  - Use by Commercial, Industrial, Institutional customers
- U6: Regional Compliance
  - Guidance for Regional UWMPs and Conservation Target Reductions

SBX7-7 Methodologies Status

- Schedule:
  - June 22 & 23 USC and U4 Meetings at IEUA
  - July 28 USC Meeting
  - **August 5 & 6 U3 Public Workshops**
  - August 26 USC Meeting
  - September 21 USC Meeting
  - October 1 finalize U3 methodologies
  - **October 27 & 29 U4 Public Meetings**
  - November 15 USC Meeting
  - December 31 U4 method finalized

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2010 UWMP- SBX7-7

- SBX7-7 Questions?

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Recycled Water

- Lynn Takaichi, Kennedy/Jenks Consultants

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Recycled Water

- Based on 2002 Recycled Water Master Plan and 2006 Programmatic EIR
  - Modified Phasing and Pipeline Alignments
  - Both VWRP and SWRP Utilized
  - Potential Onsite RW Production
- Current Production = 430 AFY
- Ultimate Production = 17,400 AFY, plus 5,344 AFY from Newhall Ranch WRP
- Will Help the SCV Meet 20x2020 Goals

Enduring Relationships · Trusted Expertise · Promises Delivered

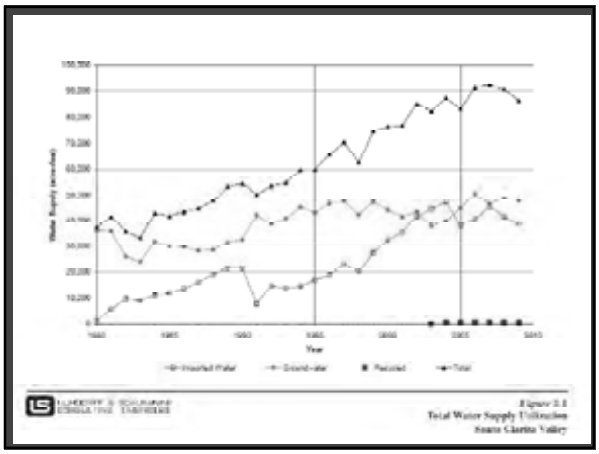
Kennedy Jenks

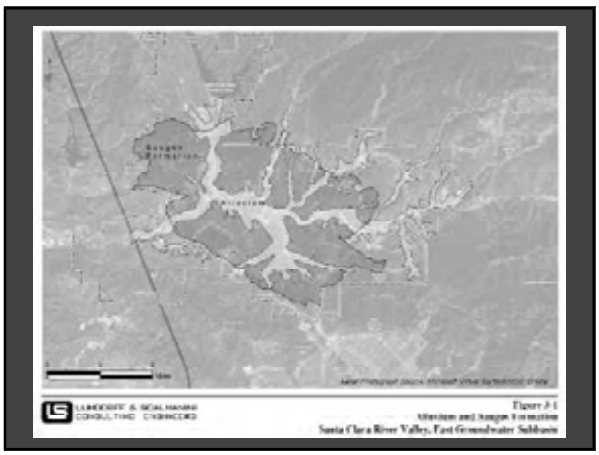
Groundwater Supplies

- Joe Scalmanini - Luhdorff and Scalmanini

Groundwater Component of Water Supplies 2010 Urban Water Management Plan

• Castaic Lake Water Agency • CLW larita Water Division
• Los Angeles County Waterworks District 36
• Newhall County Water District • Valencia Water Company





Groundwater Management Plan (2003)

Management Objectives (Goals) for the Basin

- development of integrated surface water, groundwater, and recycled water supply to meet existing and projected uses
- determination of operational groundwater yield to avoid overdraft = sustainability
- preservation of groundwater quality, including solution of contamination problems
- preservation of interrelated surface water resources = maintenance of surface water flows and non-degradation of quality

Groundwater Management Plan (2003)

Elements

- groundwater monitoring
- surface water monitoring
- basin yield analysis
- regular and dry year water supplies
- continued conjunctive use
- long-term salinity management
- integration of recycled water
- mitigate contamination
- local, state and federal relationships
- public education and water conservation
- recharge wellhead protection areas
- well construction and destruction policies
- provisions to add additional components

Annual Water Reports (1998-present)

Annual Water Requirements and Supplies
- actual water use
- sources of supply to meet actual use

Groundwater
- Alluvial and Saugus aquifer conditions

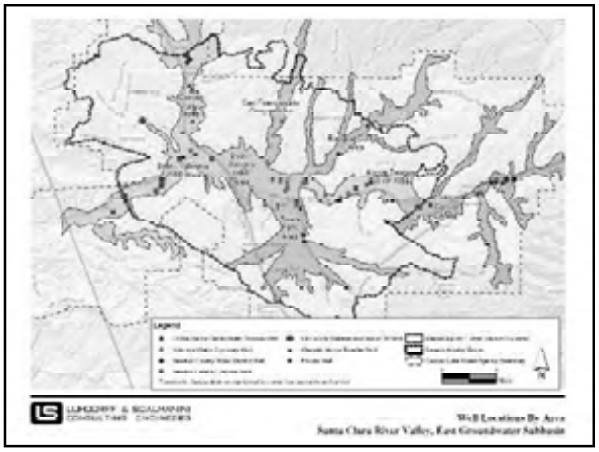
Supplemental Water Supplies
- State Water Project
- banking and other programs

Water Quality

Recycled Water

Santa Clara River
- outflows from Santa Clarita Valley

Short-Term (one year) Outlook
- water requirements adjusted from UWMP
- surface water, groundwater and recycled water supplies
- adequacy of water supplies



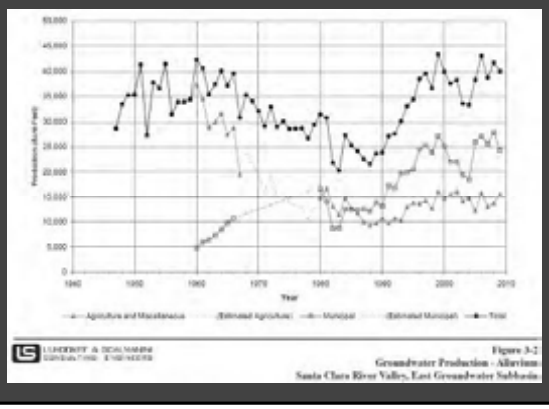


Figure 3-2
Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin

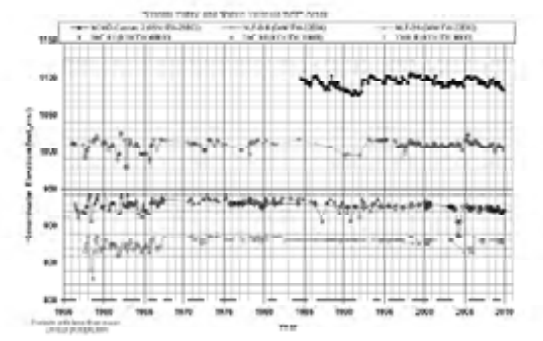
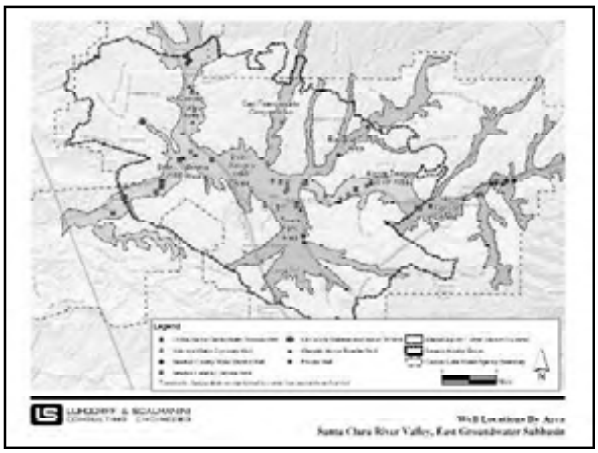
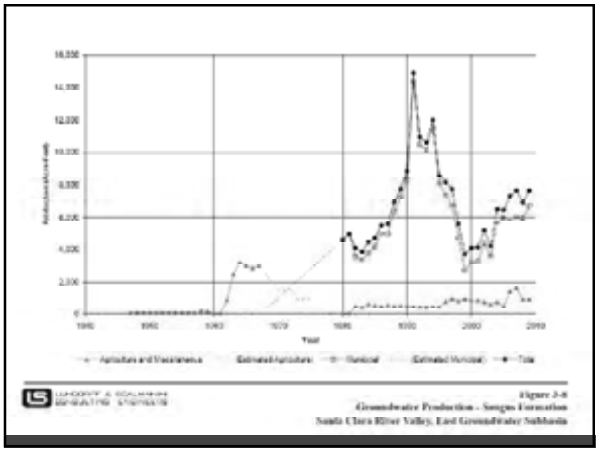
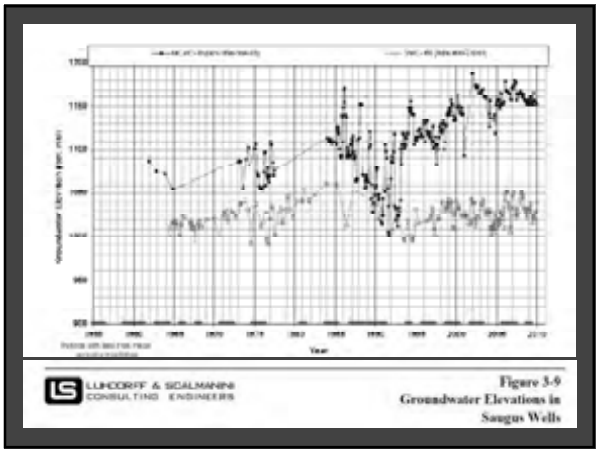


Figure 3-5
Groundwater Elevations in
Western Santa Clarita Valley Alluvial Wells

Figure 3-4
Groundwater Elevations in
Eastern Santa Clarita Valley Alluvial Wells

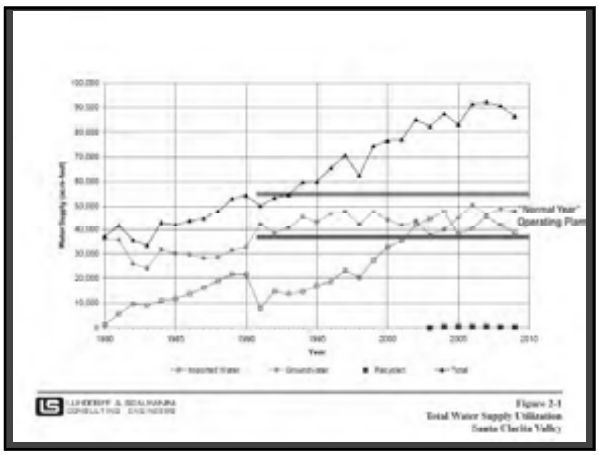

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin


Year
LUHDORFF & SCALMANINI
Figure 3-8
Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin


Year
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-9
Groundwater Elevations in
Saugus Wells

2008 Groundwater Operating Plan

Groundwater Pumping 2010 UWMP				
Aquifer	**Normal Y**			
Alluvium	30,000–40,000 (38,600)	30,000-35,000 (36,500)	30,000-35,000 (34,850)	30,000-35,000 (34,850)
Saugus	7,500-15,000 (12,485)	15,000-25,000 (19,125)	21,000-25,000 (25,227)	21,000-35,000 (34,977)



Sustainability and Achievability

Sustainability

"lack of chronic, or sustained, depletion of groundwater storage, as indicated by projected groundwater levels, over a reasonable range of wet, normal, and dry hydrologic conditions" (86 years: 1922-2007)

"maintenance of surface water flows in the western portion of the basin (which are partially maintained by groundwater discharge) and surface water outflow to downstream basins over the same range of hydrologic conditions"

Achievability

maintenance of groundwater levels above, or only temporarily slightly into, the intake (screened or perforated) sections of production wells

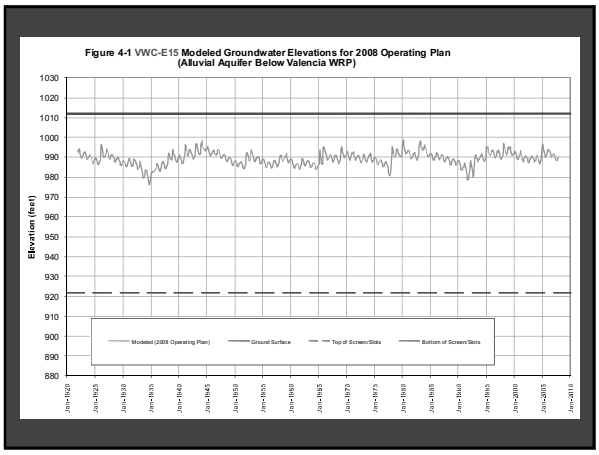


Figure 4-1 VWC-E15 Modeled Groundwater Elevations for 2008 Operating Plan
(Alluvial Aquifer Below Valencia WRP)
Elevation (feet)
1030
1020
1010
1000
990
980
970
960
950
940
930
920
910
900
890
880
Modeled (2008 Operating Plan)
Ground Surface
Top of Screen/Slots
Bottom of Screen/Slots
Jan-1920
Jan-1925
Jan-1930
Jan-1935
Jan-1940
Jan-1945
Jan-1950
Jan-1955
Jan-1960
Jan-1965
Jan-1970
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000
Jan-2005
Jan-2010

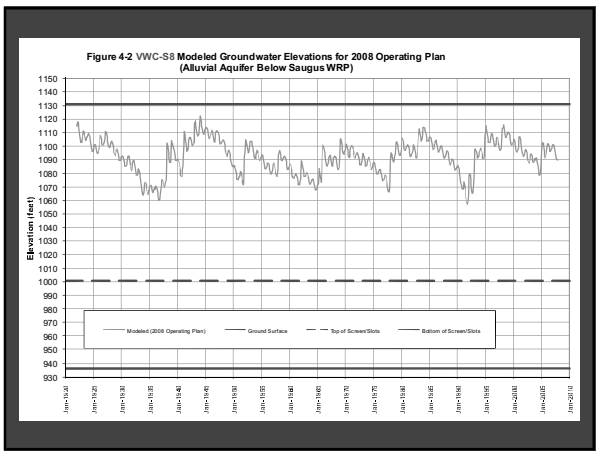


Figure 4-2 VWC-S8 Modeled Groundwater Elevations for 2008 Operating Plan
(Alluvial Aquifer Below Saugus WRP)
Elevation (feet)
1150
1140
1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000
990
980
970
960
950
940
930
Modeled (2008 Operating Plan)
Ground Surface
Top of Screen/Slots
Bottom of Screen/Slots
Jan-1920
Jan-1925
Jan-1930
Jan-1935
Jan-1940
Jan-1945
Jan-1950
Jan-1955
Jan-1960
Jan-1965
Jan-1970
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000
Jan-2005
Jan-2010

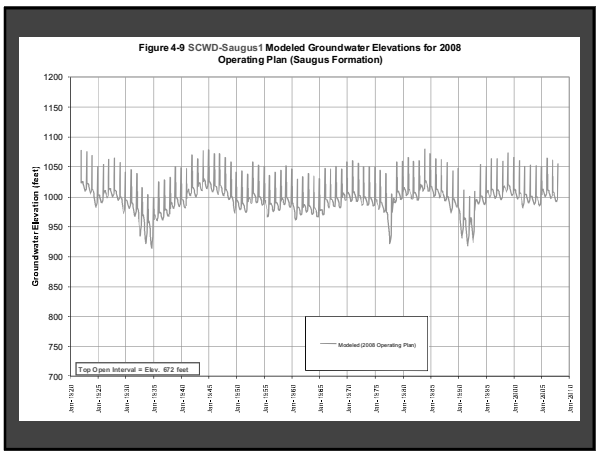
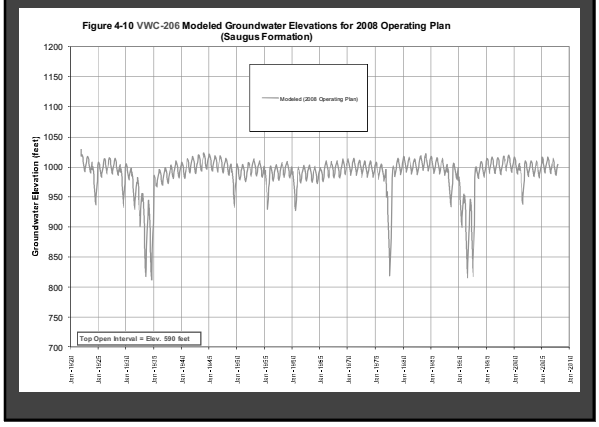


Figure 4-9 SCWD-Saugus1 Modeled Groundwater Elevations for 2008
Operating Plan (Saugus Formation)
Groundwater Elevation (feet)
1200
1150
1100
1050
1000
950
900
850
800
750
700
Modeled (2008 Operating Plan)
Top Open Interval = Elev. 672 feet
Jan-1920
Jan-1925
Jan-1930
Jan-1935
Jan-1940
Jan-1945
Jan-1950
Jan-1955
Jan-1960
Jan-1965
Jan-1970
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000
Jan-2005
Jan-2010



2008 Operating Plan Conclusions

Operating Plan is fully sustainable (no chronic groundwater level declines; no depleted stream flow) and mostly achievable (limited dry-period declines in eastern part of Valley)

Achievability issues in extended dry periods can be resolved by redistribution of some pumping to the west

- with redistribution, retain dry-period Alluvial pumping near 35,000 afy
- without redistribution, dry-period Alluvial pumping closer to 30,000 afy

Climate Change Impacts

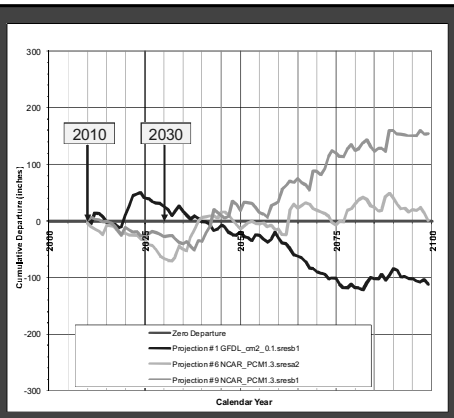
Studied 9 of 112 published climate change projections; same 9 projections as evaluated by DWR for reliability of SWP

Selected 3 projections for variety of rainfall cycles during UWMP planning horizon and beyond

- #1 = considerable fluctuation and generally wetter through UWMP, then long-term drying of climate
- #9 = less fluctuation and generally drier through UWMP, then sustained long-term wetting of climate
- #6 = less fluctuation and generally drier through UWMP, then long-term fluctuating cycles of below-normal and above-normal rainfall

Simulated customized operating plan for 86 years: 2010-2095

- simulated revised infiltration of precipitation, storm water, River inflow and Castaic Creek for three climate projections
- varied year-to-year Alluvial pumping dependant on prior year hydrology


2010
2030
Cumulative Departure (inches)
Calendar Year
Zero Departure
Projection #1 GFDL_cm2_0.1.sresb1
Projection #6 NCAR_PCM1.3.sresa2
Projection #9 NCAR_PCM1.3.sresb1

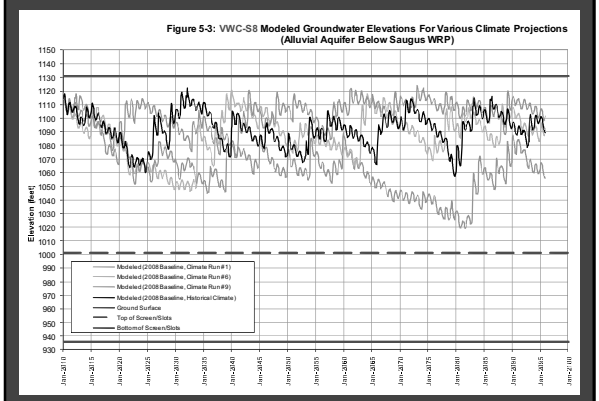
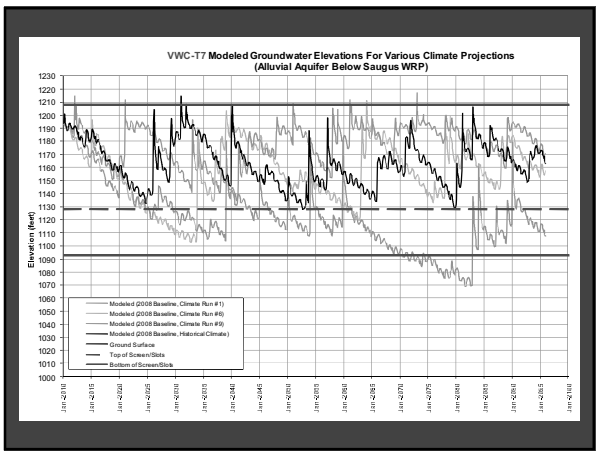


Figure 5-3: VWC-S8 Modeled Groundwater Elevations For Various Climate Projections
(Alluvial Aquifer Below Saugus WRP)
Elevation (feet)
Modeled (2008 Baseline, Climate Run #1)
Modeled (2008 Baseline, Climate Run #6)
Modeled (2008 Baseline, Climate Run #9)
Modeled (2008 Baseline, Historical Climate)
Ground Surface
Top of Screen/Slots
Bottom of Screen/Slots


VWC-T7 Modeled Groundwater Elevations For Various Climate Projections
(Alluvial Aquifer Below Saugus WRP)
Elevation (feet)
Modeled (2008 Baseline, Climate Run #1)
Modeled (2008 Baseline, Climate Run #6)
Modeled (2008 Baseline, Climate Run #9)
Modeled (2008 Baseline, Historical Climate)
Ground Surface
Top of Screen/Slots
Bottom of Screen/Slots

Climate Change "Conclusions"

No assurance of nature of potential climate change

For broad range of climate change possibilities, Operating Plan sustainable and achievable through shorter-term horizon of UWMP

Broad range of potential climate change extends from long-term dry to wet

- Operating Plan sustainable through average to wetter "changed" climate
- Operating Plan unsustainable through long-term drying climate due to decreased local recharge and resultant declining groundwater levels

Total Groundwater Supply Santa Clarita Valley

	Normal Y		
	Alluvium (afy)	Saugus Fm. (afy)	Total (afy)
Municipal Purveyors	25,850	11,485	37,335
Agriculture & Others	12,750	1,000	13,750
Total	**38,600**	**12,485**	**51,085**

	Multiple Dry Years		
	Alluvium (afy)	Saugus Fm. (afy)	Total (afy)
Municipal Purveyors	23,800-22,250	18,125-33,975	41,975-56,225
Agriculture & Others	12,700-12,600	1,000	13,700-13,600
Total	**36,500-34,850**	**19,125-34,975**	**55,675-69,825**

State Water Project Supply Reliability

Nancy Clemm, P.E.

State Water Project Supply Reliability

- Source: "Draft State Water Project Delivery Reliability Report 2009," Department of Water Resources (DWR).
- Includes estimates of current (2009) and future (2029) water delivery reliability of the State Water Project (SWP).
- Delivery estimates made using DWR's operations simulation model of SWP/Central Valley Project system.

Model Studies in 2009 SWP Reliability Report

Current (2009)

- Represents estimates of current reliability under existing conditions.
- Based on historical hydrology, existing SWP facilities, existing operating constraints, and current demands.

Future (2029)

- Represents estimates of future reliability if no change to SWP facilities or operating constraints.
- Based on hydrology adjusted to reflect effect of climate change, and increased future demands.

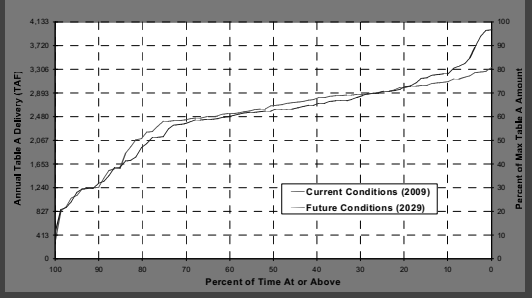
Modeling Assumptions in 2009 SWP Reliability Report

	Current (2009)	Future (2029)
Hydrology	Historical (based on 1922-2003)	Historical, adjusted for effect of climate change
SWP Facilities	Existing	Same
Operating Criteria	SWRCB D-1641 FWS Biological Opinion NMFS Biological Opinion	Same
SWP Demands		
Table A water	3.0 – 4.1 MAF	4.1 MAF (Max Table A amount)
Article 21 water	414 or 214 TAF/mo	Same

Changes Since 2005 Reliability Report: Modeling Assumptions

- Extended hydrologic period: now 1922-2003.
- Inclusion of effects of climate change in future study.
- Addition of operational constraints from FWS and NMFS Biological Opinions.
- Higher SWP demands (both Table A and Article 21 water).
- Inclusion of contractor carryover.

Results from 2009 Reliability Report: SWP Table A Delivery Probability



Results from 2009 Reliability Report: Average and Dry Period Deliveries

Total SWP Table A Delivery from Delta (in percent of max Table A amount*)						
Study	Average (1922-2003)	Single dry year (1977)	2-year drought (1976-77)	4-year drought (1931-34)	6-year drought (1987-92)	6-year drought (1929-34)
Current (2009)	60%	7%	36%	34%	35%	34%
Future (2029)	60%	11%	38%	35%	32%	36%

* Total maximum Table A amount from Delta is 4,133 TAF.

Comparison to 2005 Reliability Report: Delivery Results

- Lower average SWP deliveries.
- Higher single dry year deliveries (1977).
- Variable effect on multiple dry year deliveries.

Total SWP Table A Delivery from Delta (in percent of max Table A amounts)						
Study	Average (1922-94/2003)	Single dry year (1977)	2-year drought (1976-77)	4-year drought (1931-34)	6-year drought (1987-92)	6-year drought (1929-34)
2005 Report						
Current	68%	4%	41%	32%	42%	37%
Future	77%	5%	40%	33%	42%	38%
2009 Report						
Current	60%	7%	36%	34%	35%	34%
Future	60%	11%	38%	35%	32%	36%

Applying SWP Reliability Report Results to Castaic Lake Water Agency

- SWP Reliability Reports show total SWP deliveries.
- Prior to 2009 report, DWR directed SWP contractors to determine their share of total deliveries as the proportion of their agency's Table A amount to sum of all contractors' Table A amounts.
- In 2009 report, DWR directs using this same method for average deliveries, but recommends using contractor-specific delivery data for single year or short periods.

Applying SWP Reliability Report Results to Castaic Lake Water Agency (con't)

- In studies for 2009 report, delivery results differ by contractor due to differing contractor demands and inclusion of modeling of contractor carryover water.
- Carryover water is Table A water allocated to a contractor in one year which, if storage is available in SWP's San Luis Reservoir, can be "carried over" for delivery to that contractor the following year.
- Carryover can provide additional supply in dry years, but availability and usability differ by contractor.
- CLWA service area demands are currently low relative to its Table A amount, so carryover is likely to provide dry-year supply in near term.

Results from 2009 Reliability Report Studies: Deliveries to CLWA

Total SWP Table A Delivery to CLWA (including carryover)						
Study	Average (1922-2003)	Single dry year (1977)	2-year drought (1976-77)	4-year drought (1931-34)	6-year drought (1987-92)	6-year drought (1929-34)
Current (2009)						
Delivery (TAF)	58.3	12.8	44.0	32.8	34.4	33.4
% of Table A*	61%	13%	46%	34%	36%	35%
Future (2029)						
Delivery (TAF)	57.4	9.1	34.1	33.0	29.6	33.8
% of Table A*	60%	10%	36%	35%	31%	36%
* CLWA Table A amount is 95.2 TAF.						

Comparison to 2005 Reliability Report: Deliveries to CLWA

- Lower average SWP deliveries.
- Higher single dry year deliveries (1977).
- Variable effect on multiple dry year deliveries.

Total SWP Table A Delivery to CLWA						
Study	Average (1922-94/2003)	Single dry year (1977)	2-year drought (1976-77)	4-year drought (1931-34)	6-year drought (1987-92)	6-year drought (1929-34)
2005 Report						
Current	64.7	3.8	39.0	30.5	40.0	35.2
Future	73.3	4.8	38.1	31.4	40.0	36.2
2009 Report						
Current*	58.3	12.8	44.0	32.8	34.4	33.4
Future	57.4	9.1	34.1	33.0	29.6	33.8
* Includes deliveries of carryover water.						

State Water Project Supply Reliability

Q & A -

Urban Water Management Plan 2010

Questions and Answers

Consultant Team

- Kennedy/Jenks Consultants
- Luhdorff and Scalmanini
- Nancy Clemm, P.E.
- Stacy Miller Public Affairs

Future Meeting Dates and Times

- Public Workshops
  - May 25, 2010
  - July 27, 2010
  - September 28, 2010
- Hearings (Tentative)
  - October 1
  - November 30
- Adoption (Tentative)
  - CLWA December 31, 2010?
  - Purveyors June 2011?

(ORIGINAL)

Santa Clarita Valley Urban Water Management Plan
July 27, 2010 - Community Workshop Sign In Sheet

PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1. MARSHALL PASTER			(661) 252 6057	20401 Soledad Cyn Rd 358 CANYON COUNTRY CA 91351
2. Stacy Miller	SMPA			
3. Dirk Marks	CLWA	WRM		
4. Mary Lou Cotton	K/J			
5. Matt Dickens	VWC	Resource Conservation Manager	661-259-0132	MDickens@valleywater.com
6. JANIE THOMAS	private		661 222-7450	22pupperwolf@att.net
7. Kevin Korenthal	Self		(661) 310-0769	—
8. Cathy Hollomon	SCWD	Assoc WR Planner	661-259-2737	chollomon@scwater.org
9. Harold Geiger	private	Homeowner	661 254 6478	htgeiger@sbcglobal.net
10. Kendra Geiger	"	"	" " "	"
11. PAUL B STRICKLAND	ASSEMBLYMAN CAMDEN SMYTH	FIELD REP	661 714 6999	LUCK4US@ca.rr.com
12. Patrick Bryant	City of SC	Admin Analyst	661-255-4902	pbryant@santa-clarita.com
13. Mari Johnson	Self		661 360 8178	marijohns7@yahoo.com
14. Steve Cole	NCWD	G.M		SCOLE@NCWD.ORG
15. P Adams	HOA			
16. S Moss	HOA			
17. B Bottaro	HOA			
18. Jorge H Aguila	Aguila Landscaping	owner	661-259-5641	aguilaland@sbcglobal.net

Santa Clarita Valley Urban Water Management Plan
July 27, 2010 - Community Workshop Sign In Sheet

	PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1.	Maureen Wade	Interested Citizen		661-254-2370	mdbrownies@cc.rr.c
2.	Rosalind Wynn	SDS			
3.	JEFF SAUNDERS	Resident			JBSAUNDERS@AOL
4.	Jason Smisko	Santa Clarita			
5.	Rebecca Correa	Waterwise			rcorrea@waterwise-consulting.com
6.	DAN RAMLER	SANTA CLARITA			
7.	Robert DiPrimio	Valencia Water			rdiprimio@valenciawater.com
8.	David Fryman	self			engrclave@mac.com
9.	Julie Molinare	Grass Greener Landscape Designs			
10.	Jackie Bick	Sen. M. Runner			
11.	Henry Schultz	SELF		661-284 5613	HENRY50@PACBELL.NET
12.	JESSICA BUNKER	LAC WWD		626-330-3315	jbunker@dpw.lacounty.gov
13.	RAY ARSNOW	HOMEOWNER		—	IRSTEAMER@Yahoo.com
14.					
15.					
16.					
17.					
18.					

Santa Clarita Valley Urban Water Management Plan
July 27, 2010 - Community Workshop Sign In Sheet

	PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1.	Sally Bowler	Self	4	661-313-8324	salbowler@yeho
2.	Sandra Cattell	Sierra Club		661 259 0433	sumcatt@yahoo.com
3.	Carole Luthess	SCV Fair Elections		661-755 3772	Carole luthess@att.co
4.	DAN MASNADA	CLWA	G.M.	661 297 1600	
5.	Nancy Andrews	Retire DWR		661-295-6771	
6.	Frank Smathers	customer		661-296-0511	thunder1road@gmail.co
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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15.					
16.					
17.					
18.					

September 2010 UWMP Workshop Notification of Postponement

Public Outreach Record

2010 Santa Clarita Valley Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS

Creative Solutions to Complex Situations

September 14, 2010

«AddressBlock»

Subject: **September 2010 UWMP Workshop Postponed**

«GreetingLine»

Thank you for your interest in the 2010 Urban Water Management Plan (UWMP) and/or your attendance at one of the recent community workshops.

This is to notify you that the originally scheduled **September 28, 2010 UWMP workshop** has been **postponed** as we are awaiting UWMP document guidelines from the State of California which will not be released until the end of October, 2010.

The next 2010 UWMP community workshop will provide the most current information on components of the 2010 planning document and will take place as follows:

Date:	Tuesday, November 16, 2010
Time:	4:00 pm
Location:	Castaic Lake Water Agency 27234 Bouquet Canyon Road

The Urban Water Management Plan presents a picture of the valley's water situation through the year 2035 and describes the long-range water needs of the community and the means to supply the necessary water.

I encourage your participation at the November community workshop and look forward to seeing you then. If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV Urban Water Management Plan

Government Affairs, Public Relations & Communication

P.O. Box 55745, Valencia, CA 91385 [818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com

www.StacyMillerPA.com

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

POSTPONED

Friday 9-24-10 Signal

The originally scheduled September 28, 2010 UWMP workshop has been postponed as we are awaiting UWMP document guidelines from the State of California which will not be released until the end of October, 2010.

The next 2010 UWMP community workshop will provide the most current information on components of the 2010 planning document and will take place as follows:

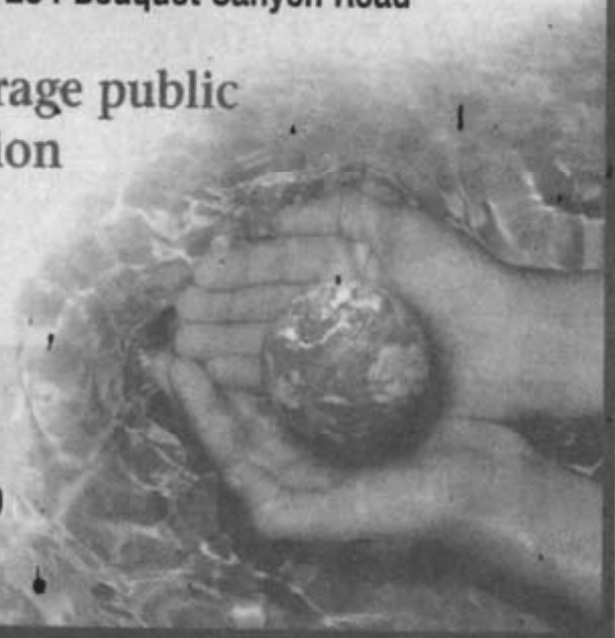
New Workshop Date is:

Date: Tuesday, November 16, 2010

Time: 4:00 pm

Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

We encourage public participation and input



For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

November IRWM Stakeholder Presentation

Public Outreach Record

2010 Santa Clarita Valley Urban Water Management Plan

November 9 Upper Santa Clara River IRWM Stakeholders Meeting Notification

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To: Jeff Ford
Cc: Jeff Ford
Subject: RE: November 9 Upper Santa Clara River IRWM Stakeholders Meeting

From: Jeff Ford
Sent: Thursday, October 28, 2010 7:55 AM
To: Jeff Ford
Subject: November 9 Upper Santa Clara River IRWM Stakeholders Meeting

Dear Upper Santa Clara River IRWM Stakeholders:

Our next meeting will be one week from today at the City's Activities Center. We have had several meetings at this location now, but you can go to the City's website if you need directions, or map the address (20880 Centre Pointe Parkway, Santa Clarita, California 91350). On the agenda is an update of our grant applications, an update of the activities of the Invasive Weeds Task Force and an overview of the 2010 Urban Water Management Plan for the Santa Clarita Valley presented by the consultants working on it (an agenda is attached). We will start as usual at 2:30 p.m., but probably end a little later than normal given the items on the agenda.

Hope to see you all there.

Regards,

Jeff Ford
Principal Water Resources Planner
Castaic Lake Water Agency
(661) 513-1281

Urban Water Management Plan

Upper Santa Clara River Watershed
Integrated Regional Water Management Plan
Stakeholder Meeting
Tuesday, November 9, 2010

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IRWMP Stakeholder Meeting UWMP Overview

- What is an UWMP?
- Who is required to submit an UWMP?
- Why are UWMPs developed?
- When are the UWMPs developed?
- Existing and new requirements of UWMPs
- Q&A

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What is an Urban Water Management Plan?

- An Urban Water Management Plan is a comprehensive planning process whereby urban water suppliers describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs.

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Who is required to prepare an UWMP?

- Publicly or privately owned water suppliers (including wholesalers), providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet annually.

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Why are UWMPs Developed?

- In adherence to the 1983 Urban Water Management Planning (UWMP) Act and subsequent legislation
- To develop a framework for agencies to integrate programs and projects that enhance the quality and quantity of regional water supplies
- To identify gaps between supply and demand through time (20-year analysis required)
- To provide detailed description of all supply sources (surface, recycled, groundwater)

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Why are UWMPs Developed? (Cont'd.)

- To identify Demand Management Measures (water conservation programs)
- To address water quality issues
- To develop water shortage contingency planning
- To describe how demand will be met through time, in all hydrologic year types (normal, multiple dry, critical dry)

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When are UWMP Plans Developed?

- Suppliers are required to update UWMP every five-years (years ending in 0 or 5).
- 2010 – current update
- July 1, 2011 for retailers (SBx7-7 extended UWMP deadline for retailers but silent on extension for wholesalers.)
  - Under current UWMP Act, wholesalers should complete UWMP by December 31, 2010. But "cleanup legislation" (AB 2776 and SB 1478) extended deadline to July 1, 2011 for wholesalers.

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8

Coordination and Notification Requirements

"Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practical."

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9

Coordination and Notification Requirements

Other:

- Must hold public hearing prior to adoption of UWMP
- Must give cities and counties in service area 60 days notice prior to public hearing
- Must provide cities and counties and LAFCO in service area with copies of UWMP within 30 days of adoption

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Penalties

- Ineligible for State Grant and Loan Funding (at least until plan is completed to DWR satisfaction)
- Vital to the IRWMP process!

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What, Who, Why, When, etc…

- Q&A/Discussion

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New Requirements for 2010 UWMP

- New Law: SBX7-7 ("20% x 2020"), reporting starts with 2010 UWMPs
  - Base gross water use in gpcd: must be calculated using one of three methodologies
  - Target reduction from base by 2020: reporting requirements differ for retailers vs. wholesalers
  - Must be calculated using one of four methodologies
  - Agencies must hold public hearing to explain how targets will be met (can be held as part of UWMP hearing)

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13

New UWMP Requirements

- Base gross water use in gpcd: calculation

  Total volume of water (treated or not) entering the retail distribution system, divided by the total population of the service area

  (Excludes: recycled water, net volume into long-term storage, water conveyed to another retailer, agricultural water)

14

New UWMP Requirements

- Base gross water use in gpcd: methodologies
  - 10-year average
    - *ending no earlier than 2004 – no later than 2010; OR*
  - 15-year average if 10% of 2008 demand met by recycled water
    - *get to add 5 years to calculation; AND*
  - 5-year average
    - *at least 5% reduction if agency is already close to 100 gpcd*
    - *ending no earlier than 2007 – no later than 2010*

15

New UWMP Requirements

- Base gross water use in gallons per capita per day (gpcd)
  - Averages are determined on a rolling basis
  - Should review demands over various periods to determine hydrologic and demand year types
  - Recent economic impacts and drought response may have reduced demand!

16

New UWMP Requirements

- Target reduction methodology options
  1. 20% reduction from base (i.e., 80% of average gross water use in gpcd)
  2. Combination of state standards:
     - 55 gpcd indoor residential + landscape use at 70% -80% ETo + 10% reduction in commercial/industrial/institutional use
  3. DWR 20x2020 hydrologic region target (South Coast region = 149 gpcd)
  4. Option to be developed by October 2010

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17

New UWMP Requirements

- Reduction Target Option 4
  - Subject to DWR public process during 2010
  - Will identify targets to achieve cumulative statewide 20% reduction
  - Must allow flexibility for water supplier service area characteristics

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18

New UWMP Requirements

- Issues: DWR will derive methodologies for calculations: population, base water use, gross water use, sector water use, Option 4, others
  - As DWR derives new methodology standards, agencies may be required to use them
  - Won't be final until December 2010
  - If work has already been done, it may need to be repeated
  - = Reason for UWMP deadline extension to July 1, 2011

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19

New UWMP Requirements

- Other
  - SB 1087 (Florez) - requires an UWMP to include projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier.

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Consultant Team

- Kennedy/Jenks Consultants
- Luhdorff and Scalmanini
- Nancy Clemm, P.E.
- Stacy Miller Public Affairs

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21

Questions, Answers and Discussion

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22

Future Meeting Dates and Times

- Public Workshops
  - May 25, 2010
  - July 2, 2010
  - November 16, 2010
  - January 11, 2011 (tentative)
  - March 8, 2011 (tentative)
- Public Hearings
  - January 26, 2011 (tentative)
  - March 23, 2011 (tentative)
  - April 27, 2011 (tentative)
- Adoption
  - June 2011

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Upper Santa Clara River Watershed
Integrated Regional Water Management Plan

Stakeholder Meeting #18
Tuesday, November 9, 2010
2:30 pm –4:30 pm
City of Santa Clarita Activities Center
20880 Centre Pointe Parkway
Santa Clarita, California 91350

Meeting Objectives:

- Updates on Grants
- Invasive Weeds Task Force Report
- 2010 Urban Water Management Plan Workshop

AGENDA

2:30 **I. Welcome and Introductions**

A. Meeting purpose and outcomes

B. Stakeholder self-introductions

Jeff Ford, CLWA

2:35 **II. Project Updates/Prioritzation**

A. Planning Grant Update

B. Planning Grant Schedule

C. Implementation Grant Update

D. Final Suite of Projects

E. Implementation Grant Schedule

Jeff Ford, CLWA

2:45 **III Santa Clara River Invasive Weeds Task Force**

A. Results of October Meeting

B. Future Activites

Heather Merenda, City of Santa Clarita

3:00 **IV. 2010 Urban Water Management Plan**

4:30 **V. Close**

UPPER SANTA CLARA RIVER
INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Stakeholder Meeting #18

November 9, 2010
City of Santa Clarita, Activities Center

Meeting Summary

PURPOSE AND MEETING OVERVIEW

The purpose of this 18th stakeholder meeting was to:

- Update Stakeholders on Grants
- Report on the Invasive Weeds Task Force
- Hold a Workshop on the 2010 Urban Water Management Plan

Stakeholders representing public agencies and private, non-profit organizations attended this meeting.

UPDATE ON THE IRWM PROCESS

Jeff Ford provided a recap and explanation of the progress on grant applications for both the Planning Grant and the Implementation Grant including:

- Overview of new Plan requirements
- The submittal of a Planning Grant application in September and the schedule for DWR to award.
- Progress on preparing an Implementation Grant application and the expected schedule for DWR to accept applications and make awards.
- Review of the final project suite in the Implementation Grant application and approval of including a project not in the adopted IRWMP: the Valencia Water Company's Santa Clarita Valley Southern End Recycled Water Project.

UPDATE ON THE SANTA CLARA RIVER INVASIVE WEEDS TASK FORCE

Heather Merenda from the City of Santa Clarita discussed the Task Force's progress to date and gave an overview of the goals of the Task Force. She noted that the next meeting was scheduled for January in Filmore. More details will be sent to the stakeholders as they become available, but interested parties were encouraged to join the Task Force directly.

OVERVIEW OF THE 2010 URBAN WATER MANAGEMENT PLAN

Stacy Miller of Stacy Miller Public Affairs and Mary Lou Cotton of Kennedy/Jenks Consultants gave an overview of the requirements of the UWMP Act, the contents of the UWMP and the progress to date on the 2010 UWMP. They detailed the schedule of workshops and hearings leading the adoption of the UWMP in June of 2011.

OTHER ITEMS

Jeff Ford announced that the next Stakeholders Meeting is tentatively scheduled for January at a location TBD. Meeting notices will be emailed to stakeholders once a date is determined.

IRWMP Invitee & Attendee List - 11-9-10

Organization	Telephone Number	Fax Number	e-mail address	Initial
LA County Regional Planning	(213) 974-6476		madams@planning.lacounty.gov	
DWR, Glendale, CA	(818, 500-1645		ljurkevi@water.ca.gov	
California Native Plant Society				
LA Co Flood Control District Menerva Ariki	626-458-4314		mariki@dpw.lacounty.gov	
Atkins Environmental	(661) 266-2260	(661) 253-3555	bj@atkinsenvironmental.com	
Building Industry Association	(661) 257-5046		nayala@biaglav.org	
Acton Town Council	(661) 269-2588		Airspecial@aol.com	
UCCE Water Quality Program				
West Ranch Town Council				
Senator George Runner	(661) 286-1471		jackie.bick@sen.ca.gov	
Los Angeles Sheriffs Department			wfbennet@lasd.org	
California Dept. of Water Resources				
UCCE - Los Angeles				
California Dept. of Water Resources				
California Regional Water Quality Control Board	(213) 576-6679		sbirosik@waterboards.ca.gov	
LA County Flood Control District			HBORDAS@dpw.lacounty.gov	
CDFG	(661)259-3750			
Friends of the Santa Clara River	(805) 498-4373		bottorffm@verizon.net	
UCCE Center for Water Resources				
U.A.P. Timberland				
California Coastal Conservancy				
NRCS-Somis				
U.S. Army Corps of Engineers	(213) 452-4057		darrell.w.buxton@usace.army.mil	
VCRCD-Wildscape Restoration	(805) 644-6852	(805) 642-2127	noreen@wildscaperestoration.com	
Los Angeles County DPW	(661) 947-7173		mcaddick@dpw.lacounty.gov	
USDA Forest Service			jcapell@fs.fed.us	
California Dept of Fish and Game	(805) 640-1852		mcardenas@dfg.ca.gov	
MIG Associates			joanc@migcom.com	
Newhall County Water District	(661) 259-3610		scole@ncwd.org	
Acton Town Council	(661) 269-5675			
The Nature Conservancy				
Kennedy/Jenks Consultants	(805) 658-0607		MaryLouCotton@KennedyJenks.com	
California Dept. of Fish and Game	(661) 263-8306		bcourtney@dfg.ca.gov	
Kennedy/Jenks Consultants	(805) 658-0607		MeredithClement@kennedyjenks.com	
	(818) 365-9847		d_r_crane@hotmail.com	
LA County DPW	(626) 458-3524	(626) 458-3534	ascruz@dpw.lacounty.gov	
Valley Crest Tree Company	(818) 737-2697		rcrudup@vctree.com	
Acton Town Council	(661) 269-3682	(661) 269-3683	wdavis289@hughes.net	
Assemblyman Cameron Smith	(661) 286-1565		jarrod.degoria@asm.ca.gov	
LA Co DPW	(626) 458-4313		bdepoto@dpw.lacounty.gov	
Valencia Water Company	(661) 294-0828		rdiprimio@valencia.com	

Organization	Telephone Number	Fax Number	e-mail address	Initial
The Nature Conservancy			tdoherty@tnc.org	
University of California Cooperative Extension	(323) 266-3404		sldrill@ucdavis.edu	
University of California, Santa Barbara	(805) 893-2911		tdudley@msi@uscsb.edu	
	(661) 251-9729	(661) 259-1845	water@dslextreme.com	
Santa Clarita Valley Well Owners Association	(661) 298-2000		rfleck@socal.rr.com	
Castaic Lake Water Agency	(661) 513-1281		jford@clwa.org	
LA Co DPW	(626) 458-6158		afuentes@dpw.lacounty.gov	
LA Co DPW Waterworks	(626) 300-3324	(626) 300-3358	hgallardy@dpw.lacounty.gov	
			avrcd@carcd.org	
LA Co Dept. of Regional Planning	(213) 974-6417		rglaser@planning.lacounty.gov	
Acton Town Council				
			tgrant@ladpw.org	
Los Angeles County Sanitation Disrict			fguerrero@lacsd.org	
West Ranch Town Council	(661) 254-6116		grf497@aol.com	
SCWD				
Los Angeles County Sanitation Disrict	(562) 908-4288 x 2832		fguerrero@lacsd.org	
Santa Clarita Valley Environmental Coalition			mgutzeit@ca.rr.com	
LA County Public Works Department	(626) 458-5918		bhamamo@ladpw.org	
California DFG			spharris@cdfg.ca.gov	
Director Regional Planning				
L.A. County Supv'r Mike				
CLWA	(661) 513-1253		~~Thawes@clwa.org~~	
Agua Dulce Town Council	(661) 268-1731			
Agua Dulce Town Council	(661) 268-1731		BH33605@AOL.com	
	(661) 295-7300		John@gruber-systems.com	
SCWD	(661) 259-2737		chollomon@scwater.org	
County of Ventura			Susan.Hughes@Ventura.org	
U.S. Army Corps of Engineers	(213) 452-3826		james.d.hutchison@spl01.usace.army.mil	
Agua Dulce Town Council			jjennings3570@sbcglobal.net	
Evironmental Protection Agency				
Vulcan Materials Co.,				
CalTrans, District 7 - IGR/CEQA Branch	(213) 897-1346		edwin_kapmann@dot.ca.gov	
Valencia Industrial Association				
LA County DPW	(626) 458-4350		fkim@dpw.lacountry.gov	
LA County Waterworks	(626) 300-3327		tjkim@dpw.lacounty.gov	
Castaic Area Town Council				
LA County Flood Control District	(626) 458-4350		Fkuo@dpw.lacounty.gov	
City of Santa Clarita	(661) 255-4337		TLANGE@santa-clarita.com	
Lakes Town Council	(661) 724-0150		cedar91@verizon.net	
			redraggles2@earthlink.net	
NRCS	(661) 945-2604 X 110		jae.lee@causda.gov	

Organization	Telephone Number	Fax Number	e-mail address	Initial
Angeles National Forest			mlambardo@fs.fed.us	
SCOPE				
Los Angeles County Sanitation Disrict	(562) 699-7411 X 2802		blouie@lacsd.org	
Santa Clarita Valley Chamber of Commerce	(661) 702-6977		Lmankin@scvchamber.com	
Castaic Lake Water Agency				
Aqua Dulce Town Council				
Ventura Cty Watershed Protection District				
LA County Dept. of Public Works	(661) 947-7173		mcaddick@dpw.lacounty.gov	
The Nature Conservancy	(805) 642-0345 ext. 502		cmccalvin@tnc.org	
L. A. County Regional Planning				
United Water Conservation District				
City of Santa Clarita	(661) 284 1413		hmerenda@santa-clarita.com	
County of Ventura Ag. Commisioner's Office				
The Nature Conservancy	(661) 642-0345 X 502		smatsumoto@tnc.org	
United Water Conservation District				
Valencia Water Company	(661) 295-6512		gmilleman@valencia.com	
City of Santa Clarita	(661) 284-1413		hmerenda@santa-clarita.com	
Ventura County Resource Conservation District (VCRCD)	(805) 386-4685	(805) 386-4890	marty.melvin@vcred.org	
County of Ventura				
Kennedy/Jenks Consultants				
City of Santa Clarita	(661) 255-4959		cmonde@santa-clarita.com	
NRCS				
County of Los Angeles, Department of Parks and Recreation				
			TNGOV@dpw.lacounty.gov	
SCOPE	(661) 255-7112			
Ventura Cty Watershed Protection District			kirk.norman@ventura.org	
			kathy@via.org	
Stillwater Sciences	(510) 848-8098 ext. 111		bruce@stillwatersci.com	
Tataviam Band of Mission Indians				
	(661)251-6113		DOJTRUM@SOCAL.RR.COM	
South Coast Wildlands Project				
Newhall Land	(661)257-1095		cperez@newhall.com	
Association of Water Agencies of Ventura County				
Supervisor Antonovich's Office	(661) 287-3657		dperry@lacbos.org	
Los Angeles County Flood Control District	(805) 57-0497			
SCOPE				
Well Owner	(661) 297-4401			
			avconservancy@yahoo.com	
SCV Well Owners Association				
The Sierra Club, Angeles Chapter				
County of Ventura	(805) 654-2455		lynn.rodriguez@ventura.org	

Organization	Telephone Number	Fax Number	e-mail address	Initial
Ventura Cty Watershed Protection District				
County of Ventura				
Newhall County Water District	(661) 259-3610		krussell@ncwd.org	
LA County Waterworks District #36 & 37			DRYDMAN@dpw.lacounty.gov	
Rivers and Mountains Conservancy	(626) 458-4315		fsimpson@rmc.ca.gov	
Aqua Dulce/Acton Country Journal	(661) 269-5804	(661) 269-5532	countryjournal@bigplanet.com	
Friends of the Santa Clara River	(661) 644-2802		rsweet46@hotmail.com	
Santa Monica Mountains Conservancy				
Sierra Club	(661) 296-1212		kms39005@csun.edu	
US Fish and Wildlife Service	(805) 644-1766 X 339		Steurer_denise@fws.gov	
Wetlands Recovery Project				
Rivers and Mountains Conservancy	(626) 815-1019 x110		ltorres@rmc.ca.gov	
Foothill Associates	(661) 284-3018		jeff.trow@foothill.com	
Mountains Recreation and Conservation Authority				
Ventura Cty Watershed Protection District				
Friends of the Santa Clara River				
Supervisor Antonovich's Office	(661) 287-3657		rwayman@lacbos.org	
	(661) 251-7790			
Councilmember, City Of Santa Clarita				
West Ranch Town Council	(661) 799-8089		rg@rgwinter.com	
United Water Conservation District				
LA County-DPW	(626) 458-6159		alwong@dpw.lacounty.gov	BAW
State of California, Dept of Water Resources	(916) 651-9283		bwycoff@water.ca.gov	
Santa Clarita Valley Sanitation District	(562) 699-7411 X 2820		mzauner@lacsd.org	
LA County-Dept. Water Resources	(626) 456-6188		kzimmer@ladpw.gov	

SMPA - Stacy Meller 818402-5806 Stacy@StacyMellerPA.com

Matt Dickens - Valencia water 661-510-9733 mDickens@Valenciawater.com

K Russell NCWD 661-2593610

D. Marks CLWA

Roger A. Harimb CCA 805-641-3781 rah@agriculturesuccess.com

November 2010 UWMP Workshop
Public Outreach Record

2010 Santa Clarita Valley
Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS
Creative Solutions to Complex Situations

November 3, 2010

*** Orgs shaded above will receive letter return receipt requested See Attached

Subject: 2010 Urban Water Management Plan November Workshop

Dear Sir or Madam,

The Santa Clarita Valley's water agencies, Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company are currently preparing the 2010 Urban Water Management Plan (UWMP).

In an effort to ensure all interested parties are fully informed and involved in this process, the water agencies have scheduled their third community workshop on November 16, 2010 and welcome your participation. This workshop will provide the most current information on components of the 2010 UWMP.

Date:	Tuesday, November 16, 2010
Time:	4:00 pm
Location:	Castaic Lake Water Agency 27234 Bouquet Canyon Road

The Urban Water Management Plan presents a picture of the valley's water situation through the year 2035, describes the long-range water needs of the community and the means to supply the necessary water.

I encourage your participation and look forward to seeing you then. If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV Urban Water Management Plan

Government Affairs, Public Relations & Communication
P.O. Box 55745, Valencia, CA 91385 [818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com
www.StacyMillerPA.com

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

The Signal
11-9-10

Date: Tuesday, November 16, 2010
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

This workshop will provide the most current information on components of the 2010 UWMP. Our team will provide an overview of the opportunities for public comment and will also be available for questions.

The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation through the year 2035. It describes the long-range water needs of the community and the means to supply the necessary water.

We encourage public participation and input

For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

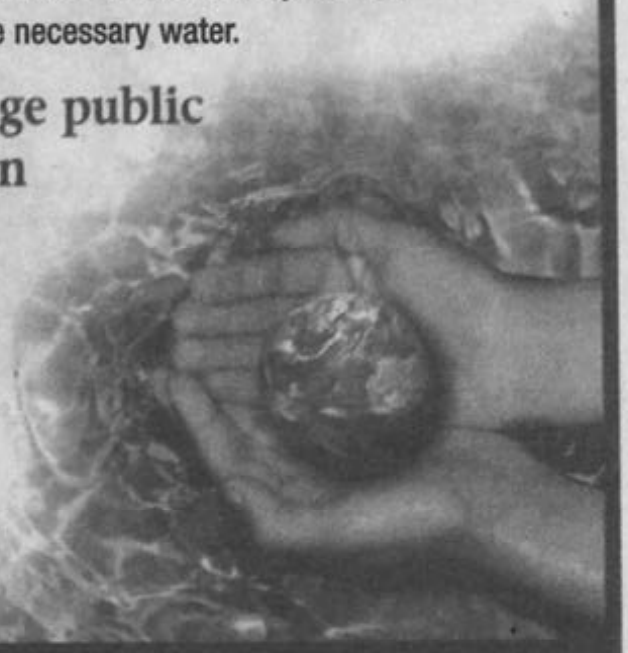
The Signal 11-14-10

Date: Tuesday, November 16, 2010
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

This workshop will provide the most current information on components of the 2010 UWMP. Our team will provide an overview of the opportunities for public comment and will also be available for questions.

The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation through the year 2035. It describes the long-range water needs of the community and the means to supply the necessary water.

We encourage public participation and input



For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

URBAN WATER MANAGEMENT PLAN UPDATE

2010 UWMP offers creative solutions to SCV water issues

The California Urban Water Planning Act requires water utilities to update and submit an Urban Water Management Plan (UWMP) every five years. CLWA and the local water retailers are preparing a draft of the Santa Clarita Valley 2010 Urban Water Management Plan for review this winter and spring of 2011. All California urban water suppliers having more than 3,000 service connections or selling more than 3,000 acre-feet of water annually are required by the California Water Code to prepare a UWMP every five years.

CLWA is one of approximately 450 water suppliers in California preparing such a plan. CLWA, Santa Clarita Water Division, Newhall County Water District (NCWD) and Valencia Water Company are working together to prepare a draft of the 2010 plan for the valley. The Los Angeles County Waterworks District No. 36 is participating on an ad hoc basis, as the Los Angeles County Department of Public Works must prepare its own UWMP.

Every Drop Counts

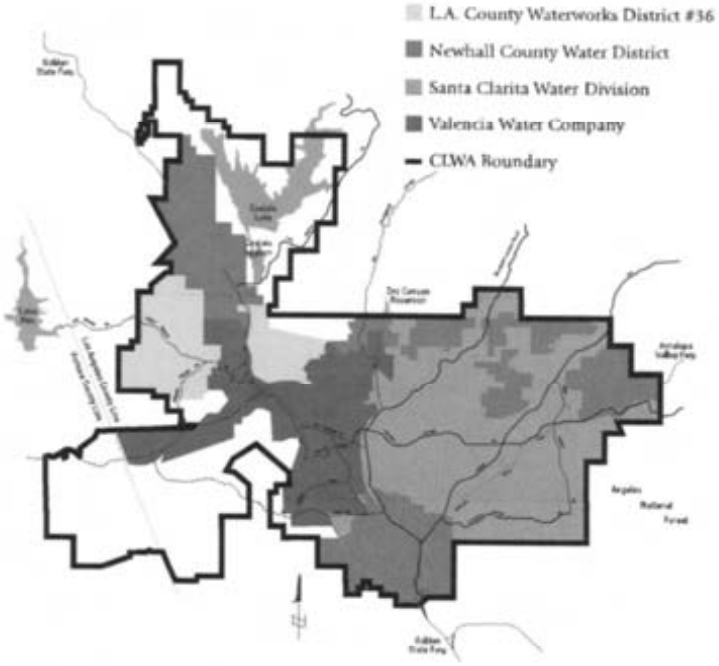
A UWMP must consider projected demands and supplies for a minimum 20-year period, in five-year increments. It must also assess water supply and demand scenarios for average/normal water years (i.e, periods of normal precipitation), a single dry year, and multiple dry years.

The draft 2010 UWMP for the valley will identify current local and imported water supply sources, as well as potential future sources. Current sources include the State Water Project, other sources of imported water, local groundwater and recycled water. Future potential sources include all of these plus water transfers and additional recycled water. The 2010 UWMP will also address the required levels of water conservation both to meet state law and ensure adequate supplies.

The plan will identify future demand based on growth projections. By assessing projected demand along with projected supply, the 2010 UWMP will show how the valley will meet its water needs through at least 2035.

There have been public workshops held to explain the UWMP and the process, and there will be several more along with a least two public hearings in 2011 by the CLWA and NCWD Boards of Directors. Public participation at all of these events is encouraged. The UWMP must be adopted no later than June 30, 2011.

Castaic Lake Water Agency Service Area



YOUR QUESTIONS AND COMMENTS ARE IMPORTANT TO US
PLEASE CALL (661) 297-1600 OR EMAIL US AT MAIL@CLWA.ORG

CASTAIC LAKE WATER AGENCY
27234 BOUQUET CANYON ROAD
SANTA CLARITA, CALIFORNIA
91350
(661) 297-1600
WWW.CLWA.ORG

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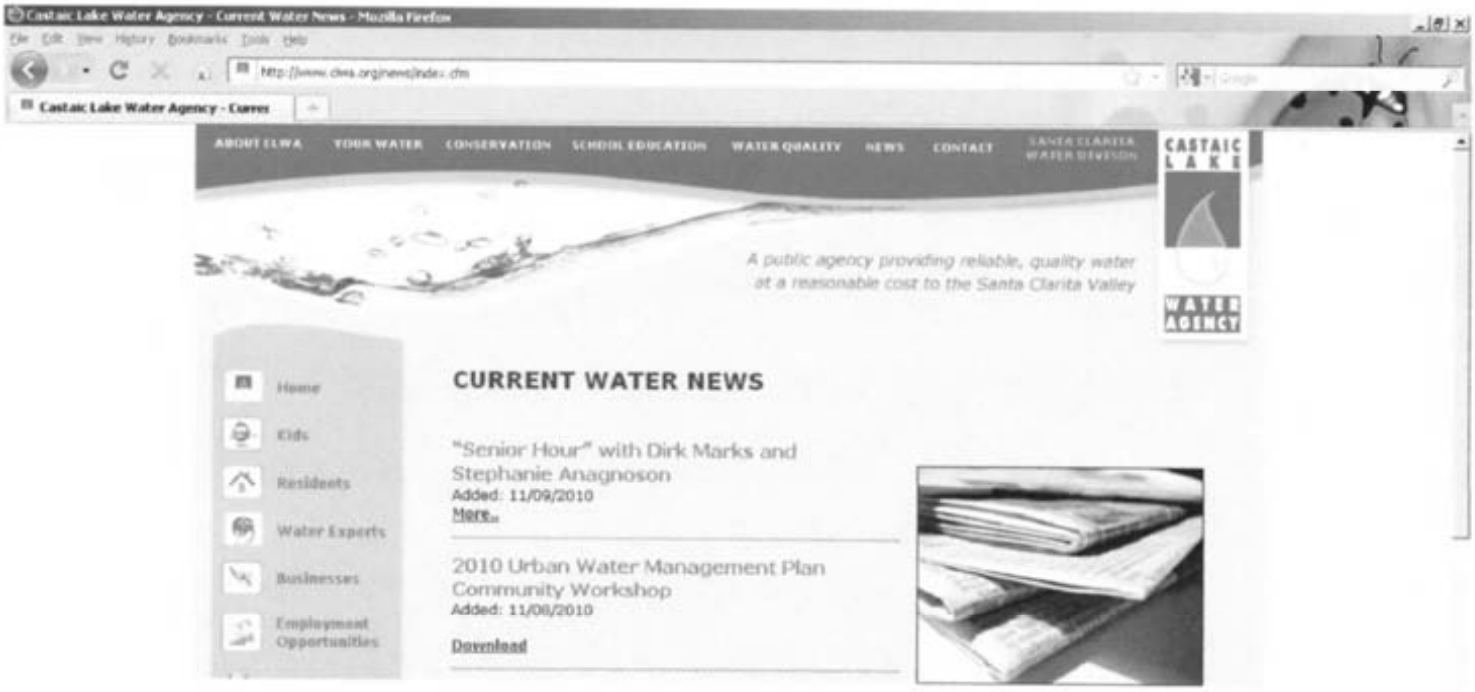
SANTA CLARITA, CA

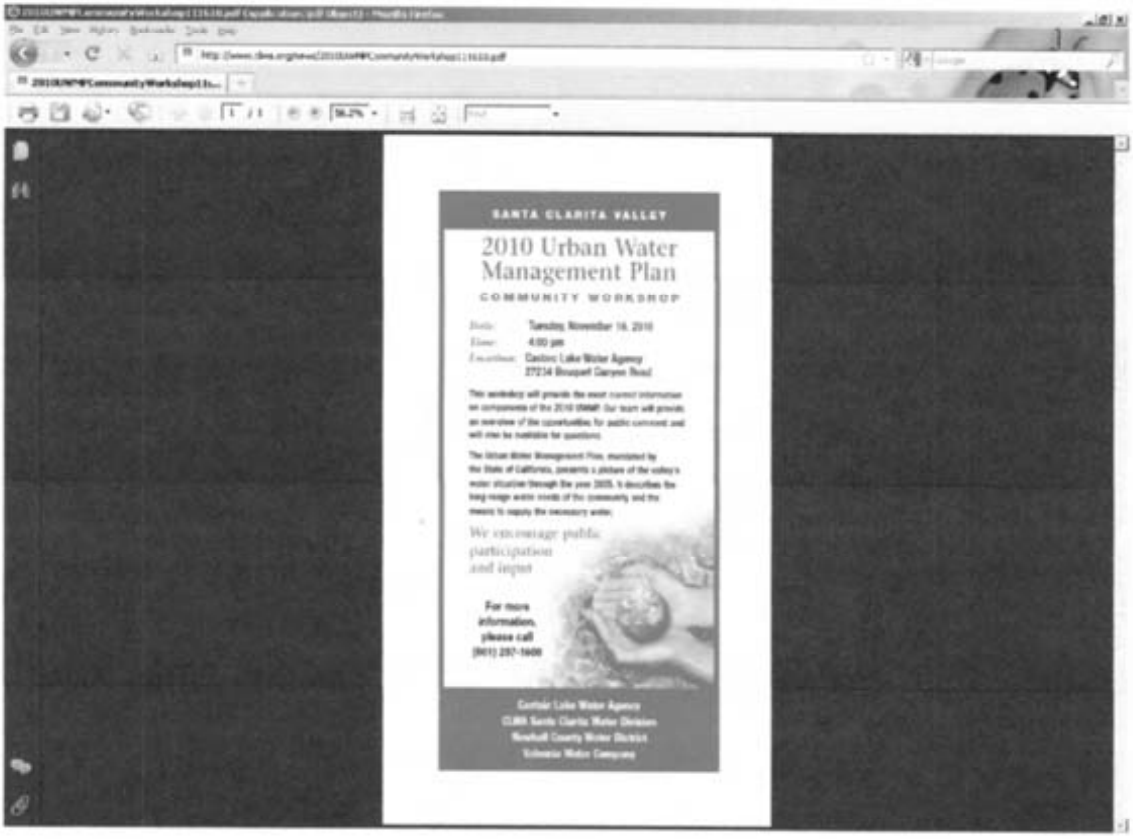
Water Currents
newsletter
Fall 2010

PRINTED ON RECYCLED PAPER. EACH TON OF RECYCLED PAPER SAVES 7,000 GALLONS OF WATER.

Castaic Lake Water Agency
Webpage & Facebook Posting – November 2010 UWMP Workshop
Monday, November 08, 2010



Castaic Lake Water Agency
Webpage & Facebook Posting – November 2010 UWMP Workshop
Monday, November 08, 2010



SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

Date: Tuesday, November 16, 2010
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

This workshop will provide the most current information on components of the 2010 UWMP. Our team will provide an overview of the opportunities for public comment and will then be available for questions.

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We encourage public participation and input

For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

Facebook | Castaic Lake Water Agency - Mozilla Firefox

http://www.facebook.com/home.php?#!/castaiclakewateragency

Do you want Firefox to remember the password for "stacyn8@gmail.com" on facebook.com?

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Castaic Lake Water Agency This week the watering index is 37%. Maintaining proper height is the key to healthy turf grass. In the fall and winter, grass should be from 1.5 inches to 2.5 inches in the Santa Clarita Valley.

Wall Info Photos Discussions Boxes Notes

Castaic Lake Water Agency This week the watering index is 37%. Maintaining proper height is the key to healthy turf grass. In the fall and winter, grass should be from 1.5 inches to 2.5 inches in the Santa Clarita Valley.

Castaic Lake Water Agency The watering index has dropped this week to 33%. Just a reminder that we are full swing into the fall season so you don't need to water your landscape as often. A good recommendation for watering grass in the fall is no more than 3 times per week. And as we move forward into winter, the recommendation for watering is not more than once per week.

Castaic Lake Water Agency The 2010 URBAN WATER MANAGEMENT PLAN Community Workshop is coming up! Mark your calendars for Tuesday, November 16, 2010. For more information on this workshop, please check out the flier below.

Castaic Lake Water Agency Due to this weekend's wet weather, the watering index has dropped to 41%. And while everyone remembered to change their clocks back an hour, don't forget to also change the time on your

Suggest to Friends
Subscribe via SMS

A public agency providing reliable, quality water at a reasonable cost to the Santa Clarita Valley.

Information
Location:
27234 Bouquet Canyon Road
Santa Clarita, CA, 91350
Phone:
661-297-1600
Mon - Thurs:
7:30 am - 5:30 pm
Fri:
7:30 am - 4:30 pm

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Chat (7)

Newhall County Water District
Webpage & Facebook posting – November 2010 UWMP Workshop
Monday, November 08, 2010

Facebook | Newhall County Water District - Mozilla Firefox

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http://www.facebook.com/home.php?#!/pages/Newhall-CA/Newhall-County-Water-District/21708615047?

Facebook | Newhall County Water Di...

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NCWD

NEWHALL COUNTY WATER DISTRICT

Suggest to Friends

Subscribe via SMS

Our water is a precious resource... Use water efficiently, Every Drop Counts!

Information

Location
23780 N Pine Street
Newhall, CA, 91321

Phone
661-259-3610

Mon - Fri
8:00 am - 5:00 pm

Newhall County Water District

Wall | Info | Photos | Discussions | Notes | Video

Write something...

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Newhall County Water District + Others | Just Newhall County Water District | Just Others

Newhall County Water District Reg Board Mtg Wed Nov 17, 10 @ 6:30 pm

http://www.ncwd.org/08/Agendas/regular-meeting-Nov17-2010.pdf
www.ncwd.org

November 10 at 10:26am · Like · Comment · Share

Newhall County Water District 2010 Urban Water Management Plan Community Workshop Nov 16, 10

http://www.ncwd.org/C1/In_the_News/Singal%20Ad%20-%20November%20workshop%20E1WA_JA_Ad_Rev_11_4.pdf
www.ncwd.org

November 6 at 11:03am · Like · Comment · Share

Newhall County Water District Notice of Holiday Closure

http://www.ncwd.org/C1/In_the_News/Holiday%20Closure.pdf
www.ncwd.org

November 4 at 10:09am · Like · Comment · Share

Newhall County Water District SCV Water Committee Mtg on Tue Nov 2, 10 @ 2pm @ City Hall of Santa Clarita

http://www.ncwd.org/08/Agendas/SCV%20Comm%20Agenda%20Nov%202%2010.pdf

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St. Joseph Hospital of Orange

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Chat (7)

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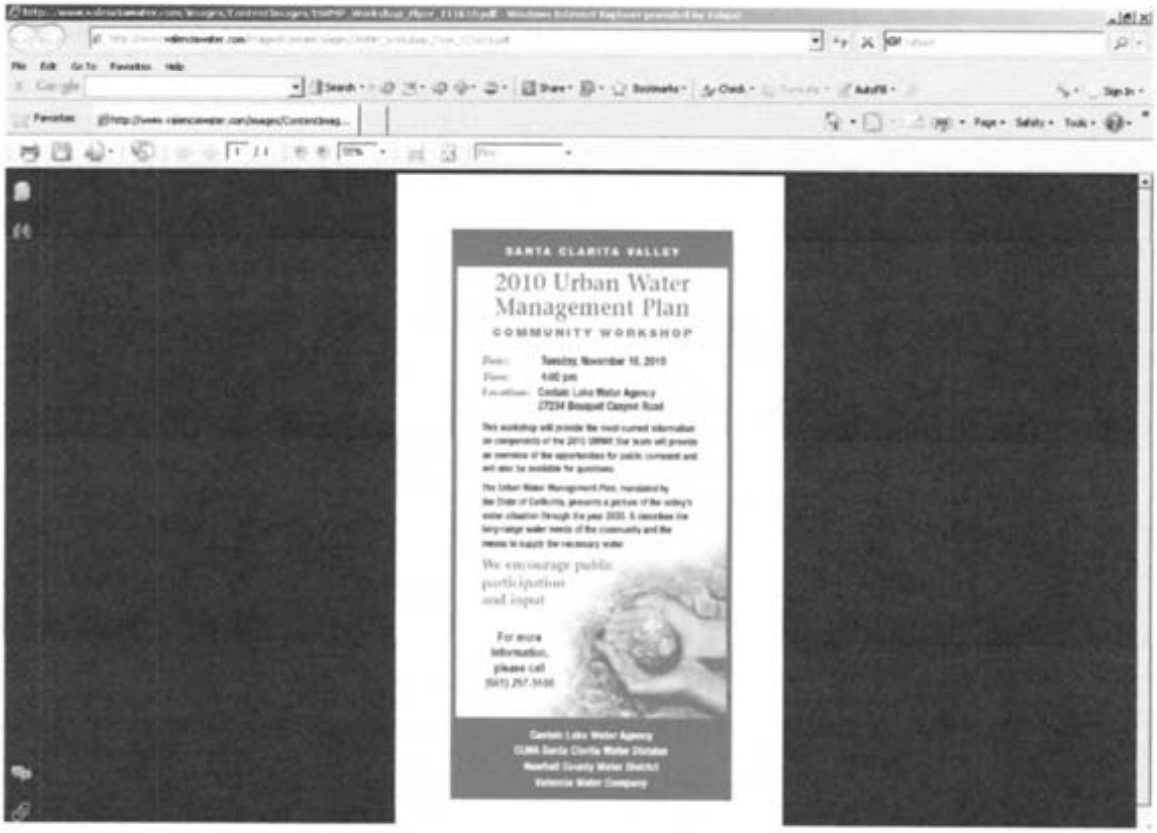
Valencia Water Company
Webpage posting – November 2010 UWMP Workshop
Friday, November 05, 2010



Santa Clarita Valley Urban Water Management Plan

Community Workshop
November 16, 2010
4:00 pm
Castaic Lake Water Agency

Agenda

- Introductions
- Review/status of UWMP process
- SBX7-7 GPCD population assumptions and calculations, and targets by retailer
- Questions and Answers

New Law: SBX7-7 ("20% x 2020")

- 20% demand reduction statewide by 2020
- Sets mandatory demand reduction goal for each retail water supplier
- Reporting starts with 2010 UWMPs
  - Base gross water use in gallons per capita per day (GPCD): must be calculated using one of three methodologies
  - Target reduction from base by 2020: must be calculated using one of four methodologies
  - Supplier must hold public hearing to explain how targets will be met (can be held as part of UWMP hearing)

Process for Determining SBX7-7 Base Gross Water Use (in GPCD)

Population per Connection
- US Census
- Dept of Finance

Population
- Retailer Connections
- Yearly Population Estimates

GPCD
- Retailer Production
- Annual GPCD

Base Use
- By Retailer
- 10- year average
- Used to compare to 2015 and 2020 GPCD

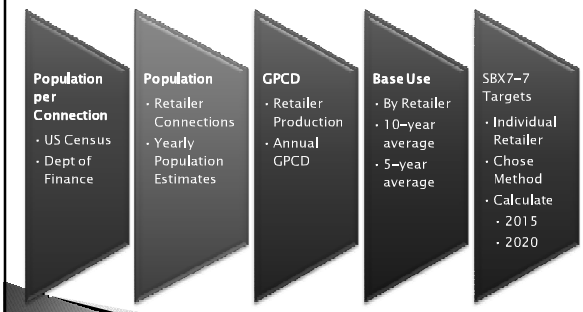
Base Gross Water Use Method

- Base water use in GPCD: methodologies
  - 10-year average
    - ending no earlier than Dec 31, 2004 – no later than Dec 31, 2010 *OR*:
  - 15-year average if 10% of 2008 demand met by recycled water
    - get to add 5 years to calculation (SCV retailers do not qualify)
  - And: 5-year average
    - ending no earlier than Dec 31, 2007 – no later than Dec 31, 2010
    - 100 gpcd; at least 5% reduction for all agencies in CA over 100 gpcd

Example: Newhall County Water District Draft GPCD Calculation

Year	Single Family	Multi-Family	People per Unit	Population	Production (AF)	GPCD	10-year Average
1995	5,680	4,552	3.020	30898	7,755	224	240
1996	5,723	4,589	3.038	31323	7,887	225	241
1997	6,035	4,612	3.056	32533	8,801	242	242
1998	6,037	4,622	3.074	32764	8,087	220	243
1999	6,202	4,651	3.092	33561	9,348	249	244
2000	6,255	4,713	3.111	34121	9,718	254	
2001	6,428	4,768	3.130	35041	9,525	243	
2002	6,777	4,823	3.149	36526	10,362	253	
2003	7,199	4,852	3.168	38178	10,351	242	
2004	7,873	4,870	3.187	40618	11,217	247	
2005	8,163	4,875	3.207	41814	10,756	230	
2006	8,292	4,875	3.227	42490	11,470	241	
2007	8,431	4,875	3.247	43206	11,975	247	
2008	8,450	4,875	3.267	43539	11,340	233	
2009	8,492	4,875	3.288	43951	10,559	214	
2010	8,529	4,875	3.288	43951	10,559	214	

Process for Determining SBx7-7 Base Use and GPCD Reduction Targets



Draft Base Gross Water Use Results

Agency	5-year GPCD	10-year GPCD
CLWA Santa Clarita Water Division	230	235
Newhall County Water District	241	244
Valencia Water Company	258	278

Target Demand Reduction Methodology Options

- 1.) 20% reduction from base (i.e., 80% of average gross water use in GPCD)
- 2.) Combination of state standards:
  - 55 gpcd indoor residential + landscape use at 70% ETo + 10% reduction in commercial/ industrial/institutional use
- 3.) DWR 20x2020 hydrologic region target (South Coast region = 149 GPCD)
- 4.) Option to be developed by DWR Public Process

Draft GPCD Target Demand Reductions Option 1: 80% of base use

Agency	2015 Objective	2020 Objective	2009 GPCD (current)
VWC	250	222	240
NCWD	219	195	214
SCWD	211	188	201
Regional	219	195	219

Method normalizes for:

- Low economic activity
- High vacancy rates
- Year to year weather variances

Note: Note: 2009 is 3rd year of drought

Fut l demands

Consultant Team

- Kennedy/Jenks Consultants
- Luhdorff and Scalmanini
- Nancy Clemm, P.E.
- Stacy Miller Public Affairs

Questions and Answers

Public Workshops and Hearings

- Public Workshops
  - May 25, 2010
  - July 2, 2010
  - November 9, 2010 (IRWMP Stakeholders)
  - November 16, 2010
  - January 11, 2011 (tentative)
  - March 8, 2011 (tentative)
- Public Hearings
  - January 26, 2011 (tentative)
  - March 23, 2011 (tentative)
  - April 27, 2011 (tentative)
- Adoption
  - June 2011

Santa Clarita Valley Urban Water Management Plan
November 16, 2010 - Community Workshop Sign In Sheet

	PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1.	JOSE ZEGARRA	COC		(661) 287 4403	JOSEZEGARRAS@HOTMAIL
2.	Genaro Vallejo	COC		323-243-2638	genarovallejo@att.net
3.	Patrick Bryant	City of SC	Admin Analyst	661-255-4902	pbryant@santa-clarita.com
4.	Cathy Holloman	SCWD	Assoc Water Res Planner	661-259-2737	cholbman@scwater.org
5.	KEITH ABERCROMBIE	VWC	GM	661-295-6501	KAbercrombie@valleywater
6.	GENE MUTT	COC		661 250-8414	GMUTT@BEVERLYHILLS.ORG
7.	BILL DEPOTO	LACFCD		626.458.4313	BDEPOTO@LADPW.ORG
8.	JIM WEIHERER	CLWA	PURCHASING TECH	661-297-1600	jweiherer@clwa.org
9.	ALBERT PETERSON	GWP	APPRENTICE	818/468-7880	MARIVETTEPTRSN@AOL.COM
10.	Sharon Sorensen	City of Santa Clarita	Sr. Planner	661/267-5234	ssorensen@santaclarita.com
11.	JESSICA BUNKER	LACWWD NO. 36	Assoc. CE	626/300-3315	jbunker@ladpw.org
12.	Tom Worthington	Impact Sciences	President	805 443-5170	tomworth@impactsciences.com
13.	KEVIN AGUIRRE	COC		(661) 250-0737	KAguirre@SUCAC.RR.com
14.	Jeff Ford	CLWA	WR Planner	(661) 513-1281	Jford@clwa.org
15.	Dirk Marks	"	W.R. Manager	661 513 1257	dmarks@clwa.org
16.	BRIJESH MISRA	LA City	Inspector	(818) 830-0420	Brijeshcmisra@gmail.com
17.	BJ Atkins	Atkins Env. HELP	Owner	661 510 3663	bj@atkinsenvironmental.com
18.	STEVE MCLEAN	—	—	661-259-4767	MCLEAN.STEPHEN@CH.RR.COM

Santa Clarita Valley Urban Water Management Plan
November 16, 2010 - Community Workshop Sign In Sheet

PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1. Francisco Guerrero	LACSD	Senior Engineer	562 903 4299 x 2032	FGuerrero@lacsd.org
2. Stacey Miller	SMPA	Consult	818 403-5800	Smiller@smpa
3. LUIS MARGHERITIS	CLWA	TECH.	(661) 510-4448	LMARGHERITIS@CLWA.ORG
4. COLETTE HILLARD				
5. GRANTS, ERIC			661-406-3219	ERICERIC@YAHOO.COM
6. Linda Porpus	UWCD	Env. Scientist	805-525-4431	lindap@unitedwater.org
7. Dusty Osmonson		Public	661-644-6546	lifted horsley@yahoo.com
8. ERNI N		public	661-296 2775	nie.manif yahoo.com
9. Renee Sabol	Castaic Town Council	Council person	661-803 7123	ReneeSabol@AOL.com
10. Sharren Naulls			661 862-9221	snaulls@arc.edu
11. Betty Cameron			661 297-8116	
12. Greg Kring	Burbank Water & Power	Pipefitter Apprentice	(626) 475-0413	Hailgeebus@Yahoo.com
13. Chad Brightwell	BWP	"	(818) 621-5726	highryder98@yahoo.com
14. FRANCK ROSENTHAL	C o C	STUDENT	818-261-2036	FRANCK-IE@YAHOO.COM
15. Bonnie Deagon	—	Pubic	661-373 8341	Bjdhugs@aol.com
16.				
17.				
18.				

Santa Clarita Valley Urban Water Management Plan
November 16, 2010 - Community Workshop Sign In Sheet

	PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1.	K. C. Valvo	BWP	App	818) 238-3500	
2.	JAMES ROWLAND	BWP	APP	(818) 926-0978	
3.	Bonnie Deagon			661.373-8341	
4.	Leah Schulman			661-645-6344	leah.schulman@gmail.com
5.					
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January 2011 UWMP Workshop
Public Outreach Record

2010 Santa Clarita Valley
Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS

Creative Solutions to Complex Situations

January 10, 2011

*** Orgs shaded above will receive letter return receipt requested (See attached)

Subject: January 2011 Workshop - 2010 Urban Water Management Plan

Dear Sir or Madam,

The Santa Clarita Valley water suppliers, Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company, are currently preparing the 2010 Urban Water Management Plan (UWMP).

In an effort to ensure all interested parties are fully informed and involved in this process, the water agencies have scheduled their fourth community workshop on January 25, 2011 and welcome your participation. This workshop will provide the most current information on components of the UWMP.

Date:	Tuesday, January 25, 2011
Time:	4:00 pm
Location:	Castaic Lake Water Agency 27234 Bouquet Canyon Road

The Urban Water Management Plan presents a picture of the valley's future water situation, describes the long-range water needs of the community and the means to supply the necessary water.

I encourage your participation and look forward to seeing you then. If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV Urban Water Management Plan

Government Affairs, Public Relations & Communication

P.O. Box 55745, Valencia, CA 91385 [818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com

www.StacyMillerPA.com

or four years down the road? — but our government has sarily those of The Signal.

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

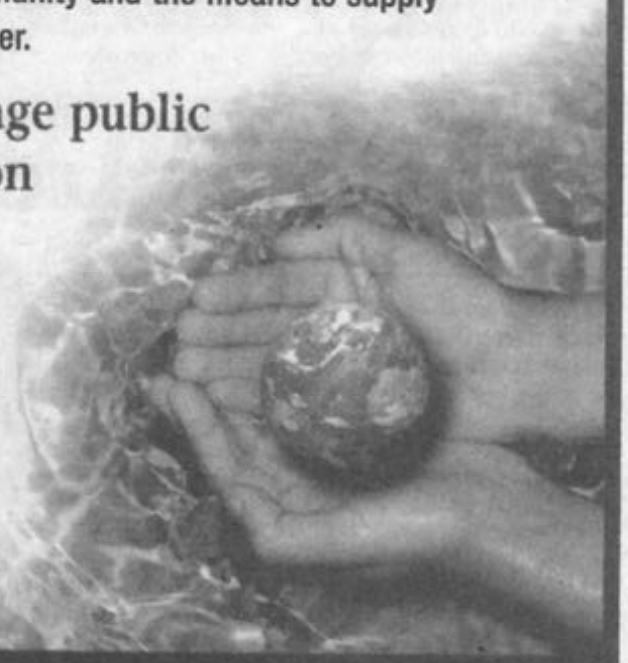
Date: Tuesday, January 25, 2011
Time: 4:00 pm
Location: Castaic Lake Water Agency
27234 Bouquet Canyon Road

The Signal 1-18-11

This workshop will provide the most current information on components of the 2010 UWMP. Our team will provide an overview of the opportunities for public comment and will also be available for questions.

The Urban Water Management Plan, mandated by the State of California, presents a picture of the valley's water situation, describes the long-range water needs of the community and the means to supply the necessary water.

We encourage public participation and input



For more information, please call (661) 297-1600

Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
Valencia Water Company

SANTA CLARITA VALLEY

2010 Urban Water Management Plan

COMMUNITY WORKSHOP

The Signal 1-23-11

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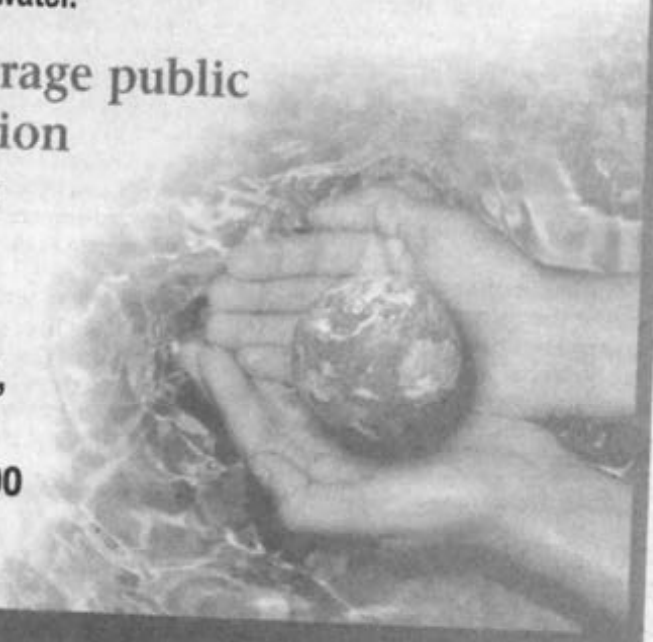

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Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District
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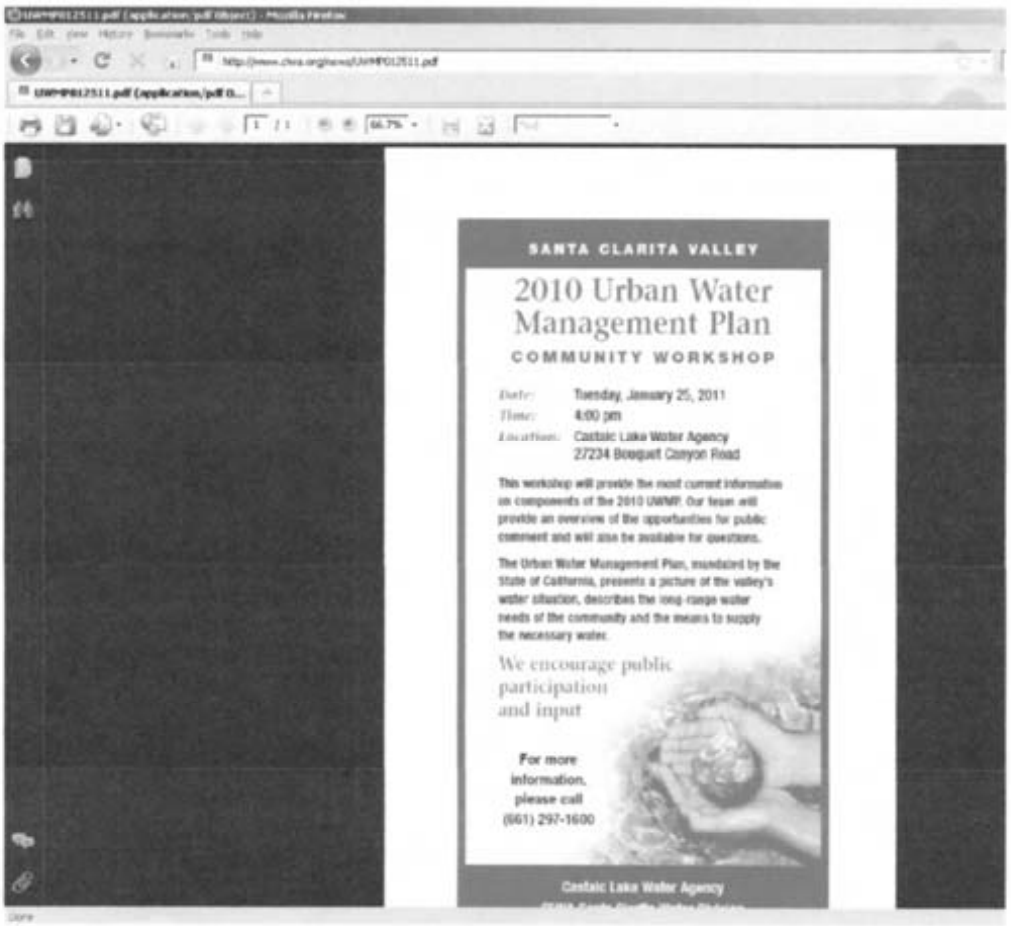
Castaic Lake Water Agency
Webpage & Facebook Posting – January 2011 UWMP Workshop



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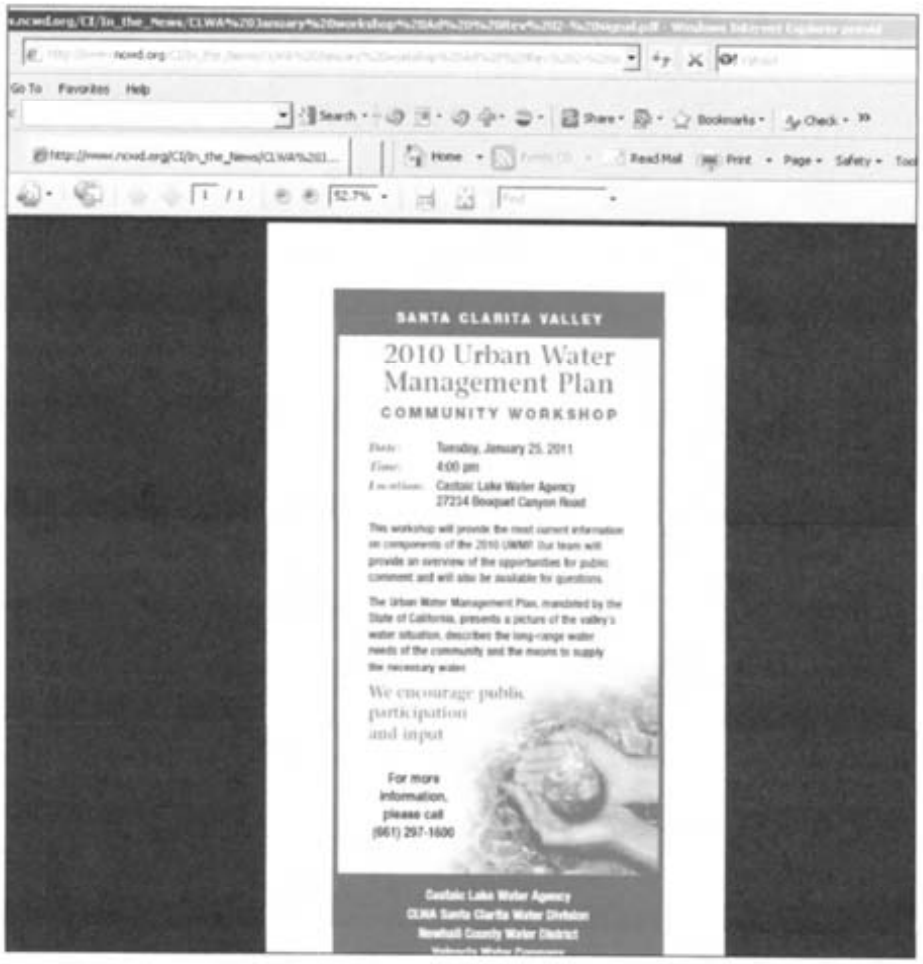
Castaic Lake Water Agency

Castaic Lake Water Agency
Webpage & Facebook Posting – January 2011 UWMP Workshop

Newhall County Water District
Webpage & Facebook posting – January 2011 UWMP Workshop

(next)

Newhall County Water District
Webpage & Facebook posting – January 2011 UWMP Workshop



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Castaic Lake Water Agency
CLWA Santa Clarita Water Division
Newhall County Water District

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Newhall County Water District

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Information

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Newhall County Water District Reg Board Mtg Thur Feb 10, 11 @ 6:30pm

Newhall County Water District Finance Committee Mtg Jan 19, 11 @ 6pm

Newhall County Water District 2010 Urban Water Management Plan Community Workshop Jan 25, 11

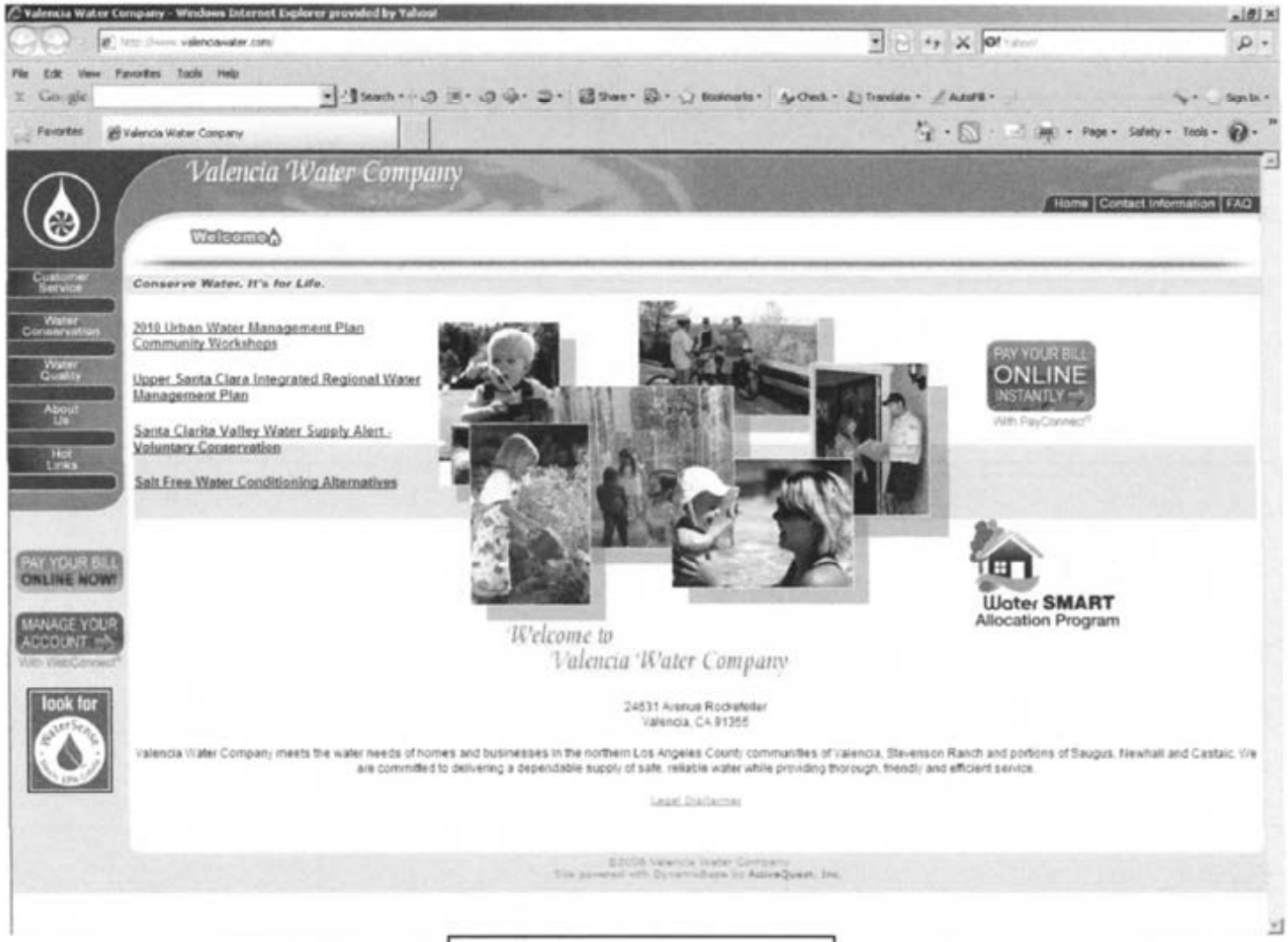
Newhall County Water District Reg Board Mtg Thur Jan 13, 11 @ 6:30pm

Newhall County Water District 2011 Holiday Closure

Los Angeles Bucket List

Go Solar for $0 Down

Valencia Water Co
Website Posting – January 2011 UWMP Workshop



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Castaic Lake Water Agency

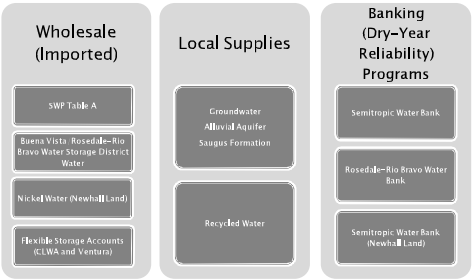
Santa Clarita Valley Urban Water Management Plan

Community Workshop
January 25, 2011
4:00 pm
Castaic Lake Water Agency

Agenda

- Introductions
- Overview of water supplies
- SWP reliability update
- CLWA reliability planning update
- SBX7-7 ("20x2020") calculations and targets
- Overview of water supplies and demands
- Schedule
- Questions and Answers

Santa Clarita Valley Water Supplies



SWP Reliability Update

- DWR finalized the 2009 State Water Project Delivery Reliability Report
- Captures impacts on the SWP from recent regulatory and judicial decisions related to endangered species in the Delta
  - Average year long-term SWP deliveries = 60%
  - Single-dry year deliveries = 7%
  - Multiple-dry year deliveries = 34-36%

CLWA Reliability Planning Update

- Basis of the Plan:
  - Water Demand Projections by Purveyors
  - 2009 DWR SWP Delivery Reliability Report
  - Updated GW Operating Plan
  - Recycled Water Master Plan (as modified)

Preliminary Results
Water Supply Reliability Plan Update

- At 95% confidence level:
  - 6-year pumpback = no storage needed with current practices
  - 1-year pumpback (most severe drought) = 20,000 AF
- Results consider the following variables:
  - Conservation
  - Levee failure in the Delta

Preliminary Results
Storage and Pumpback Requirements

1. No levee failure and no conservation

Percentile (%)	1-Year Pumpback (AFY)	6-Year Storage (AF)
90	34,000	83,000
95	38,000	100,000
99	51,000	164,000

2. Levee failure and no conservation

Percentile (%)	1-Year Pumpback (AFY)	6-Year Storage (AF)
90	60,000	136,000
95	61,000	153,000
99	62,000	219,000

Preliminary Results
Storage and Pumpback Requirements

3. Conservation and no levee failure

Percentile (%)	1-Year Pumpback (AFY)	6-Year Storage (AF)
90	9,000	0
95	13,000	0
100	24,000	17,000

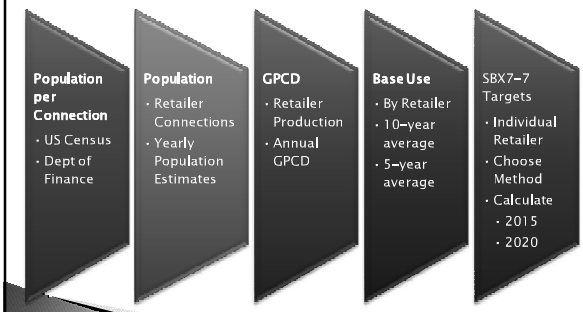
4. Conservation and levee failure

Percentile (%)	1-Year Pumpback (AFY)	6-Year Storage (AF)
90	20,000	0
95	20,000	0
100	21,000	28,000

Update on SBX7-7 ("20% x 2020") Calculations and Targets

- 20% demand reduction statewide by 2020
- Sets mandatory demand reduction goal for each retail water supplier
- Reporting starts with 2010 UWMPs
  - Base gross water use in gallons per capita per day (GPCD): must be calculated using one of three methodologies
  - Target reduction from base by 2020: must be calculated using one of four methodologies
  - Supplier must hold public hearing to explain how targets will be met (can be held as part of UWMP hearing)

Process for Determining SBx7-7 Base Use and GPCD Reduction Targets



GPCD Target Demand Reduction Options

1. 20% reduction from base (i.e., 80% of average gross water use in gpcd)
2. Combination of state standards:
   - 55 gpcd indoor residential + landscape use at 70% ETo + 10% reduction in commercial/industrial/institutional use
   - *Requires specific data not available in SCV*
3. DWR 20x2020 hydrologic region target (South Coast region = 149 gpcd)
4. *Option to be developed by October 2010: not completed by DWR and Urban Stakeholder Committee*

Updated (January 2011) GPCD Target Demand Reduction Calculations

Agency	Base Daily Per Capita Water Use (GPCD)	Compliance Year	Selected Urban Water Use Target Method Method 1 – 80% of Base Daily Per Capita Water Use
VWC	278	2015	250
		2020	222
NWCD	244	2015	219
		2020	195
SCWD	235	2015	211
		2020	188

Santa Clarita Valley Existing Water Supplies– Avg / Normal Year (acre-feet)

EXISTING SUPPLIES	2015	2020	2030	2040	2050
Groundwater (Basin Yield)	*51,100*	*51,100*	*51,100*	*51,100*	*51,100*
Alluvial Aquifer	38,600	38,600	38,600	38,600	38,600
Saugus Formation	12,500	12,500	12,500	12,500	12,500
Projected Groundwater to Non–Purveyors	*15,400*	*14,400*	*11,000*	*9,000*	*7,5*
Ll Land and Farming	10,500	9,500	7,500	5,500	4,000
Honor Ranch	3,400	3,400	2,000	2,000	2,000
Other Non–Purveyors	1,500	1,500	1,500	1,500	1,500
Projected Groundwater to Purveyors	**34,600**	**36,600**	**39,600**	**41,600**	**43,600**
Alluvial Aquifer	24,000	25,000	28,000	30,000	32,000
Saugus Formation	10,600	11,600	11,600	11,600	11,600
Projected Groundwater to Purveyors and Non–Purveyors	50,000	51,000	50,600	50,600	51,100
Recycled Water	**1,300**	**1,700**	**1,700**	**1,700**	**1,700**
Imported Water	**69,727**	**69,727**	**69,727**	**69,727**	**69,727**
SWP Table A Supply	57,120	57,120	57,120	57,120	57,120
Buena Vista–Rosedale	11,000	11,000	11,000	11,000	11,000
Nickel Water – Newhall Land	1,607	1,607	1,607	1,607	1,607
Total Supplies Available to Purveyors	**105,627**	**108,027**	**111,027**	**113,027**	**115,027**

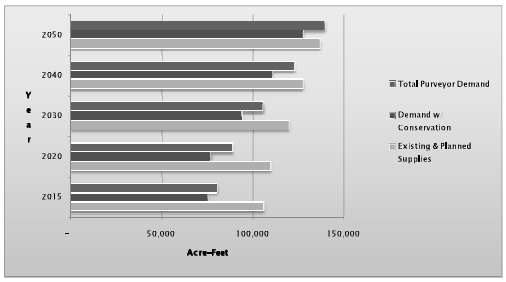
Santa Clarita Valley Existing and Planned Water Supplies– Avg / Normal Year (acre-feet)

PLANNED SUPPLIES	2015	2020	2030	2040	2050
Recycled Water	***0***	***1,350***	***7,900***	***13,900***	***21,100***
Recycled Water to Non–Purveyor (Honor Ranch)	0	0	1,500	1,500	1,500
Recycled Water to Purveyors	0	1,350	6,400	12,400	19,600
Total Planned Supplies	**0**	**1,350**	**7,900**	**13,900**	**21,100**
Total Supplies Available to Purveyors	**105,627**	**108,027**	**111,027**	**113,027**	**115,027**
Total Existing and Planned Supplies Available to Purveyors	**105,627**	**109,377**	**118,927**	**126,927**	**136,127**

Santa Clarita Valley Projected Water Demands – Avg / Normal Year (acre-feet)

SB7x7 DEMAND REDUCTION	2015	2020	2030	2040	2050
Total Purveyor Demand	80,070	88,484	105,312	122,140	138,968
Sum of Purveyor Demand Reductions	6,691	14,937	18,949	21,161	24,274
Reduction from Recycled Water	*1,300*	*3,050*	*9,6*	*5,600*	*22,8*
	,3 1	*11,8*	*11,8*	*11,887*	*11,887*
Total Action to Meet SB7x7	**6,691**	**14,937**	**21,487**	**27,487**	**34,687**
Demand w/ Conservation	**74,679**	**76,597**	**93,425**	**110,253**	**127,081**

Santa Clarita Valley Water Supplies and Demands – Avg / Normal Year



Schedule

- Public Workshops and Hearings
  - Workshops
    - May 25, 2010
    - July 27, 2010
    - November 9, 2010 (IR lders)
    - November 16, 2010
    - January 25, 2011
    - March 8, 2011
  - Hearings
    - March 23, 2011 (tentative)
    - April 27, 2011 (tentative)
- Adoption
  - June 2011 (due to DWR within 30 days after adoption)

Questions and Answers

Santa Clarita Valley Urban Water Management Plan
January 25, 2011 - Community Workshop Sign In Sheet

	PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1.	Stacy Meeler	SMPA	Pres	818402-5806	Stacy@ StacyMeelerPA.com
2.	Lauren Everett	KJ	planner	805-913-5706	laureneverett@kenedyjenks.
3.	Ed Colley	CLWA	Director	—	—
4.	Bonnie Deason	—	—		
5.	Dirk Marks	CLWA	Water Resource Manager		
6.	Rosalind Wayman	SDS			
7.	Jarrod DeGonia	Asm. Smyth	District Director	(661) 286-1565	jarrod.degonia@asm.ca.gov
8.	Jeff Ford	CLWA	WR Planner	(661) 513-1281	jford@clwa.org
9.	DAN MASNADA	CLWA	G.M.	(661) 2971600	dmasnada@clwa.org
10.	ERNIE VILLEGAS	ASM. GORELL	DIST. DIRECTOR	(805) 230-9167	ernie.villegas@asm.ca.gov
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					

Santa Clarita Valley Urban Water Management Plan
January 25, 2011 - Community Workshop Sign In Sheet

PRINT NAME	ORGANIZATION	TITLE	PHONE	EMAIL
1. Mary Ann Cotton ✓	KJ			
2. Steve Cole ✓	NCWD	G.M.		SCOLE@NCWD.ORG
3. CHARLES GILL ✓	IPSG		6612949355	CGILL@IPSGINC.COM
4. Keith Abercrombie ✓	VWC	GM		
5. Cathy Hollomon ✓	SCWA	Assoc WR Planner	661-259-2737	chollomon@scwater.org
6. Sandy Sandy	BIA	G.A.D.	310-995-4456	sandy@bialav.org
7.				
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Third & Final Public Hearing
June 22, 2011
Public Outreach Record

2010 Santa Clarita Valley
Urban Water Management Plan

June 8, 2011

Richard J. Bruckner, Director
LA County Dept. Regional Planning
Los Angeles County
1390 Hall of Records
320 West Temple Street
Los Angeles 90012

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Bruckner,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

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McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Mark Pestrella
LA County Dept. Public Works
Los Angeles County
P.O. Box 1460
Alhambra 91802-1460

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Pestrella,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

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Sincerely,

Dirk Marks,
Water Resources Manager

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GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Chris Stevens, Director
Resource Management Agency
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1740

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Stevens,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

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Dirk Marks,
Water Resources Manager

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June 8, 2011

Jason Smisko
Senior Planner
City of Santa Clarita Planning Division
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Smisko,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

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Sincerely,

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Water Resources Manager

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June 8, 2011

Mike Murphy
Intergovernmental Relations Officer
City of Santa Clarita
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Murphy,

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APRIL JACOBS

June 8, 2011

Jeff W. Hogan, AICP
Interim Planning Manager
City of Santa Clarita Planning Division
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Hogan,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

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Water Resources Manager

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June 8, 2011

Jessica Bunker, P.E.
Waterworks Division
P.O. Box 1460
Alhambra, CA 91802-1460

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Ms. Bunker,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

BOARD OF DIRECTOR
PRESIDENT
THOMAS P. CAMPBELL
VICE PRESIDENT
WILLIAM C. COOPER
E.G. "JERRY" GLADBACH
DEAN D. EFSTATHIOU
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GENERAL MANAGER
DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Rosalind Wayman, Field Deputy
Los Angeles County
Fifth Supervisorial District
23920 Valencia Blvd., Suite 265
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Ms. Wayman,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

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THE SIGNAL NEWSPAPER
24000 Creekside Rd
Valencia, Ca 91355

Proof of Publication
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
COUNTY OF LOS ANGELES

I am a citizen of the United States,and a resident of the county aforesaid; I am over the age of eighteen years; and I am not a party to or interestedin the notice published. I am the chief legal advertising clerk of the publisher of the

SIGNAL NEWSPAPER

a newspaper of general circulation, printed and published **Daily** in the city of Santa Clarita County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles State of California, under the date of **March 25, 1988**
Case number **NVC15880**, that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

5/26, 6/2, 6/9, 6/16

All in the year 20 11

I certify (or declare) under penalty of perjury' that the foregoing is true and correct

Dated at Valencia, California, this
16th day of June, 20 11.

Signature

NOTICE OF THIRD PUBLIC HEARING 2010 URBAN WATER MANAGEMENT PLAN

Castaic Lake Water Agency ("CLWA"), CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company have directed the preparation of a joint regional 2010 Urban Water Management Plan ("UWMP") for the Santa Clarita Valley, as encouraged by the Urban Water Management Planning Act ("Act"). Los Angeles County Waterworks District No. 36 is participating in the process on an ad hoc basis. Adoption of the 2010 UWMP is required under the Act by July 1, 2011.

While the Act only requires that an urban water supplier hold one public hearing before adopting a plan, in order to ensure sufficient opportunity for public feedback, input and suggestions concerning the 2010 UWMP, a third public hearing has been scheduled.

The first public hearing was held on March 23, 2011and the second on May18, 2011. The third hearing will be held at 6:15 p.m. on Wednesday, June 22, 2011 and will take place at the CLWA Boardroom, located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact Dirk Marks, CLWA Water Resources Manager, at (661) 297-1600.

The Signal 5/26, 6/2 & 6/9 & 6/16 2011

ProofPublicationMident_JH

Emails sent regarding
Final Draft Document Availability & 3rd Public Hearing Reminder
(See email distribution list)

2010 SCV Urban Water Management Plan - Message (HTML)

Message

Reply | Reply to All | Forward | Delete | Move to Folder | Create Rule | Other Actions | Block Sender | Safe Lists | Not Junk | Categorize | Follow Up | Mark as Unread | Find | Related | Select | Send to OneNote

Respond | Actions | Junk E-mail | Options | Find | OneNote

From: Stacy Miller [stacy@stacymillerpa.com]
To: 'RBruckner@planning.lacounty.gov'
Cc:
Subject: 2010 SCV Urban Water Management Plan

Sent: Fri 6/17/2011 10:45 AM

June 17, 2011

Dear Interested Party:

This is to notify you that final draft document for the 2010 SCV Urban Water Management Plan (UWMP) is available and can be viewed by clicking here or via the following link: http://clwa.org/about/pdfs/CLWA_2010UWMP_FINALDRAFT_061511_Part1.pdf. The document can also be viewed at your local SCV library.

As a reminder, the third public hearing on the UWMP will be held on Wednesday, June 22, 2010 at 6:15 pm at the Castaic Lake Water Agency, 27234 Bouquet Canyon Road Santa Clarita, CA 91350.

If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS
Creative Solutions to Complex Situations
P.O. Box 55745, Valencia, CA 91385
[818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com
www.StacyMillerPA.com

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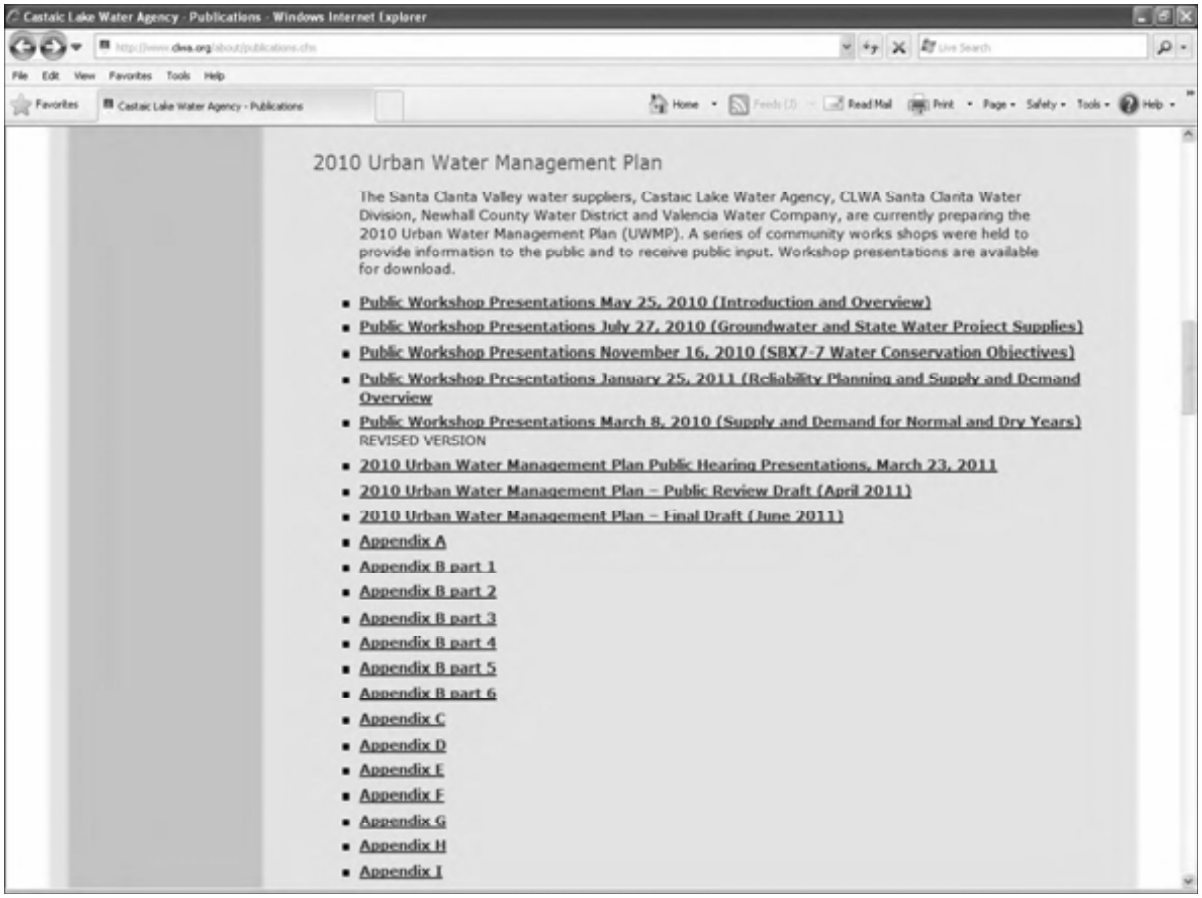
Master Email List
Extension of UWMP comment period and notification of revised draft document and next public hearing
Sent June 17, 2011

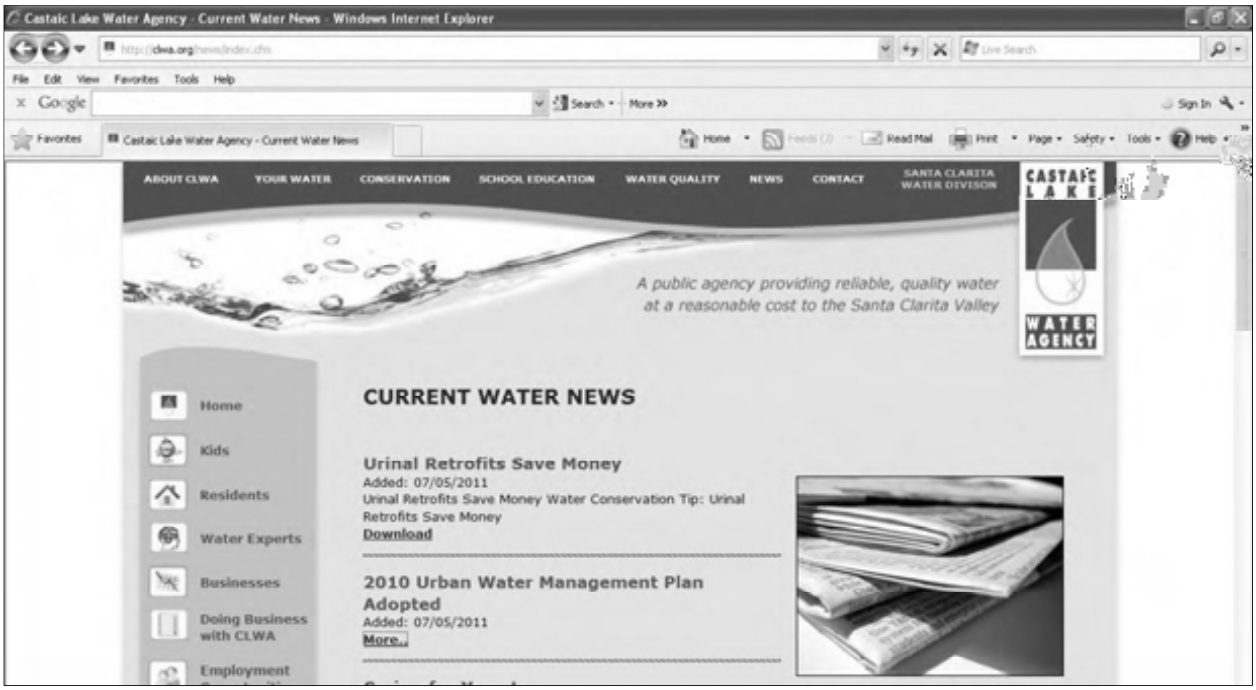
Jarrod Degonia Assemblymember Cameron Smyth Jarrod.DeGonia@asm.ca.gov	Ernie Villegas Assemblymember Jeff Gorell Ernie.Villegas@asm.ca.gov	Kevin Korenthal Associated Builders & Contractors of CA; ABC-CCC kkorenthal@abc-ccc.org
Holly Schroeder BIA - Los Angeles/Ventura Chapter hschroeder@bialav.org	Sandy Sanchez BIA - Los Angeles/Ventura Chapter ssanchez@bialav.org	David Inouye CA Department of Water Resources davidi@water.ca.gov
Robert Kelly Castaic Area Town Council RobertKelly@CastaicAreaTownCouncil.org	Mike Murphy City of Santa Clarita mmurphy@santa-clarita.com	Jason Smisko City of Santa Clarita JSmisko@santa-clarita.com
Bruce Fortine College of the Canyons fortine@earthlink.net	Bob Haueter Congressman Howard McKeon Bob.Haueter@mail.house.gov	Chris Stephens County of Ventura Resource Management Agency Chris.Stephens@ventura.org
Ron Bottorff Friends of the Santa Clara River bottorffm@verizon.net	Mark Pestrella LA County Department of Public Works mpestrel@dpw.lacounty.gov	Richard Bruckner LA County Department of Regional Planning RBruckner@planning.lacounty.gov
Jessica Bunker LA County WWD jbunker@ladpw.org	Lynn Plambeck Santa Clarita Organization for Planning the Environment - SCOPE lynne.plambeck@scope.org	Robert Fleck Santa Clarita Valley Well Owners Association rfleck@socal.rr.com
Terry Kingery SCV Chamber of Commerce tkingery@scvchamber.com	Sierra Club Angeles Chapter Contact.us@angeles.sierraclub.org	Mark Butala Southern CA Association of Governments butala@scag.ca.gov
Jackie Bick State Senator Sharon Runner Jackie.Bick@sen.ca.gov	Scott Wilk Jr. State Senator Tony Strickland scott.wilk@sen.ca.gov	David Perry Supervisor Michael Antonovich, 5th District dperry@lacbos.org
Rosalind Wayman Supervisor Michael Antonovich, 5th District rwayman@lacbos.org	E. Michael Solomon United Water Conservation District msolomon@unitedwater.org	Kathy Norris Valley Industrical Association of Santa Clarita (VIA) kathy@via.org
Ron Mechsner West Ranch Town Council Rmechsner@WestRanchTownCouncil.com	Carol Lutness SCV Fair Elections Committee santaclarita-info@caclean.org	Katherine Squires Sierra Club Angeles Chapter katherine.m.squires@csun.edu
Dunn Residents water@dslextreme.com	Mitch Glaser LA Co Department of Regional Planning mglaser@planning.lacounty.gov	Also sent via US Mail to • Mr. & Mrs. Dunn • Cam Nolltemeyer • Michael A. Naoum • Carol Lutness

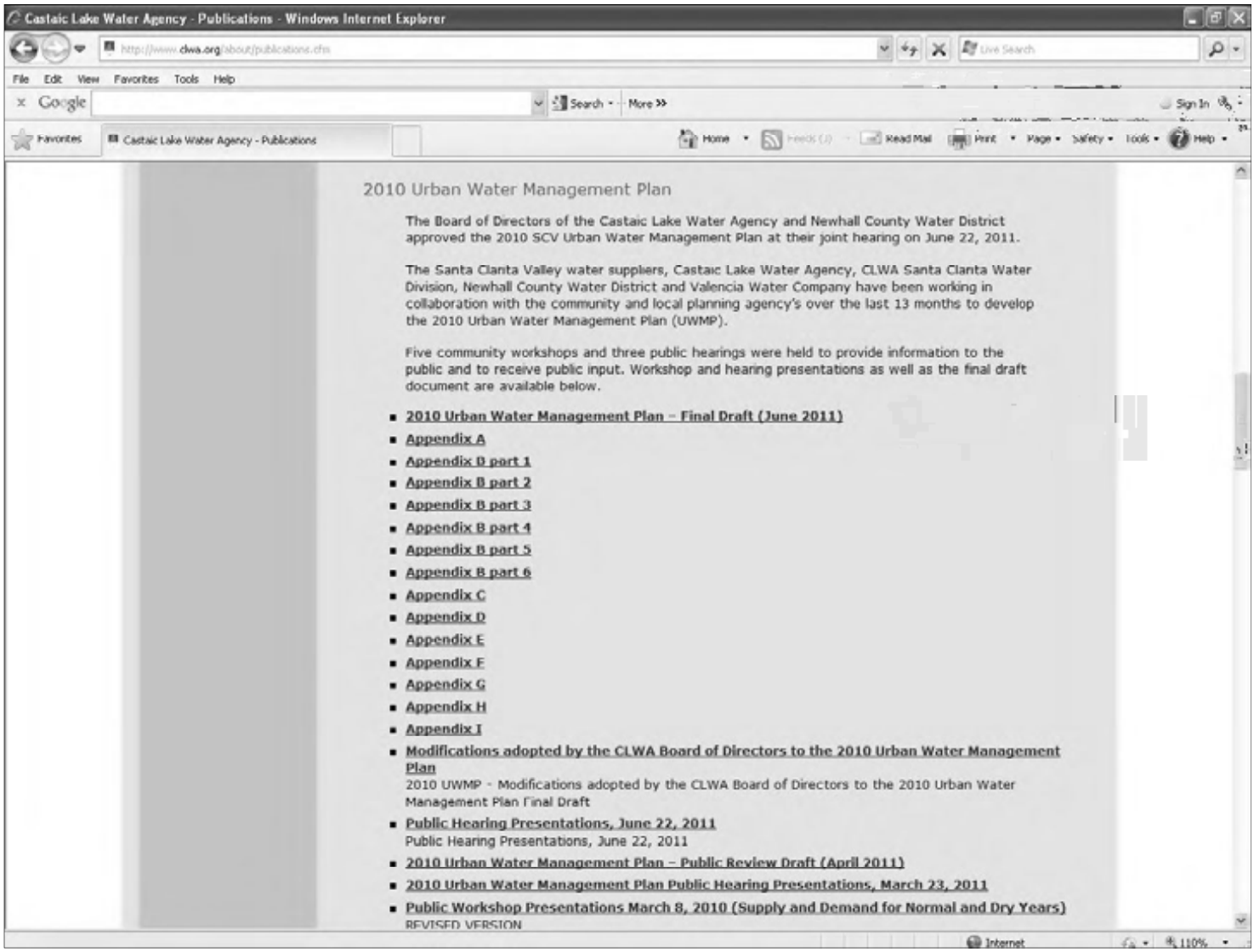
UWMP –June Hearing & Final Draft Document Notice
CLWA Website



UWMP –June Hearing & Final Draft Document Notice
NCWD Website

UWMP Adoption Notice
CLWA Website June 2011





2010 UWMP Adoption Notice
NCWD Website
June 2011

2010 UWMP Adoption Notice
SCWD Website
June 2011

Santa Clarita Water Division - Windows Internet Explorer

http://www.scwater.org/publications.cfm

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2010 Urban Water Management Plan

The Board of Directors of the Castaic Lake Water Agency and Newhall County Water District approved the 2010 SCV Urban Water Management Plan at their joint hearing on June 22, 2011.

The Santa Clarita Valley water suppliers, Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company have been working in collaboration with the community and local planning agency's over the last 13 months to develop the 2010 Urban Water Management Plan (UWMP).

Five community workshops and three public hearings were held to provide information to the public and to receive public input. Workshop and hearing presentations as well as the final draft document are available below.

- 2010 Urban Water Management Plan - Final Draft (June 2011)
- Appendix A
- Appendix B part 1
- Appendix B part 2
- Appendix B part 3
- Appendix B part 4
- Appendix B part 5
- Appendix B part 6
- Appendix C
- Appendix D
- Appendix E
- Appendix F
- Appendix G
- Appendix H
- Appendix I
- Modifications adopted by the CLWA Board of Directors to the 2010 Urban Water Management Plan
  2010 UWMP - Modifications adopted by the CLWA Board of Directors to the 2010 Urban Water Management Plan Final Draft
- Public Hearing Presentations, June 22, 2011
  Public Hearing Presentations, June 22, 2011
- 2010 Urban Water Management Plan - Public Review Draft (April 2011)
- 2010 Urban Water Management Plan Public Hearing Presentations, March 23, 2011
- Public Workshop Presentations March 8, 2010 (Supply and Demand for Normal and Dry Years) REVISED VERSION
- Public Workshop Presentations January 25, 2011 (Reliability Planning and Supply and Demand Overview

Done | Internet | 110%

NEWHALL COUNTY
WATER DISTRICT

NCWD

New Regional Urban Water Management Plan Approved

Santa Clarita Valley Family of Water Suppliers Approve Critical Planning Tool

Santa Clarita, CA –The Boards of Directors of the Newhall County Water District and Castaic Lake Water Agency unanimously approved the 2010 Santa Clarita Valley Urban Water Management Plan at a joint public hearing on June 22, 2010.

"The approval by the two Boards is a testament to the quality of this document and the team that has worked so hard on its preparation," stated Daniel Mortensen, NCWD Board President.

The creation of the Santa Clarita Valley Urban Water Management Plan began in May 2010 and included opportunities for input from our community, water partners, environmental groups, elected officials, business groups and other community stakeholders during the five community workshops and three public hearings that were held on the plan.

"We have gone far beyond the public participation requirements cited in the Urban Water Management Plan regulations to ensure that all residents and interested parties had ample opportunity to participate, comment and weigh in on this important process," stated Tom Campbell, CLWA Board President.

The Urban Water Management Plan presents a picture of the valley's future water situation and describes the long-range water needs of our community and the means to supply the necessary water to the year 2050. Every five years, the water suppliers who deliver in excess of 3,000 acre feet of water or serve over 3,000 connections per year are required by law to prepare an Urban Water Management Plan.

The SCV Family of Water Suppliers partnered in this planning effort to ensure a collaborative planning approach. This plan is not a project-specific document, nor does it take the place of individual project requirements; rather it is a tool that helps guide the local water suppliers' actions and offers a broad perspective on a wide variety of water issues. The plan concludes that the combination of existing and

planned programs to increase supply and conservation will meet the Valley's water needs through 2050.

"I am proud of the tremendous amount of time and work that has been put into the development of this plan by the community, our staff, consultants and my fellow Board members," stated Bill Cooper, CLWA Board Vice President . "Our Urban Water Management Plan serves as the 'gold standard' of planning documents throughout the state and is followed closely for its content and thoroughness."

The final SCV Urban Water Management Plan will be delivered to the State Department of Water Resources before the end of July 2011. The final draft and additional amendments that were made at the recent board meetings are currently available for review online at www.ncwd.org.

Santa Clarita Valley Urban Water Management Plan

Public Hearing
June 22, 2011
Castaic Lake Water Agency

Agenda

- Open public hearing
- Review of public input process and public comment letters
- Public comment period
- Presentation on Groundwater Basin
- Presentations on Perchlorate Restoration, VWC Well 201
- Presentations on Water Banking, SWP reliability, Water Conservation, Chlorides/AWRM
- Board questions and answers
- Description of UWMP document finalization process
- Close hearing and next steps

UWMP Act Process

ACT REQUIREMENTS

- Coordinate preparation of UWMP with other appropriate agencies in the area.
- 60 days notice to city and counties, and may consult with, and obtain comments from, city and counties receiving notice.
- Encourage active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

ACT REQUIREMENTS EXCEEDED

- Draft Final UWMP, §§1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8.
- Draft Final UWMP, §1.3.3, Table 1-1, pgs 1-3 to 1-8, Appendix B.
- Five Public Workshops between May 2010 and March 2011; three CLWA/NCWD joint public hearings; written public comment period; written public comment deadline extended; Draft Final UWMP, §§1.3.1 &1.3.3, Table 1-2, pgs 1-3 to 1-8.

UWMP Act Process

ACT REQUIREMENTS	ACT REQUIREMENTS EXCEEDED
Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection.	Draft UWMP has been available since April 15, 2011; Final Draft UWMP, §§1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B.
One Public hearing.	Three CLWA/NCWD joint public hearings.
Notice of hearing in compliance with Gov. Code § 6066.	Final Draft UWMP, §§1.3.1 & 1.3.3, Table 1- 2, pgs 1-3 to 1-8, Appendix B.

UWMP Act Process

ACT REQUIREMENTS	ACT REQUIREMENTS EXCEEDED
Notice of hearing to any city or county within which the supplier provides water supplies.	Final Draft UWMP, §§1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B.
After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	June 22, 2011 Joint Meeting and 3rd Joint Public Hearing

Past Workshops

May 2010
- UWMP purposed and process – What, Who, Why and When
- Existing and new requirements of UWMPs

July 2010
- SBX7-7 ("20x2020") Requirements
- Recycled Water
- Groundwater Supplies
- State Water Project Reliability

November 2010 –
- Presentation to IRWMP Stakeholders

Past Workshops (continued)

November 2010
- GPCD population assumptions and calculations
- SBX7-7 Targets by retailer

January 2011
- Overview of water supplies
- SWP reliability update
- CLWA reliability planning update
- SBX7-7 calculations and targets
- Overview of water supplies and demand

March 2011
- Water Supply and Demands

Public Hearings and Draft Document

1st public hearing March 23, 2011
- Public Draft document made available April 15, 2011
- Comment period through May 20, 2011

2nd public hearing May 18, 2011
- Comment period extended through May 27, 2011
- Final Draft document made available June 15, 2011

3rd public hearing June 22, 2011

Comment Letters Received

- Friends of the Santa Clara River
- Santa Clarita resident and Valencia Water ratepayer
- Sierra Club
- Mr. and Mrs. Dunn
- Mr. Naoum
- Mr. Dunn
- Sierra Club
- SCOPE
- Whittaker-Bermite Citizens Advisory Group
- Babak Naficy
- Santa Clarita Valley Fair Elections Committee

Broad Categories of Comments Received

- Groundwater overdraft claims
- Perchlorate and VWC Well 201
- Organic compounds
- Water banking program issues; State Water Project reliability and contingency planning
- Water conservation accounting
- Chloride water quality issues (TMDL/AWRM)

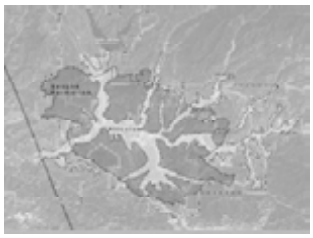
Santa Clarita Valley Urban Water Management Plan

Public Comment Period

Groundwater Supplies and Related Issues, e.g. "Overdraft"

- Joe Scalmanini – Luhdorff and Scalmanini, Consulting Engineers

Groundwater Component of Water Supplies
2010 Urban Water Management Plan



• Castaic Lake Water Agency • CLWA Santa Clarita Water Division
• Los Angeles County Waterworks District 36
• Newhall County Water District • Valencia Water Company

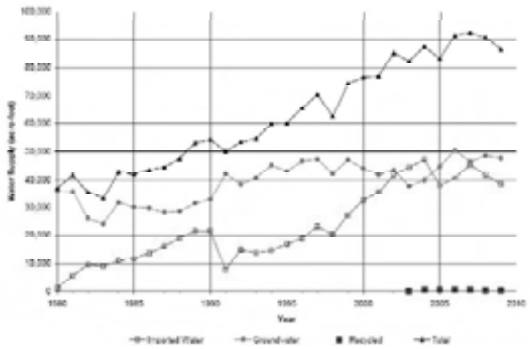


Figure 2-1
Total Water Supply Utilization
Santa Clarita Valley

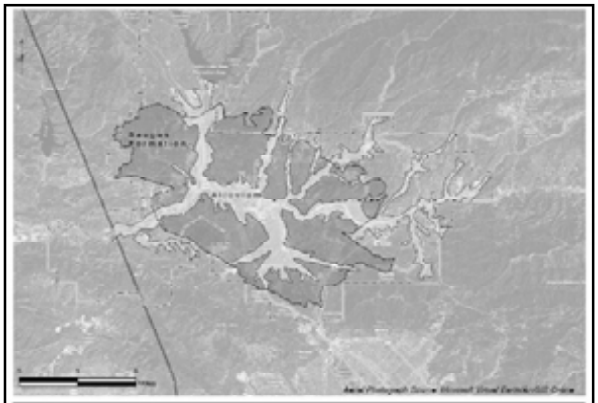


Figure 3-1
Alluvium and Saugus Formation

Groundwater Management Plan (2003)

Management Objectives (Goals) for the Basin

- Development of integrated surface water, groundwater, and recycled water supply to meet existing and projected uses
- Determination of operational groundwater yield to avoid overdraft = sustainability
- Preservation of groundwater quality, including solution of contamination problems
- Preservation of interrelated surface water resources = maintenance of surface water flows and non-degradation of quality

Groundwater Management Plan (2003)

Elements

- Groundwater monitoring
- Surface water monitoring
- Basin yield analysis
- Regular and dry year water supplies
- Continued conjunctive use
- Long-term salinity management
- Integration of recycled water
- Mitigate contamination
- Local, state and federal relationships
- Public education and water conservation
- Recharge wellhead protection areas
- Well construction and destruction policies
- Provisions to add additional components

Annual Water Reports (1998-present)

Annual Water Requirements and Supplies

- Actual water use
- Sources of supply to meet actual use

Groundwater

- Alluvial and Saugus aquifer conditions

Supplemental Water Supplies

- State Water Project
- banking and other programs

Water Quality

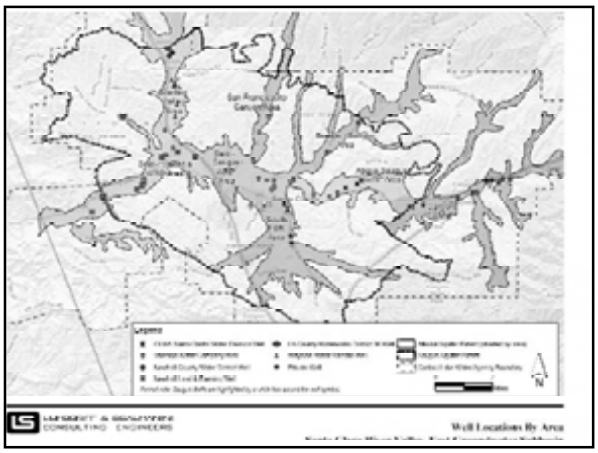
Recycled Water

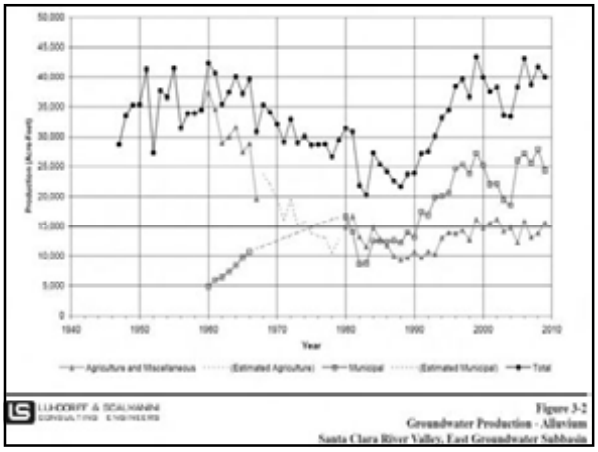
Santa Clara River

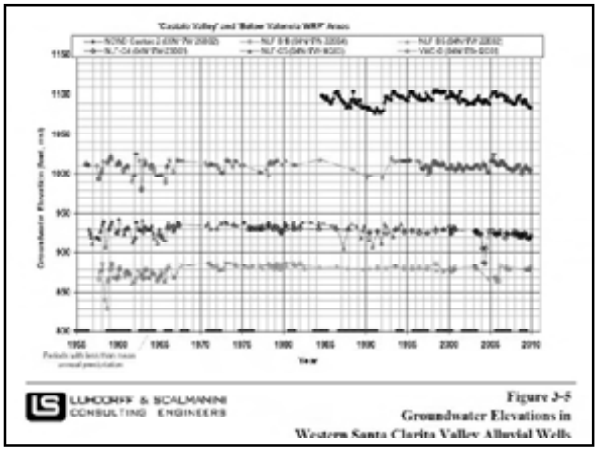
- Outflows from Santa Clarita Valley

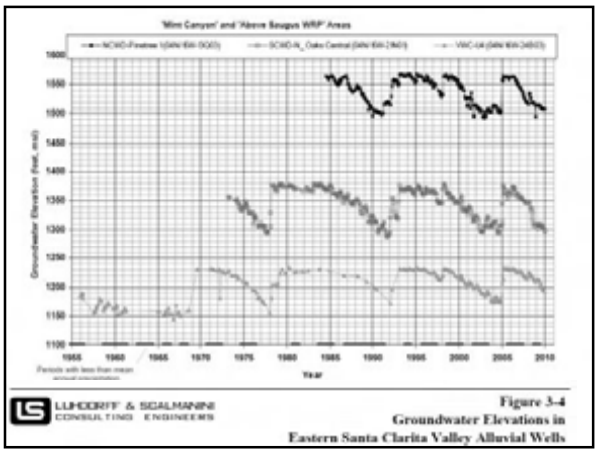
Short-Term (one year) Outlook

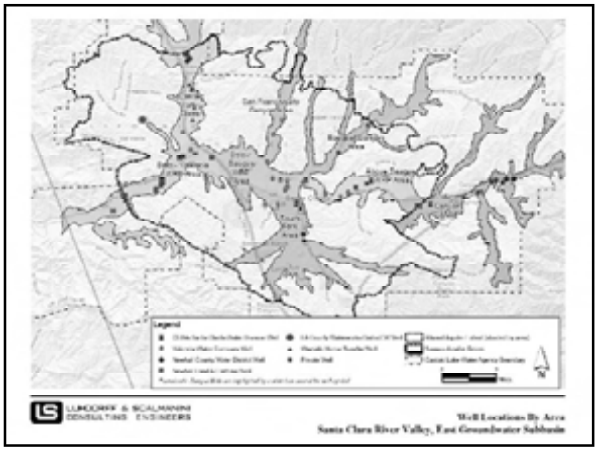
- Water requirements adjusted from UWMP
- Surface water, groundwater and recycled water supplies
- Adequacy of water supplies

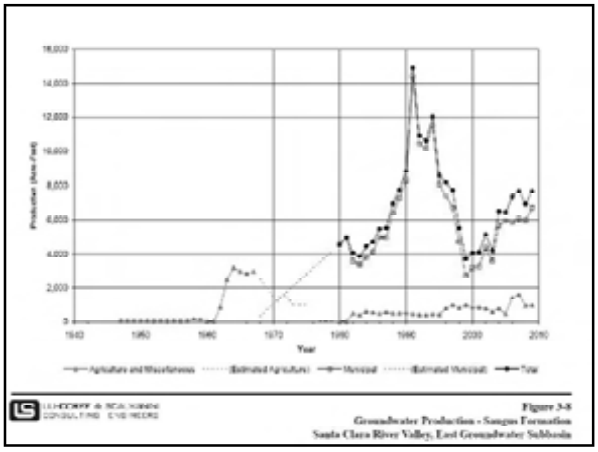

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Well Locations By Area


Production (Acre-Feet)
Year
Agriculture and Miscellaneous
(Estimated Agriculture)
Municipal
(Estimated Municipal)
Total
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-2
Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin


Year
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-5
Groundwater Elevations in
Western Santa Clarita Valley Alluvial Wells


'Mint Canyon' and 'Above Saugus WRP' Areas
Groundwater Elevation (Feet, msl)
Year
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-4
Groundwater Elevations in
Eastern Santa Clarita Valley Alluvial Wells


Legend
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin


Production (Acre-Feet)
Year
Agriculture and Miscellaneous
(Estimated Agriculture)
Municipal
(Estimated Municipal)
Total
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-8
Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

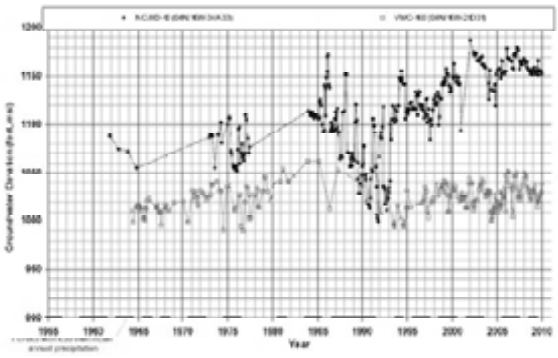


Figure 3-9
Groundwater Elevations in Saugus Wells

Total Groundwater Supply Santa Clarita Valley

	Normal Years		
	Alluvium (afy)	Saugus Fm. (afy)	Total (afy)
Municipal Purveyors	25,850	11,485	37,335
Agriculture & Others	12,750	1,000	13,750
Total	**38,600**	**12,485**	**51,085**

	Multiple Dry Years		
	Alluvium (afy)	Saugus Fm. (afy)	Total (afy)
Municipal Purveyors	23,800-22,250	18,125-33,975	41,975-56,225
Agriculture & Others	12,700-12,600	1,000	13,700-13,600
Total	**36,500-34,850**	**19,125-34,975**	**55,675-69,825**

2008 Groundwater Operating Plan

Groundwater Pumping 2010 UWMP				
Aquifer	**Normal Years**	**Dry Year 1**	**Dry Year 2**	**Dry Year 3+**
Alluvium	30,000-40,000 (38,600)	30,000-35,000 (36,500)	30,000-35,000 (34,850)	30,000-35,000 (34,850)
Saugus	7,500-15,000 (12,485)	15,000-25,000 (19,125)	21,000-25,000 (25,227)	21,000-35,000 (34,977)

from 2009 Basin Yield Update (LSCE & GSI), following 2001 Groundwater Update Report (Slade) & 2005 Basin Yield Analysis (CH2M Hill & LSCE)

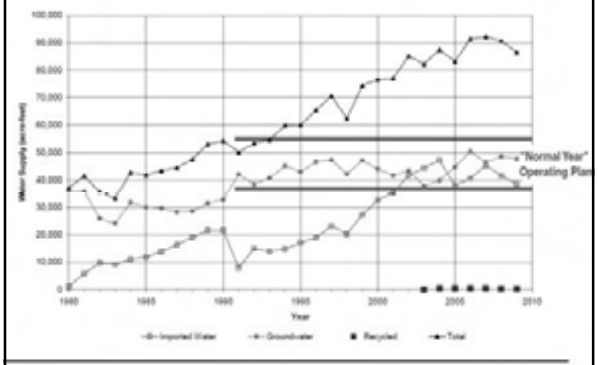


Figure 2-1
Total Water Supply Utilization
Santa Clarita Valley

Sustainability and Achievability

Sustainability

" lack of chronic, or sustained, depletion of groundwater storage, as indicated by projected groundwater levels, over a reasonable range of wet, normal, and dry hydrologic conditions" (86 years: 1922-2007)

"maintenance of surface water flows in the western portion of the basin (which are partially maintained by groundwater discharge) and surface water outflow to downstream basins over the same range of hydrologic conditions"

Achievability

maintenance of groundwater levels above, or only temporarily slightly into, the intake (screened or perforated) sections of production wells

from 2009 Basin Yield Update (LSCE & GSI)

2008 Operating Plan Conclusions

Operating Plan is fully sustainable (no chronic groundwater level declines; no depleted stream flow), i.e. not overdraft, and mostly achievable (limited dry-period declines in eastern part of Valley)

Lack of any projected overdraft is consistent with actual historical basin response to the same range of groundwater pumping

Achievability issues in extended dry periods can be resolved by redistribution of some pumping to the west

- with redistribution, retain dry-period Alluvial pumping near 35,000 afy
- without redistribution, dry-period Alluvial pumping closer to 30,000 afy

Subsidence

In alluvial aquifers, results from "aquitard drainage" and resulting consolidation of the "aquitard"

- requires extensive, thick aquitard (fine-grained sediments, i.e. clay bed)
- requires chronically depressed groundwater levels (to allow clay to drain)

Santa Clarita Valley Alluvium

- up to 240 ft. thick, but lacking any extensive, thick aquitard => geology not conducive to subsidence, regardless of groundwater levels
- some near-constant and some fluctuating groundwater levels, but no chronically depressed groundwater levels anywhere => hydrology not conducive to subsidence.

No physical evidence of subsidence, e.g. lowering of land surface.

Small Private Pumping

Limited submittal of pumping-related data, approx. 5-6 years ago, for two tributary canyons; quantified less than 200 afy

No information submitted about well completions, e.g. whether in Alluvium or bedrock, pump capacities, water level records

No information about well failures, e.g. "going dry"

Extrapolated limited pumping data to conservatively estimate 500 afy of basin-wide small private pumping; included in Annual Water Report

Reported, and continue to expect, all private Alluvial wells to experience the same groundwater level fluctuations as monitored and reported in Annual Water Report

Monitoring

CA Health and Safety Code, Title 22

- Domestic Water Quality and Monitoring
- Waterworks Standards

CA Dept of Public Health

- Domestic Water Supply Permits
- Application of Health & Safety Code and DPH Policies

Santa Clarita Valley Purveyors

- Permitted and regulated as above
- In compliance with above for quantity and quality of water supplies

Perchlorate Treatment

- Groundwater Quality
  - Perchlorate treatment and restoration

Perchlorate

Year Perchlorate Detected	Purveyor Well	Groundwater Aquifer	Status
1997	SCWD Saugus 1	Saugus	DPH approved well return to service in January 2011; well in active service utilizing approved perchlorate treatment.
1997	SCWD Saugus 2	Saugus	DPH approved wells return to service in January 2011; well in active service utilizing approved perchlorate treatment.
1997	VWC Well 157	Saugus	Sealed and capacity replaced by new well.
1997	NCWD Well 11	Saugus	Out of service
2002	SCWD Stadium Well	Alluvium	Sealed and capacity replaced by new well.
2005	VWC Well Q2	Alluvium	DPH approved perchlorate treatment removal in 2007; treatment was installed in 2005 and relocated for potential future use; well remains in service.
2005	DTSC approved Interim Remedial Action Plan		
2006	NCWD Well NC-13	Saugus	DPH approved annual monitoring, results have always been below the detection limit for reporting; well remains in service.
2007	Settlement Agreement		
2010	VWC Well 201	Saugus	Out of service pending additional monitoring and evaluation of remediation alternatives.

Rapid Response Fund provides $10M in reimbursement funds to CLWA as fail-safe.

Perchlorate Impact

Valencia Water Company
Well 201

Site Location -- Former Whittaker Bermite Facility

From 2005 UWMP - Appendix D

Perchlorate Concentrations

Initial Detection (August, 2010) 5.0 ug/l
well removed from water supply service

Quarterly/Monthly Confirmation Sampling
(November, 2010/April, 2011) fluctuations between
5.7 and 12 ug/l

Logical Occurrence or Completely Unexpected?

Initial Perchlorate Contamination in Saugus Wells - 1997
Saugus 1 & 2; V 157; NCWD 11

Groundwater Flow
westerly gradient and flow direction /pre-1997 to 2010

Gradient Control = "Containment" via Restoration of Saugus 1 & 2
modeled /2004
permitting, litigation, Settlement Agreement /2007
design, construction /2010
DPH water supply permit /2010
start-up operations /2010
full-time operation /January 2011

Valencia 201
first down-gradient Saugus well from original impacts
13-year elapsed time from initial impacts to V 201 impact
listed as /threatened/ well in Settlement Agreement
while not a foregone conclusion, detection is a logical occurrence, and not completely unexpected

Water Supply Impact

Recent Operations

- capture zone analysis □2004
- reduced pumping to avg. 180 afy □2004-2010
- replaced pumping with other Saugus well capacity

Saugus Formation

- 7,500 □15,000 afy □normal year□water supply
- 15,000 □35,000 afy □dry year□water supply

V 201

- key well in dry years
- 3,777 afy of total □dry year□water supply
- capacity needs to be restored before next potential dry year, i.e., within two years

V 201 Response

Removed from Water Supply Service at Initial Detection (August, 2010)

Quarterly-Monthly Confirmation Sampling

Alternatives

- restoration with □wellhead□treatment
- well replacement

Groundwater Modeling

- perchlorate migration
- need for secondary □containment□
- updated assessment of □threatened□wells

Dept. of Public Health Permitting

Design and Construction

Existing and Planned Saugus Well Locations

Organic Compounds

- Volatile and Synthetic Organic Compounds
  - Trichloroethylene (TCE) and Tetrachloroethylene (PCE)
    - Cleaning solvents, legacy contamination, urban stormwater runoff, septic systems
- CLWA annually monitors for these compounds;
  - TCE was found below the MCL in trace levels in groundwater in the Valley.
  - Not currently affecting production or needing treatment.

Water Banking Program Terms

Water Banking Programs

Banking Program	Extraction Capacity (AFY)	Contract Term
Rosedale Rio-Bravo	20,000	Through term of SWP contract
Semitropic interim programs	15,000	Through 2012/13 originally; through 2022/23 with Amendment
Semitropic - Newhall Land	4,950	Through 2035 with renewal by mutual agreement

State Water Project Reliability Comment Areas

- Supply Reliability
- Facility Reliability
- SWP and West Branch Conveyance
- Catastrophic Supply Interruption

SWP Supply Reliability

- Supply data from DWR's 2009 SWP Delivery Reliability Report.
- Based on model studies using 82 years of historical hydrology (1922 – 2003).
- Historical period includes several significant drought periods.
- Estimate for future (2029) includes adjustments to hydrology to reflect climate change.

SWP Facility Reliability

- Past SWP outages have been short-term (typically weeks in duration).
- Longest West Branch outage was planned three-month winter outage (Dec 1998 – Feb 1999).
- CLWA ideally located immediately downstream of two large SWP reservoirs – Pyramid and Castaic Lakes.
- Location allows deliveries to continue to CLWA and other West Branch Contractors even with outage in aqueduct upstream.
- No past SWP outages have impacted deliveries to CLWA.
- Potential supply impacts of future outage evaluated in UWMP Section 8.

SWP Conveyance

- SWP facilities are owned by State and operated by DWR.
- West Branch facilities, including aqueduct and Pyramid and Castaic Reservoirs, are part of SWP.
- CLWA and 28 other SWP Contractors each have a Water Supply Contract with DWR for water supply and delivery, with similar terms.
- Water Supply Contract:
  - Dictates terms for water delivery.
  - Provides for delivery of SWP water, supplies to and from out-of-service area banking programs, and non-SWP water.

SWP Conveyance (cont.)

- Each SWP Contractor has same priority for delivery within proportion of aqueduct capacity they pay for.
- Deliveries in excess of that capacity may be made through unused capacity of other Contractors.
- DWR requires separate delivery agreements for Contractor programs needing delivery through SWP facilities.
- CLWA has agreements with DWR for deliveries to and from its San Joaquin Valley banking programs and for delivery of its Buena Vista-Rosedale supply.

West Branch Conveyance

- DWR controls deliveries to each of three West Branch Contractors (CLWA, MWD, Ventura Co WPD).
- In dry years when SWP supplies are low, capacity normally used to convey SWP water is available to deliver other supplies.
- CLWA withdrawals from banking programs are planned only for dry years, when capacity would be available to convey it.

Catastrophic Supply Interruption

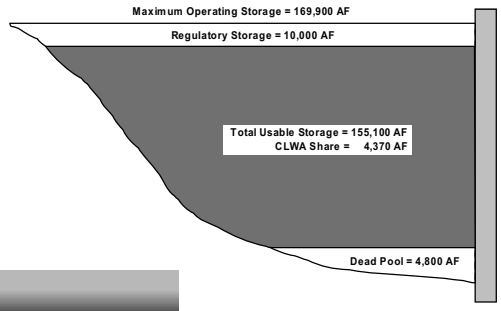
- Three SWP emergency outage scenarios considered:
  - Levee breach in Delta
  - California Aqueduct in San Joaquin Valley
  - West Branch Aqueduct
- Worst-case outage: West Branch Aqueduct
  - No SWP or other supplies through aqueduct
  - No supplies from groundwater banking in San Joaquin Valley

Catastrophic Supply Interruption

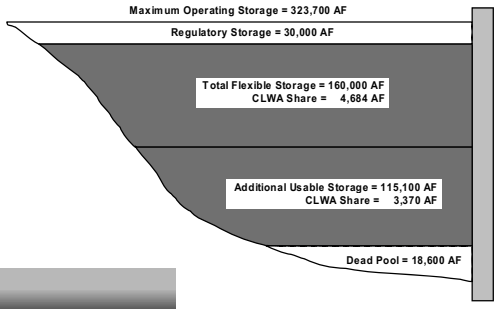
Outage assumptions:

- Six-month outage
- Occurs in normal/average year
- Supplies limited to:
  - Local Supplies
    - Groundwater
    - Recycled water
  - CLWA share of storage in West Branch reservoirs
    - Flexible storage
    - Emergency storage

Pyramid Lake Storage



Castaic Lake Storage



Six-Month West Branch Aqueduct Outage: Water Supplies and Demand (AF)

Water Supply Sources	2015	2020	2035	2050
Local Supplies				
Existing Supplies				
Groundwater	22,200	22,200	22,700	22,700
Recycled Water	120	120	120	120
Planned Supplies				
Future Groundwater	1,900	7,350	8,850	10,350
Recycled Water	370	1,020	3,850	7,870
Total Local Supplies	**24,590**	**30,690**	**35,520**	**41,040**
SWP West Branch Storage Available				
SWP Flexible Storage Accounts	6,060	4,680	4,680	4,680
Emergency Storage				
Pyramid Lake	4,370	4,370	4,370	4,370
Castaic Lake	3,370	3,370	3,370	3,370
Total West Branch Storage	**13,800**	**12,420**	**12,420**	**12,420**
Total Local Supplies and West Branch Storage	**38,390**	**43,110**	**47,940**	**53,460**
Demands				
Total Demand w/o Conservation	40,035	44,242	56,863	69,484
Total Demand w/ Conservation	**36,172**	**35,954**	**48,447**	**60,939**
Additional Supply and/or Conservation Required	**-**	**-**	**507**	**7,479**
As Percent of Demand	0%	0%	1%	11%

SBX7-7 Calculations and Water Conservation Accounting

SBX7-7 Calculations

- All values reported in UWMP by purveyors are required in statute passed in late 2009
- Methodologies developed through a DWR public committee process also required in statute; Kennedy/Jenks is a committee member
- Demand reduction targets calculated for each retail purveyor
- Purveyors may reach targets by combination of water conservation and recycled water programs

Water Conservation Accounting

- Estimates of future savings made by reviewing a wide variety of water conservation measures and programs, and then applying industry-accepted savings factors to them
- Saving factors are determined by in-depth technical studies, mainly done by the California Urban Water Conservation Council (CUWCC) and the American Waterworks Association
- CUWCC reports all savings calculations for its signatory agencies to SWRCB annually
- Detailed SCV Water Use Efficiency Strategic Plan is implementation plan for demand reductions

SBX7-7 Calculations and Water Conservation Accounting

- Document website links
  - SBX7-7 Methodologies: http://www.water.ca.gov/wateruseefficiency/sb7/committees/urban/u3/
  - CUWCC SWRCB Report: http://www.cuwcc.org/about/annual-reports
  - SCV Water Use Efficiency Strategic Plan: http://www.scvh2o.org/ http://www.clwa.org/about/publications.cfm

Chlorides/AWRM

- Imported Water Quality
  - Chloride TMDL
  - Alternative Water Resources Management Program (AWRM)
  - SWP Water Quality Modeling

Chlorides (continued)

- Imported Water Quality
  - Chloride TMDL (2005) – 100 mg/L from Saugus/Valencia WRPs
- Alternative Water Resources Management Program (AWRM) (2008)
  - Established conditional site specific objectives for chloride;
  - Provides water quality and water supply benefits, and protects biological resources;
  - SWP Water Quality Modeling

Santa Clarita Valley Urban Water Management Plan

Directors' Question and Answer Period

Santa Clarita Valley
Urban Water Management Plan

Next Steps

Consultant Team Resumes
Public Outreach Record

2010 Santa Clarita Valley Urban Water Management Plan

Lynn M. Takaichi, P.E.

Chairman

Education

MS in Civil Engineering (Sanitary), University of California, Berkeley, 1972
BS in Civil Engineering, University of California, Berkeley, 1971
Special Study in Environmental Impact Assessment, University of California
Study in City and Regional Planning, University of California
Study in Water Resources Planning Civil Defense Preparedness Agency, Certificate of Achievement in Multi-Protection Design, University of Hawaii

Registration

Civil Engineer in California

Professional Summary

Mr. Takaichi is responsible for major planning and design projects, particularly assignments involving complex institutional and financial arrangements. He has directed a wide range of water projects including water resource studies, water system master plans, water treatment investigations, water facilities design and utility management plans. In addition, he has managed the preparation of numerous environmental impact assessments.

Mr. Takaichi has particular expertise in complex institutional arrangements and he works closely with specialized legal counsel, financial consultants, and water managers. His experience includes water agency formation, drafting of enabling legislation, negotiation of water supply and water service agreements, development of annexation policies and agreements, and management of a wide variety of water programs. He also has expertise in water system appraisals and has assisted numerous public agencies with the acquisition of investor-owned utilities.

Water Demand Models

- Comprehensive water system plan update for the Lakehaven Utility District.
- Modeling of water and reclaimed water systems for the Cambria Community Services District.
- Comprehensive water system master plan update for the City of Oxnard.
- Comprehensive water plan and capital improvement program ($380 million) for the Castaic Lake Water Agency.
- Water master plan for the City of Chino.
- Water Supply Reliability Plan Update and Optimization Model for the Castaic Lake Water Agency.
- Integrated Regional Water Management Plan for the Antelope Valley for the County of Los Angeles.
- Water Demand Model for the Mojave Water Agency.

Water Resource Studies

- Water Supply Reliability Evaluation for the San Gorgonio Pass Water Agency.
- Strategic planning consultant for local water resources development for the Los Angeles Department of Water & Power.

- Expert witness for water rights valuation for Squaw Creek Resort.
- Integrated Regional Water Management Plan for the Antelope Valley for the County of Los Angeles.
- Water Supply Reliability Plan Update and Optimization Model for the Castaic Lake Water Agency.
- Alternative Water Management Plan for the Santa Clara River for the Los Angeles County Sanitation Districts.
- Negotiation of numerous water transfer and exchange agreements for public and private clients.
- Evaluation of potential water marketing concepts at Lake Elizabeth for Ridgetop Ranch Properties.
- Peer review of SB 610/221 Water Supply Assessment for the Centennial Development (27,000 homes).
- Numerous groundwater evaluations and groundwater management plans.
- Preparation of numerous urban water management plans. Among these are plans for the Antelope Valley, Castaic Lake Water Agency, Hi-Desert Water District, City of Oxnard, City of Santa Paula, and Twentynine Palms Water District.
- Feasibility Evaluation of Alternative Spreading Facilities at the Cucamonga Spreading Grounds for the San Antonio Water Company.
- Evaluation of water banking requirements (Water Supply Reliability Plan) for the Castaic Lake Water Agency.
- Strategy Development for the Santa Ana River Recharge Facilities for the San Bernardino Valley Water Conservation District.
- Water resource evaluation of the Antelope Valley.
- West Ventura County water supply reliability study for the cities of Ventura and Oxnard.
- Water Resources Plan for the Cambria Community Services District.
- Concept Plan for the restoration of the Santa Rosa Basin for the Camrosa Water District.
- McGrath Lake preliminary watershed study for the McGrath State Beach Area Trustee Council.
- Water production alternatives study for the City of Camarillo.
- Evaluation of supplemental water supplies for the Nipomo Community Services District.
- Baseline water supply study for the Cambria Community Services District.
- Preliminary evaluation of the potential use of freeway dewatering water as a water supply for the City of Downey.
- Water resources study for the City of Santa Paula.
- Water Resources Element (LA County) of the Santa Clara River Enhancement and Management Plan for the Castaic Lake Water Agency.
- Optimization study of state water importation into Ventura County.
- Evaluation of potential water resources for the Hidden Valley Municipal Water District.
- Water resources evaluation and environmental assessment of 200,000 acres in Hawaii for the Soil Conservation Service.

Affiliations

American Society of Civil Engineers
American Water Works Association
National Society of Professional Engineers
Society of American Military Engineers
Water Environment Federation

National Association of Corrosion Engineers

Publications

Levi Brekke, Milton D. Larsen, Mary Ausburn, and Lynn Takaichi. 2002. *Suburban Water Demand Modeling Using Stepwise Regression.* Journal – American Water Work Association, October 2002.

Mary Lou Cotton, C.C.P.

Technical/Policy Advisor and QA/QC

Education

MS, Geological Sciences, University of Southern California
BS, Biological Sciences, University of Southern California

Registrations

Certified Water Conservation Practitioner, AWWA-CA/NV

Affiliations

California Urban Water Conservation Council
American Water Works Association, Water Conservation Certification Committee
Association of California Water Agencies, Water Use Efficiency and Communications Committees

Professional Summary

Mary Lou Cotton is a water resources planning and water conservation expert, with over 17 years of management experience with water agencies statewide, specifically in conducting water resource planning and management programs including surface water and groundwater investigations; water transfer, banking and exchange transactions and agreements; water conservation planning and management; master planning and design studies; water quality and hazardous waste investigations; and supporting the preparation of CEQA Compliance documents and obtaining project permits. Ms. Cotton is working in an advisory capacity for several clients on a wide variety of water banking (supply reliability) programs, as well as water transfers or exchanges for short-term and long-term water supplies. In addition, Ms. Cotton assists the State Water Contractors in an advisory capacity on Bay-Delta matters and is also serving as the General Manager of the State Water Project Contractors Authority.

Ms. Cotton has served on the California Urban Water Conservation Council for over a dozen years, as representative for Council members Kern County water Agency, Castaic Lake Water Agency and now Kennedy/Jenks Consultants. She has served on the Council Steering Committee for eight years, and is currently Secretary/Treasurer of the organization; this experience has made her extremely familiar with the requirements of the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). Ms. Cotton is also a member of the Association of California Water Agencies Water Use Efficiency and Communications Committees. She is an AWWA registered Level 1 Water Conservation Practitioner and currently serves on the AWWA Water Conservation Certification Committee.

This wide experience has made Ms. Cotton an expert on all aspects of California water management policy and practice. She has participated in numerous high-level efforts regarding water conservation in California, including the CALFED Bay-Delta Program Water Use Efficiency advisory committee and the Department of Water Resources Urban Water Management Plan guidebook advisory committee, and has worked on various pieces of conservation-related legislation. In addition, she has served on numerous CUWCC project advisory committees and participated in the 1997 and 2008 revisions of the MOU.

Project Experience

2010 Urban Water Management Plan Update, Castaic Lake Water Agency, Santa Clarita, CA. Project Manager for preparation of the 2010 regional Urban Water Management Plan (UWMP), which is being completed on behalf of CLWA and its four retail purveyors. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. The UWMP also includes an evaluation of the various alternative water management strategies and supplies available to the Valley and based on the evaluation, will recommend water supply strategies.

2010 Urban Water Management Plan Update, Mojave Water Agency, Apple Valley, CA. QA/QC. Kennedy/Jenks is currently providing planning services to product Mojave Water Agency's (MWA) 2010 UWMP with particular focus on Best Management Practices (BMPs) and new regulations. A State Water Project contractor, MWA's plan is to be completed in cooperation with numerous retailers from within their service area. This update will also include analysis of the various agencies' water conservation programs status for the purposes of evaluating compliance with AB 1420 and SBX7, in coordination with the local Alliance for Water Awareness and Conservation.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. QA/QC for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Urban Water Management Plan Update for Improvement District 4, Kern County Water Agency, Bakersfield, CA. Project Manager for preparation of the 2010 regional UWMP, for the Kern County Water Agency's (KCWA) Improvement District No. 4 (ID4), which represents the urban portion of KCWA's State Water Project wholesale service area. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan Update, Port Hueneme Water Agency, Port Hueneme, CA. QA/QC for preparation of the Agency's 2010 UWMP update, which will include 25 years of water supply/demand analysis, new legislative requirements, water supply demand forecasting, Demand Management Measures review and analysis, and contingency planning.

2010 Urban Water Management Plan Update, City of Port Hueneme, CA. QA/QC for update of the City's 2010 UWMP. Project included review of the City's existing and future water supplies and demands, water supply reliability, summary of current conservation measures, an evaluation of recommended conservation measures, and an implementation plan.

2010 Urban Water Management Plan Update, San Bernardino Valley Municipal Water District, San Bernardino, CA. QA/QC for update of the District's 2010 UWMP with particular focus on Best Management Practices (BMP's) and new regulations. The work will also include coordination with California Department of Water Resources reviews and approvals.

2010 Urban Water Management Plan, Lake Arrowhead Community Services District, Lake Arrowhead, CA. Project Manager for production of this retail water purveyor's 2010 UWMP update.

2010 Urban Water Management Plan, North of the River Municipal Water District and Oildale Mutual Water Company, Kern County, CA. QA/QC for preparation of the 2010 UWMP update for Kern County Water Agency Improvement District No. 4's (ID4) participating retail purveyors, North of the River

Municipal Water District and Oildale Mutual Water Company. The UWMP update will provide information on ID4's wholesale service area and operations and will include data and information about the ID4 retail purveyor service areas and operations. The UWMP update will also include information on ID4 retail purveyor service areas that recover groundwater within ID4.

2010 Urban Water Management Plan, City of Ventura, CA. Project Manager for production of the City's 2010 UWMP update. The water supply analysis includes local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan, Central Coast Water Authority, Ventura County, CA. Currently providing QA/QC and third-party technical review for the CCWA's 2010 UWMP update.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. QA/QC for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

Water Use Efficiency Master Plan, Western Municipal Water District, Riverside County, CA: Project Manager. In concert with the growing emphasis on water use efficiency programs, WMWD commissioned the preparation of a Water Use Efficiency Master Plan to comprehensively address the long term use of water resources within their service area by adopting objectives, policies and programs designed to promote innovative emerging technologies and practices, as well as proven and cost-effective conservation measures. Ms. Cotton managed and authored several sections of the Plan, conducted an evaluation of water conservation measures through development of a weighted scoring matrix, and reviewed and assisted in the production of the Master Plan.

Water Conservation Master Plan, City of Riverside, Riverside County, CA: Technical Advisor & QA/QC. Recently selected for the preparation of a Water Conservation Master Plan to comprehensively address the long term use of water resources within the City's service area by adopting objectives, policies and programs designed to promote innovative emerging technologies and practices, as well as proven and cost-effective conservation measures.

Integrated Water Resources Management Plan (IWRMP), Western Municipal Water District, Riverside, CA: Project Team Member. Preparation of an integrated water resources plan for the Western Municipal Water District and retail agencies within the District (Riverside County). Project involved assistance to, and coordination of, a six member management group and approximately 20 stakeholders. Developed materials for stakeholder education, assisted with identification of water management objectives, and evaluation of projects put forth by stakeholders for consistency with objectives, financial feasibility, and compliance with State mandated requirements.

Upper Santa Clara Integrated Water Resources Management Plan, County of Los Angeles, CA: Project manager for the preparation of an integrated water resources plan for the Upper Santa Clara River Region (Los Angeles County). Project involves assistance to, and coordination of, an eight member management group and approximately 30 stakeholders. Develop materials for stakeholder education,

assist with identification of water management objectives, and evaluate projects put forth by stakeholders for consistency with objectives, financial feasibility, and compliance with State mandated requirements.

Hollister Area 2008 Urban Water Management Plan, Sunnyslope County Water District, City of Hollister, San Benito County Water District, CA. Provided QA/QC for a collaborative Urban Water Management Plan (UWMP) Update by the Sunnyslope County Water District (Sunnyslope), City of Hollister (City), and the San Benito County Water District (District). The latest amendment to the Plan incorporates a water shortage contingency plan, alternative water conservation measures and water reclamation programs.

Experience Prior to Kennedy/Jenks

Castaic Lake Water Agency, Water Resources Manager, Santa Clarita, CA. At the direction of the General Manager, work consisted of managing all aspects of the Agency's water resources projects, specifically dealing with water supply issues at the state and local levels. Prepared, facilitated, reviewed and submitted all water sale/transfer contracts, various agreements, and attendant resolutions to the Agency's Board of Directors and the Department of Water Resources. Prepared all documentation and conducted negotiations for three separate groundwater banking projects. Prepared in-house technical reports and other materials, including overseeing the production of the Agency's Urban Water Management Plan. Served in scientific advising capacity in reviewing all environmental regulatory documentation, particularly in regard to CEQA requirements, including consultant reports and other scientific documents. Served as the Agency's Water Conservation Coordinator; responsible for implementation of water conservation Best Management Practices as contained in the Memorandum of Understanding of the California Urban Water Conservation Council. Responsible for the Agency's public information program and oversee all its aspects. Represented the Agency on various committees, including several State Water Contractors standing committees, the California Urban Water Conservation Council Steering Committee, and the Association of California Water Agencies Communications and Program Committees.

Castaic Lake Water Agency, Assistant to the General Manager, Santa Clarita, CA. Worked at the direction of the General Manager, specifically dealing with water supply issues at the state and local levels. Prepared, facilitated, reviewed and submitted water sale/transfer contracts, various agreements, and attendant resolutions to the Agency's Board of Directors. Served in scientific advising capacity in reviewing environmental regulatory documentation, particularly in regard to the CALFED Bay-Delta Program; environmental impact reports; consultant reports and other scientific documents. Served as the Agency's Water Conservation Coordinator; responsible for implementation of water conservation Best Management Practices as contained in the Memorandum of Understanding of the California Urban Water Conservation Council. Responsible for the Agency's public information program. Prepared, compiled, wrote, and edited the Agency's quarterly newsletter and other Agency public information materials. Prepared in-house technical reports and other materials, including the Agency's Urban Water Management Plan. Represented the Agency on various committees, including several State Water

Contractors standing committees and the Association of California Water Agencies Communications and Program Committees.

Kern County Water Agency, Water Resources Planner, Bakersfield, CA. Attached to the Agency's Water Resources Department, specifically dealing with water supply issues, at both the state and local levels. Prepared, facilitated, reviewed and submitted water sale/transfer contracts, various agreements, and attendant resolutions to the Agency's Board of Directors. Served in scientific advising capacity in reviewing environmental regulatory documentation, particularly in regard to the CALFED Bay-Delta Program; environmental impact reports; consultant reports and other scientific documents. Served as the Agency's Water Conservation Coordinator; assist the Agency's Urban Bakersfield Advisory Committee. Responsible for implementation of water conservation Best Management Practices as contained in the Memorandum of Understanding of the California Urban Water Conservation Council. Also assisted with the Agency's participation in the AB3616 Agricultural Water Management Council. Responsible for majority of the Agency's public information program. Prepared, compiled, wrote, and edited the Agency's monthly newsletter. Prepared and wrote Agency public information materials. Prepared in-house technical reports and other materials including the Agency's Urban Water Management Plan. . Represented the Agency on various committees, including several State Water Contractors standing committees and budget review committee, the California Water Clearinghouse (for CALFED and Bay-Delta issues), the Association of California Water Agencies Communications (vice-chair) and Program Committees, and the Executive Committee of the Water Association of Kern County.

RESUME

Joseph C. Scalmanini

Specialization:

Forty-three years of practice in groundwater development and management, and oil and gas production. Assessments of groundwater resources and implementation of groundwater basin management in various areas throughout California; groundwater development and management encompassing well design, construction, operation, and maintenance; groundwater monitoring as part of basin management and as part of groundwater contamination investigations; artificial groundwater recharge facilities and practices; injection of industrial waste water; development of brackish and saline groundwater for municipal (desalination) and industrial water supply; water supply master planning.

Professional Registration:

Registered Civil Engineer, California, CE 28233

Academic Degrees:

M.E. Civil Engineering, University of California, Davis, CA	1984
B.S. Mechanical Engineering, University of Santa Clara, Santa Clara, CA	1967

Professional Experience:

Luhdorff and Scalmanini, Consulting Engineers, Woodland, CA	
President	2004 - Present
Principal Partner	1989 - 2004
Partner	1980 - 1989
University of California, Davis, Davis, CA	
Associate Development Engineer	1973 - 1979
Shell Oil Company	
Mechanical and Facilities Engineer	1967 - 1973

Representative Professional Assignments:

Consultant to water districts and utilities, municipalities, corporate and individual farming interests, corporate and private industry, and other engineering firms on groundwater development, utilization and management, including preparation and implementation of AB 3030 and other groundwater management plans, and plans for supplemental water supply and conjunctive use management. Consultation with public agencies, corporate and private concerns regarding groundwater contamination, its identification, monitoring, and management. Consultation with legal profession on technical aspects of groundwater development and utilization, including all aspects of groundwater basin yield and management, well design and construction, and application of pumping equipment.

Representative Professional Assignments continued:

Mr. Scalmanini directed and conducted a ground-water basin assessment in the Santa Maria Valley, including developing plans for conjunctive use of imported SWP water, recaptured return flows and increased artificial recharge of natural stream flow. After the adjudication of the Santa Maria Valley Groundwater Basin, he was appointed Basin Engineer, responsible for monitoring basin conditions and annually reporting to the court on the state of the basin.

Mr. Scalmanini directed the development of an alternative basin management plan for diversion of stream flow to replace coastal groundwater pumping and halt historical seawater intrusion in the Salinas Valley. He has developed several ground-water substitution programs for both public and private farming interests in Sacramento, Yolo and Sutter Counties, and authored Ground-Water Management Plans for these respective areas.

Mr. Scalmanini served as the court-appointed technical advisor to the Special Referee in the Chino Basin for development and implementation of an Optimum Basin Management Program to preserve and potentially increase the safe yield of the aquifer system, incorporate conjunctive use within storage limits in the aquifer, and make beneficial use of degraded water quality in the lower end of the basin by desalting ground water for future domestic water supply.

Mr. Scalmanini is directing ongoing engineering and hydrogeological analyses of local groundwater and imported State Water Project water supplies in the Upper Santa Clara River Area (Santa Clarita Valley) in Los Angeles County, including the preparation of annual Water Reports over the last eleven years. As part of that work, Mr. Scalmanini developed a cooperative technical program to integrate water resource analysis with the adjacent downstream basins, and has coordinated technical analysis of sustainable yield of the groundwater basin for ongoing agricultural, municipal, and other local water requirements since 2001. Mr. Scalmanini is the primary author of the AB3030 Groundwater Management Plan that has been adopted for the basin. He also prepared the Amendment to the 2000 Urban Water Management Plan for the State Water Contractor and all the water purveyors in the Valley to specifically address the adequacy of groundwater supplies in the wake of perchlorate contamination and the plan to contain contaminant migration while restoring contaminated wells to water supply service through the installation of wellhead treatment. He subsequently co-prepared an analysis of groundwater basin sustainable yield and a subsequent analysis of the adequacy of groundwater supply after another Alluvial well was impacted by perchlorate. He prepared the groundwater components of the 2005 Urban Water Management Plan, which was based on all the preceding analyses. Most recently, Mr. Scalmanini co-prepared an updated analysis of sustainable groundwater basin yield, including consideration of potential climate change impacts, for use in ongoing basin management and in the 2010 Urban Water Management Plan.

Mr. Scalmanini also currently serves as Chairman of the Ground-Water Committee that is developing and analyzing the potential for development of additional ground water throughout the Sacramento Valley as part of the Sacramento Valley Water Management Agreement reached in Phase 8 of the SWRCB Bay-Delta Water Rights Hearings.

Professional Affiliations:

National Ground Water Association
- Association of Ground Water Scientists and Engineers

American Water Works Association
California Groundwater Association
Groundwater Resources Association of California

Public Service:

- **Yolo County Aggregate Resources Committee (1975-79)**, Alternate delegate, hydrologist - analysis of impacts and development of management plans for extraction of aggregate from Cache Creek basin.
- **California Tenth Biennial Conference on Ground Water (1975)**, Member, Planning Committee
- **Chancellor's Campus (Univ. of Calif., Davis) Water Committee (1976-78)**, Staff Engineer - analysis of water supplies and uses, projection of requirements, development of conservation and management plans.
- **City of Davis Water Planning and Conservation Committee (1977-79)**, Chairman - analysis of water supplies and uses, projection of requirements, consideration of alternative supplies, development of conservation and management plans.
- **Yolo County Water Resources Task Force (1979)**, Member - development of county-wide master water plan.
- **Pacific Gas and Electric Co. ACT^2 Irrigation Pumping Demonstration Project (1992)**, Technical Advisor
- **Association of California Water Agencies (1994-1996)**, Member - Groundwater Committee
- **Cache Creek Conservancy**, **(2000-2002)**, Director

Teaching Activities:

Course Coordinator and Instructor University Extension Courses, University of California, Davis:

Concepts of Ground Water Management (1974, 1976, 1978, 1981)
Legal and Policy Considerations in Ground Water Management (1975, 1976, 1980)
Water Supply Wells and Pumps (1977, 1978,1981, 1983, 1985, 1986)
Groundwater Law, Hydrology and Management (2001-2010)

Instructor, University of California, Davis, Water Science 198, Introductory Hydraulics (1977, 1978, 1979)

Lecturer, University of California, Davis, Water Science 2, 140, 160; Ecology 230; Civil Engineering / Geology 175 (1975 - 1979)

Lecturer on Aquifer Characteristics, Well Hydraulics, and Groundwater Development, in Technical Training Classes at the U.S. Army Corps of Engineers' Hydraulic Engineering Center, Davis, CA.

Publications and Presentations:

Scott, V.H. and J.C. Scalmanini, **Water Wells and Pumps: Their Design, Construction, Operation, and Maintenance**, University of California Division of Agricultural Sciences Bulletin No. 1889, 1977.

Helweg, O.J., Scott, V.H., and J.C. Scalmanini, **Improving Well and Pump Efficiency**, American Water Works Association, 1983.

Publications and Presentations continued:

Scalmanini, J.C., and Scott V.H., **Design and Operational Criteria for Artificial Groundwater Recharge Facilities**, Water Science and Engineering Paper No. 2009, University of California, Davis, 1979.

Scalmanini, J.C., Scott, V.H., and O.J. Helweg, **Energy and Efficiency in Wells and Pumps**, presented at Twelfth Biennial Ground Water Conference, 1979.

Scalmanini, J.C., Johnson Jr., R.M., and E.E. Luhdorff Jr., **Development of a Groundwater Monitoring Program as a Basis for Coastal Groundwater Basin Management**, presented at the Fall Conference, American Water Works Association, CA-NV Section, 1983.
Scalmanini, J.C., **3030 Hindsight and 2020 Foresight, Actual Groundwater Management Experience Over the Last 15 Years, Soquel Creek Water District**, presented at the Association of California Water Agencies' Groundwater Management Conference, March 1994.

Scalmanini, J.C., **Legal and Technical Issues Related to Surface Water and Groundwater Interaction**, presented at the Groundwater Resources Association's California Ground Water & Efficient Usage for the Year 2000 and Beyond, October 1998.

Scalmanini, J.C., A. Schneider, and V. Cahill (panel presentation), **Groundwater Classification: Is the State Water Resources Control Board's Jurisdiction Over Ground Water Changing?**, presented at the Water Education Foundation's 2000 Update on Water Law and Policy, July 2000.

Scalmanini, J.C., **What the Heck's a Sub-Basin? Defining Basins and Sub-Basins**, presented at the Association of California Water Agencies' Groundwater Management: Will CalFed Help or Hinder Workshop, November 2000.

Scalmanini, J.C., **"Groundwater Law, Policy and Science: What can Be Done About The Disconnect",** presented at the Water Education Foundation's 2005 Water Law and Policy Briefing, San Diego, July 2005.

Nancy Clemm, P.E.

WORK SUMMARY

Nancy Clemm is a civil engineer with 30 years water resources planning experience, including 20 years working primarily on State Water Project (SWP) and Bay/Delta issues. Ms. Clemm is very familiar with SWP system operations, including reservoir, Delta, and conveyance facility operations, as well as with the Department of Water Resources (DWR) planning model used to estimate SWP delivery reliability. She has assisted in the preparation of numerous water supply planning documents, focused primarily on SWP supplies and facilities, including the 2005 and 2010 Urban Water Management Plans (UWMP) for Castaic Lake Water Agency (CLWA), the 1995 Regional Urban Water Management Plan and 1996 Integrated Water Resources Plan for the Metropolitan Water District of Southern California (MWD), and several environmental impact reports (EIR) dealing with SWP supplies and/or use of SWP conveyance facilities.

EXPERIENCE

WATER RESOURCES CONSULTANT, Los Angeles, California, 1999 - Present.
(Self-employed)

2005 and 2010 UWMPs: For CLWA, participated in preparation of 2005 and 2010 UWMPs, primarily focused on determining availability of SWP water supplies and assessing overall supply reliability.

Monterey Plus EIR: For MWD, provided technical support to SWP contractor representatives on advisory committee to DWR regarding water supply analyses and SWP contract issues, for preparation of new environmental document for Monterey Amendment to SWP water supply contract.

Water Program EIRs: For CLWA, assisted in preparation of EIRs for water programs involving use of SWP conveyance facilities, for CLWA's Rosedale Rio Bravo Water Storage District Water Banking Program, and its water acquisition from Buena Vista Water Storage District/Rosedale Rio Bravo Water Storage District.

SWP Table A Transfer EIR: For CLWA EIR for permanent transfer of SWP Table A amount, conducted SWP water supply reliability and water allocation analyses using data from DWR model studies, performed SWP aqueduct capacity rights and availability analysis, and prepared overall CLWA supply reliability assessment.

SWP Water Operations and Water Transfers: For State Water Contractors (SWC), participating in SWC Water Operations Committee, addressing SWP annual water supply and operational issues; and in SWC Water Transfers Committee, reviewing and providing recommendations regarding approval of proposed SWP contractor transfers and exchanges.

Reservoir Reoperation Report: For CALFED, drafted report on potential water supply and environmental benefits of reoperation of hydroelectric facilities in northern and central California.

Hydrologic Model: For Salt River Project, assisted with enhancements to runoff forecasting model, including making programming revisions, assisting with addition of user-interface, and writing user's manual and program documentation.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, Los Angeles, California, 1991 - 98. (Senior Engineer, SWP Branch, 1993 - 98; Engineer, Bay Delta Branch, 1992; Engineer, SWP Branch, 1991)

SWP Water Supply Analyses: Assisted in preparation of several planning documents, including 1995 Regional Urban Water Management Plan and 1996 Integrated Water Resources Plan. Conducted numerous additional analyses to estimate future availability of SWP supplies, and to evaluate proposed SWP operational constraints, future water supply options, and SWP contract provisions.

SWP Supply Operations: Participated in SWC committee monitoring DWR's reservoir and Delta operations, addressing operational issues and various contractor issues such as equity and current supply versus risk of future shortage.

Water Contracts: Provided significant support in development of Monterey Amendment to SWP contract, including providing technical support for urban contractor negotiating team; assisting in amendment drafting and completion of environmental documentation; and resolution of implementation issues. Participated in drafting numerous agreements between MWD, DWR, and other agencies related to establishment of and water delivery to groundwater banking and exchange programs.

SWP Supply Planning: Participated in SWC committee monitoring DWR planning efforts to enhance SWP supplies, including review of proposed projects' feasibility, supply yield, water quality, environmental effects and mitigation, and costs.

SALT RIVER PROJECT, Phoenix, Arizona, 1981 - 90. (Senior Water Resources Analyst, 1985 - 90; Engineer III, 1983 - 84; Rotational Engineer, 1981 - 82)

Water Supply Analyses: Worked extensively with reservoir operations simulation model of Salt River Project system to conduct supply studies, to estimate future supplies and evaluate supply impacts given proposed physical and operational changes. Made major programming modifications and wrote program documentation.

Other Computer Modeling: Developed runoff forecasting model to estimate real-time runoff to reservoir system, including all model design, programming, and documentation. Assisted in development of water demand forecasting model based on land use, including model design, development, and implementation.

Water Contracts / Accounting: Developed detailed knowledge of existing water delivery and reservoir storage contracts. Participated in several negotiations for new water contracts, primarily concerning water delivery, accounting, and measurement.

EDUCATION

Bachelor of Science in Civil Engineering, Arizona State University, 1981.
Graduate courses in water resources modeling, Arizona State University.

REGISTRATION

Civil Engineer, California and Arizona

J. Lauren Everett

Water Resources Specialist

Education

B.S., Environmental Studies, University of California, Santa Barbara, 1999

M.S., Donald Bren School of Environmental Science and Management University of California, Santa Barbara, 2001

Professional Summary

Ms. Everett is a Water Resources Specialist, with over 8 years of experience in environmental and regulatory compliance providing technical planning support for a diverse range of water resource projects. Ms. Everett is currently involved with implementing DWR's Proposition 84 Integrated Regional Water Management Grant Program, urban water management planning, and supply and demand forecasting. Lauren has served as the liaison between planning, and engineering teams, and appreciates the teamwork and communication skills needed to successfully integrate planning and design concepts to meet regulatory requirements. She has also served as the project manager and project specialist for numerous water resource studies in Southern California.

Professional Experience

- *Castaic Lake Water Agency (CLWA), 2010 Urban Water Management Plan Update, Santa Clarita, CA:* Preparation of the 2010 regional Urban Water Management Plan (UWMP) is being completed on behalf of CLWA and its four retail purveyors. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. Ms. Everett is the technical lead on the UWMP development.

- *2010 Urban Water Management Plan Update for Improvement District 4, Kern County Water Agency, Bakersfield, CA.* Preparation of the 2010 regional UWMP, for the Kern County Water Agency's (KCWA) Improvement District No. 4 (ID4), which represents the urban portion of KCWA's State Water Project wholesale service area includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. Ms. Everett is the technical lead on the UWMP development.

- *Castaic Lake Water Agency (CLWA), Upper Santa Clara River IRWMP Proposition 84 Implementation Grant Application, Santa Clarita, CA:* The Project is the preparation of an Implementation Grant application requesting funds from the Proposition 84 Integrated Regional Water Management (IRWM) Implementation Grant Program for five Candidate Projects within the Upper Santa Clara River IRWM Plan. Ms. Everett managed the effort and was the technical lead on the application preparation.

- *Castaic Lake Water Agency (CLWA), Upper Santa Clara River IRWMP Proposition 84 Planning Grant Application, Santa Clarita, CA:* The Project is the preparation of a Planning Grant application requesting funds from the Proposition 84 IRWM Planning Grant Program for the 2010 Update of the Upper Santa Clara River IRWM Plan. Ms. Everett managed the effort and was the technical lead on the application preparation.

- *Los Angeles County Department of Public Works, Antelope Valley Integrated Regional Water Management Plan (Plan):* Ms. Everett managed the development of the Plan, which was

designed with a regional focus for the sustainable management of water resources in the Antelope Valley Region for the next twenty-five years. Over 40 agencies within the Antelope Valley participated in the planning process.

- *Los Angeles County Department of Public Works, Antelope Valley Integrated Regional Water Management Plan, Proposition 50 Round 2 Step 1 & Step 2 Grant Application, Antelope Valley, CA:* Kennedy/Jenks submitted a proposal for an implementation grant requesting $25 million for seven projects that targeted reducing the mismatch between supply and demand projected for the Region by 2035. Ms. Everett managed the preparation of the Step 1 and Step 2 grant applications.

- *Los Angeles County Department of Public Works, Antelope Valley Integrated Regional Water Management Plan, Region Acceptance Process (RAP) Application, Antelope Valley, CA:* Kennedy/Jenks submitted a proposal successfully defending the IRWMP Region's boundary to the Department of Water Resources allowing the IRWMP Region to remain in the Proposition 84 IRWMP Program. Ms. Everett managed the RAP effort.

- *Kern County Water Agency, Tulare Lake Basin Portion of Kern County Integrated Regional Water Management Plan (Plan), Kern County, CA:* Ms. Everett is currently assisting in the development of the integrated regional planning document, and providing assistant management responsibilities. Over 40 agencies within the Kern Region are participating in the Kern Region IRWM planning process.

- *Kern County Water Agency, Tulare Lake Basin Portion of Kern County Integrated Regional Water Management Plan, Region Acceptance Process Application, Kern County, CA:* Kennedy/Jenks submitted a proposal successfully defending the IRWMP Region's boundary to the Department of Water Resources allowing the IRWMP Region to remain in the Proposition 84 IRWMP Program. Ms. Everett managed the RAP effort.

- *Castaic Lake Water Agency (CLWA), Water Supply Reliability Plan Update, Santa Clarita, CA:* The plan and update are needed in order to evaluate the technical, environmental, and economic issues associated with potential water supply reliability projects. Ms. Everett's responsibilities include characterization of the water supply and demands for the region, and general report content.

- *Los Angeles County Department of Public Works, North Los Angeles/Kern County Regional Recycled Water Master Plan Environmental Impact Report, Antelope Valley, CA:* Kennedy/Jenks assisted Environmental Science Associates in preparing the hydrology, hazards and hazardous materials, and geology sections of the Environmental Impact Report. Ms. Everett managed the Kennedy/Jenks team on this effort.

- *Ventura County Waterworks District No. 8 Recycled Water Master Plan, Simi Valley, CA:* This project consists of the design of a recycled water distribution system to serve municipal and industrial customers within the City of Simi Valley. Ms. Everett's responsibilities included characterization of the environmental issues associated with implementing the system, identification of required permits and approvals, and general report coordination.

Dana Haasz

Project Manager

Education

M.S., Applied Geography, New Mexico State University, Las Cruces, NM
B.S., Geography and Environmental Science, McGill University, Montreal, Canada

Affiliations

California Urban Water Conservation Council
Western Water Alliance Steering Committee and Hiring Committee
Technical Advisor to CALFED Appropriate Water Measurement Panel/Agricultural and Urban
Environmental Justice Coalition for Water Steering Committee
Water Education Foundation, Water Leader (2003) and Water Leader Mentor (2009)

Professional Summary

Dana Haasz has 13 years experience in water conservation, demand modeling and resource planning. She currently manages the water use efficiency projects and programs for Kennedy/Jenks. Projects range from planning, program assessment, demand modeling and helping agencies to meet regulatory requirements, to the development of implementation programs, budgets, monitoring and quantification.

Dana spent the six years as the Water Conservation Administrator at San Francisco Public Utilities Commission. Ms. Haasz has extensive experience in regulatory compliance issues and long-term water supply planning for the retail and wholesale service areas, including planning, organizing, developing and administering retail water conservation programs including the identification, evaluation, and public promotion of conservation with industry, builders, developers, public agencies, customers, and community groups. Ms. Haasz's activities also extended to policy development, from legislative initiatives and statewide conservation issues to development of a revolving loan program and other efficiency-related activities at the local level.

In Ms. Haasz's six years at San Francisco Public Utilities Commission, she directly managed and implemented the growth of the Conservation department from a customer-service based residential rebate program to a multi-faceted approach that includes all customers, various types of incentives and services, outreach, education, policy and coordination with local, regional and state level activities. Her approach towards the expansion of the program was to merge public policy needs with solid business principles and quantified outcomes so as to make obvious and appropriate efficiency decisions for the customer as well as honoring the agency's responsibility to the ratepayer.

Prior to the SFPUC, Dana developed modeling and theoretical skills at the Pacific Institute for Water, Development and Environment where she co-authored an analysis quantifying water conservation potential for the state and policies and programs designed to achieve that goal.

Project Experience

2010 Urban Water Management Plans (18 water systems), Golden State Water Company, Rancho Cordova, CA. Currently providing water conservation services for GSWC's 2010 UWMP update for the 18 water systems that meet the criteria for the requirements of an UWMP. Updates will include analysis of water conservation programs status for the purposes of evaluating compliance with AB 1420 and SBX7, in coordination with the local Alliance for Water Awareness and Conservation.

2010 Urban Water Management Plan Update, Stockton East Water District, Stockton, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures, as well as addressing AB 1420 and SBX7-7 regulations.

The update will also include a water shortage contingency plan as it applies to Stockton East Water District being an urban water wholesaler.

Complete Water Conservation and Demand Reduction Program Evaluation, City of Roseville, Roseville, CA. Developed an implementation plan, including a review of past activities, identification of potential conservation measures, cost benefit analysis, program modeling and design to prepare conservation plan for City of Roseville, that meets the 20x2020 requirements.

Water Conservation Efficiency Master Plan, City of Riverside, Riverside, CA developed a conservation implementation program for the City of Riverside. Evaluated Riverside's past water use efficiency program, identified potential conservation measures, performed cost benefit analysis, modeled potential programs and developed a scored options matrix to assist Riverside with efforts to effectively comply the 20x2020 requirements and guide program design and implementation.

2010 Urban Water Management Plan Update, Castaic Lake Water Agency, Santa Clarita, CA. Currently providing water conservation services for preparation of the 2010 regional Urban Water Management Plan (UWMP), which is being completed on behalf of CLWA and its four retail purveyors. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. The UWMP also includes an evaluation of the various alternative water management strategies and supplies available to the Valley and based on the evaluation, will recommend water supply strategies.

2010 Urban Water Management Plan Update, Mojave Water Agency, Apple Valley, CA. Currently providing water conservation services to produce Mojave Water Agency's (MWA) 2010 UWMP with particular focus on Best Management Practices (BMPs) and new regulations. A State Water Project contractor, MWA's plan is to be completed in cooperation with numerous retailers from within their service area. This update will also include analysis of the various agencies' water conservation programs status for the purposes of evaluating compliance with AB 1420 and SBX7, in coordination with the local Alliance for Water Awareness and Conservation.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Park Water Company Urban Water Management Plan and Water Use Efficiency Plan, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Suburban Water Systems Urban Water Management Plan, Oxnard, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Urban Water Management Plan Update for Improvement District 4, Kern County Water Agency, Bakersfield, CA. Currently providing water conservation services for preparation of the 2010 regional UWMP, for the Kern County Water Agency's (KCWA) Improvement District No. 4 (ID4), which represents the urban portion of KCWA's State Water Project wholesale service area. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan Update, San Bernardino Valley Municipal Water District, San Bernardino, CA. Currently providing water conservation services for update of the District's 2010 UWMP with particular focus on Best Management Practices (BMP's) and new regulations. The work will also include coordination with California Department of Water Resources reviews and approvals.

2010 Urban Water Management Plan, Lake Arrowhead Community Services District, Lake Arrowhead, CA. Currently providing water conservation services for production of this retail water purveyor's 2010 UWMP update.

2010 Urban Water Management Plan, North of the River Municipal Water District and Oildale Mutual Water Company, Kern County, CA. Currently providing water conservation services for preparation of the 2010 UWMP update for Kern County Water Agency Improvement District No. 4's (ID4) participating retail purveyors, North of the River Municipal Water District and Oildale Mutual Water Company. The UWMP update will provide information on ID4's wholesale service area and operations and will include data and information about the ID4 retail purveyor service areas and operations. The UWMP update will also include information on ID4 retail purveyor service areas that recover groundwater within ID4.

2010 Urban Water Management Plan, City of Ventura, CA. Currently providing water conservation services for production of the City's 2010 UWMP update. The water supply analysis includes local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan, Central Coast Water Authority, Ventura County, CA. Currently providing QA/QC and third-party technical review regarding water conservation practices for the CCWA's 2010 UWMP update.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

Project Experience Prior to Kennedy/Jenks

Water Conservation Administrator, San Francisco Public Utilities Commission

Water Saver Program: Developed market-based approach to conservation programs. The program aimed to secure permanent water savings for large commercial and industrial customers by providing technical support and financial incentive incentives based on the volume of saved water. The program allowed SFPUC to support larger process-oriented uses and other specific needs that are not part of the traditional fixture-based rebate programs. Participants included hotels, hospitals, colleges, and food growers.

Unaccounted for Water Analysis: Managed the first large urban agency implementation of the full AWWA M36 Water Loss process. The multi-phase analysis to discover, diagnose, and develop an implementation plan for capturing water system losses consisted of quantification and categorization of losses, identifying cost effective potential recovery and ,disaggregating city zones to prioritize and develop leak detection and repair implementation plan and providing leak detection training to City staff at the SFPUC.

Data Management: Managed design and development of database designed to improve the analytic capacity of conservation programs and link activities to water savings - actual and estimated – customer type, spatial information and more. The system also incorporated administrative tasks such as issuing rebates, mailings, inspection scheduling and follow up.

Low-income Direct Install Program: Developed high-efficiency toilet (HET) direct-installation and water audit program in coordination with community groups in order to save water in a hard to reach population and mitigate the impacts of rising water rates. The program provided free HETs to single family customers and a voucher program for multi-family residents in low-income communities. Local nonprofit groups were enlisted and community members trained in conservation principles in order to help market the program. program received two grants of $200,000 each, one from the California Department of Water Resources and one from the U.S. Bureau of Reclamation.

Education: Developed materials and an implementation plan for a water resources education program that would be compliant with both state and CUWCC requirements.

Municipal: Launched municipal audit program with detailed potential efficiency improvements, costs and implementation recommendations.

Conservation Legislation: Developed and worked to pass local conservation ordinances including a residential retrofit on resale for ordinance and a replacement ordinance for commercial accounts. Improvements include fixture replacement (toilets, showerheads aerators) and leak repair. Worked with the San Francisco Department of Building Inspection to train City inspectors, develop implementation materials and process.

Baseline Analysis: Participated in modeling of baseline use in San Francisco by customer type, potential demand reduction opportunities, costs and implementation options. Preferred alternative became the basis for SFPUC program activities.

California Urban Water Conservation Council: Represented Group 1 water agencies as convener of the CUWCC, 2005-2006 / Represented Group 2 Environmental Organizations as convener 2003-2004.

Third & Final Public Hearing
June 22, 2011
Public Outreach Record

2010 Santa Clarita Valley
Urban Water Management Plan

June 8, 2011

Richard J. Bruckner, Director
LA County Dept. Regional Planning
Los Angeles County
1390 Hall of Records
320 West Temple Street
Los Angeles 90012

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Bruckner,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

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DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Mark Pestrella
LA County Dept. Public Works
Los Angeles County
P.O. Box 1460
Alhambra 91802-1460

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Pestrella,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks,
Water Resources Manager

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GENERAL MANAGER
DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Chris Stevens, Director
Resource Management Agency
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009-1740

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Stevens,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

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GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
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June 8, 2011

Jason Smisko
Senior Planner
City of Santa Clarita Planning Division
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Smisko,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

BOARD OF DIRECTOR
PRESIDENT
THOMAS P. CAMPBELL
VICE PRESIDENT
WILLIAM C. COOPER
E.G. "JERRY" GLADBACH
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WILLIAM PECSI
PETER KAVOUNAS
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R. J. KELLY
B. J. ATKINS
KEITH ABERCROMBIE
GENERAL MANAGER
DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Mike Murphy
Intergovernmental Relations Officer
City of Santa Clarita
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Murphy,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks,
Water Resources Manager

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GENERAL MANAGER
DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Jeff W. Hogan, AICP
Interim Planning Manager
City of Santa Clarita Planning Division
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Mr. Hogan,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

BOARD OF DIRECTOR
PRESIDENT
THOMAS P. CAMPBELL
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GENERAL MANAGER
DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Jessica Bunker, P.E.
Waterworks Division
P.O. Box 1460
Alhambra, CA 91802-1460

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Ms. Bunker,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

BOARD OF DIRECTOR
PRESIDENT
THOMAS P. CAMPBELL
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GENERAL MANAGER
DAN MASNADA
GENERAL COUNSEL
McCORMICK, KIDMAN & BEHRENS, LLP
SECRETARY
APRIL JACOBS

June 8, 2011

Rosalind Wayman, Field Deputy
Los Angeles County
Fifth Supervisorial District
23920 Valencia Blvd., Suite 265
Santa Clarita, CA 91355

Subject: Revised Notification of Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan

Dear Ms. Wayman,

In a March 3, 2011, letter we notified you of the upcoming Public Hearings for the 2010 Santa Clarita Valley Urban Water Management Plan. As noted in the letter, the first public hearing was held on Wednesday, March 23, 2011. The second public hearing originally scheduled for Wednesday, May 4, 2011 at 6:15 p.m. was rescheduled to Wednesday, May 18, 2011 at 6:15 PM. The third public hearing has been scheduled on June 22, 2011 will take place at the CLWA Boardroom located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact me at (661) 297-1600.

Sincerely,

Dirk Marks

Dirk Marks,
Water Resources Manager

CASTAIC LAKE WATER AGENCY

BOARD OF DIRECTOR
PRESIDENT
THOMAS P. CAMPBELL
VICE PRESIDENT
WILLIAM C. COOPER
E.G. "JERRY" GLADBACH
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THE SIGNAL NEWSPAPER
24000 Creekside Rd
Valencia, Ca 91355

Proof of Publication
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
COUNTY OF LOS ANGELES

I am a citizen of the United States,and a resident of the county aforesaid; I am over the age of eighteen years; and I am not a party to or interestedin the notice published. I am the chief legal advertising clerk of the publisher of the

SIGNAL NEWSPAPER

a newspaper of general circulation, printed and published **Daily** in the city of Santa Clarita County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles State of California, under the date of **March 25, 1988**
Case number **NVC15880**, that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

5/26, 6/2, 6/9, 6/16

All in the year 20 11

I certify (or declare) under penalty of perjury' that the foregoing is true and correct

Dated at Valencia, California, this
16th day of June, 20 11.

Signature

NOTICE OF THIRD PUBLIC HEARING 2010 URBAN WATER MANAGEMENT PLAN

Castaic Lake Water Agency ("CLWA"), CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company have directed the preparation of a joint regional 2010 Urban Water Management Plan ("UWMP") for the Santa Clarita Valley, as encouraged by the Urban Water Management Planning Act ("Act"). Los Angeles County Waterworks District No. 36 is participating in the process on an ad hoc basis. Adoption of the 2010 UWMP is required under the Act by July 1, 2011.

While the Act only requires that an urban water supplier hold one public hearing before adopting a plan, in order to ensure sufficient opportunity for public feedback, input and suggestions concerning the 2010 UWMP, a third public hearing has been scheduled.

The first public hearing was held on March 23, 2011and the second on May18, 2011. The third hearing will be held at 6:15 p.m. on Wednesday, June 22, 2011 and will take place at the CLWA Boardroom, located on the 1st floor of the Administration Building at the Rio Vista Water Treatment Plant, 27234 Bouquet Canyon Road, Santa Clarita, California 91350.

For additional information regarding the public hearings, please contact Dirk Marks, CLWA Water Resources Manager, at (661) 297-1600.

The Signal 5/26, 6/2 & 6/9 & 6/16 2011

ProofPublicationMident_JH

Emails sent regarding
Final Draft Document Availability & 3rd Public Hearing Reminder
(See email distribution list)

2010 SCV Urban Water Management Plan - Message (HTML)

Message

Reply | Reply to All | Forward | Delete | Move to Folder | Create Rule | Other Actions | Block Sender | Safe Lists | Not Junk | Categorize | Follow Up | Mark as Unread | Find | Related | Select | Send to OneNote

Respond | Actions | Junk E-mail | Options | Find | OneNote

From: Stacy Miller [stacy@stacymillerpa.com]
To: 'RBruckner@planning.lacounty.gov'
Cc:
Subject: 2010 SCV Urban Water Management Plan

Sent: Fri 6/17/2011 10:45 AM

June 17, 2011

Dear Interested Party:

This is to notify you that final draft document for the 2010 SCV Urban Water Management Plan (UWMP) is available and can be viewed by clicking here or via the following link: http://clwa.org/about/pdfs/CLWA_2010UWMP_FINALDRAFT_061511_Part1.pdf. The document can also be viewed at your local SCV library.

As a reminder, the third public hearing on the UWMP will be held on Wednesday, June 22, 2010 at 6:15 pm at the Castaic Lake Water Agency, 27234 Bouquet Canyon Road Santa Clarita, CA 91350.

If you have any questions, please feel free to contact me.

Sincerely,

Stacy Miller
Public Outreach Manager
2010 SCV Urban Water Management Plan

Stacy Miller
PUBLIC AFFAIRS
Creative Solutions to Complex Situations
P.O. Box 55745, Valencia, CA 91385
[818] 402-5806 [661] 222-9733 Fax stacy@StacyMillerPA.com
www.StacyMillerPA.com

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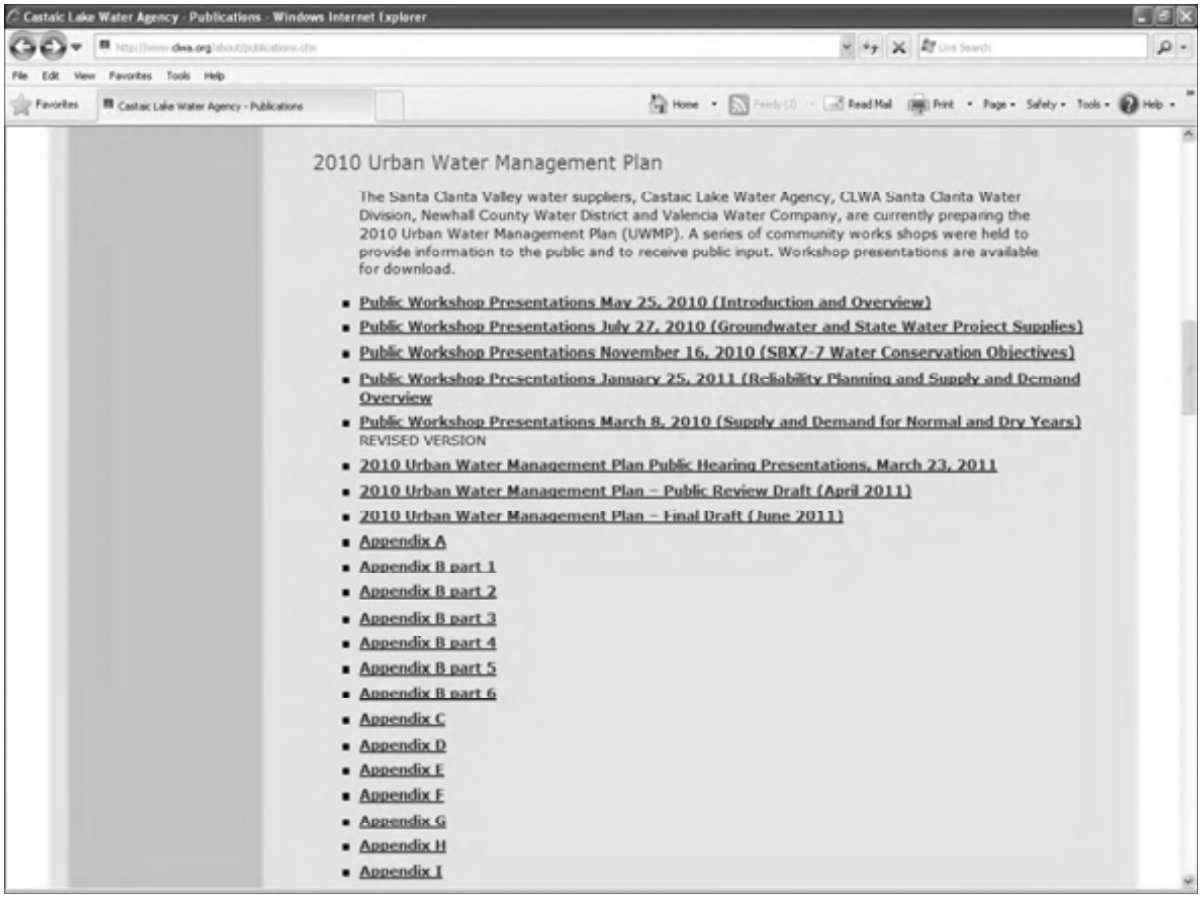
Master Email List
Extension of UWMP comment period and notification of revised draft document and next public hearing
Sent June 17, 2011

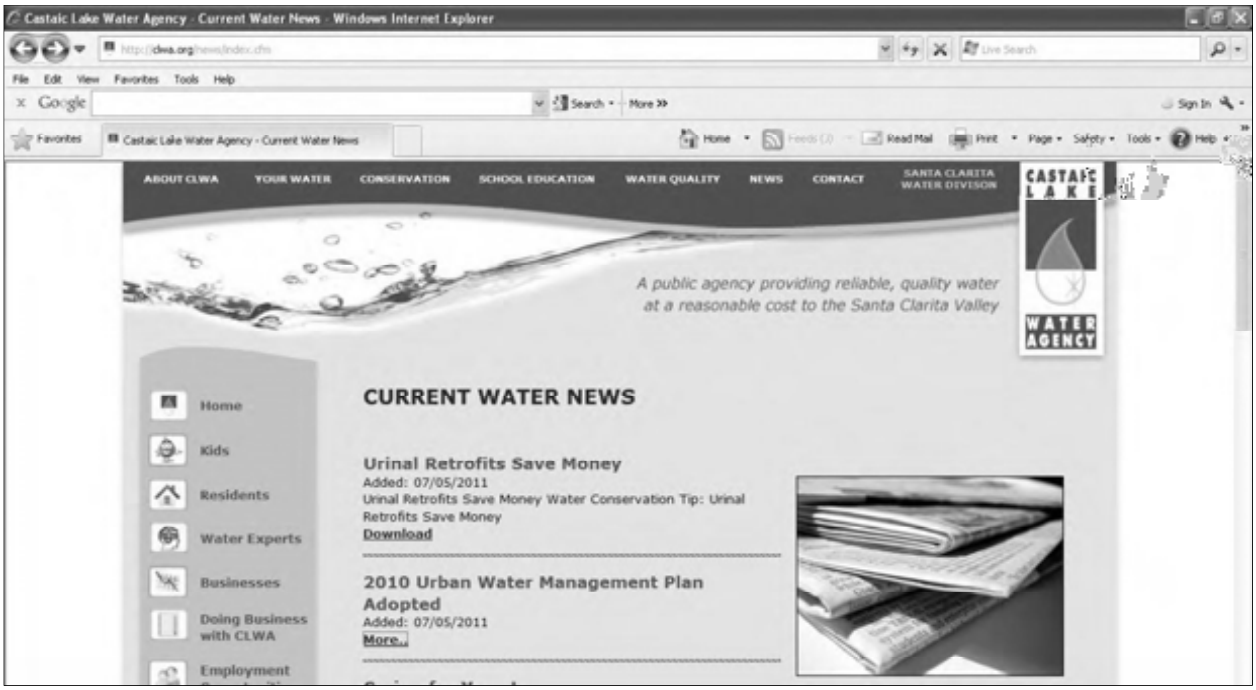
Jarrod Degonia Assemblymember Cameron Smyth Jarrod.DeGonia@asm.ca.gov	Ernie Villegas Assemblymember Jeff Gorell Ernie.Villegas@asm.ca.gov	Kevin Korenthal Associated Builders & Contractors of CA; ABC-CCC kkorenthal@abc-ccc.org
Holly Schroeder BIA - Los Angeles/Ventura Chapter hschroeder@bialav.org	Sandy Sanchez BIA - Los Angeles/Ventura Chapter ssanchez@bialav.org	David Inouye CA Department of Water Resources davidi@water.ca.gov
Robert Kelly Castaic Area Town Council RobertKelly@CastaicAreaTownCouncil.org	Mike Murphy City of Santa Clarita mmurphy@santa-clarita.com	Jason Smisko City of Santa Clarita JSmisko@santa-clarita.com
Bruce Fortine College of the Canyons fortine@earthlink.net	Bob Haueter Congressman Howard McKeon Bob.Haueter@mail.house.gov	Chris Stephens County of Ventura Resource Management Agency Chris.Stephens@ventura.org
Ron Bottorff Friends of the Santa Clara River bottorffm@verizon.net	Mark Pestrella LA County Department of Public Works mpestrel@dpw.lacounty.gov	Richard Bruckner LA County Department of Regional Planning RBruckner@planning.lacounty.gov
Jessica Bunker LA County WWD jbunker@ladpw.org	Lynn Plambeck Santa Clarita Organization for Planning the Environment - SCOPE lynne.plambeck@scope.org	Robert Fleck Santa Clarita Valley Well Owners Association rfleck@socal.rr.com
Terry Kingery SCV Chamber of Commerce tkingery@scvchamber.com	Sierra Club Angeles Chapter Contact.us@angeles.sierraclub.org	Mark Butala Southern CA Association of Governments butala@scag.ca.gov
Jackie Bick State Senator Sharon Runner Jackie.Bick@sen.ca.gov	Scott Wilk Jr. State Senator Tony Strickland scott.wilk@sen.ca.gov	David Perry Supervisor Michael Antonovich, 5th District dperry@lacbos.org
Rosalind Wayman Supervisor Michael Antonovich, 5th District rwayman@lacbos.org	E. Michael Solomon United Water Conservation District msolomon@unitedwater.org	Kathy Norris Valley Industrical Association of Santa Clarita (VIA) kathy@via.org
Ron Mechsner West Ranch Town Council Rmechsner@WestRanchTownCouncil.com	Carol Lutness SCV Fair Elections Committee santaclarita-info@caclean.org	Katherine Squires Sierra Club Angeles Chapter katherine.m.squires@csun.edu
Dunn Residents water@dslextreme.com	Mitch Glaser LA Co Department of Regional Planning mglaser@planning.lacounty.gov	Also sent via US Mail to • Mr. & Mrs. Dunn • Cam Nolltemeyer • Michael A. Naoum • Carol Lutness

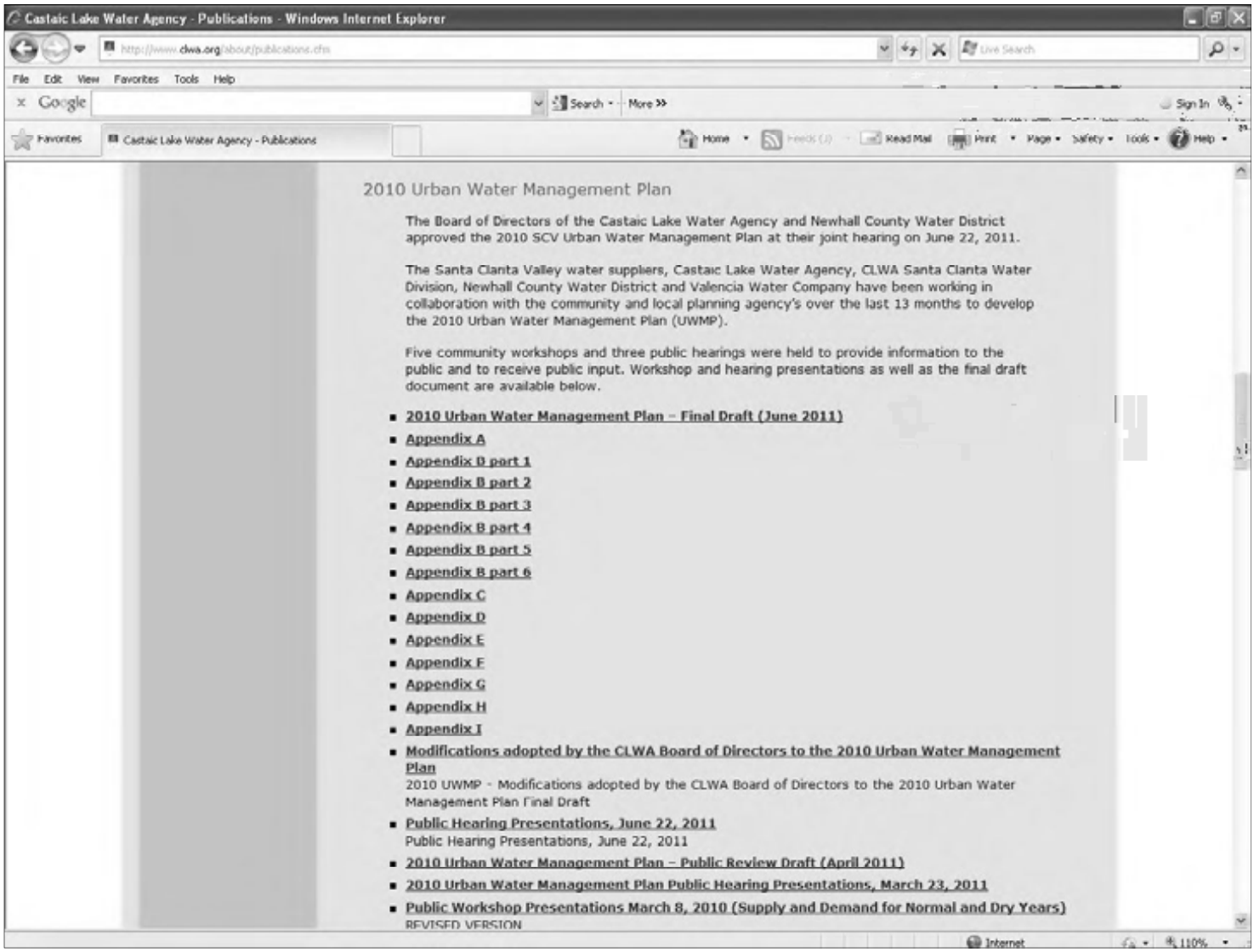
UWMP –June Hearing & Final Draft Document Notice
CLWA Website



UWMP –June Hearing & Final Draft Document Notice
NCWD Website

UWMP Adoption Notice
CLWA Website June 2011





2010 UWMP Adoption Notice
NCWD Website
June 2011

2010 UWMP Adoption Notice
SCWD Website
June 2011

Santa Clarita Water Division - Windows Internet Explorer

http://www.scwater.org/publications.cfm

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2010 Urban Water Management Plan

The Board of Directors of the Castaic Lake Water Agency and Newhall County Water District approved the 2010 SCV Urban Water Management Plan at their joint hearing on June 22, 2011.

The Santa Clarita Valley water suppliers, Castaic Lake Water Agency, CLWA Santa Clarita Water Division, Newhall County Water District and Valencia Water Company have been working in collaboration with the community and local planning agency's over the last 13 months to develop the 2010 Urban Water Management Plan (UWMP).

Five community workshops and three public hearings were held to provide information to the public and to receive public input. Workshop and hearing presentations as well as the final draft document are available below.

- 2010 Urban Water Management Plan - Final Draft (June 2011)
- Appendix A
- Appendix B part 1
- Appendix B part 2
- Appendix B part 3
- Appendix B part 4
- Appendix B part 5
- Appendix B part 6
- Appendix C
- Appendix D
- Appendix E
- Appendix F
- Appendix G
- Appendix H
- Appendix I
- Modifications adopted by the CLWA Board of Directors to the 2010 Urban Water Management Plan
  2010 UWMP - Modifications adopted by the CLWA Board of Directors to the 2010 Urban Water Management Plan Final Draft
- Public Hearing Presentations, June 22, 2011
  Public Hearing Presentations, June 22, 2011
- 2010 Urban Water Management Plan - Public Review Draft (April 2011)
- 2010 Urban Water Management Plan Public Hearing Presentations, March 23, 2011
- Public Workshop Presentations March 8, 2010 (Supply and Demand for Normal and Dry Years) REVISED VERSION
- Public Workshop Presentations January 25, 2011 (Reliability Planning and Supply and Demand Overview

Done | Internet | 110%

NEWHALL COUNTY
WATER DISTRICT

NCWD

New Regional Urban Water Management Plan Approved

Santa Clarita Valley Family of Water Suppliers Approve Critical Planning Tool

Santa Clarita, CA –The Boards of Directors of the Newhall County Water District and Castaic Lake Water Agency unanimously approved the 2010 Santa Clarita Valley Urban Water Management Plan at a joint public hearing on June 22, 2010.

"The approval by the two Boards is a testament to the quality of this document and the team that has worked so hard on its preparation," stated Daniel Mortensen, NCWD Board President.

The creation of the Santa Clarita Valley Urban Water Management Plan began in May 2010 and included opportunities for input from our community, water partners, environmental groups, elected officials, business groups and other community stakeholders during the five community workshops and three public hearings that were held on the plan.

"We have gone far beyond the public participation requirements cited in the Urban Water Management Plan regulations to ensure that all residents and interested parties had ample opportunity to participate, comment and weigh in on this important process," stated Tom Campbell, CLWA Board President.

The Urban Water Management Plan presents a picture of the valley's future water situation and describes the long-range water needs of our community and the means to supply the necessary water to the year 2050. Every five years, the water suppliers who deliver in excess of 3,000 acre feet of water or serve over 3,000 connections per year are required by law to prepare an Urban Water Management Plan.

The SCV Family of Water Suppliers partnered in this planning effort to ensure a collaborative planning approach. This plan is not a project-specific document, nor does it take the place of individual project requirements; rather it is a tool that helps guide the local water suppliers' actions and offers a broad perspective on a wide variety of water issues. The plan concludes that the combination of existing and

planned programs to increase supply and conservation will meet the Valley's water needs through 2050.

"I am proud of the tremendous amount of time and work that has been put into the development of this plan by the community, our staff, consultants and my fellow Board members," stated Bill Cooper, CLWA Board Vice President . "Our Urban Water Management Plan serves as the 'gold standard' of planning documents throughout the state and is followed closely for its content and thoroughness."

The final SCV Urban Water Management Plan will be delivered to the State Department of Water Resources before the end of July 2011. The final draft and additional amendments that were made at the recent board meetings are currently available for review online at www.ncwd.org.

Santa Clarita Valley Urban Water Management Plan

Public Hearing
June 22, 2011
Castaic Lake Water Agency

Agenda

- Open public hearing
- Review of public input process and public comment letters
- Public comment period
- Presentation on Groundwater Basin
- Presentations on Perchlorate Restoration, VWC Well 201
- Presentations on Water Banking, SWP reliability, Water Conservation, Chlorides/AWRM
- Board questions and answers
- Description of UWMP document finalization process
- Close hearing and next steps

UWMP Act Process

ACT REQUIREMENTS

- Coordinate preparation of UWMP with other appropriate agencies in the area.
- 60 days notice to city and counties, and may consult with, and obtain comments from, city and counties receiving notice.
- Encourage active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

ACT REQUIREMENTS EXCEEDED

- Draft Final UWMP, §§1.3.1 & 1.3.3, Table 1-1, pgs 1-3 to 1-8.
- Draft Final UWMP, §1.3.3, Table 1-1, pgs 1-3 to 1-8, Appendix B.
- Five Public Workshops between May 2010 and March 2011; three CLWA/NCWD joint public hearings; written public comment period; written public comment deadline extended; Draft Final UWMP, §§1.3.1 &1.3.3, Table 1-2, pgs 1-3 to 1-8.

UWMP Act Process

ACT REQUIREMENTS	ACT REQUIREMENTS EXCEEDED
Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection.	Draft UWMP has been available since April 15, 2011; Final Draft UWMP, §§1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B.
One Public hearing.	Three CLWA/NCWD joint public hearings.
Notice of hearing in compliance with Gov. Code § 6066.	Final Draft UWMP, §§1.3.1 & 1.3.3, Table 1- 2, pgs 1-3 to 1-8, Appendix B.

UWMP Act Process

ACT REQUIREMENTS	ACT REQUIREMENTS EXCEEDED
Notice of hearing to any city or county within which the supplier provides water supplies.	Final Draft UWMP, §§1.3.1 & 1.3.3, Table 1-2, pgs 1-3 to 1-8, Appendix B.
After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	June 22, 2011 Joint Meeting and 3rd Joint Public Hearing

Past Workshops

May 2010
- UWMP purposed and process – What, Who, Why and When
- Existing and new requirements of UWMPs

July 2010
- SBX7-7 ("20x2020") Requirements
- Recycled Water
- Groundwater Supplies
- State Water Project Reliability

November 2010 –
- Presentation to IRWMP Stakeholders

Past Workshops (continued)

November 2010
- GPCD population assumptions and calculations
- SBX7-7 Targets by retailer

January 2011
- Overview of water supplies
- SWP reliability update
- CLWA reliability planning update
- SBX7-7 calculations and targets
- Overview of water supplies and demand

March 2011
- Water Supply and Demands

Public Hearings and Draft Document

1st public hearing March 23, 2011
- Public Draft document made available April 15, 2011
- Comment period through May 20, 2011

2nd public hearing May 18, 2011
- Comment period extended through May 27, 2011
- Final Draft document made available June 15, 2011

3rd public hearing June 22, 2011

Comment Letters Received

- Friends of the Santa Clara River
- Santa Clarita resident and Valencia Water ratepayer
- Sierra Club
- Mr. and Mrs. Dunn
- Mr. Naoum
- Mr. Dunn
- Sierra Club
- SCOPE
- Whittaker-Bermite Citizens Advisory Group
- Babak Naficy
- Santa Clarita Valley Fair Elections Committee

Broad Categories of Comments Received

- Groundwater overdraft claims
- Perchlorate and VWC Well 201
- Organic compounds
- Water banking program issues; State Water Project reliability and contingency planning
- Water conservation accounting
- Chloride water quality issues (TMDL/AWRM)

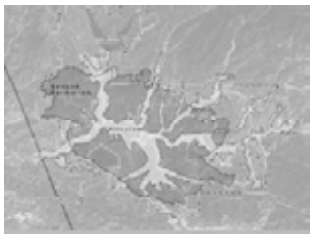
Santa Clarita Valley Urban Water Management Plan

Public Comment Period

Groundwater Supplies and Related Issues, e.g. "Overdraft"

- Joe Scalmanini – Luhdorff and Scalmanini, Consulting Engineers

Groundwater Component of Water Supplies
2010 Urban Water Management Plan



• Castaic Lake Water Agency • CLWA Santa Clarita Water Division
• Los Angeles County Waterworks District 36
• Newhall County Water District • Valencia Water Company

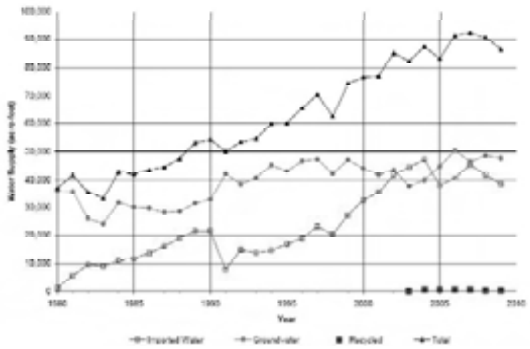


Figure 2-1
Total Water Supply Utilization
Santa Clarita Valley

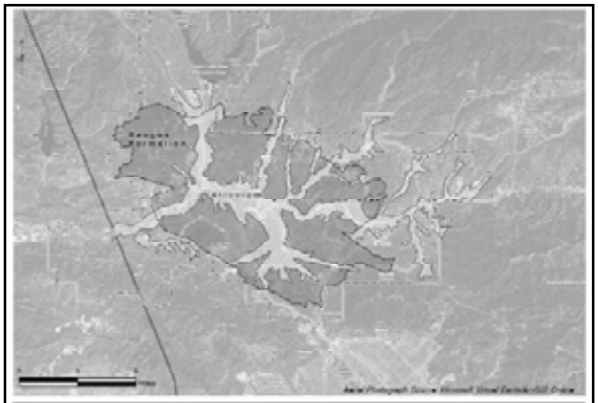


Figure 3-1
Alluvium and Saugus Formation

Groundwater Management Plan (2003)

Management Objectives (Goals) for the Basin

- Development of integrated surface water, groundwater, and recycled water supply to meet existing and projected uses
- Determination of operational groundwater yield to avoid overdraft = sustainability
- Preservation of groundwater quality, including solution of contamination problems
- Preservation of interrelated surface water resources = maintenance of surface water flows and non-degradation of quality

Groundwater Management Plan (2003)

Elements

- Groundwater monitoring
- Surface water monitoring
- Basin yield analysis
- Regular and dry year water supplies
- Continued conjunctive use
- Long-term salinity management
- Integration of recycled water
- Mitigate contamination
- Local, state and federal relationships
- Public education and water conservation
- Recharge wellhead protection areas
- Well construction and destruction policies
- Provisions to add additional components

Annual Water Reports (1998-present)

Annual Water Requirements and Supplies

- Actual water use
- Sources of supply to meet actual use

Groundwater

- Alluvial and Saugus aquifer conditions

Supplemental Water Supplies

- State Water Project
- banking and other programs

Water Quality

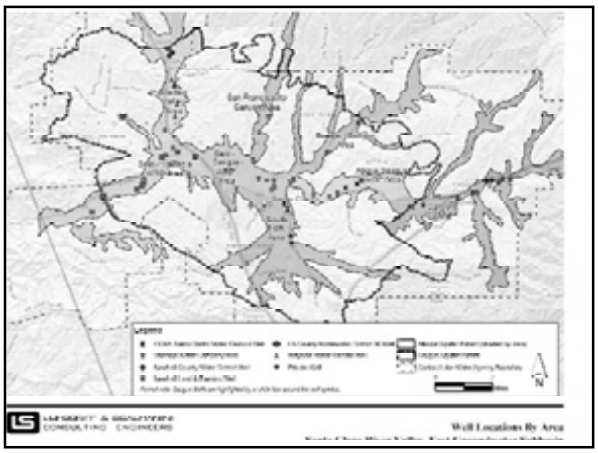
Recycled Water

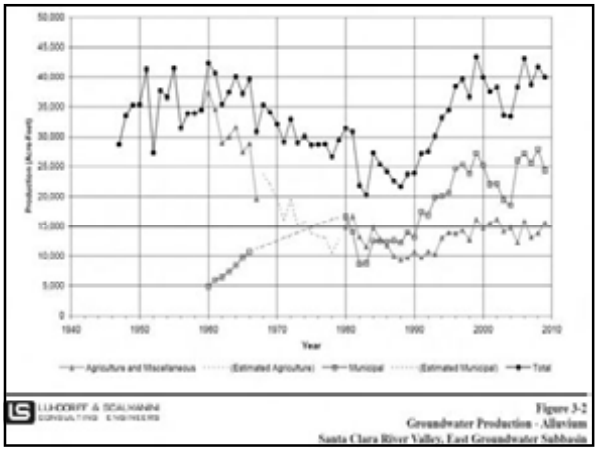
Santa Clara River

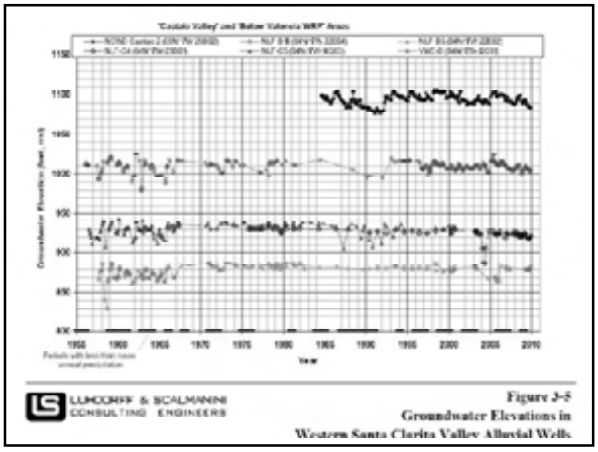
- Outflows from Santa Clarita Valley

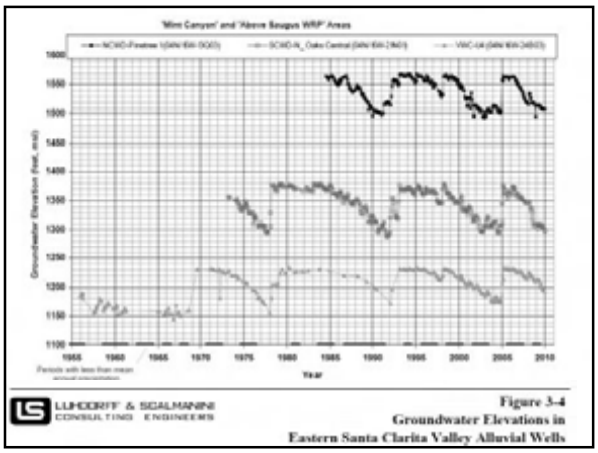
Short-Term (one year) Outlook

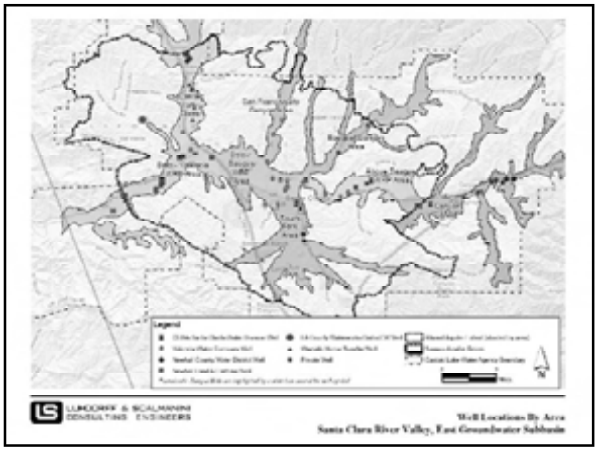
- Water requirements adjusted from UWMP
- Surface water, groundwater and recycled water supplies
- Adequacy of water supplies

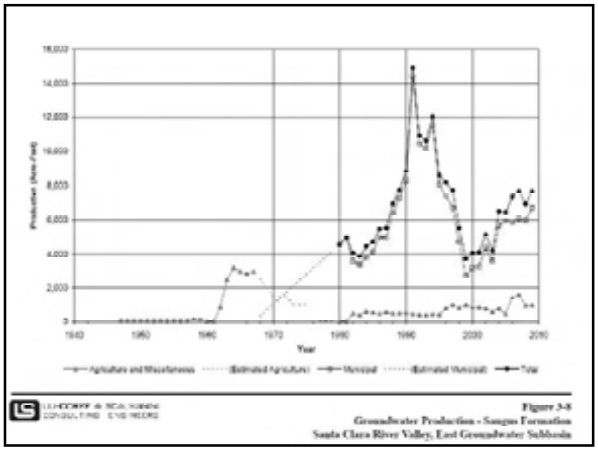

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Well Locations By Area


Production (Acre-Feet)
Year
Agriculture and Miscellaneous
(Estimated Agriculture)
Municipal
(Estimated Municipal)
Total
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-2
Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin


Year
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-5
Groundwater Elevations in
Western Santa Clarita Valley Alluvial Wells


'Mint Canyon' and 'Above Saugus WRP' Areas
Groundwater Elevation (Feet, msl)
Year
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-4
Groundwater Elevations in
Eastern Santa Clarita Valley Alluvial Wells


Legend
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin


Production (Acre-Feet)
Year
Agriculture and Miscellaneous
(Estimated Agriculture)
Municipal
(Estimated Municipal)
Total
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS
Figure 3-8
Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

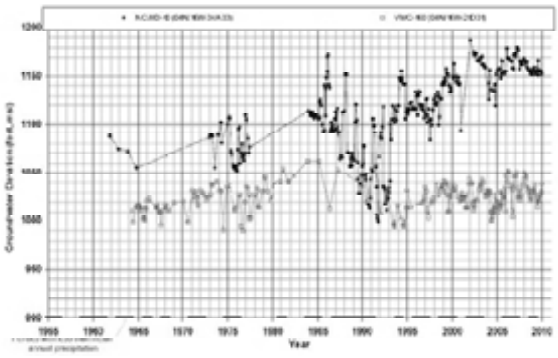


Figure 3-9
Groundwater Elevations in Saugus Wells

Total Groundwater Supply Santa Clarita Valley

	Normal Years		
	Alluvium (afy)	Saugus Fm. (afy)	Total (afy)
Municipal Purveyors	25,850	11,485	37,335
Agriculture & Others	12,750	1,000	13,750
Total	**38,600**	**12,485**	**51,085**

	Multiple Dry Years		
	Alluvium (afy)	Saugus Fm. (afy)	Total (afy)
Municipal Purveyors	23,800-22,250	18,125-33,975	41,975-56,225
Agriculture & Others	12,700-12,600	1,000	13,700-13,600
Total	**36,500-34,850**	**19,125-34,975**	**55,675-69,825**

2008 Groundwater Operating Plan

Groundwater Pumping 2010 UWMP				
Aquifer	**Normal Years**	**Dry Year 1**	**Dry Year 2**	**Dry Year 3+**
Alluvium	30,000-40,000 (38,600)	30,000-35,000 (36,500)	30,000-35,000 (34,850)	30,000-35,000 (34,850)
Saugus	7,500-15,000 (12,485)	15,000-25,000 (19,125)	21,000-25,000 (25,227)	21,000-35,000 (34,977)

from 2009 Basin Yield Update (LSCE & GSI), following 2001 Groundwater Update Report (Slade) & 2005 Basin Yield Analysis (CH2M Hill & LSCE)

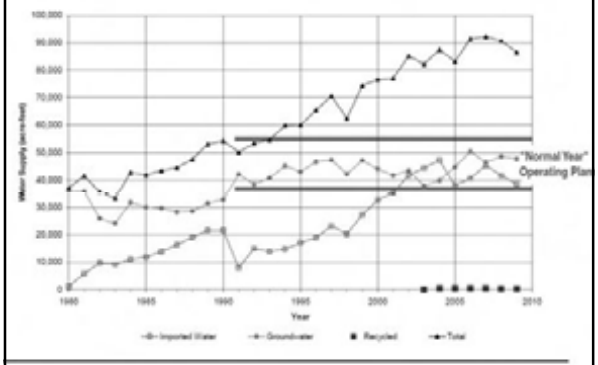


Figure 2-1
Total Water Supply Utilization
Santa Clarita Valley

Sustainability and Achievability

Sustainability

" lack of chronic, or sustained, depletion of groundwater storage, as indicated by projected groundwater levels, over a reasonable range of wet, normal, and dry hydrologic conditions" (86 years: 1922-2007)

"maintenance of surface water flows in the western portion of the basin (which are partially maintained by groundwater discharge) and surface water outflow to downstream basins over the same range of hydrologic conditions"

Achievability

maintenance of groundwater levels above, or only temporarily slightly into, the intake (screened or perforated) sections of production wells

from 2009 Basin Yield Update (LSCE & GSI)

2008 Operating Plan Conclusions

Operating Plan is fully sustainable (no chronic groundwater level declines; no depleted stream flow), i.e. not overdraft, and mostly achievable (limited dry-period declines in eastern part of Valley)

Lack of any projected overdraft is consistent with actual historical basin response to the same range of groundwater pumping

Achievability issues in extended dry periods can be resolved by redistribution of some pumping to the west

- with redistribution, retain dry-period Alluvial pumping near 35,000 afy
- without redistribution, dry-period Alluvial pumping closer to 30,000 afy

Subsidence

In alluvial aquifers, results from "aquitard drainage" and resulting consolidation of the "aquitard"

- requires extensive, thick aquitard (fine-grained sediments, i.e. clay bed)
- requires chronically depressed groundwater levels (to allow clay to drain)

Santa Clarita Valley Alluvium

- up to 240 ft. thick, but lacking any extensive, thick aquitard => geology not conducive to subsidence, regardless of groundwater levels
- some near-constant and some fluctuating groundwater levels, but no chronically depressed groundwater levels anywhere => hydrology not conducive to subsidence.

No physical evidence of subsidence, e.g. lowering of land surface.

Small Private Pumping

Limited submittal of pumping-related data, approx. 5-6 years ago, for two tributary canyons; quantified less than 200 afy

No information submitted about well completions, e.g. whether in Alluvium or bedrock, pump capacities, water level records

No information about well failures, e.g. "going dry"

Extrapolated limited pumping data to conservatively estimate 500 afy of basin-wide small private pumping; included in Annual Water Report

Reported, and continue to expect, all private Alluvial wells to experience the same groundwater level fluctuations as monitored and reported in Annual Water Report

Monitoring

CA Health and Safety Code, Title 22

- Domestic Water Quality and Monitoring
- Waterworks Standards

CA Dept of Public Health

- Domestic Water Supply Permits
- Application of Health & Safety Code and DPH Policies

Santa Clarita Valley Purveyors

- Permitted and regulated as above
- In compliance with above for quantity and quality of water supplies

Perchlorate Treatment

- Groundwater Quality
  - Perchlorate treatment and restoration

Perchlorate

Year Perchlorate Detected	Purveyor Well	Groundwater Aquifer	Status
1997	SCWD Saugus 1	Saugus	DPH approved well return to service in January 2011; well in active service utilizing approved perchlorate treatment.
1997	SCWD Saugus 2	Saugus	DPH approved wells return to service in January 2011; well in active service utilizing approved perchlorate treatment.
1997	VWC Well 157	Saugus	Sealed and capacity replaced by new well.
1997	NCWD Well 11	Saugus	Out of service
2002	SCWD Stadium Well	Alluvium	Sealed and capacity replaced by new well.
2005	VWC Well Q2	Alluvium	DPH approved perchlorate treatment removal in 2007; treatment was installed in 2005 and relocated for potential future use; well remains in service.
2005	DTSC approved Interim Remedial Action Plan		
2006	NCWD Well NC-13	Saugus	DPH approved annual monitoring, results have always been below the detection limit for reporting; well remains in service.
2007	Settlement Agreement		
2010	VWC Well 201	Saugus	Out of service pending additional monitoring and evaluation of remediation alternatives.

Rapid Response Fund provides $10M in reimbursement funds to CLWA as fail-safe.

Perchlorate Impact

Valencia Water Company
Well 201

Site Location -- Former Whittaker Bermite Facility

From 2005 UWMP - Appendix D

Perchlorate Concentrations

Initial Detection (August, 2010) 5.0 ug/l
well removed from water supply service

Quarterly/Monthly Confirmation Sampling
(November, 2010/April, 2011) fluctuations between
5.7 and 12 ug/l

Logical Occurrence or Completely Unexpected?

Initial Perchlorate Contamination in Saugus Wells - 1997
Saugus 1 & 2; V 157; NCWD 11

Groundwater Flow
westerly gradient and flow direction /pre-1997 to 2010

Gradient Control = "Containment" via Restoration of Saugus 1 & 2
modeled /2004
permitting, litigation, Settlement Agreement /2007
design, construction /2010
DPH water supply permit /2010
start-up operations /2010
full-time operation /January 2011

Valencia 201
first down-gradient Saugus well from original impacts
13-year elapsed time from initial impacts to V 201 impact
listed as /threatened/ well in Settlement Agreement
while not a foregone conclusion, detection is a logical occurrence, and not completely unexpected

Water Supply Impact

Recent Operations

- capture zone analysis □2004
- reduced pumping to avg. 180 afy □2004-2010
- replaced pumping with other Saugus well capacity

Saugus Formation

- 7,500 □15,000 afy □normal year□water supply
- 15,000 □35,000 afy □dry year□water supply

V 201

- key well in dry years
- 3,777 afy of total □dry year□water supply
- capacity needs to be restored before next potential dry year, i.e., within two years

V 201 Response

Removed from Water Supply Service at Initial Detection (August, 2010)

Quarterly-Monthly Confirmation Sampling

Alternatives

- restoration with □wellhead□treatment
- well replacement

Groundwater Modeling

- perchlorate migration
- need for secondary □containment□
- updated assessment of □threatened□wells

Dept. of Public Health Permitting

Design and Construction

Existing and Planned Saugus Well Locations

Organic Compounds

- Volatile and Synthetic Organic Compounds
  - Trichloroethylene (TCE) and Tetrachloroethylene (PCE)
    - Cleaning solvents, legacy contamination, urban stormwater runoff, septic systems
- CLWA annually monitors for these compounds;
  - TCE was found below the MCL in trace levels in groundwater in the Valley.
  - Not currently affecting production or needing treatment.

Water Banking Program Terms

Water Banking Programs

Banking Program	Extraction Capacity (AFY)	Contract Term
Rosedale Rio-Bravo	20,000	Through term of SWP contract
Semitropic interim programs	15,000	Through 2012/13 originally; through 2022/23 with Amendment
Semitropic - Newhall Land	4,950	Through 2035 with renewal by mutual agreement

State Water Project Reliability Comment Areas

- Supply Reliability
- Facility Reliability
- SWP and West Branch Conveyance
- Catastrophic Supply Interruption

SWP Supply Reliability

- Supply data from DWR's 2009 SWP Delivery Reliability Report.
- Based on model studies using 82 years of historical hydrology (1922 – 2003).
- Historical period includes several significant drought periods.
- Estimate for future (2029) includes adjustments to hydrology to reflect climate change.

SWP Facility Reliability

- Past SWP outages have been short-term (typically weeks in duration).
- Longest West Branch outage was planned three-month winter outage (Dec 1998 – Feb 1999).
- CLWA ideally located immediately downstream of two large SWP reservoirs – Pyramid and Castaic Lakes.
- Location allows deliveries to continue to CLWA and other West Branch Contractors even with outage in aqueduct upstream.
- No past SWP outages have impacted deliveries to CLWA.
- Potential supply impacts of future outage evaluated in UWMP Section 8.

SWP Conveyance

- SWP facilities are owned by State and operated by DWR.
- West Branch facilities, including aqueduct and Pyramid and Castaic Reservoirs, are part of SWP.
- CLWA and 28 other SWP Contractors each have a Water Supply Contract with DWR for water supply and delivery, with similar terms.
- Water Supply Contract:
  - Dictates terms for water delivery.
  - Provides for delivery of SWP water, supplies to and from out-of-service area banking programs, and non-SWP water.

SWP Conveyance (cont.)

- Each SWP Contractor has same priority for delivery within proportion of aqueduct capacity they pay for.
- Deliveries in excess of that capacity may be made through unused capacity of other Contractors.
- DWR requires separate delivery agreements for Contractor programs needing delivery through SWP facilities.
- CLWA has agreements with DWR for deliveries to and from its San Joaquin Valley banking programs and for delivery of its Buena Vista-Rosedale supply.

West Branch Conveyance

- DWR controls deliveries to each of three West Branch Contractors (CLWA, MWD, Ventura Co WPD).
- In dry years when SWP supplies are low, capacity normally used to convey SWP water is available to deliver other supplies.
- CLWA withdrawals from banking programs are planned only for dry years, when capacity would be available to convey it.

Catastrophic Supply Interruption

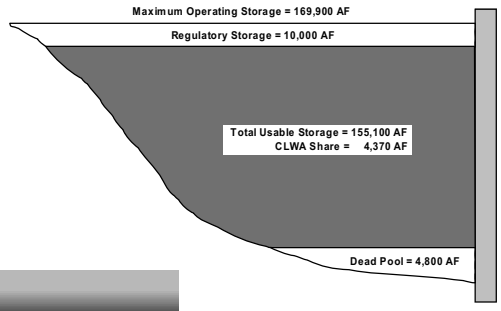
- Three SWP emergency outage scenarios considered:
  - Levee breach in Delta
  - California Aqueduct in San Joaquin Valley
  - West Branch Aqueduct
- Worst-case outage: West Branch Aqueduct
  - No SWP or other supplies through aqueduct
  - No supplies from groundwater banking in San Joaquin Valley

Catastrophic Supply Interruption

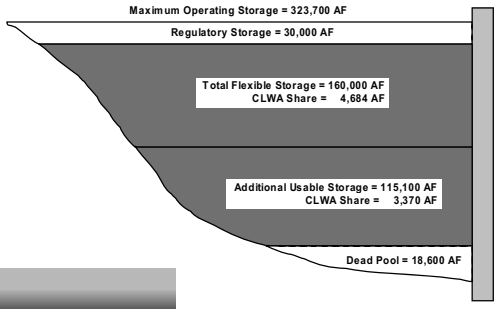
Outage assumptions:

- Six-month outage
- Occurs in normal/average year
- Supplies limited to:
  - Local Supplies
    - Groundwater
    - Recycled water
  - CLWA share of storage in West Branch reservoirs
    - Flexible storage
    - Emergency storage

Pyramid Lake Storage



Castaic Lake Storage



Six-Month West Branch Aqueduct Outage: Water Supplies and Demand (AF)

Water Supply Sources	2015	2020	2035	2050
Local Supplies				
Existing Supplies				
Groundwater	22,200	22,200	22,700	22,700
Recycled Water	120	120	120	120
Planned Supplies				
Future Groundwater	1,900	7,350	8,850	10,350
Recycled Water	370	1,020	3,850	7,870
Total Local Supplies	**24,590**	**30,690**	**35,520**	**41,040**
SWP West Branch Storage Available				
SWP Flexible Storage Accounts	6,060	4,680	4,680	4,680
Emergency Storage				
Pyramid Lake	4,370	4,370	4,370	4,370
Castaic Lake	3,370	3,370	3,370	3,370
Total West Branch Storage	**13,800**	**12,420**	**12,420**	**12,420**
Total Local Supplies and West Branch Storage	**38,390**	**43,110**	**47,940**	**53,460**
Demands				
Total Demand w/o Conservation	40,035	44,242	56,863	69,484
Total Demand w/ Conservation	**36,172**	**35,954**	**48,447**	**60,939**
Additional Supply and/or Conservation Required	**-**	**-**	**507**	**7,479**
As Percent of Demand	0%	0%	1%	11%

SBX7-7 Calculations and Water Conservation Accounting

SBX7-7 Calculations

- All values reported in UWMP by purveyors are required in statute passed in late 2009
- Methodologies developed through a DWR public committee process also required in statute; Kennedy/Jenks is a committee member
- Demand reduction targets calculated for each retail purveyor
- Purveyors may reach targets by combination of water conservation and recycled water programs

Water Conservation Accounting

- Estimates of future savings made by reviewing a wide variety of water conservation measures and programs, and then applying industry-accepted savings factors to them
- Saving factors are determined by in-depth technical studies, mainly done by the California Urban Water Conservation Council (CUWCC) and the American Waterworks Association
- CUWCC reports all savings calculations for its signatory agencies to SWRCB annually
- Detailed SCV Water Use Efficiency Strategic Plan is implementation plan for demand reductions

SBX7-7 Calculations and Water Conservation Accounting

- Document website links
  - SBX7-7 Methodologies: http://www.water.ca.gov/wateruseefficiency/sb7/committees/urban/u3/
  - CUWCC SWRCB Report: http://www.cuwcc.org/about/annual-reports
  - SCV Water Use Efficiency Strategic Plan: http://www.scvh2o.org/ http://www.clwa.org/about/publications.cfm

Chlorides/AWRM

- Imported Water Quality
  - Chloride TMDL
  - Alternative Water Resources Management Program (AWRM)
  - SWP Water Quality Modeling

Chlorides (continued)

- Imported Water Quality
  - Chloride TMDL (2005) – 100 mg/L from Saugus/Valencia WRPs
- Alternative Water Resources Management Program (AWRM) (2008)
  - Established conditional site specific objectives for chloride;
  - Provides water quality and water supply benefits, and protects biological resources;
  - SWP Water Quality Modeling

Santa Clarita Valley Urban Water Management Plan

Directors' Question and Answer Period

Santa Clarita Valley
Urban Water Management Plan

Next Steps

Consultant Team Resumes
Public Outreach Record

2010 Santa Clarita Valley Urban Water Management Plan

Lynn M. Takaichi, P.E.

Chairman

Education

MS in Civil Engineering (Sanitary), University of California, Berkeley, 1972
BS in Civil Engineering, University of California, Berkeley, 1971
Special Study in Environmental Impact Assessment, University of California
Study in City and Regional Planning, University of California
Study in Water Resources Planning Civil Defense Preparedness Agency, Certificate of Achievement in Multi-Protection Design, University of Hawaii

Registration

Civil Engineer in California

Professional Summary

Mr. Takaichi is responsible for major planning and design projects, particularly assignments involving complex institutional and financial arrangements. He has directed a wide range of water projects including water resource studies, water system master plans, water treatment investigations, water facilities design and utility management plans. In addition, he has managed the preparation of numerous environmental impact assessments.

Mr. Takaichi has particular expertise in complex institutional arrangements and he works closely with specialized legal counsel, financial consultants, and water managers. His experience includes water agency formation, drafting of enabling legislation, negotiation of water supply and water service agreements, development of annexation policies and agreements, and management of a wide variety of water programs. He also has expertise in water system appraisals and has assisted numerous public agencies with the acquisition of investor-owned utilities.

Water Demand Models

- Comprehensive water system plan update for the Lakehaven Utility District.
- Modeling of water and reclaimed water systems for the Cambria Community Services District.
- Comprehensive water system master plan update for the City of Oxnard.
- Comprehensive water plan and capital improvement program ($380 million) for the Castaic Lake Water Agency.
- Water master plan for the City of Chino.
- Water Supply Reliability Plan Update and Optimization Model for the Castaic Lake Water Agency.
- Integrated Regional Water Management Plan for the Antelope Valley for the County of Los Angeles.
- Water Demand Model for the Mojave Water Agency.

Water Resource Studies

- Water Supply Reliability Evaluation for the San Gorgonio Pass Water Agency.
- Strategic planning consultant for local water resources development for the Los Angeles Department of Water & Power.

- Expert witness for water rights valuation for Squaw Creek Resort.
- Integrated Regional Water Management Plan for the Antelope Valley for the County of Los Angeles.
- Water Supply Reliability Plan Update and Optimization Model for the Castaic Lake Water Agency.
- Alternative Water Management Plan for the Santa Clara River for the Los Angeles County Sanitation Districts.
- Negotiation of numerous water transfer and exchange agreements for public and private clients.
- Evaluation of potential water marketing concepts at Lake Elizabeth for Ridgetop Ranch Properties.
- Peer review of SB 610/221 Water Supply Assessment for the Centennial Development (27,000 homes).
- Numerous groundwater evaluations and groundwater management plans.
- Preparation of numerous urban water management plans. Among these are plans for the Antelope Valley, Castaic Lake Water Agency, Hi-Desert Water District, City of Oxnard, City of Santa Paula, and Twentynine Palms Water District.
- Feasibility Evaluation of Alternative Spreading Facilities at the Cucamonga Spreading Grounds for the San Antonio Water Company.
- Evaluation of water banking requirements (Water Supply Reliability Plan) for the Castaic Lake Water Agency.
- Strategy Development for the Santa Ana River Recharge Facilities for the San Bernardino Valley Water Conservation District.
- Water resource evaluation of the Antelope Valley.
- West Ventura County water supply reliability study for the cities of Ventura and Oxnard.
- Water Resources Plan for the Cambria Community Services District.
- Concept Plan for the restoration of the Santa Rosa Basin for the Camrosa Water District.
- McGrath Lake preliminary watershed study for the McGrath State Beach Area Trustee Council.
- Water production alternatives study for the City of Camarillo.
- Evaluation of supplemental water supplies for the Nipomo Community Services District.
- Baseline water supply study for the Cambria Community Services District.
- Preliminary evaluation of the potential use of freeway dewatering water as a water supply for the City of Downey.
- Water resources study for the City of Santa Paula.
- Water Resources Element (LA County) of the Santa Clara River Enhancement and Management Plan for the Castaic Lake Water Agency.
- Optimization study of state water importation into Ventura County.
- Evaluation of potential water resources for the Hidden Valley Municipal Water District.
- Water resources evaluation and environmental assessment of 200,000 acres in Hawaii for the Soil Conservation Service.

Affiliations

American Society of Civil Engineers
American Water Works Association
National Society of Professional Engineers
Society of American Military Engineers
Water Environment Federation

National Association of Corrosion Engineers

Publications

Levi Brekke, Milton D. Larsen, Mary Ausburn, and Lynn Takaichi. 2002. *Suburban Water Demand Modeling Using Stepwise Regression.* Journal – American Water Work Association, October 2002.

Mary Lou Cotton, C.C.P.

Technical/Policy Advisor and QA/QC

Education

MS, Geological Sciences, University of Southern California
BS, Biological Sciences, University of Southern California

Registrations

Certified Water Conservation Practitioner, AWWA-CA/NV

Affiliations

California Urban Water Conservation Council
American Water Works Association, Water Conservation Certification Committee
Association of California Water Agencies, Water Use Efficiency and Communications Committees

Professional Summary

Mary Lou Cotton is a water resources planning and water conservation expert, with over 17 years of management experience with water agencies statewide, specifically in conducting water resource planning and management programs including surface water and groundwater investigations; water transfer, banking and exchange transactions and agreements; water conservation planning and management; master planning and design studies; water quality and hazardous waste investigations; and supporting the preparation of CEQA Compliance documents and obtaining project permits. Ms. Cotton is working in an advisory capacity for several clients on a wide variety of water banking (supply reliability) programs, as well as water transfers or exchanges for short-term and long-term water supplies. In addition, Ms. Cotton assists the State Water Contractors in an advisory capacity on Bay-Delta matters and is also serving as the General Manager of the State Water Project Contractors Authority.

Ms. Cotton has served on the California Urban Water Conservation Council for over a dozen years, as representative for Council members Kern County water Agency, Castaic Lake Water Agency and now Kennedy/Jenks Consultants. She has served on the Council Steering Committee for eight years, and is currently Secretary/Treasurer of the organization; this experience has made her extremely familiar with the requirements of the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). Ms. Cotton is also a member of the Association of California Water Agencies Water Use Efficiency and Communications Committees. She is an AWWA registered Level 1 Water Conservation Practitioner and currently serves on the AWWA Water Conservation Certification Committee.

This wide experience has made Ms. Cotton an expert on all aspects of California water management policy and practice. She has participated in numerous high-level efforts regarding water conservation in California, including the CALFED Bay-Delta Program Water Use Efficiency advisory committee and the Department of Water Resources Urban Water Management Plan guidebook advisory committee, and has worked on various pieces of conservation-related legislation. In addition, she has served on numerous CUWCC project advisory committees and participated in the 1997 and 2008 revisions of the MOU.

Project Experience

2010 Urban Water Management Plan Update, Castaic Lake Water Agency, Santa Clarita, CA. Project Manager for preparation of the 2010 regional Urban Water Management Plan (UWMP), which is being completed on behalf of CLWA and its four retail purveyors. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. The UWMP also includes an evaluation of the various alternative water management strategies and supplies available to the Valley and based on the evaluation, will recommend water supply strategies.

2010 Urban Water Management Plan Update, Mojave Water Agency, Apple Valley, CA. QA/QC. Kennedy/Jenks is currently providing planning services to product Mojave Water Agency's (MWA) 2010 UWMP with particular focus on Best Management Practices (BMPs) and new regulations. A State Water Project contractor, MWA's plan is to be completed in cooperation with numerous retailers from within their service area. This update will also include analysis of the various agencies' water conservation programs status for the purposes of evaluating compliance with AB 1420 and SBX7, in coordination with the local Alliance for Water Awareness and Conservation.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. QA/QC for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Urban Water Management Plan Update for Improvement District 4, Kern County Water Agency, Bakersfield, CA. Project Manager for preparation of the 2010 regional UWMP, for the Kern County Water Agency's (KCWA) Improvement District No. 4 (ID4), which represents the urban portion of KCWA's State Water Project wholesale service area. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan Update, Port Hueneme Water Agency, Port Hueneme, CA. QA/QC for preparation of the Agency's 2010 UWMP update, which will include 25 years of water supply/demand analysis, new legislative requirements, water supply demand forecasting, Demand Management Measures review and analysis, and contingency planning.

2010 Urban Water Management Plan Update, City of Port Hueneme, CA. QA/QC for update of the City's 2010 UWMP. Project included review of the City's existing and future water supplies and demands, water supply reliability, summary of current conservation measures, an evaluation of recommended conservation measures, and an implementation plan.

2010 Urban Water Management Plan Update, San Bernardino Valley Municipal Water District, San Bernardino, CA. QA/QC for update of the District's 2010 UWMP with particular focus on Best Management Practices (BMP's) and new regulations. The work will also include coordination with California Department of Water Resources reviews and approvals.

2010 Urban Water Management Plan, Lake Arrowhead Community Services District, Lake Arrowhead, CA. Project Manager for production of this retail water purveyor's 2010 UWMP update.

2010 Urban Water Management Plan, North of the River Municipal Water District and Oildale Mutual Water Company, Kern County, CA. QA/QC for preparation of the 2010 UWMP update for Kern County Water Agency Improvement District No. 4's (ID4) participating retail purveyors, North of the River

Municipal Water District and Oildale Mutual Water Company. The UWMP update will provide information on ID4's wholesale service area and operations and will include data and information about the ID4 retail purveyor service areas and operations. The UWMP update will also include information on ID4 retail purveyor service areas that recover groundwater within ID4.

2010 Urban Water Management Plan, City of Ventura, CA. Project Manager for production of the City's 2010 UWMP update. The water supply analysis includes local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan, Central Coast Water Authority, Ventura County, CA. Currently providing QA/QC and third-party technical review for the CCWA's 2010 UWMP update.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. QA/QC for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

Water Use Efficiency Master Plan, Western Municipal Water District, Riverside County, CA: Project Manager. In concert with the growing emphasis on water use efficiency programs, WMWD commissioned the preparation of a Water Use Efficiency Master Plan to comprehensively address the long term use of water resources within their service area by adopting objectives, policies and programs designed to promote innovative emerging technologies and practices, as well as proven and cost-effective conservation measures. Ms. Cotton managed and authored several sections of the Plan, conducted an evaluation of water conservation measures through development of a weighted scoring matrix, and reviewed and assisted in the production of the Master Plan.

Water Conservation Master Plan, City of Riverside, Riverside County, CA: Technical Advisor & QA/QC. Recently selected for the preparation of a Water Conservation Master Plan to comprehensively address the long term use of water resources within the City's service area by adopting objectives, policies and programs designed to promote innovative emerging technologies and practices, as well as proven and cost-effective conservation measures.

Integrated Water Resources Management Plan (IWRMP), Western Municipal Water District, Riverside, CA: Project Team Member. Preparation of an integrated water resources plan for the Western Municipal Water District and retail agencies within the District (Riverside County). Project involved assistance to, and coordination of, a six member management group and approximately 20 stakeholders. Developed materials for stakeholder education, assisted with identification of water management objectives, and evaluation of projects put forth by stakeholders for consistency with objectives, financial feasibility, and compliance with State mandated requirements.

Upper Santa Clara Integrated Water Resources Management Plan, County of Los Angeles, CA: Project manager for the preparation of an integrated water resources plan for the Upper Santa Clara River Region (Los Angeles County). Project involves assistance to, and coordination of, an eight member management group and approximately 30 stakeholders. Develop materials for stakeholder education,

assist with identification of water management objectives, and evaluate projects put forth by stakeholders for consistency with objectives, financial feasibility, and compliance with State mandated requirements.

Hollister Area 2008 Urban Water Management Plan, Sunnyslope County Water District, City of Hollister, San Benito County Water District, CA. Provided QA/QC for a collaborative Urban Water Management Plan (UWMP) Update by the Sunnyslope County Water District (Sunnyslope), City of Hollister (City), and the San Benito County Water District (District). The latest amendment to the Plan incorporates a water shortage contingency plan, alternative water conservation measures and water reclamation programs.

Experience Prior to Kennedy/Jenks

Castaic Lake Water Agency, Water Resources Manager, Santa Clarita, CA. At the direction of the General Manager, work consisted of managing all aspects of the Agency's water resources projects, specifically dealing with water supply issues at the state and local levels. Prepared, facilitated, reviewed and submitted all water sale/transfer contracts, various agreements, and attendant resolutions to the Agency's Board of Directors and the Department of Water Resources. Prepared all documentation and conducted negotiations for three separate groundwater banking projects. Prepared in-house technical reports and other materials, including overseeing the production of the Agency's Urban Water Management Plan. Served in scientific advising capacity in reviewing all environmental regulatory documentation, particularly in regard to CEQA requirements, including consultant reports and other scientific documents. Served as the Agency's Water Conservation Coordinator; responsible for implementation of water conservation Best Management Practices as contained in the Memorandum of Understanding of the California Urban Water Conservation Council. Responsible for the Agency's public information program and oversee all its aspects. Represented the Agency on various committees, including several State Water Contractors standing committees, the California Urban Water Conservation Council Steering Committee, and the Association of California Water Agencies Communications and Program Committees.

Castaic Lake Water Agency, Assistant to the General Manager, Santa Clarita, CA. Worked at the direction of the General Manager, specifically dealing with water supply issues at the state and local levels. Prepared, facilitated, reviewed and submitted water sale/transfer contracts, various agreements, and attendant resolutions to the Agency's Board of Directors. Served in scientific advising capacity in reviewing environmental regulatory documentation, particularly in regard to the CALFED Bay-Delta Program; environmental impact reports; consultant reports and other scientific documents. Served as the Agency's Water Conservation Coordinator; responsible for implementation of water conservation Best Management Practices as contained in the Memorandum of Understanding of the California Urban Water Conservation Council. Responsible for the Agency's public information program. Prepared, compiled, wrote, and edited the Agency's quarterly newsletter and other Agency public information materials. Prepared in-house technical reports and other materials, including the Agency's Urban Water Management Plan. Represented the Agency on various committees, including several State Water

Contractors standing committees and the Association of California Water Agencies Communications and Program Committees.

Kern County Water Agency, Water Resources Planner, Bakersfield, CA. Attached to the Agency's Water Resources Department, specifically dealing with water supply issues, at both the state and local levels. Prepared, facilitated, reviewed and submitted water sale/transfer contracts, various agreements, and attendant resolutions to the Agency's Board of Directors. Served in scientific advising capacity in reviewing environmental regulatory documentation, particularly in regard to the CALFED Bay-Delta Program; environmental impact reports; consultant reports and other scientific documents. Served as the Agency's Water Conservation Coordinator; assist the Agency's Urban Bakersfield Advisory Committee. Responsible for implementation of water conservation Best Management Practices as contained in the Memorandum of Understanding of the California Urban Water Conservation Council. Also assisted with the Agency's participation in the AB3616 Agricultural Water Management Council. Responsible for majority of the Agency's public information program. Prepared, compiled, wrote, and edited the Agency's monthly newsletter. Prepared and wrote Agency public information materials. Prepared in-house technical reports and other materials including the Agency's Urban Water Management Plan. . Represented the Agency on various committees, including several State Water Contractors standing committees and budget review committee, the California Water Clearinghouse (for CALFED and Bay-Delta issues), the Association of California Water Agencies Communications (vice-chair) and Program Committees, and the Executive Committee of the Water Association of Kern County.

RESUME

Joseph C. Scalmanini

Specialization:

Forty-three years of practice in groundwater development and management, and oil and gas production. Assessments of groundwater resources and implementation of groundwater basin management in various areas throughout California; groundwater development and management encompassing well design, construction, operation, and maintenance; groundwater monitoring as part of basin management and as part of groundwater contamination investigations; artificial groundwater recharge facilities and practices; injection of industrial waste water; development of brackish and saline groundwater for municipal (desalination) and industrial water supply; water supply master planning.

Professional Registration:

Registered Civil Engineer, California, CE 28233

Academic Degrees:

M.E. Civil Engineering, University of California, Davis, CA	1984
B.S. Mechanical Engineering, University of Santa Clara, Santa Clara, CA	1967

Professional Experience:

Luhdorff and Scalmanini, Consulting Engineers, Woodland, CA	
President	2004 - Present
Principal Partner	1989 - 2004
Partner	1980 - 1989
University of California, Davis, Davis, CA	
Associate Development Engineer	1973 - 1979
Shell Oil Company	
Mechanical and Facilities Engineer	1967 - 1973

Representative Professional Assignments:

Consultant to water districts and utilities, municipalities, corporate and individual farming interests, corporate and private industry, and other engineering firms on groundwater development, utilization and management, including preparation and implementation of AB 3030 and other groundwater management plans, and plans for supplemental water supply and conjunctive use management. Consultation with public agencies, corporate and private concerns regarding groundwater contamination, its identification, monitoring, and management. Consultation with legal profession on technical aspects of groundwater development and utilization, including all aspects of groundwater basin yield and management, well design and construction, and application of pumping equipment.

Representative Professional Assignments continued:

Mr. Scalmanini directed and conducted a ground-water basin assessment in the Santa Maria Valley, including developing plans for conjunctive use of imported SWP water, recaptured return flows and increased artificial recharge of natural stream flow. After the adjudication of the Santa Maria Valley Groundwater Basin, he was appointed Basin Engineer, responsible for monitoring basin conditions and annually reporting to the court on the state of the basin.

Mr. Scalmanini directed the development of an alternative basin management plan for diversion of stream flow to replace coastal groundwater pumping and halt historical seawater intrusion in the Salinas Valley. He has developed several ground-water substitution programs for both public and private farming interests in Sacramento, Yolo and Sutter Counties, and authored Ground-Water Management Plans for these respective areas.

Mr. Scalmanini served as the court-appointed technical advisor to the Special Referee in the Chino Basin for development and implementation of an Optimum Basin Management Program to preserve and potentially increase the safe yield of the aquifer system, incorporate conjunctive use within storage limits in the aquifer, and make beneficial use of degraded water quality in the lower end of the basin by desalting ground water for future domestic water supply.

Mr. Scalmanini is directing ongoing engineering and hydrogeological analyses of local groundwater and imported State Water Project water supplies in the Upper Santa Clara River Area (Santa Clarita Valley) in Los Angeles County, including the preparation of annual Water Reports over the last eleven years. As part of that work, Mr. Scalmanini developed a cooperative technical program to integrate water resource analysis with the adjacent downstream basins, and has coordinated technical analysis of sustainable yield of the groundwater basin for ongoing agricultural, municipal, and other local water requirements since 2001. Mr. Scalmanini is the primary author of the AB3030 Groundwater Management Plan that has been adopted for the basin. He also prepared the Amendment to the 2000 Urban Water Management Plan for the State Water Contractor and all the water purveyors in the Valley to specifically address the adequacy of groundwater supplies in the wake of perchlorate contamination and the plan to contain contaminant migration while restoring contaminated wells to water supply service through the installation of wellhead treatment. He subsequently co-prepared an analysis of groundwater basin sustainable yield and a subsequent analysis of the adequacy of groundwater supply after another Alluvial well was impacted by perchlorate. He prepared the groundwater components of the 2005 Urban Water Management Plan, which was based on all the preceding analyses. Most recently, Mr. Scalmanini co-prepared an updated analysis of sustainable groundwater basin yield, including consideration of potential climate change impacts, for use in ongoing basin management and in the 2010 Urban Water Management Plan.

Mr. Scalmanini also currently serves as Chairman of the Ground-Water Committee that is developing and analyzing the potential for development of additional ground water throughout the Sacramento Valley as part of the Sacramento Valley Water Management Agreement reached in Phase 8 of the SWRCB Bay-Delta Water Rights Hearings.

Professional Affiliations:

National Ground Water Association
- Association of Ground Water Scientists and Engineers

American Water Works Association
California Groundwater Association
Groundwater Resources Association of California

Public Service:

- **Yolo County Aggregate Resources Committee (1975-79)**, Alternate delegate, hydrologist - analysis of impacts and development of management plans for extraction of aggregate from Cache Creek basin.
- **California Tenth Biennial Conference on Ground Water (1975)**, Member, Planning Committee
- **Chancellor's Campus (Univ. of Calif., Davis) Water Committee (1976-78)**, Staff Engineer - analysis of water supplies and uses, projection of requirements, development of conservation and management plans.
- **City of Davis Water Planning and Conservation Committee (1977-79)**, Chairman - analysis of water supplies and uses, projection of requirements, consideration of alternative supplies, development of conservation and management plans.
- **Yolo County Water Resources Task Force (1979)**, Member - development of county-wide master water plan.
- **Pacific Gas and Electric Co. ACT^2 Irrigation Pumping Demonstration Project (1992)**, Technical Advisor
- **Association of California Water Agencies (1994-1996)**, Member - Groundwater Committee
- **Cache Creek Conservancy**, **(2000-2002)**, Director

Teaching Activities:

Course Coordinator and Instructor University Extension Courses, University of California, Davis:

Concepts of Ground Water Management (1974, 1976, 1978, 1981)
Legal and Policy Considerations in Ground Water Management (1975, 1976, 1980)
Water Supply Wells and Pumps (1977, 1978,1981, 1983, 1985, 1986)
Groundwater Law, Hydrology and Management (2001-2010)

Instructor, University of California, Davis, Water Science 198, Introductory Hydraulics (1977, 1978, 1979)

Lecturer, University of California, Davis, Water Science 2, 140, 160; Ecology 230; Civil Engineering / Geology 175 (1975 - 1979)

Lecturer on Aquifer Characteristics, Well Hydraulics, and Groundwater Development, in Technical Training Classes at the U.S. Army Corps of Engineers' Hydraulic Engineering Center, Davis, CA.

Publications and Presentations:

Scott, V.H. and J.C. Scalmanini, **Water Wells and Pumps: Their Design, Construction, Operation, and Maintenance**, University of California Division of Agricultural Sciences Bulletin No. 1889, 1977.

Helweg, O.J., Scott, V.H., and J.C. Scalmanini, **Improving Well and Pump Efficiency**, American Water Works Association, 1983.

Publications and Presentations continued:

Scalmanini, J.C., and Scott V.H., **Design and Operational Criteria for Artificial Groundwater Recharge Facilities**, Water Science and Engineering Paper No. 2009, University of California, Davis, 1979.

Scalmanini, J.C., Scott, V.H., and O.J. Helweg, **Energy and Efficiency in Wells and Pumps**, presented at Twelfth Biennial Ground Water Conference, 1979.

Scalmanini, J.C., Johnson Jr., R.M., and E.E. Luhdorff Jr., **Development of a Groundwater Monitoring Program as a Basis for Coastal Groundwater Basin Management**, presented at the Fall Conference, American Water Works Association, CA-NV Section, 1983.
Scalmanini, J.C., **3030 Hindsight and 2020 Foresight, Actual Groundwater Management Experience Over the Last 15 Years, Soquel Creek Water District**, presented at the Association of California Water Agencies' Groundwater Management Conference, March 1994.

Scalmanini, J.C., **Legal and Technical Issues Related to Surface Water and Groundwater Interaction**, presented at the Groundwater Resources Association's California Ground Water & Efficient Usage for the Year 2000 and Beyond, October 1998.

Scalmanini, J.C., A. Schneider, and V. Cahill (panel presentation), **Groundwater Classification: Is the State Water Resources Control Board's Jurisdiction Over Ground Water Changing?**, presented at the Water Education Foundation's 2000 Update on Water Law and Policy, July 2000.

Scalmanini, J.C., **What the Heck's a Sub-Basin? Defining Basins and Sub-Basins**, presented at the Association of California Water Agencies' Groundwater Management: Will CalFed Help or Hinder Workshop, November 2000.

Scalmanini, J.C., **"Groundwater Law, Policy and Science: What can Be Done About The Disconnect",** presented at the Water Education Foundation's 2005 Water Law and Policy Briefing, San Diego, July 2005.

Nancy Clemm, P.E.

WORK SUMMARY

Nancy Clemm is a civil engineer with 30 years water resources planning experience, including 20 years working primarily on State Water Project (SWP) and Bay/Delta issues. Ms. Clemm is very familiar with SWP system operations, including reservoir, Delta, and conveyance facility operations, as well as with the Department of Water Resources (DWR) planning model used to estimate SWP delivery reliability. She has assisted in the preparation of numerous water supply planning documents, focused primarily on SWP supplies and facilities, including the 2005 and 2010 Urban Water Management Plans (UWMP) for Castaic Lake Water Agency (CLWA), the 1995 Regional Urban Water Management Plan and 1996 Integrated Water Resources Plan for the Metropolitan Water District of Southern California (MWD), and several environmental impact reports (EIR) dealing with SWP supplies and/or use of SWP conveyance facilities.

EXPERIENCE

WATER RESOURCES CONSULTANT, Los Angeles, California, 1999 - Present.
(Self-employed)

2005 and 2010 UWMPs: For CLWA, participated in preparation of 2005 and 2010 UWMPs, primarily focused on determining availability of SWP water supplies and assessing overall supply reliability.

Monterey Plus EIR: For MWD, provided technical support to SWP contractor representatives on advisory committee to DWR regarding water supply analyses and SWP contract issues, for preparation of new environmental document for Monterey Amendment to SWP water supply contract.

Water Program EIRs: For CLWA, assisted in preparation of EIRs for water programs involving use of SWP conveyance facilities, for CLWA's Rosedale Rio Bravo Water Storage District Water Banking Program, and its water acquisition from Buena Vista Water Storage District/Rosedale Rio Bravo Water Storage District.

SWP Table A Transfer EIR: For CLWA EIR for permanent transfer of SWP Table A amount, conducted SWP water supply reliability and water allocation analyses using data from DWR model studies, performed SWP aqueduct capacity rights and availability analysis, and prepared overall CLWA supply reliability assessment.

SWP Water Operations and Water Transfers: For State Water Contractors (SWC), participating in SWC Water Operations Committee, addressing SWP annual water supply and operational issues; and in SWC Water Transfers Committee, reviewing and providing recommendations regarding approval of proposed SWP contractor transfers and exchanges.

Reservoir Reoperation Report: For CALFED, drafted report on potential water supply and environmental benefits of reoperation of hydroelectric facilities in northern and central California.

Hydrologic Model: For Salt River Project, assisted with enhancements to runoff forecasting model, including making programming revisions, assisting with addition of user-interface, and writing user's manual and program documentation.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, Los Angeles, California, 1991 - 98. (Senior Engineer, SWP Branch, 1993 - 98; Engineer, Bay Delta Branch, 1992; Engineer, SWP Branch, 1991)

SWP Water Supply Analyses: Assisted in preparation of several planning documents, including 1995 Regional Urban Water Management Plan and 1996 Integrated Water Resources Plan. Conducted numerous additional analyses to estimate future availability of SWP supplies, and to evaluate proposed SWP operational constraints, future water supply options, and SWP contract provisions.

SWP Supply Operations: Participated in SWC committee monitoring DWR's reservoir and Delta operations, addressing operational issues and various contractor issues such as equity and current supply versus risk of future shortage.

Water Contracts: Provided significant support in development of Monterey Amendment to SWP contract, including providing technical support for urban contractor negotiating team; assisting in amendment drafting and completion of environmental documentation; and resolution of implementation issues. Participated in drafting numerous agreements between MWD, DWR, and other agencies related to establishment of and water delivery to groundwater banking and exchange programs.

SWP Supply Planning: Participated in SWC committee monitoring DWR planning efforts to enhance SWP supplies, including review of proposed projects' feasibility, supply yield, water quality, environmental effects and mitigation, and costs.

SALT RIVER PROJECT, Phoenix, Arizona, 1981 - 90. (Senior Water Resources Analyst, 1985 - 90; Engineer III, 1983 - 84; Rotational Engineer, 1981 - 82)

Water Supply Analyses: Worked extensively with reservoir operations simulation model of Salt River Project system to conduct supply studies, to estimate future supplies and evaluate supply impacts given proposed physical and operational changes. Made major programming modifications and wrote program documentation.

Other Computer Modeling: Developed runoff forecasting model to estimate real-time runoff to reservoir system, including all model design, programming, and documentation. Assisted in development of water demand forecasting model based on land use, including model design, development, and implementation.

Water Contracts / Accounting: Developed detailed knowledge of existing water delivery and reservoir storage contracts. Participated in several negotiations for new water contracts, primarily concerning water delivery, accounting, and measurement.

EDUCATION

Bachelor of Science in Civil Engineering, Arizona State University, 1981.
Graduate courses in water resources modeling, Arizona State University.

REGISTRATION

Civil Engineer, California and Arizona

J. Lauren Everett

Water Resources Specialist

Education

B.S., Environmental Studies, University of California, Santa Barbara, 1999

M.S., Donald Bren School of Environmental Science and Management University of California, Santa Barbara, 2001

Professional Summary

Ms. Everett is a Water Resources Specialist, with over 8 years of experience in environmental and regulatory compliance providing technical planning support for a diverse range of water resource projects. Ms. Everett is currently involved with implementing DWR's Proposition 84 Integrated Regional Water Management Grant Program, urban water management planning, and supply and demand forecasting. Lauren has served as the liaison between planning, and engineering teams, and appreciates the teamwork and communication skills needed to successfully integrate planning and design concepts to meet regulatory requirements. She has also served as the project manager and project specialist for numerous water resource studies in Southern California.

Professional Experience

- *Castaic Lake Water Agency (CLWA), 2010 Urban Water Management Plan Update, Santa Clarita, CA:* Preparation of the 2010 regional Urban Water Management Plan (UWMP) is being completed on behalf of CLWA and its four retail purveyors. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. Ms. Everett is the technical lead on the UWMP development.

- *2010 Urban Water Management Plan Update for Improvement District 4, Kern County Water Agency, Bakersfield, CA.* Preparation of the 2010 regional UWMP, for the Kern County Water Agency's (KCWA) Improvement District No. 4 (ID4), which represents the urban portion of KCWA's State Water Project wholesale service area includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. Ms. Everett is the technical lead on the UWMP development.

- *Castaic Lake Water Agency (CLWA), Upper Santa Clara River IRWMP Proposition 84 Implementation Grant Application, Santa Clarita, CA:* The Project is the preparation of an Implementation Grant application requesting funds from the Proposition 84 Integrated Regional Water Management (IRWM) Implementation Grant Program for five Candidate Projects within the Upper Santa Clara River IRWM Plan. Ms. Everett managed the effort and was the technical lead on the application preparation.

- *Castaic Lake Water Agency (CLWA), Upper Santa Clara River IRWMP Proposition 84 Planning Grant Application, Santa Clarita, CA:* The Project is the preparation of a Planning Grant application requesting funds from the Proposition 84 IRWM Planning Grant Program for the 2010 Update of the Upper Santa Clara River IRWM Plan. Ms. Everett managed the effort and was the technical lead on the application preparation.

- *Los Angeles County Department of Public Works, Antelope Valley Integrated Regional Water Management Plan (Plan):* Ms. Everett managed the development of the Plan, which was

designed with a regional focus for the sustainable management of water resources in the Antelope Valley Region for the next twenty-five years. Over 40 agencies within the Antelope Valley participated in the planning process.

- *Los Angeles County Department of Public Works, Antelope Valley Integrated Regional Water Management Plan, Proposition 50 Round 2 Step 1 & Step 2 Grant Application, Antelope Valley, CA:* Kennedy/Jenks submitted a proposal for an implementation grant requesting $25 million for seven projects that targeted reducing the mismatch between supply and demand projected for the Region by 2035. Ms. Everett managed the preparation of the Step 1 and Step 2 grant applications.

- *Los Angeles County Department of Public Works, Antelope Valley Integrated Regional Water Management Plan, Region Acceptance Process (RAP) Application, Antelope Valley, CA:* Kennedy/Jenks submitted a proposal successfully defending the IRWMP Region's boundary to the Department of Water Resources allowing the IRWMP Region to remain in the Proposition 84 IRWMP Program. Ms. Everett managed the RAP effort.

- *Kern County Water Agency, Tulare Lake Basin Portion of Kern County Integrated Regional Water Management Plan (Plan), Kern County, CA:* Ms. Everett is currently assisting in the development of the integrated regional planning document, and providing assistant management responsibilities. Over 40 agencies within the Kern Region are participating in the Kern Region IRWM planning process.

- *Kern County Water Agency, Tulare Lake Basin Portion of Kern County Integrated Regional Water Management Plan, Region Acceptance Process Application, Kern County, CA:* Kennedy/Jenks submitted a proposal successfully defending the IRWMP Region's boundary to the Department of Water Resources allowing the IRWMP Region to remain in the Proposition 84 IRWMP Program. Ms. Everett managed the RAP effort.

- *Castaic Lake Water Agency (CLWA), Water Supply Reliability Plan Update, Santa Clarita, CA:* The plan and update are needed in order to evaluate the technical, environmental, and economic issues associated with potential water supply reliability projects. Ms. Everett's responsibilities include characterization of the water supply and demands for the region, and general report content.

- *Los Angeles County Department of Public Works, North Los Angeles/Kern County Regional Recycled Water Master Plan Environmental Impact Report, Antelope Valley, CA:* Kennedy/Jenks assisted Environmental Science Associates in preparing the hydrology, hazards and hazardous materials, and geology sections of the Environmental Impact Report. Ms. Everett managed the Kennedy/Jenks team on this effort.

- *Ventura County Waterworks District No. 8 Recycled Water Master Plan, Simi Valley, CA:* This project consists of the design of a recycled water distribution system to serve municipal and industrial customers within the City of Simi Valley. Ms. Everett's responsibilities included characterization of the environmental issues associated with implementing the system, identification of required permits and approvals, and general report coordination.

Dana Haasz

Project Manager

Education

M.S., Applied Geography, New Mexico State University, Las Cruces, NM
B.S., Geography and Environmental Science, McGill University, Montreal, Canada

Affiliations

California Urban Water Conservation Council
Western Water Alliance Steering Committee and Hiring Committee
Technical Advisor to CALFED Appropriate Water Measurement Panel/Agricultural and Urban
Environmental Justice Coalition for Water Steering Committee
Water Education Foundation, Water Leader (2003) and Water Leader Mentor (2009)

Professional Summary

Dana Haasz has 13 years experience in water conservation, demand modeling and resource planning. She currently manages the water use efficiency projects and programs for Kennedy/Jenks. Projects range from planning, program assessment, demand modeling and helping agencies to meet regulatory requirements, to the development of implementation programs, budgets, monitoring and quantification.

Dana spent the six years as the Water Conservation Administrator at San Francisco Public Utilities Commission. Ms. Haasz has extensive experience in regulatory compliance issues and long-term water supply planning for the retail and wholesale service areas, including planning, organizing, developing and administering retail water conservation programs including the identification, evaluation, and public promotion of conservation with industry, builders, developers, public agencies, customers, and community groups. Ms. Haasz's activities also extended to policy development, from legislative initiatives and statewide conservation issues to development of a revolving loan program and other efficiency-related activities at the local level.

In Ms. Haasz's six years at San Francisco Public Utilities Commission, she directly managed and implemented the growth of the Conservation department from a customer-service based residential rebate program to a multi-faceted approach that includes all customers, various types of incentives and services, outreach, education, policy and coordination with local, regional and state level activities. Her approach towards the expansion of the program was to merge public policy needs with solid business principles and quantified outcomes so as to make obvious and appropriate efficiency decisions for the customer as well as honoring the agency's responsibility to the ratepayer.

Prior to the SFPUC, Dana developed modeling and theoretical skills at the Pacific Institute for Water, Development and Environment where she co-authored an analysis quantifying water conservation potential for the state and policies and programs designed to achieve that goal.

Project Experience

2010 Urban Water Management Plans (18 water systems), Golden State Water Company, Rancho Cordova, CA. Currently providing water conservation services for GSWC's 2010 UWMP update for the 18 water systems that meet the criteria for the requirements of an UWMP. Updates will include analysis of water conservation programs status for the purposes of evaluating compliance with AB 1420 and SBX7, in coordination with the local Alliance for Water Awareness and Conservation.

2010 Urban Water Management Plan Update, Stockton East Water District, Stockton, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures, as well as addressing AB 1420 and SBX7-7 regulations.

The update will also include a water shortage contingency plan as it applies to Stockton East Water District being an urban water wholesaler.

Complete Water Conservation and Demand Reduction Program Evaluation, City of Roseville, Roseville, CA. Developed an implementation plan, including a review of past activities, identification of potential conservation measures, cost benefit analysis, program modeling and design to prepare conservation plan for City of Roseville, that meets the 20x2020 requirements.

Water Conservation Efficiency Master Plan, City of Riverside, Riverside, CA developed a conservation implementation program for the City of Riverside. Evaluated Riverside's past water use efficiency program, identified potential conservation measures, performed cost benefit analysis, modeled potential programs and developed a scored options matrix to assist Riverside with efforts to effectively comply the 20x2020 requirements and guide program design and implementation.

2010 Urban Water Management Plan Update, Castaic Lake Water Agency, Santa Clarita, CA. Currently providing water conservation services for preparation of the 2010 regional Urban Water Management Plan (UWMP), which is being completed on behalf of CLWA and its four retail purveyors. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. The UWMP also includes an evaluation of the various alternative water management strategies and supplies available to the Valley and based on the evaluation, will recommend water supply strategies.

2010 Urban Water Management Plan Update, Mojave Water Agency, Apple Valley, CA. Currently providing water conservation services to produce Mojave Water Agency's (MWA) 2010 UWMP with particular focus on Best Management Practices (BMPs) and new regulations. A State Water Project contractor, MWA's plan is to be completed in cooperation with numerous retailers from within their service area. This update will also include analysis of the various agencies' water conservation programs status for the purposes of evaluating compliance with AB 1420 and SBX7, in coordination with the local Alliance for Water Awareness and Conservation.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Park Water Company Urban Water Management Plan and Water Use Efficiency Plan, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Suburban Water Systems Urban Water Management Plan, Oxnard, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

2010 Urban Water Management Plan Update for Improvement District 4, Kern County Water Agency, Bakersfield, CA. Currently providing water conservation services for preparation of the 2010 regional UWMP, for the Kern County Water Agency's (KCWA) Improvement District No. 4 (ID4), which represents the urban portion of KCWA's State Water Project wholesale service area. The water supply analysis includes the SWP, local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan Update, San Bernardino Valley Municipal Water District, San Bernardino, CA. Currently providing water conservation services for update of the District's 2010 UWMP with particular focus on Best Management Practices (BMP's) and new regulations. The work will also include coordination with California Department of Water Resources reviews and approvals.

2010 Urban Water Management Plan, Lake Arrowhead Community Services District, Lake Arrowhead, CA. Currently providing water conservation services for production of this retail water purveyor's 2010 UWMP update.

2010 Urban Water Management Plan, North of the River Municipal Water District and Oildale Mutual Water Company, Kern County, CA. Currently providing water conservation services for preparation of the 2010 UWMP update for Kern County Water Agency Improvement District No. 4's (ID4) participating retail purveyors, North of the River Municipal Water District and Oildale Mutual Water Company. The UWMP update will provide information on ID4's wholesale service area and operations and will include data and information about the ID4 retail purveyor service areas and operations. The UWMP update will also include information on ID4 retail purveyor service areas that recover groundwater within ID4.

2010 Urban Water Management Plan, City of Ventura, CA. Currently providing water conservation services for production of the City's 2010 UWMP update. The water supply analysis includes local groundwater, reliability programs, other imported supplies and recycled water. In addition to the water supply analyses required by the UWMP Act, this UWMP update will also include analysis of local water conservation program status for the purposes of evaluating compliance with AB 1420 and SBX7.

2010 Urban Water Management Plan, Central Coast Water Authority, Ventura County, CA. Currently providing QA/QC and third-party technical review regarding water conservation practices for the CCWA's 2010 UWMP update.

2010 Urban Water Management Plan Update, Western Municipal Water District, Riverside County, CA. Currently providing water conservation services for preparation of the District's 2010 UWMP update, including water supplies, demands, and conservation measures.

Project Experience Prior to Kennedy/Jenks

Water Conservation Administrator, San Francisco Public Utilities Commission

Water Saver Program: Developed market-based approach to conservation programs. The program aimed to secure permanent water savings for large commercial and industrial customers by providing technical support and financial incentive incentives based on the volume of saved water. The program allowed SFPUC to support larger process-oriented uses and other specific needs that are not part of the traditional fixture-based rebate programs. Participants included hotels, hospitals, colleges, and food growers.

Unaccounted for Water Analysis: Managed the first large urban agency implementation of the full AWWA M36 Water Loss process. The multi-phase analysis to discover, diagnose, and develop an implementation plan for capturing water system losses consisted of quantification and categorization of losses, identifying cost effective potential recovery and ,disaggregating city zones to prioritize and develop leak detection and repair implementation plan and providing leak detection training to City staff at the SFPUC.

Data Management: Managed design and development of database designed to improve the analytic capacity of conservation programs and link activities to water savings - actual and estimated – customer type, spatial information and more. The system also incorporated administrative tasks such as issuing rebates, mailings, inspection scheduling and follow up.

Low-income Direct Install Program: Developed high-efficiency toilet (HET) direct-installation and water audit program in coordination with community groups in order to save water in a hard to reach population and mitigate the impacts of rising water rates. The program provided free HETs to single family customers and a voucher program for multi-family residents in low-income communities. Local nonprofit groups were enlisted and community members trained in conservation principles in order to help market the program. program received two grants of $200,000 each, one from the California Department of Water Resources and one from the U.S. Bureau of Reclamation.

Education: Developed materials and an implementation plan for a water resources education program that would be compliant with both state and CUWCC requirements.

Municipal: Launched municipal audit program with detailed potential efficiency improvements, costs and implementation recommendations.

Conservation Legislation: Developed and worked to pass local conservation ordinances including a residential retrofit on resale for ordinance and a replacement ordinance for commercial accounts. Improvements include fixture replacement (toilets, showerheads aerators) and leak repair. Worked with the San Francisco Department of Building Inspection to train City inspectors, develop implementation materials and process.

Baseline Analysis: Participated in modeling of baseline use in San Francisco by customer type, potential demand reduction opportunities, costs and implementation options. Preferred alternative became the basis for SFPUC program activities.

California Urban Water Conservation Council: Represented Group 1 water agencies as convener of the CUWCC, 2005-2006 / Represented Group 2 Environmental Organizations as convener 2003-2004.

Appendix C

Purveyor Supply and Demand Tables

TABLE C-1
AVERAGE/NORMAL YEAR: EXISTING WATER SUPPLIES

EXISTING SUPPLIES[a]	2015	2020	2025	2030	2035	2040	2045	2050
Existing Groundwater[b]								
Alluvial Aquifer								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	1,825	1,825	1,825	1,825	1,825	1,825	1,825	1,825
SCWD	10,500	10,500	10,500	11,500	11,500	11,500	11,500	11,500
VWC	11,675	11,675	11,675	11,675	11,675	11,675	11,675	11,675
Total	*24,000*	*24,000*	*24,000*	*25,000*	*25,000*	*25,000*	*25,000*	*25,000*
Saugus Formation								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525
SCWD[d]	2,850	3,350	3,350	3,350	3,350	3,350	3,350	3,350
VWC	2,850	3,350	3,350	3,350	3,350	3,350	3,350	3,350
Total	*9,225*	*10,225*	*10,225*	*10,225*	*10,225*	*10,225*	*10,225*	*10,225*
Recycled Water[e]								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	325	325	325	325	325	325	325	325
Total	*325*	*325*	*325*	*325*	*325*	*325*	*325*	*325*
Imported Water								
SWP Table A and Carryover[f]								
LACWWD 36[c]	1,656	1,943	2,217	2,489	2,688	2,901	3,091	3,269
NCWD	8,084	8,918	9,320	10,060	10,349	10,755	11,116	11,469
SCWD	23,918	24,263	24,268	23,963	24,541	24,979	25,369	25,787
VWC	24,442	22,776	21,795	20,888	19,822	18,765	17,825	16,875
Total	*58,100*	*57,900*	*57,600*	*57,400*	*57,400*	*57,400*	*57,400*	*57,400*
SWP Flexible Storage Accounts[g]								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	0	0	0	0	0	0	0	0
Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

TABLE C-1 CON'T

	2015	2020	2025	2030	2035	2040	2045	2050
Buena Vista-Rosedale								
LACWWD 36[c]	325	375	450	500	525	575	625	650
NCWD	1,600	1,750	1,825	1,975	2,050	2,100	2,175	2,250
SCWD	4,675	4,775	4,775	4,725	4,825	4,900	4,975	5,050
VWC	4,400	4,100	3,950	3,800	3,600	3,425	3,225	3,050
Total	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*
Nickel Water - Newhall Land								
VWC *Total*	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Banking Programs[g]								
Rosedale Rio-Bravo								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	0	0	0	0	0	0	0	0
Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Semitropic								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	0	0	0	0	0	0	0	0
Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Semitropic – Newhall Land								
VWC *Total*	0	0	0	0	0	0	0	0
TOTAL EXISTING SUPPLIES								
LACWWD 36[c]	1,981	2,318	2,667	2,989	3,213	3,476	3,716	3,919
NCWD	15,034	16,018	16,495	17,385	17,749	18,205	18,641	19,069
SCWD	41,943	42,888	42,893	43,538	44,216	44,729	45,194	45,687
VWC	45,299	43,833	42,702	41,645	40,379	39,147	38,007	36,882
Total	**104,257**	**105,057**	**104,757**	**105,557**	**105,557**	**105,557**	**105,558**	**105,557**

Notes:

(a) The distribution of existing and planned supplies does not represent a formal allocation of water supplies among purveyors.

(b) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-10, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.

(c) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

(d) SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.

(e) Per CLWA Draft Recycled Water Master Plan and Newhall Ranch Specific Plan.

(f) SWP supplies are based on the Department of Water Resources "*2009 State Water Project Delivery Reliability Report*."

(g) Not needed in average/normal years.

TABLE C-2
AVERAGE/NORMAL YEAR: PLANNED AND TOTAL WATER SUPPLIES

PLANNED SUPPLIES[a]	2015	2020	2025	2030	2035	2040	2045	2050
Future Groundwater[b]								
Alluvial Aquifer								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC[d]	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Total	*-*	*1,000*	*2,000*	*3,000*	*4,000*	*5,000*	*6,000*	*7,000*
Saugus Formation								
LACWWD 36[c][e]	500	500	500	500	500	500	500	500
NCWD	875	875	875	875	875	875	875	875
SCWD	0	0	0	0	0	0	0	0
VWC	0	0	0	0	0	0	0	0
Total	*1,375*	*1,375*	*1,375*	*1,375*	*1,375*	*1,375*	*1,375*	*1,375*
Recycled Water[f]								
LACWWD 36[c]	0	50	50	50	50	50	50	50
NCWD	200	500	1,000	1,275	1,775	2,275	2,775	3,275
SCWD	100	500	1,500	2,275	2,775	3,775	4,775	5,775
VWC	675	1,675	2,675	4,175	5,675	7,675	9,675	11,875
Total	*975*	*2,725*	*5,225*	*7,775*	*10,275*	*13,775*	*17,275*	*20,975*
Banking Programs[g]								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	0	0	0	0	0	0	0	0
Total	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL PLANNED SUPPLIES								
LACWWD 36[c]	500	550	550	550	550	550	550	550
NCWD	1,075	1,375	1,875	2,150	2,650	3,150	3,650	4,150
SCWD	100	500	1,500	2,275	2,775	3,775	4,775	5,775
VWC	675	2,675	4,675	7,175	9,675	12,675	15,675	18,875
Total	**2,350**	**5,100**	**8,600**	**12,150**	**15,650**	**20,150**	**24,650**	**29,350**

TABLE C-2 CON'T

PURVEYOR EXISTING AND PLANNED SUPPLIES	2015	2020	2025	2030	2035	2040	2045	2050
LACWWD 36[c]	2,481	2,868	3,217	3,539	3,763	4,026	4,266	4,469
NCWD	16,109	17,393	18,370	19,535	20,399	21,355	22,291	23,219
SCWD	42,043	43,388	44,393	45,813	46,991	48,504	49,969	51,462
VWC	45,974	46,508	47,377	48,820	50,054	51,822	53,682	55,757
Total	**106,607**	**110,157**	**113,357**	**117,707**	**121,207**	**125,707**	**130,208**	**134,907**

Notes:

(a) The distribution of existing and planned supplies does not represent a formal allocation of water supplies among purveyors.

(b) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production remains within the sustainable ranges identified in Table 3-7 of 2009 Groundwater Basin Yield Analysis. As indicated in Table 3-10, existing and planned groundwater pumping remain within the basin operating plan shown on Table 3- 5.

(c) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

(d) Conversion of Newhall Land agricultural groundwater supplies to VWC M&I supplies.

(e) LACWWD 36 anticipates connecting a newly completed well in 2011.

(f) Per CLWA Draft Recycled Water Master Plan and Newhall Ranch Specific Plan.

(g) Not needed in average/normal years.

TABLE C-3
AVERAGE/NORMAL YEAR: DEMANDS WITH SBX7-7 REDUCTIONS AND COMPARISON TO TOTAL SUPPLIES

WATER DEMANDS W/ AND W/O CONSERVATION[a]	2015	2020	2025	2030	2035	2040	2045	2050
LACWWD 36[b]								
Demand w/o Conservation[c]	1,759	2,189	2,619	3,048	3,478	3,908	4,338	4,768
Anticipated Conservation Objective[d]	176	438	524	610	696	782	868	954
Reduction from Recycled Water[e]	0	50	50	50	50	50	50	50
Net Anticipated Water Conservation[f]	176	388	474	560	646	732	818	904
Demand w/ Conservation[g]	1,584	1,802	2,146	2,489	2,833	3,177	3,521	3,865
Existing and Planned Supplies	*2,481*	*2,868*	*3,217*	*3,539*	*3,763*	*4,026*	*4,266*	*4,469*
SBX7-7 Compliance Calculations								
NCWD								
Demand w/o Conservation[c]	12,571	14,246	15,922	17,598	19,273	20,949	22,624	24,300
20x2020 Reduction[h]	1,365	2,982	3,204	3,489	3,742	3,995	4,248	4,501
Reduction from Recycled Water[e]	200	500	1,000	1,275	1,775	2,275	2,775	3,275
Reduction from Water Conservation[i]	1,165	2,482	2,482	2,482	2,482	2,482	2,482	2,482
Demand w/ Conservation[j]	11,406	11,764	13,439	15,116	16,791	18,467	20,142	21,818
Existing and Planned Supplies	*16,109*	*17,393*	*18,370*	*19,535*	*20,399*	*21,355*	*22,291*	*23,219*
SCWD								
Demand w/o Conservation[c]	31,633	34,814	37,995	41,176	44,357	47,538	50,719	53,900
20x2020 Reduction[k]	3,524	7,557	8,067	8,576	9,085	9,595	10,104	10,614
Reduction from Recycled Water[e]	100	500	1,500	2,275	2,775	3,775	4,775	5,775
Reduction from Water Conservation[i]	3,424	7,057	7,057	7,057	7,057	7,057	7,057	7,057
Demand w/ Conservation[j]	28,209	27,757	30,938	34,119	37,300	40,481	43,662	46,843
Existing and Planned Supplies	*42,043*	*43,388*	*44,393*	*45,813*	*46,991*	*48,504*	*49,969*	*51,462*
VWC								
Demand w/o Conservation[c]	34,107	37,235	40,362	43,490	46,617	49,745	52,872	56,000
20x2020 Reduction[l]	3,962	8,648	9,372	10,095	10,819	11,542	12,266	12,990
Reduction from Recycled Water[e]	1,000	2,000	3,000	4,500	6,000	8,000	10,000	12,200
Reduction from Water Conservation[i]	2,962	6,648	6,648	6,648	6,648	6,648	6,648	6,648
Demand w/ Conservation[j]	31,144	30,587	33,714	36,842	39,968	43,097	46,223	49,352
Existing and Planned Supplies	*45,974*	*46,508*	*47,377*	*48,820*	*50,054*	*51,822*	*53,682*	*55,757*

TABLE C-3 CON'T

REGIONAL SUMMARY	2015	2020	2025	2030	2035	2040	2045	2050
Demand w/o Conservation[c]	80,070	88,484	96,898	105,312	113,726	122,140	130,554	138,968
Total 20x2020 Reduction	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Total Reduction from Recycled Water[m]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Total Reduction from Water Conservation	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation	**72,343**	**71,908**	**80,236**	**88,564**	**96,892**	**105,220**	**113,549**	**121,877**
TOTAL EXISTING AND PLANNED SUPPLIES	**106,607**	**110,157**	**113,357**	**117,707**	**121,207**	**125,707**	**130,208**	**134,907**

Notes:

(a) Reflects existing and projected demands in CLWA service area only. CLWA's Annexation Policy requires annexing parties to provide additional fully reliable supplies. Known parties potentially seeking annexation include Legacy/Stevenson Ranch Phase 5, Tapia Canyon and Tesoro Del Valle.
(b) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.
(c) Demand w/o Conservation from Table 2-2.
(d) LACWWD 36 conservation objective estimated at 20% of projected demand commencing 2020; see Table 2-21.
(e) Recycled water projections from Table 4-3.
(f) Net Anticipated Conservation for LACWWD 36 is Anticipated Conservation Objective minus Reduction from Recycled Water.
(g) Demand w/ Conservation for LACWWD 36 is Demand w/o Conservation minus Net Anticipated Conservation.
(h) NCWD 20x2020 Reduction from Table 2-16. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(i) Reduction from Water Conservation is 20x2020 Reduction minus Reduction from Recycled Water for 2015 and 2020; the quantity of water conservation remains at least at 2020 amounts through 2050.
(j) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.
(k) SCWD 20x2020 Reduction from Table 2-18. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(l) VWC 20x2020 Reduction from Table 2-20. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(m) Recycled water reductions do not include demands from Honor Rancho.

TABLE C-4
SINGLE-DRY YEAR: EXISTING WATER SUPPLIES

EXISTING SUPPLIES[a]	2015	2020	2025	2030	2035	2040	2045	2050
Existing Groundwater[b]								
Alluvial Aquifer								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	1,150	1,150	1,150	1,225	1,250	1,250	1,250	1,225
SCWD	8,150	8,150	8,150	8,150	8,150	8,150	8,150	8,150
VWC	11,000	10,950	10,900	11,675	11,650	11,625	11,600	11,275
Total	*20,300*	*20,250*	*20,200*	*21,050*	*21,050*	*21,025*	*21,000*	*20,650*
Saugus Formation								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	4,975	4,975	4,975	4,975	4,975	4,975	4,975	4,975
SCWD[d]	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
VWC	11,925	11,925	11,925	11,925	11,925	11,925	11,925	11,925
Total	*20,400*	*20,400*	*20,400*	*20,400*	*20,400*	*20,400*	*20,400*	*20,400*
Recycled Water[e]								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	325	325	325	325	325	325	325	325
Total	*325*	*325*	*325*	*325*	*325*	*325*	*325*	*325*
Imported Water								
SWP Table A and Carryover[f]								
LACWWD 36[c]	405	436	440	444	468	499	522	543
NCWD	1,722	1,734	1,657	1,630	1,670	1,731	1,786	1,826
SCWD	6,171	5,892	5,208	4,736	4,720	4,710	4,701	4,696
VWC	3,602	2,938	2,694	2,290	2,242	2,161	2,091	2,036
Total	*11,900*	*11,000*	*9,999*	*9,100*	*9,100*	*9,101*	*9,100*	*9,101*
SWP Flexible Storage Accounts[g]								
LACWWD 36[c]	206	185	206	228	241	257	268	279
NCWD	877	738	776	838	859	890	918	939
SCWD	3,143	2,507	2,438	2,436	2,427	2,422	2,418	2,415
VWC	1,834	1,250	1,261	1,177	1,153	1,111	1,075	1,047
Total	*6,060*	*4,680*	*4,681*	*4,679*	*4,680*	*4,680*	*4,679*	*4,680*
Buena Vista-Rosedale								
LACWWD 36[c]	400	450	500	550	575	625	650	675
NCWD	1,650	1,800	1,900	2,025	2,075	2,150	2,225	2,250
SCWD	5,925	6,150	5,950	5,925	5,875	5,850	5,825	5,825

VWC		3,025	2,600	2,650	2,500	2,475	2,375	2,300	2,250
	Total	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*
Nickel Water - Newhall Land									
VWC	*Total*	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Banking Programs									
Rosedale Rio-Bravo[h]									
LACWWD 36[c]		775	900	1,000	1,075	1,125	1,200	1,250	1,275
NCWD		3,275	3,625	3,725	4,000	4,050	4,150	4,250	4,325
SCWD		11,750	12,275	11,725	11,575	11,400	11,300	11,200	11,125
VWC		4,200	3,200	3,550	3,350	3,425	3,350	3,300	3,275
	Total	*20,000*	*20,000*	*20,000*	*20,000*	*20,000*	*20,000*	*20,000*	*20,000*
Semitropic[i]									
LACWWD 36[c]		510	594	0	0	0	0	0	0
NCWD		2,170	2,364	0	0	0	0	0	0
SCWD		7,778	8,035	0	0	0	0	0	0
VWC		4,541	4,007	0	0	0	0	0	0
	Total	*15,000*	*15,000*	*0*	*0*	*0*	*0*	*0*	*0*
Semitropic - Newhall Land[j]									
VWC	*Total*	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
TOTAL EXISTING SUPPLIES									
LACWWD 36[c]		2,296	2,565	2,146	2,297	2,409	2,581	2,690	2,772
NCWD		15,819	16,386	14,183	14,693	14,879	15,146	15,404	15,540
SCWD		46,417	46,509	36,971	36,322	36,072	35,932	35,794	35,711
VWC		47,009	43,752	39,862	39,799	39,752	39,429	39,173	38,690
	Total	**111,542**	**109,212**	**93,162**	**93,111**	**93,112**	**93,088**	**93,061**	**92,713**

Notes:

(a) The distribution of existing and planned supplies does not represent a formal allocation of water supplies among purveyors.

(b) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown above. Existing pumping is consistent with Table 3-8 of the 2009 Groundwater Basin Yield Analysis for 1977 single-dry year. As indicated in Table 3-11, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.

(c) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

(d) SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.

(e) Per CLWA Draft Recycled Water Master Plan and Newhall Ranch Specific Plan.

(f) SWP supplies are based on the Department of Water Resources "2009 State Water Project Delivery Reliability Report."

(g) Includes both CLWA and Ventura County entities flexible storage accounts. Initial term of agreement with Ventura County entities expires after 2015.

(h) CLWA has a maximum withdrawal capacity of 20,000 AFY and a storage capacity of 100,000 AF. As of 6/1/2011, there is 100,000 AF of recoverable water.

(i) CLWA has 45,920 AF of recoverable water as of 6/1/2011.

(j) Newhall Land has a maximum withdrawal capacity of 4,950 AFY and a storage capacity of 55,000 AF. As of 6/1/2011 there is 18,892 AF of recoverable water. Delivery of stored water from the Newhall Land's Semitropic Water Banking and Exchange Program is assumed available to VWC.

TABLE C-5
SINGLE-DRY YEAR: PLANNED AND TOTAL WATER SUPPLIES

PLANNED SUPPLIES[a]	2015	2020	2025	2030	2035	2040	2045	2050
Future Groundwater[b]								
Alluvial Aquifer								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	200	250	300	850	850	875	900	750
VWC[d]	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Total	*200*	*1,250*	*2,300*	*3,850*	*4,850*	*5,875*	*6,900*	*7,750*
Saugus Formation								
LACWWD 36[c][e]	500	825	875	925	975	1,000	1,050	1,075
NCWD	1,400	2,950	3,025	3,150	3,200	3,275	3,325	3,400
SCWD	975	5,175	5,200	5,150	5,250	5,325	5,400	5,475
VWC (Restored Well)	825	3,777	3,777	3,777	3,777	3,777	3,777	3,750
VWC (New Wells)	-	973	823	698	498	323	148	-
Total	*3,700*	*13,700*	*13,700*	*13,700*	*13,700*	*13,700*	*13,700*	*13,700*
Recycled Water[f]								
LACWWD 36[c]	0	50	50	50	50	50	50	50
NCWD	200	500	1,000	1,275	1,775	2,275	2,775	3,275
SCWD	100	500	1,500	2,275	2,775	3,775	4,775	5,775
VWC	675	1,675	2,675	4,175	5,675	7,675	9,675	11,875
Total	*975*	*2,725*	*5,225*	*7,775*	*10,275*	*13,775*	*17,275*	*20,975*
Banking Programs[g]								
LACWWD 36[c]	0	0	440	488	1,028	1,097	1,147	1,193
NCWD	0	0	1,657	1,791	3,670	3,804	3,925	4,012
SCWD	0	0	5,208	5,205	10,374	10,351	10,332	10,321
VWC	0	0	2,694	2,516	4,928	4,749	4,596	4,474
Total	*0*	*0*	*10,000*	*10,000*	*20,000*	*20,000*	*20,000*	*20,000*
TOTAL PLANNED SUPPLIES								
LACWWD 36[c]	500	875	1,365	1,463	2,053	2,147	2,247	2,318
NCWD	1,600	3,450	5,682	6,216	8,645	9,354	10,025	10,687
SCWD	1,275	5,925	12,208	13,480	19,249	20,326	21,407	22,321
VWC	1,500	7,425	11,969	14,166	18,878	21,524	24,196	27,099
Total	**4,875**	**17,675**	**31,225**	**35,325**	**48,825**	**53,350**	**57,875**	**62,425**

TABLE C-5 CON'T

PURVEYOR EXISTING AND PLANNED SUPPLIES								
LACWWD 36[c]	2,796	3,440	3,511	3,760	4,462	4,728	4,937	5,090
NCWD	17,419	19,836	19,865	20,909	23,524	24,500	25,429	26,227
SCWD	47,692	52,434	49,179	49,802	55,321	56,258	57,201	58,032
VWC	48,509	51,177	51,831	53,965	58,630	60,953	63,369	65,789
Total	**116,417**	**126,887**	**124,387**	**128,436**	**141,937**	**146,438**	**150,936**	**155,138**

Notes:

(a) The distribution of existing and planned supplies does not represent a formal allocation of water supplies among purveyors.

(b) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation, including 3,777 AFY of restored capacity from VWC Well 201 and approximately 10,000 AFY of new Saugus Formation well capacity. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production is consistent with the 1977 single dry-year levels identified in Table 3-8 of the 2009 Groundwater Basin Yield Analysis. As indicated in Table 3-11, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3- 5.

(c) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

(d) Conversion of Newhall Land agricultural groundwater supplies to VWC M&I supplies.

(e) Includes 500 AFY from a newly completed well in 2011.

(f) Per CLWA Draft Recycled Water Master Plan and Newhall Ranch Specific Plan.

(g) Includes 10,000 AF of additional banking programs by 2025 and an additional 10,000 AF by 2035.

TABLE C-6
SINGLE-DRY YEAR: DEMANDS WITH SBX7-7 REDUCTIONS AND COMPARISON TO TOTAL SUPPLIES

WATER DEMANDS W/ AND W/O CONSERVATION[a]	2015	2020	2025	2030	2035	2040	2045	2050
LACWWD 36[b]								
Demand w/o Conservation[c]	1,935	2,408	2,881	3,353	3,826	4,299	4,772	5,245
Anticipated Conservation Objective[d]	176	438	524	610	696	782	868	954
Reduction from Recycled Water[e]	0	50	50	50	50	50	50	50
Net Anticipated Water Conservation[f]	176	388	474	560	646	732	818	904
Demand w/ Conservation[g]	1,759	2,020	2,407	2,794	3,181	3,568	3,955	4,342
Existing and Planned Supplies	*2,796*	*3,440*	*3,511*	*3,760*	*4,462*	*4,728*	*4,937*	*5,090*
SBX7-7 Compliance Calculations								
NCWD								
Demand w/o Conservation[c]	13,828	15,671	17,514	19,358	21,200	23,044	24,886	26,730
20x2020 Reduction[h]	1,365	2,982	3,204	3,489	3,742	3,995	4,248	4,501
Reduction from Recycled Water[e]	200	500	1,000	1,275	1,775	2,275	2,775	3,275
Reduction from Water Conservation[i]	1,165	2,482	2,482	2,482	2,482	2,482	2,482	2,482
Demand w/ Conservation[j]	12,663	13,188	15,031	16,876	18,718	20,562	22,404	24,248
Existing and Planned Supplies	*17,419*	*19,836*	*19,865*	*20,909*	*23,524*	*24,500*	*25,429*	*26,227*
SCWD								
Demand w/o Conservation[c]	34,796	38,295	41,795	45,294	48,793	52,292	55,791	59,290
20x2020 Reduction[k]	3,524	7,557	8,067	8,576	9,085	9,595	10,104	10,614
Reduction from Recycled Water[e]	100	500	1,500	2,275	2,775	3,775	4,775	5,775
Reduction from Water Conservation[i]	3,424	7,057	7,057	7,057	7,057	7,057	7,057	7,057
Demand w/ Conservation[j]	31,372	31,238	34,737	38,236	41,736	45,235	48,734	52,233
Existing and Planned Supplies	*47,692*	*52,434*	*49,179*	*49,802*	*55,321*	*56,258*	*57,201*	*58,032*
VWC								
Demand w/o Conservation[c]	37,517	40,959	44,398	47,839	51,278	54,720	58,159	61,600
20x2020 Reduction[l]	3,962	8,648	9,372	10,095	10,819	11,542	12,266	12,990
Reduction from Recycled Water[e]	1,000	2,000	3,000	4,500	6,000	8,000	10,000	12,200
Reduction from Water Conservation[i]	2,962	6,648	6,648	6,648	6,648	6,648	6,648	6,648
Demand w/ Conservation[j]	**34,555**	**34,310**	**37,750**	**41,191**	**44,630**	**48,072**	**51,511**	**54,951**
Existing and Planned Supplies	*48,509*	*51,177*	*51,831*	*53,965*	*58,630*	*60,953*	*63,369*	*65,789*

TABLE C-6 CON'T

REGIONAL SUMMARY	2015	2020	2025	2030	2035	2040	2045	2050
Demand w/o Conservation[c]	88,077	97,333	106,588	115,843	125,099	134,354	143,609	152,865
Total 20x2020 Reduction	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Total Reduction from Recycled Water[m]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Total Reduction from Water Conservation	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation	**80,350**	**80,757**	**89,926**	**99,096**	**108,265**	**117,434**	**126,604**	**135,773**
TOTAL EXISTING AND PLANNED SUPPLIES	**116,417**	**126,887**	**124,387**	**128,436**	**141,937**	**146,438**	**150,936**	**155,138**

Notes:

(a) Reflects existing and projected demands in CLWA service area only. CLWA's Annexation Policy requires annexing parties to provide additional fully reliable supplies. Known parties potentially seeking annexation include Legacy/Stevenson Ranch Phase 5, Tapia Canyon and Tesoro Del Valle.
(b) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.
(c) Demand w/o Conservation from Table 2-2. Includes a 10% increase in demand during dry years.
(d) LACWWD 36 conservation objective estimated at 20% of projected demand commencing 2020; see Table 2-21.
(e) Recycled water projections from Table 4-3.
(f) Net Anticipated Conservation for LACWWD 36 is Anticipated Conservation Objective minus Reduction from Recycled Water.
(g) Demand w/ Conservation for LACWWD 36 is Demand w/o Conservation minus Net Anticipated Conservation.
(h) NCWD 20x2020 Reduction from Table 2-16. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(i) Reduction from Water Conservation is 20x2020 Reduction minus Reduction from Recycled Water for 2015 and 2020; the quantity of water conservation remains at least at 2020 amounts through 2050.
(j) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.
(k) SCWD 20x2020 Reduction from Table 2-18. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(l) VWC 20x2020 Reduction from Table 2-20. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(m) Recycled water reductions do not include demands from Honor Rancho.

TABLE C-7
EXISTING MULTIPLE-DRY YEAR: EXISTING WATER SUPPLIES

EXISTING SUPPLIES[a]	2015	2020	2025	2030	2035	2040	2045	2050
Existing Groundwater [b]								
Alluvial Aquifer								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	1,125	1,125	1,125	1,200	1,200	1,200	1,200	1,175
SCWD	7,650	7,675	7,700	8,175	8,175	8,175	8,175	8,025
VWC	11,650	11,625	11,600	12,450	12,450	12,450	12,450	12,125
Total	*20,425*	*20,425*	*20,425*	*21,825*	*21,825*	*21,825*	*21,825*	*21,325*
Saugus Formation								
LACWWD 36[c]								
NCWD	4,975	4,975	4,975	4,975	4,975	4,975	4,975	4,975
SCWD[d]	3,550	3,550	3,550	3,550	3,550	3,550	3,550	3,550
VWC	11,175	11,175	11,175	11,175	11,175	11,175	11,175	11,175
Total	*19,700*	*19,700*	*19,700*	*19,700*	*19,700*	*19,700*	*19,700*	*19,700*
Recycled Water[e]								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC	325	325	325	325	325	325	325	325
Total	*325*	*325*	*325*	*325*	*325*	*325*	*325*	*325*
Imported Water								
SWP Table A and Carryover[f]								
LACWWD 36[c]	1,117	1,278	1,423	1,592	1,691	1,801	1,895	1,968
NCWD	4,915	4,149	4,543	5,058	5,310	5,592	5,834	6,029
SCWD	18,006	16,666	16,406	16,492	16,519	16,542	16,574	16,601
VWC	8,862	10,807	10,628	9,858	9,479	9,065	8,697	8,401
Total	*32,900*	*32,900*	*33,000*	*33,000*	*33,000*	*33,000*	*33,000*	*33,000*
SWP Flexible Storage Accounts[g]								
LACWWD 36[c]	51	45	50	56	60	64	67	70
NCWD	226	148	161	179	188	198	207	214
SCWD	826	593	582	585	586	586	588	589
VWC	407	384	377	350	336	321	308	298
Total	*1,510*	*1,170*	*1,170*	*1,170*	*1,170*	*1,170*	*1,170*	*1,170*
Buena Vista-Rosedale								
LACWWD 36[c]	400	450	500	550	575	625	650	675
NCWD	1,700	1,450	1,575	1,750	1,825	1,925	2,000	2,050
SCWD	6,250	5,800	5,650	5,675	5,675	5,650	5,650	5,650
VWC	2,650	3,300	3,275	3,025	2,925	2,800	2,700	2,625

	Total	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*	*11,000*
Nickel Water - Newhall Land									
VWC	*Total*	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Banking Programs									
Rosedale Rio-Bravo[h]									
LACWWD 36[c]		577	662	723	801	842	890	931	961
NCWD		2,540	2,150	2,308	2,545	2,643	2,763	2,865	2,944
SCWD		9,306	8,636	8,336	8,297	8,222	8,174	8,139	8,107
VWC		2,577	3,552	3,633	3,357	3,292	3,173	3,065	2,988
	Total	*15,000*	*15,000*	*15,000*	*15,000*	*15,000*	*15,000*	*15,000*	*15,000*
Semitropic[i]									
LACWWD 36[c]		390	447	0	0	0	0	0	0
NCWD		1,718	1,450	0	0	0	0	0	0
SCWD		6,294	5,826	0	0	0	0	0	0
VWC		3,098	3,777	0	0	0	0	0	0
	Total	*11,500*	*11,500*	*0*	*0*	*0*	*0*	*0*	*0*
Semitropic – Newhall Land[j]									
VWC		4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
TOTAL EXISTING SUPPLIES									
LACWWD 36[c]		2,536	2,882	2,696	3,000	3,168	3,380	3,543	3,674
NCWD		17,200	15,447	14,687	15,707	16,142	16,654	17,080	17,387
SCWD		51,882	48,745	42,224	42,774	42,727	42,678	42,676	42,522
VWC		47,300	51,502	47,570	47,096	46,540	45,866	45,278	44,494
	Total	**118,917**	**118,577**	**107,177**	**108,577**	**108,577**	**108,577**	**108,577**	**108,077**

Notes:

(a) The distribution of existing and planned supplies does not represent a formal allocation of water supplies among purveyors.

(b) Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Groundwater Basin Yield Analysis, individual purveyors may have well capacity in excess of quantities shown above. Existing pumping is consistent with Table 3-8 of the 2009 Groundwater Basin Yield Analysis for 1931-1934 multiple dry-year levels. As indicated in Table 3-12, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.

(c) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

(d) SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.

(e) Per CLWA Draft Recycled Water Master Plan and Newhall Ranch Specific Plan.

(f) SWP supplies are based on the Department of Water Resources "2009 State Water Project Delivery Reliability Report."

(g) Includes both CLWA and Ventura County entities flexible storage accounts. Initial term of agreement with Ventura County entities expires after 2015.

(h) CLWA has a maximum withdrawal capacity of 20,000 AFY and a storage capacity of 100,000 AF. As of 6/1/2011, there is 100,000 AF of recoverable water.

(i) CLWA has 45,920 AF of recoverable water as of 6/1/2011.

(j) Newhall Land has a maximum withdrawal capacity of 4,950 AFY and a storage capacity of 55,000 AF. As of 6/1/2011 there is 18,892 AF of recoverable water. Delivery of stored water from the Newhall Land's Semitropic Water Banking and Exchange Program is assumed available to VWC.

TABLE C-8
MULTIPLE-DRY YEAR: PLANNED AND TOTAL WATER SUPPLIES

PLANNED SUPPLIES[a]	2015	2020	2025	2030	2035	2040	2045	2050
Future Groundwater[b]								
Alluvial Aquifer								
LACWWD 36[c]	0	0	0	0	0	0	0	0
NCWD	0	0	0	0	0	0	0	0
SCWD	0	0	0	0	0	0	0	0
VWC[d]	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Total	*0*	*1,000*	*2,000*	*3,000*	*4,000*	*5,000*	*6,000*	*7,000*
Saugus Formation								
LACWWD 36[c][e]	500	750	800	825	850	875	900	925
NCWD	1,250	3,875	3,950	4,050	4,075	4,125	4,175	4,225
SCWD	500	5,700	5,700	5,675	5,750	5,825	5,875	5,925
VWC (Restored Well)	2,375	1,625	1,500	1,400	1,275	1,125	1,000	875
VWC (New Wells)	0	0	0	0	0	0	0	0
Total	*4,625*	*11,950*	*11,950*	*11,950*	*11,950*	*11,950*	*11,950*	*11,950*
Recycled Water[f]								
LACWWD 36[c]	0	50	50	50	50	50	50	50
NCWD	200	500	1,000	1,275	1,775	2,275	2,775	3,275
SCWD	100	500	1,500	2,275	2,775	3,775	4,775	5,775
VWC	675	1,675	2,675	4,175	5,675	7,675	9,675	11,875
Total	*975*	*2,725*	*5,225*	*7,775*	*10,275*	*13,775*	*17,275*	*20,975*
Banking Programs[g]								
LACWWD 36[c]	0	0	323	362	769	819	861	895
NCWD	0	0	1,032	1,150	2,414	2,542	2,652	2,741
SCWD	0	0	3,729	3,748	7,509	7,519	7,534	7,546
VWC	0	0	2,416	2,240	4,309	4,120	3,953	3,819
Total	*0*	*0*	*7,500*	*7,500*	*15,000*	*15,000*	*15,000*	*15,000*
TOTAL PLANNED SUPPLIES								
LACWWD 36[c]	500	800	1,173	1,237	1,669	1,744	1,811	1,870
NCWD	1,450	4,375	5,982	6,475	8,264	8,942	9,602	10,241
SCWD	600	6,200	10,929	11,698	16,034	17,119	18,184	19,246
VWC	3,050	4,300	8,591	10,815	15,259	17,920	20,628	23,569
Total	**5,600**	**15,675**	**26,675**	**30,225**	**41,225**	**45,725**	**50,225**	**54,925**

TABLE C-8 CON'T

PURVEYOR EXISTING AND PLANNED SUPPLIES								
LACWWD 36[c]	3,036	3,682	3,869	4,237	4,837	5,124	5,354	5,544
NCWD	18,650	19,822	20,670	22,182	24,406	25,596	26,682	27,628
SCWD	52,482	54,945	53,152	54,472	58,761	59,797	60,860	61,768
VWC	50,350	55,802	56,161	57,912	61,799	63,786	65,906	68,063
Total	**124,517**	**134,252**	**133,852**	**138,802**	**149,802**	**154,302**	**158,802**	**163,002**

Notes:

(a) The distribution of existing and planned supplies does not represent a formal allocation of water supplies among purveyors.

(b) Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial Aquifer and the Saugus Formation, including 3,777 AFY of restored capacity from VWC Well 201 and approximately 10,000 AFY of new Saugus Formation well capacity. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production is consistent with the 1931-1934 multiple dry-year levels identified in Table 3-8 of the 2009 Groundwater Basin Yield Analysis. As indicated in Table 3-12, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3- 5.

(c) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.

(d) Conversion of Newhall Land agricultural groundwater supplies to VWC M&I supplies.

(e) Includes 500 AFY from a newly completed well in 2011.

(f) Per CLWA Draft Recycled Water Master Plan and Newhall Ranch Specific Plan.

(g) Includes 10,000 AF of additional banking programs by 2025 and an additional 10,000 AF by 2035.

TABLE C-9
MULTIPLE-DRY YEAR: DEMANDS WITH SBX7-7 REDUCTIONS AND COMPARISON TO TOTAL SUPPLIES

WATER DEMANDS W/ AND W/O CONSERVATION[a]	2015	2020	2025	2030	2035	2040	2045	2050
LACWWD 36[b]								
Demand w/o Conservation[c]	1,935	2,408	2,881	3,353	3,826	4,299	4,772	5,245
Anticipated Conservation Objective[d]	176	438	524	610	696	782	868	954
Reduction from Recycled Water[e]	0	50	50	50	50	50	50	50
Net Anticipated Water Conservation[f]	176	388	474	560	646	732	818	904
Demand w/ Conservation[g]	1,759	2,020	2,407	2,794	3,181	3,568	3,955	4,342
Existing and Planned Supplies	*3,036*	*3,682*	*3,869*	*4,237*	*4,837*	*5,124*	*5,354*	*5,544*
SBX7-7 Compliance Calculations								
NCWD								
Demand w/o Conservation[c]	13,828	15,671	17,514	19,358	21,200	23,044	24,886	26,730
20x2020 Reduction[h]	1,365	2,982	3,204	3,489	3,742	3,995	4,248	4,501
Reduction from Recycled Water[e]	200	500	1,000	1,275	1,775	2,275	2,775	3,275
Reduction from Water Conservation[i]	1,165	2,482	2,482	2,482	2,482	2,482	2,482	2,482
Demand w/ Conservation[j]	12,663	13,188	15,031	16,876	18,718	20,562	22,404	24,248
Existing and Planned Supplies	*18,650*	*19,822*	*20,670*	*22,182*	*24,406*	*25,596*	*26,682*	*27,628*
SCWD								
Demand w/o Conservation[c]	34,796	38,295	41,795	45,294	48,793	52,292	55,791	59,290
20x2020 Reduction[k]	3,524	7,557	8,067	8,576	9,085	9,595	10,104	10,614
Reduction from Recycled Water[e]	100	500	1,500	2,275	2,775	3,775	4,775	5,775
Reduction from Water Conservation[i]	3,424	7,057	7,057	7,057	7,057	7,057	7,057	7,057
Demand w/ Conservation[j]	31,372	31,238	34,737	38,236	41,736	45,235	48,734	52,233
Existing and Planned Supplies	*52,482*	*54,945*	*53,152*	*54,472*	*58,761*	*59,797*	*60,860*	*61,768*
VWC								
Demand w/o Conservation[c]	37,517	40,959	44,398	47,839	51,278	54,720	58,159	61,600
20x2020 Reduction[l]	3,962	8,648	9,372	10,095	10,819	11,542	12,266	12,990
Reduction from Recycled Water[e]	1,000	2,000	3,000	4,500	6,000	8,000	10,000	12,200
Reduction from Water Conservation[i]	2,962	6,648	6,648	6,648	6,648	6,648	6,648	6,648
Demand w/ Conservation[j]	**34,555**	**34,310**	**37,750**	**41,191**	**44,630**	**48,072**	**51,511**	**54,951**
Existing and Planned Supplies	*50,350*	*55,802*	*56,161*	*57,912*	*61,799*	*63,786*	*65,906*	*68,063*

TABLE C-9 CON'T

REGIONAL SUMMARY	2015	2020	2025	2030	2035	2040	2045	2050
Demand w/o Conservation[c]	88,077	97,333	106,588	115,843	125,099	134,354	143,609	152,865
Total 20x2020 Reduction	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Total Reduction from Recycled Water[m]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Total Reduction from Water Conservation	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand w/ Conservation	**80,350**	**80,757**	**89,926**	**99,096**	**108,265**	**117,434**	**126,604**	**135,773**
TOTAL EXISTING AND PLANNED SUPPLIES	**124,517**	**134,252**	**133,852**	**138,802**	**149,802**	**154,302**	**158,802**	**163,002**

Notes:

(a) Reflects existing and projected demands in CLWA service area only. CLWA's Annexation Policy requires annexing parties to provide additional fully reliable supplies. Known parties potentially seeking annexation include Legacy/Stevenson Ranch Phase 5, Tapia Canyon and Tesoro Del Valle.
(b) LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an UWMP.
(c) Demand w/o Conservation from Table 2-2. Includes a 10% increase in demand during dry years.
(d) LACWWD 36 conservation objective estimated at 20% of projected demand commencing 2020; see Table 2-21.
(e) Recycled water projections from Table 4-3.
(f) Net Anticipated Conservation for LACWWD 36 is Anticipated Conservation Objective minus Reduction from Recycled Water.
(g) Demand w/ Conservation for LACWWD 36 is Demand w/o Conservation minus Net Anticipated Conservation.
(h) NCWD 20x2020 Reduction from Table 2-16. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(i) Reduction from Water Conservation is 20x2020 Reduction minus Reduction from Recycled Water for 2015 and 2020; the quantity of water conservation remains at least at 2020 amounts through 2050.
(j) Demand w/ Conservation is Demand w/o Conservation minus Reduction from Water Conservation.
(k) SCWD 20x2020 Reduction from Table 2-18. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(l) VWC 20x2020 Reduction from Table 2-20. The 20% conservation requirement is assumed to continue through 2050 and continue to be met with a mixture of recycled water and conservation.
(m) Recycled water reductions do not include demands from Honor Rancho.

Appendix D

Recent Factors Affecting SWP Supplies

APPENDIX D
RECENT FACTORS AFFECTING SWP SUPPLIES

Since the last round of Urban Water Management Plans (UWMPs) were prepared in 2005, the California Department of Water Resources (DWR) has twice updated its State Water Project (SWP) Delivery Reliability Report. In each of its updates, DWR has projected further reductions in average SWP water deliveries than were projected in 2005. The 2009 Report is the most recent update, and identifies several emerging factors that have the potential to affect the availability and reliability of SWP supplies. Although the 2009 Report presents an extremely conservative projection of SWP delivery reliability, particularly in light of events occurring since its release, it remains the best available information concerning the SWP. Following is information and a brief summary of several factors identified in the 2009 Report having the potential to affect the availability and reliability of SWP supplies.

New U.S. Fish and Wildlife Service Biological Opinion for Delta Smelt and Related Litigation Matters

SWP operations have been challenged in connection with potential impacts to the Delta smelt, a small fish that resides only in the Delta and is protected under CESA and the ESA. In February 2005, the United States Fish and Wildlife Service (FWS) issued a "no jeopardy" determination and biological opinion (B.O.) analyzing potential impacts to the Delta smelt in connection with the long-term coordinated operations of the California State Water Project (SWP) and the federal Central Valley Project (CVP) through the year 2030. The project/action evaluated in the B.O., formally known as the "Operations Criteria and Plan" (or OCAP), includes existing pumping operations, proposals to increase SWP pumping over the next 30-year period, and other proposed long-term operational changes. In February 2005, several environmental groups filed suit in federal court against FWS and the Secretary of the Interior challenging the validity of the B.O. (*Natural Resources Defense Council v. Kempthorne*, USDC Case No. 05-CV-1207-OWW.)

In May 2007, the Federal District Court for the Eastern District of California determined that the B.O. violated the requirements of the ESA. In order that the SWP and CVP could continue to operate, the court established interim operating requirements for the Projects that would remain in place until a new B.O. was completed (the Interim Remedies)(December 14, 2007). The Interim Remedies were based on various factors occurring in the Delta, such as prevailing hydrologic and flow conditions, and the distribution and spawning status of Delta smelt. For the 2007-2008 water year, the Interim Remedies were reported to have reduced SWP supplies by approximately 500,000 acre-feet.

On December 15, 2008, FWS issued its new B.O. The B.O. concludes that the proposed long-term coordinated CVP and SWP operations will "jeopardize" the Delta smelt and "adversely modify" its critical habitat according to ESA standards. Pursuant to the ESA, because the B.O. is a "jeopardy" opinion, FWS was required to formulate and adopt as part of the B.O. a "Reasonable and Prudent Alternative" (RPA) to the proposed action that FWS believes will not cause jeopardy to the Delta smelt or adversely modify or destroy its critical habitat, and which can be implemented by Reclamation and DWR. (16 U.S.C. § 1536(b)(3)(A).) The RPA adopted as part of the B.O. imposed various new operating restrictions upon the CVP and SWP and has the potential to result in substantial water supply reductions from the Projects.

Soon after the B.O. was issued, DWR published information estimating that in comparison to the level of SWP exports from the Delta previously authorized under State Water

Resources Control Board (State Board) Decision 1641 (D-1641),[1] the FWS B.O. could reduce those deliveries by 18 to 29 percent during average and dry conditions, respectively. As with the Interim Remedies, potential water supply restrictions under the new B.O. are dependent on highly variable factors such as hydrologic conditions affecting Delta water supplies, flow conditions in the Delta, migratory and reproductive patterns of Delta smelt, and numerous other non-Project factors that impact the health and abundance of Delta smelt and its critical habitat.

Due to a number of alleged scientific and other deficiencies in the new FWS B.O., in early 2009 the State Water Contractors, the San Luis and Delta-Mendota Water Authority and several individual State and Federal contractor water agencies filed legal challenges against the B.O., which were consolidated in the Federal District Court for the Eastern District of California. (*The Consolidated Delta Smelt Cases*, Lead Case No. 1:09-CV-00407-OWW-GSA.) Early on in the proceedings, several of the plaintiff water agencies and the federal defendants filed cross-motions for summary judgment to determine whether a violation of the National Environmental Policy Act (NEPA) occurred in connection with federal defendants' adoption and implementation of the NMFS B.O. and its RPA. In a Memorandum Decision issued in November 2009, the court ruled that the moving plaintiffs were entitled to summary judgment on their claim that the federal defendants violated NEPA by failing to perform any NEPA analysis prior to adopting and implementing the new FWS B.O. and its RPA. (*The Consolidated Delta Smelt Cases*, Doc. No. 399 at 46-47.)

Separately, several of the plaintiffs filed a motion for preliminary injunction against the implementation of Component 2 (Action 3) of the RPA that proposed to restrict Delta exports during a particular timeframe in spring and summer months, depending on certain biological and environmental parameters. In May 2010, the court issued its Findings of Fact and Conclusions of Law Regarding Plaintiffs' Request for Preliminary Injunction Against Implementation of RPA Component 2 (a/k/a Action 3). In that decision, the court reconfirmed its earlier ruling that the federal defendants failed to examine the potential environmental and human consequences of the RPA actions adopted under the B.O. in violation of NEPA. (*Consolidated Delta Smelt Cases*, Doc. No. 704 at 120-122.) The court also ruled that the plaintiffs were likely to prevail on their claims that FWS violated the ESA and the federal Administrative Procedure Act (APA) in formulating and adopting RPA Component 2 without support of the best available science and without adequate explanation regarding its biological benefit to Delta smelt. (*Id.* at 123-125.)

In the meantime, the parties also filed cross motions for summary judgment to obtain a final ruling in the cases. Those motions were argued in early July 2010. In December 2010, the court issued a memorandum decision that invalidated the B.O. and RPA in several respects and remanded the matter to FWS. Further proceedings are expected to address interim operations of the SWP and CVP.

Because Delta smelt are also protected under the California ESA, the SWP and CVP are required to obtain take authorization from the California Department of Fish and Game (DFG). In July 2009, DFG issued a "consistency determination" pursuant to Fish and Game Code section 2080.1. That determination provides that operations of the SWP and CVP are in compliance with CESA so long as those operations occur in accordance with the FWS Delta smelt B.O. and RPA. Because the consistency determination posed a risk that the SWP could remain bound to the terms of the RPA even if the FWS B.O. was eventually overturned by a

[1] See additional discussion below regarding SWP exports as authorized under D-1641.

federal court, DFG's decision was challenged in state court by the State Water Contractors and the Kern County Water Agency. (*State Water Contractors v. California Department of Fish and Game, et al.*, Kern County Superior Court Case No. S-1500-CV-268074[2]; *Kern County Water Agency v. Department of Fish and Game, et al.*, Sacramento County Superior Court Case No. 34-2010-80000450.) The challenges assert, among other things, that DFG's consistency determination is invalid because it relies upon and seeks to enforce restrictions established under the new FWS B.O. that are alleged under *The Consolidated Delta Smelt Cases* to be invalid and unenforceable. The case is currently stayed by stipulation of the parties, pending the outcome of *The Consolidated Delta Smelt Cases*.

These litigation matters challenging the validity of the FWS B.O. and the DFG consistency determination give rise to the possibility that the restrictions on SWP exports could be relaxed and that SWP exports may return to the levels allowed by the Interim Remedies (above) or State Board Decision D-1641[3] pending issuance of a new B.O. and/or the implementation of the Bay-Delta Conservation Plan (BDCP). As an additional factor, by letter dated May 3, 2010, the federal Secretaries of the Department of Interior and the Department of Commerce have announced a joint initiative to develop a single integrated B.O. for the Delta and related water operations of the CVP and SWP.[4] The timing, nature and extent of the regulatory measures to be contained in any such B.O., and whether those measures would be legally challenged or upheld, cannot be predicted with any degree of certainty at this time.

New National Marine Fisheries Service Biological Opinion Salmon/Anadromous Species and Related Litigation Matters

SWP operations have also been challenged in connection with potential impacts to anadromous species in the San Francisco Bay-Delta estuary. In October 2004, the National Marine Fisheries Service (NMFS) issued a "no jeopardy" determination and B.O. analyzing potential impacts to federally listed winter-run and spring-run salmon and steelhead trout related to the long-term coordinated operations of the CVP and SWP through the year 2030. As with the 2005 FWS B.O. and *Kempthorne* case discussed above, OCAP was the project/action evaluated in the 2004 NMFS B.O., which included the Projects' existing Delta pumping operations, proposals to increase SWP pumping by 20 percent over the long term, and other operational changes. In August 2005, several environmental groups filed suit in federal court against NMFS and the Secretary of Commerce challenging the validity of the B.O. (*Pacific Coast Federation of Fishermen's Associations, et al. v. Gutierrez, et al*., Case No. 1:06-CV-00245-OWW-GSA.)

In April 2008, the United States District Court for the Eastern District of California issued

[2] In June 2010, the case was transferred to Sacramento, California, where it is now referenced as *State Water Contractors v. California Department of Fish and Game, et al.,* Sacramento County Superior Court Case No. 34-2010-80000552.

[3] D-1641 implements the objectives of the 1995 Bay-Delta Plan and imposes flow and water quality objectives to assure protection of beneficial uses in the Delta. The requirements of D-1641 address, among other things, standards for fish and wildlife protection, municipal and industrial water quality, agricultural water quality, and salinity. D-1641 imposed a new operating regime for the Delta, including measures such as X2, an export/inflow ratio, and the Vernalis Adaptive Management Program (VAMP). The standards under D-1641 are accomplished through requirements and conditions imposed on the water right permits for the SWP, the CVP and others. (*See*, California Water Plan Update 2009, Regional Reports Volume 3, Sacramento-San Joaquin River Delta at DB-6.)

[4] http://www.doi.gov/news/pressreleases/upload/Roy.pdf

its decision invalidating the NMFS B.O. for failing to comply with the requirements of the federal ESA. As with the *Kempthorne* case (above), the court did not vacate the B.O., meaning that SWP and CVP operations were authorized to continue pending the preparation of a new B.O. and any interim remedies imposed by the court. Remedy proceedings were held similar to those conduced in the *Kempthorne* case discussed above and, in separate Findings of Fact and Conclusions of Law issued in July and October 2008, Judge Wanger determined that additional water supply restrictions beyond those required in *Kempthorne* (i.e., the Interim Remedies for Delta smelt) were not required at that time for the anadromous species.

On June 4, 2009, NMFS issued a new B.O. regarding the effects of SWP and CVP operations on listed winter and spring-run salmon, steelhead trout, green sturgeon, and southern resident killer whales. Like the new FWS B.O. discussed above, the NMFS B.O. concludes that the proposed long-term coordinated operations of the CVP and SWP will jeopardize the species and adversely modify the critical habitats of most of those species. Pursuant to the ESA, because the B.O. is a "jeopardy" opinion, NMFS was required to formulate and adopt a Reasonable and Prudent Alternative (RPA) to the proposed action that NMFS believed would not cause jeopardy to the species or adversely modify or destroy their critical habitats, and which can be implemented by Reclamation and DWR. (16 U.S.C. § 1536(b)(3)(A).) The RPA adopted by NMFS imposed various new operating restrictions upon the CVP and SWP which have the potential to result in substantial reductions in water supply from the Projects.

NMFS calculated that its new B.O. has the potential to reduce SWP deliveries from the Delta by 7 percent in addition to the potential reductions under the new FWS B.O. for Delta smelt (above). DWR has estimated that average annual reductions to SWP deliveries could be closer to 10 percent beyond the restrictions imposed under the FWS B.O. (thus, a total of 28 to 39 percent during average and dry conditions, respectively, in comparison to SWP exports authorized under D-1641). As with the FWS B.O., potential water supply restrictions under the NMFS B.O. are dependent on several variable factors, such as hydrologic conditions in the Delta region, migratory and reproductive patterns of protected salmonid species, and other non-Project factors that impact the health and abundance of the species and their habitats.

In June 2009, numerous legal challenges were filed against the new NMFS B.O. and consolidated in the United States District Court for the Eastern District of California alleging, among other things, that the operating restrictions set forth in the B.O. are in violation of the federal ESA, the federal APA, and other laws. (*The Consolidated Salmonid Cases*, Lead Case No. 1:09-CV-1053-OWW-DLB.) Early in the proceedings, several of the plaintiff water agencies and the federal defendants filed cross-motions for summary judgment to determine whether a NEPA violation occurred in connection with federal defendants' adoption and implementation of the NMFS B.O. and its RPA. The court heard oral argument on the motions in February 2010, and took the matter under submission.

Separately, in January 2010, several of the plaintiff water agencies filed applications for a temporary restraining order and motions for preliminary injunction regarding the implementation of RPA Actions IV.2.1 and IV.2.3, which are designed to restrict Delta exports during a particular timeframe in spring and summer months, depending on certain biological and environmental parameters. In February 2010, the court issued its Memorandum Decision and Order Re Plaintiffs' Motion for Temporary Restraining Order. The decision found that federal defendants violated NEPA by failing to consider the potential human and environmental impacts

caused by implementation of the RPA Actions, and that a temporary injunction against RPA Action IV.2.3 would not cause jeopardy to the species, whereas a failure to enjoin the Action would cause irreparable water supply impacts to the plaintiffs. (*The Consolidated Salmonid Cases*, Doc. No. 202 at 20-22.) In subsequent rulings issued in March 2010, the court ordered that plaintiffs were entitled to summary judgment on their claims that federal defendants violated NEPA by failing to prepare any NEPA documentation in the adoption and implementation of the NMFS B.O. and its RPA. (*The Consolidated Salmonid Cases*, Doc. Nos. 266 and 288 at 3.)

Plaintiffs' motions for a preliminary injunction were heard in April and May 2010, and in May 2010 the court issued Findings of Fact and Conclusions of Law Re Plaintiffs' Request for Preliminary Injunction. In that decision, the court reconfirmed its previous ruling that federal defendants violated NEPA by failing to undertake an analysis of whether the RPA Actions adopted by NMFS under its new B.O. would adversely impact humans and the human environment. (*The Consolidated Salmonid Cases*, Doc. No. 347 at 129-130, 138.) Further, the court ruled that the plaintiff water agencies had a substantial likelihood of being able to show that the federal defendants violated the ESA and the APA by failing to adequately justify, through generally recognized scientific principles, the precise flow prescriptions imposed by RPA Actions IV.2.1 and IV.2.3. (*Id.* at 130, 133-134.)[5]

Following its May 18th ruling, the court conducted further proceedings and accepted additional evidence to address the proposed injunction and whether the relief requested by the plaintiffs would adversely affect the species (namely, Central Valley spring-run Chinook salmon and Central Valley steelhead). Based on those proceedings, in June 2010, the court issued Supplemental Findings of Fact and Conclusions of Law Re Plaintiffs' Request for Preliminary Injunction. (*The Consolidated Salmonid Cases*, Doc. No. 380.) The Supplemental Findings noted that if RPA Actions IV.2.1 and IV.2.3 were enjoined through June 15, 2010, the FWS B.O. for Delta smelt (above) would control Project operations between May 26th and June 15th, unless those restrictions were also enjoined, in which case Project operations would be controlled by D-1641.[6] (Doc. No. 380 at 12.) Accordingly, the court granted an injunction against RPA Actions IV.2.1 and IV.2.3 and authorized Project operations in accordance with D-1641, provided that export pumping could be reduced on shortened notice upon a showing of jeopardy to the species or adverse modification of its critical habitat. (*Id.* at 17-18.)

In August and November 2010, the parties also filed motions for summary judgment to obtain a final ruling in the cases. Those motions were argued on December 16 and 17, 2010, and the court is expected to issue a memorandum decision on the motions.

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[5] RPA Action IV.2.1 limits combined water exports by the CVP and SWP based on San Joaquin River flows as measured at Vernalis. (NMFS B.O. at 642.) When flows at Vernalis range from 0 to 6,000 cfs, Action IV.2.1 limits combined CVP and SWP exports to 1,500 cfs. (NMFS B.O. at 642.) When flows at Vernalis range from 6,000 to 21,750 cfs, Action IV.2.1 imposes an inflow to combined CVP and SWP exports ratio of 4:1. (NMFS B.O. at 642.) The pumping restrictions associated with Action IV.2.1 terminate May 31st. (NMFS B.O. at 641-642.) RPA Action IV.2.3 limits Old and Middle River (OMR) flows to no more negative than -2,500 cfs between January 1 and June 15, or until the average daily water temperature at Mossdale is greater than 72 degrees Fahrenheit for seven consecutive days, whichever occurs first. (NMFS B.O. at 648-650.)

[6] Among other things, D-1641 limits Project exports to a combined total of not more than 35 percent of total Delta inflow and further limits Project operations to ensure that certain water quality standards are met as measured by the location of the isohaline condition referred to as spring X2. (See *The Consolidated Salmonid Cases*, Doc. No. 380 at 12-14.)

Because the salmon species covered by the new NMFS B.O. are also protected under CESA, the SWP and CVP are required to obtain take authorization from DFG. In September 2009, DFG issued a "consistency determination" pursuant to Fish and Game Code section 2080.1. That determination provides that operations of the SWP and CVP are in compliance with CESA so long as those operations occur in accordance with the RPA set forth in the NMFS B.O. Because the consistency determination posed a risk that the SWP could remain bound to the terms of the RPA even if the NMFS B.O. was eventually overturned by a federal court, DFG's decision was challenged in state court by the State Water Contractors and the Kern County Water Agency. (*State Water Contractors v. California Department of Fish and Game, et al.*, Kern County Superior Court Case No. S-1500-CV-268497.)[7] The challenge asserts, among other things, that DFG's consistency determination is invalid because it relies upon and seeks to enforce restrictions established under the NMFS B.O. that are alleged under *The Consolidated Salmon Cases* to be invalid and unenforceable. As described above, the Federal District Court for the Eastern District of California has ruled that plaintiffs have a strong likelihood of being able to show that portions of the NMFS B.O. fail to comply with the ESA and the APA, and has enjoined implementation of several RPA Actions. Because the court's ruling effectively modified aspects of the NMFS B.O. for 2010, DWR requested that DFG make a determination that the NMFS B.O., as modified by the court, remained consistent with the provisions of CESA. In May 2010, DFG issued a new consistency determination, finding the court-modified NMFS B.O. consistent with CESA. In June 2010, an amended complaint was filed against the May 24th consistency determination. By stipulation of the parties, the case is currently stayed pending the outcome of *The Consolidated Salmonid Cases*.

The current legal challenges regarding the validity of the new NMFS B.O. and the DFG consistency determination give rise to the possibility that the restrictions on SWP exports could be relaxed and that SWP exports may return to the higher levels allowed by the Interim Remedies decision in *Kempthorne* (above) or D-1641 pending the issuance of a new B.O. and/or implementation of the BDCP. Furthermore, as noted above, in May 2010 the Department of Interior and the Department of Commerce announced a joint initiative to develop a single, integrated B.O. for the coordinated operations of the CVP and SWP in the Delta.[8] The timing, nature, and extent of the regulatory measures to be contained that B.O., and whether those measures would be legally challenged or upheld, cannot be predicted with any degree of certainty at this time.

Watershed Enforcers v. California Department of Water Resources

Another litigation matter concerning SWP operations is *Watershed Enforcers v. Cal. Dept. of Water Resources* (2010) 185 Cal. App. 4th 969 (Alameda County Superior Court Case No. RG06292124). In that case, a plaintiffs group filed suit against DWR alleging the SWP was being operated without "take authorization" under CESA. The case was heard by the Alameda County Superior Court in November 2006 and, in April 2007, the court ordered DWR to cease and desist further operations of the Harvey O. Banks pumping plant facilities of the SWP unless DWR obtained proper authorization from DFG for the take of Delta smelt and salmon species listed under CESA. The trial court decision was appealed by DWR and several water agency

[7] In June 2010, the case was transferred to Sacramento, California, where it is now referenced as *State Water Contractors v. California Department of Fish and Game, et al.,* Sacramento County Superior Court Case No. 34-2010-80000560.
[8] http://www.doi.gov/news/pressreleases/upload/Roy.pdf

parties and the court's order was stayed pending the appeal, meaning that DWR was not required to cease its operations of the Banks facilities.

As discussed above, the new FWS and NMFS B.O.s were issued while the *Watershed Enforcers* case was pending on appeal. Based on those new B.O.s, DFG issued consistency determinations and take authorization for the SWP under CESA with respect to Delta smelt and the listed anadromous species. (Also discussed above, those consistency determinations have been challenged in state court.) Thereafter, in September 2009, DWR and one of the water agency parties dismissed their appeals in the *Watershed Enforcers* case. The case remained active in 2009-2010, however, for purposes of resolving the discrete legal issue raised by the remaining water agency parties as to whether DWR is the type of entity that is subject to the take prohibitions under CESA. In a June 2010 decision, the First District Court of Appeal affirmed the trial court decision in all respects, including the determination that DWR qualifies as a "person" within the meaning of CESA, which means that DWR is subject to CESA's permitting requirements. (*Watershed Enforcers v. Department of Water Resources* (2010) 185 Cal. App. 4th 969, 973.)

California Department of Fish and Game Incidental Take Permit for Longfin Smelt and Related Litigation Matters

Regulatory actions related to longfin smelt also have the potential to affect the availability and reliability of SWP supplies. In February 2008, the California Fish and Game Commission (Commission) approved a petition to list the longfin smelt as a "candidate" species under CESA. Under CESA, once a species is granted candidate status, it is entitled to protections until the Commission determines whether to list the species as threatened or endangered. To afford such interim protection, in February 2008, the Commission adopted the first in a series of emergency take regulations that authorized the CVP and SWP to take longfin smelt, yet established certain operating restrictions on Project exports from the Delta in an effort to protect the species. The emergency regulations were proposed to remain in effect until February 2009, at which time the Commission was required to decide whether to list the longfin as a threatened or endangered species. Initially, the Commission's take regulation imposed the same Delta export restrictions that were established in the *Kempthorne* case (i.e., the Interim Remedies discussed above). In November 2008, however, the Commission revised its emergency regulations in a manner that threatened to impose export restrictions beyond those established for Delta smelt. According to information published by DWR, the Commission's 2008-2009 revised emergency take regulations had the potential to reduce SWP supplies in the January to February 2009 period by up to approximately 300,000 acre-feet under a worst-case scenario. Under other scenarios, however, the SWP delivery reductions were expected to be no greater than those imposed under the new FWS B.O. for Delta smelt. In December 2008, several water agency interests filed suit against the Commission's revised take regulation, alleging it violated CESA.

In March 2009, the Commission determined that the listing of longfin smelt as a "threatened" species was warranted under CESA. CESA sets forth a general prohibition against the take of a threatened species except as otherwise authorized by statute. One such authorization is provided by California Fish and Game Code section 2081, wherein DFG may authorize the incidental taking of a threatened species in connection with an otherwise lawful activity through the issuance of a permit. In February 2009, in advance of an official listing of the species as threatened, DFG issued Incidental Take Permit No. 2081-2009-001-03 (Permit)

to DWR which imposes terms and conditions on the ongoing and long-term operation of SWP facilities in the Delta for the protection of longfin smelt. The operating restrictions under the Permit are based in large part on the restrictions imposed on the SWP by the new FWS B.O. for Delta smelt (see above).

In June 2009, the Commission officially listed longfin smelt as a threatened species under CESA. As with the FWS B.O., potential water supply restrictions under the Permit are dependent on several variable factors, such as hydrologic conditions in the Delta region, migratory and reproductive patterns of longfin smelt, and other non-Project factors affecting longfin smelt abundance in the Delta. DWR has not indicated whether any particular reductions in SWP exports are likely to result from the Permit. As previously noted, however, DWR has estimated that the restrictions imposed by the FWS B.O. and RPA for Delta smelt could reduce SWP deliveries between 18 and 29 percent in comparison to Project deliveries authorized under D-1641. In March 2009, due to a number of alleged scientific and other deficiencies in the Permit, the State Water Contractors challenged the Permit in Sacramento County Superior Court. (*State Water Contractors v. California Dept. of Fish and Game, et al.*, Sac. Sup. Ct. Case No. 34-2009-80000203.) That case puts DFG's ability to enforce the Permit into question.

California Drought Conditions

On June 4, 2008, the Governor of California proclaimed a statewide drought due to record-low rainfall in Spring 2008 and court-ordered restrictions on Delta exports as discussed above. (Executive Order S-06-08.) Soon thereafter, the Governor proclaimed a state of drought emergency to exist within the Counties of Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern. (Proclamation dated June 12, 2008.) On February 27, 2009, the Governor declared a statewide water supply emergency to combat California's third consecutive year of drought conditions, evidenced by low reservoir storage and estimated snowpack water content at that time. (Proclamation dated February 27, 2009.)

Since then, statewide hydrologic conditions have improved, although the State's water supply emergency declaration has not been lifted. In March 2010, DWR announced that both manual and electronic readings indicate that the water content in California's mountain snowpack was 107 percent of normal and stated that the "readings boost our hope that we will be able to increase the State Water Project allocation by this spring to deliver more water to our cities and farms." Among these readings, DWR reported that electronic sensor readings showed northern Sierra snow water equivalents at 126 percent of normal for that date, central Sierra at 93 percent, and southern Sierra at 109 percent.[9] As of January 2011, DWR reported snow water equivalents for the northern Sierra at 164 percent of normal, 186 percent of normal for the central Sierra, and 260 percent for the southern Sierra.[10] According to DWR's California Data Exchange Center, hydrologic conditions in California as of December 1, 2010 were as follows: statewide precipitation was 155 percent of average; statewide runoff was 115 percent of average; and key historical average statewide reservoir storage was at 105 percent, with two of the state's largest reservoirs, Lake Shasta (CVP) and Lake Oroville (SWP), respectively storing 116 percent and 75 percent of their historical averages.[11]

[9] http://www.water.ca.gov/news/newsreleases/2010/030310snow.pdf
[10] http://cdec.water.ca.gov/cgi-progs/snow/DLYSWEQ
[11] http://cdec.water.ca.gov/cgi-progs/reports/EXECSUM

APPENDIX D
RECENT FACTORS AFFECTING SWP SUPPLIES

Development of Delta Plan and Delta Flow Criteria Pursuant to New State Laws

In November 2009, the California Legislature enacted SBX7-1 as one of several bills passed as part of a comprehensive water package related to water supply reliability, ecosystem health, and the Delta. SBX7-1 became effective on February 3, 2010 and adds Division 35 to the California Water Code (commencing with Section 85300), referred to as the Sacramento-San Joaquin Delta Reform Act of 2009 (Act). Among other things, the Act creates the Delta Stewardship Council (Council) as an independent agency of the state. (Wat. Code § 85200.) SBX7-1 also amends the California Public Resources Code to specify changes to the Delta Protection Commission and to create the Delta Conservancy. (Pub. Res. Code §§ 29702-29780.) The Act directs the Council to develop a comprehensive management plan for the Delta by January 1, 2012 (Delta Plan) and to first develop an Interim Plan that includes recommendations for early actions, projects, and programs for the Delta. (*See generally*, Second Draft Interim Plan, Prepared for Consideration by the Delta Stewardship Council at 1.)

In addition to these and other requirements, SBX7-1 requires the State Board to use the best available scientific information to develop flow criteria for the Delta ecosystem necessary to protect public trust resources, including fish, wildlife, recreation and scenic enjoyment. Similarly, DFG is required to identify quantifiable biological objectives and flow criteria for species of concern in the Delta. In August 2010, the State Board adopted Resolution No. 2010-0039 approving its report entitled "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem" (Flow Criteria). The State Board report concludes that substantially higher flows are needed through the Delta than in have occurred in previous decades in order to benefit zooplankton and various fish species. (Flow Criteria at 5-8.) Separately, in September 2010, DFG issued a draft report entitled "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (DFG Report). The DFG Report is based on similar biological objectives and recommends Delta flows similar to those set forth in the State Board's Flow Criteria. (DFG Report at 13.) Notably, both the State Board and DFG recognize that their recommended flow criteria for the Delta do *not* balance the public interest or the need to provide an adequate and reliable water supply. (Flow Criteria at 4; DFG Report at 16.) Also of importance, both the State Board and DFG acknowledge that their recommended flow criteria do not have any regulatory or adjudicatory effect; however, they may be used to inform the Council as it prepares the Delta Plan, and may be considered as the Bay Delta Conservation Plan (BDCP) process moves forward. (Flow Criteria at 3, 10; DFG Report at ES-4.)

DWR's Final 2009 SWP Delivery Reliability Report

DWR continues to evaluate the issues affecting SWP exports from the Delta and how those issues may affect the long-term availability and reliability of SWP deliveries to the SWP Contractors. In September 2010, DWR released its Final 2009 SWP Delivery Reliability Report (DWR Report), which forecasts additional reductions to SWP supplies in comparison to the 2007 Report. According to DWR, the long-term average delivery of contractual SWP Table A supply is projected to be 60 percent under current and future conditions over the 20-year projection. (DWR Report at 43, 48, Tables 6.3 and 6.12.) Within that long-term average, SWP Table A deliveries can range from 7 percent (single dry year) to 68 percent (single wet year) of contractual amounts under current conditions, and from 11 percent (single dry year) to 97 percent (single wet year) under future conditions. (Id. at 43-44, 49, Tables 6.4, 6.5, 6.13 and 6.14.) Contractual amounts are projected to range from 32 to 38 percent during multiple-dry

year periods, and from 79 to 93 percent during multiple wet periods. (Id. at 49, Tables 6.13 and 6.14.)

To ensure a conservative analysis, the DWR Report expressly assumes and accounts for the institutional, environmental, regulatory, and legal factors affecting SWP supplies, including, but not limited to, water quality constraints, fishery protections, other D-1641 requirements and the operational limitations imposed by the FWS and NMFS B.O.s that are discussed above. The DWR Report also considers the potential effects of Delta levee failures and other seismic or flood events. (*See*, *e.g.*, DWR Report at 19-24, 25-28, 29-35, Appendices A, A-1, A-2, B.) Notably, the DWR Report assumes that all of these restrictions and limitations will remain in place over the next 20-year period and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes, and new legal requirements for Delta improvements are currently underway (i.e., BDCP, Delta Vision, Delta Plan, etc.). Finally, DWR's long-term SWP delivery reliability analyses incorporate assumptions that are intended to account for potential supply shortfalls related to global climate change. (*See*, *e.g.*, DWR Report at 19, 29-30, Appendices A-B.) Based on these and other factors, the DWR Report presents a conservative projection of SWP delivery reliability.

Conclusion

DWR's most recently published SWP Delivery Reliability Report (September 2010) demonstrates that the projected long-term average delivery amounts of contractual SWP Table A supplies have decreased in comparison to previous estimates. However, as noted, the projections developed by DWR are predicated on conservative assumptions, which make the projections useful from a long-range urban water supply planning perspective.[12] Indeed, recent rulings in various legal actions and other factors described above, among others, support higher estimates of average annual SWP deliveries than projected in DWR's 2009 Report. While this may lead DWR to increase its projections in its next scheduled Report, the 2009 Report remains the best available information concerning the long-term delivery reliability of SWP supplies.

[12] *See*, *e.g.*, *Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal.App.4th 33; *Watsonville Pilots Association v. City of Watsonville* (2010) 183 Cal.App.4th 1059; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.

Appendix E

Demand Management Measures

Water Suppliers AB1420 Compliance

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

ARNOLD SCHWARZENEGGER, *Governor*

RECEIVED
NOV 22 2010
By

November 9, 2010

Mr. Dirk Marks, Water Resources Manager
Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, California 91350-2173

Dear Mr. Marks:

The Department of Water Resources (DWR) has reviewed the Castaic Lake Water Agency's (CLWA) Self-Certification Statement – Table 1 dated October 26, 2010, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of CLWA to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit http://www.water.ca.gov/wateruseefficiency/finance/.

Based on DWR's review of the information in Table 1, CLWA has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from CLWA to substantiate the accuracy of the information provided in Table 1. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Table 1.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

Fethi BenJemaa
Ag Water Use Efficiency Section Chief

AB 1420 Self- Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Dirk Marks Title of Signatory Water Resources Manager Signature of signatory Date 26-Oct-10

Application Date:

Proposal Identification Number: CUWCC Member? Yes/No Yes

Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No Yes Is the UWMP Plan Deemed Complete by DWR? Yes/No Yes

Applicant Name: Castaic Lake Water Agency

Project Title:

Applicant's Contact Information: Name: Dirk Marks Phone: 661-513-1297 E-mail: dmarks @clwa.org

Participants:

Retailer (List Below)	*Wholesaler (List Below)*

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			Compliance Options/Alternative Conservation Approaches (1)			BMP Is Exempt (2)			BMP Implementation Requirements Met				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs		Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 1 Water Survey for Single/Multi-Family Residential Customers															
	✓	BMP 2 Residential Plumbing Retrofit															
✓	✓	BMP 3 System Water Audits, Leak Detection			Yes		✓							Yes			Yes
✓	✓	BMP 3 Leak Repairs			Yes		✓							Yes			Yes
	✓	BMP 4 Metering with Commodity Rates for All New connections															
	✓	BMP 4 Retrofit of Existing Connections															

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			Compliance Options/Alternative Conservation Approaches (1)			BMP is Exempt (2)			BMP Implementation Requirements Met				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met Retailer Yes/No	CUWCC MOU Requirement Met Wholesaler Yes/No	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 5 Large Landscape Conservation Programs and Incentives														
	✓	BMP 6 High-Efficiency Washing Machine Rebate Programs														
✓	✓	BMP 7 Public Information		Yes		✓							Yes			Yes
✓	✓	BMP 8 School Education		Yes		✓							Yes			Yes
	✓	BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts														
✓		BMP 10 Wholesale Agency Assistance Programs		Yes		✓							Yes			Yes
	✓	BMP 11 Conservation Pricing														
✓	✓	BMP 12 Conservation Coordinator		Yes		✓							Yes			Yes
	✓	BMP 13 Water Waste Prohibitions														
	✓	BMP 14 Residential ULFT Replacement Programs														

*C6: Wholesaler may also be a retailer (supplying water to end water users)

**C8, **C9, **, and C10: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list

(1) For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.

(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU

(3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

RECEIVED
JAN 31 2011
NCWD

January 26, 2011

Mr. Stephen L. Cole
General Manager
Newhall County Water Agency
Post Office Box 220970
Santa Clarita, California 91322-0970

Dear Mr. Cole:

The Department of Water Resources (DWR) has reviewed the Newhall County Water Agency's (NCWA) Self-Certification Statement – Tables 1 and 2 submitted on January 18, 2011, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of the NCWA to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit http://www.water.ca.gov/wateruseefficiency/finance/.

Based on DWR's review of the information in Tables 1 and 2, the NCWA has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from the NCWA to substantiate the accuracy of the information provided in Tables 1 and 2. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Tables 1 and 2.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

Fethi BenJemaa
Ag Water Use Efficiency Section Chief

AB 1420 Self- Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Stephen L Cole Title of Signatory General Manager Signature of signatory Date 11/23/10

Application Date: 11/23/2010

Proposal Identification Number: CUWCC Member? Yes/No Yes

Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No Yes Is the UWM Plan Deemed Complete by DWR? Yes/No Submitting 2010

Applicant Name: Newhall County Water District

Project Title: Santa Clara River Sewer Trunk Line Relocation "Phase 1"

Applicant's Contact Information: Name: Michael Alvord Phone: 661-259-3610 E-mail: malvord@ncwd.org

Participants:

Retailer (List Below)	*Wholesaler (List Below)*
Newhall County Water District	*Castaic Lake Water Agency*

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			Compliance Options/Alternative Conservation Approaches (1)			BMP Is Exempt (2)			BMP Implementation Requirements Met				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs		Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 1 Water Survey for Single/Multi-Family Residential Customers		✓				✓					No		12/30/2008		Yes
	✓	BMP 2 Residential Plumbing Retrofit		✓				✓					No		12/30/2008		Yes
✓	✓	BMP 3 System Water Audits, Leak Detection		✓	✓		✓						Yes	Yes	12/30/2008		Yes
✓	✓	BMP 3 Leak Repairs		✓	✓		✓						Yes	Yes	12/30/2008		Yes
	✓	BMP 4 Metering with Commodity Rates for All New connections		✓			✓						Yes		12/30/2008		Yes
	✓	BMP 4 Retrofit of Existing Connections		✓			✓						Yes		12/30/2008		Yes

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			Compliance Options/Alternative Conservation Approaches (1)			BMP Is Exempt (2)			BMP Implementation Requirements Met				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 5 Large Landscape Conservation Programs and Incentives	✓	✓		✓						Yes		12/30/2008		Yes
	✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	✓				✓					No		12/30/2008		Yes
✓	✓	BMP 7 Public Information	✓	✓		✓						Yes	Yes	12/30/2008		Yes
✓	✓	BMP 8 School Education	✓	✓		✓						Yes	Yes	12/30/2008		Yes
	✓	BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts	✓	✓		✓						Yes		12/30/2008		Yes
✓		BMP 10 Wholesale Agency Assistance Programs		✓		✓							Yes	12/30/2008		Yes
	✓	BMP 11 Conservation Pricing	✓									Yes		12/30/2008		Yes
✓	✓	BMP 12 Conservation Coordinator	✓	✓		✓						Yes	Yes	12/30/2008		Yes
	✓	BMP 13 Water Waste Prohibitions	✓			✓						Yes		12/30/2008		Yes
	✓	BMP 14 Residential ULFT Replacement Programs	✓	✓		✓						Yes		12/30/2008		Yes

***C6:** Wholesaler may also be a retailer (supplying water to end water users)
****C8, **C9, **, and C10:** Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.

(1) For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU
(3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

AB 1420 Self- Certification Statement Table 2

Provide Schedule, Budget, and Finance Plan to Demonstrate Commitment to Implement All BMP's to Become in Compliance with BMP Implementation - Commencing Within 1st Year of Agreement for Which Applicant Receives Funds.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1 and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1 and Table 2, and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Stephen L Cole Title of Signatory General Manager Signature of signatory Date 11/23/10

Application Date: 11/23/2010

Proposal Identification Number:

CUWCC Member? Yes/No Yes

Applicant Name: Newhall County Water District

Is the UWM Plan Deemed Complete by DWR? Yes/No Submitting 2010

Project Title: Santa Clara River Sewer Trunk Line Relocation "Phase 1"

Applicant's Contact Information: Name Michael Alvord

	Retailer (List Below)		
Participants:	Newhall County Water District		

C1	C2	C3	C4	C5	*C6	C7	C8	**C9	**C10	**C11	C12			C13	C14	C15	C16	C17	C18	C19
				BMP Implemented by Retailers and/or Wholesalers				Compliance Options / Alternative Conservation Approaches (1)			BMP is Exempt (2)			Implementation Scheduled to Commence within 1st Year of Agreement						
CUWCC 2010 Flex Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
	1. Utility Operations Programs																			
1.11			BMP 12 Conservation Coordinator																	
1.12			BMP 13 Water Waste Prohibitions																	
1.13			BMP 10 Wholesale Agency Assistance Programs																	
1.20			BMP 3 System Water Audits, Leak Detection/Repair																	
1.30			BMP 4 Metering with Commodity Rates for All New/Retrofit of Existing connections																	
1.40			BMP 11 Conservation Pricing																	
	2. Educational Programs																			
2.10			BMP 7 Public Information																	
2.20			BMP 8 School Education																	
	3. Residential																			
3.11		✓	BMP 1 Indoor Water Survey for Single/Multi-Family Residential Customers	Yes	No		Yes		✓					Jul-11	90%	Jun-13	$2,500.00	Water Rates	Yes	
3.12		✓	BMP 1 Outdoor Water Survey for Single/Multi-Family Residential Customers	Yes	No		Yes		✓					Jul-11	90%	Jun-13	$2,500.00	Water Rates	Yes	
3.20		✓	BMP 2 Residential Plumbing Retrofit	Yes	No		Yes		✓					Jul-11	50%	Jun-15	$6,000.00	Water Rates	Yes	

CUWCC 2010 Flex Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	BMP Implemented by Retailers and/or Wholesalers				Compliance Options / Alternative Conservation Approaches (1)			BMP is Exempt (2)			Implementation Scheduled to Commence within 1st Year of Agreement						
				Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
3.30		✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	Yes	No		Yes		✓					Jul-11	0%	Jun-17	$18,000.00	Water Rates	Yes	
3.40			BMP 14 Residential ULFT Replacement Programs																	
4. Commercial, Industrial, Institutional																				
4.00			BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts																	
5. Landscape																				
5.00			BMP 5 Large Landscape Conservation Programs and Incentives																	

*C6: Wholesaler may also be a retailer (supplying water to end water users)
**C9, ** C10, and **C11: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.
(1) For details, please see http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUWCC MOU.

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

January 26, 2011

Mr. Matthew Dickens
Resource Conservation Manager
Valencia Water Company
Post Office Box 5904
24631 Avenue Rockefeller
Valencia, California 91380

Dear Mr. Dickens:

The Department of Water Resources (DWR) has reviewed the Valencia Water Company's (VWC) Self-Certification Statement – Table 1 submitted on January 13, 2011, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of the VWC to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit http://www.water.ca.gov/wateruseefficiency/finance/.

Based on DWR's review of the information in Table 1, the VWC has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from the VWC to substantiate the accuracy of the information provided in Table 1. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Table 1.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

Fethi BenJemaa
Ag Water Use Efficiency Section Chief

AB 1420 Self- Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory_Matthew S. Dickens_____**Title of Signatory** Resource Conservation Manager_ **Signature of signatory**_____ **Date** 12/21/2010

Application Date:

Proposal Identification Number: [ ] **CUWCC Member? Yes/No** Yes

Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No Yes **Is the UWM Plan Deemed Complete by DWR? Yes/No** Yes

Applicant Name: Castaic Lake Water Agency

Project Title:

Applicant's Contact Information: **Name:** Matthew S. Dickens **Phone:** 661-295-6543 **E-mail:** mdickens@valenciawater.com

Participants:

Retailer (List Below)	*Wholesaler (List Below)*
Valencia Water Company	*Castaic Lake Water Agency*

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			**Compliance Options/Alternative Conservation Approaches (1)**			**BMP Is Exempt (2)**			**BMP Implementation Requirements Met**				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs		Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 1 Water Survey for Single/Multi-Family Residential Customers		Yes			X						Yes		3/30/2009		Yes
	✓	BMP 2 Residential Plumbing Retrofit		Yes			X						Yes		3/30/2009		Yes
✓	✓	BMP 3 System Water Audits, Leak Detection		Yes			X						Yes		3/30/2009		Yes
✓	✓	BMP 3 Leak Repairs		Yes			X						Yes		3/30/2009		Yes
	✓	BMP 4 Metering with Commodity Rates for All New connections		Yes			X						Yes		3/30/2009		Yes
	✓	BMP 4 Retrofit of Existing Connections		Yes			X						Yes		3/30/2009		Yes

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			Compliance Options/Alternative Conservation Approaches (1)			BMP Is Exempt (2)			BMP Implementation Requirements Met				
	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
		✓	BMP 5 Large Landscape Conservation Programs and Incentives	Yes			X						Yes		3/30/2009		Yes
		✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	Yes			X						No		3/30/2009		Yes
	✓	✓	BMP 7 Public Information	Yes			X						Yes		3/30/2009		Yes
	✓	✓	BMP 8 School Education	Yes			X						Yes		3/30/2009		Yes
		✓	BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts	Yes			X						Yes		3/30/2009		Yes
	✓		BMP 10 Wholesale Agency Assistance Programs	NA			NA						NA		NA		NA
		✓	BMP 11 Conservation Pricing	Yes			X						Yes		3/30/2009		Yes
	✓	✓	BMP 12 Conservation Coordinator	Yes			X						Yes		3/30/2009		Yes
		✓	BMP 13 Water Waste Prohibitions	Yes			X						Yes		3/30/2009		Yes
		✓	BMP 14 Residential ULFT Replacement Programs	Yes			X						Yes		3/30/2009		Yes

***C6:** Wholesaler may also be a retailer (supplying water to end water users)
****C8, **C9, **, and C10:** Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.

(1) For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU
(3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

AB 1420 Self- Certification Statement Table 2

Provide Schedule, Budget, and Finance Plan to Demonstrate Commitment to Implement All BMP's to Become in Compliance with BMP Implementation - Commencing Within 1st Year of Agreement for Which Applicant Receives Funds.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1 and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1 and Table 2, and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Matthew S. Dickens **Title of Signatory** Resource Conservation Manager **Signature of signatory** _____ **Date** 12/22/2010

Application Date:

Proposal Identification Number:

CUWCC Member? Yes/No: Yes

Applicant Name: Castaic Water Agency

Is the UWM Plan Deemed Complete by DWR? Yes/No: Yes

Project Title:

Applicant's Contact Information: Name: Matthew S. Dickens

	Retailer (List Below)		
Participants:	Valencia Water Company		

C1	C2	C3	C4	C5	*C6	C7	C8	**C9	**C10	**C11	C12			C13	C14	C15	C16	C17	C18	C19
				BMP Implemented by Retailers and/or Wholesalers				Compliance Options / Alternative Conservation Approaches (1)			BMP is Exempt (2)			Implementation Scheduled to Commence within 1st Year of Agreement						
CUWCC 2010 Flex Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer Yes/No	Wholesaler Yes/No	Regional Yes/No	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
1. Utility Operations Programs																				
1.11	✓	✓	BMP 12 Conservation Coordinator	Yes				X												
1.12		✓	BMP 13 Water Waste Prohibitions	Yes				X												
1.13	✓		BMP 10 Wholesale Agency Assistance Programs																	
1.20	✓	✓	BMP 3 System Water Audits, Leak Detection/Repair	Yes				X												
1.30		✓	BMP 4 Metering with Commodity Rates for All New/Retrofit of Existing connections	Yes				X												
1.40		✓	BMP 11 Conservation Pricing	Yes				X												
2. Educational Programs																				
2.10	✓	✓	BMP 7 Public Information	Yes				X												
2.20	✓	✓	BMP 8 School Education	Yes				X												
3. Residential																				
3.11		✓	BMP 1 Indoor Water Survey for Single/Multi-Family Residential Customers	Yes				X												
3.12		✓	BMP 1 Outdoor Water Survey for Single/Multi-Family Residential Customers	Yes				X												
3.20		✓	BMP 2 Residential Plumbing Retrofit	Yes				X												

CUWCC 2010 Flex Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	BMP Implemented by Retailers and/or Wholesalers				Compliance Options / Alternative Conservation Approaches (1)			BMP is Exempt (2)			Implementation Scheduled to Commence within 1st Year of Agreement						
				Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
3.30		✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	Yes				X			X									
3.40		✓	BMP 14 Residential ULFT Replacement Programs	Yes				X												
4. Commercial, Industrial, Institutional																				
4.00		✓	BMP 9 Conservation programs for Commercial, industrial, and Institutional (CII) Accounts	Yes				X												
5. Landscape																				
5.00		✓	BMP 5 Large Landscape Conservation Programs and Incentives	Yes				X												

*C6: Wholesaler may also be a retailer (supplying water to end water users)
**C9, ** C10, and **C11: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.
(1) For details, please see http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUWCC MOU.

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

March 16, 2011

Ms. Cathy Z. Hollomon
Associate Water Resources Planner
Santa Clarita Water District
Post Office Box 903
Santa Clarita, California 91380-9003

Dear Ms. Hollomon:

The Department of Water Resources (DWR) has reviewed the Santa Clarita Water District's (SCWD) Self-Certification Statement – Tables 1 and 2 submitted on February 15, 2011, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of SCWD to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit http://www.water.ca.gov/wateruseefficiency/finance/.

Based on DWR's review of the information in Tables 1 and 2, SCWD has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from SCWD to substantiate the accuracy of the information provided in Tables 1 and 2. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Tables 1 and 2.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

Fethi BenJemaa
Ag Water Use Efficiency Section Chief

AB 1420 Self- Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification StatementTable 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1,and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, theFunding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Cathy Z. Hollomon **Title of Signatory** Associate Water resources Planner **Signature of signatory** **Date**

Application Date:

Proposal Identification Number: **CUWCC Member? Yes No** No (see letter)

Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No Yes **Is the UWM Plan Deemed Complete by DWR? Yes/No** Yes

Applicant Name: Santa Clarita Water Division

Project Title:

Applicant's Contact Information: **Name:** Cathy Z. Hollomon **Phone:** 661-964-3997 **E-mail:** chollomon@scwater.org

Participants:

Retailer (List Below)	*Wholesaler (List Below)*
Santa Clarita water Division	

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			**Compliance Options/Alternative Conservation Approaches (1)**			**BMP Is Exempt (2)**			**BMP Implementation Requirements Met**				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 1 Water Survey for Single/Multi-Family Residential Customers	✓				✓					No		3/2/2008		Yes
	✓	BMP 2 Residential Plumbing Retrofit	✓			✓						No		3/2/2008		Yes
✓	✓	BMP 3 System Water Audits, Leak Detection	✓			✓						Yes		3/2/2008		Yes
✓	✓	BMP 3 Leak Repairs	✓			✓						Yes		3/2/2008		Yes
	✓	BMP 4 Metering with Commodity Rates for All New connections	✓			✓						Yes		3/2/2008		Yes
	✓	BMP 4 Retrofit of Existing Connections	✓			✓						Yes		3/2/2008		Yes

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			**Compliance Options/Alternative Conservation Approaches (1)**			**BMP Is Exempt (2)**			**BMP Implementation Requirements Met**				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 5 Large Landscape Conservation Programs and Incentives	✓		✓	✓						No		3/2/2008		Yes
	✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	✓			✓						No		3/2/2008		Yes
✓	✓	BMP 7 Public Information	✓		✓	✓						Yes		3/2/2008		Yes
✓	✓	BMP 8 School Education	✓		✓	✓						Yes		3/2/2008		Yes
	✓	BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts	✓			✓						No		3/2/2008		Yes
✓		BMP 10 Wholesale Agency Assistance Programs										NA				Yes
	✓	BMP 11 Conservation Pricing	✓			✓						Yes		3/2/2008		Yes
✓	✓	BMP 12 Conservation Coordinator	✓			✓						Yes		3/2/2008		Yes
	✓	BMP 13 Water Waste Prohibitions	✓			✓						Yes		3/2/2008		Yes
	✓	BMP 14 Residential ULFT Replacement Programs	✓		✓	✓						No		3/2/2008		Yes

C6: Wholesaler may also be a retailer (supplying water to end water users)
C8, C9, , and C10: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.

(1) For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU
(3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

AB 1420 Self- Certification Statement Table 2

Provide Schedule, Budget, and Finance Plan to Demonstrate Commitment to Implement All BMP's to Become in Compliance with BMP Implementation - Commencing Within 1st Year of Agreement for Which Applicant Receives Funds.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1 and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1 and Table 2, and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory Cathy Z. Hollomon **Title of Signatory** Associate Water Resources PLanner **Signature of signatory** **Date**

Application Date:

Proposal Identification Number: **CUWCC Member?** Yes/No No (see letter)

Applicant Name: Cathy Z. Hollomon **Is the UWM Plan Deemed Complete by DWR?** Yes/No Yes

Project Title:

Applicant's Contact Information: **Name** Santa Clarita Water Division

	Retailer *(List Below)*		
Participants:			

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12			C13	C14	C15	C16	C17	C18	C19
				BMP Implemented by Retailers and/or Wholesalers				**Compliance Options / Alternative Conservation Approaches (1)**			**BMP is Exempt (2)**			**Implementation Scheduled to Commence within 1st Year of Agreement**						
CUWCC 2010 Flex Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (%)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
	1. Utility Operations Programs																			
1.11	✓	✓	BMP 12 Conservation Coordinator																	
1.12		✓	BMP 13 Water Waste Prohibitions																	
1.13	✓	✓	BMP 10 Wholesale Agency Assistance Programs																	
1.20	✓	✓	BMP 3 System Water Audits, Leak Detection/**Repair**																	
1.30		✓	BMP 4 Metering with Commodity Rates for All New/**Retrofit of Existing** connections																	
1.40		✓	BMP 11 Conservation Pricing																	
	2. Educational Programs																			
2.10	✓	✓	BMP 7 Public Information																	
2.20	✓	✓	BMP 8 School Education																	
	3. Residential																			
3.11		✓	BMP 1 **Indoor** Water Survey for Single/Multi-Family Residential Customers						✓					Jul-08	30	Jun-15	program to be combined with BMP 5 - large landscape Conservation, which focuses on HOA properties	water rates	Yes	

CUWCC 2010 Flex Track BMPs	BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	BMP Implemented by Retailers and/or Wholesalers				Compliance Options □ Alternative Conservation Approaches (1)			BMP is Exempt (2)			Implementation Scheduled to Commence within 1st Year of Agreement						
				Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	Alternative Conservation Approaches Yes/No	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	Start Date (MM/YR)	Completion Level (□)	BMP Completion Date (MM/YR)	Budget (Dollars)	Funding Source & Finance Plan to Implement BMPs	Meets CUWCC Coverage Yes/No	Funds Requested, if Available. (See AB 1420 Compliance Table 3) Yes/No
3.12			BMP 1 **Outdoor** Water Survey for Single/Multi-Family Residential Customers						✓					Jul-09	30	Jun-15	program to be combined with BMP 5 - large landscape Conservation, which focuses on HOA properties	water rates	Yes	
3.20		✓	BMP 2 Residential Plumbing Retrofit					✓						Jun-08	80	Jun-13	$4,000	water rates	Yes	
3.30		✓	BMP 6 High-Efficiency Washing Machine Rebate Programs					✓						Jul-11	0	Jun-20	$37,500	water rates	Yes	
3.40		✓	BMP 14 Residential ULFT Replacement Programs					✓						Jun-07	40	Jun-15	$20,000	water rates	Yes	
	4. Commercial, Industrial, Institutional																			
4.00		✓	BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts					✓						Jun-09	20	Jun-15	$30,000	water rates	Yes	
	5. Landscape																			
5.00		✓	BMP 5 Large Landscape Conservation Programs and Incentives					✓						Jun-09	20	Jun-15	$100,000	water rates	Yes	

□C6: Wholesaler may also be a retailer (supplying water to end water users)
□C9, □C10, and □C11: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.
(1) For details, please see http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUWCC MOU.

CLWA DMM Materials

CUWCC BMP COVERAGE REPORT FOR WHOLESALE AGENCIES

Foundation Best Management Practices for Urban Water Efficiency

Agency: Castaic Lake Water Agency **District Name:** Castaic Lake Water Agency **CUWCC Unit #:** 6278

Primary Contact Stephanie Anagnoson **Email:** sanagnoson@clwa.org

Base Year: Calendar or FiscalYear Reporting Report Date: 27-May-11

Foundational BMPs

BMP 1.1.3 Wholesale Agency Assistance Programs

Date of 2009 Data Download

Date of 2010 Data Download

a) Financial investments and building partnerships Value of resources provided to retailers for: **2009**	**2009 Monetary Amount for Financial Incentives**	**2009 Monetary Amount for Equivalent Resources**
BMP 2.1 Public Outreach	$ 81,000	$ 200,700
BMP 2.2 Education	$ 100,000	$ 266,373
BMPs 3, 4, 5 (not designated by BMP)	$ 43,975	$ 133,773
Total Value of Resources	$ 224,975	$ 600,846
	On Track	On Track

"On Track" if Retailer accepted offer and Wholesaler provided resources. "Not on Track" if Retailer accepted offer and Wholesaler did not provde resources.

a) Financial investments and building partnerships Value of resources provided to retailers for: **2010**	**2010 Monetary Amount for Financial Incentives**	**2010 Monetary Amount for Equivalent Resources**
BMP 2.1 Public Outreach	$ 89,000	$ 264,200
BMP 2.2 Education	$ 108,000	$ 244,195
BMPs 3, 4, 5 (not designated by BMP)	$ 127,645	$ 671,593
Total Value of Resources	$ 324,645	$ 1,179,988
	On Track	On Track

Agency: Castaic Lake Water Agency | **District Name:** Castaic Lake Water Agency | **CUWCC Unit #:** 6278

	2009 Technical Support Description	2010 Technical Support Description	
b) Technical Support	Provide conservation coordinator servies; fund and prepare Urban Water Management Plan and other planning documents; conduct Valley-wide public outreach for conservation.	Provide conservation coordinator services; fund and prepare Urban Water Management Plan and other planning documents; conduct Valley-wide public outreach for conservation; manage residential high-efficiency toilet rebate program, residential landscape program (with weather-based irrigation incentive), commercial, industrial and institutional program and large landscape audit program.	" On Track" if Retailer accepted and Wholesaler provided and described Technical Support
	On Track	On Track	

2009 c) Retail Angency	Programs Managed for Retailers	2010 c) Retail Angency	Programs Managed for Retailers	
				" On Track" if Retailer accepted and Wholesaler provided and lists programs managed for retailers

	2009		2010	
d) Water Shortage Allocation				
Has Water shortage plan or policy been adopted?	November 9, 2005	Adoption Date	November 9, 2005	"OnTrack" if plan /policy adopted and document provided. "Not on Track" if no water shortage plan or policy adopted or document not provided.
	2005UWMPCh8WaterShortage	File Name	2005UWMPCh8WaterShortage	
	On Track		On Track	
e) Non signatory Reporting of BMP implementation by non-signatory agencies	n/a		n/a	Report if possible

f) Encourage CUWCC Membership List Efforts to recruit retailers	List Efforts to recruit retailers		
	Santa Clarita Water Division has been encouraged to join during conservation coordinator meetings.	Santa Clarita Water Division has been encouraged to join during conservation coordinator meetings.	"On Track" if efforts listed or dues paid.
	On Track	On Track	

Agency: Castaic Lake Water Agency **District Name:** Castaic Lake Water Agency **CUWCC Unit #:** 6278

BMP 1.2 Water Loss Control

Date of 2009 Data Submittal: N/A
Date of 2010 Data Submittal: June 1, 2011

	2009	
Complete a prescreening Audit	Yes	On Track if Yes
Metered Sales AF	37,820	Metered sales to retail agencies
Verifiable Other Uses AF	37,820	
Total Supply AF	39,051	Into wholesale system
(Metered Sales + System uses)/ Total Supply ≥0.89	1.94	On Track if ≥0.89, Not on Track if No
If ratio is less than 0.9, complete a full scale Audit in 2009?	Yes	On Track if Yes
Verify Data with Records on File?	Yes	On Track if Yes
Operate a system Leak Detection Program?	Yes	On Track if Yes

Comments On Track

For wholesalers AWWA methodology applies to supplies to wholesalers, sales to retail agencies or sub wholesalers, and pipelines operated by wholesalers. End use retail customers are not considered in this

	2010	
Compile Standard Water Audit using AWWA Software?	Yes	On Track if Yes, Not on Track if No
AWWA file provided to CUWCC?	Yes	On Track if Yes, Not on Track if No
AWWA Water Audit Validity Score?	77	Info only until 2012
Completed Training in AWWA Audit Method?	no	Info only until 2012
Completed Training in Component Analysis Process?	No	Info only until 2012
Complete Component Analysis?	no	Info only until 2012
Repaired all leaks and breaks to the extent cost effective?	Yes	On Track if Yes, Not on Track if No
Locate and repair unreported leaks to the extent cost effective.	Yes	On Track if Yes, Not on Track if No
Maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.		Info only until 2012
Provided 7 types of Water Loss Control Info		info only until 2012

Leaks Repaire	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Interventions	Water Lost from Leaks AF
0	$ 560,689	$ 152,318	0	No	$ -	no data

On Track

Agency: Castaic Lake Water Agency | District Name: Castaic Lake Water Agency | CUWCC Unit #: 6278

1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

Date of 2009 Data Submittal: June 1, 2011
Date of 2010 Data Submittal: June 1, 2011

	2009	2010	
Exemption requested?	No	No	
At least as Effective As Requested?	No	No	
Does Agency have Unmetered Deliveries to Retail Agencies or Other Wholesalers?	No	No	
Metered Accounts billed by volume of use	Yes	Yes	Volumetric billing required for all connections on same schedule as metering
Completed a written plan, policy or program to test, repair and replace meters	No	No	info only until 2012
	On Track	On Track	

Agency: Castaic Lake Water Agency
WHOLESALE Water Supplier

District Name: Castaic Lake Water Agency

CUWCC Unit □: 6278
Coverage Report Date: May 19, 2011

Primary Contact Stephanie Anagnoson

Email: sanagnoson□ clwa.org

BMP 2. EDUCATION PROGRAMS

date 2009 datafile downloaded: June 1, 2011
date 2010 datafile downloaded:

BMP 2.1 Public Outreach Actions Implemented and Reported to CUWCC

	2009	2010
1) Contacts with the public (minimum □4 times per year)	134	129
2) Water supplier contacts with media (minimum □4 times per year, i.e., at least quarterly).	219	50
3) An actively maintained website that is updated regularly (minimum □4 times per year, i.e., at least quarterly).	Yes	Yes
4) Description of materials used to meet minimum requirement.	Website General water conservation information Email Messages Newsletter articles on conservation Articles or stories resulting from outreach Editorial board visits News releases Radio contacts	Newsletter articles on conservation Website General water conservation information Email Messages Landscape water conservation media campaig Articles or stories resulting from outreach Editorial board visits Radio and TV contacts
5) Annual budget for public outreach program.	$ 378,747	$ 1,063,235
6) Description of all other outreach programs	n/a	watering index (updated weekly) 3 Easy Tips (water conservation social marketing campaign) (updated throughout the summer) Water Conservation Tips (updated weekly) CII Water Conservation (updated throughout year)
	On Track for 5 Actions	On Track for 5 Actions

All 6 action types implemented and reported to CUWCC to be 'On Track')

Agency: **Castaic Lake Water Agency** **District Name:** **Castaic Lake Water Agency** **CUWCC Unit #:** **6278**

WHOLESALE Water Supplier

Coverage Report Date: May 19, 2011

2.2 School Education Programs Implemented and Reported to CUWCC

date 2009 datafile downloaded: June 1, 2011

date 2010 datafile downloaded: June 1, 2011

	2009	2010	
Does this wholesale agency implement School Education Programs for Sub Wholesalers or Retail unility's benefit?	Yes	Yes	
Names of Sub Wholesale and Retail Agencies benefiting from Program?	Newhall County Water District, Santa Clarita Water Division, Valencia Water Company	Newhall County Water District, Santa Clarita Water Division, Valencia Water Company	
1) Curriculum materials developed and/or provided by wholesale agency	Curricula that covers science, social studies, and math standards mandated by State of California	Curricula that covers science, social studies, and math standards mandated by State of California	All 5 actions types implemented and reported to CUWCC to be 'On Track'
2) Materials meet state education framework requirements and are grade-level appropriate?	Yes	Yes	
3) Materials Distributed to K-6?	Yes	Yes	
Describe K-6 Materials	Materials cover science, social studies, and math standards mandated by State of California as they relate to water, water quality, water conservation and water supply issues.	Materials cover science, social studies, and math standards mandated by State of California as they relate to water, water quality, water conservation and water supply issues.	Describe materials to meet minimum requirements
Materials distributed to 7-12 students?	Yes	Yes	Info Only
4) Annual budget for school education program.	$ 337,164	$ 352,195	
5) Description of all other water supplier education programs	n/a	n/a	
	On Track	On Track	

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.2

Back to Instructions

? Click to access definition

Water Audit Report for: Castaic Lake Water Agency

Reporting Year: 40796 | 7/2009 - 6/2010

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	8	36,675.000	acre-ft/yr
Master meter error adjustment (enter positive value):	?	8	3.600	over-registered acre-ft/yr
Water imported:	?	8	34,885.000	acre-ft/yr
Water exported:	?	10	34,610.000	acre-ft/yr
WATER SUPPLIED:			36,946.400	acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	10	35,353.000	acre-ft/yr		
Billed unmetered:	?	10	0.000	acre-ft/yr		
Unbilled metered:	?	10	0.000	acre-ft/yr		
Unbilled unmetered:	?		461.830	acre-ft/yr	1.25%	

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION:	?	35,814.830	acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

1,131.570 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		92.366	acre-ft/yr	0.25%	

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	?	5	357.101	acre-ft/yr	1.00%	
Systematic data handling errors:	?	5		acre-ft/yr		

Systematic data handling errors are likely, please enter a non-zero value; otherwise grade = 5

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Apparent Losses:	?	449.467

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?	682.103	acre-ft/yr
WATER LOSSES:		1,131.570	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:	?	1,593.400	acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	10	43.0	miles
Number of active AND inactive service connections:	?	10	25	
Connection density:			1	conn./mile main
Average length of customer service line:	?	10		ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	10	110.0	psi

COST DATA

Total annual cost of operating water system:	?	10	$107,299,883	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	5	$1.04	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	?	5	$822.00	$/acre-ft

Retail costs are less than (or equal to) production costs; please review and correct if necessary

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	4.3%
Non-revenue water as percent by cost of operating system:	1.0%
Annual cost of Apparent Losses:	$152,318
Annual cost of Real Losses:	$560,689

Operational Efficiency Indicators

Apparent Losses per service connection per day:	16050.33	gallons/connection/day
Real Losses per service connection per day*:	N/A	gallons/connection/day
Real Losses per length of main per day*:	14,161.45	gallons/mile/day
Real Losses per service connection per day per psi pressure:		gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	Not Valid	

*** UARL cannot be calculated as either average pressure, number of connecions or length of mains is too small: SEE UARL DEFINITION ***

From Above, Real Losses = Current Annual Real Losses (CARL):	682.10
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 77 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Customer metering inaccuracies

3: Customer retail unit cost (applied to Apparent Losses)

For more information, click here to see the Grading Matrix worksheet

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2009

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator ◯ Yes ◯ No

Contact Information

First Name	Thomas
Last Name	Hawes
Title	water conservation program coordinat
Phone	661.513.1231
Email	thawes@clwa.org

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

http://dpw.lacounty.gov/wwd/web/docs/Water%20Wasting%20Ordinance%20final.pdf

Enter a description:

We can provide documentation on the following aspects of water waste prevention:
c. Supported local ordinance that prohibits water waste in unincorporated LA County (http://dpw.lacounty.gov/wwd/web/docs/Water%20Wasting%20Ordinance%20final.pdf)
d. Supported City of Santa Clarita's Municipal Code 9.38.015 Water Conservation Action Plan.

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

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Link to FAQs

2010

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator ◯ Yes ◯ No

Contact Information

First Name	Thomas
Last Name	Hawes
Title	water conservation program coordinat
Phone	661.513.1231
Email	thawes@clwa.org

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

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Water Agency shall do one or more of the following:

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c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

http://dpw.lacounty.gov/wwd/web/docs/Water%20Wasting%20Ordinance%20final.pdf

Enter a description:

We can provide documentation on the following aspects of water waste prevention:
c. Supported local ordinance that prohibits water waste in unincorporated LA County (http://dpw.lacounty.gov/wwd/web/docs/Water%20Wasting%20Ordinance%20final.pdf)
d. Supported City of Santa Clarita's Municipal Code 9.38.015 Water Conservation Action Plan.

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

2009 BMP 1.2 Water Loss Control

Did your agency complete a pre-screening system audit in 2009? Yes ○ No ●

If yes, answer the following:

Determine metered sales in AF: 37,820.00

Definition: other accountable uses not included in metered sales, such as unbilled water use, fire suppression, etc.

Determine system verifiable uses AF: [illegible]0.00

Determine total supply into the system in AF: 39,051.00

Does your agency keep necessary data on file to verify the answers above? Yes No

Did your agency complete a full-scale system water audit during 2009? Yes No ●

Does your agency maintain in-house records of audit results or the completed AWWA worksheet for the completed audit which could be forwarded to CUWCC? Yes No ●

Did your agency operate a system leak detection program? Yes No

Comments:

version 1.0 2009

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software ⦿ Yes ○ No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

CLWA Water Audit 2010

Water Audit Validity Score from AWWA spreadsheet: 77

Agency Completed Training In The AWWA Water Audit Method ○ Yes ⦿ No

Agency Completed Training In The Component Analysis Process ○ Yes ⦿ No

Completed/Updated the Component Analysis (at least every 4 years)? ○ Yes ⦿ No

Component Analysis Completed/Updated Date

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective ⦿ Yes ○ No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective ⦿ Yes ○ No

Type of Program Activities Used to Detect Unreported Leaks

monthly reconciling of water purchased to water sold

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)
0	$560,689.00	$152,318.00				

Comments: Please note that the AWWA M36 spreadsheet presents a number of unanswerable questions for wholesalers, including line 65 (average length of customer line --- we have only retailers as customers). We also have trouble with line 78 (our retail costs are less than production costs) and line 101 (UARL).

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? ○ Yes ○ No

If YES, has your agency completed a meter retrofit plan? ○ Yes ○ No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? ○ Yes ○ No

Are all new service connections being billed volumetrically? ○ Yes ○ No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? ○ Yes ○ No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Other	26	26	26	Monthly	12
Other				Monthly	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters: 0

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period: 0

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? ○ Yes ○ No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Email or provide a link to the feasibility study (or description of):

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinance

Web address(s) URL: comma-separated list Enter the URL to your documentation.

General Comments about BMP 1.3:

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity 2010

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? Yes No

If YES, has your agency completed a meter retrofit plan? Yes No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? Yes No

Are all new service connections being billed volumetrically? Yes No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? Yes No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Other	26	26	26	Monthly	12
Other				Monthly	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters 0

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Describe, upload or provide an electronic link to the Feasibility Study Upload File

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinance

Web address(s) URL: comma-separated list Enter the URL to your documentation.

Comments:

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.1 Public Outreach

View MOU

Is your agency performing Public Outreach for your Retailers?

Are there one or more retail agencies that count on your agency to help them comply with this BMP? ○ Yes ○ No

Enter the name(s) of the retail agency (comma delimited)

Newhall County Water District, Santa Clarita Water Division, Valencia Water Company, LA County Waterworks #36

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ✓

Number of Public Contacts	Public Information Programs
4	Newsletter articles on conservation
52	Website
37	General water conservation information
4	Email Messages
37	Landscape water conservation media campaigns

Contact with the Media

Are there one or more retail agencies that count on your agency to help them comply with this BMP? ○ Yes ○ No

Enter the name(s) of the retail agency (comma delimited)

Newhall County Water District, Santa Clarita Water Division, Valencia Water Company, LA County Waterworks #36

OR Wholesale Agency (Contacts with the Media)

Did at least one contact take place during each quarter of the reporting year? ✓

Media Contacts List

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types
45		Articles or stories resulting from outreach
0		Editorial board visits
5		News releases
163		Radio contacts
1,040		Television contacts
5		Written editorials

Is a Wholesale Agency Performing Website Updates?

Did one or more retail agencies rely on your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ○Yes ○No

Enter the name(s) of the retail agency (comma delimited)

Santa Clarita Water Division

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): http://www.clwa.org

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

watering index (updated weekly)
Plants of the Conservatory Garden
Water Conservation Tips
Fire-Retardant, Water-wise Plants
Water Conservation Tips (updated weekly)

Did at least one Website Update take place during each quarter of the reporting year? ○Yes ○No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
PR Consulting	$150,512		✓	Social marketing campaign	
Public Outreach	$33,512		✓	Public events	
Publications	$51,512		✓	Quarterly newsletter, yearly water quality repor	
BMP Implementat	$143,211		✓	Conservation Programs, including outreach	

Comments:

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach

View MOU

Is your agency performing Public Outreach for your Retailers?

Are there one or more retail agencies that count on your agency to help them comply with this BMP? ○ Yes ○ No

Enter the name(s) of the retail agency (comma delimited): Newhall County Water District, Santa Clarita Water Division, Valencia Water Company, LA County Waterworks #36

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ✓

Number of Public Contacts	Public Information Programs
4	Newsletter articles on conservation
52	Website
37	General water conservation information
4	Email Messages
37	Newsletter articles on conservation

Contact with the Media

Are there one or more retail agencies that count on your agency to help them comply with this BMP? ● Yes ● No

Enter the name(s) of the retail agency (comma delimited): Newhall County Water District, Santa Clarita Water Division, Valencia Water Company, LA County Waterworks #36

OR Wholesale Agency (Contacts with the Media)

Did at least one contact take place during each quarter of the reporting year? ✓

Media Contacts List

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types
45		Articles or stories resulting from outreach
0		Editorial board visits
5		News releases
163		Radio contacts
1,040		Television contacts
5		Written editorials

Is a Wholesale Agency Performing Website Updates?

Did one or more retail agencies rely on your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ○Yes ○No

Enter the name(s) of the retail agency (comma delimited)

Santa Clarita Water Division

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): http://www.clwa.org

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

watering index (updated weekly)
Plants of the Conservatory Garden
Water Conservation Tips
Fire-Retardant, Water-wise Plants
Water Conservation Tips (updated weekly)

Did at least one Website Update take place during each quarter of the reporting year? ○Yes ○No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
PR Consulting	$150,512		✓	Social marketing campaign	
Public Outreach	$33,512		✓	Public events	
Publications	$51,512		✓	Quarterly newsletter, yearly water quality repor	
BMP Implementat	$143,211		✓	Conservation Programs, including outreach	

Comments:

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.2 School Education Programs

View MOU

School Programs

Is your agency implementing school programs which can be counted to help another agency comply with this BMP? ○ Yes ○ No

Enter retailer names, separated by commas: Newhall County Water District, Santa Clarita Water Division, Valencia Water Company

☑ Materials meet state education framework requirements?

Description of Materials: Curricula that covers science, social studies, and math standards mandated by State of California

☑ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: Materials cover science, social studies, and math standards mandated by State of California as they relate to water, water quality, water conservation and water supply issues.

Number of students reached: 11,135

☑ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students: Soil Permeability,Water Born Diseases, and Water Quality materials for 7-8 grades that correlate to the State of California Standards.

Number of Distribution: 812

Annual budget for school education program: $337,164.00

Description of all other water supplier education programs:

School Program Activities

Classroom presentations:

Number of presentations: 445 Number of attendees: 11135

Large group assemblies:

Number of presentations: 0 Number of attendees: 0

Children's water festivals or other events:

Number of presentations: 1 Number of attendees: 5000

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: 0 Number of attendees: 0

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description

Number distributed

Staffing children's booths at events & festivals:

Number of booths: 4

Number of attendees: 6700

Water conservation contests such as poster and photo:

Description

Number distributed

Offer monetary awards/funding or scholarships to students:

Number Offered: 5

Total Funding: 16500

Teacher training workshops:

Number of presentations: 0

Number of attendees: 0

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips: 159

Number of participants: 5565

College internships in water conservation offered:

Number of internships: 0

Total funding: 0

Career fairs/workshops:

Number of presentations: 1

Number of attendees: 5,000

Additional program(s) supported by agency but not mentioned above:

Description

Number of events (if applicable): 37

Number of participants: 10000

Total reporting period budget expenditures for school education programs (include all agency costs): $337164

Comments

The fields in red are required.

Agency name: Castaic Lake Water Agency

Reporting unit name (District name): Castaic Lake Water Agency

Reporting unit number: 6278

Primary contact:

First name: Stephanie

Last name: Anagnoson

Email: sanagnoson@clwa.org

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.2 School Education Programs

View MOU

School Programs

Is your agency implementing school programs which can be counted to help another agency comply with this BMP? ○ Yes ○ No

Enter retailer names, separated by commas: Newhall County Water District, Santa Clarita Water Division, Valencia Water Company

☑ Materials meet state education framework requirements?

Description of Materials: Curricula that covers science, social studies, and math standards mandated by State of California

☑ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: Materials cover science, social studies, and math standards mandated by State of California as they relate to water, water quality, water conservation and water supply issues.

Number of students reached: 11,135

☑ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students: Soil Permeability,Water Born Diseases, and Water Quality materials for 7-8 grades that correlate to the State of California Standards.

Number of Distribution: 812

Annual budget for school education program: $337,164.00

Description of all other water supplier education programs:

School Program Activities

Classroom presentations:

Number of presentations: 445 Number of attendees: 11135

Large group assemblies:

Number of presentations: 0 Number of attendees: 0

Children's water festivals or other events:

Number of presentations: 1 Number of attendees: 5000

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: 0 Number of attendees: 0

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description

Number distributed

Staffing children's booths at events & festivals:

Number of booths: 4

Number of attendees: 6700

Water conservation contests such as poster and photo:

Description

Number distributed

Offer monetary awards/funding or scholarships to students:

Number Offered: 5

Total Funding: 16500

Teacher training workshops:

Number of presentations: 0

Number of attendees: 0

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips: 159

Number of participants: 5565

College internships in water conservation offered:

Number of internships: 0

Total funding: 0

Career fairs/workshops:

Number of presentations: 1

Number of attendees: 5,000

Additional program(s) supported by agency but not mentioned above:

Description

Number of events (if applicable): 37

Number of participants: 10000

Total reporting period budget expenditures for school education programs (include all agency costs): $337164

Comments

CLWA SCWD DMM Materials

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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Back to Instructions

? Click to access definition

Water Audit Report for: Santa Clarita Water Division
Reporting Year: 2009 | 1/2009 - 12/2009

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED << Enter grading in column 'E'

Volume from own sources:	?	7	10,077.000	acre-ft/yr
Master meter error adjustment (enter positive value):	?	2	1,334.000	under-registered acre-ft/yr
Water imported:	?	7	17,739.000	acre-ft/yr
Water exported:	?	n/a	0.000	acre-ft/yr
WATER SUPPLIED:			29,150.000	acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	7	26,132.000	acre-ft/yr		
Billed unmetered:	?	10	59.000	acre-ft/yr		
Unbilled metered:	?	n/a	0.000	acre-ft/yr		
Unbilled unmetered:	?	7	39.000	acre-ft/yr		39.000
AUTHORIZED CONSUMPTION:	?		26,230.000	acre-ft/yr		

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) 2,920.000 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?	3	5.000	acre-ft/yr		5.000
Customer metering inaccuracies:	?	5	263.960	acre-ft/yr	1.00%	
Systematic data handling errors:	?	5		acre-ft/yr		

Systematic data handling errors are likely, please enter a non-zero value; otherwise grade = 5

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Apparent Losses:	?	268.960

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?	2,651.040	acre-ft/yr
WATER LOSSES:		2,920.000	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:	?	2,959.000	acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	5	308.0	miles	
Number of active AND inactive service connections:	?	7	28,687		
Connection density:			93	conn./mile main	
Average length of customer service line:	?	10	15.0	ft	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	7	95.0	psi	

COST DATA

Total annual cost of operating water system:	?	8	$15,613,461	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	7	$1.26	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	?	7	$263.54	$/acre-ft

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	10.2%
Non-revenue water as percent by cost of operating system:	5.5%
Annual cost of Apparent Losses:	$147,620
Annual cost of Real Losses:	$698,655

Operational Efficiency Indicators

Apparent Losses per service connection per day:	8.37	gallons/connection/day
Real Losses per service connection per day*:	82.50	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.87	gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	700.26	acre-feet/year
From Above, Real Losses = Current Annual Real Losses (CARL):	2,651.04	acre-feet/year
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	3.79	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 64 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Master meter error adjustment
2: Water imported
3: Customer metering inaccuracies

For more information, click here to see the Grading Matrix worksheet

VWC DMM Materials

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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Back to Instructions

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Water Audit Report for: VALENCIA WATER COMPANY
Reporting Year: 2009 | 1/2009 - 12/2009

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	10	15,320.591	acre-ft/yr
Master meter error adjustment (enter positive value):	?	4	110.308	over-registered acre-ft/yr
Water imported:	?	10	14,730.873	acre-ft/yr
Water exported:	?	10	0.000	acre-ft/yr
WATER SUPPLIED:			29,941.156	acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	10	28,964.492	acre-ft/yr		
Billed unmetered:	?	7	0.000	acre-ft/yr		
Unbilled metered:	?	10	0.737	acre-ft/yr		
Unbilled unmetered:	?		374.264	acre-ft/yr	1.25%	

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION:	?	29,339.493	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

601.663 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		74.853	acre-ft/yr	0.25%	

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	?	10	145.554	acre-ft/yr	0.50%	
Systematic data handling errors:	?		0.000	acre-ft/yr		

Systematic data handling errors are likely, please enter a non-zero value; otherwise grade = 5

Apparent Losses:	?	220.407	

? Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses

Real Losses = Water Losses - Apparent Losses:	?	381.256	acre-ft/yr
WATER LOSSES:		601.663	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:	?	976.664	acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	10	352.3	miles
Number of active AND inactive service connections:	?	10	29,948	
Connection density:			85	conn./mile main
Average length of customer service line:	?	10	0.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	8	86.0	psi

COST DATA

Total annual cost of operating water system:	?	10	$19,374,217	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	$1.10	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	?	10	$208.49	$/acre-ft/yr

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	3.3%
Non-revenue water as percent by cost of operating system:	1.4%
Annual cost of Apparent Losses:	$105,802
Annual cost of Real Losses:	$79,486

Operational Efficiency Indicators

Apparent Losses per service connection per day:	6.57	gallons/connection/day
Real Losses per service connection per day*:	11.37	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.13	gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	200.84	million gallons/year
? Infrastructure Leakage Index (ILI) [Real Losses/UARL]:	0.62	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 89 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Master meter error adjustment
2: Unauthorized consumption
3: Systematic data handling errors

For more information, click here to see the Grading Matrix worksheet

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.0

Back to Instructions

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Water Audit Report for: VALENCIA WATER COMPANY
Reporting Year: 2010 | 1/2010 - 12/2010

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	10	16,080.171	acre-ft/yr
Master meter error adjustment (enter positive value):	?	4	115.777	over-registered acre-ft/yr
Water imported:	?	10	11,212.962	acre-ft/yr
Water exported:	?	10	0.000	acre-ft/yr
WATER SUPPLIED:			27,177.356	acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	10	26,512.654	acre-ft/yr		
Billed unmetered:	?	7	0.000	acre-ft/yr		
Unbilled metered:	?	10	0.779	acre-ft/yr		
Unbilled unmetered:	?		339.717	acre-ft/yr	1.25%	

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION:	?	26,853.150	acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

324.206 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		67.943	acre-ft/yr	0.25%	
Customer metering inaccuracies:	?	10	133.233	acre-ft/yr	0.50%	
Systematic data handling errors:	?		0.000	acre-ft/yr		
Apparent Losses:	?		201.177			

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Systematic data handling errors are likely, please enter a non-zero value; otherwise grade = 5

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses

Real Losses = Water Losses - Apparent Losses:	?	123.029	acre-ft/yr
WATER LOSSES:		324.206	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:	?	664.702	acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	10	357.4	miles
Number of active AND inactive service connections:	?	10	30,080	
Connection density:			84	conn./mile main
Average length of customer service line:	?	10	0.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	10	86.0	psi

COST DATA

Total annual cost of operating water system:	?	10	$19,083,083	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	$1.10	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	?	10	$245.96	$/acre-ft/yr

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	2.4%
Non-revenue water as percent by cost of operating system:	1.1%
Annual cost of Apparent Losses:	$96,571
Annual cost of Real Losses:	$30,260

Operational Efficiency Indicators

Apparent Losses per service connection per day:	5.97	gallons/connection/day
Real Losses per service connection per day*:	3.65	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.04	gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	202.33	million gallons/year
? Infrastructure Leakage Index (ILI) [Real Losses/UARL]:	0.20	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 89 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Master meter error adjustment
2: Unauthorized consumption
3: Systematic data handling errors

For more information, click here to see the Grading Matrix worksheet

NCWD DMM Materials

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.2

Back to Instructions

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Water Audit Report for: Newhall County Water District

Reporting Year: 2010 | 7/2009 - 6/2010

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED << Enter grading in column 'E'

Volume from own sources:	?	10	5,828.810	acre-ft/yr
Master meter error adjustment (enter positive value):	?			acre-ft/yr
Water imported:	?	10	4,108.730	acre-ft/yr
Water exported:	?			acre-ft/yr
WATER SUPPLIED:			9,937.540	acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	10	9,281.320	acre-ft/yr		
Billed unmetered:	?	n/a		acre-ft/yr		
Unbilled metered:	?	10	22.290	acre-ft/yr		
Unbilled unmetered:	?		124.219	acre-ft/yr	1.25%	

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION:	?	9,427.829	acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 509.711 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		0.000	acre-ft/yr		

Enter a positive value, otherwise a default percentage of 0.25% and a grading of 5 is applied

Customer metering inaccuracies:	?	10	0.000	acre-ft/yr		
Systematic data handling errors:	?	10	5.000	acre-ft/yr		
Apparent Losses:	?		5.000			

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?	504.711	acre-ft/yr
WATER LOSSES:		509.711	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:	?	656.220	acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	10	158.5	miles	
Number of active AND inactive service connections:	?	10	9,604		
Connection density:			61	conn./mile main	
Average length of customer service line:	?	6	15.0	ft	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	6	100.0	psi	

COST DATA

Total annual cost of operating water system:	?	10	$3,530,399	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	$0.97	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	?	10	$355.25	$/acre-ft

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	6.6%
Non-revenue water as percent by cost of operating system:	6.6%
Annual cost of Apparent Losses:	$2,108
Annual cost of Real Losses:	$179,298

Operational Efficiency Indicators

Apparent Losses per service connection per day:	0.46	gallons/connection/day
Real Losses per service connection per day*:	46.92	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.47	gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	280.34	acre-feet/year
From Above, Real Losses = Current Annual Real Losses (CARL):	504.71	acre-feet/year
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	1.80	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 96 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Unauthorized consumption

2: Unbilled unmetered

3: Average length of customer service line

For more information, click here to see the Grading Matrix worksheet

Appendix F

Draft Water Shortage Contingency Plans/Ordinances

This appendix contains examples that were adopted in 1991 to address water shortage conditions and will be used as models for future water shortage contingency ordinances.

Appendix I

DROUGHT EMERGENCY WATER SHARING AGREEMENT

1. Parties. The parties to this agreement are: Valencia Water Company, Santa Clarita Water Company, Los Angeles County Waterworks District No. 36-Val Verde, Newhall County Water District, and the Castaic Lake Water Agency.

2. Critical Water Shortage Conditions. The State of California is experiencing a fifth year of drought, which has caused critical water shortages in many areas of the state, including the service area of the Castaic Lake Water Agency. The Agency has recently been informed that the State Water Project will have insufficient water to meet its demands for the coming year.

3. Water Sharing Agreement. In order to alleviate the emergency water shortage caused by the Drought and by insufficient agency water to meet demands, the undersigned parties agree to cooperate in sharing available water from all sources among themselves without regard to water, contractual or other rights for the duration of the emergency, and to facilitate among themselves water transfers, exchanges, and wheeling arrangements.

4. Preservation of Rights. By entering into this emergency water pooling and transfer, the parties do not waive their individual claims to water rights, or to contractual or other claims to water or the use of water. Each party agrees that no party hereto will lose any water right, contract right, or other entitlement to water by entering into this agreement,

nor shall any party attempt to use this agreement or the emergency exchange of water as a basis for a claim against any other party of a continued right to the use of that water. This agreement shall not be construed as constituting any alteration in the respective priorities or terms of any of the rights held by any party, nor as an admission with respect to any rights or claims. Each party further agrees that no party hereto will lose any water or other right by a claim of non-use by another party, prescription, or dedication to public use by entering into this agreement.

5. Termination. This agreement shall terminate upon the cessation of drought conditions affecting the service area of the Castaic Lake Water Agency, or January 1, 1992, whichever is sooner, but may be extended by mutual consent of all the parties.

6. Counterparts. This agreement shall be executed in counterparts, each of which shall be deemed an original.

7. Effective Date. The effective date of this agreement shall be that date upon which all the parties hereto have executed the agreement.

Valencia Water Company

Date: February 13, 1991

Attest:

by

15645

Santa Clarita Water Company

by W. J. Manthel

Date: February 26, 1991

Attest:

Benjamin P. Borelli

Los Angeles County Waterworks District No. 36

by ORIGINAL SIGNED BY

Date: 8/27/91

Attest:

PB 21

Newhall County Water District

by ORIGINAL SIGNED BY

Date: 2/19/91

Attest:

PB 22

Castaic Lake Water Agency

by ORIGINAL SIGNED BY

Date: 2/28/91

Attest:

PB 23

s/Los Angeles County Waterworks District No. 36

Date: AUG 27 1991

Attest:
ATTEST: LARRY J. MONTEITH
EXECUTIVE OFFICER —
CLERK OF THE BOARD OF SUPERVISORS

by

By Deputy

s/Newhall County Water District

Date:

Attest:

by

s/Castaic Lake Water Agency

Date: 7/28/91

Attest:

by

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

S 9 AUG 27 1991

LARRY J. MONTEITH
EXECUTIVE OFFICER

APPROVED AS TO FORM
, County Counsel

BY
DEPUTY

15647

s/ Newhall County Water District Date: 2/19/71

Attest:

by _____ President _____ Secy

s/ Castaic Lake Water Agency Date: _____

Attest:

by _____ _____

s/Los Angeles County Waterworks
District No. 36

Date: _____

Attest:

by _____

_____

s/Newhall County Water District

Date: _____

Attest:

by _____

_____

s/Castaic Lake Water Agency

Date: 2/28/91

Attest:

by _____

_____

Appendix II

RESOLUTION NO. 804

RESOLUTION OF THE BOARD OF DIRECTORS OF CASTAIC LAKE WATER AGENCY
RECOGNIZING REDUCTIONS IN REQUESTED DELIVERY OF
STATE WATER PROJECT SUPPLY FOR YEAR 1991
AND MANDATING A PROGRAM OF WATER CONSERVATION
IN THE SANTA CLARITA VALLEY

WHEREAS, the Castaic Lake Water Agency is a public entity organized and operating pursuant to the California Water Code, Appendix, Chapter 103, and is primarily empowered to supply water at wholesale to retail water distributors within the Santa Clarita Valley; and

WHEREAS, the Agency's source of water is by contract with the State Water Project of the California Department of Water Resources; and

WHEREAS, the State Water Project, and the entire State of California is experiencing protracted drought conditions of unprecedented recent duration; and

WHEREAS, the California Department of Water Resources in a letter dated February 2, 1991 advised the Agency to plan for "severe reductions" in its State Water Project supply; and

WHEREAS, the letter further reported, "there is a 50% probability that the Department will only be able to deliver about half of the water requested for municipal and industrial use in 1991"; and

WHEREAS, half of the requested State Water Project supply of the Castaic Lake Water Agency would be 13,050 acre feet; and

WHEREAS, the retail water distributors within the Santa Clarita Valley operate ground water production facilities that have been planned to make up some portion of the delivery reductions in State Project Water; and

WHEREAS, the retail water distributors and the Agency, have pursuant to Water Code, Sections 10610 through 10656, adopted a URBAN WATER MANAGEMENT PROGRAM for retail sales which contains water conservation measures including, metering, leak detection, public education, public information, home retrofit devices, drip and sprinkler irrigation restrictions, and a landscape suggestion for use of drought tolerant plantings; and

WHEREAS, heretofore, the Castaic Lake Water Agency adopted Resolution No. 667 relating to a voluntary water conservation program to reduce water consumption by 10 percent; and

WHEREAS, it is now essential to enact a mandatory program;

NOW, THEREFORE, BE IT RESOLVED that this Agency's Board of Directors does hereby find and determine the following:

1. That the General Manager of the Agency be authorized to execute a "Drought Emergency Water Sharing Agreement" with the local water purveyors to make it clear that emergency drought sharing of Agency water supplies during year 1991 not result in any waiver of contractual or other right to use of Agency water.

2. That the General Manager confer with the retail water purveyors to coordinate the distribution and use of the limited State Project Water supply to maximize the distribution of the ground water production capacity of the combined facilities operated by the retail water purveyors.

3. That the Agency request both the City of Santa Clarita and the County of Los Angeles to adopt mandatory water use ordinances with terms generally as follows:

I. A WATER CONSERVATION ORDINANCE WHICH SHALL TERMINATE ON JANUARY 1, 1992 UNLESS RENEWED OR TERMINATED EARLIER

A. Hose Watering-Prohibition.

No person shall hose-water or wash down any sidewalks, walkways, driveways, parking areas, or other paved surfaces. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infraction.

B. Watering of Lawns and Landscaping

1. No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

2. No person shall water or cause to be watered any lawn or landscaping more than once a day.

3. No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

4. It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

5. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

C. Indoor Plumbing and Fixtures.

1. It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

2. Any new or replacement toilets installed in any residence or business shall be of a low-flow variety.

3. Willful violation hereof shall be an infraction punishable by a fine of $500.00.

D. Washing Vehicles

No vehicle of any type may be washed, except at a commercial car wash, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infraction.

E. Public Eating Places

No restaurant, cafeteria, coffee shop, or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to do so by such customer. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

F. Decorative Fountains

No person shall use water to clean, fill, or maintain levels in decorative fountains unless such water flows through a recycling system. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

4. That the above cited three paragraphs are deemed appropriate as PHASE ONE of the Agency's mandatory conservation program with recognition of the possibility that the California Department of Water Resources may declare deeper finite reductions for the municipal and industrial water supplies of the State Water Project. Residents of the Agency are put on notice that further and additional phases of the mandatory conservation program may be enacted by the Agency and could include the following:

A. Odd/Even landscape irrigation restriction, based upon address

B. A financial penalty of say triple the water rate for metered water service that exceeds historic use

C. Complete prohibition of landscape irrigation

I, the undersigned, hereby certify: That I am the duly appointed and acting Secretary of the Castaic Lake Water Agency, and that at a special meeting of the Board of Directors of said Agency held on Monday, February 11, 1991, the foregoing Resolution No. 804 was duly and regularly adopted by said Board, and that said resolution has not been rescinded or amended since the date of its adoption, and that it is now in full force and effect.

Betty L. Castleberry
Secretary

DATED: 2/12/91

Appendix III

ORDINANCE NO. 101

WATER CONSERVATION ORDINANCE OF
NEWHALL COUNTY WATER DISTRICT

* * * * * * * * * * * * * * *

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF NEWHALL COUNTY WATER DISTRICT, LOS ANGELES COUNTY, CALIFORNIA AS FOLLOWS:

Section 1: Because of the water supply conditions prevailing within the District's service area, the general welfare requires that water resources available to the District be put to the maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented, and that the conservation of such water be practiced with the view to the reasonable and beneficial use thereof in the interest of the people of the District, and for the public welfare. The purpose of this Ordinance is to provide a water conservation plan to minimize the effect of a shortage of water supplies on the customers of the District.

Section 2: No customer of the District shall make, cause, use or permit the use of water from the District in a manner contrary to any provision of this Ordinance.

Section 3: Watering of Lawns or Landscaping.

(a) No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

(b) No person shall water or cause to be watered any lawn or landscaping more than once a day.

(c) No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

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(d) It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

Section 4: Indoor Plumbing and Fixtures.

(a) It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

(b) For new or replacement toilets installed in any residence or business, local low-flow types are recommended.

Section 5: Washing Vehicles. No vehicle of any type may be washed, except at a commercial car wash, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time.

Section 6: Public Eating Places. No restaurant, cafeteria, coffee shop or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to do so by such customer.

Section 7: No person shall use water to clean, fill or maintain levels in decorative fountains unless such water flows through a recycling system.

Section 8: Water Conservation Kits. Water conservation kits are available without charge to the District's customers at the District's office. In most cases, the kits include a plastic displacement bag, two sets of shower flow restrictors, two dye tablets to check for toilet leaks and a brochure which explains the use of the kit. The kits are to be installed by the District's customers.

Section 9: Effective Date. The water use restrictions of this Ordinance are effective immediately. Other provisions of this Ordinance are effective on March 21, 1991.

ADOPTED, SIGNED AND APPROVED by the Board of Directors of NEWHALL COUNTY WATER DISTRICT this 19th day of February, 1991.

MARY JUNE HERRINGTON, President
of the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

A T T E S T:

JAMES E. JINKS, Secretary of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I hereby certify that the foregoing Ordinance No. 101 was duly and regularly adopted and passed by the Board of Directors of the NEWHALL COUNTY WATER DISTRICT at a regular meeting thereof on the 19th day of February, 1991 by the following vote of the members thereof:

AYES:	DIRECTORS: Herrington, Hayes, Wade, Agajanian and Whiteside
NOES:	DIRECTORS: None
ABSENT:	DIRECTORS: None
ABSTAINED:	DIRECTORS: None

JAMES E. JINKS, Secretary of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

ORDINANCE NO. 102

ORDINANCE AMENDING SECTION 3 OF ORDINANCE NO. 101 OF NEWHALL COUNTY WATER DISTRICT RE WATER CONSERVATION

* * * * * * * * * * * * * * *

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF NEWHALL COUNTY WATER DISTRICT, LOS ANGELES COUNTY, CALIFORNIA AS FOLLOWS:

Section 1: Section 3 of Ordinance No. 101 is amended to provide as follows:

"Section 3: Watering of Lawns or Landscaping.

(a) No person shall water or cause to be watered any lawn or landscaping between the hours of 8:00 a.m. and 6:00 p.m.

(b) No person shall water or cause to be watered any lawn or landscaping more than once a day, or for a period of time not to exceed ten minutes per watering station or cycle.

(c) No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

(d) It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable."

Section 2: The provisions of this Ordinance shall be effective on November 19, 1991.

ADOPTED, SIGNED AND APPROVED by the Board of Directors of NEWHALL COUNTY WATER DISTRICT this 15th day of October, 1991.

MARY JUNE HERRINGTON, President of the Board of Directors of the NEWHALL COUNTY WATER DISTRICT

A T T E S T:

JAMES E. JINKS, Secretary of the Board of Directors of the NEWHALL COUNTY WATER DISTRICT

STATE OF CALIFORNIA }
} ss.
COUNTY OF LOS ANGELES }

I hereby certify that the foregoing Ordinance No. 102 was duly and regularly adopted and passed by the Board of Directors of the NEWHALL COUNTY WATER DISTRICT at a regular meeting thereof on the 15th day of October, 1991 by the following vote of the members thereof:

AYES:	DIRECTORS: Harrington, Hayes, Wade, Agajanian and Whiteside
NOES:	DIRECTORS: None
ABSENT:	DIRECTORS: None
ABSTAINED:	DIRECTORS: None

JAMES E. JINKS, Secretary of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

Appendix IV

ORDINANCE NO. 91-16

AN ORDINANCE OF THE CITY OF SANTA CLARITA
ADDING CHAPTER 9.38 TO TITLE 9
OF THE SANTA CLARITA MUNICIPAL CODE

WHEREAS, the State of California is experiencing a prolonged drought; and

WHEREAS, the delivery of State Project Water to the Castaic Lake Water Agency has been reduced by 90% of the requested delivery levels.

THE CITY COUNCIL OF THE CITY OF SANTA CLARITA DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. The Santa Clarita Municipal Code is amended adding Chapter 9.38 to Title 9 relating to water conservation to read as follows:

CHAPTER 9.38

WATER CONSERVATION

Sections:

9.38.010 Drought Committee
9.38.015 Water Conservation Regulations
9.38.020 Penalties
9.38.025 Termination of Ordinance
9.38.030 Ordinance 91-16 Amended

9.38.010 Drought Committee

A. A drought committee shall be established, whose function shall be:

1. to review all available data on water consumption, water supply and ground water conditions;

2. to evaluate the level of compliance with the terms of this Ordinance;

3. to evaluate the level of achievement of the stated water consumption reductions;

4. to make recommendations to the City Council concerning the timing of and need for implementation of future additional water restrictions as may be developed; and

5. to make recommendations to the water purveyors in the City of Santa Clarita concerning additional measures to encourage water conservation, including but not limited to; conservation goals for individual water accounts, surcharges for excessive water use and the installation of flow restriction devices in water services.

B. The members of the Drought Committee shall include representatives from the staff of the City of Santa Clarita, the Upper Santa Clara Water Committee, other appointees as the City Council deems appropriate, and the staff of the Castaic Lake Water Agency.

9.38.015 Water Conservation Regulations

A. Water conservation shall be achieved through the restriction and/or prohibition of various types of water use. The restrictions and prohibitions shall be implemented immediately.

B. The following conditions and restrictions shall apply to the use of water within the City of Santa Clarita:

1. Hose Water Prohibition.

a. No person shall hose-water or wash down any sidewalks, walkways, driveways, parking areas, or other paved surface.

2. Watering of Lawns and Landscaping.

a. No person shall water or cause to be watered any lawn or landscaping between the hours of 8:00 a.m. and 6:00 p.m. except as provided in Section 9.38.015.B.2.e.

b. Lawns and landscaping shall be watered no more frequently than every other day.

c. No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or to excessive watering.

d. It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

e. Commercial gardeners and landscapers, municipal water uses, commercial nurseries, golf courses and other water-dependent industries shall not water or cause to be watered any lawn of landscaping between the hours of 10:00 a.m. and 3:00 p.m., and no more frequently than every other day, unless reclaimed water is used.

f. The maintenance and testing of irrigation systems may be performed without the restrictions specified in Section 9.38.015.B.2.a and 9.38.015.B.2.e.

3. Indoor Plumbing.

   a. Accessible indoor plumbing and fixtures must be inspected for leaks and repaired as soon as reasonably practicable.

   b. New and replacement toilets, showers and faucets shall be of a low-flow type. New or replacement faucets shall be equipped with aerators.

4. Washing Vehicles.

   a. Vehicles must be washed by hand-held bucket or with a hose equipped with automatic shutoff nozzle. Hoses may not be left running.

   b. These restrictions shall not be applied to commercial vehicle washing facilities and operations.

5. Public Eating Places.

   a. Water may be served only upon request by the customer.

6. Decorative Fountains.

   a. Water may not be used to clean, fill or maintain levels in decorative fountains unless the fountain has a water recycling system.

7. Landscaping and Irrigation Plans.

   a. All new landscaping and irrigation improvements shall be approved by the City of Santa Clarita Director of Parks and Recreation prior to construction.

   b. No person or entity shall be required to implement any landscaping requirements of any association, developer or governing agency until the termination of this ordinance.

C. Conservation Goal

1. The goal of this Water Conservation Ordinance is to achieve at least 25% reduction of overall water consumption within the City of Santa Clarita.

9.38.020 Penalties.

A. Willful violations of the terms of this Ordinance shall be subject to written warnings and/or citations. A written warning shall be issued upon the first violation of any part of this Ordinance. The second violation shall result in a fine of $50.00. The third violation shall result in a fine of $100.00, and all subsequent violations shall result in a fine of $300.00 for each violation.

9.38.025 Termination of Ordinance.

A. This Ordinance shall terminate on January 1, 1992, unless renewed or termination earlier by ordinance.

Section 2. The City Council hereby declares that the provisions of this Ordinance are severable and if for any reason a court or competent jurisdiction shall hold any sentence, paragraph or section of this Ordinance to be invalid, such decision shall not affect the validity of the remaining parts of this Ordinance.

Section 3. This Ordinance is adopted as an urgency measure. The facts of the urgency are these: The State of California is currently suffering from the effects of a five-year drought, and the deliveries of State Project water to local water agencies are being reduced. This Ordinance restricts or prohibits certain types of water usage. The immediate enactment of this Ordinance is therefore necessary to ensure the adequacy of the water supply for the City of Santa Clarita and is thereby directly related to public health, safety and welfare. Therefore, this Ordinance shall be effective immediately upon adoption.

Section 4. The City Clerk shall certify to the passage of this Ordinance and shall cause it to be published in the manner prescribed by law.

9.38.030 Ordinance 91-12 Amended

A. Ordinance 91-12 is hereby amended, deleting Section 9.38.015.b.8 in its entirety.

PASSED, APPROVED AND ADOPTED this 13th day of March, 1991.

Carl Boyer
CARL BOYER, MAYOR

ATTEST:

Donna M. Grindey
DONNA GRINDEY, CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF SANTA CLARITA)

I, Donna M. Grindey, City Clerk of the City of Santa Clarita, do hereby certify that the foregoing Ordinance No. 91-16 was duly adopted as an urgency ordinance at a regular meeting of the City Council on the 13th day of March, 1991, by the following four-fifths vote, to wit:

AYES: COUNCILMEMBERS Darcy, Heidt, McKeon, Boyer

NOES: COUNCILMEMBERS Klajic

ABSENT: COUNCILMEMBERS None

Donna M. Grindey
CITY CLERK

AGN:gmm-394

ORDINANCE NO. 91-48

AN ORDINANCE OF THE CITY COUNCIL OF THE
CITY OF SANTA CLARITA, CALIFORNIA,
AMENDING CHAPTER 9.38 OF THE SANTA CLARITA
MUNICIPAL CODE RELATING TO
WATER CONSERVATION

THE CITY COUNCIL OF THE CITY OF SANTA CLARITA, CALIFORNIA, DOES ORDAIN AS FOLLOWS:

SECTION 1. The Santa Clarita Municipal Code is hereby amended at Subsection 9.38.015.B.2.b to read as follows:

b. Lawns and landscaping shall be watered no more than 10 minutes per watering station or cycle per day.

SECTION 2. The Santa Clarita Municipal Code at Subsection 9.38.015.B.2.e is hereby amended to read as follows:

e. Commercial gardeners and landscapers, municipal water uses, commercial nurseries, golf courses and other water-dependent industries shall not water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 3:00 p.m., and no more than 10 minutes per watering station or cycle per day unless reclaimed water is used. This subsection does not apply to residential lawns which are subject to the time limitations indicated in the other subsections of this Ordinance.

SECTION 3. Section 9.38.015.C.1 is hereby amended to read as follows:

1. The goal of this Water Conservation Ordinance is to achieve a significant reduction of overall water consumption within the City of Santa Clarita.

SECTION 4. This Ordinance is adopted as an urgency measure. The facts of the urgency are these: The State of California is currently suffering from the effects of a five-year drought, and the deliveries of State Project water to local water agencies are being reduced. This Ordinance restricts or prohibits certain types of water usage. The immediate enactment of this Ordinance is therefore necessary to ensure the adequacy of the water supply for the City of Santa Clarita and is thereby directly related to public health, safety and welfare. Therefore, this Ordinance shall be effective immediately upon adoption.

SECTION 5. The City Clerk shall certify to the passage of this Ordinance and shall cause it to be published in the manner prescribed by law.

PASSED, APPROVED AND ADOPTED this 8th day of October, 1991.

Carl Boyer

Carl Boyer, Mayor

ATTEST:

Donna M. Grindey

Donna M. Grindey, City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss
CITY OF SANTA CLARITA)

I, Donna M. Grindey, City Clerk of the City of Santa Clarita, do hereby certify that the foregoing Ordinance No. 91-48 was duly adopted as an urgency ordinance at a regular meeting of the City Council on the 8th day of October, 19 91 by the following four-fifths vote, to wit:

AYES: COUNCILMEMBERS: Darcy, Heidt, McKeon, Boyer

NOES: COUNCILMEMBERS: Klajic

ABSENT: COUNCILMEMBERS: None

Donna M. Grindey

Donna M. Grindey, City Clerk

Appendix V

ORDINANCE NO. 91-00460

An urgency ordinance amending Title 11, Chapter 11.38 of the Los Angeles County Code relating to Water and Sewers to add Part 4, Water Conservation.

The Board of Supervisors of the County of Los Angeles ordains as follows:

Section 1. Title 11, Chapter 11.38 of the County Code is amended by adding Part 4, to read:

Part 4. Water Conservation Requirements For The Unincorporated Los Angeles County Area.

Section 11.38.620 Hose Watering Prohibition.
No person shall hose water or wash down any sidewalks, walkways, driveways, parking areas or other paved surfaces, except as is required for the benefit of public health and safety. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.630 Watering of Lawns and Landscaping.

a). No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

b). No person shall water or cause to be watered any lawn or landscaping more than once a day.

c). No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

d). It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

e). Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.640 Indoor Plumbing and Fixtures.

a). It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

b). Willful violation hereof shall be an infraction punishable by a fine of $500.00.

Section 11.38.650 Washing Vehicles.
No motor vehicle, boat, trailer or other type of mobile equipment may be washed, except at a commercial car wash or with reclaimed water, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.660 Public Eating Places.
No restaurant, hotel, cafeteria, cafe or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to

do so by such customer. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 11.38.670 Decorative Fountains.
No person shall use water to clean, fill or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures unless such water flows through a recycling system. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

Section 2. This ordinance shall terminate on January 1, 1993, unless renewed or terminated earlier by ordinance.

Section 3. Due to the severity of the drought in the State of California, there is an immediate need to prohibit the wasting of water in the Los Angeles County unincorporated area to better utilize the available water supplies. This ordinance is urgently needed for the preservation of the public health, safety and general welfare and shall take effect immediately.

Section 4. This ordinance shall be published in

Metropolitan News Enterprise

a newspaper printed and published in the County of Los Angeles.

Michael D. Antonovich
Chairman

ATTEST:

Executive Officer
Board of Supervisors
of the County of Los Angeles

I hereby certify that at its meeting of March 21, 1991, the foregoing ordinance was adopted by the Board of Supervisors of said County of Los Angeles by the following vote, to wit:

Ayes:	Noes:
Supervisors Gloria Molina	Supervisors None
Edmund D. Edelman	
Deane Dana	
Michael D. Antonovich	

Executive Officer
Board of Supervisors
of the County of Los Angeles

Effective Date: March 21, 1991

~~Operative Date~~

I hereby certify that pursuant to Section 25103 of the Government Code, delivery of this document has been made.

LARRY J. MONTEITH
Executive Officer
Clerk of the Board of Supervisors

By DEPUTY

APPROVED AS TO FORM:

DE WITT W. CLINTON
County Counsel

By
GERALD F. CRUMP
Chief Assistant County Counsel

. . . S A M P L E N O T I C E . . .

LOS ANGELES COUNTY WATER WASTING ORDINANCE
NOTICE OF WARNING

Date _____

Address: _____
_____
_____
_____

Dear Customer:

Due to the severity of the current drought, the County Board of Supervisors, on March 21, 1991, adopted an Ordinance that specifies a number of water saving measures. The Ordinance applies to the unincorporated areas of the County and includes the following provisions:

__ Washing down of paved surfaces is prohibited, except as required for public health and safety.

__ Lawn and landscape watering is prohibited between the hours of 10:00 a.m. and 5:00 p.m.

__ Landscape watering that results in runoff into adjoining streets, parking lots or alleys due to misdirected sprinklers or excessive watering is prohibited.

__ Leaking hoses, faucets and sprinkling systems must be repaired as soon as is reasonably practicable.

__ Leaks to indoor plumbing systems must be repaired as soon as is reasonably practicable.

__ Washing of a motor vehicle, boat or trailer is prohibited except at a commercial car wash or with a hand-held bucket or water hose equipped with an automatic shutoff nozzle.

__ Serving drinking water to customers at public eating places is prohibited unless specifically requested by such customers.

__ Water cannot be used in decorative fountains, ponds, lakes and other similar aesthetic structures unless the water flows through a recycling system.

We observed the violation(s) of the above noted provisions on your property. We request your support in complying with the provisions of this ordinance so that we can avoid unnecessary waste and stretch our limited water supplies for the duration of the drought. Violation of this Ordinance is punishable by a fine of up to $500. If you have any questions regarding this ordinance or its enforcement please contact (your office and phone number).

(WW3901)

Appendix VI

RESOLUTION

ADOPTING A WATER SHORTAGE CONTINGENCY PLAN
FOR THE SANTA CLARITA WATER COMPANY

WHEREAS, the California Legislature enacted Assembly Bill 11X during the 1991 Extraordinary Session of the California Legislature (an act to amend the California Water Code Sections 10620, 10621, 10631, and 10652, and to add Section 10656 to the California Water Code, relating to water); and

WHEREAS, AB 11X mandates that every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to develop a Water Shortage Contingency Plan; and

WHEREAS, AB 11X mandates that said Plan be filed with the California Department of Water Resources by January 31, 1992; and

WHEREAS, the Santa Clarita Water Company is an urban supplier of water providing water to more than 3,000 customers, and has therefore prepared and circulated for public review a Draft Water Shortage Contingency Plan, in compliance with the requirements of AB 11X, has held a properly noticed public hearing on January 29, 1992, regarding said Draft Plan, and has thereafter prepared a Final Water Shortage Contingency Plan;

NOW, THEREFORE, BE IT RESOLVED by the Santa Clarita Water Company's Board as follows:

1. A Final Water Shortage Contingency Plan is hereby adopted and is attached hereto as Exhibit "A" hereof, which exhibit is hereby incorporated herein;

2. The President is hereby authorized and directed to file the Plan with the California Department of Water Resources;

3. The President is hereby also authorized to follow lawful procedures to declare a Water Shortage Emergency and to implement this Water Shortage Contingency Plan; and

4. The President shall recommend to the Santa Clarita Water Company's Board additional procedures, rules, and regulations to carry out effective and equitable allocation of water resources during a water shortage.

Appendix VI

RESOLUTION

ADOPTING A WATER SHORTAGE CONTINGENCY PLAN
FOR THE SANTA CLARITA WATER COMPANY

WHEREAS, the California Legislature enacted Assembly Bill 11X during the 1991 Extraordinary Session of the California Legislature (an act to amend the California Water Code Sections 10620, 10621, 10631, and 10652, and to add Section 10656 to the California Water Code, relating to water); and

WHEREAS, AB 11X mandates that every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to develop a Water Shortage Contingency Plan; and

WHEREAS, AB 11X mandates that said Plan be filed with the California Department of Water Resources by January 31, 1992; and

WHEREAS, the Santa Clarita Water Company is an urban supplier of water providing water to more than 3,000 customers, and has therefore prepared and circulated for public review a Draft Water Shortage Contingency Plan, in compliance with the requirements of AB 11X, has held a properly noticed public hearing on January 29, 1992, regarding said Draft Plan, and has thereafter prepared a Final Water Shortage Contingency Plan;

NOW, THEREFORE, BE IT RESOLVED by the Santa Clarita Water Company's Board as follows:

1. A Final Water Shortage Contingency Plan is hereby adopted and is attached hereto as Exhibit "A" hereof, which exhibit is hereby incorporated herein;

2. The President is hereby authorized and directed to file the Plan with the California Department of Water Resources;

3. The President is hereby also authorized to follow lawful procedures to declare a Water Shortage Emergency and to implement this Water Shortage Contingency Plan; and

4. The President shall recommend to the Santa Clarita Water Company's Board additional procedures, rules, and regulations to carry out effective and equitable allocation of water resources during a water shortage.

Newhall County Water District's Ordinance No. 112

ORDINANCE NO.112
WATER CONSERVATION, SHORTAGE, DROUGHT AND EMERGENCY RESPONSE ORDINANCE

* * * * * * * * * * * * * * * * * * ** * * * * * * *

***Section 1*: *PURPOSE*:** Article 10, Section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use be prevented, and that water be conserved for the public welfare. The specific provisions of this Ordinance are necessary and proper to conserve water resources and minimize cost to the customer. This ordinance requires that available water resources be put to the maximum beneficial use, and that water efficient practices be used to reach this objective. This further finds that water supplies may be reduced because of drought, failure of facilities, or catastrophic events such as earthquakes and regional power failures. Anti-waste and water conservation requirements are necessary to achieve demand reduction without unneeded hardship.

Section 2*: *DEFINITIONS AND TERMS:

A. ***Water efficient practices**:* Cost-effective practices that require the least amount of water to generate the greatest benefit (water and cost savings) to the customer.

B. ***Water Waste:*** To use or expend water carelessly or needlessly.

C. ***Water User:*** Business or residential customer.

D. ***Water Conservation Stages:*** The General Manager shall determine the conservation stage, except that the Board shall determine any conservation stage more restrictive than Stage 1. A water deficiency occurs when the current or near-term water demand exceeds the current or near-term water supply.

Stage 1 Water Alert: Water deficiencies range between 1 and 15 percent.

Stage 2 Water Warning: Water deficiencies range from more than 15 and up to 25 percent.

Stage 3 Water Emergency: Water deficiencies range from more than 25 and up to 35 percent.

Stage 4 Water Crisis: Water deficiencies are more than 35 percent.

E. ***Water Deficiency:*** A water deficiency occurs when the current or near-term water demand exceeds the current or near-term water supply, based on a yearly assessment. (Percent or deficiency = (1 – water supply/water demand) x 100

F. ***Water Conservation Goals:***

Stage 1 Water Alert: ***Achieve a Conservation level of up to 10 percent.***

Stage 2 Water Warning: ***Achieve a Conservation level of up to 20 percent.***

Stage 3 Water Emergency: ***Achieve a Conservation level of up to 30 percent.***

Stage 4 Water Crisis: ***Achieve a Conservation level of over 30 percent.***

Section 3: ***WATER CONSERVATION ACTION PLAN:*** This plan establishes water conservation measures to be taken in response to current and anticipated levels of deficiency in State and/or local water supplies. No Water User shall waste water or make, cause, or permit the use of water for any purpose contrary to any provision of this Ordinance, or in quantities in excess of the use permitted by the conservation stage in effect pursuant to this Ordinance.

3.1 ***Efficient Water Use.*** *Because more severe effects of a water shortage are often brought about due to wasteful water use habits carried over from times of sufficient supply, certain voluntary water-use practices are encouraged at all times.*

3.1.1 ***Outdoor Water Use Efficiency Guidelines and Recommendations:***

a) Sprinklers should be maintained and adjusted so that overspray, runoff, and water waste is avoided. The most effective and water-efficient irrigation should be used, and drip irrigation should be considered where appropriate.

b) All leaks in plumbing and irrigation systems should be repaired promptly

c) Vehicles should be washed using a hose equipped with automatic shutoff nozzle.

d) Sidewalks, walkways, driveways, parking lots or any other hard-surfaced areas should not be washed down, except for health and safety purposes.

e) Low-water-use native or drought-tolerant vegetation should be used to minimize the need for irrigation. Plants and trees with similar water needs should be grouped together for most efficient irrigation. (Please see our website (agency site) for more information and links to other websites listing drought tolerant plants.)

f) Landscape should be installed in a manner that will reduce the amount of water needed for irrigation. For example, the use of mulches and watering basins is encouraged where appropriate.

g) Irrigation should occur during optimal watering hours, avoiding wind and heat. The following hours are considered the most efficient hours for (Agency)customers to effectively irrigate lawns and landscaped areas:

Winter/Fall (November through April) – 6 PM to 10 AM

Spring/Summer (May through October) –8 PM to 9 AM

h) Water usage on any decorative fountains, ponds or other types of water streams should be minimized by incorporating a water recycling system so the water is continually recovered and reused.

i) Pool and spa safety covers or evaporation-reducing water treatments should be considered if safe and appropriate for the situation. These will help minimize water loss due to evaporation. Pool and spa chemistry should be balanced and maintained to help reduce the frequency of pool/spa draining and refilling.

3.1.2 ***<u>Indoor Water Use Efficiency Guidelines and Recommendations</u>:***

a) All leaks and/or damage to faucets, toilets, and indoor pipes should be repaired immediately.

b) Low flow devices for indoor plumbing fixtures including faucets, kitchen spray nozzles, toilets, and showers should be used where possible.

c) Install 1.3 or less gallon per flush (gpf) high efficiency toilets or .08/1.6 gallon per flush (gpf) dual-flush toilets.

d) Water-efficient Energy Star® approved appliances including, but not limited to, clothes washers and dishwashers should be used.

e) Clothes washers and dishwashers should be run using full loads to maximize water efficiency.

f) A source specific hot water dispenser or a whole house hot water recirculation system should be considered. These devices generate hot water within seconds, minimizing running the water until it is hot.

g) All commercial establishments where food or beverages are provided should encourage the serving of water to their customers only when specifically requested by the customer.

3.1.3 ***<u>New Construction Water Efficiency Guidelines:</u>*** As new technology advances, builders of new structures or persons retrofitting existing facilities should consider options such as evapotranspiration-controlled sprinkler systems, grey water or non-potable water systems (where legally acceptable), storm water cisterns, and landscape designs minimizing the use of turf and water-intensive plants. Businesses should review industry-specific guidance for ways to reduce water usage and should consider programs such as multi-pass cooling towers and process water recycling. Conveyor car wash and commercial laundry systems must utilize a recirculating system. Decorative water fountains, ponds or other types of water streams must incorporate a water recycling system.

3.2 ***<u>Water Conservation</u> <u>Stage 1 Water Alert –</u>:*** *At this stage of water deficiency, the Water Users are strongly encouraged to adhere to all the guidelines in section 3.1, Water Use Efficiency Guidelines. The following practices are also strongly suggested during Stage 1 water deficiencies:*

a) Outdoor irrigation of all vegetation including lawns and landscaping is limited to three times per week and no more than 10 minutes per watering station. Irrigation should occur during the following hours:

Winter/Fall (November through April) – 6 PM to 10 AM

Spring/Summer (May through October) – 8 PM to 9 AM

b) Repair all water leaks within five (5) days of notification by Water Purveyor.

3.3 ***<u>Water Conservation Stage 2 Water Warning:</u>*** *At this stage of water deficiency, Efficient Water Use Guidelines (3.1.1-3.1.2 above) and Stage 1 practices (3.2 above) become mandatory requirements. Further mandatory practices during Stage 2 are as follows:*

- ***a)*** All new landscaping shall be limited to widely accepted drought-tolerant plants requiring less than typical water requirements.
- ***b)*** No new lawns, whether by seed or sod, shall be installed.
- ***c)*** No filling of pools or spas. Water levels may be maintained.
- ***d)*** No filling of or re-filling of decorative fountains, ponds or other types of water streams, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the enactment of a stage 2 water warning.
- ***e)*** Repair all water leaks within seventy-two (72) hours of notification by Water Purveyor.

3.4 ***<u>Water Conservation Stage 3 Water Emergency:</u>*** *At this stage of water deficiency, Efficient Water Use Guidelines (3.1.1-3.1.2 above), Stage 1 practices (3.2 above), and Stage 2 practices (3.3 above) become mandatory requirements. Further mandatory practices during Stage 3 are as follows:*

- ***a)*** No new applications for service will be accepted.
- ***b)*** No water for grading will be allowed.
- ***c)*** Washing vehicles is prohibited, except at commercial facilities that recycle water.
- ***d)*** Street cleaning with potable water is prohibited.
- ***e)*** Repair all water leaks within forty-eight (48) hours of notification by Water Purveyor.

3.5 ***<u>Water Conservation Stage 4 Water Crisis:</u>*** *At this stage of water deficiency, Efficient Water Use Guidelines (3.1.1- 3.1.2 above), Stage 1 practices (3.2 above), Stage 2 practices (3.3 above), and Stage 3 practices (3.4 above) become mandatory requirements. Further mandatory practices during Stage 4 are as follows:*

- ***a)*** Outdoor irrigation of all vegetation including lawns and landscaping is prohibited. Existing trees and larger shrubs will be exempt.
- ***b)*** No new landscaping shall be permitted.

Repair all water leaks within twenty-four (24) hours of notification by Water Purveyor.

Section 4: ***ENFORCEMENT:***

4.1 ***Efficient Water Use and Stage 1 Enforcement:***

a) Any notification of signs or indications of water leaks or water waste will be documented. The Purveyor will confirm the water waste prior to any further action.

b) The Purveyor shall determine the action to be taken to inform the Water User of the guidelines in this Ordinance and to encourage more efficient and cost-effective water use.

4.2 ***Stage 2, 3 and 4 Enforcement.*** *The Purveyor has the duty and is authorized to enforce provisions of Stage 2, 3, and 4 of this Ordinance. If a violation is ongoing, the Purveyor may disconnect service until the violation is corrected.*

4.2.1 ***First Violation.*** For a first violation, an elevated usage letter shall be issued to the Water User.

4.2.2 ***Second Violation.*** For a second violation, a corrective action letter shall be issued to the Water User, and a fine of $40 shall be added to the Water User's bill at the property where the violation occurred if the corrective action is not taken within 10 days after receiving the written warning.

4.2.3 ***Third Violation.*** For a third violation, a fine of $100 shall be added to the Water User's bill at the property where the violation occurred if the corrective action is not taken within 10 days after receiving the written warning. In addition to the fine, the Purveyor may require installation of a flow restricting device on the Water User's service connection.

4.2.4 ***Fourth Violation.*** For the fourth and any additional violations, a fine of $250 shall be added to the Water User's bill at the property where the violation occurred. The Purveyor may also discontinue the Water User's water service at the property where the violation occurred. Re-connection shall be permitted only when there is reasonable protection against future violations, such as a flow-restricting device on the customer's service connection, as determined at the Purveyor's discretion.

4.3 ***District Enforcement Costs.*** The Purveyor shall be reimbursed for its costs and expenses in enforcing the provisions of this Ordinance, including such costs as incurred for Purveyor staff to investigate and monitor the Water User's compliance with the terms of this Ordinance. The charges for the installation of flow restricting devices or for discontinuing or restoring water service, as the Purveyor incurs those charges, shall be added to the Water User's bill at the property where the enforcement costs were incurred.

Section 5: ***ADMINISTRATION:***

5.1 ***General.*** The provisions of this Ordinance shall be administered and enforced by the Purveyor , who may delegate such enforcement to one or more employees or contractors of the Purveyor. The Purveyor may implement additional demand reduction practices, including surcharges, rationing, and specific water allocations, in times of severe shortage or emergency situations.

5.1.1 ***Water Utility Accounts.*** Accounts shall not be established for new customers, including the transfer of accounts upon change of ownership, until the customer agrees to comply with the provisions of this Ordinance.

5.1.2 ***Discretionary Exemptions.*** The Purveyor may, in its discretion, exempt Water Users and individual facilities of Water Users from the provisions of this Ordinance, or impose reasonable conditions in lieu of compliance with this Ordinance, if it is found that any of the following conditions exist:

a) Hardship. The requirements of this Ordinance would cause an unnecessary and undue hardship upon the Water User, the Water User facility or the public.

b) Health and Safety. Strict compliance with the requirements of this Ordinance would create an emergency condition, as determined by the Purveyor or other governmental entity with appropriate jurisdiction, affecting the health, protection or safety of the Water User or the public.

c) No Impact on Water Use. The granting of the exemption or imposition of reasonable conditions in lieu of compliance with this Ordinance would not increase the quantity of water consumed by the Water User or otherwise adversely affect service to other Water Users. In other words, the Water User will create an offset. In granting any such relief, the departure from the requirements of this Ordinance shall be limited to the minimum necessary to address the circumstances upon which such departure is required by a Water User.

5.1.3 ***Appeals.*** Any customer or applicant for a water service may appeal any decision under this Ordinance to the Purveyor whose decision shall be final.

RULE N0. 14.1

WATER CONSERVATION AND RATIONING PLAN

GENERAL INFORMATION (C)

1. If water supplies are projected to be insufficient to meet normal customer demand, and are beyond the control of the utility, the utility may elect to implement voluntary conservation using the portion of this plan set forth in Section A of this Rule, after notifying the Director of the Commission's Division of Water and Audits of its intent, via a letter in both hard-copy and e-mailed formats.

2. Prior to declaration of mandatory rationing, a utility may request authorization of a Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff, via a Tier 2 advice letter.

3. If, in the opinion of the utility, more stringent water measures are required, the utility shall request Commission authorization to implement the staged mandatory conservation and rationing measures set forth in Sections B through E.

4. The utility shall file a Tier 1 advice letter to request activation of a particular stage of Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff.

a. If a Declaration of Mandatory Rationing is made by utility or governing agency, or

b. If the utility is unable to address voluntary conservation levels set by itself, supplier, or governing agency, or

c. If the utility chooses to subsequently activate a different stage

5. When Schedule 14.1 is in effect and the utility determines that water supplies are again sufficient to meet normal demands, and mandatory conservation and rationing measures are no longer necessary, the utility shall seek Commission approval via a Tier 1 advice letter to de-activate the particular stage of mandatory rationing that had been authorized.

6. In the event of a water supply shortage requiring a voluntary or mandatory program, the utility shall make available to its customers water conservation kits as required by its version of Rule 20. The utility shall notify all customers of the availability of conservation kits via a bill insert or direct mailers.

(continued) (C)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

A. CONSERVATION - NON-ESSENTIAL OR UNAUTHORIZED WATER USE (C)

No customer shall use utility-supplied water for non-essential or unauthorized uses, including but not limited to:

1. Use of potable water for more than minimal landscaping, as defined in the landscaping regulated of the jurisdiction or as described in Article 10.8 of the California Government Code in connection with new construction;
2. Use through any meter when the company has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to effect such repairs within five business days;
3. Use of potable water which results in flooding or runoff in gutters or streets;
4. Individual private washing of cars with a hose except with the use of a positive action shut-off nozzle. Use of potable water for washing commercial aircraft, cars, buses, boats, trailers, or other commercial vehicles at any time, except at commercial or fleet vehicle or boat washing facilities operated at a fixed location where equipment using water is properly maintained to avoid wasteful use;
5. Use of potable water washing buildings, structures, , driveways, patios, parking lots, tennis courts, or other hard-surfaced areas, except in the cases where health and safety are at risk;
6. Use of potable water to irrigate turf, lawns, gardens, or ornamental landscaping by means other than drip irrigation, or hand watering without quick acting positive action shut-off nozzles, on a specific schedule, for example: 1) before 9:00 a.m. and after 5:00 p.m.; 2) every other day; or 3) selected days of the week;
7. Use of potable water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public;

(continued) (C)

RULE NO. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

A. CONSERVATION – NON-ESSENTIAL OR UNAUTHORIZED WATER USE (CONT.) (C)

8. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
9. Use of potable water for construction purposes unless no other source of water or other method can be used;
10. Use of potable water for street cleaning;
11. Operation of commercial car washes without recycling at least 50% of the potable water used per cycle;
12. Use of potable water for watering outside plants, lawn, landscape and turf areas during certain hours if and when specified in Schedule No. 14.1 when the schedule is in effect;
13. Use of potable water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water;
14. Use of potable water for the filling or refilling of swimming pools.
15. Service of water by any restaurant except upon the request of a patron; and
16. Use of potable water to flush hydrants, except where required for public health or safety.

B. STAGED MANDATORY RATIONING OF WATER USAGE

1. Prior to declaration of mandatory rationing, a utility may request authorization of a Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff, via a Tier 2 advice letter, with full justification. The utility may not institute Schedule 14.1 until it has been authorized to do so by the Commission.

(continued) (C)

RULE NO. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

B. STAGED MANDATORY RATIONING OF WATER USAGE (Cont) (C)

a. A staged Schedule 14.1 that has been authorized by the Commission shall remain dormant until triggered by specific conditions detailed in the Schedule 14.1 tariff and utility has requested and received authorization for activating a stage by Commission.

b. Notice of the Tier 2 advice letter and associated public participation hearing shall be provided to customers under General Order (GO) 96-B rules.

c. Utility shall comply with all requirements of Sections 350-358 of the California Water Code.

d. The Tier 2 advice letter requesting institution of a Schedule 14.1 shall include but not be limited to:

i. Proposed Schedule 14.1 tariff, which shall include but not be limited to:

1. Applicability,
2. Territory applicable to,
3. A detailed description of each Stage of Rationing,
4. A detailed description of the Trigger that Activates each Stage of Rationing,
5. A detailed description of each water use restriction for each stage of rationing.
6. Water use violation levels, written warning levels, associated fines, and exception procedures,
7. Conditions for installation of a flow restrictor,
8. Charges for removal of flow restrictors, and
9. Special Conditions (C)

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

B. STAGED MANDATORY RATIONING OF WATER USAGE (Cont) (C)

ii. Justification for, and documentation and calculations in support of plan, including but not limited to each item in B.1.d.i above.

2. Number of Stages requested by each utility/district may vary, depending on specifics of water shortage event.

3. The utility shall file a Tier I advice letter to request activation of a particular stage of Schedule 14.1 -- Staged Mandatory Water Conservation and Rationing tariff.

a. If a Declaration of Mandatory Rationing is made by utility or governing agency,

b. If the utility is unable to address voluntary conservation levels set by itself or governing agency, or

c. If the utility chooses to subsequently activate a different stage.

d. The Tier I advice letter requesting activation of a Schedule 14.1 shall include but not be limited to:

i. Justification for activating this particular stage of mandatory rationing, as well as period during which this particular stage of mandatory conservation and rationing measures will be in effect.

ii. When the utility requests activation of a particular Stage, it shall notify its customers as detailed in Section E, below.

4. All monies collected by the utility through water use violation fines shall not be accounted for as income.

5. All expenses incurred by utility to implement Rule 14.1 and Schedule 14.1 that have not been considered in a General Rate Case or other proceeding, shall be recoverable by utility if determined to be reasonable by Commission.

a. These monies shall be accumulated by the utility in a separate memorandum account for disposition as directed or authorized from time to time by the Commission. (C)

(continued)

RULE NO. 14.1

WATER CONSERVATION AND RATIONING PLAN

C. ENFORCEMENT OF STAGED MANDATORY CONSERVATION AND RATIONING (N)

1. The water use restrictions of the conservation program, in Section A of this rule, become mandatory when the authorized Schedule 14.1-Staged Mandatory Rationing Program is triggered, the utility files a Tier 1 advice letter requesting activation of a particular stage, and authorization is received from the Commission.

a. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined in Section A of this rule, the utility may charge a water use violation fine in accordance with Schedule No. 14.1.

2. The utility may, after one verbal and one written warning, install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use as defined in Section A above.

3. A flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 3 Ccf/person/month. The restricting device may be removed only by the utility, only after a three-day period has elapsed, and only upon payment of the appropriate removal charge as set forth in Schedule No. 14.1.

4. After the removal of the restricting device, if any non-essential or unauthorized use of water shall continue, the utility may install another flow-restricting device. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to the utility.

5. Any tampering with flow restricting device by customer can result in fines or discontinuation of water use at the utility's discretion.

6. If, despite installation of such flow-restricting device pursuant to the provisions of the previous enforcement conditions, any such non-essential or unauthorized use of water shall continue, then the utility may discontinue water service to such customer. In such latter event, a charge as provided in Rule No. 11 shall be paid to the utility as a condition to restoration of service. (N)

(continued)

RULE N0. 14.1

WATER CONSERVATION AND RATIONING PLAN

C. ENFORCEMENT OF STAGED MANDATORY CONSERVATION AND RATIONING (Cont) (N)

7. All monies collected by the utility through water use violation fines shall not be accounted for as income. All expenses incurred by utility to implement Rule 14.1 and Schedule 14.1 that have not been considered in a General Rate Case or other proceeding, shall be recoverable by utility if determined to be reasonable by Commission. These additional monies shall be accumulated by the utility in a separate memorandum account for disposition as directed or authorized from time to time by the Commission.

8. The charge for removal of a flow-restricting device shall be in accordance with Schedule No. 14.1.

D. APPEAL PROCEDURE

1. Any customer who seeks a variance from any of the provisions of this water conservation and rationing plan shall notify the utility in writing, explaining in detail the reason for such a variation. The utility shall respond to each such request in writing.

2. Any customer not satisfied with the utility's response may file an appeal with the staff of the Commission. The customer and the utility will be notified of the disposition of such appeal by letter from the Executive Director of the Commission. (N)

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

D. APPEAL PROCEDURE

3. If the customer disagrees with such disposition, the customer shall have the right to file a formal complaint with the Commission. Except as set forth in this Section, no person shall have any right or claim in law or in equity, against the utility because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of this water conservation and rationing plan. (N)

E. PUBLICITY

1. As stated under Section B.1.b and c, when a utility requests authorization of a Schedule 14.1 -- Staged Mandatory Water Conservation and Rationing tariff, via a Tier 2 advice letter, it shall provide notice of the Tier 2 advice letter and associated public meeting provided to customers, under General Order (GO) 96-B rules, and shall comply with all requirements of Sections 350-358 of the California Water Code (CWC), including but not limited to the following:

a. In order to be in compliance with both the GO and CWC, the utility shall provide notice via both newspaper and bill insert/direct mailing.

b. Utility shall file one notice for each advice letter filed, that includes both notice of the filing of the Tier 2 advice letter as well as the details of the public meeting (date, time, place, etc).

c. The public meeting shall be held after the utility files the Tier 2 advice letter, and before the Commission authorizes implementation of the tariff.

d. Utility shall consult with Division of Water and Audits staff prior to filing advice letter, in order to determine details of public meeting. (N)

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

E. PUBLICITY (Cont)

2. In the event that a Schedule 14.1-Staged Mandatory Rationing Plan is triggered, and a utility requests activation through the filing of a Tier 1 advice letter, the utility shall notify its customers and provide each customer with a copy of Schedule 14.1 by means of bill insert or direct mailing. Notification shall take place prior to imposing any fines associated with this plan. (N)

3. During the period that a stage of Schedule 14.1 is activated, the utility shall provide customers with updates in at least every other bill, regarding its water supply status and the results of customers' conservation efforts. (N)

CALIFORNIA PUBLIC UTILITIES COMMISSION

Water Division

INSTRUCTIONS FOR WATER CONSERVATION, RATIONING AND SERVICE CONNECTION MORATORIA

Standard Practice U-40-W

SAN FRANCISCO, CALIFORNIA

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INSTRUCTIONS FOR WATER CONSERVATION,
RATIONING AND SERVICE CONNECTION MORATORIA

A—PURPOSE AND SCOPE

1. The purpose of this standard practice is to provide guidance to Water Division staff, to the public and to utilities as to steps to be taken when the utility suffers from a water shortage. The three levels of action are voluntary rationing, mandatory rationing and a service connection moratorium.

B—BACKGROUND

2. General Order 103, Chart 1, and Standard Practice U-22-W, Determination of Water Supply Requirements of Water Systems, address water supply requirements, but supply can be affected temporarily due to drought or decreased production of a utility's wells. When this happens, utilities may have to resort to mandatory conservation or may have to institute a service connection moratorium.

3. Parties may also protest service area extensions (see Standard Practice U-14-W) over concern that the available supplies may be inadequate to serve the new customers, which would be the equivalent of a service connection moratorium (see Section F)[1].

4. The position of the Commission in overall water supply planning was set forth in Decision 99-04-061, April 22, 1999 (see Appendix A to this Standard Practice).

C—DEVELOPMENT OF CONSERVATION AND RATIONING

5. In mid-1976, due to a drought, the Commission opened an Order Instituting Investigation (OII, Case No. 10114, June 8, 1976) to determine what actions to take. In early 1977, the Commission issued an emergency decision that allowed water utilities to distribute water conservation kits and to implement cost effective water conservation programs.

6. The Commission was once again faced with drought conditions in mid-1988. The Commission opened OII 89-03-005 that allowed all classes of water utilities to file a water conservation and rationing plan consisting of two distinct parts: Rule 14.1 (a "voluntary conservation" program) and Schedule 14.1 (the mandatory rationing and penalty part). This plan was based primarily upon the Department of Water Resources and Metropolitan Water District's model plans, but also

[1] In Resolution No. 4154, August 5, 1999, the Sierra Club protested Valencia Water Company's Advice Letters 84 and 85 for service area extension. The Commission found in the favor of Valencia, that it had adequate supplies, but ordered the utility to file its Water Management Program by application so the long-term water availability issues could be heard.

incorporated aspects of the North Marin Water District, East Bay Municipal Utility District, and California Water Service Company's existing conservation and rationing plans. The main objective of Rule 14.1 and Schedule 14.1 was to have a plan readily available for any utility that needed conservation and/or rationing methods. This plan allowed regulated utilities to achieve conservation of 17.5% to 26%.

7. The drought was officially declared over in February 1993 and the OII was closed. Because history shows that drought occurs in California about once every ten years, Rule 14.1 has remained in place. When conditions become severe, the utility may file an advice letter to institute Schedule 14.1. The Commission must approve implementation of this schedule by resolution.

D—VOLUNTARY RATIONING

8. Voluntary rationing consists of the steps described in Rule 14.1 (Appendix B). This Tariff Rule should be in the tariff book of every utility that might suffer from a water shortage.

E—MANDATORY RATIONING

9. Mandatory rationing consists of the steps described in Schedule 14.1. The utility adds schedule 14.1 to its tariff book by filing an advice letter with full justification. Staff will prepare a resolution for consideration by the Commission. The Commission must approve the imposition of mandatory conservation.

10. Schedule 14.1 may be modified to fit the needs of the utility and its particular water shortage situation. The following provisions are examples of what might be included in a typical Schedule 14.1:

A. Prohibit nonessential and unauthorized water use, including:
   i. use for more than minimal landscaping in connection with new construction;
   ii. use through any meter when the company has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to effect such repairs within five days;
   iii. use of water which results in flooding or runoff in gutters or streets;
   iv. use of water through a hose for washing cars, buses, boats, trailers or other vehicles without a positive automatic shut-off valve on the outlet end of the hose;
   v. use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas;
   vi. use of water to clean, fill or maintain levels in decorative fountains;

vii. use of water for construction purposes unless no other source of water or other method can be used;
viii. service of water by any restaurant except upon the request of a patron; and
ix. use of water to flush hydrants, except where required for public health or safety.

B. Establish customer water allocations at a percentage of historical usage with the corresponding billing periods of a non-drought year being the base.

C. Establish an allocation of a percentage of historical usage with the corresponding billing periods of a non-drought year being the base for consumption for users of process water (water used to manufacture, alter, convert, clean, grow, heat or cool a product, including water used in laundries and car wash facilities that recycle the water used).

D. Establish a minimum allocation of a number of Ccf per month (one Ccf is one hundred cubic feet) for any customer regardless of historical usage.

E. Establish an exceptions procedure for customers with no prior billing period record or where unusual circumstances dictate a change in allocation.

F. Establish a penalty ("conservation fee") of $2.00 per Ccf for usage over allocated amounts, provided, however, that banking of underusage from month to month is allowed.

G. Provide that penalty funds are not to be accounted for as income, but are to be kept in a separate reserve account for disposition as directed by the Commission.

H. Provide that, after written warning for nonessential or unauthorized water use, for subsequent violations the utility may install a flow restrictor to be left in a minimum of three days. The second time a flow restrictor is installed it may be left in until rationing ends.

I. Establish charges of $25, $50, or actual cost depending on meter size for removing restrictors, and provide that continuing nonessential or unauthorized use may result in disconnection.

J. Establish an appeal procedure first through the utility, then to the Commission staff through the Executive Director, then to the Commission via a formal complaint.

F—SERVICE CONNECTION MORATORIUM

11. A service connection moratorium is sometimes imposed by the California Department of Health Services. The California Water Code, Section 350 et seq.,

provides that any public water supplier may, after public notice and hearing, declare a water shortage emergency within its service area whenever it determines that the ordinary demands and requirements of its consumers cannot be satisfied without depleting the water supply to the extent that there would be insufficient water for human consumption, sanitation, and fire protection. After it has declared a water shortage emergency, it must adopt such regulations and restrictions on water delivery and consumption as it finds will conserve its water supply for the greatest public benefit. Section 357 requires that suppliers which are subject to regulation by the CPUC shall secure its approval before making such regulations and restrictions effective.

12. Section 2708 of the Public Utilities Code states:

> **2708.** Whenever the commission, after a hearing had upon its own motion or upon complaint, finds that any water company which is a public utility operating within this State has reached the limit of its capacity to supply water and that no further consumers of water can be supplied from the system of such utility without injuriously withdrawing the supply wholly or in part from those who have theretofore been supplied by the corporation, the commission may order and require that no such corporation shall furnish water to any new or additional consumers until the order is vacated or modified by the commission. The commission, after hearing upon its own motion or upon complaint, may also require any such water company to allow additional consumers to be served when it appears that service to additional consumers will not injuriously withdraw the supply wholly or in part from those who theretofore had been supplied by such public utility.

13. To establish a service connection moratorium the utility must:
    a. Hold a public meeting under Section 350 and 351 of the Water Code
    b. Add the following language to each service schedule:

    "MORATORIUM
    No service shall be provided to any premises not previously served within the _____ Service Area as defined on the Service Area Map filed as a part of these tariffs."

G—EXEMPTIONS

14. Some decisions to impose a moratorium contain exceptions. For example in Citizen's Utilities (CUCC) Montara District:

> "The moratorium shall not apply to owners of real property who are customers of CUCC on or before the date of this order, or their successors in interest, if any change in the use of their property

will not increase their demand upon the system." (D.86-05-078, Ordering Paragraph 3.)

15. D.86-05-078 also provided that prospective customers could seek an exemption from the moratorium by filing an application with the Commission showing that extraordinary circumstances required an exemption.

16. In D.00-06-020, June 8, 2000 the Commission granted an application and authorized Citizens Utilities to install a water service connection to applicant's property at APN 037-278-090 following cessation of service at applicant's property at 888 Ocean Boulevard in Montara. Costs were to be borne by applicant. The order made it clear that water service could not be reinstated at 888 Ocean Boulevard absent a lifting or easing of the moratorium. Such determinations were also delegated to staff[2].

[2] D.86-05-078, May 28, 1986, Ordering Paragraph 4.

The Commission's Role in Water Planning

The two state agencies primarily responsible for overseeing water planning are the California Department of Water Resources, which is manages the State Water Project and produces the California Water Plan, and the State Water Quality Control Board and Regional Water Quality Control Boards which have authority over water allocation and water quality protection.

In addition to the state agencies which have broad planning and management powers, local government also has a part in water use decisions. For example, county boards of supervisors, county water agencies, land use planning agencies, city governments, municipal water districts and many special districts all have a role in the use of water in California.

In this context, the Commission has recognized the futility of one party taking unilateral action to protect a groundwater basin:

> Rehabilitation of the Santa Maria Groundwater Basin is not the responsibility of, and is beyond the physical and financial resources of any single individual, company, or agency. Even if [Southern California Water Company] were to stop drawing from the basin entirely and injected into the basin the entire 7,900 AFY it desires to obtain from the [Central Coast Water Authority], the basin's fundamental problems of declining quantity and water quality would not be solved. Most simply put, the basin's salvation as a water resource requires the immediate, undivided, sincere and selfless attention of all its users.

(Re Southern California Water Company, 48 CPUC2d 511, 519 (D.93-03-066)(emphasis in original).)

The Commission's role is limited to ensuring that each jurisdictional water utility provides its customers with "just and reasonable service, . . . and facilities as are necessary to promote the safety, health, comfort and convenience of its patrons, employees, and the public." (§ 451.) The Commission has further delineated the service standard in its General Order 103 where it proscribes Standards of Service

including water quality, water supply, and water pressure, as well as many other details of service.

The Commission has not, however, dictated to investor-owned utilities what method of obtaining water must be used to meet its present and future responsibility of providing safe and adequate supply of water at reasonable rates. (Southern California Water, 48 CPUC2d at 517.)

Which is not to suggest that the Commission ignores issues of water availability in its regulation of water utilities. The Commission requires that all water utilities prepare, file, and update a water management plan which includes identification of water sources as well as consumption projections over 15 years. These plans are updated by the utility as part of its general rate case.

RULE N0. 14.1
WATER CONSERVATION AND RATIONING PLAN

GENERAL INFORMATION

If water supplies are projected to be insufficient to meet normal customer demand, and are beyond the control of the utility, the utility may elect to implement voluntary conservation using the portion of this plan set forth in Section A of this Rule after notifying the Commission's Water Division of its intent. If, in the opinion of the utility, more stringent water measures are required, the utility shall request Commission authorization to implement the mandatory conservation and rationing measures set forth in Section B.

The Commission shall authorize mandatory conservation and rationing by approving Schedule No. 14.1, Mandatory Water Conservation and Rationing. When Schedule No. 14.1 has expired, or is not in effect, mandatory conservation and rationing measures will not be in force. Schedule No. 14.1 will set forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect.

When Schedule No. 14.1 is in effect and the utility determines that water supplies are again sufficient to meet normal demands, and mandatory conservation and rationing measures are no longer necessary, the utility shall seek Commission approval to rescind Schedule No. 14.1 to discontinue rationing.

In the event of a water supply shortage requiring a voluntary or mandatory program, the utility shall make available to its customers water conservation kits as required by Rule 20. The utility shall notify all customers of the availability of conservation kits.

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

A. CONSERVATION - NON-ESSENTIAL OR UNAUTHORIZED WATER USE

No customer shall use utility-supplied water for non-essential or unauthorized uses as defined below:

1. Use of water through any connection when the utility has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to make such repairs within 5 days after receipt of such notice.

2. Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets.

3. Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shut-off nozzle on the outlet end of the hose. Exceptions include washing vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.

4. Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off or waste.

5. Use of water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.

6. Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.

7. Use of water for more than minimal landscaping in connection with any new construction.

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

A. CONSERVATION – NON-ESSENTIAL OR UNAUTHORIZED WATER USE (CONT.)

8. Use of water for outside plants, lawn, landscape, and turf areas more often than every other day, with even numbered addresses watering on even numbered days of the month and odd numbered addresses watering on the odd numbered days of the month, except that this provision shall not apply to commercial nurseries, golf courses and other water-dependent industries.

9. Use of water for watering outside plants, lawn, landscape and turf areas during certain hours if and when specified in Schedule No. 14.1 when the schedule is in effect.

10. Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve.

11. Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water.

12. Use of water for the filling or refilling of swimming pools.

13. Service of water by any restaurant except upon the request of the patron.

B. RATIONING OF WATER USAGE

In the event the conservation measures required by Section A are insufficient to control the water shortage, the utility shall, upon Commission approval, imposed mandatory conservation and rationing. Rationing shall be in accordance with the conditions set forth in Schedule No. 14.1 as filed at the time such rationing is approved by the Commission.

Before mandatory conservation and rationing is authorized by the Commission, the utility shall hold public meetings and takes all other applicable steps required by Sections 350 through 358 of the California Water Code.

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

C. ENFORCEMENT OF MANDATORY CONSERVATION AND RATIONING

1. The water use restrictions of the conservation program, in Section A of this rule, become mandatory when the rationing program goes into effect. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined in Section A of this rule, the utility may charge a water use violation fine in accordance with Schedule No. 14.1.

2. The utility may, after one verbal and one written warning, install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use as defined in Section A above.

3. A flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 6 Ccf/month. The restricting device may be removed only by the utility, only after a three-day period has elapsed, and only upon payment of the appropriate removal charge as set forth in Schedule No. 14.1.

4. After the removal of the restricting device, if any non-essential or unauthorized use of water shall continue, the utility may install another flow-restricting device. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to the utility.

5. If, despite installation of such flow-restricting device pursuant to the provisions of the previous enforcement conditions, any such non-essential or unauthorized use of water shall continue, then the utility may discontinue water service to such customer. In such latter event, a charge as provided in Rule No. 11 shall be paid to the utility as a condition to restoration of service.

6. Any monies collected by the utility through water use violation fines shall not be accounted for as income, but shall be accumulated by the utility in a separate account for disposition as directed or authorized from time to time by the Commission.

7. The charge for removal of a flow-restricting device shall be in accordance with Schedule No. 14.1.

(continued)

RULE N0. 14.1
(continued)

WATER CONSERVATION AND RATIONING PLAN

D. APPEAL PROCEDURE

Any customer who seeks a variance from any of the provisions of this water conservation and rationing plan shall notify the utility in writing, explaining in detail the reason for such a variation. The utility shall respond to each such request.

Any customer not satisfied with the utility's response may file an appeal with the staff of the Commission. The customer and the utility will be notified of the disposition of such appeal by letter from the Executive Director of the Commission.

If the customer disagrees with such disposition, the customer shall have the right to file a formal complaint with the Commission. Except as set forth in this Section, no person shall have any right or claim in law or in equity, against the utility because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of this water conservation and rationing plan.

E. PUBLICITY

In the event the utility finds it necessary to implement this plan, it shall notify customers and hold public hearings concerning the water supply situation, in accordance with Chapter 3, Water Shortage Emergencies, Sections 350 to 358, of the California Water Code. The utility shall also provide each customer with a copy of this plan by means of billing inserts or special mailings; notification shall take place prior to imposing any fines associated with this plan. In addition, the utility shall provide customers with periodic updates regarding its water supply status and the results of customers' conservation efforts. Updates may be by bill insert, special mailing, poster, flyer, newspaper, television or radio spot/advertisement, community bulletin board, or other appropriate methods.

SCHEDULE NO. 14.1
MANDATORY WATER CONSERVATION AND RATIONING

APPLICABILITY

This schedule applies to all water customers served under all tariff rates schedules authorized by the Commission. It is only effective in times of rationing, as required by Rule No. 14.1, and only for the period noted in the Special Conditions section below.

TERRITORY

This schedule is applicable within the entire territory served by the utility.

WATER USE VIOLATION FINE

When this schedule is in effect, the water use restrictions of the conservation program, in Section A of Rule 14.1, become mandatory. If a customer is seen violating the water usage restrictions, as outlined in Rule No. 14.1 and the Special Conditions below, the customer will be subject to the following fine structure:

First offense - written warning	
Second offense - (of the same restriction)	$25
Third offense - (of the same restriction)	$50
Each additional offense - (of the same restriction)	$25 more than the previous fine imposed.

Offenses for separate water use restrictions will each start at the warning stage.

The water use violation fine is in addition to the regular rate schedule charges.

(continued)

SCHEDULE NO. 14.1
MANDATORY WATER CONSERVATION AND RATIONING (CONT.)

FLOW RESTRICTOR REMOVAL CHARGE

The charge for removal of a flow-restricting device shall be:

Connection Size	Removal Charges
5/8" to 1"	$25.00
1-1/2" to 2"	$50.00
3" and larger	Actual cost

SPECIAL CONDITIONS

1. This tariff schedule shall remain in effect for period of six (6) months from the effective date set forth below.

2. There shall be no use of utility-supplied water for outside plants, lawn, landscape, and turf areas between the hours of 3:00 a.m. to 8:00 p.m., regardless of address or day of the month.

3. Water use violation fines may be applied to violations of Section A of Rule No. 14.1, which prohibits non-essential and unauthorized uses of water.

4. Water use violation fines must be separately identified on each bill.

5. All bills are subject to the reimbursement fee set forth on Schedule No. UF.

LACWWD No. 36 Water Shortage Conservation Ordinance

MINUTES OF THE BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

Sachi A. Hamai, Executive Officer-
Clerk of the Board of Supervisors
383 Kenneth Hahn Hall of Administration
Los Angeles, California 90012

At its meeting held October 7, 2008, the Board took the following action:

72

The following item was called up for consideration:

Urgency Ordinance for introduction amending the County Code, Title 11 - Health and Safety, to readopt Part 4 of Chapter 11.38 - Water Conservation Requirements for the Unincorporated County area, which establishes water conservation and waste prevention requirements with a written warning for the first violation and a fine of $100 for each subsequent violation; and find that adoption of ordinance is exempt from the California Environmental Quality Act.

On motion of Supervisor Molina, seconded by Supervisor Antonovich, duly carried by the following vote: Ayes: Supervisors Molina, Yaroslavsky, Knabe, Antonovich and Burke; Noes: None, the Board introduced, waived reading and adopted the attached Ordinance No. 2008-0052U entitled, "An urgency ordinance amending Title 11 - Health and Safety of the Los Angeles County Code, relating to water conservation requirements for the Unincorporated Los Angeles County Area." This ordinance shall take effect October 7, 2008.

02100708_72

Attachment

Copies distributed:
Each Supervisor
Chief Executive Officer
County Counsel
Acting Director of Public Works
Acting Director of Beaches and Harbors
Director of Internal Services
Director of Parks and Recreation
Director of Planning
Director of Public Health

(ALSO SEE BOARD ORDER NO. 40 THIS DATE)

ANALYSIS

This ordinance amends Title 11 – Health and Safety of the Los Angeles County Code, relating to Water and Sewers, to readopt Part 4 of Chapter 11.38 – Water Conservation Requirements for the Unincorporated Los Angeles County Area.

Pursuant to Section 2 of Ordinance No. 91-0046U, Part 4 of Chapter 11.38 – Water Conservation Requirements for the Unincorporated Los Angeles County Area, terminated on January 1, 1993. This ordinance readopts the same provisions, which were previously set forth in Part 4, except that this ordinance does not have a sunset date, revises the fine amounts, and sets forth a review mechanism.

This ordinance is an urgency measure and requires a four-fifths vote by the Board of Supervisors for adoption.

RAYMOND G. FORTNER, JR.
County Counsel

By
TRUC L. MOORE
Deputy County Counsel
Public Works Division

TLM:ia

08/13/08 (Requested)

09/17/08 (Revised)

553230_1

ORDINANCE NO. 2008-00052U

An urgency ordinance amending Title 11 – Health and Safety of the Los Angeles County Code, relating to water conservation requirements for the Unincorporated Los Angeles County Area.

The Board of Supervisors of the County of Los Angeles ordains as follows:

SECTION 1. Chapter 11.38, Part 4, is hereby readopted as amended to read as follows:

Part 4. Water Conservation Requirements for the Unincorporated Los Angeles County Area

11.38.620 Hose watering prohibition.

No person shall hose water or wash down any sidewalks, walkways, driveways, parking areas or other paved surfaces, except as is required for the benefit of public health and safety. Willful violation hereof shall be subject to a written warning for the first violation, and shall be an infraction punishable by a fine of $100.00 ~~for the first infraction and $500.00 each~~ for each subsequent ~~infractions~~violation.

11.38.630 Watering of lawns and landscaping.

A. No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

B. No person shall water or cause to be watered any lawn or landscaping more than once a day.

C. No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

D. It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks, and to cause all leaks to be repaired as soon as is reasonably practicable.

E. Willful violation hereof shall be subject to a written warning for the first violation, and shall be an infraction punishable by a fine of $100.00 ~~for the first infraction and $500.00 each~~ for each subsequent ~~infractions~~violation.

11.38.640 Indoor plumbing and fixtures.

A. It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks, and to cause all leaks to be repaired as soon as is reasonably practicable.

B. Willful violation hereof shall be subject to a written warning for the first violation, and shall be an infraction punishable by a fine of $~~500~~100.00 for each subsequent violation.

11.38.650 Washing vehicles.

No motor vehicle, boat, trailer, or other type of mobile equipment may be washed, except at a commercial carwash or with reclaimed water, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time. Willful violation hereof shall be subject to a written warning for the

first violation, and shall be an infraction punishable by a fine of $100.00 ~~for the first infraction and $500.00 each~~ for each subsequent ~~infractions~~violation.

11.38.660 Public eating places.

No restaurant, hotel, cafeteria, café, or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to do so by such customer. Willful violation hereof shall be subject to a written warning for the first violation, and shall be an infraction punishable by a fine of $100.00 ~~for the first infraction and $500.00 each~~ for each subsequent ~~infractions~~violation.

11.38.670 Decorative fountains.

No person shall use water to clean, fill, or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures unless such water flows through a recycling system. Willful violation hereof shall be subject to a written warning for the first violation, and shall be an infraction punishable by a fine of $100.00 ~~for the first infraction and $500.00 each~~ for each subsequent ~~infractions~~violation.

11.38.680 Procedural requirements.

The Director of Public Works, with input and concurrence from the Director of Public Health, shall periodically review the provisions of this Part and recommend necessary updates to the Board of Supervisors. The review of these provisions and preparation of resulting recommendations, if any, shall be performed, at a minimum, every two years following the first review, which shall to be completed by December 31, 2010.

SECTION 2. Due to the severity of the drought in the State of California, there is an immediate need to prohibit the wasting of water in the Los Angeles County unincorporated area to better utilize the available water supplies. This ordinance is urgently needed for the preservation of the public health, safety, and general welfare, and shall take effect immediately.

[1138WATERTMCC]

SECTION 3. This ordinance shall be published in The Metropolitan News a newspaper printed and published in the County of Los Angeles.

Yvonne B. Burke
Chair

ATTEST:

Sachi A. Hamai
Executive Officer -
Clerk of the Board of Supervisors
County of Los Angeles

I hereby certify that at its meeting of October 7, 2008 the foregoing ordinance was adopted by the Board of Supervisors of said County of Los Angeles by the following vote, to wit:

	Ayes		Noes
Supervisors	Gloria Molina	Supervisors	None
	Zev Yaroslavsky		
	Don Knabe		
	Michael D. Antonovich		
	Yvonne B. Burke		

Effective Date: October 7, 2008

~~Operative Date:~~

Sachi A. Hamai
Executive Officer -
Clerk of the Board of Supervisors
County of Los Angeles

APPROVED AS TO FORM:
RAYMOND G. FORTNER, JR.
County Counsel

By Leela Kapur
Leela Kapur
Chief Deputy County Counsel

S:\Ordinances\County Counsel\2008\2008-0052U

Groundwater Management Plan

Santa Clara River Valley Groundwater Basin, East Subbasin

Los Angeles County, California

CASTAIC LAKE WATER AGENCY

December, 2003

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Table of Contents

Page

I. Introduction 1
- Castaic Lake Water Agency 1
- Santa Clara River Valley Groundwater Basin, East Subbasin 1
- Overview of Water Requirements and Supplies 2
- Water Code Section 10753 2

II. Management Objectives (Goals) for the Basin 7

III. Groundwater Basin Conditions 10
- Occurrence of Groundwater 10
- Historical Groundwater Development 11
- Groundwater Monitoring Network and Program 12
- Groundwater Levels and Storage 13
- Groundwater Quality 15
- Areas of Concern and Identified Problems 17

IV. Historical and Projected Water Requirements and Supplies 19
- Historical Water Requirements 19
- Projected Water Requirements 20
- Existing and Projected Water Supplies 21

V. Elements of the Groundwater Management Plan 24
- Primary Element 1 - Monitoring of Groundwater Levels, Quality, Production, and Subsidence 26
- Primary Element 2 - Monitoring and Management of Surface Water Flows and Quality 27
- Primary Element 3 - Determination of Basin Yield and Avoidance of Overdraft 29
- Primary Element 4 - Development of Regular and Dry Year/Emergency Water Supply 30
- Primary Element 5 - Continuation of Conjunctive Use Operations 30
- Primary Element 6 - Long Term Salinity Management 32
- Primary Element 7 - Integration of Recycled Water 32

Table of Contents, cont.

Page

Primary Element 8 - Identification and Mitigation of Soil and Groundwater Contamination 33
Primary Element 9 - Development and Continuation of Local, State and Federal Agency Relationships 35
Primary Element 10 - Groundwater Management Reports 37
Secondary Element 1 - Continuation of Public Education and Water Conservation Programs 38
Secondary Element 2 - Identification and Management of Recharge Areas and Wellhead Protection Areas 39
Secondary Element 3 - Identification of Well Construction, Abandonment and Destruction Policies 42
Secondary Element 4 - Provisions to Update the Groundwater Management Plan 42

VI. References

Appendices

I. Groundwater and Surface Water Monitoring Protocols
II. Comments and Responses (separately bound)

Figures and Tables

Afer Page

Figures

1-1 CLWA and Purveyors' Service Areas 1
1-2 Santa Clara River Valley East Ground-Water Subbasin 2
3-1 Alluvial and Saugus Formations 11
3-2 Historical Groundwater Elevations 13
3-3 Historical Groundwater Quality 14
4-1 Historical Groundwater Production 18
4-2 Historical and Projected Water Use 19
5-1 Water Level Monitoring Well Network 26
5-2 Water Quality Monitoring Network 26
5-3 Average of Daily Mean Streamflow over the Water Year 26
5-4 Historical and Projected Water Use 29

Tables **Page**

4-1 Projected Normal/Average Year Water Demands 21

I. Introduction

Castaic Lake Water Agency

Castaic Lake Water Agency (CLWA) was formed in 1962 as a State Water Project Contractor to provide wholesale water supply from the State Water Project (SWP) to retail water purveyors in the Upper Santa Clara River area, most notably to Newhall County Water District, Los Angeles County Waterworks District No. 36, Santa Clarita Water Company and Valencia Water Company. In 2001, as part of legislation authorizing CLWA to provide retail water service to individual municipal customers in addition to its ongoing wholesale water supply, Assembly Bill 134 included a requirement that CLWA prepare a groundwater management plan in accordance with the provisions of Water Code Section 10750 et seq., which was originally enacted by, and is commonly known as, Assembly Bill 3030. This groundwater management plan has been prepared to satisfy the requirements of AB 134 and to both complement and formalize a number of existing water supply and water resource planning and management activities in the CLWA service area.

The CLWA service area encompasses all of the existing and currently planned municipal water service areas of the Upper Santa Clara River area, i.e. the suburban areas generally proximate to the Santa Clara River in Los Angeles County, generally between hills of the San Gabriel Mountains and the Santa Susana Mountains on the north and south, and between the Los Angeles/Ventura County line and Lang Station on the west and east, respectively. The extent of the CLWA service area and the geographical locations of the individual water purveyors within the CLWA service area are illustrated in Figure 1-1.

Santa Clara River Valley Groundwater Basin, East Subbasin

The groundwater basin generally beneath the CLWA service area, identified in DWR Bulletin 118 as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin No. 4-4.07), is comprised of two aquifer systems, the Alluvium generally underlying the Santa Clara River and its several tributaries, and the Saugus Formation which underlies much of the entire Upper Santa Clara River area. The mapped extent of the Santa Clara River Valley East Subbasin in Bulletin 118, which is approximately the outer extent of the Alluvium and the Saugus Formation, and its

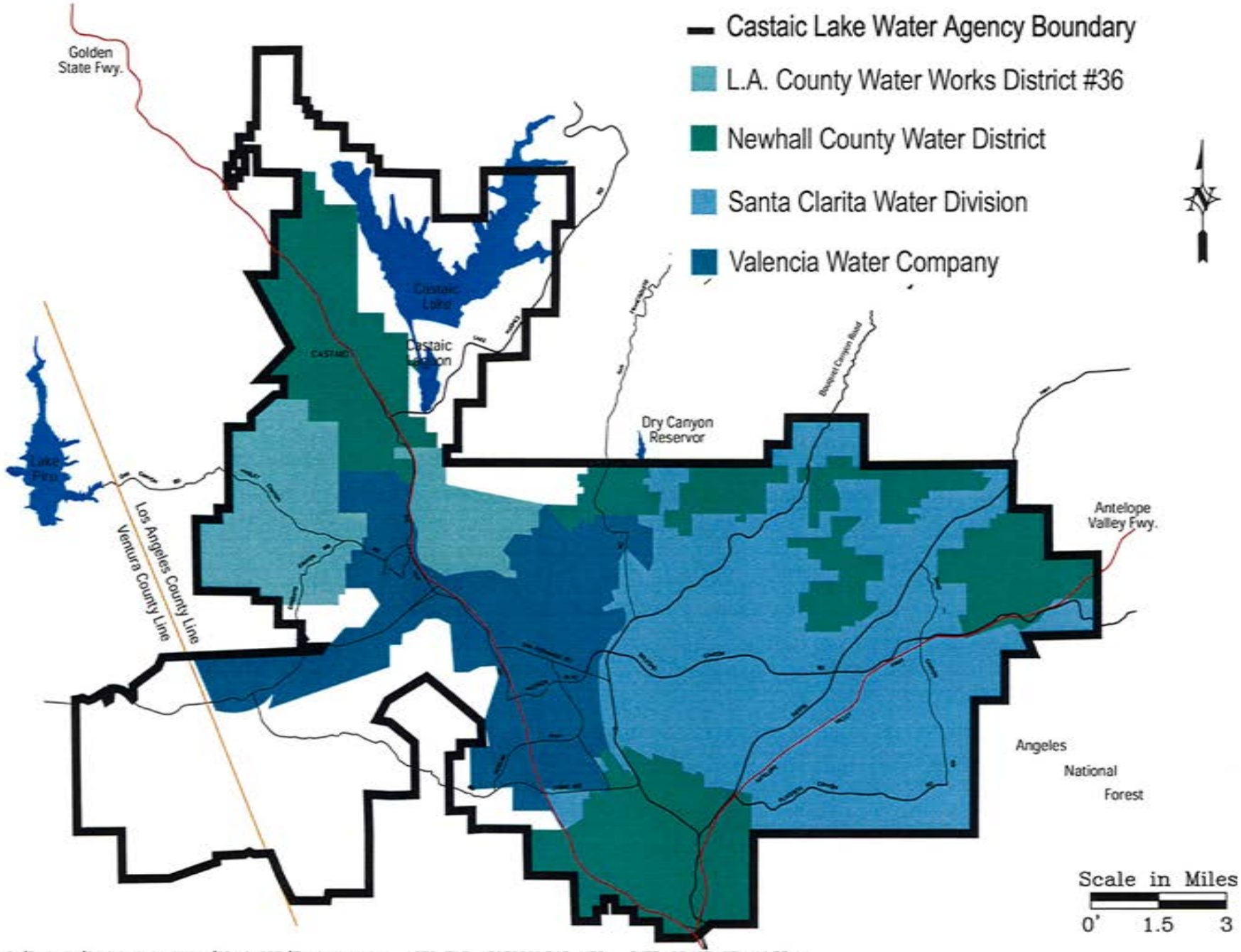

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Figure 1-1
CLWA and Purveyors' Service Areas

relationship to the extent of the CLWA service area are illustrated in Figure 1-2.

The two aquifer systems that comprise the groundwater basin are described in detail in this plan. For purposes of this plan, the groundwater basin is encompassed by the CLWA service area, and CLWA is the logical public water supply agency to prepare and implement a groundwater management plan for the Santa Clara River Valley East groundwater subbasin.

Overview of Water Requirements and Supplies

Historically, while development of local water supplies dates back at least 100 years, the earliest complete records of water use in the basin date from the late 1940's, when practically all water demand was for agricultural use. From that time through the early 1960's, agricultural water use, which was solely supplied by local groundwater, ranged from about 27,000 to about 42,000 acre-feet per year (afy). Over the succeeding three decades, agricultural water use progressively declined, into the range of about 8,000 to 10,000 afy, followed by a slight increase into the range of about 12,000 to 15,000 afy over the last ten years. Current projections are for agricultural water use to substantially decline, to about 7,000 afy, over the next 20 years.

Significant municipal water use in the basin did not begin until the early 1960's, when municipal uses, which were met exclusively at that time by local groundwater, were in the range of about 5,000 to 10,000 afy. By 1980, when supplemental surface water from the State Water Project (SWP) began to be imported to the basin, municipal water demands had increased to about 22,000 afy. Since then, municipal water demands have further increased, to their current level of about 61,000 afy, about 60 percent of which is supplied by SWP water, with the balance supplied by local groundwater. Current projections are for municipal water requirements to increase to about 106,000 afy over the next 20 years.

Historical and projected water requirements and supplies in the basin are discussed in more detail in Section IV of this Plan.

Water Code Section 10750 et. seq.

In 1992, the California State Legislature adopted Assembly Bill 3030 (AB 3030); that legislation was subsequently incorporated into the Water Code, Section 10750 et seq., to encourage local public agencies/water purveyors to adopt a formal plan to manage groundwater resources within

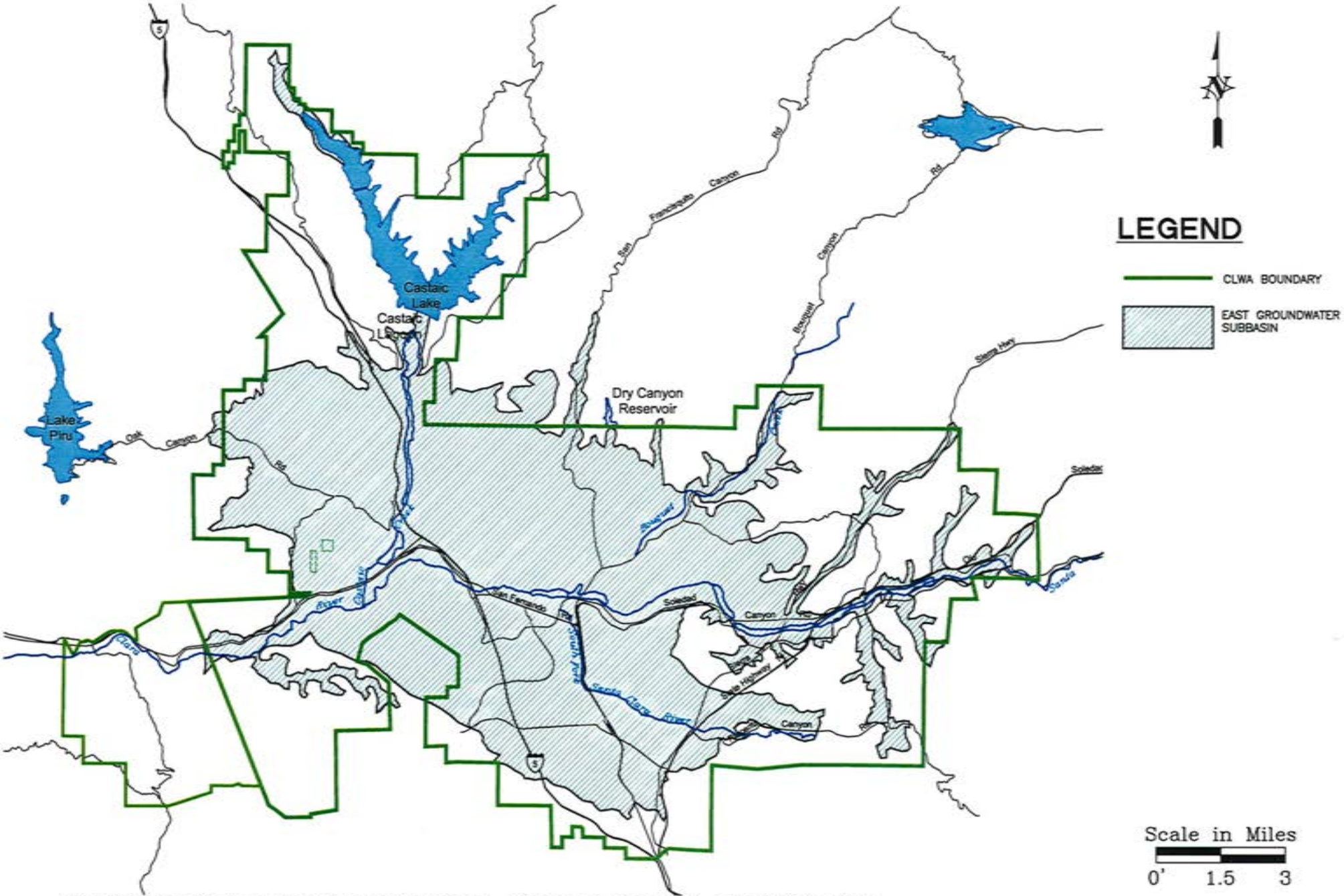

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Figure 1-2
Santa Clara River Valley
East Groundwater Subbasin

their jurisdictions. Within the scope of Water Code Section 10753.8, a local groundwater management plan can potentially include up to twelve specific components. Although the plan need not be restricted to those specific components, the listed components are quite broad and cover essentially all of the groundwater management elements which are part of this plan or are likely to be considered for implementation into this plan in the foreseeable future. To a considerable extent, a number of the groundwater management activities listed in Water Code Section 10753.8 have been implemented in the Santa Clara River Valley East groundwater subbasin as part of an organized effort by the local municipal water purveyors, including CLWA, to manage the groundwater basin within its sustainable yield for the benefit of local water supply, and also to integrate management of the basin with the management of surface and groundwater immediately downstream on the Santa Clara River, in this case specifically with United Water Conservation District in Ventura County, as discussed in more detail herein.

The potential components of a groundwater management plan listed in Water Code Section 10753.8 include:

- the control of saline water intrusion.
- identification and management of wellhead protection areas and recharge areas.
- regulation of the migration of contaminated groundwater.
- the administration of a well abandonment and well destruction program.
- mitigation of conditions of overdraft.
- replacement of groundwater extracted by water producers.
- monitoring of groundwater levels and storage.
- facilitating conjunctive use operations.
- identification of well construction policies.
- the construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.
- the development of relationships with state and federal regulatory agencies.
- the review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.

In 2002, the Legislature adopted Senate Bill 1938 (SB 1938) to amend and add to Water Code Section 10750 et seq. regarding the implementation of local groundwater management plans. While the provisions of SB 1938 did not alter the potential components of a local groundwater management plan, as listed above, it did add the following notable provisions:

- The local agency, in preparing a groundwater management plan, shall make available to the public a written statement describing how interested parties may participate in developing the plan; for purposes of carrying out the preceding requirement, the local agency may appoint, and consult with, a technical advisory committee consisting of interested parties. AB 134 actually anticipated this last item by requiring CLWA to form an Advisory Committee to review its Plan. The membership of the Advisory Committee was specified to consist of one representative from each retail water purveyor within CLWA and one representative from each groundwater producer within CLWA who pumped more than 100 acre-feet in the preceding water year (2000). In conformance with that requirement, CLWA formed an Advisory Committee consisting of representatives from the following organizations, who collectively fulfill the description of the membership specified in AB134:

    - CLWA Santa Clarita Water Division
    - Los Angeles County Sheriff's Department
    - Los Angeles County Waterworks District No. 36
    - Newhall County Water District
    - Newhall Land and Farming Company
    - Robinson Ranch
    - Valencia Water Company

- In order to qualify for funding assistance for groundwater projects or groundwater quality projects, for funds administered by DWR, a local agency must accomplish all the following relative to groundwater management:

    - prepare and implement, or participate in, or consent to be subject to, a groundwater management plan, a basin-wide management plan, or other integrated regional water management program or plan that meets the provisions listed below.

    - include groundwater management components that address monitoring and management of water levels, groundwater quality degradation, inelastic land subsidence, and changes in surface flows and quality that either affect groundwater or are affected by groundwater pumping.

- include provisions to cooperatively work with other public (and presumably private) entities whose service area or boundary overlies the groundwater basin.

- include mapping of the groundwater basin, as defined in DWR's Bulletin 118, and the boundaries of the local agency subject to the plan, plus the boundaries of other local agencies that overlie the basin.

- adopt monitoring protocols designed to detect changes in groundwater levels, groundwater quality, inelastic land subsidence (for basins where subsidence has been identified as a potential problem), and flow and quality of surface water that either directly affect groundwater, or are directly affected by groundwater pumping.

Of the potential groundwater management activities listed in Water Code Section 10753.8, those already being investigated and actively implemented as part of less formal groundwater management by the purveyors include avoidance of overdraft, implementation of conjunctive use, monitoring of groundwater levels and quality, initiation of groundwater contamination control, analysis of basin yield for ongoing avoidance of overdraft, and annual analysis and reporting on basin conditions. The historic focus of informal groundwater management in the Santa Clara River Valley East groundwater subbasin has been on water supply, quantity and quality, to avoid conditions of overdraft, primarily by augmenting local groundwater supplies with a supplemental, imported surface water supply from the State Water Project. More recently, efforts have been added to include ongoing monitoring and the compilation of data into a data management system that is integrated with a comparable database system for the downstream surface water resources and groundwater basins on the Santa Clara River. Recent efforts have also included initiation of a process to develop a numerical groundwater flow model of the basin for analysis of basin response to various water supply, recharge, and conjunctive use management alternatives that might be applicable for the basin. The potential groundwater management provisions not historically implemented have been those more focused on groundwater contamination; however, very recent activities have added this component to local groundwater management as a result of impacts on several municipal water supply wells from a former munitions manufacturing site in the basin, as discussed in more detail herein.

In summary, in many respects, the local municipal water purveyors, including CLWA, have

already begun developing and implementing important parts of a formal local groundwater management program as part of developing reliable water supplies for in-basin needs. To ensure the reliability of the groundwater component of water supplies to meet existing and projected demands, those parts of local groundwater management planning already include monitoring, formulation of a data base, and integration with the database for adjoining downstream basins, analysis of groundwater conditions and annual reporting on water conditions in the basin, initiation of groundwater flow modeling, ongoing conjunctive use of local groundwater and imported SWP supplies, and initiation of investigation and control of localized groundwater contamination. The groundwater management plan described herein can be envisioned as a formalization, and some expansion, of those ongoing management efforts in the Santa Clara River Valley East groundwater subbasin.

The balance of this plan is organized to first establish a set of management objectives, or goals, for the basin; to then describe existing groundwater basin conditions, including areas of concern and identified problems; to present historical and projected water demands in the basin; and to finally present a set of groundwater management actions which, in aggregate, are the elements of this groundwater management plan.

II. Management Objectives (Goals) for the Basin

Prior to 1980, all water supplies in the Upper Santa Clara River Area were developed from local groundwater. Since 1980, the major water purveyors within the CLWA service area have developed their water supplies from a combination of local groundwater and imported supplemental surface water from the State Water Project (SWP). CLWA is the state SWP Contractor which holds the contract for SWP water. CLWA also operates the treatment and distribution system for delivery of SWP water to the local purveyors. Some imported SWP water has historically been delivered for non-municipal uses although, in aggregate, total non-municipal uses have been almost negligible (less than one percent).

A relatively small fraction of water supply in the area is still devoted to agricultural and other irrigation, and essentially all of that remains developed from groundwater. Over the last two decades, that use has been in a range between about 10,000 and 17,000 acre-feet per year.

The development and importation of a supplemental surface water supply from the State Water Project represents the first of a number of water resource and water supply management actions, all of which are formalized in this plan, aimed at what can be considered to be the overall goals or objectives for the basin. In no priority, those management objectives for the basin can be expressed as follows:

1. Development of an integrated surface water, groundwater, and recycled water supply to meet existing and projected demands for municipal, agricultural, and other water supply; since pumpage for other uses is from the same aquifer system, this objective includes agricultural, small community, non-agricultural irrigation, and individual domestic uses.

2. Assessment of groundwater basin conditions to determine a range of operational yield values that will make use of local groundwater conjunctively with SWP and recycled water to avoid groundwater overdraft and the undesirable effects associated with it. In effect, this objective equates to more detailed quantification of the yield of the basin in order to continue to avoid overdraft, consistent with what has historically been the case in the basin. In addition to avoiding the traditional overdraft symptoms

and effects, e.g. chronic water level decline, loss of groundwater storage, onset of land subsidence, groundwater quality degradation, a corresponding basin objective is to manage groundwater levels and associated groundwater discharge to the Santa Clara River at the west end of the basin, and thus not adversely impact surface and groundwater discharges to the downstream basin(s).

3. Preservation of groundwater quality for beneficial use in the basin, and for beneficial use of surface water and groundwater discharges from the basin. Included in this management goal will be the active characterization and solution of any groundwater contamination problems, through cooperation with responsible parties or through independent action if timely action by responsible parties is not forthcoming and the preceding management objectives are thereby impacted or constrained.

4. Preservation of interrelated surface water resources. Included in this management goal will be the maintenance of appropriate surface water flows and non-degradation of surface water quality as a result of managing groundwater conditions to meet the other management goals for the basin.

Quantitatively, the preceding goals translate into general preservation of groundwater levels and quality in the Alluvial aquifer system consistent with the last 30 years, including fluctuations through seasonal demands and local hydrologic variations (wet and dry periods). As discussed in more detail in the next chapter, the hydrogeologic setting in the area has resulted in smaller Alluvial groundwater level fluctuations toward the western half of the basin (generally west of Bouquet Canyon), and larger fluctuations to the east. However, largely due in part to the importation of supplemental surface water over the last 20 years, and the integrated or conjunctive use of that supplemental water with local groundwater, there has been no chronic decline in groundwater levels or storage. A continuation of such basin conditions, possibly complemented by management actions to decrease the historical water level fluctuations in the eastern part of the basin, will accomplish the second basin objective (continued avoidance of overdraft as has been the ongoing historical condition in the basin) while continuing to utilize local groundwater to meet part of projected water requirements. Corresponding management actions to sustain recharge and not overdraft groundwater storage will accomplish the third basin objective by replenishing the aquifer system with sufficient water to sustain what has been generally consistent quality of groundwater on a long-term basis.

In general, the same goals of preservation of groundwater levels and quality pertain to the Saugus Formation as well as to the Alluvium. However, while those goals are generally expected to equate to Alluvial pumping rates comparable to recent historical pumping, the Saugus Formation may be intermittently utilized at higher than historical pumping rates for dry-period and/or emergency water supply. Interpretation of historical pumping fluctuations and corresponding aquifer response suggests that such intermittent utilization of a small fraction of the Saugus' large storage capacity can successfully contribute to a firming of local water supplies while still accomplishing all the management objectives listed above, primarily via reduction in Saugus pumping during wet-normal conditions, possibly complemented by management actions to accelerate recharge of the Saugus.

III. Groundwater Basin Conditions

Occurrence of Groundwater

Groundwater in the Santa Clara River Valley East groundwater subbasin occurs in two aquifer systems, the Alluvium associated with the Santa Clara River and its tributaries, and the Saugus Formation. There are also some scattered outcrops of Terrace deposits in the basin that likely have the capacity to contain limited amounts of groundwater; however, since these deposits are located in limited areas that are situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers and have consequently not been developed for water supply.

The Alluvial aquifer system, of Quaternary to Holocene (Recent) geologic age, consists primarily of stream channel and flood plain deposits of the Santa Clara River and its tributaries. The Alluvium is deepest along the center of the present river channel, with a maximum thickness of about 200 feet near the area known as Saugus. It thins toward the flanks of the adjoining hills and toward the eastern and western boundaries of the basin and, in the tributaries, becomes a mere veneer in their upper reaches. The spatial extent of the Alluvium throughout the basin is illustrated in Figure 3-1.

The Alluvium is the most permeable of the local aquifer units. Based on well yields and aquifer testing, transmissivity values in the range of 50,000 to 500,000 gallons per day per foot (gpd/ft) have been reported for the Alluvium, with the higher values where the Alluvium is thickest in the center of the valley and generally west of Bouquet Canyon (Slade 1986 and 2002). The amount of groundwater in storage can vary considerably because of the effects of recharge, discharge and pumping from the aquifer. The maximum storage capacity of the Alluvium has been estimated to be about 240,000 acre-feet (af) (Slade, 1986 and 2002).

The Saugus Formation, of Pliocene to Pleistocene geologic age, has traditionally been divided into two stratigraphic units: the lowermost, geologically older Sunshine Ranch member, which is of mixed marine to terrestrial (non-marine) origin; and the overlying, or upper, portion of the Formation which is entirely terrestrial in origin. The Sunshine Ranch Member of the Saugus Formation has a maximum thickness of about 3,000 to 3,500 feet in the central part of the valley;

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however, due to its marine origin and fine-grained nature, it is not considered to be a viable source of groundwater for municipal or other comparable supply. Above the Sunshine Ranch Member, the Saugus Formation is coarser grained, consisting mainly of lenticular beds of sandstone and conglomerate that are interbedded with lesser amounts of sandy mudstone, which were deposited in stream channels, flood plains, and alluvial fans by one or more ancestral drainage systems in the valley. The sand and gravel units that represent aquifer materials in the upper part of the Saugus Formation are generally located between depths of about 300 and 2,500 feet. The spatial extent of the Saugus Formation throughout the basin is illustrated in Figure 3-1.

While much thicker and more spatially extensive throughout the basin when compared to the Alluvium, and while significant in terms of groundwater storage and individual well capacity, the Saugus Formation has typically lower values of transmissivity, in the range of 80,000 to 160,000 gpd/ft, with the higher values in the upper portions of the Formation (Slade, 1988 and 2002). The storage capacity of the Saugus has most recently been estimated to be 1.65 million acre-feet between depths of 300 feet and 2,500 feet (or the base of the Saugus or the base of fresh water if shallower than 2,500 ft.) (Slade, 2002).

Historical Groundwater Development

Of the two aquifer systems in the basin, the predominant development of groundwater for agricultural and municipal water supply has historically been from the Alluvium, a condition that remains the case at present. Prior to 1980, all water supply in the valley was developed from local groundwater; since 1980, local groundwater has been supplemented by imported surface water from the State Water Project. Details of historical water requirements, and water supplies to meet those requirements, are discussed and illustrated in Chapter IV of this Plan.

In general, over the last two decades, since the inception of SWP deliveries in 1980, total pumpage from the Alluvium has ranged from a low of about 20,000 afy (in 1983) to slightly more than 43,000 afy (in 1999). For comparison, agricultural pumpage from the Alluvium throughout the 1950's was consistently in the range of about 33,000 to 41,000 afy. During that same time, municipal pumpage was quite small, less than 4,000 afy. Overall, over the last two decades, there has been a change in municipal/agricultural pumping distribution, toward a slightly higher fraction for municipal water supply (from about 50% to nearly 60% of alluvial pumpage) which is indicative of the general land use changes in the area.

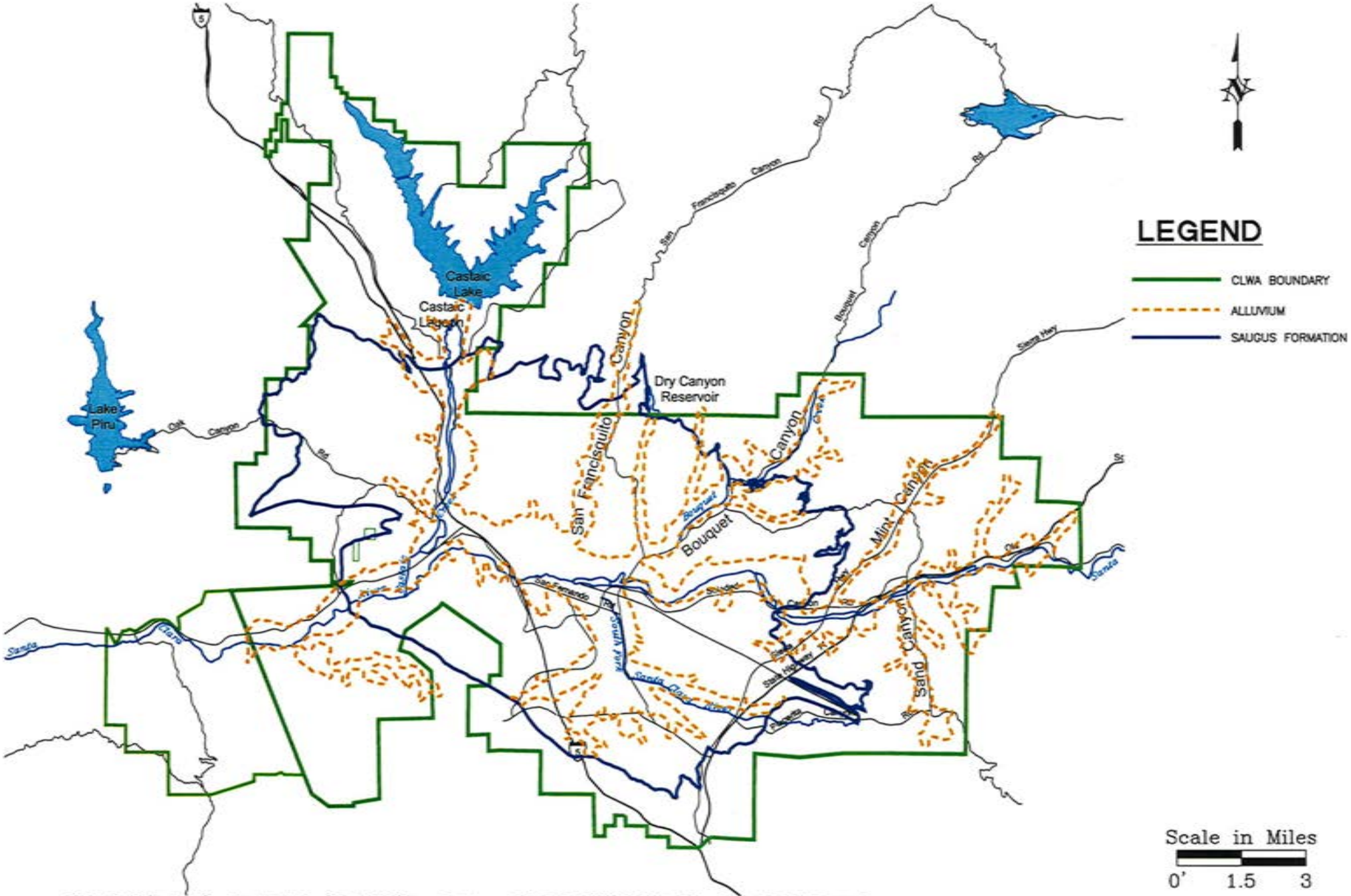

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Figure 3-1
Alluvial and Saugus Formations
Santa Clara River Valley East Groundwater Subbasin

Since 1980, total pumpage from the Saugus Formation has ranged between about 3,850 afy and nearly 15,000 afy; average pumpage over that period has been about 6,900 afy. The great majority of pumpage from the Saugus is for municipal supply (nearly 6,300 afy, or 92 percent, on average). For comparison, although historical Saugus pumping records prior to 1980 are limited, there appears to have been essentially no pumping from the Saugus prior to 1960 (on the order of about 100 af in most years, beginning in 1948), and some increased pumping for agricultural water supply beginning in about 1962 (about 900 af). The largest amount of agricultural pumping from the Saugus was during the mid-1960's, when annual Saugus pumpage was about 3,000 af. Agricultural pumping from the Saugus declined to near zero by the late 1970's, but has been generally in the 500 to 1,000 afy range since 1982. There was no Saugus pumpage for municipal supply in the early 1960's; limited data suggests that municipal pumping from the Saugus began in the 1970's, and reached nearly 5,000 afy by 1980-81. The most significant period of Saugus pumpage was 1991 through 1994, when pumpage ranged from 10,600 afy to nearly 15,000 afy and averaged over 12,000 afy, during which time SWP water deliveries were reduced at the end of extended drought conditions.

Groundwater Monitoring Network and Program

There is no formal groundwater monitoring network of wells for groundwater level measurements and/or groundwater quality sampling in the basin. Consequently, one component of this Plan is to formalize both a network of wells for groundwater monitoring and a program for water level measurements, water quality sampling, and other pertinent groundwater data collection (Primary Plan Element 1). Despite the lack of an existing formal groundwater monitoring network and program, however, there is a significant amount of historical groundwater data, some of which dates back into the 1940's, on which to base reasonable assessments of groundwater conditions in the basin. For example, groundwater level measurements have been made over varying periods of record in a total of 154 wells, mostly alluvial wells, throughout the basin. Similarly, groundwater quality data, consisting of varying numbers of constituents analyzed, are available from some wells, but a much smaller number than is the case for groundwater level data. These data, along with direct measurements or indirect estimates of pumpage, primarily from high capacity municipal and agricultural wells, allow for analysis of groundwater basin conditions, as discussed in this Plan, and also provide the bases on which a groundwater model can be developed (Primary Plan Element 3) and on which various management criteria such as operational yield, baseline groundwater quality, etc. can be determined (Primary Plan Elements 3, 6, etc.).

Groundwater Levels and Storage

Groundwater level data in various parts of the basin illustrate basin response to the historical pumpage from the Alluvium. Organized into hydrograph form (depth to groundwater or groundwater elevation vs. time), historical groundwater levels were lower in the 1950's and 60's than current levels in the middle to western part of the basin, logically in response to the higher pumpage of the 1950's before the importation of SWP water and the associated increase in return flows to the river that have augmented groundwater recharge in that part of the basin. Groundwater levels in those areas notably recovered as pumpage declined through the 1960's and 1970's. They have subsequently sustained generally high levels for much of the last 30 years, with two dry-period exceptions: mid-1970's and late 1980's - early 1990's; recoveries to previous high groundwater levels have followed both of those dry-period declines. Based on this data, there is no evidence of any historic or recent trend toward permanent water level or storage decline. In general, throughout the Alluvium, groundwater levels have been generally higher over the last 30 years than was consistently the case for the preceding 20 years (1950's - 60's).

During the last 20 to 30 years, in essentially all the alluvial portions of the basin, groundwater levels have fluctuated from near the ground surface when the basin is full, to as much as 100 feet lower during intermittent dry periods of reduced recharge. Selected hydrographs of groundwater elevations illustrate the above described conditions throughout the basin. Figure 3-2 illustrates groundwater level conditions and trends at multiple locations in the Alluvium along the main channel of the Santa Clara River, from east near the mouth of Sand Canyon, to the area between Mint Canyon and Bouquet Canyon, to farther west immediately below the mouth of Bouquet Canyon. Similar long-term conditions are evident in the tributary canyons.

A comment about some of the groundwater fluctuations illustrated in Figure 3-2 is appropriate since they are illustrative of the most substantial intermittent changes in the basin. As noted above, the Alluvium has historically experienced a number of alternating wet and dry hydrologic conditions as illustrated in Figure 3-2. Since the Alluvium is thinner to the east, the fluctuations in water levels of 75 to 100 feet impact well yields and pumping capacities when water levels are occasionally lower. When that occurs, as is currently the case due to locally dry hydrologic conditions, the affected purveyors shift a portion of their water demands to imported SWP water, thus reducing pumpage and reducing drawdown of water levels. Recovery of groundwater levels

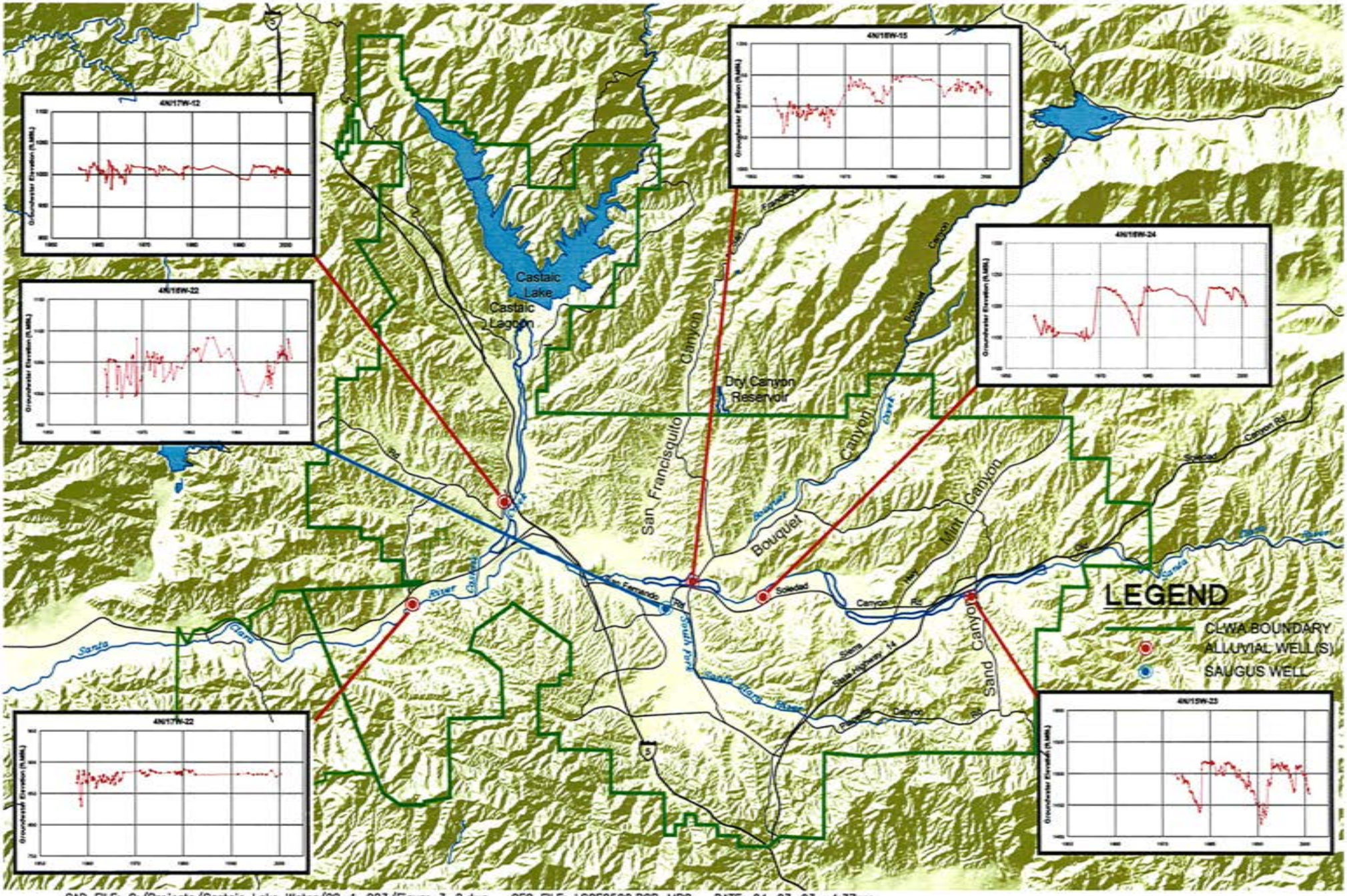

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Figure 3-2
Historical Groundwater Elevations
Santa Clara River Valley East Groundwater Subbasin

and storage occurs upon a return of stream flow to contribute to natural recharge.

Depending on the period of available data, all the hydrographs of alluvial groundwater levels show the same general picture: recent (last 30 years) groundwater levels are generally higher than over the preceding 20 years. In some locations, there are intermittent dry-period declines (and an associated use of some groundwater from storage) followed by wet-period recoveries (and associated refilling of storage space). On a long-term basis, whether over the last 20 years since the inception of conjunctive use via importation of SWP water, or over the last 40 to 50 years, the Alluvium shows no signs of water level-related overdraft, i.e., no trend toward decreasing groundwater levels and storage, a condition that is intended to be maintained via implementation of this Plan, e.g. via Primary Plan Elements 3 and 5.

Unlike the Alluvium, there are limited Saugus water level data; however, the limited data indicate that, although there have been seasonal water level changes in response to pumpage, the long-term trend in the Saugus (over the last 35 to 40 years) has been one of relative groundwater level stability (see, for example, Figure 3-2). There is no trend toward a sustained decline in Saugus water levels or storage that would be indicative of overdraft.

Land subsidence as a result of groundwater extractions is a concern in a number of groundwater basins in California. The potential for land subsidence caused by groundwater extractions derives from a combination of the geologic makeup of the aquifer materials and the history of groundwater level fluctuations. In the Santa Clara Valley East Subbasin, the most notable groundwater level fluctuations have occurred in the Alluvium to the east of Bouquet Canyon, with the greatest fluctuations (up to nearly 100 feet) recorded in the vicinity of Sand Canyon. Fortunately, those fluctuations have been intermittent, and have varied directly with local wet and dry conditions. From a subsidence perspective, they have also fluctuated in an unconfined aquifer that is comprised of essentially all coarse-grained material. The lack of any significant fine-grained material in the aquifer where groundwater levels have fluctuated results in two notable local conditions in regards to subsidence: there is no recorded historical subsidence or indirect evidence of its occurrence, i.e. subsidence-related impacts on surface structures, drainage facilities, etc.; and there is minimal potential for inelastic subsidence to occur in response to ongoing groundwater level fluctuations in the Alluvium.

The Saugus Formation contains a greater fraction of fine-grained material interbedded with the coarser aquifer materials that yield water to wells. Consequently, the Saugus has a greater

potential to undergo consolidation, with attenuant subsidence impacts at the ground surface, if groundwater levels are substantially lowered for long time periods. Historical Saugus pumping has not caused such conditions to occur. Current water supply planning, as described in this Plan, is to rely on the Saugus Formation for a relatively small component of water supply on an ongoing basis, with intermittent increased pumping during dry periods.

The long-term objective for groundwater management, as described in this Plan, is to not overdraft either the Alluvium or the Saugus, i.e. to not chronically lower groundwater levels. Satisfaction of the latter objective will have the correlative impact of minimizing the potential for inelastic land subsidence attributable to pumping from the Saugus Formation; combined with the lack of fine-grained material in the Alluvium, satisfaction of that objective will also have the correlative impact of ensuring the improbability of any subsidence attributable to pumping from that aquifer.

Groundwater Quality

Groundwater quality is, or course, a key factor in assessing both the Alluvial aquifer and the Saugus Formation as municipal and agricultural water supplies. At present, however, there is no convenient long-term record of water quality, i.e. water quality data in one or more wells that span several decades and continue to the present. Thus, in order to examine a long-term record of water quality in the Alluvium, an integration of individual records from several wells, completed in the same aquifer materials and in close proximity to each other, can be used to generally show long-term trends in groundwater quality. Figure 3-3 illustrates groundwater quality conditions and trends at multiple locations in the Alluvium along the main channel of the Santa Clara River from the area near the mouth of Mint Canyon, to areas immediately above and near the mouth of Bouquet Canyon, to the area below San Francisquito Canyon. Based on these records of groundwater quality, there have been historical fluctuations in concentrations of total dissolved solids (TDS), as well as corresponding fluctuations of individual constituents of TDS. In general, however, and similar to groundwater levels, there has been no long-term trend toward groundwater quality degradation.

Groundwater quality variations are common throughout the Alluvium and generally correlate inversely with precipitation and stream flow: wet periods have produced substantial recharge of higher quality (low TDS) water and dry periods have resulted in the notable declines in water levels described above, with a corresponding increase in TDS (and individual component

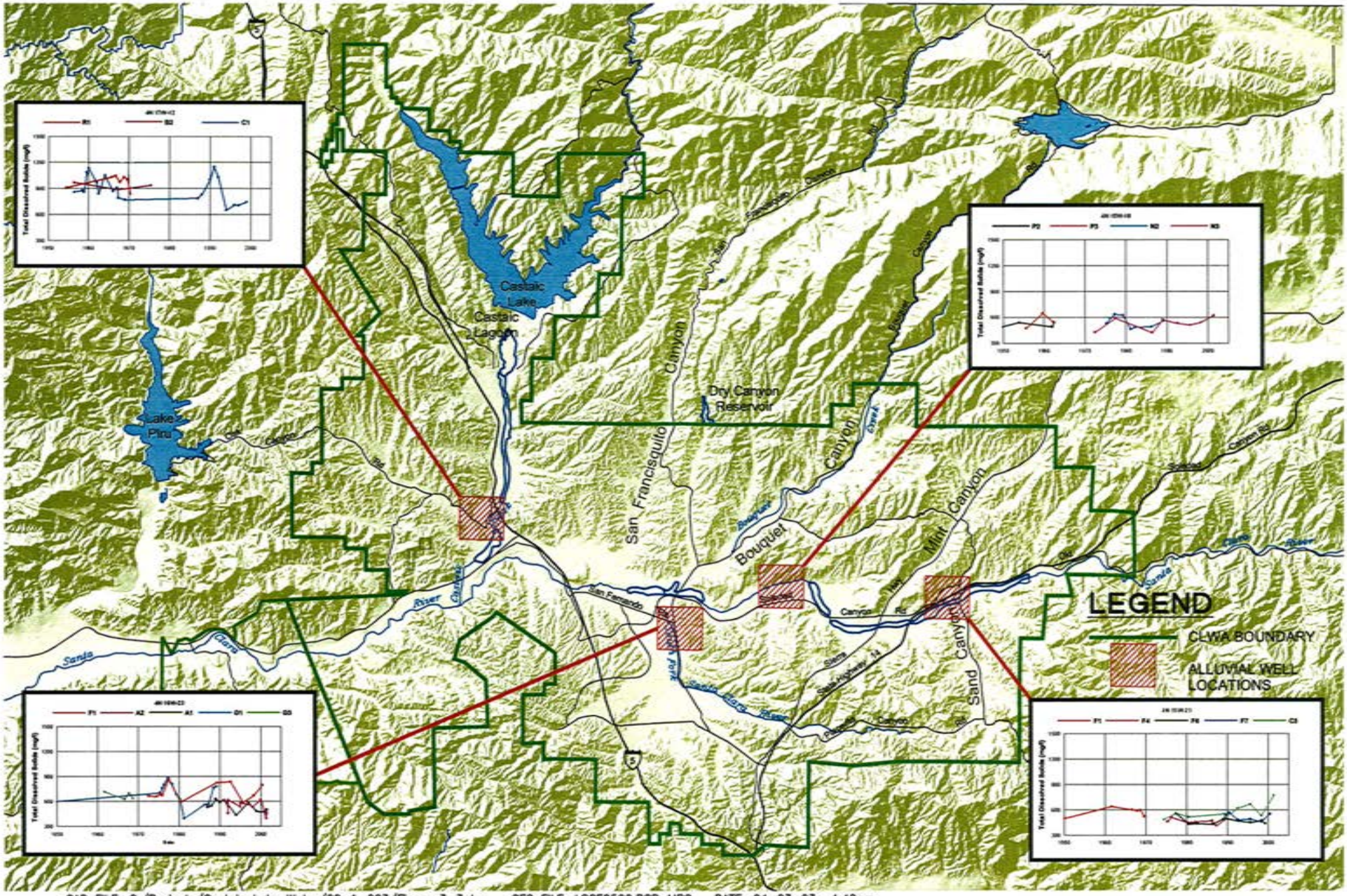

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Figure 3-3
Historical Groundwater Quality by Section
Santa Clara River Valley East Groundwater Subbasin

constituents) in the deeper parts of the Alluvium.

Due to a much more limited number of wells and the limited spatial extent of groundwater development in the Saugus Formation, long-term Saugus groundwater quality data are not sufficiently extensive to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. Based on the most complete historical record, over the last 35 years, however, groundwater quality in the Saugus has remained generally constant. The Saugus Formation is, on a groundwater quality basis, a viable agricultural and municipal water supply.

The most notable groundwater quality issue in the basin centers around the detection and impact of perchlorate on several Saugus wells and one Alluvial well in the central part of the basin near the location of the former Whittaker Bermite facility, which is immediately southeast of the confluence of the main Santa Clara River and its South Fork tributary. In 1997, routine water quality sampling detected the presence of perchlorate in four municipal wells completed in the Saugus Formation (CLWA Santa Clarita Water Division Saugus Wells 1 and 2, Newhall County Water District Well 11, and Valencia Water Company Well 157). While there remains no primary or secondary drinking water standard for perchlorate, and although only some of the detected concentrations of perchlorate in the Saugus wells exceeded the Action Level established by the State Department of Health Services at that time (18 ug/l), all those wells were inactivated by their respective owners after detection of perchlorate; those wells remain out of municipal water supply service since then.

More recently, in late 2002, routine water quality sampling of Alluvial wells detected perchlorate in one of them (CLWA Santa Clarita Water Division Stadium Well) at a concentration which slightly exceeds the current Action Level (4 ug/l). This well has also been voluntarily inactivated, and remains removed from municipal water supply service.

This Plan, notably through Primary Plan Elements 1, 6 and 8, is intended to incorporate both short-term and long-term groundwater quality considerations in the management of the groundwater basin in order to formalize groundwater quality monitoring and assessment, to investigate and correct groundwater contamination problems, and to preserve or improve groundwater quality for ongoing water supply as well as for avoiding adverse water quality impacts on interconnected surface waters.

Areas of Concern and Identified Problems

A number of concerns have been expressed about groundwater conditions in the basin. While not all of the expressed concerns have been substantiated, they are listed and briefly discussed here, and they are addressed in the management objectives for the basin, intended to be achieved via implementation of the various primary and secondary elements in this Plan.

At present, the most notable concern in the basin is the impact of perchlorate contamination on a number of municipal water supply wells, thus affecting the available pumping capacity from some municipal wells. While perchlorate impacts on a few wells do not preclude the ability to pump groundwater in accordance with existing water supply plans, activities to characterize the contamination, and ultimately to control it and treat it, have been initiated in order to return the impacted wells' pumping capacity to water supply service. Primary Element 8 is included in this Plan to formalize the addressing of groundwater contamination issues in the basin.

Concern has also been expressed that groundwater development in the basin will adversely impact the quantity and/or quality of surface flows leaving the basin via the Santa Clara River. Such concern extends to the potential impact on groundwater in the next downstream basin, the Piru Basin in Ventura County. While there are no established provisions regarding surface flows out of the Santa Clara River Valley East subbasin, Primary Element 2 is included in this Plan to formally address the monitoring and management of surface water flows and quality within, and flowing out of, the basin. Some work is already ongoing related to this area of concern via a Memorandum of Understanding (MOU) among CLWA, other retail water purveyors within CLWA's service area, and United Water Conservation District, which manages surface water and groundwater in the downstream basins on the Santa Clara River in Ventura County. That cooperative effort, which is incorporated into this Plan via Primary Element 9, includes integration of databases, development of a numerical groundwater flow model, and interpretation and reporting on surface water and groundwater conditions.

A third expressed concern in the basin, is that groundwater is already overdrafted. Associated with that expressed concern is a related issue that reliance on overdrafted groundwater results in an overstated water supply in the basin. As discussed earlier in this section, long-term groundwater levels, storage, and quality all indicate the basin is in balance (i.e., no overdraft exists). As also discussed above, the importation of supplemental surface water over the last 23 years, and the associated initiation of conjunctive use operations have directly resulted in an

overall adequacy of water supplies while sustaining an undepleted groundwater supply. Primary Elements 3, 4 and 5 are key parts of this Plan to more formally quantify the yield of the groundwater basin, and to continue to meet overall water requirements via continuation of conjunctive use of local groundwater with imported supplemental surface water, ultimately complemented by integration of recycled water for non-potable water supply (Primary Element 7).

Finally with regard to areas of concern in the basin, the historically larger fluctuations in the eastern part of the basin have been highlighted for their impacts on private wells in that area. Some focused study has been done to address whether certain pumping directly affects private wells in Sand Canyon; its conclusions were that such direct effects were not occurring. Subsequently, a nearby development contracted for delivery of up to 120 acre-feet of imported SWP water from CLWA in order to reduce its use of groundwater for domestic and irrigation water supply. Primary Element 1 is partly intended to acquire site-specific data regarding private wells, their locations, the aquifers in which they are completed, their yields and pumping capacities as well as their quality, and their water level records. Primary Element 3 is partly intended to analyze such data in order to assess whether local aquifer depletion is occurring and, if so, what remedy is appropriate.

IV. Historical and Projected Water Requirements and Supplies

Historical Water Requirements

The initial development of water supplies in the Santa Clarita area began in the 1800's for irrigation on the San Francisquito Ranch after its purchase by Henry Mayo Newhall. While there are some records in the form of waterworks drawings that show early diversion and distribution facilities on the ranch in 1911 and some mapping of well locations in the 1930's, the earliest complete records of water use date from shortly after the end of World War II. From 1947 through the mid 1960's, groundwater pumping for agriculture ranged from about 27,000 to about 42,000 acre-feet per year (afy). For most of the same period, until 1960, there are no detailed records of water use for municipal supply. The first records of municipal water use begin in 1960, when municipal water requirements were about 5,000 afy; by the mid-1960's, municipal water requirements had increased to about 10,000 afy. Throughout that time, all municipal water supply was from local groundwater.

From the mid-1960's through about 1980, groundwater pumping for agricultural water supply declined into the range of about 10,000 to 15,000 afy. In the late 1980's through the early 1990's, agricultural groundwater pumping further declined into the range of about 8,000 to 10,000 afy; over about the last ten years, agricultural water requirements, which continue to be fully met by local groundwater pumping, have been in the range of about 12,000 to 15,000 afy. The history and trends of agricultural water use in the basin are illustrated in Figure 4-1.

Detailed records of municipal water use are not available from the mid-1960's through 1980, when imported surface water was first used in the basin for municipal water supply. However, the available municipal water use data at the beginning and at the end of that period, combined with estimated declining agricultural water use for the same period, suggest there was a generally steady increase in municipal water use from about 11,000 af in 1966 to about 22,000 af in 1980. Since then, municipal water use has increased to about 68,000 afy. With the addition of imported surface water from the State Water Project beginning in 1980, however, groundwater pumping for municipal supply declined in the early 1980's. Throughout the 1990's, municipal

pumping fluctuated between about 27,000 and 32,000 afy. The history and trend of municipal groundwater use in the basin are illustrated in Figure 4-1.

As noted above, until 1980, all water supply in the basin was from local groundwater. Imported surface water was first available from the State Water Project (SWP) in 1980, when a total of 1,125 af were imported into the basin. Since then, importations of SWP water have increased in two separate steady trends, interrupted by a notable decrease at the end of, and following, the 1987-1992 drought period: a steady increase beginning in 1980, to about 21,600 afy in each of 1989 and 1990, followed by a substantial decrease, to less than 8,000 af in 1991, and then a steady increase back to about 21,000 afy in 1997 and 1998, followed by further increases to nearly 42,000 af in 2002. The history and trends in importation of SWP water to the basin are illustrated in Figure 4-2, which also illustrates the historical trends in groundwater pumping and total water use in the basin since the importation of SWP water.

In the context of this groundwater management plan, the historical utilization of imported SWP water to augment local groundwater represents the initiation of conjunctive use of surface water and groundwater supplies, a groundwater management principle which is intended to be continued via adoption of Primary Element 5 of this plan.

Projected Water Requirements

Detailed projections of municipal water requirements were most recently completed as part of the Urban Water Management Plan prepared by CLWA and the municipal water purveyors (Newhall County Water District, Santa Clarita Water Company, and Valencia Water Company) in 2000. Those projections, which are forecast for a 20-year period, also recognize an ongoing but decreasing agricultural water demand over the same period, from about 15,000 afy in 2005 to about 7,000 afy by 2020. The municipal water demand projections in the Urban Water Management Plan are derived from utilization and interpretation of multiple projection methods, including per-capita water-use applied to population projections; extrapolation of number of service connections (using two different projection techniques, an average rate and an accelerated rate projection) applied to the rate of service connection additions since 1990; and land use projections combined with unit water use factors on multiple land use categories (urban, including residential, commercial, industrial and recreational; irrigated agricultural; and vacant and open space). The water demand projections in the Urban Water Management Plan also consider weather effects (variations due to hot-dry years vs. cool-wet years) and conservation

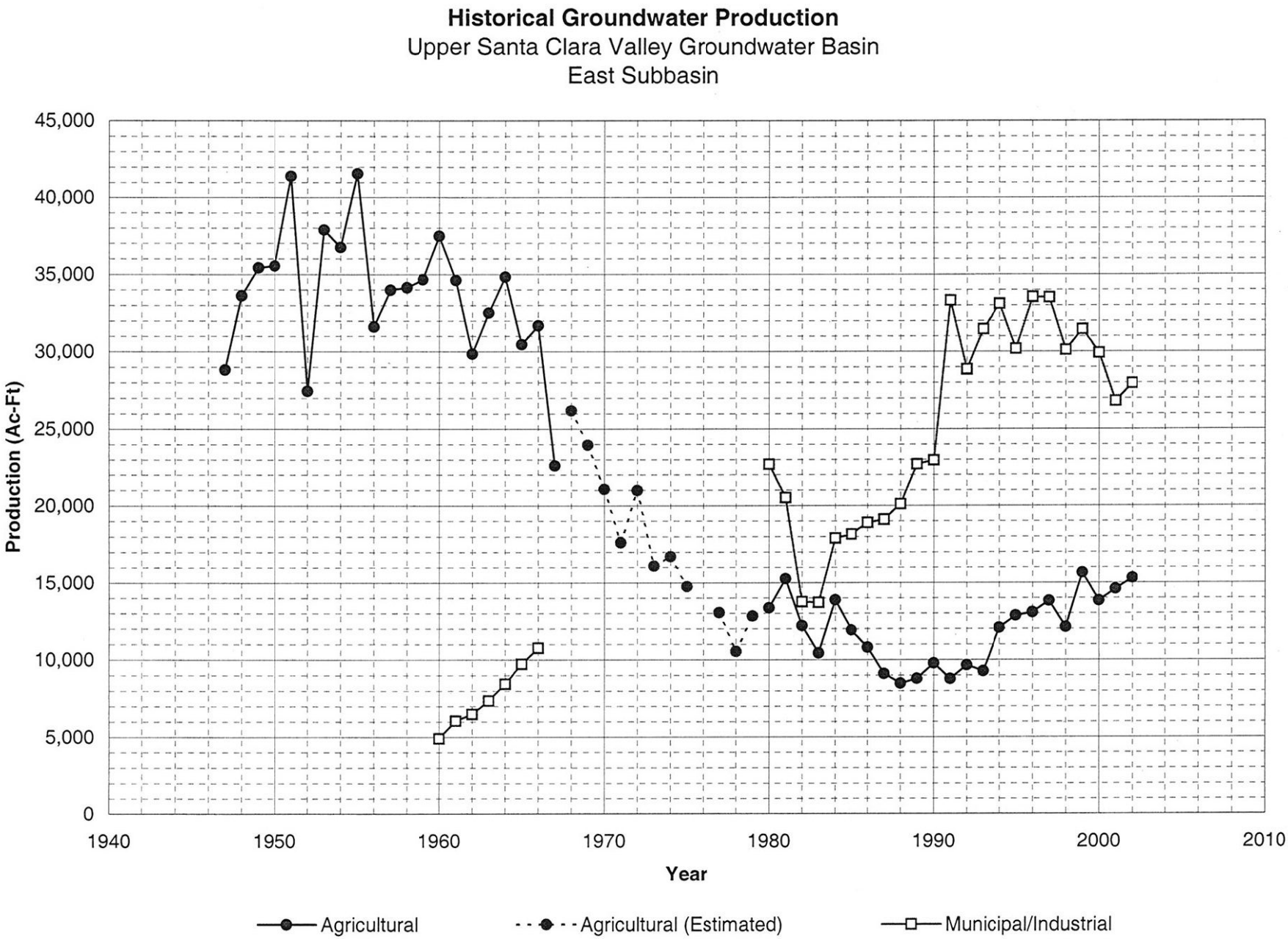
Historical Groundwater Production
Upper Santa Clara Valley Groundwater Basin
East Subbasin
Production (Ac-Ft)
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1940
1950
1960
1970
1980
1990
2000
2010
Year
Agricultural
Agricultural (Estimated)
Municipal/Industrial

Figure 4-1

effects on water usage.

The net result of application and interpretation of the various water demand projection methods in the 2000 Urban Water Management Plan is summarized in Figure 4-2, which reflects projected urban and agricultural water demand through 2020, absent potential increased conservation savings, which are estimated to be ten percent of urban water demand. Numerically, urban water use without increased conservation savings is projected to increase to nearly 67,000 afy by 2005, and then continue to increase to 106,000 afy by 2020. As noted above, agricultural water use over the same period is projected to decrease to 15,000 afy by 2005, followed by an ongoing decrease to 7,100 afy by 2020. In addition to the graphical presentation of projected water demands in the basin through 2020 in Figure 4-2, projected water demands are tabulated, both with and without potential increased conservation savings, in Table 4-1.

Table 4-1
Projected Normal/Average Year Water Demands
(acre-feet per year)

	2005	**2010**	**2015**	**2020**
Urban Agriculture	66,600 15,100	77,700 12,400	90,900 9,800	106,000 7,100
Total Projected Demand	**81,700**	**90,100**	**100,700**	**113,100**
Increased Conservation Savings	6,600	7,700	9,100	10,600
Total Projected Demand *(with increased conservation)*	**75,100**	**82,400**	**91,600**	**102,500**

Existing and Projected Water Supplies

As noted above, existing water supplies to meet current water demands are comprised of local groundwater and imported SWP surface water. In 2001, for example, to meet a total water demand of nearly 76,800 af, local groundwater pumping amounted to 41,400 af (about 54% of total demand) and imported SWP water amounted to 35,400 af (about 46% of total demand).

Water supplies to meet projected water demands are expected to continue to be primarily a combination of local groundwater and imported SWP surface water, augmented by local recycled

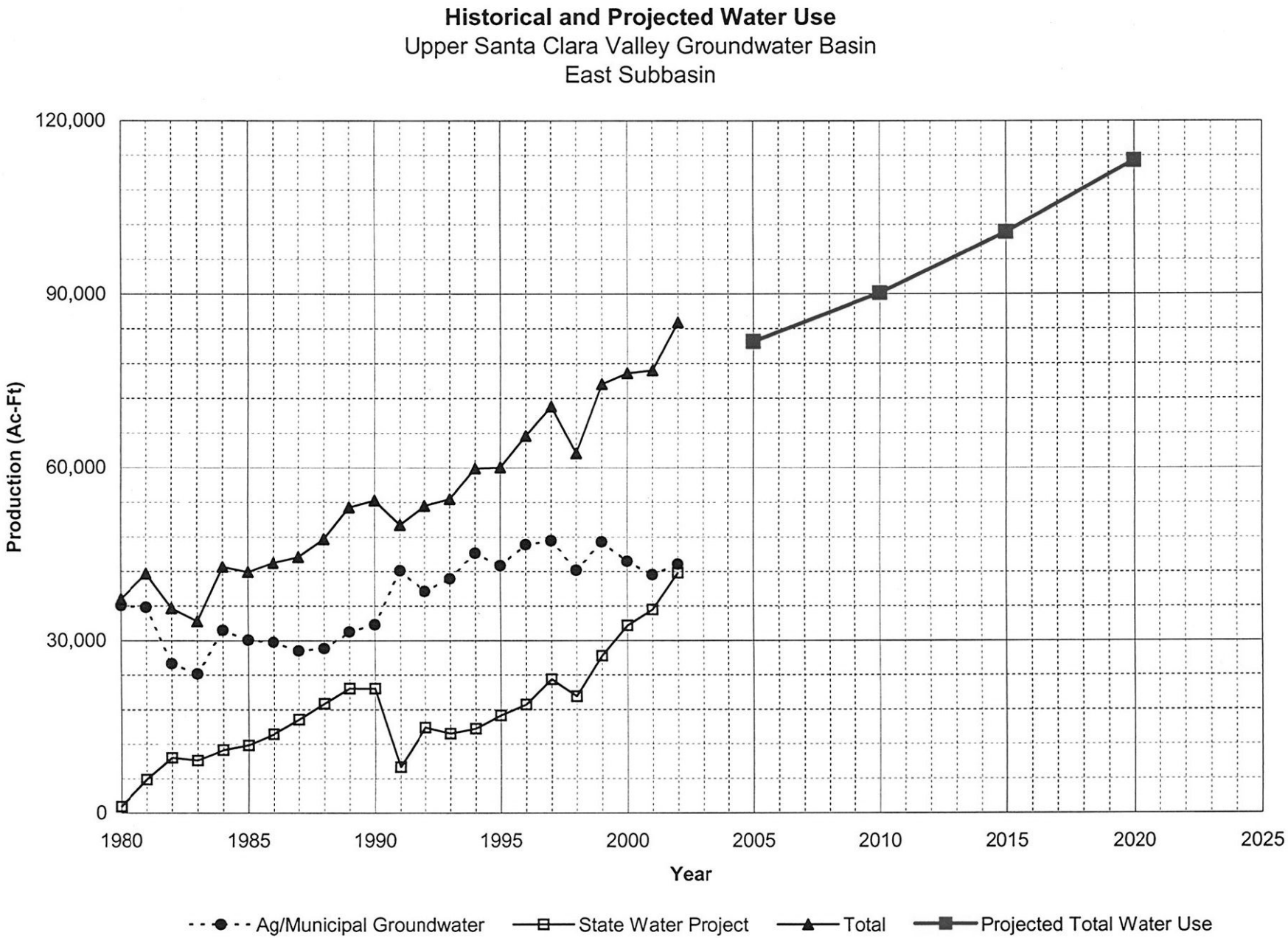
Historical and Projected Water Use
Upper Santa Clara Valley Groundwater Basin
East Subbasin
120,000
90,000
60,000
30,000
0
Production (Ac-Ft)
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
Year
Ag/Municipal Groundwater
State Water Project
Total
Projected Total Water Use

Figure 4-2

water and possibly some water supply derived from water transfers and desalination outside the basin.

Local Groundwater - Local groundwater has historically been developed from the two aquifers that comprise the groundwater basin, the Alluvium that underlies the Santa Clara River and its tributaries, and the Saugus Formation that underlies much of the CLWA service area. Those two aquifers, and the groundwater basin they comprise, are the focus of this groundwater management plan. Based on historical experience and observation of groundwater conditions, it is currently expected that ongoing utilization of local groundwater will continue to be in amounts that are generally comparable to what has historically been pumped, 30,000 to 40,000 afy from the Alluvium and 7,500 to 15,000 afy from the Saugus Formation. It is also expected that there is some additional development potential in the Saugus Formation, in the range of 10,000 to 20,000 af which might be intermittently extracted during one or more dry years when supplemental imported water supplies might be reduced. Ultimately, it is expected that local groundwater will continue to be a component of water supply in the basin at appropriate production levels from both aquifers. The intent of this groundwater management plan is to ensure that ongoing utilization of local groundwater continues to result in acceptable aquifer conditions, i.e. avoidance of overdraft (Primary Plan Element 3), no degradation of quality (Primary Plan Element 6), no adverse impacts to surface waters (Primary Plan Element 2), all via continuation of conjunctive use operations that have been ongoing since the initial importation of supplemental surface water in 1980 (Primary Plan Element 5) and via monitoring and interpretation of surface water and groundwater conditions on an ongoing basis (Primary Plan Elements 1 and 2).

Supplemental (SWP) Surface Water - CLWA has a Table A contract amount of 95,200 af of water from the SWP. CLWA's original contract, signed in 1963, was for 23,000 af; that Table A amount was later increased to 41,500 af. In 1988, CLWA purchased a Table A amount of 12,700 af from Devil's Den Water District, and it acquired another 41,000 af of Table A amount in 1999 from Kern County Water Agency and its member district, the Wheeler Ridge-Maricopa Water Storage District. There is ongoing CEQA-related litigation over the most recent acquisition of the 41,000 af Table A amount. However, there has been no invalidation of the completed agreement to transfer the 41,000 af Table A amount to CLWA and current water supply planning includes that Table A amount as CLWA corrects the CEQA technicality by preparing a new EIR to address the environmental consequences of the transfer.

Recycled Water - In 1993, CLWA prepared a draft Recycled Water System Master Plan that outlined a multi-phase program to integrate recycled water into the overall water supply system in the basin. Phase I of that project, which will deliver approximately 1,700 afy, began deliveries of recycled water for golf course irrigation in mid-2003. Overall, by 2020, recycled water is expected to ultimately reclaim up to 17,000 afy of treated waste water suitable for irrigation of golf courses, landscaping, and other non-potable uses.

V. Elements of the Groundwater Management Plan

As part of long-term water supply planning in the Santa Clara River Valley East groundwater subbasin, Castaic Lake Water Agency (CLWA) and the municipal water purveyors in the basin, in concert with other groundwater pumpers in the basin, began conjunctive use operations in 1980 by importing supplemental surface water from the State Water Project and integrating it with local groundwater to meet all the water requirements in the basin. Prior to that time, and continuing to the present, various groundwater pumpers and other entities in the basin, including CLWA, have collected groundwater and related data on which historical and ongoing analyses of groundwater basin conditions have been made. Those monitoring efforts and basin analyses have allowed CLWA and other entities in the basin to progressively define and understand basin conditions, and to continue to meet increasing water demands over the last 23 years. Information derived from the monitoring and management efforts to date has allowed the various public and private pumpers in the basin to continue to rely on the groundwater basin for some or all of their water supply without significant concern that the resource was either overdrafted or otherwise negatively impacted.

In light of the preceding, complemented most recently by the Memorandum of Understanding process that has initiated integrated management with United Water Conservation District, which serves as the manager of adjacent downstream basins on the Santa Clara River (as described in Primary Element 9), local groundwater management has already been initiated consistent with the opportunity provided by Water Code Section 10753. However, despite those ongoing accomplishments, CLWA recognizes the concerns and issues that are discussed herein relative to groundwater and the adequacy of water supplies in the basin. With that recognition, and in part prompted by the requirements of AB 134, CLWA has prepared this broader-based groundwater management plan.

To continue historical groundwater management activities and to address identified concerns and issues related to groundwater and water supply in the area, this Groundwater Management Plan has been developed to provide a framework for present and future actions. As has been the case for the groundwater management activities by CLWA and other local entities over the past 23 years, it is expected that this plan will be updated as new data are developed, particularly in light

of the key role that groundwater monitoring (water levels and quality) has played, and will continue to play, in defining groundwater conditions and aquifer response to management actions.

The management objectives, or goals, for the Santa Clara River East groundwater basin include the following:

Goal 1: Development of Local Groundwater for Water Supply
Goal 2: Avoidance of Overdraft and Associated Undesirable Effects
Goal 3: Preservation of Groundwater Quality
Goal 4: Preservation of Interrelated Surface Water Resources

To accomplish those goals, with recognition of the opportunities encouraged by Water Code Section 10750 et seq. for local agency management of groundwater resources, this plan incorporates a number of components which are divided into primary, or essential, elements and secondary, or potential, elements. In both categories, the elements formally recognize the effectiveness of a number of ongoing water resource management activities. They recognize the need for additional activity, such as expanded conjunctive use of supplemental surface water, and recycled water, with local groundwater. They also reflect the wider focus on local groundwater management, such as continuing cooperation with the municipal water purveyors and other pumpers in the basin, and with other water resource management entities on the Santa Clara River, most notably United Water Conservation District, to address the impacts of regional resource opportunities and/or challenges. In summary, this Groundwater Management Plan will enable CLWA, the retail water purveyors, and their neighbors to continue use of local groundwater for regular water supply, to expand their use of local groundwater during dry periods or emergencies, and to work with other agencies via implementation of the following management plan elements.

Primary (Essential) Plan Elements

1. Monitoring of Groundwater Levels, Quality, Production and Subsidence
2. Monitoring and Management of Surface Water Flows and Quality
3. Determination of Basin Yield and Avoidance of Overdraft
    - wet and dry period pumping
    - control of well field drawdown

4. Development of Regular and Dry Year/Emergency Water Supply
5. Continuation of Conjunctive Use Operations
6. Long Term Salinity Management
7. Integration of Recycled Water
8. Identification and Mitigation of Soil and Groundwater Contamination
    - involvement with other local agencies in investigation, cleanup, and closure
9. Development and Continuation of Local, State and Federal Agency Relationships
10. Groundwater Management Reports

Secondary (Potential) Elements

1. Continuation of Public Education and Water Conservation Programs
2. Identification and Management of Recharge Areas and Wellhead Protection Areas
    - involvement in land use planning process
3. Identification of Well Construction, Abandonment, and Destruction Policies
    - water quality protection
    - manage vertical distribution of pumpage
4. Provisions to Update the Groundwater Management Plan

Primary Element 1 - Monitoring of Groundwater Levels, Quality, Production, and Subsidence

Prior to 1980, all water supply in the Upper Santa Clara River Area was developed from local groundwater; since 1980, imported surface water has become an increasing component of overall water supply in the area, but groundwater continues to meet all agricultural water demand and a significant part of municipal water demand. As a result of the long term development and use of groundwater in the area, there is a fairly substantial amount of historical groundwater level data, and a useful amount of groundwater quality data and groundwater pumping data that has been collected in the basin. All the available historical groundwater level, quality, and pumping data have been organized into a computerized data base for the Upper Santa Clara River Area. That data base, while separate, has been coordinated with an equivalent data base maintained by United Water Conservation District for the downstream basins on the Santa Clara River. The intent of database coordination has been to facilitate interpretation and reporting on groundwater and other water resource related issues by the respective agencies overlying the various basins along the river.

The networks of wells from which groundwater level and groundwater quality data have been collected are illustrated in Figures 5-1 and 5-2. The networks are comprised of a combination of active production wells, inactive production wells, and dedicated monitoring wells, shown on Figures 5-1 and 5-2. Data collection has historically varied from randomly infrequent to regularly scheduled but infrequent (e.g. semi-annual). The historical data collection efforts cannot be classified as an organized area-wide program of groundwater data collection, there are generally sufficient data available on which to interpret basin conditions. Ultimately, it is recognized that monitoring of existing wells, and expansion of the network of both production and monitoring wells, are key to accomplishing all the goals for the basin in this management plan. Monitored groundwater levels, quality, and pumping will collectively provide the basis for defining basin conditions and developing operational protocols that allow conjunctive use to support ongoing groundwater supply while avoiding undesirable conditions such as chronically depressed groundwater levels or degraded groundwater quality. Thus, a primary element of this plan is to develop and implement a groundwater monitoring program that is comprised of a network of wells, mostly as illustrated in Figures 5-1 and 5-2, but possibly expanded to include some dedicated monitoring wells as well as some potential new production wells. The frequencies and types of groundwater data collection will vary as a function of specific monitoring objectives in various parts of the basin. For initial implementation purposes , basin-wide groundwater monitoring protocols (locations and types of measurements, frequencies, etc.) are included in the Appendix to this Plan.

It should be noted, in light of the lack of historical subsidence and the low potential for it to occur as discussed in Section III above, that no formal subsidence monitoring is planned, i.e. no extensometers, fixed-point ground surveys or remote sensing. However, if the analysis of planned additional dry-year pumping indicates the potential for subsidence attributable to lower groundwater levels, monitoring or other appropriate action (e.g. re-distributed or reduced pumping) will be undertaken.

Primary Element 2 - Monitoring and Management of Surface Water Flows and Quality

The geologic and hydrologic configuration of the groundwater basin and the Santa Clara River system that overlies the aquifers in the basin is such that the River and the Alluvial aquifer can directly interact. Further, although the Saugus Formation has hydraulic characteristics that indicate it to be locally confined, groundwater can move between the Alluvium and the Saugus. The net result of the overall river-aquifer configuration is that groundwater is readily recharged

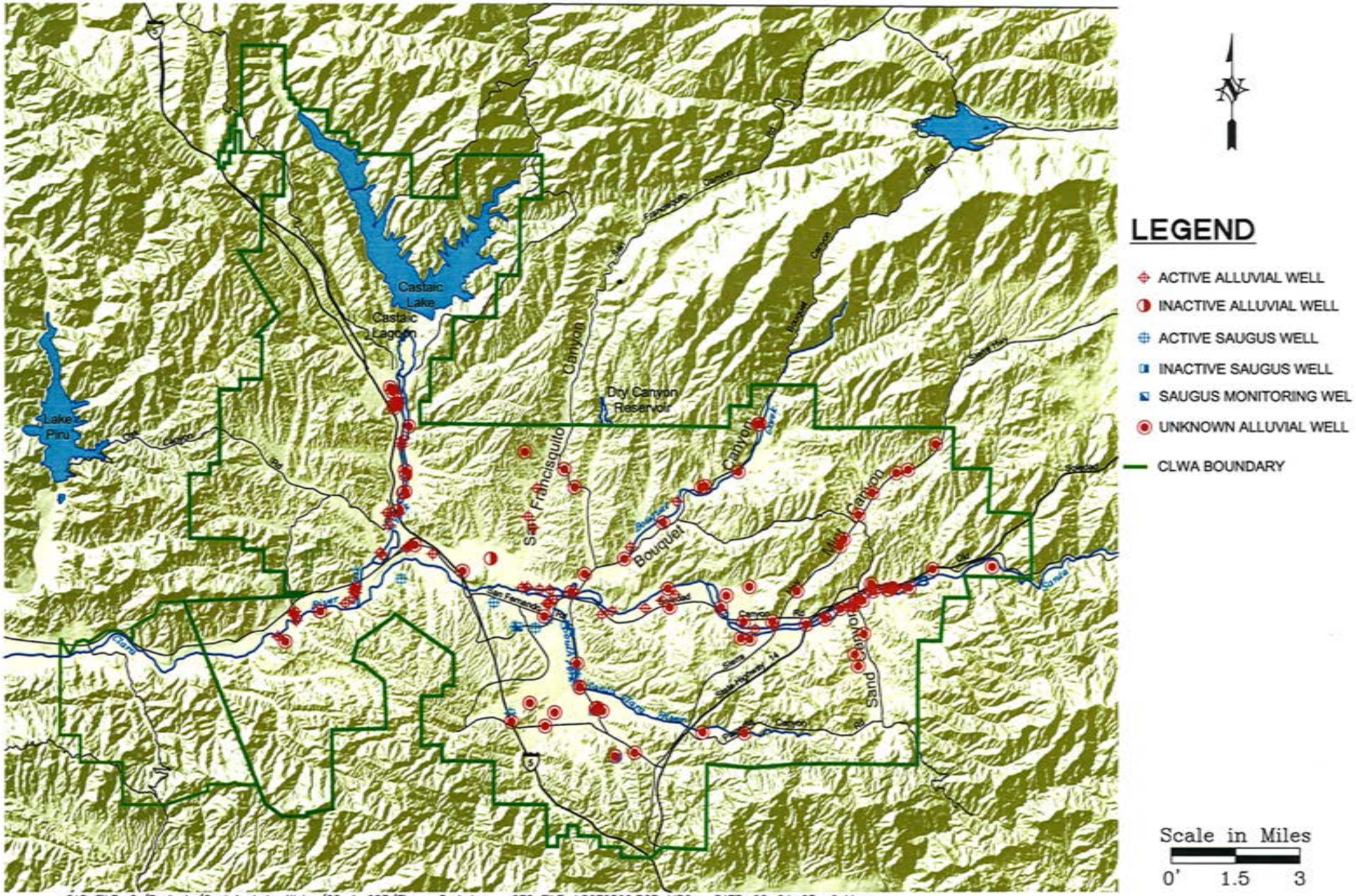

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Figure 5-1
Water Level Monitoring Well Network
Santa Clara River Valley East Groundwater Subbasin

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CONSULTING ENGINEERS

Figure 5-2
Water Quality Monitoring Network
Santa Clara River Valley East Groundwater Subbasin

by periodic natural surface water flows in parts of the basin, generally to the east of Bouquet Canyon; and groundwater discharges to the river in other parts of the basin, generally to the west of Bouquet Canyon. As a result of the latter groundwater discharges to the river, in combination with treated waste water discharges from the two local regional treatment plants, there is a significant surface water outflow from the basin in the Santa Clara River. That surface water flow to the west across the County line has increased over the last 20 years (Figure 5-3).

When considered in concert with the other elements of this groundwater management plan, a number of challenges related to surface water flow and quality are evident. First, knowledge of surface flow rates and quality, and variations in both, will be essential to incorporating surface water considerations into management of the interconnected aquifer system. Thus, monitoring of surface water flows and quality will be part of this plan; and the resultant data will be incorporated in the database of groundwater data that results from implementation of this element and Primary Element 1.

Secondly, continuation of some surface flow and non-degradation of surface water quality would appear to be appropriate objectives, particularly as recycled water use is integrated into the overall water supply in the basin, and as dry-year dependence on groundwater increases. Those issues have begun to be addressed in the MOU process with neighboring United Water Conservation District, as described in Primary Element 9 of this Plan, but they will be addressed on a more comprehensive basis as monitored data is collected, as a numerical groundwater flow model is developed and utilized (Primary Element 3), and as recycled water becomes part of the integrated water supply (Primary Element 7). Basin management of surface water flows and quality will also relate to potential groundwater management actions intended to augment yield, e.g. artificial groundwater recharge (Primary Elements 3 and 5), and groundwater management actions intended to preserve groundwater quality (Primary Element 6). For initial implementation purposes, surface water monitoring protocols (locations and types of measurements, frequencies, etc.) are included in the Appendix to this Plan.

In light of the preceding, this plan element is included in the overall groundwater management plan to address surface water flows and quality in concert with analysis and management of groundwater levels and quality. The implementation of this plan element will be essential to accomplishment of the fourth management objective (goal) for the basin.

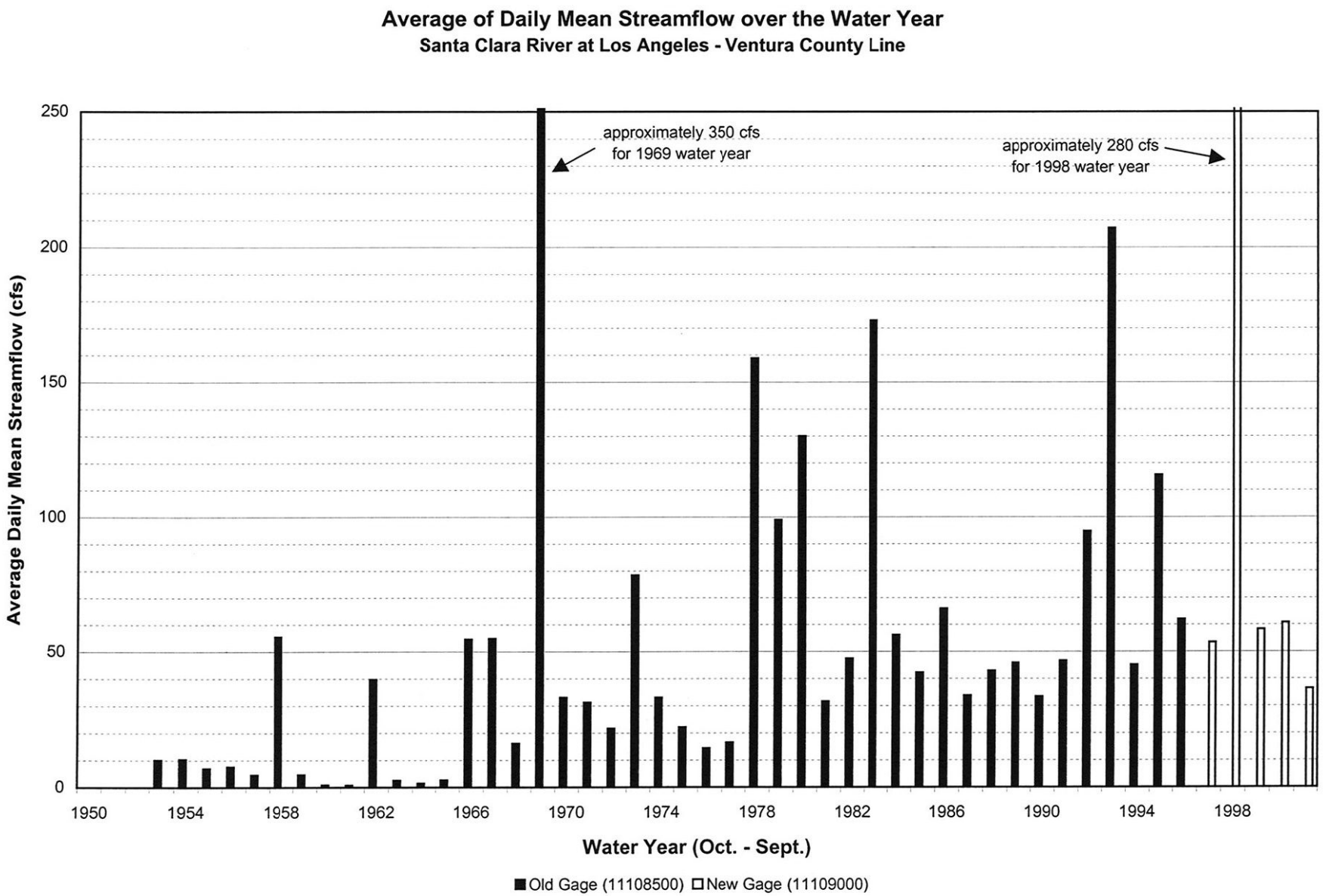

Average of Daily Mean Streamflow over the Water Year
Santa Clara River at Los Angeles - Ventura County Line
approximately 350 cfs
for 1969 water year
approximately 280 cfs
for 1998 water year
Average Daily Mean Streamflow (cfs)
250
200
150
100
50
0
1950
1954
1958
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
Water Year (Oct. - Sept.)
Old Gage (11108500)
New Gage (11109000)

Figure 5-3

Primary Element 3 - Determination of Basin Yield and Avoidance of Overdraft

In order to accomplish all the goals for the basin, it will be essential to determine what yield can be developed on both a regular and an intermittent (dry period or emergency) basis. Such a determination of basin yield will be made to accomplish the main objective of operating within the yield of the groundwater basin, avoidance of overdraft.

On a long-term basis, there has not been any widespread, steady degradation of groundwater conditions that might be indicative of overdraft, i.e. decrease in groundwater levels or storage as a result of pumping in excess of the yield of the basin. There have been, and continue to be, short-term fluctuations in groundwater levels that are basically related to variations in local hydrological conditions, alternating increases and decreases in storage in response to wet and dry conditions (and associated fluctuations in recharge and pumping). Such fluctuations are typical of groundwater basin conditions in any conjunctive use setting, such as in this basin; groundwater is utilized from storage during dry years, or dry periods, and that storage is replenished during alternate wet years, or periods. The observation of these historical groundwater conditions, in combination with knowledge of pumpage from both the Alluvial and Saugus Aquifers, has led to current operational practices as well as general expectations regarding the approximate yield of the local groundwater system.

While historical operating experience, complemented by observed groundwater conditions, is an appropriate basis for generally planning for available groundwater supplies, it is possible and appropriate to more precisely analyze the basin to determine values or ranges of yield under varying hydrologic conditions, and to assess the impacts of various management actions that might be implemented in the basin. The MOU process described in Primary Element 9 of this Plan includes the development of a numerical groundwater flow model which is intended to be utilized for determination of the yield of the basin under existing land use and under existing groundwater and surface water development conditions. It is also expected to be used for implementation of this Plan Element to assess the yield of the basin under future land use conditions as well as future ranges of surface water importation, groundwater development, and recycled water use through varying hydrologic conditions, i.e. wet and dry periods that affect the availability of imported surface water.

The ultimate intent of this Plan Element is to develop an understanding and quantification of the yield of the basin, under varying hydrologic conditions and developing local cultural conditions,

so that groundwater development and use can be managed in such a way to meet an appropriate fraction of total water demand while avoiding levels of groundwater use that would result in overdraft conditions. Thus, implementation of this Plan Element is essential to accomplishing the first and second management objectives (goals) for the basin.

Primary Element 4 - Development of Regular and Dry Year/Emergency Water Supply

The most recent updated Urban Water Management Plan (UWMP, December 2000) prepared by CLWA and the retail water purveyors in the basin (Newhall County Water District, Santa Clarita Water Company and Valencia Water Company) includes plans to develop 30,000 to 40,000 acre-feet per year (afy) from the Alluvial aquifer and 7,500 to 15,000 afy from the Saugus Formation in average/normal years. Both ranges of numbers are consistent with recent historical pumping that has not resulted in any indication of overdraft or other undesirable conditions. The UWMP also includes plans to slightly reduce Alluvial pumping in dry years (in recognition of historical experience with decreased groundwater levels in the eastern part of the basin during dry periods) to 30,000 to 35,000 afy, while potentially increasing dry-period Saugus pumping to 21,000 to 35,000 afy depending on the duration of dry conditions.

A major consideration in this plan is the accomplishing ~~of~~ this element in concert with Primary Element 3, i.e. development of both regular and dry year/emergency groundwater supply within the yield of the basin in order to avoid overdraft. Toward that goal, the model described in Primary Element 3 will be used to analyze projected results, i.e. groundwater levels, storage and stream flow impacts, in order to design the optimal distribution of pumpage or to refine the ranges of regular or dry period/emergency pumping volumes. The result will facilitate a water transmission and distribution design, and will also facilitate planning for supplemental water supplies and planning for proactive recharge activities to augment basin yield as necessary to meet water supply requirements. Thus, implementation of this Plan Element, within the confines of Primary Element 3, will be essential to accomplishment of the first management objective (goal) for the basin.

Primary Element 5 - Continuation of Conjunctive Use Operations

Beginning with the initial delivery of imported surface water from the State Water Project (SWP) in 1980, CLWA and the retail water purveyors in the basin have been practicing the conjunctive

use of imported surface water and local groundwater. Conjunctive use in this setting has consisted of meeting water demands with a combination of imported surface water and local groundwater. Groundwater pumping has remained within a range that has not caused any evidence of overdraft, or associated undesirable impacts, and has fluctuated within that range to meet a larger fraction of water demand during periods of reduced surface water availability, such as at the end of the 1987-1992 drought and for several years immediately thereafter. Imported surface water use, on the other hand, progressively increased from 1980 through 1990, substantially decreased in the early 1990's due to extended drought conditions in Northern California, returned slowly to pre-drought levels over about a five year period, and has progressively increased again since 1996. The historical trend in water demand and the trends in groundwater and imported (SWP) surface water use to meet that demand are illustrated in Figure 5-4.

Conjunctive use of local groundwater and imported surface water will continue to be a key element in meeting all the goals for the basin, most notably utilizing groundwater for water supply without overdrafting the basin. Historical experience with groundwater pumping and aquifer response to varying hydrologic conditions has shown that the groundwater basin can support notable variations in pumping during wet and dry periods, but it cannot support continuous pumping at rates high enough to meet total local water demand. Thus, utilization of imported surface water in conjunction with local groundwater is essential to the management of groundwater for water supply without overdrafting that resource.

As part of conjunctively using surface water and groundwater, it is recognized that, particularly when the surface water supply is imported from the State Water Project, there will be variations in the amount of available surface water supply from year to year. Similarly, there are expected to be variations in local groundwater conditions as a function of local hydrologic conditions which affect, among other things, the natural recharge to the groundwater basin from year to year. In the case of this basin, local (Southern California) hydrology which affects local groundwater conditions may not necessarily be the same as the hydrology in a distant (i.e., northern California) location that directly affects the availability of supplemental, imported surface water in any given year. Thus, conjunctive use management is necessary to ensure that the groundwater basin is maintained to meet a regular component of water supply and to also provide a larger component of water supply during "dry periods" that affect supplemental surface water availability. Conjunctive use management is similarly important to ensure that local groundwater can be replenished, via reduced pumping and/or as a result of wetter local

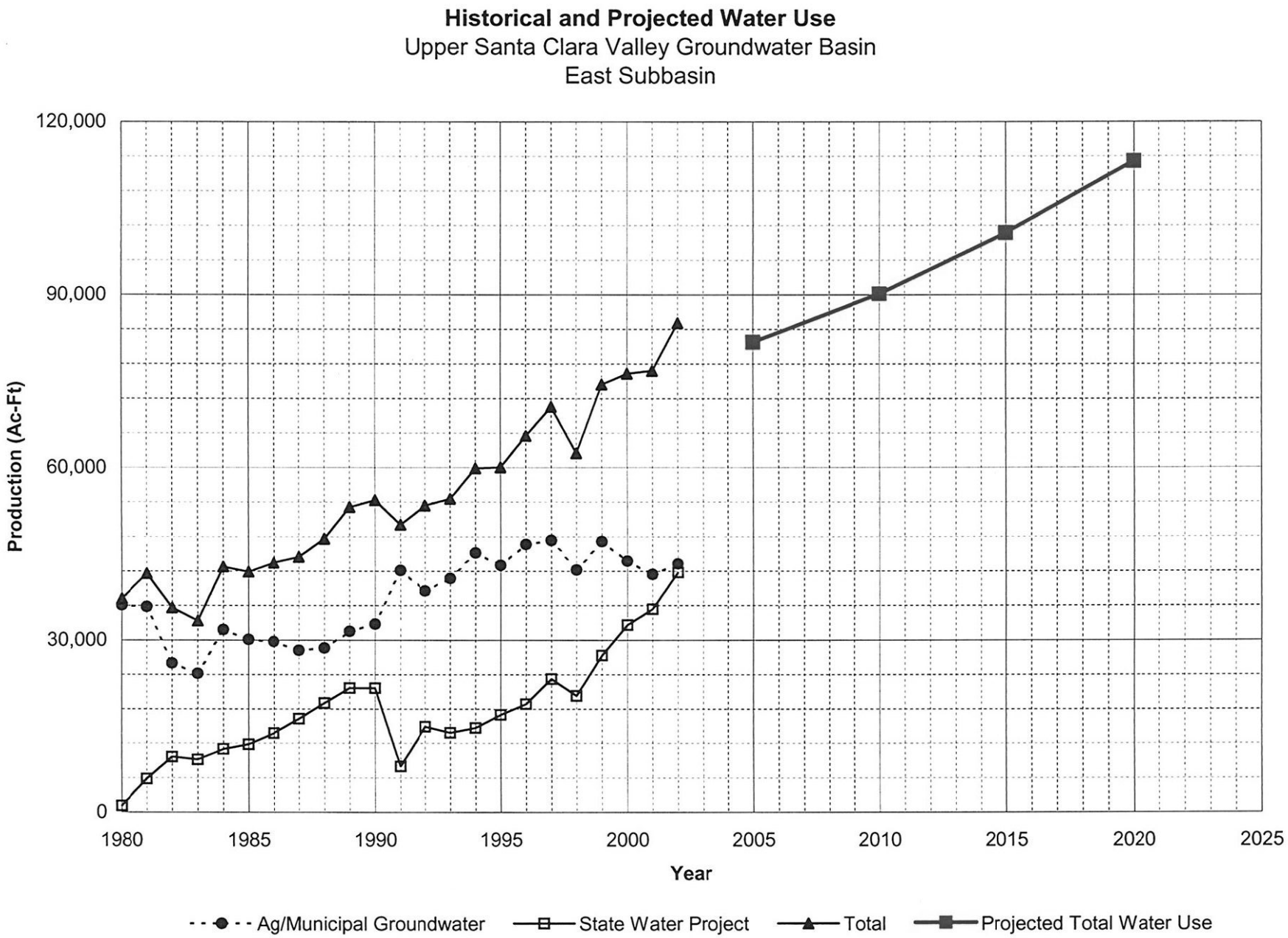

Historical and Projected Water Use
Upper Santa Clara Valley Groundwater Basin
East Subbasin
120,000
90,000
60,000
30,000
0
Production (Ac-Ft)
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
Year
Ag/Municipal Groundwater
State Water Project
Total
Projected Total Water Use

Figure 5-4

hydrologic conditions, during periods of wet/normal surface water availability. In light of all the preceding, implementation of this Plan Element is essential to accomplishing all the management objectives (goals) for the basin.

Primary Element 6 - Long Term Salinity Management

In general, groundwater quality in the basin is such that groundwater supplies meet standards for beneficial use in the basin, most of which is for municipal (domestic) use but some of which remains for agricultural and some other irrigation (non-domestic) use. There also have been no notable historical trends of groundwater quality degradation in the basin over time. However, a number of geologic and hydrologic factors suggest that observations and interpretation of groundwater quality warrant attention to ensure long-term preservation of groundwater quality. Notable among those geologic and hydrologic factors are: 1) the largely "closed" geologic nature of the aquifer system at the western limit of the basin (other than a thin section of Alluvium beneath the Santa Clara River, there is no continuity of aquifer materials between the Santa Clara River Valley East groundwater subbasin and the next downstream groundwater basin on the Santa Clara River, the Piru Basin in Ventura County); 2) the predominant groundwater flow direction in the basin toward the west, where there is the lack of continuity of aquifer materials for groundwater outflow; 3) a certain amount of rising groundwater discharge into the Santa Clara River; and 4) an increasing discharge of treated waste water into the Santa Clara River toward the western end of the basin which, when accounting for the planned use of a substantial amount of recycled water in the Basin (Primary Element 7) will result in higher salt concentrations than other sources of water supply in the Basin. The combination of the preceding factors suggests that, on a long-term basis, there could be an accumulation of dissolved minerals in the aquifer system if salinity is not managed in a way to avoid undesirable groundwater quality degradation. Consequently, this primary element is included in the overall groundwater management plan to include the interpretation of groundwater quality data (Primary Element 1) and to incorporate groundwater quality as an important consideration in the implementation of the other elements of the plan, most notably Continuation of Conjunctive Use Operations (Primary Element 5), Integration of Recycled Water (Primary Element 7), and Identification and Cleanup of Contaminated Groundwater (Primary Element 8). The Long Term Salinity Management element of the plan is essential to accomplishing the third management objective (goal) of preserving groundwater quality in the basin.

Primary Element 7 - Integration of Recycled Water

In 1993, CLWA prepared a Reclaimed Water System Master Plan that outlined a multi-phase program to deliver highly treated, recycled water in the Valley. At that time, potential recycled water uses in excess of 10,000 afy, of which about 9,000 afy were located within the CLWA service area, were identified. The first phase of the Reclaimed Water System Master Plan to deliver 1,700 afy has been environmentally reviewed and is being implemented, with initial deliveries having commenced in August 2003.

The 1993 recycled water plan expected to reclaim up to 10,000 afy. CLWA has been updating that plan to ultimately provide up to about 17,000 afy for irrigation and other non-potable uses. It has also been recognized that, if the Newhall Ranch project is approved, total annual demands for recycled water in the area could ultimately approach 20,000 afy.

This plan element is included in the groundwater management plan primarily because recycled water use in the Valley will supplant a substantial fraction of fresh water demand that would otherwise be met with potable water from some combination of pumped groundwater and imported surface (SWP) water. With total municipal, agricultural and other water demands projected to increase from about 75,000 afy at present to slightly more than 100,000 afy by 2020, the progressive increase in recycled water use from 1,700 afy to as much as 17,000 to 20,000 afy, recycled water use would reduce demands on potable sources (groundwater and imported SWP water) by up to nearly 20 percent. Accomplishment of this Plan Element will benefit the accomplishment of Elements 3 and 4, and will also contribute to the accomplishment of all four of the Basin Goals.

Primary Element 8 - Identification and Mitigation of Soil and Groundwater Contamination

As in numerous other groundwater basins in California, there have been a number of leaking underground storage tanks or other similar situations which have released organic constituents into soil, and possibly into groundwater, in the basin. None of those has impacted municipal or other water supply wells and, consequently, there has been no adverse impact on groundwater supply in municipal or other water supply systems in the basin. However, the detection of perchlorate in the discharge from four Saugus wells (CLWA Santa Clarita Water Division Saugus Wells 1 and 2, Newhall County Water District Well 11, and Valencia Water Company Well 157) in 1997, followed by the detection of perchlorate in one Alluvial well (CLWA Santa Clarita Water Division Stadium Well) in 2002, has led to the inactivation of all those wells.

They remain out of municipal water supply service to date.

Experts retained by CLWA have opined that the cause of perchlorate contamination in the Saugus Formation is former operations associated with munitions manufacturing on property formerly owned by Whittaker-Bermite Corporation, which is immediately adjacent to all the impacted wells. Investigation and characterization of the perchlorate contamination, and initiation of control and cleanup are ongoing; however, remediation actions have not yet commenced. Consequently, the municipal water purveyors continue to be impacted by the loss of water supply capacity of the impacted wells. Associated with that loss is a concern about the migration of perchlorate contamination in a generally downgradient direction, toward other active wells completed in the Saugus Formation and the Alluvium and toward other potential well sites. In light of both the inactivation of wells and the potential downgradient impact on the aquifers, CLWA and the other retail water purveyors had initiated both legal action against responsible parties and technical investigation of the contamination. Recently the parties have entered into an interim settlement agreement which is intended to complete investigation and characterization of the contamination in a collaborative effort. This effort will facilitate and expedite remediation actions.

The primary purpose for technical investigation of the perchlorate contamination by CLWA and the other municipal purveyors is to ultimately recover the currently unavailable water supply capacity that has resulted from the inactivation of impacted wells. Conceptually, that may be accomplished by some combination of reactivation of impacted wells and new well construction. CLWA has joined with the U.S. Army Corps of Engineers in a study to develop information about the contamination. CLWA and the retail water purveyors have also independently commissioned an assessment to conclude what treatment technology is appropriate for removal of perchlorate from pumped groundwater; they have also independently commissioned the application of a numerical groundwater flow and quality model to determine an optimal pumping program for 1) perchlorate removal from the aquifer, 2) control of its migration in the aquifer, and 3) restoration of impacted pumping capacity for water supply. With data derived from that work, CLWA and the other purveyors are preparing to submit an application to the State Department of Health Services, by late 2004, for a permit to return to pumping from the locally impaired Saugus Formation. The proposed pumping would be combined with approved wellhead treatment to render the treated water suitable for municipal supply. In addition to the latter objective to recover currently inactivated water supply, the proposed pumping would be designed and operated to remove contaminated groundwater and to control any further migration

of contaminated groundwater toward other Saugus wells to the west. CLWA and the retail water purveyors then expect to be able to design and implement, alone or in concert with responsible parties, a contamination control and treatment program at or near their impacted wells that can, in part, make groundwater available for municipal or other beneficial use. They also expect that such a program will provide some hydraulic and associated water quality protection for other parts of the aquifer system to keep contamination from impacting other wells or other parts of the aquifers in which water supply wells might be completed.

Regarding the balance of the aquifer system, water supply planning to date (i.e. the current Urban Water Management Plan) includes expanded development of the Saugus Formation for dry-period and emergency water supply. Data development and control and treatment of groundwater contamination in the Saugus Formation will be critical to accomplishing that water supply plan. In terms of this groundwater management plan, accomplishment of this plan element will contribute to the accomplishment of all four management objectives (goals) for the basin.

Primary Element 9 - Development and Continuation of Local, State and Federal Agency Relationships

As the local SWP contractor, CLWA has long-established working relationships with local and state agencies that will continue on an ongoing basis. By nature of its primary function, CLWA will continue to interact with state agencies, most notably the Department of Water Resources, on the operation of the State Water Project. The latter, of course, has been the source of supplemental imported surface water that has made the initiation and continuation of conjunctive use operations possible since 1980. It will also be the primary component, with local groundwater, in continuation of conjunctive use operations in the future (Primary Element 5 of this Plan).

CLWA is the treated surface water provider to all the retail water purveyors, including Newhall County Water District, Los Angeles County Waterworks District No. 36, Valencia Water Company, and its own Santa Clarita Water Division. CLWA has a historical and ongoing working relationship with all those local agencies, as well as with other local groundwater pumpers, to manage water supplies to effectively meet water demands within the available yields of imported surface water and local groundwater. In fact, the Advisory Council convened to assist in the preparation of this Plan is comprised representatives of all the local water purveyors

and significant groundwater pumpers.

A local Memorandum of Understanding (MOU) process among CLWA, other purveyors within CLWA's service area, and United Water Conservation District (UWCD) in neighboring Ventura County is a classic illustration of a local agency relationship that has produced the beginnings of local groundwater management, now embodied in this comprehensive plan, most notably in Primary Elements 1 through 5. In 2001, out of a willingness to seek opportunities to work together and develop programs that mutually benefit the region as well as their individual communities, those agencies prepared and executed the MOU that initiated a collaborative and integrated approach to several of the aspects of water resource management that are now included in this Plan. UWCD manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County, downstream of the East Subbasin of the Santa Clara River Valley that is the focus of this Plan. United is thus a logical partner in the cooperation of management efforts to accomplish the objectives (goals) for this basin, particularly as they relate to preservation of surface water resources that flow through the respective basins. As a result of that MOU, the cooperating agencies have integrated their database management efforts (part of Primary Elements 1 and 2 of this Plan), have initiated the development of a numerical groundwater flow model (for utilization in Primary Elements 3, 4 and 5 of this Plan), and are continuing to prepare reports on the status of basin conditions, as well as on geologic and hydrologic aspects of the overall stream-aquifer system.

A local extension of the interaction among CLWA, the retail water purveyors, and UWCD is an ongoing working relationship with the City of Santa Clarita. CLWA and the retail water purveyors meet regularly with City staff and also present water supply conditions via study sessions with the City Council on a routine basis. It is expected that the implementation of this Plan will result in the availability of a broader range of information transfer with the City relative to the existing and future water supply to its residents. An additional expectation of this Plan with respect to the relationship among CLWA, the retail water purveyors, and the City is the intent of CLWA and the purveyors to provide input to the City as a reviewer of proposed development relative to any potential contamination of groundwater associated with such proposed development. CLWA provides input to the City, as suggested in Water Code Section 10753.8, via review of land use plans and coordination with the City Planning Department to identify and assess any development-related activities which might pose a risk of groundwater contamination. By expressing this expectation of its groundwater management plan, CLWA is not intending to insert itself into the jurisdiction or authorization of any other land use permitting

agency; rather, CLWA is intending to provide review and input to the land use permitting process to protect the groundwater supply against any potential contamination that might occur as a result of any given development project.

This Primary Element is included in this Plan to formalize the historical local and state agency working relationships as part of comprehensively managing local groundwater, in concert with imported surface water and local recycled water, to accomplish all the management objectives (goals) for the basin.

Primary Element 10 - Groundwater Management Reports

As briefly described in the Introduction of this Plan, local groundwater management planning already includes, among several other activities, analysis of groundwater conditions and preparation of annual reports on groundwater and all other aspects of water resources and water supplies in the Santa Clara River Valley East groundwater basin. In addition, recently formalized cooperative work with neighboring UWCD includes both regular reporting on the status of groundwater conditions and specific reporting on geologic and hydrologic aspects of the overall stream-aquifer system. For example, documentation of the numerical groundwater modeling work currently in progress is expected to be the first of the latter reports in the next year.

Beginning in 1998, CLWA and the retail water purveyors in the basin have prepared a series of annual reports, known locally as the Santa Clarita Valley Water Report, to describe all aspects of water supply and water resource conditions in the basin. That report provides current information to local City and County land use agencies, and to other interested parties, about current water requirements, use of groundwater and treated imported surface water to meet those water requirements, groundwater conditions (pumping, groundwater levels and quality, etc.), local surface water conditions, the status of imported surface water supplies including details of delivered SWP water in the reported year as well as an up-to-date summary of available imported SWP water for the next year, a short-term projection of water requirements in the next year, and other appropriate details about water requirements and supplies such as, for example, the status of introducing recycled water as a component of non-potable water supply.

In light of the frequency and comprehensive nature of the annual Water Reports, and also in light of the planned preparation of more detailed technical reports on various aspects of the basin as appropriate, the continued preparation of those reports will serve as regular and

complete reporting on all aspects of this groundwater management plan.

Secondary Element 1 - Continuation of Public Education and Water Conservation Programs

CLWA has provided water conservation and public education programs that will continue and will be expanded as a complement to and an element of this groundwater management plan. The expansion of water conservation will largely stem from CLWA's having signed the "Memorandum of Understanding Regarding Water Conservation in California" (Urban MOU) in 2001, which made CLWA a wholesaler member of the California Urban Water Conservation Council. CLWA has thus committed to implementation of cost-effective water conservation measures known as Best Management Practices (BMPs) that are included in the Urban MOU and are intended to reduce California's long-term urban water demands. The BMPs have been incorporated into the water demand management measures section of the Urban Water Management Planning Act.

Water conservation and related public education measures have generally been developed in California to achieve the following goals:

- meet legal mandates
- reduce average annual potable water demands
- reduce sewer flows
- reduce water demands during peak seasons
- meet drought restrictions.

As a wholesaler of imported surface water CLWA has implemented the following BMPs for several years prior to signing the MOU:

- distribution system water audits, leak detection and repair
- public information
- school education
- wholesale agency assistance
- conservation pricing
- conservation coordinator.

As a signatory to the MOU, CLWA's water conservation and public education program will expand to include the following BMPs found to be locally cost-effective, as detailed in the 2000 Urban Water Management Plan for CLWA and the Santa Clarita Valley retail purveyors.

- water survey programs for single-family residential and multi-family residential programs
- residential plumbing retrofits
- metering with commodity rates for all new connections and retrofit of existing connections
- large landscape conservation programs and incentives
- high-efficiency washing machine rebate programs (when also provided by local energy providers or wastewater utilities)
- conservation programs for commercial, industrial, and institutional accounts
- wholesale agency programs to financially or otherwise support water conservation efforts by retailers (this measure will be expanded)
- residential ultra-low-flow toilet replacement program.

This Secondary Element, while identical to independent CLWA efforts in water conservation and public education, is incorporated in this Plan to complement other Plan elements, and to move toward accomplishment of all management objectives (goals) for the groundwater basin.

Secondary Element 2 - Identification and Management of Recharge Areas and Wellhead Protection Areas

The 1986 Amendments to the federal Safe Drinking Water Act (SDWA) established a new Wellhead Protection Program (WPP) to protect groundwater that supplies drinking water wells for public water systems. Each state was required to prepare a WPP and submit it to the USEPA by June 19, 1989. However, California did not develop an active state-wide Wellhead Protection Program at that time. Subsequently, in 1996, reauthorization of the SDWA established a related program called the Source Water Assessment Program. In 1999, the California Department of Health Services (DHS) Division of Drinking Water and Environmental Management developed its Drinking Water Source Assessment Program (DWSAP), and EPA approved it. The overall objective of the DWSAP is to ensure that the quality of drinking water sources is protected.

As discussed in Section 1 of this Plan, the potential groundwater management plan component

"identification and management of wellhead protection areas and recharge areas" is stated, even in the most recently amended version of Water Code Section 10753.8, as one that "may" be included. However, the wellhead protection aspect of this component, which was optional when AB 3030 was adopted, is now essentially required as a result of the 1996 SDWA reauthorization. In California, the DWSAP satisfies the mandates of both the 1986 and 1996 SDWA amendments. The California DWSAP includes delineation of the areas (i.e., protection areas or Groundwater Protection Zones) surrounding an existing or proposed drinking water source where contaminants have the potential to migrate and reach that source. The program includes preparation of an inventory of activities that may lead to the release of contaminants within these zones. The activities, referred to in the DWSAP as Potentially Contaminating Activities, include such land uses as gas stations and dry cleaners, as well as many other land uses. The activities also include known contaminant plumes regulated by local, state, and federal agencies. The zones, which are calculated based on local hydrogeological conditions and also well operation and construction parameters, represent the approximate area from which groundwater may be withdrawn during 2, 5, and 10 year time periods. These zones also represent the area in which contaminants released to groundwater could migrate and potentially affect the groundwater extracted by wells located within the designated zones. The DWSAP assessment also includes a risk or vulnerability ranking based on a combined numerical score that results from points assigned to various evaluations conducted as part of the DWSAP process. This ranking provides a relative indication of the potential susceptibility of drinking water sources to contamination.

Although DHS is responsible for conducting drinking water source assessments for systems existing prior to the adoption of the California program, DHS has encouraged purveyors to perform their own assessments. Assessments for existing systems were due at the end of 2002; however, DHS received an extension allowing its assessment work to be completed by May 2003. Permitting of a new water supply well requires that a DWSAP be completed as part of the permit process, and this is responsibility of the applicant. Within CLWA, DWSAP assessments have been completed for the three municipal water purveyors who utilize groundwater for some of their water supply, including 15 for the CLWA Santa Clarita Water Division, 20 for Valencia Water Company, and 13 for Newhall County Water District.

The results of the DWSAPs can be used as a planning tool to guide land use development in the vicinity of water sources. The DWSAPs prepared for water sources in the basin should, in some fashion, be reviewed every five years and updated more frequently as appropriate. The collective DWSAP information can also be integrated with other management activities (e.g., the

geographical position of potential or existing contaminating activities can be incorporated in the monitoring program database; plume extents, as available, can be graphically displayed by aquifer and isoconcentrations) to aid siting of new wells, particularly when contaminant migration problems are also evaluated with respect to local hydrogeological conditions and the potential influence of nearby wells on plume migration.

In addition to the wellhead protection program that is focused on wells that are sources of drinking water, a broader aspect of this Plan Element is protection of the overall recharge areas of the aquifer system in the basin. As discussed in Section III, the most developed aquifer, the Alluvium, has experienced historical fluctuations in groundwater levels in the eastern portion of the basin, but has had essentially constant groundwater levels in the western portion of the basin. The characteristic difference between the two portions of the basin, generally divided at the confluence of the Santa Clara River and its Bouquet Canyon tributary, is the perennial flow in the Santa Clara River to the west of that location versus the intermittent flow in the river to the east. The intermittent fluctuations in groundwater levels east of Bouquet Canyon are indicative of rapid response, i.e. recharge, from streamflow when it is present. Similarly, the relatively constant groundwater levels west of Bouquet Canyon are indicative of ongoing response, i.e. recharge, from the perennial flow in the river. In light of those conditions, part of this Plan Element is intended to protect the overall channel system of the Santa Clara River and its tributary system, notably where they overlie Alluvial aquifer materials of significant extent. Protection in this case is intended to mean preservation of the infiltration capacity of the stream channel so that both intermittent and perennial flows can continue to recharge the aquifer as has historically occurred.

Finally, with regard to protection of recharge areas, it is expected that additional exploration and development of the Saugus Formation, for additional water supply as described in this Plan, will lead to further understanding of the locations and mechanisms for recharge of that aquifer, which is exposed at the surface throughout much of the area of this Plan. As that understanding evolves, part of this Plan Element will be to identify means of ensuring that significant portions of Saugus recharge are not compromised by land development activities.

This Plan Element is included to incorporate the DWSAP efforts and the overall protection of groundwater recharge into the local groundwater management plan. Completion of DWSAP efforts to comply with state DHS requirements and preservation of overall aquifer recharge are key parts of accomplishing the first and third management objectives (goals) for the basin.

Secondary Element 3 - Identification of Well Construction, Abandonment, and Destruction Policies

Well construction permitting in the basin is administered by the Los Angeles County Health Department, which effectively implements the State Well Standards for water wells, monitoring wells, and cathodic protection wells. Permitting of municipal supply wells is also within the purview of the State Department of Health Services. One goal of this management plan for the area, protection and preservation of groundwater quality requires that all wells be properly constructed and maintained during their operational lives, and properly destroyed after their useful lives, so that they not adversely affect groundwater quality by, for example, serving as conduits for movement of contaminants from the ground surface and/or from a poor quality aquifer to one of good quality. Toward that end, this element is included in the overall plan to support well construction and destruction policies, and to participate in their implementation in the Basin, particularly with regard to surface and inter-aquifer well sealing and proper well destruction, which are critical in the management of a multiple aquifer system that has some connection with the Santa Clara River and its tributaries.

Secondary Element 4 - Provisions to Update the Groundwater Management Plan

The primary and secondary elements of this local area groundwater management plan reflect the current understanding of the occurrence of groundwater in the Santa Clara River East Valley groundwater subbasin, and specific problems or areas of concern about that resource. Those management elements are designed to achieve specified goals to develop local groundwater for regular and dry year/emergency water supply while protecting and preserving groundwater quantity and quality for overlying beneficial use into the foreseeable future, and while also protecting and preserving valuable surface water resources that are directly related or connected to groundwater. While the groundwater management plan provides a framework for present and future actions, new data will be developed as a result of implementing the plan. That new data could define conditions which will require modifications to currently definable management actions. As a result, this plan is intended to be a flexible document which will be reviewed and updated to modify existing elements and/or incorporate new elements as appropriate in order to recognize and respond to future groundwater and surface water conditions. Although not intended to be a rigid schedule, review and updating of this plan will initially be conducted in five years, with subsequent future updates scheduled as appropriate at that time. In accordance with Primary Element 10, the retail purveyors and CLWA will continue to produce the Santa

Clarita Valley Water Report on an annual basis. Data and information from these reports will be compiled and utilized as part of the review and updating of this plan.

Appendix I

Groundwater and Surface Water Monitoring Protocols

The CLWA Groundwater Management Plan includes two Elements (Primary Elements 1 and 2) that relate directly to ongoing, and expanded as appropriate, monitoring of key hydrologic quantities associated with the implementation of the Plan. Notable among the data to be collected are groundwater levels, groundwater quality, pumpage from water supply wells, and surface water flows and quality. Other hydrologic data such as precipitation are intended to be measured and maintained in accordance with the standards in place for the respective precipitation gage stations in the Valley; consequently, this Appendix does not address the specific establishment of protocols for precipitation gaging. On another matter of hydrologic data, land subsidence, the Plan discusses the low probability for subsidence in the Valley, particularly as related to historical groundwater pumping from both the Alluvial and Saugus Formation aquifers. Consequently, the Appendix does not address the establishment of protocols for measuring land subsidence. As noted in the Plan, if future analysis of increased pumping from the Saugus Formation, as currently planned, suggests changes in groundwater levels that might be conducive to inelastic subsidence, the need for subsidence monitoring will be reconsidered at that time; and some combination of land surface elevation surveying, remote sensing of land surface deformation, and measurement of earth consolidation via extensometers would be considered as part of establishing protocols for monitoring subsidence.

Groundwater Monitoring

For purposes of Plan implementation, the most essential groundwater-related data are water levels, water quality, and pumpage. Consequently, the following discussion of monitoring protocols focuses on those hydrologic parameters.

Groundwater Levels - The distribution and frequency of current groundwater level measurements in Alluvial wells and in Saugus Formation wells are illustrated in Figures A1 and A2, respectively. Tables A1, A1a and A2 show the dates that groundwater level measurements were made in Alluvial and Saugus Formation wells. As discussed in the Plan, for the Alluvium, the distribution of monitoring is sufficient to interpret water level and groundwater storage trends. Thus, it is intended that the fundamental distribution and frequency of Alluvial groundwater level measurements remain generally as illustrated in Figure A1: general semi-annual measurements complemented by some quarterly measurements disbursed throughout the Alluvial aquifer. The only exception to the preceding intention is in the western-most portion of the Alluvium, where agricultural pumping remains the water supply objective and water level measurements are primarily annual. In part to conform to the balance of Alluvial groundwater

level measurements, and more importantly to monitor stream-aquifer connection near the western, or downgradient, end of the Alluvium in the basin, it is the intent of Plan implementation to increase that water level monitoring to semi-annual to quarterly frequency.

In the Saugus Formation, the distribution of groundwater level measurements is limited by the number and location of wells; the locations in Figure A2 reflect where the Saugus has been developed for water supply. Ultimately, as future exploration and development of the Saugus expand, it is expected that the distribution of groundwater level measurements will expand to those future well locations. For Plan implementation purposes, the existing monthly frequency of water level monitoring is intended to continue.

Water level measurement methodology, which is dominated by utilization of electric sounders, is expected to remain largely unchanged. Some calibrated airlines and possibly some dedicated electro-hydraulic transducers are expected to complement electric sounders in certain wells. All those water level measurement methods are sufficiently accurate to satisfy the needs to which the resultant data is to be put.

Groundwater Quality - The distribution and frequency of current groundwater quality monitoring in Alluvial wells and in Saugus Formation wells are illustrated in Figures A3 and A4, respectively. Tables A3 and A4 show the dates that groundwater quality (total dissolved solids) was monitored in Alluvial and Saugus wells. For the most part, the distribution and frequency of water quality sampling are sufficient to interpret general quality trends. One notable constraint in the Alluvium, however, is the discontinuation of water quality data collection in some wells since 1988, mostly toward the western, or downgradient, end of the basin. In order to restore an ongoing historical record, part of Plan implementation will be to attempt to re-establish regular, i.e. yearly to triennial, water quality sampling and analyses in those wells with some form of historical water quality record. In the same vein, part of Plan implementation will include selection of a number of wells in key locations, e.g. near the mouths of canyons, for semi-annual analysis of indicator parameters as a basis for assessing seasonal or other variations in groundwater quality.

Finally with regard to groundwater quality, the spatial limitations on Saugus water quality data are comparable to the limitations related to Saugus groundwater levels, but as a result of the limited, localized development of the Saugus for water supply. While the regular monitoring of quality will continue via Plan implementation, the expansion of Saugus water quality data is expected to follow the expanded exploration and development of that aquifer as described for

groundwater levels above.

Production (Pumpage) - The great majority of water supply wells in the basin are now dedicated to municipal supply; consequently, those wells are equipped with production meters which allow direct monitoring of pumpage on any desired frequency, e.g. instantaneous flow rate, or cumulative volumes on a daily, monthly, or other frequency. A few wells remain dedicated to agricultural water supply, and those wells are not equipped with flow meters. However, long-standing practice at all those wells has been to meter power consumption for each well and to combine that data with the results of annual pump performance testing in order to indirectly compute approximate pumpage from each agricultural well. That methodology is sufficiently accurate for ongoing documentation of pumpage and interpretation of basin response to pumping; it is also sufficiently accurate for groundwater flow model input as part of assessing basin yield, all as part of this Plan. Consequently, implementation of this Plan includes regular reading of flow meters on municipal supply wells and continued indirect computation of agricultural pumpage from the remaining agricultural water supply wells in the basin.

Surface Water Monitoring

Part of Plan implementation is the development of a surface water quality monitoring network. Of particular concern is establishing a surface water quality data set that, combined with groundwater data, will allow for a more detailed analysis of stream-aquifer interactions. The data of primary interest for this and other Plan purposes are surface water flow and surface water quality, discussed below.

Surface Water Flow - The existing surface water flow monitoring network within the basin consists of stream flow gaging stations along the Santa Clara River and its tributaries, and measurements of discharge to the River from the Saugus and Valencia Water Reclamation Plants. Monitoring of stream flow gages along the River and its tributaries has been mostly sporadic and limited to times prior to 1977, although measurements at some gages resumed in 2002. One exception is the gage at the Los Angeles-Ventura County line, where the daily mean stream flow was monitored from 1953 to 1996; the gage was replaced with one downstream near Piru in 1996. The Los Angeles County Sanitation Districts monitors the average discharge flow of treated wastewater from the Saugus and Valencia Water Reclamation Plants to the Santa Clara River.

Plan implementation will include evaluating the distribution, future accessibility and

configuration of the existing stream flow gaging stations to determine if they will be suitable for inclusion in the ongoing surface water flow monitoring network. Plan implementation will further include installation and operation of gage station modifications, as well as installation and operation of additional dedicated gaging stations as determined to be required.

Surface Water Quality - Surface water quality has been analyzed at many locations along the Santa Clara River and its tributaries but, with few exceptions, the data is limited to several measurements at each location. Water quality in the Santa Clara River at the Los Angeles-Ventura County line was analyzed on a semi-annual basis from 1951 to 1988, and is currently measured quarterly by United Water Conservation District. Since 2002, the Los Angeles County Department of Public Works has monitored water quality in the Santa Clara River near Interstate 5 during four wet weather events and at two other times each year to comply with the requirements of a National Pollution Discharge Elimination System (NPDES) permit that covers the County and 84 incorporated cities. The Saugus and Valencia Water Reclamation Plants also monitor the quality of the treated wastewater they discharge to the Santa Clara River as part of compliance with the requirements of their NPDES permits.

Plan implementation will include identifying key locations for future surface water quality monitoring, identification of constituents of concern and monitoring frequency for each location, and implementation of appropriate sampling and analytical methodology at the selected key sites.

Table A1
Dates of Historic Water Level Measurements in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

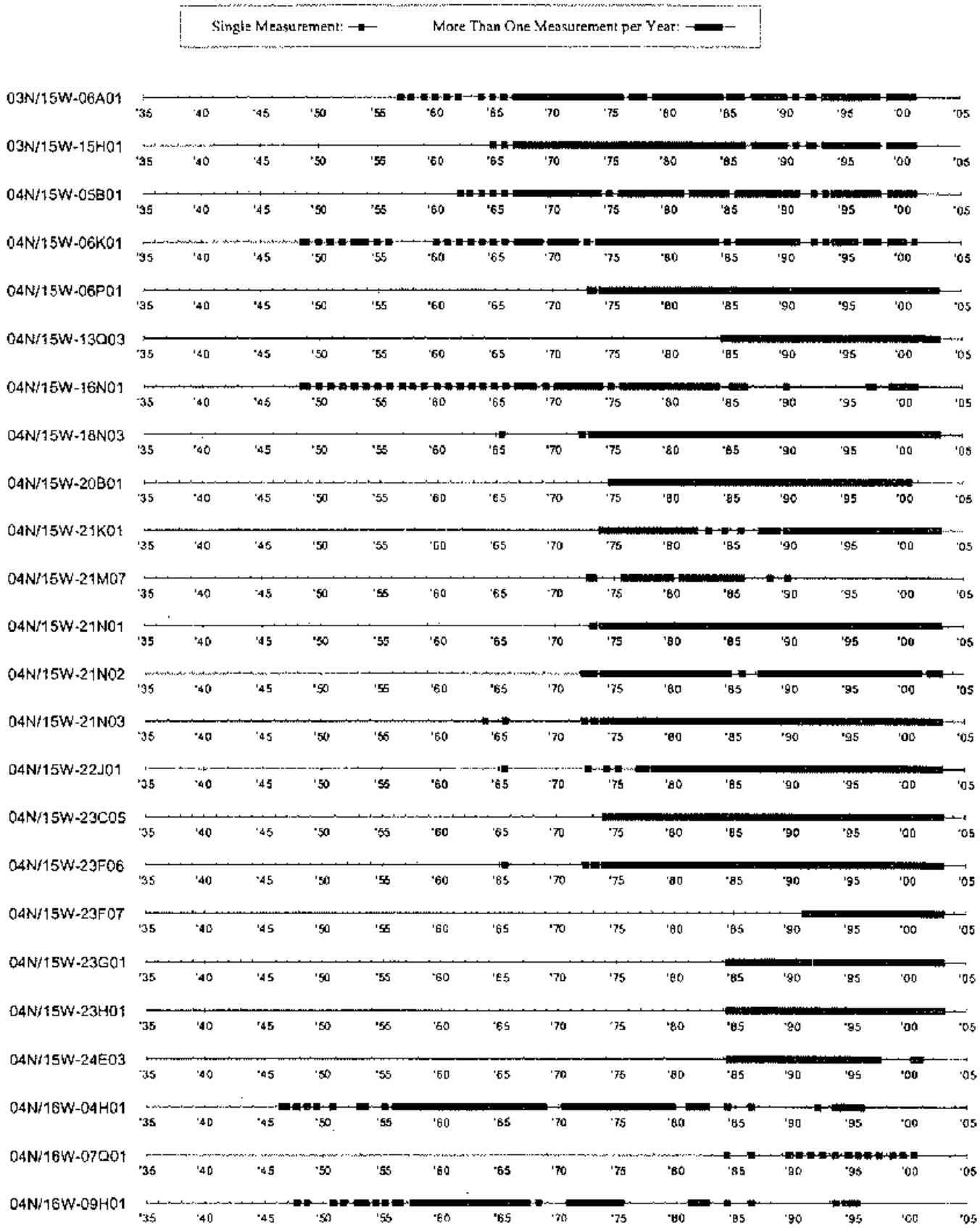


Table A1 - Continued
Dates of Historic Water Level Measurements in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

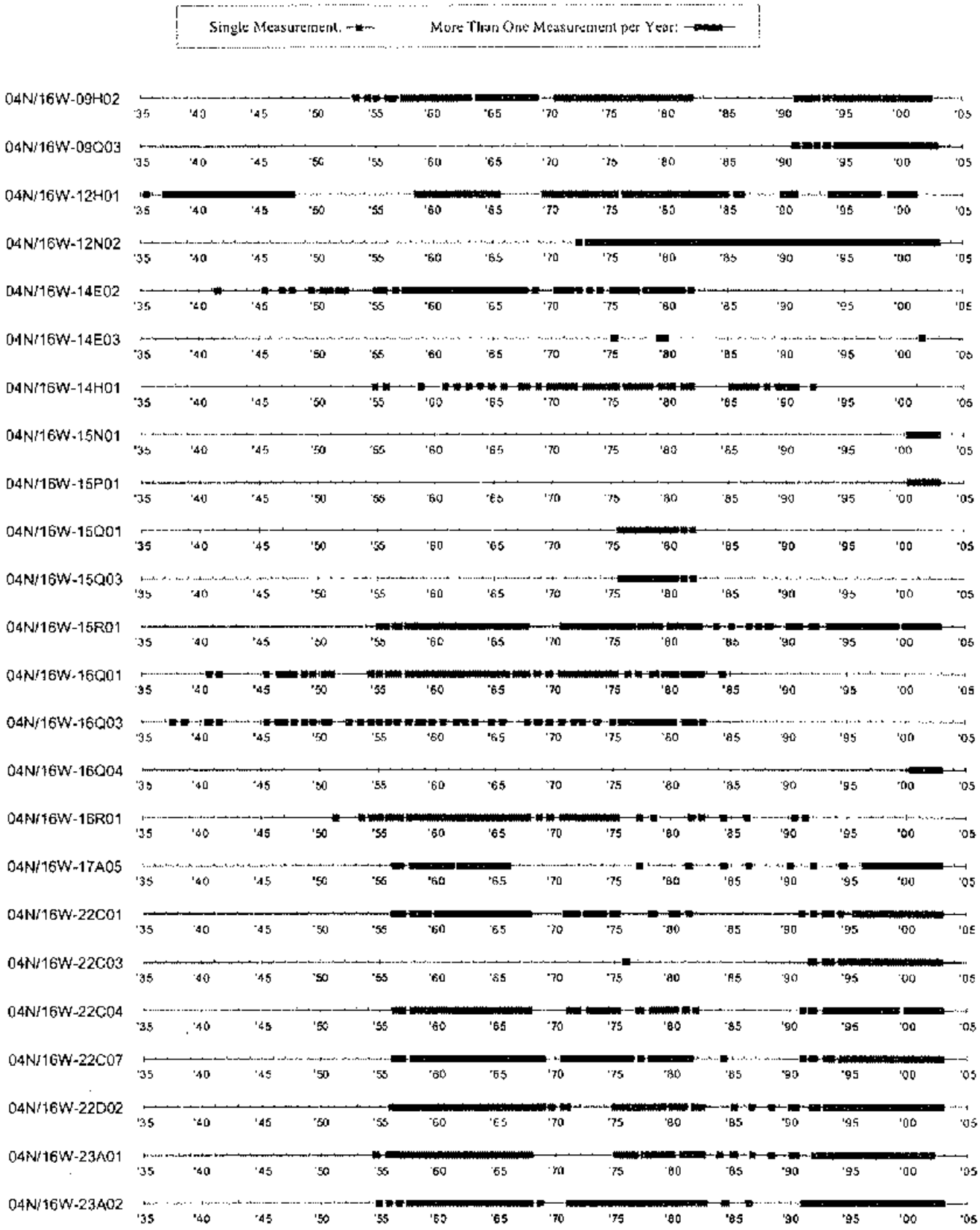


Table A1 - Continued
Dates of Historic Water Level Measurements in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

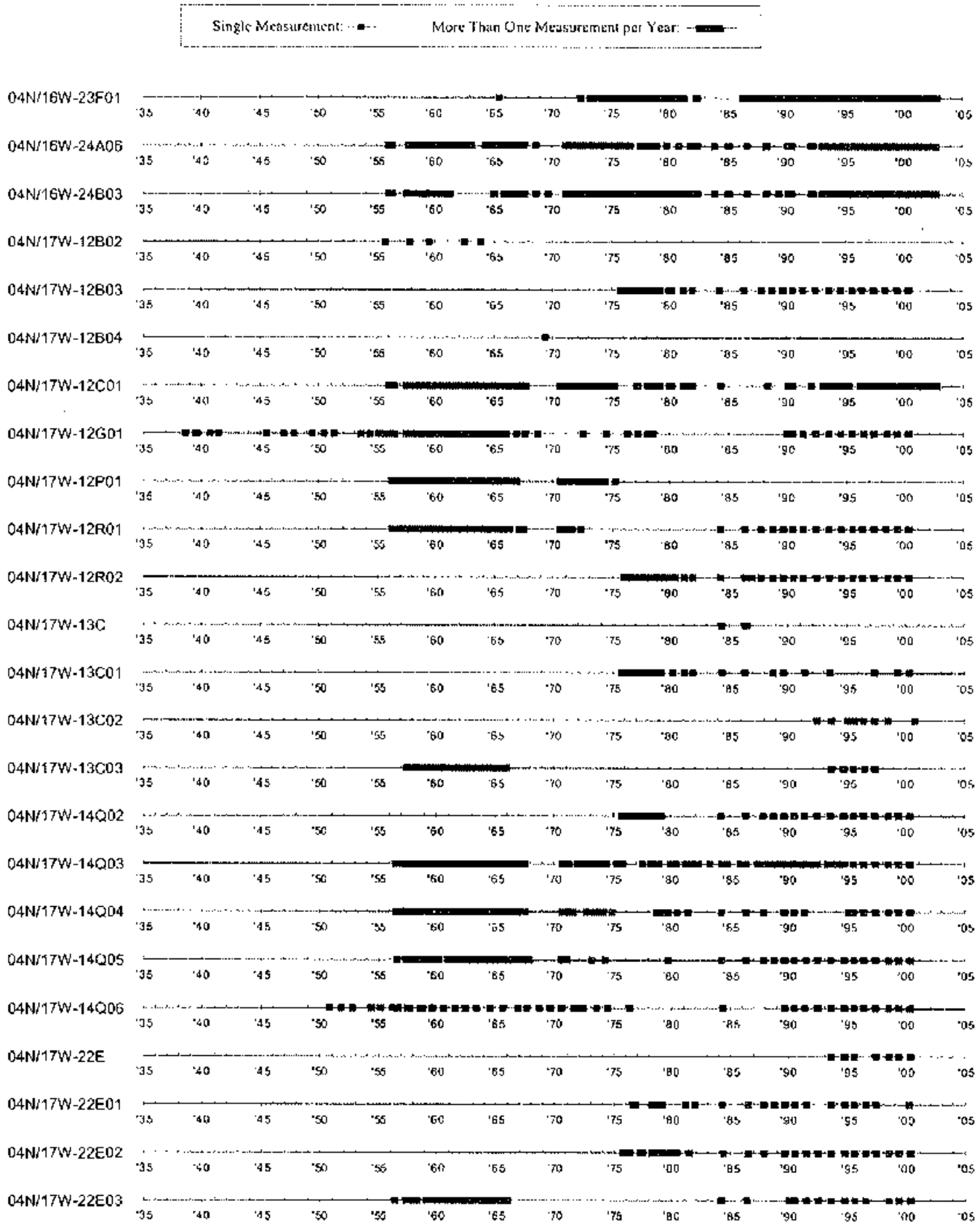


Table A1 - Continued
Dates of Historic Water Level Measurements in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

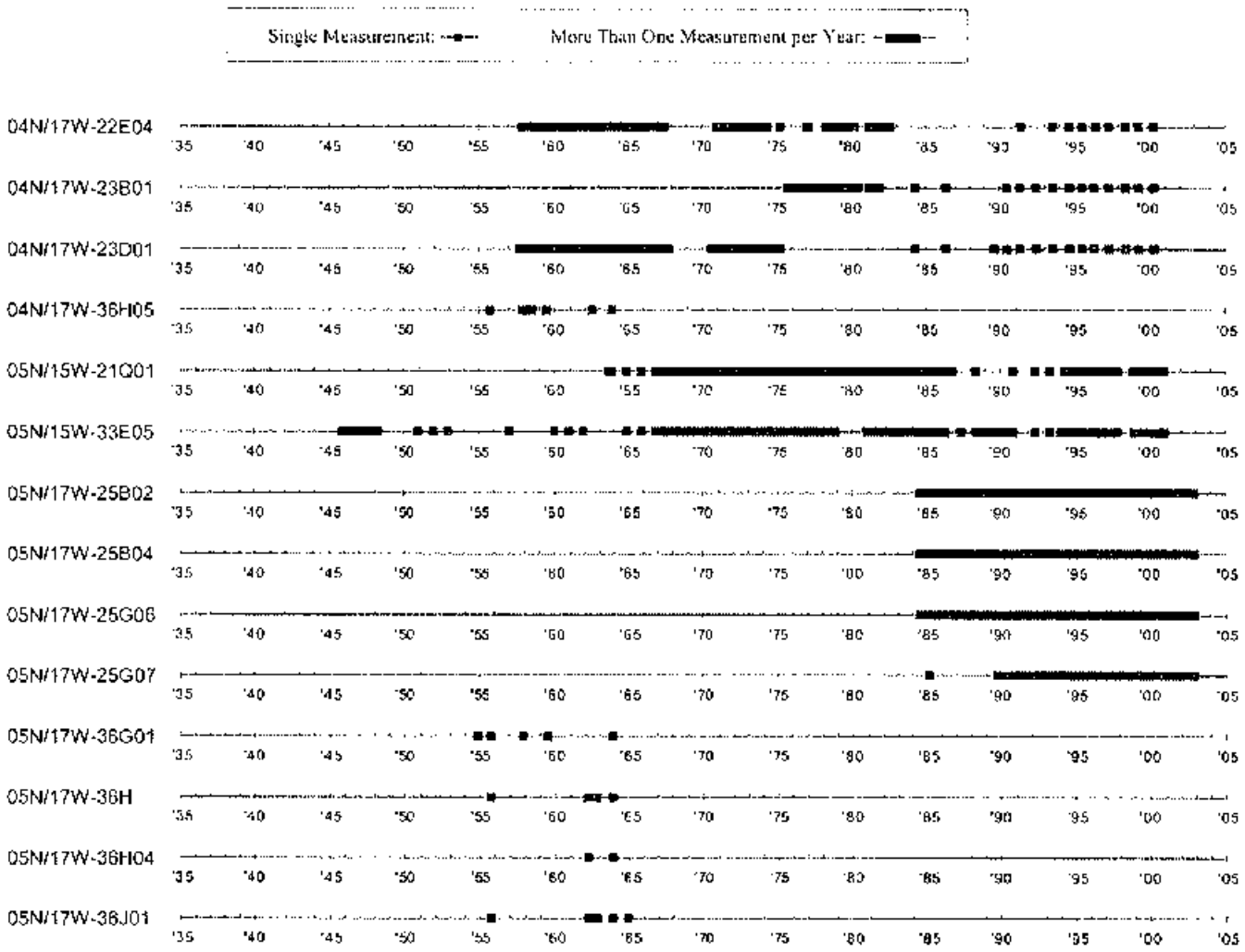


Table A1a
Dates of Historic Water Level Measurements in LACFCD Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

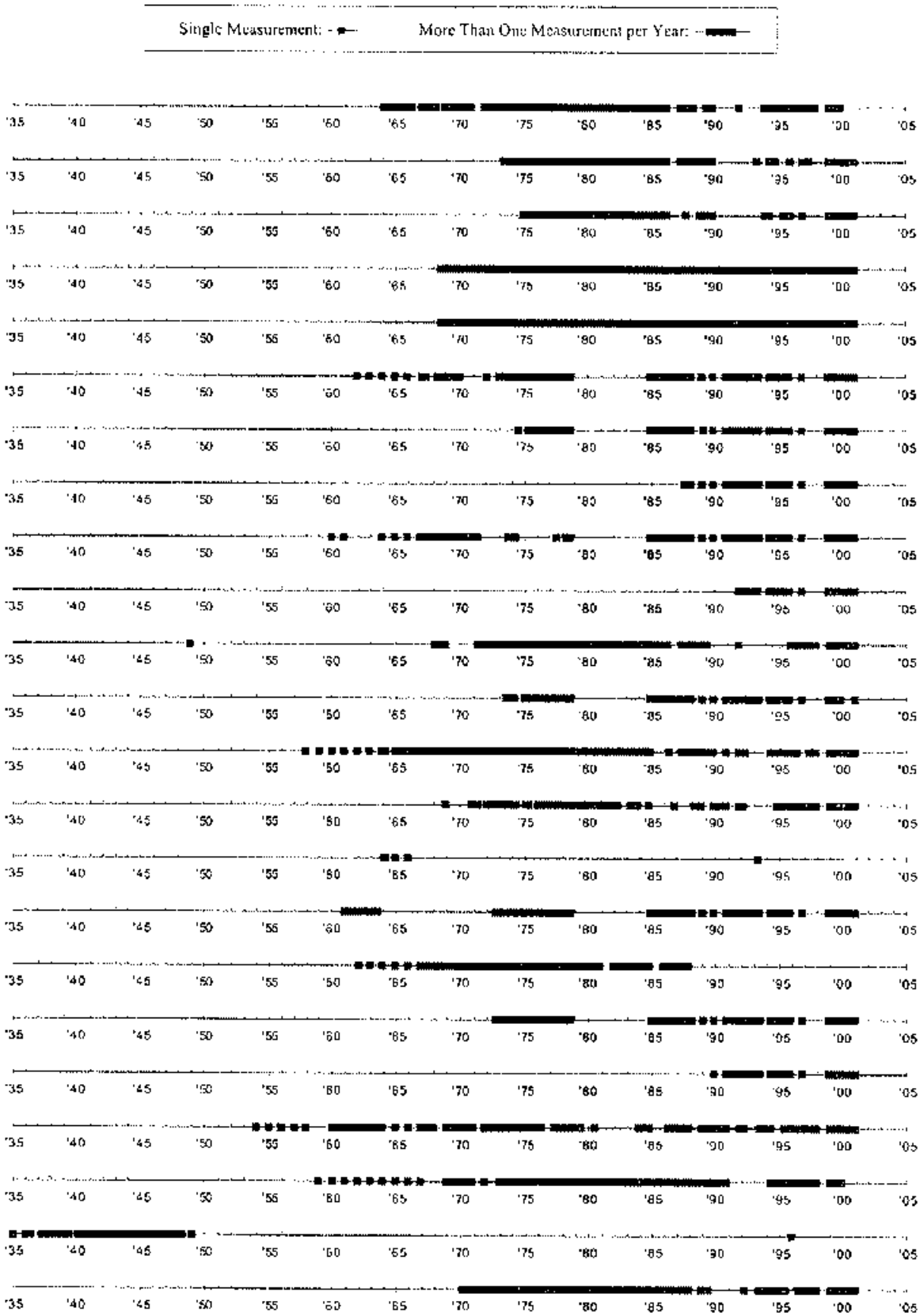


Table A1a - Continued
Dates of Historic Water Level Measurements in LACFCD Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

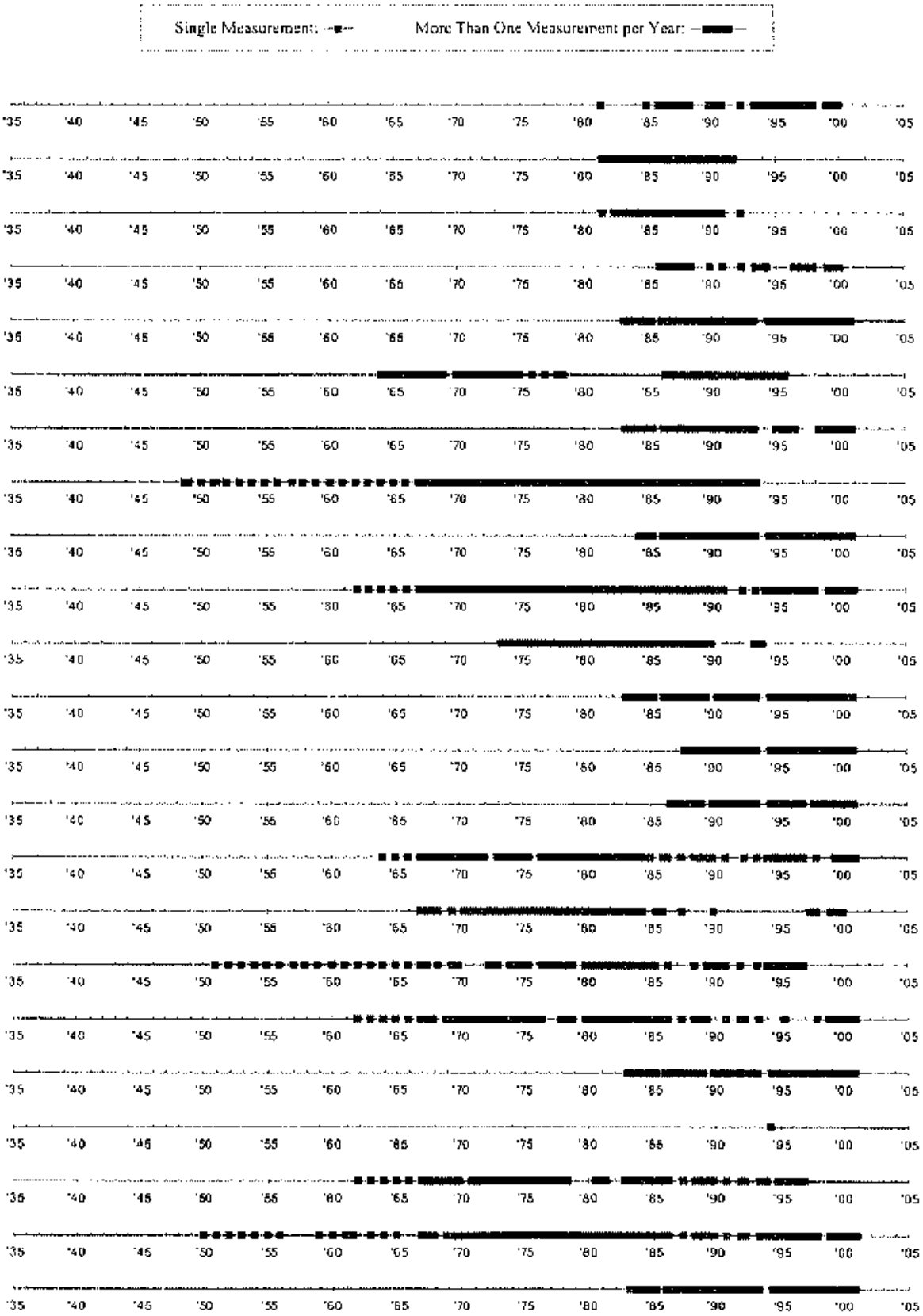


Table A1a - Continued
Dates of Historic Water Level Measurements in LACFCD Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

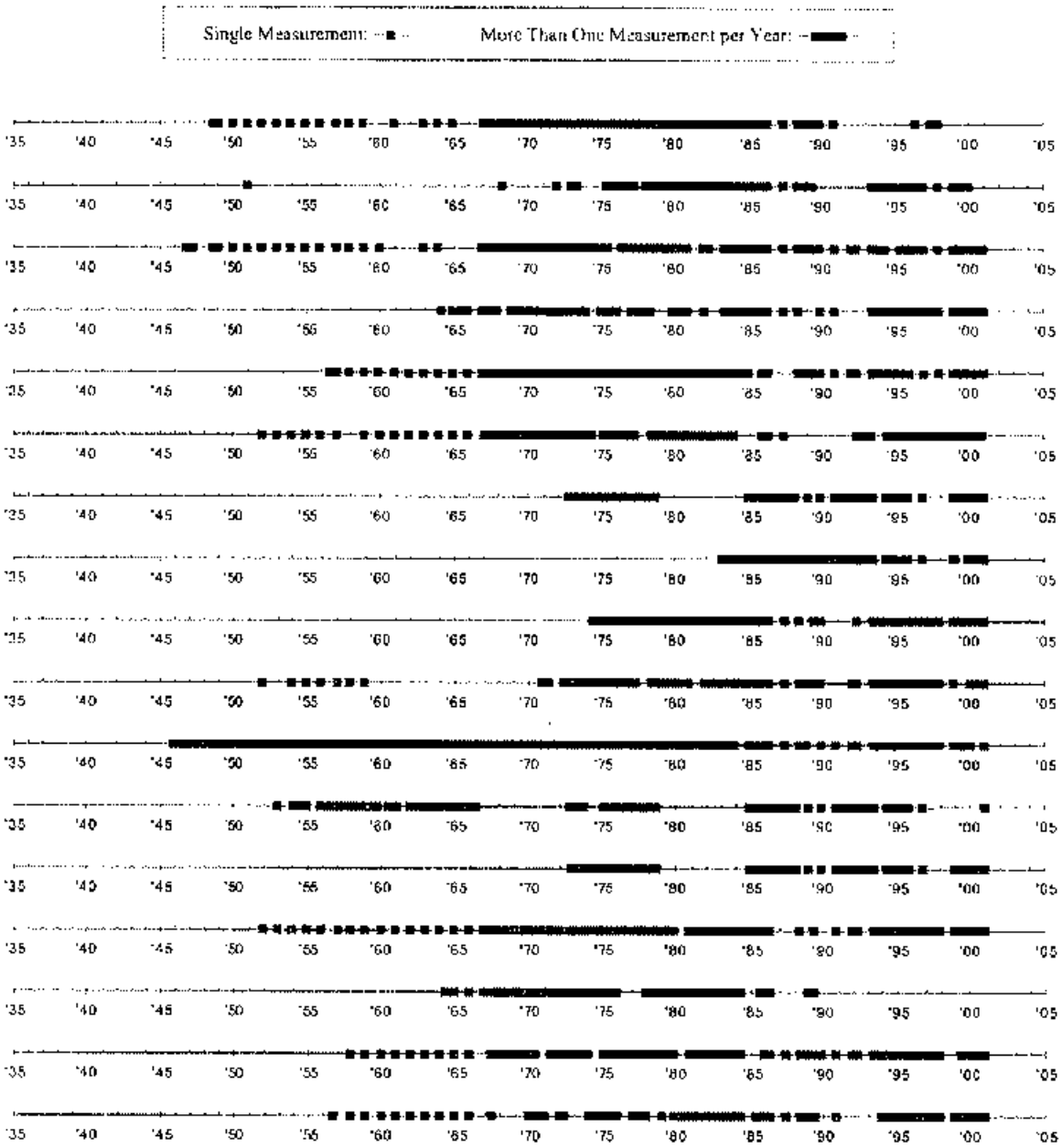


Table A2
Dates of Historic Water Level Measurements in Saugus Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

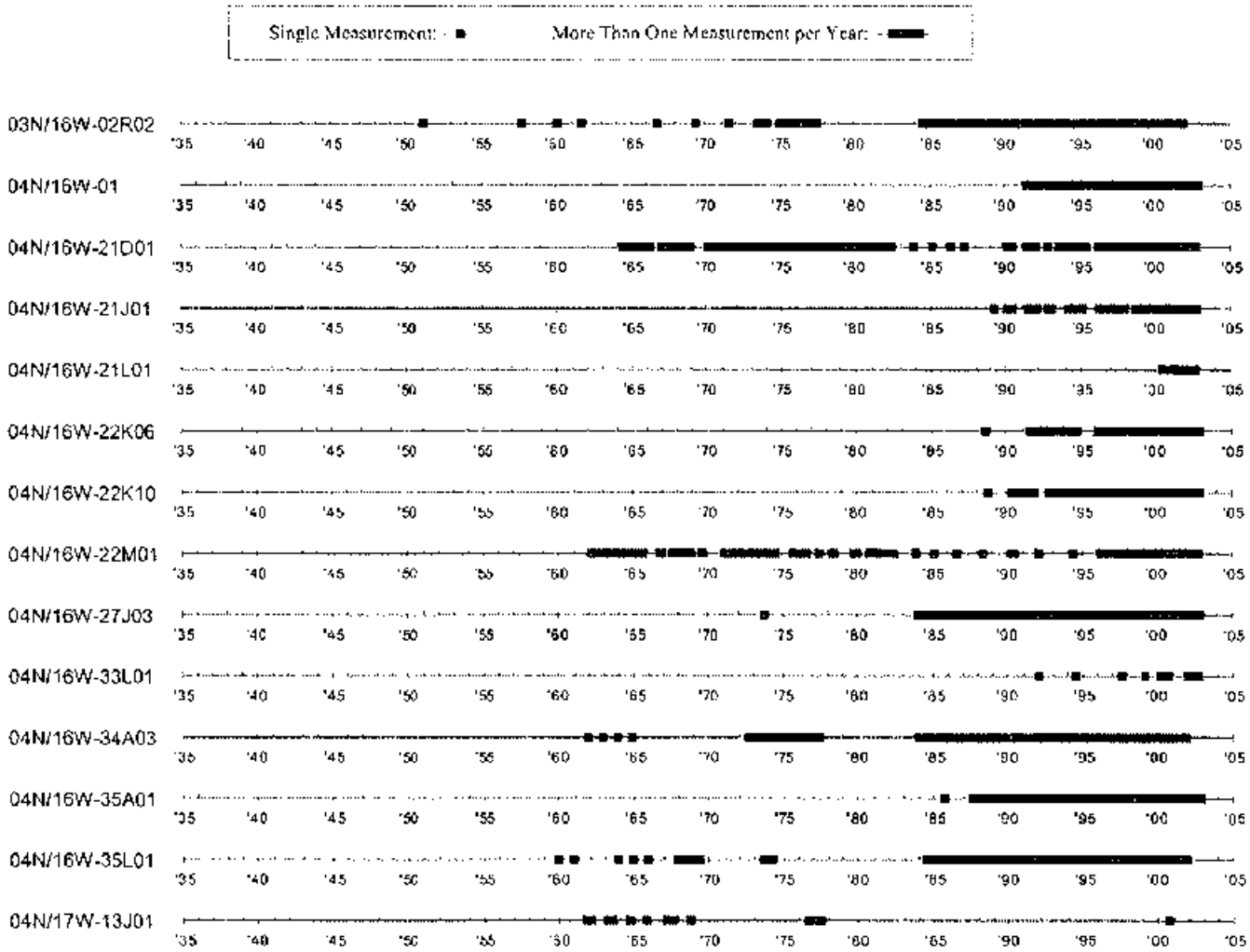


Table A3
Dates of Historic Water Quality Measurements (TDS) in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

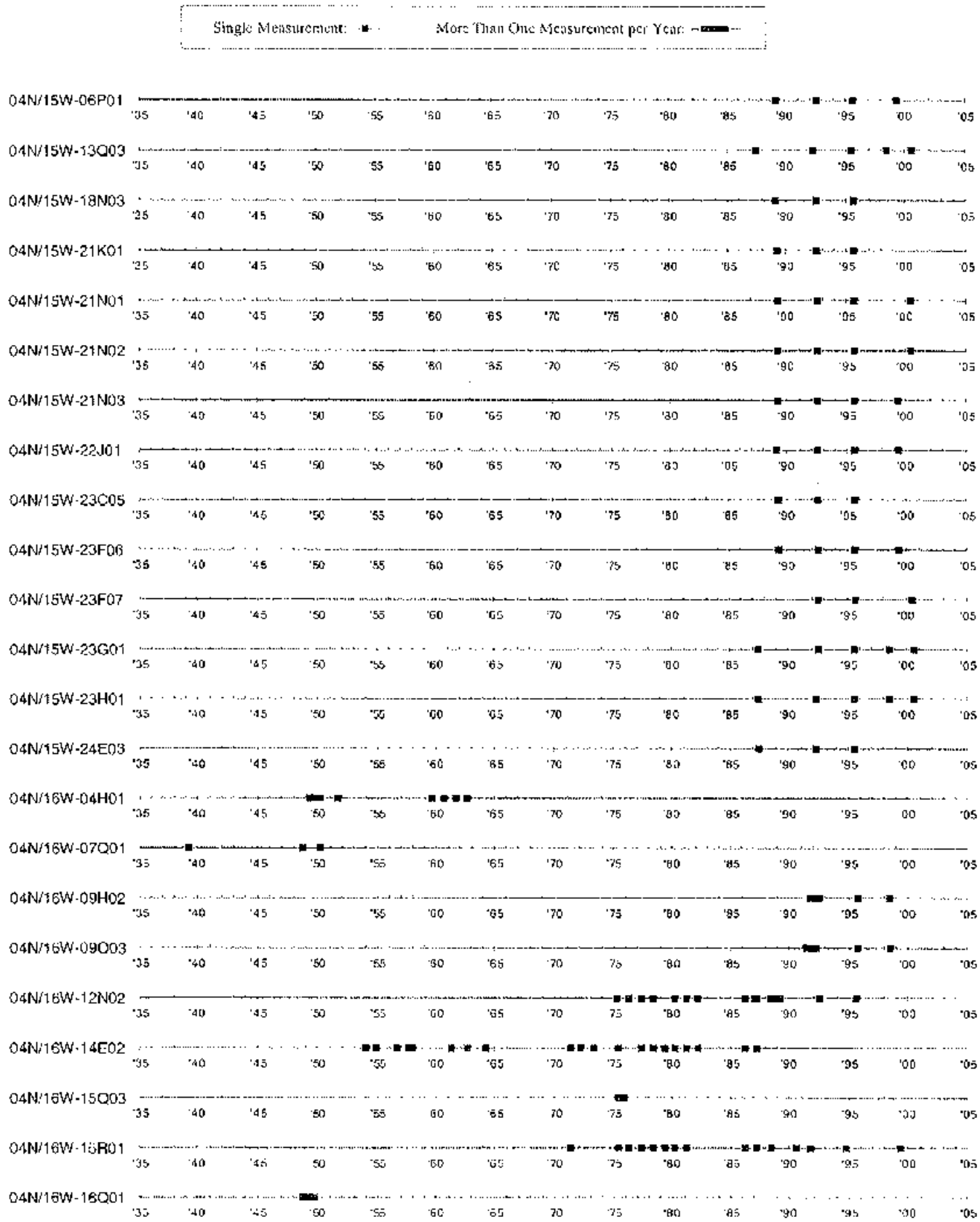


Table A3 - Continued
Dates of Historic Water Quality Measurements (TDS) in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

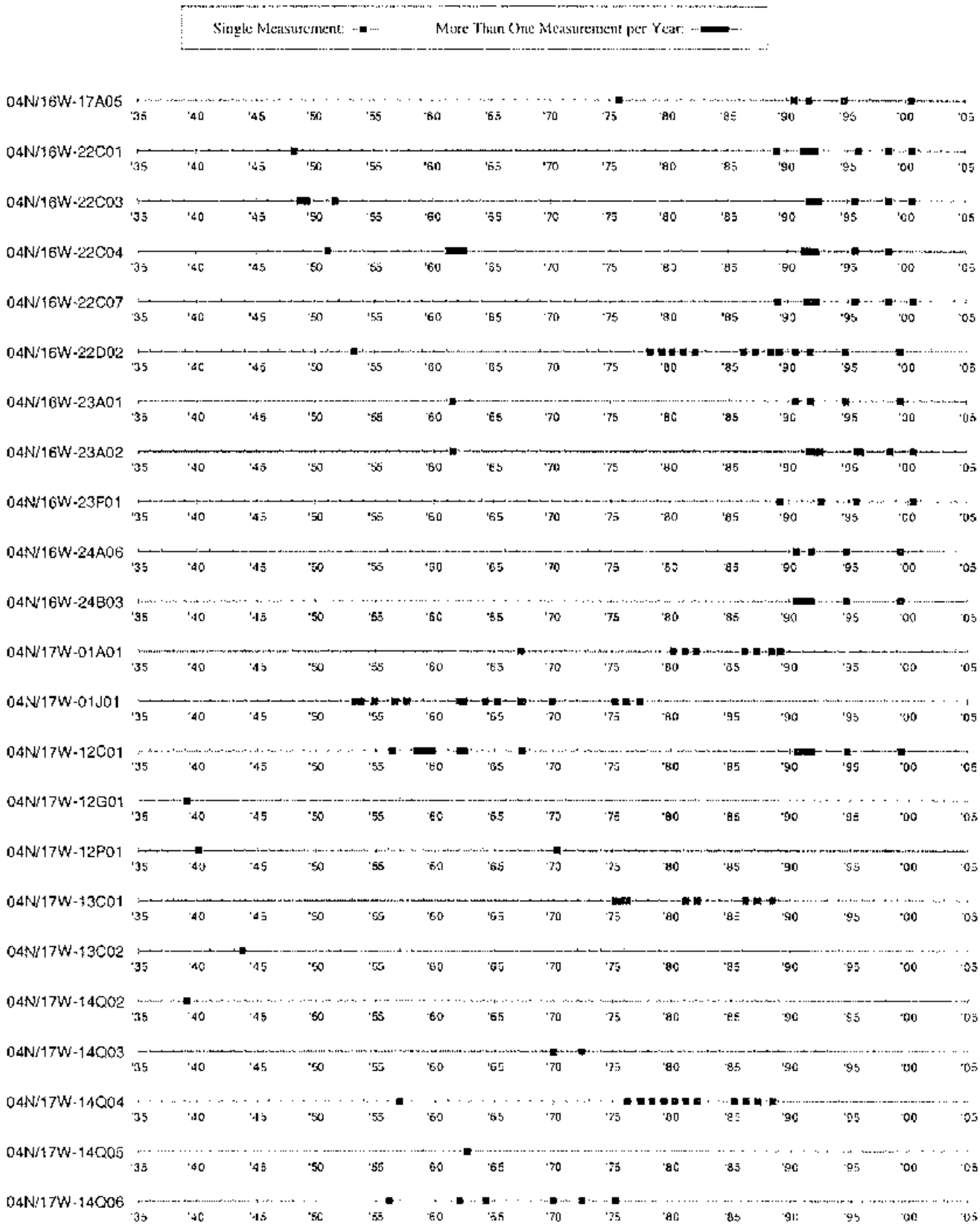


Table A3 - Continued
Dates of Historic Water Quality Measurements (TDS) in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin

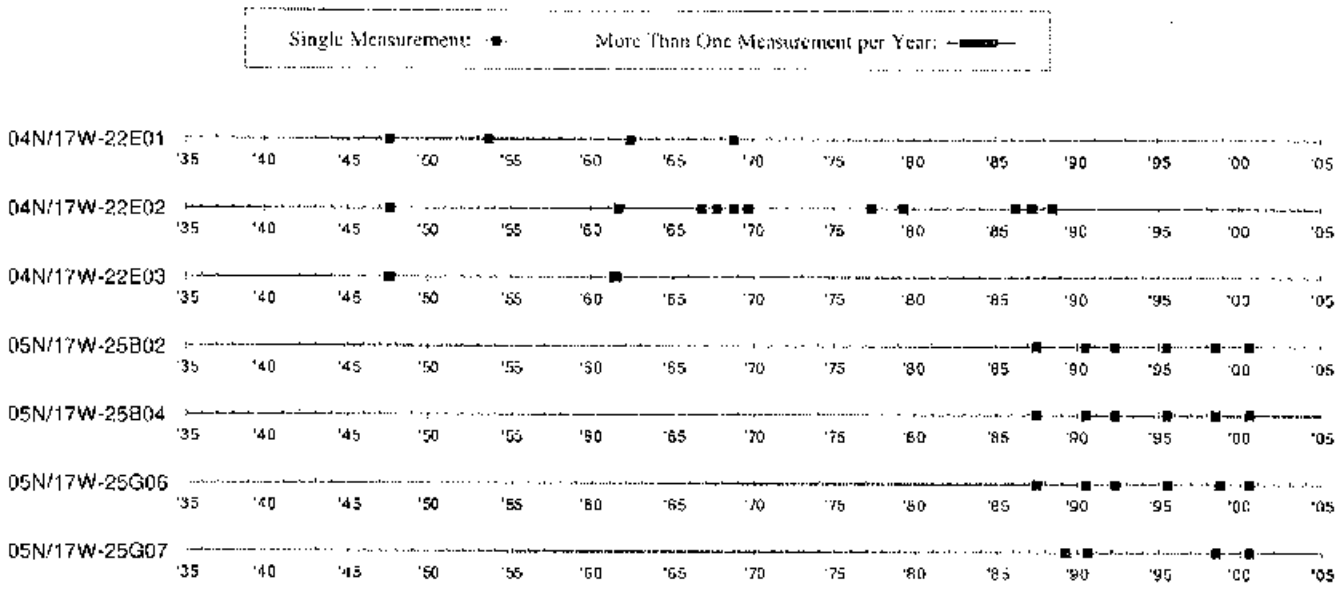
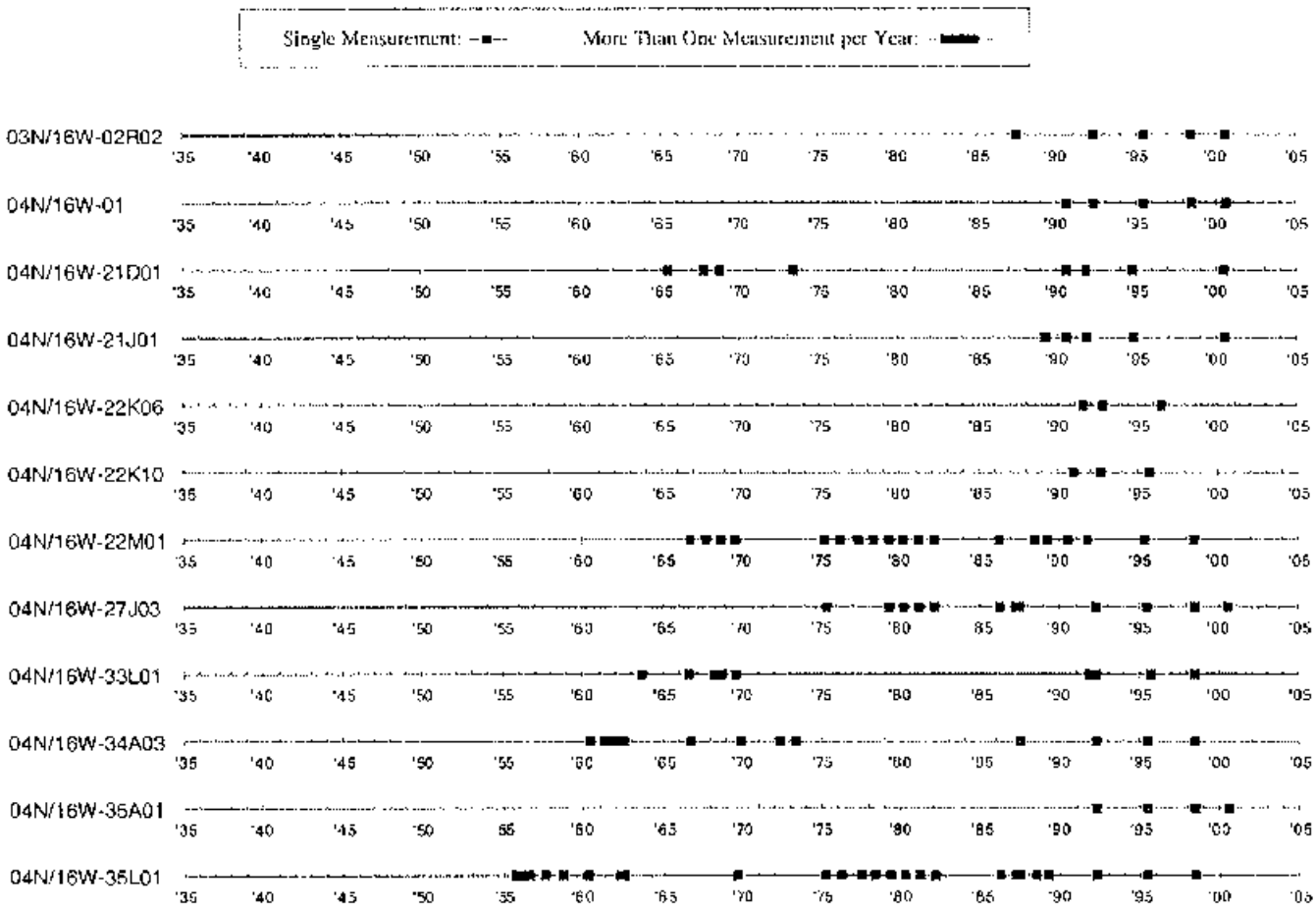


Table A4
Dates of Historic Water Quality Measurements (TDS) in Saugus Wells
Santa Clara River Valley Groundwater Basin, East Subbbasin



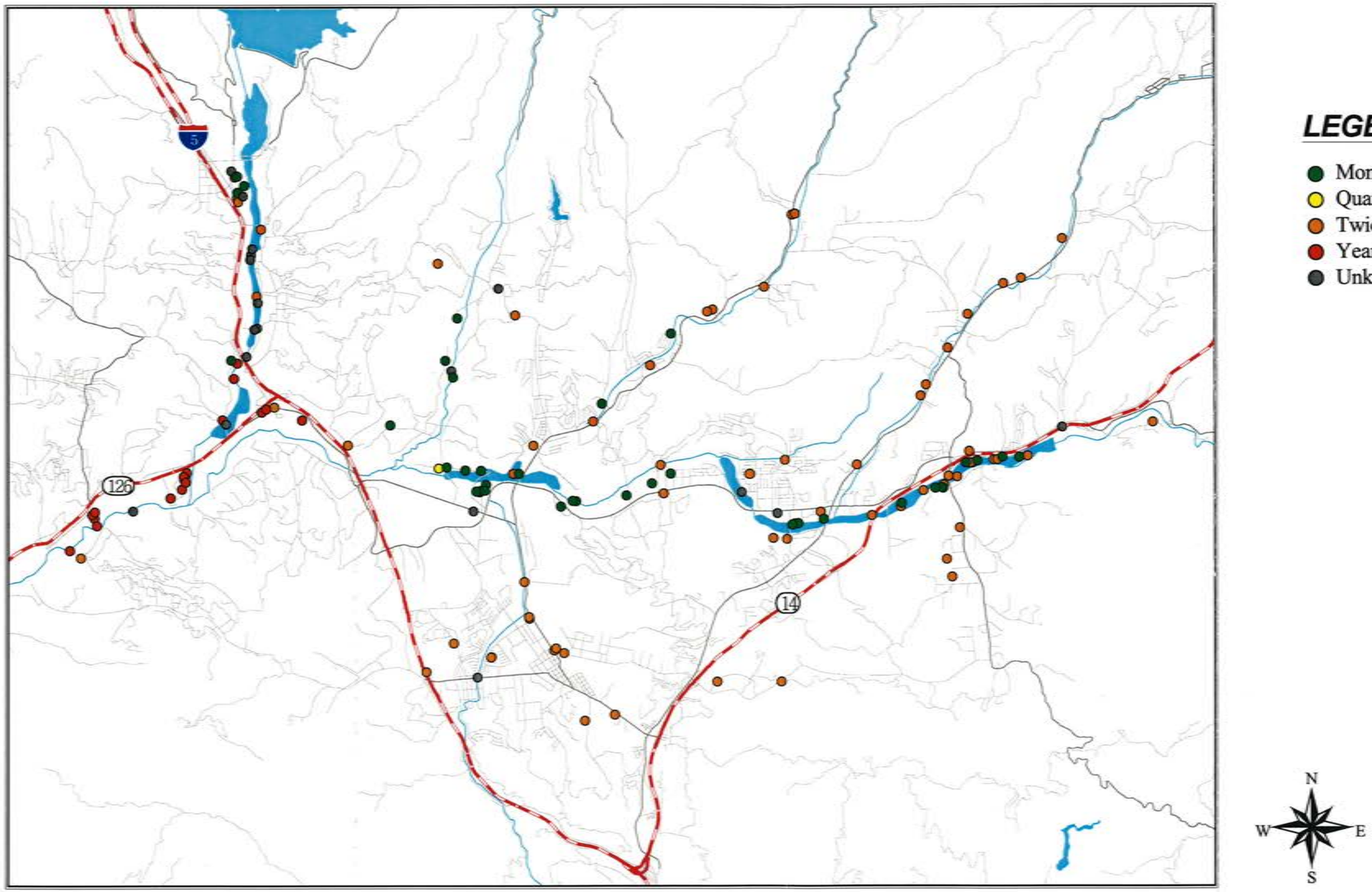


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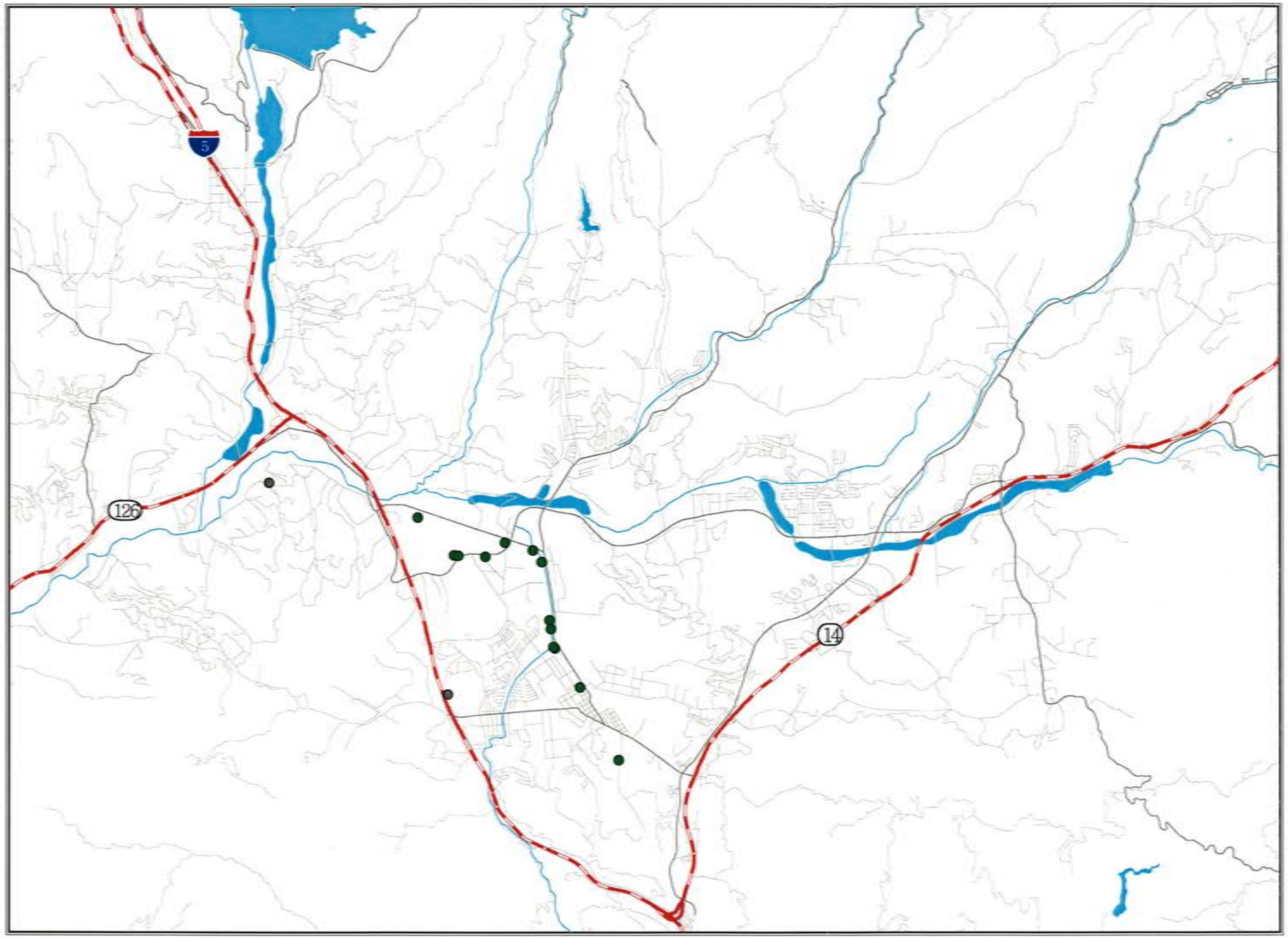
Figure A1
Frequency of Water Level Measurements in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbasin



LEGEND

- Monthly
- Unknown Status

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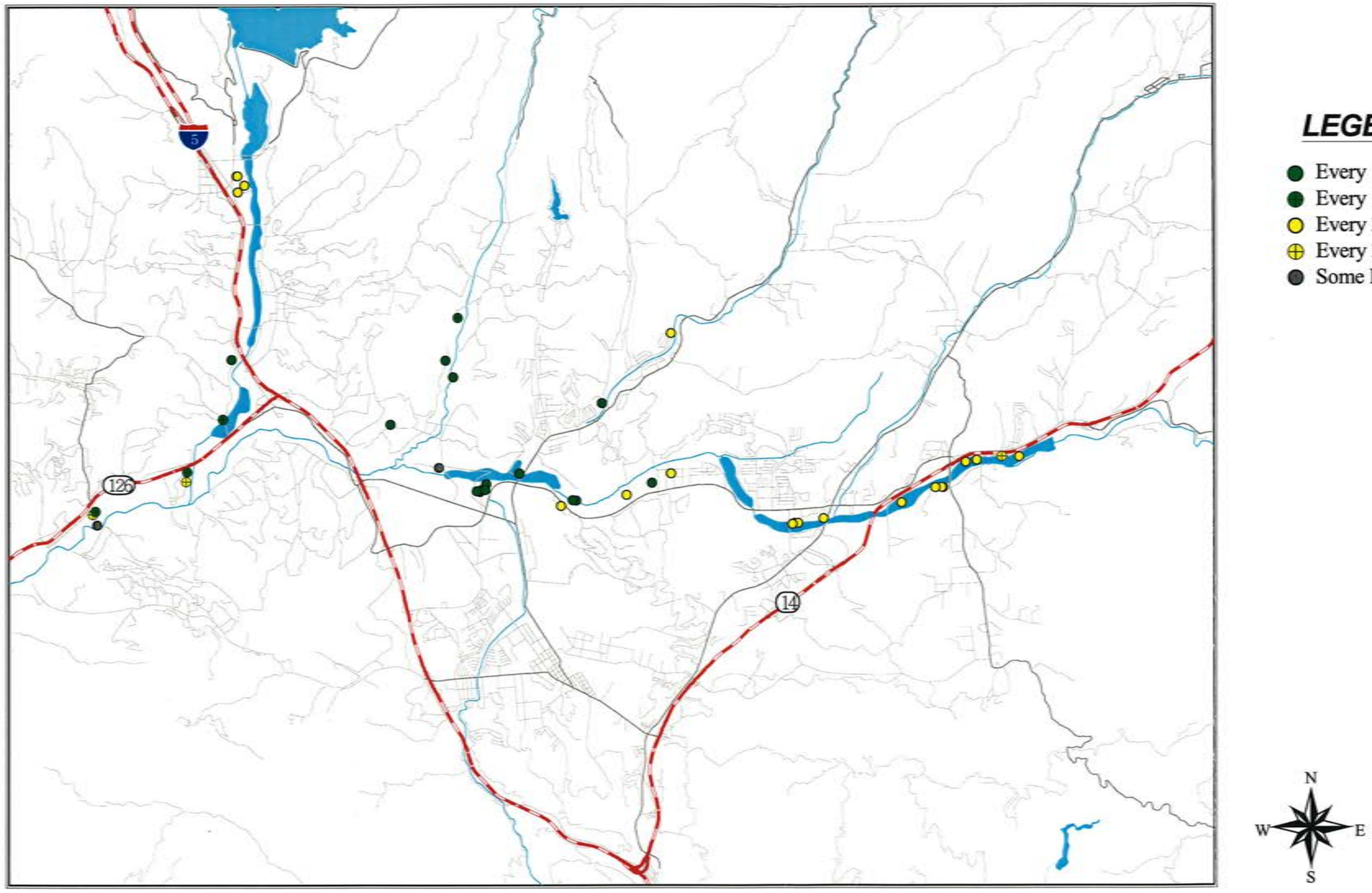
Figure A2
Frequency of Water Level Measurements in Saugus Wells
Santa Clara River Valley Groundwater Basin, East Subbasin



LEGEND

- Every 1 to 3 Years
- Every 1 to 3 Years (through 1988)
- Every 3 Years
- Every 3 Years (through 1988)
- Some Historic

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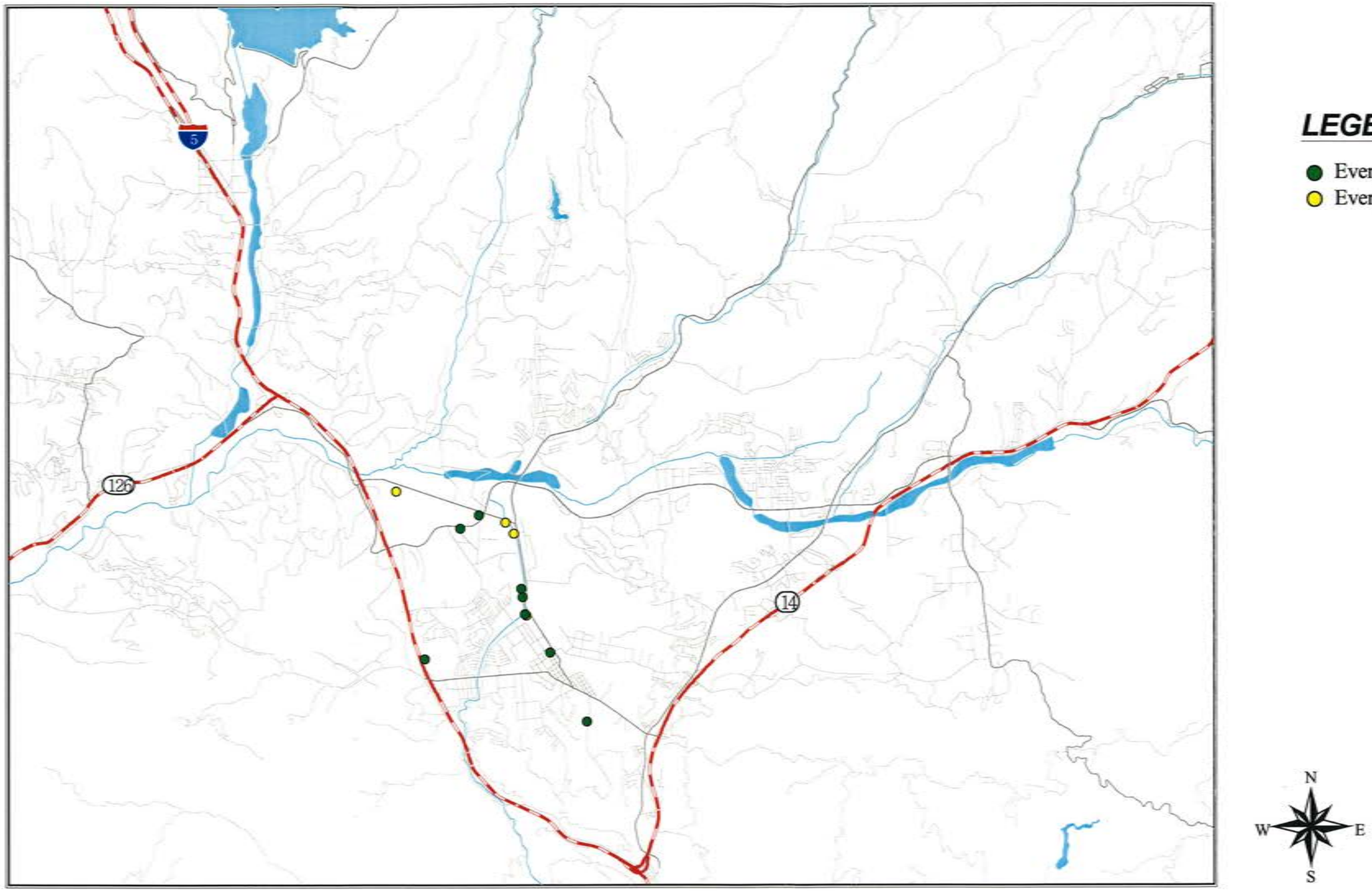
Figure A3
Frequency of Water Quality Measurements in Alluvial Wells
Santa Clara River Valley Groundwater Basin, East Subbasin



LEGEND

- Every 1 to 3 Years
- Every 3 Years

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Figure A4
Frequency of Water Quality Measurements in Saugus Wells
Santa Clara River Valley Groundwater Basin, East Subbasin

Appendix II

Groundwater Management Plan
Public Comments

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
UWCD #5	Under Primary Element 2 related to surface flows, in addition to SWP water contributing to the increased flow of the Santa Clara River, other considerations should be noted (hydrologic cycle, Alluvial pumping).	Primary Element 2	As noted above, discussion of groundwater–related conditions is included in the Plan as a frame of reference for the Plan objectives and elements. Future interpretation and reporting will take such details as the impacts of the hydrologic cycle and Alluvial pumping into account.
Santa Clarita Organization for Planning and the Environment #1	Extensive pumping and lack of protection of recharge areas have resulted in almost complete elimination of surface flows and summer ponding necessary to wildlife as well as causing water level drops in wells that have resulted in water quality and availability problems for small users.	Section III (Groundwater Levels and Storage) and (Groundwater Quality) and Primary Elements 1, 2 and 3	See responses to SCOPE Comments 5, 6 and 9, Sand Canyon Comments 1 and 7, and Sierra Club Comment 3 regarding pumping within basin yield, avoidance of overdraft, preservation of recharge areas, and consideration of riparian conditions.
SCOPE #2	Concern that environmental organizations, small well owners, City of Santa Clarita, LA County, and others were not included on the Advisory Board.	Water Code Appendix § 103-15.1(e)(2)	CLWA legal counsel has confirmed that CLWA complied with the requirements of AB 134 regarding the composition of the Advisory Council. LA County was represented by LA Co. WWD #36 and LA County Sheriff's Department
SCOPE #3	The GWMP should include a timeline for completion of the plan components.	AB 3030[2] and AB 134[3]	AB 3030 and AB 134 do not require the inclusion of a timeline.
SCOPE #4	The GWMP is lacking in the review of land use plans and coordination with land use agencies. Land use issues should be given higher priority. This may include a wellhead protection plan.	Water Code § 10753.8(l); Primary Element 9 and Secondary Element 2	Primary Element 9 and Secondary Element 2 have been expanded to further address general preservation of recharge areas and appropriate review of land use plans to protect against potential groundwater contamination.
SCOPE #5	GWMP should address maintaining tributaries in a natural state to enhance water recharge and quality.	This is not explicitly required by AB 3030 but does relate to Secondary Element 2.	Secondary Element 2 has been expanded to address preservation of in-channel recharge areas in both the Santa Clara River and its tributaries.

[2] Stats. 1992, Ch. 947.
[3] Stats. 2001, Ch. 929.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
SCOPE #6	GWMP should find ways to increase water recharge. Water agencies should also coordinate to prevent paving of prime recharge areas.	This is not explicitly required by AB 3030 but relates to Primary Elements 3, 4 and 5 and Secondary Element 2.	Potentially increasing groundwater recharge will be part of Primary Elements 3, 4 and 5. Prevention of paving prime recharge areas is included in the expanded Secondary Element 2.
SCOPE #7	Number One Goal should not be "Development of Local Groundwater for Water Supply" because groundwater has many other important uses (recreational, biological, etc…)	This is not required by AB 3030 or AB 134. See Section II of GWMP.	The text of Section II, Management Objectives (Goals) for the Basin does not indicate a preference of any one objective over the others. The listing is not intended to indicate that any objective will not be attempted; all objectives are intended to be achieved.
SCOPE #8	Agricultural water usage in the GWMP is overestimated with the perennial yield (40,000 afy) estimate higher than that in a Richard Slade report; less agricultural runoff water is available for recharge today.	Section IV (Existing and Projected Water Supplies)	Reported historical agricultural pumping is consistent with all available records. A perennial yield of 40,000 afy is not included or implied in the GWMP. Rather, estimated ranges of 30,000 to 40,000 afy, depending on hydrologic conditions, are included as expected yield from the Alluvium. That range is consistent with historical reports, and with observations of actual Alluvial aquifer response to pumping in that range for at least the last 50 years.
SCOPE #9	Disappearance of year round Santa Clara River flow is indication of overdraft. "There are numerous records and observations by long-time residents indicating that surface flow usually occurred year round."	Section III (Areas of Concern and Identified Problems); Water Code § 10753.8(e).	Disappearance of year round stream flow does not necessarily indicate groundwater overdraft. In fact, stream flow west of Bouquet Canyon is now perennial. Part of implementing Primary Element 1 will be to obtain the "numerous records" of year round stream flow that are noted to have usually occurred.
SCOPE #10	GWMP should disclose the reduction in production capability because of perchlorate contamination.	Primary Element 8; § 10753.8(j).	The GWMP notes the inactivation of wells that have been impacted by perchlorate contamination.
Sand Canyon Area Well Owners Assoc. #1	Groundwater is extensively pumped and recharge areas are not adequately protected; water level in four wells has dropped from 12 ft in 1997 to 93 ft currently.	This relates to Primary Elements 1 and 3, and Secondary Element 2.	The noted groundwater level fluctuations are consistent with those described in Section III and illustrated in Figure 3-2 for the Sand Canyon area. Section III also describes and illustrates the historical recovery from such declines. Avoidance of overdraft, i.e. continuous lowering of water levels, and protection of recharge areas are included in Primary Element 3 and Secondary Element 2, respectively.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Sand Canyon #2	Advisory board lacks representation by rural well owners.	Water Code Appendix § 103-15.1(e)(2)	CLWA complied with the requirements of AB 134 regarding the composition of the Advisory Council.
Sand Canyon #3	GWMP should include timelines for completing its phases.	AB 3030 and AB 134.	Timelines are not required by AB 3030 or AB 134.
Sand Canyon #4	GWMP is lacking in its review of land use plans and coordination with land use agencies.	Water Code §10753.8(l)	See response to SCOPE Comment 3 above.
Sand Canyon #5	Perennial yield estimates for the Santa Clara River are higher than that provided in a Richard Slade report. Agricultural runoff is no longer a factor; agricultural usage was not metered historically, and former recharge areas have been paved.	Section IV (Existing and Projected Water Supplies)	See response to SCOPE Comment 8 above.
Sand Canyon #6	Santa Clara River should not be defined in terms of percolating groundwater. GWMP should clarify relationship between river and Saugus formation.	Section III	The GWMP is not an appropriate document in which to define the legal classification of groundwater, whether in the Alluvium or the Saugus Formation; consequently, there is no expression in the GWMP to describe the legal classification of groundwater in the basin. The entire focus of the GWMP is management of groundwater toward long-term preservation of both the quantity and quality of the resource.
Sand Canyon #7	GWMP's assertions against existence of overdraft or other undesirable conditions are incorrect since water levels in wells have reached historic lows. In addition, riparian conditions on the Santa Clara River and tributaries show signs of water deprivation.	Section III (Areas of Concern and Identified Problems)	See response to Sand Canyon Comment 1. Further, intermittent fluctuations reaching the equivalent of historic low levels is not overdraft. Primary Elements 1 and 3 are included to monitor groundwater levels throughout the basin, and to operate in an ongoing manner to avoid overdraft. Finally, the statement that riparian conditions show signs of water deprivation is non-specific as to location and is otherwise unsubstantiated. Primary Elements 1 and 2 are included in the Plan to quantify the existence and extent of such conditions, if they occur; Primary Element 3 is included to avoid overdraft- related conditions of the type noted.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Sand Canyon #8	GWMP should include reports regarding water contamination from Robinson Ranch. City of Santa Clarita had stipulated that water quality adjacent to the golf course be monitored with results published in a report.	Primary Element 1	See response to UWCD Comment 1 regarding extent of detail regarding occurrence of groundwater as framework for understanding the objectives and elements of the GWMP. As regards this comment, there is no documented groundwater contamination from Robinson Ranch, including that golf course. Required reports on Robinson Ranch have not shown any contamination as alleged in this comment. Monitoring in accordance with Primary Element 1 is intended to detect any groundwater contamination of the nature alleged in this comment.
Friends of the Santa Clara River #1	Disappointed that GWMP's primary goal is "Development of Local Groundwater for Water Supply" because other objectives should include protection of groundwater resources.	AB 3030 and AB 134. Section II of GWMP.	See response to SCOPE Comment 7 above regarding lack of priority for all management objectives, and lack of "primary" status for "Development of Local Groundwater for Water Supply".
Friends #2	GWMP should emphasize that paving of streams reduces recharge and should be avoided. Buffer zones around streams should be discussed.	This is not explicitly required by AB 3030 but relates to Primary Elements 3, 4 and 5 and Secondary Element 2.	See response to SCOPE Comments 4, 5 and 6. Further, given the importance of in-channel recharge to the yield of the Alluvium, a priority in implementation of the Plan can logically be expected to be avoidance of paving stream channels.
Friends #3	Advisory Board should include representatives from environmental groups and county agencies.	Water Code Appendix § 103-15.1(e)(2)	CLWA complied with the requirements of AB 134 regarding the composition of the Advisory Council.
Santa Clarita Sierra Club Group #1	GWMP should include timelines for completion of components.	AB 3030 and AB 134.	Timelines are not required by AB 3030 or AB 134

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Sierra Club #2	GWMP does not account for loss of groundwater from perchlorate contamination. "The numbers do not adequately represent the real water supply."	Primary Element 8; Water Code §10753.8(j)	See response to SCOPE Comment 10 regarding the inactivation of wells impacted by perchlorate contamination. The inactivation of certain wells impacts pumping capacity until the wells can be reactivated, with treatment if necessary, or replaced. However, perchlorate contamination does not reduce the available yield of the aquifer system; hence, the numbers included in the GWMP accurately reflect the current state of water supply.
Sierra Club #3	Loss of groundwater due to development and pavement is not considered. GWMP must address coordination of land use with water necessities.	This is not explicitly required by AB 3030 but relates to Primary Elements 3, 4 and 5 and Secondary Element 2.	See responses to SCOPE Comments 4 and 6. Further, there has been no "loss" of groundwater due to development or pavement; groundwater conditions remain as generally described in Section III, with nearly constant water levels to the west and repetitive fluctuations to the east (see response to Sand Canyon Comment 1).
Sierra Club #4	Drought planning is inadequate as it fails to take account of loss of primary water sources and reclaimed water.	Primary Element 3, 4, 5 and 7.	Drought planning is embedded in the GWMP in that the Plan is intended to result in groundwater management that ensures adequacy of groundwater supplies through both wet and dry (drought) hydrologic cycles. While "drought planning", per se, relates more specifically to overall water supply planning, of which groundwater is only one component, this Plan is intended to manage groundwater in such a way that it will be a reliable component of overall water supply through dry periods without being overdrafted on a long-term basis, e.g. through wet/normal periods that follow dry periods. Primary Elements 3, 4, 5 and 7 in the Plan relate to drought planning as well as parts of groundwater management through long-term fluctuations in hydrologic conditions.
Sierra Club #5	GWMP does not adequately discuss maintaining river and tributary habitats. Sierra Club supports a citizen monitoring program for water quality.	This is not explicitly required by AB 3030 but does relate to Secondary Element 2.	See response to SCOPE Comment 5 and Friends Comment 2.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Sierra Club #6	CLWA should involve the public and other government and private entities in its water supply planning.	Water Code Appendix § 103-15.1(e)(2)	CLWA complied with the requirements of AB 134 regarding the composition of the Advisory Council.
Ed & Joan Dunn #1	Concern because CLWA did not hold more public meetings before release of draft. Concern whether CLWA has regularly met with Advisory Board.	Water Code § 10753 et seq.	CLWA has complied with all requirements thus far regarding public meetings and gone beyond that legally required.
Dunn #2	Doubt regarding replenishment of water in the Alluvial Aquifer.	Primary Elements 3, 4 and 5	Fundamentally, as discussed in the Plan, the long-term objectives for the basin include utilizing groundwater for water supply while not overdrafting the basin. As also discussed in the Plan, historically, in the western part of the basin there has been sufficient water for recharge to maintain an essentially full basin throughout both wet and dry hydrologic periods. Part of the reference to "sustain recharge" relates to that historical condition. Whether or not additional artificial recharge will be implemented in other parts of the basin, and what water sources might be used for such recharge, are to be addressed via implementation of the Plan, particularly Primary Elements 3, 4 and 5.
Dunn #3	Doubt over Richard Slade's assertion as to Alluvial Aquifer capacity.	This challenges evidence which the GWMP cites.	The analysis and determination of the storage capacity of the Alluvium has been exhaustively described in Slade's reports. The comment conveys no specific aspect of its "question"; the commentors are referred to Slade's reports, which address the storage calculations in proper technical detail.
Dunn #4	GWMP should state that SWP water was interrupted for 6 months in 1991. Newspaper clipping is provided for this point.	Primary Elements 3, 4 and 5	Primary Elements 3, 4 and 5 are included in the GWMP to ensure the maximum reliability of local groundwater in order to endure any future drought-related impacts on SWP deliveries, such as occurred in 1991.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Dunn #5	Statement in GWMP that no wells exceeded DHS action level for perchlorate is false. Newspaper clippings provided.	Section III (Groundwater Quality)	The Plan has been revised to reflect that, while there remains no primary or secondary drinking water standard for perchlorate, and although only some of the detected concentrations of perchlorate in the Saugus wells exceeded the Action Level established by the State Department of Health Services at that time (18 ug/l), all those wells were inactivated by their respective owners after detection of perchlorate; those wells remain out of municipal water supply service since then.
Dunn #6	Statement that perchlorate contamination has not reduced groundwater capacity is misleading.	Primary Element 8	See response to SCOPE Comment 10 and Sierra Club Comment 2.
Dunn #7	The Urban Water Management Plan should not be referred to because it is under legal attack.	While it has been challenged, the UWMP is still a valid document.	While it has been challenged, the UWMP is still a valid document and represents the current plan for urban water supply through its 20 year planning horizon. The Kern County Superior Court in February 2003 ruled completely in favor of the water suppliers in their defense of the UWMP litigation. The remaining petitioners have appealed.
Dunn #8	The Saugus Formation does NOT underlie the entire CLWA service area.	Section I (Santa Clara River Valley Groundwater Basin)	The text of the Plan has been revised to reflect that the Saugus Formation underlies much of the CLWA service area.
Dunn #9	GWMP should state CLWA's inability to transport additional SWP to Santa Clarita Valley.	Section IV (Existing and Projected Water Supplies)	CLWA does not have an inability to transport additional SWP water to the Santa Clarita Valley. Fundamentally, the comment is erroneous since the State conveys SWP water to CLWA's diversion points from Castaic Lake; from there CLWA has sufficient treatment and conveyance capacity for its current water demands, and is in the process of designing additional treatment plant capacity to treat and distribute additional water to accommodate projected increased demand.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Dunn #10	CLWA's recycled water program is for private business only, not public agencies.	Primary Element 7	The recycled water program has no restrictions against use by public agencies. As described in Primary Element 7, the integration of recycled water to meet some non-potable demand is expected to decrease overall demand for potable water by up to 17,000 afy. As public agencies develop capabilities to utilize recycled water for non-potable uses, they are expected to reduce potable water demands by integrating recycled water into their overall water delivery systems. Finally, recycled water service to a specific user or area frees up potable water supplies for other users or areas, thus enhancing the reliability of the overall water supply of the Valley.
Dunn #11	Groundwater production from both the Alluvium and Saugus Formation is overstated.	Section IV (Existing and Projected Water Supplies)	The comment is unsubstantiated and includes no support in the form of records or other data to validate it. The historical use of groundwater reported in the Plan is based on a combination of metered pumping and indirect estimation of pumping based on metered power consumption and pump performance testing. There is no basis for claiming that reported groundwater production is "overstated".
Dunn #12	CLWA should develop an emergency plan.	Primary Elements 3, 4 and 5	Development of an emergency plan, presumably an emergency water supply plan, is beyond the scope of a GWMP. However, Primary Elements 3, 4 and 5 are intended to further develop both a regular and a dry year/emergency component of water supply from local groundwater.
Dunn #13	Chart depicting SWP water received in 1991 is erroneous. Newspaper clipping provided.	Figure 4-1	The final 1991 M&I allocation was 30% (October 1991). CLWA's M&I entitlement at that time was 41,500 af. The total amount made available to CLWA by DWR was 13,050 af. Since by October, CLWA and the retail purveyors had already instituted emergency operations, the entire amount was not used.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Dunn #14	Claim that CLWA meetings with retail water purveyors, the City, and UWCD have not occurred.	Primary Element 9	The Commentors' lack of knowledge of such meetings does not mean they have not occurred. Appropriate documentation of such meetings, including presentation materials, discussion topics, and resultant work assignments, are maintained by meeting participants.
Dunn #15	Secret meetings and secret reports related to Primary Element 10 should not be included as part of the GWMP.	Primary Element 10	The preparation of the annual Water Reports does not indicate that any secret meetings have taken place. Previous Water Reports have been prepared, and future Water Reports are envisioned to be prepared with few, if any, meetings of any type; both public and private meetings have been convened to present and discuss the findings of the various Water Reports, and such meetings are intended to occur in the future for the same purpose.
Dunn #16	CLWA should provide an accounting of water conserved.	N/A	Providing an accounting of water conserved is beyond the scope of the GWMP. More water sales are occurring through time due to increasing demand in the Valley. Water conservation measures result in water savings even though demand is increasing.
Diane Trautman (City Planning Commissioner) #1	What percentage of water demand will be drawn from local groundwater?	Primary Element 5	In terms of groundwater management planning, projected urban water demand (the 106,000 afy projected urban demand in 2020) does not represent total valley-wide demand; total projected demand is 113,100 afy, including both urban and agricultural. In that light, on an average basis, local groundwater is expected to be utilized to meet about 40 percent of total water demand.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Trautman #2	Will pumping of the Alluvial Aquifer reduce recharge of the Saugus Formation and reduce water that can be produced from the Saugus Formation during dry periods?	Primary Elements 3, 4 and 5	No. Since the Saugus Formation is recharged over a much larger area, beyond the spatial extent of the Alluvium, there is a limited relationship between Alluvial pumping and recharge to the Saugus Formation. The fundamental tenet of the GWMP is to utilize groundwater for water supply within its sustainable yield (see the Management Objectives, or Goals, for the Basin, GWMP Section II; see also the various GWMP Elements intended to achieve those objectives, GWMP Section V). In that light, it is expected and intended to operate in such a way that recharge to the Saugus Formation will not be "reduced" by pumping from the Alluvial Aquifer and that groundwater will be available in varying amounts, as needed depending on weather year-types, within the sustainable yields of the respective aquifers (i.e. without overdrafting them).
Trautman #3	Does CLWA have sufficient data regarding the Alluvial Aquifer and Saugus Formation; if not, how will it obtain such data?	Section III and Primary Element 1.	The reference to "useful amount of groundwater quality data" in the GWMP includes both Alluvial and Saugus data. However, due to the historically greater development and use of groundwater from the Alluvium (number and distribution of wells, volume of pumping), and due to the historically smaller development and use of the Saugus Formation (fewer wells, smaller geographical distribution of wells, smaller pumpage), there is comparatively limited ability to examine relationships among pumping, recharge, and quality in the Saugus Formation. CLWA and the other purveyors intend to expand the overall knowledge of the Saugus Formation as that resource is further explored and developed (number of wells, additional sampling as new wells are added, etc.). All that data will be included in ongoing implementation of GWMP Primary Element 1, Monitoring of Groundwater Levels, Quality and Production.
Trautman #4	The 2002 Water Report indicates that "there are limited Saugus (Formation) water level data." Does CLWA plan to collect more comprehensive data on the Saugus Formation?	Section III and Primary Element 1	The "limited nature of Saugus water level data" is a result of the same smaller extent of historical Saugus development described in the preceding answer. Acquisition of additional data on the Saugus Formation is planned as also described in the preceding answer.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Trautman #5	Is CLWA sharing detailed information with the City of Santa Clarita regarding contamination risks in relation to existing closed wells?	Primary Element 9	All publicly available information regarding the investigation of perchlorate contamination, its extent, its impact on water supply, and plans for cleanup, control of migration, etc. is available to the City. Representatives of CLWA and the purveyors meet routinely with City representatives to review the status of perchlorate cleanup and remediation activities. CLWA and the impacted water purveyors will continue to pursue control and cleanup of perchlorate contamination in order to restore impacted groundwater pumping capacity and to ensure the long-term quantity and quality of groundwater in accordance with the GWMP. As a practical matter, there are no surface contamination risks relating to perchlorate that would affect land use development adjacent to the impacted wells.
Trautman #6	Where is the Stadium Well located?	Section IV (Groundwater Quality)	The Stadium Well is located on the south side of the Santa Clara River, approximately two miles upstream (east) of its confluence with the South Fork tributary, or about 4,000 feet east of the Bouquet Canyon Road crossing of the Santa Clara River.
Trautman #7	Why isn't conservation a primary element (instead of secondary) since it may reduce water demand by 10%?	Secondary Element 1	The assignment of "primary" or "secondary" status to any GWMP element is discretionary and certainly not absolute. Secondary status is not intended to indicate that any element of the GWMP will not be implemented; all elements are intended to be implemented. Final status of all GWMP elements will be reviewed by the Advisory Council and the CLWA Board.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Trautman #8	How is CLWA delivering recycled water?	Primary Element 7	Recycled water is being delivered to the TPC golf course, the first customer of the system, via the dedicated, recycled water distribution system, which is also capable of delivering water to other non-potable water users, and which will be expanded in accordance with the Draft Recycled Water Master Plan. The costs and time frame for expanding recycled water distribution and use are included in the Draft Recycled Water Master Plan, which is complementary to, but beyond the scope of the Groundwater Management Plan. The intent is to develop 17,000 afy of recycled water use by 2020. The capital cost of the complete system is estimated to be $68 million, and will be funded through CLWA's connection fee program.
Trautman #9	How is recycled water reprocessed?	Primary Element 7	Recycled water is not "reprocessed" at points of use such at the TPC golf course. In general, recycled water is highly treated (tertiary treated) waste water. In the case of the Santa Clarita Valley, treatment already occurs at the Valencia Reclamation Plant operated by the Sanitation Districts of Los Angeles County. The treated water, ready for non-potable use, is distributed from the plant site in a dedicated transmission pipeline system to end users such as the TPC. Pesticide and fertilizer uses, as part of cultural practices at end-user locations such as golf courses, are discretionary actions of the respective end users of recycled water.
Trautman #10	What is the average per capita water usage?	N/A	Most water agencies no longer use "per capita" water use as a standard because it is not an accurate representation of actual per person water use, mainly due to the effects of landscape and commercial/industrial water use. (It is also expressed in "gallons per day," rather than "acre-feet per year," since it refers to individual water usage.) In general for the South Coast hydrologic region of California, water use is approximately 200 gallons per person per day (DWR Bulletin 160-98). Per capita use for the Santa Clarita Valley is slightly higher due to landscape irrigation demands caused by local climatic conditions.

PARTY	COMMENT	APPLICABLE GWMP SECTION/ COMPLIANCE[1]	RESPONSE
Trautman #11	The Semitropic Water Bank/Transfer is not mentioned in discussion of the Supplemental (SWP) Surface Water on page 21. Is that because it is a relatively short-term water supply? Are any of the other water transfers – Kern Water Bank, Kern Delta Water, North Las Posas Water Bank – as listed on UWMP p. 2-16, of limited duration? And if the Semitropic Water Bank Transfer is short term, how can it be included in the 105,000 – 106,000 afy need projected for the next 20 years? What will take its place?	Section IV (Existing and Projected Supplies)	The SWP is referred to as "supplemental" water because that is the original purpose of the SWP: to serve as a supply that would "supplement" local supplies (whether groundwater or local surface water or both). The specific amounts referred to in the GWMP are from the contractual terms between CLWA and the California Department of Water Resources. The water banked in the Semitropic Water Storage Program during 2002 is a short-term, dry period supply. The program has a term of ten years (i.e., the water must be returned to CLWA for use in its service area within that time period). Thus it is not included as a supply for long-term needs. However, the other programs listed in the UWMP (most of which, by the way, are not water "transfers," but are instead groundwater banking programs) are long-term sources of supply. CLWA is in the process of designing and implementing a Long-Term Reliability Plan to begin bringing such long-term programs on line as a means to store water available in wet years, for use in later dry years. CEQA analysis, with its accompanying public comment opportunities, will be part of the long-term reliability program approval process.
Trautman #12	What specific efforts will be made to manage salinity?	Primary Element 6	Primary Element 6 – Long Term Salinity Management is included in the GWMP for the reasons presented in the text discussion of that element. The element recognizes the need to plan for salinity management but also recognizes that, to the present, there has been no extraordinary trend of salinity increase. Hence, there are no specific efforts currently in place to "manage" salinity. It is envisioned that specific efforts will be developed over time in response to implementation of the GWMP and, in particular, its Primary Element 6. CLWA is participating in efforts by the Sanitation Districts of Los Angeles County to address the Los Angeles Regional Water Quality Control Board's proposed TMDL standard for chloride in the Santa Clara River. This effort is separate from and beyond the scope of the Groundwater Management Plan.

Board of Directors
F.W. Richardson, President
Sheldon G. Berger, Vice President
Roger Orr, Secretary/Treasurer
Daniel C. Newmann
Bruce Dandy
Lynn Maulhardt
Robert Evans

Legal Counsel:
Philip D. Strohacher

General Manager:
Daniel A. Mitchell

UNITED WATER CONSERVATION DISTRICT

"Conserving Water Since 1927"

August 7, 2003

Dan Masnada
Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, CA 91350

Re: Response on Draft Groundwater Management Plan, Santa Clara River Valley Groundwater Basin, East Sub-basin

Thank you for giving us the opportunity to review and comment on your *Draft Groundwater Management Plan, Santa Clara River Valley Groundwater Basin, East Sub-basin*. United Water considers this plan as one piece of a broader effort at groundwater management that is being accomplished as part of the Memorandum of Understanding between United Water and water purveyors in the Santa Clarita area. We offer some specific comments and suggestions for your consideration.

Comments include:

Figure 3-2. The vertical and horizontal scales associated with the hydrographs are very difficult to read. The T4N/R17W, Section 22 well, in the western arm of the Alluvial Aquifer does not show data from approximately 1983 through 1991. In previous reports and analyses, the NLF #C5 well was used for this area. This well depicted variable groundwater levels for the period from the mid-1980s to the early 1990s. Because this is the discharge area of the Alluvial Aquifer to the Santa Clara River, we need to understand the response of the system to the onset of agricultural pumping in this area in the mid-1980s. The T4N/R17W, Section 22 well does not possess the data needed to show that response;

Page 15. The comment near the top of the page that "*over the last 35 years, groundwater quality in the Saugus has remained generally constant*" would be more supportable if it was accompanied by a groundwater quality map similar to Figure 3-3, with a few groundwater quality time-series specific to the Saugus Formation;

Figure 5-3. The average daily mean streamflow data appears to be shifted one year on the histogram graph. As an example to show the error, the histograms suggest that there were high flow years in 1968 and 1997. The high flow years were actually 1969 and 1998;

UNITED WATER CONSERVATION DISTRICT

Page 21. Local Groundwater. The planned production of 30,000 to 40,000 acre-feet per year from the Alluvial Aquifer and 7,500 to 15,000 acre-feet per year from the Saugus Formation, along with 10,000 to 20,000 acre-feet per year from the Saugus in dry years, has yet to be implemented. The current development of a regional transient groundwater flow model for the East Sub-basin is for the expressed purpose of evaluating the potential impacts to the basin and surface water outflow into Ventura County, to this increased pumping. Irrespective of the modeling results, only real groundwater and surrface water data can verify the influence of significantly increased pumping within the sub-basin; and

Page 26, Primary Element 2 – Monitoring and Management of Surface Water Flows and Quality. While imported SWP water no doubt contributes to the observed increased flow in the Santa Clara River at the Ventura County line, there exist additional explanations for a portion of the increased flow. Other considerations include:

1. Influence of the hydrologic cycle. The cumulative departure for precipitation was declining during the 1950s and first half of the 1960s. The cumulative departure improved significantly during the period of 1978 through 1986; and
2. The amount of Alluvial Aquifer pumping may influence flow at the Ventura County line. During the latter half of the 1960s and through the 1970s, groundwater pumping of the Alluvial Aquifer declined by 70%. Pumping during the 1980s was 30% lower than during the 1950s and early 1960s.

In this particular case, it would be very difficult to differentiate between the influence on streamflow from changes to groundwater pumping and the hydrologic changes.

If you have any questions about United Water's comments, please contact Steve Bachman at (805) 525-4431.

Sincerely,

Dana L. Wisehart

Dana L. Wisehart
General Manager

cc: BRRF
Lowell Preston, Ph.D., Ventura County Water Resources Division

File: Castaic Lake Water Agency
I:\Ken\eastern GW basin\GW_Mgmt_Plan_8_7_2003

SCOPE

Santa Clarita Organization for Planning and the Environment

TO PROMOTE, PROTECT AND PRESERVE THE ENVIRONMENT, ECOLOGY AND QUALITY OF LIFE IN THE SANTA CLARITA VALLEY

POST OFFICE BOX 1182, SANTA CLARITA, CA 91386

8-6-03

Castaic Lake Water Agency
27234 Bouquet Cyn Rd.
Santa Clarita, Ca. 91350
Faxed to 661 297 1611 Hard copy to follow via regular mail

Re: Comments on Ground Water Management Plan

Dear Sirs:

Thank-you for the opportunity to comment on your plan. We are pleased that your agency has begun a ground water management plan in response to the community's concerns over the excessive use of ground water. This extensive pumping and lack of protection of re-charge areas has resulted in almost complete elimination of surface flows and summer ponding necessary to wildlife as well as causing water level drops in wells that have resulted in water quality and availability problems for small users.

General Areas of Concern

We regret that environmental organizations, small well owners, the City of Santa Clarita, the County of Los Angeles (watershed and flood control divisions), Regional Water Quality Control and other members of the community interested in water issues in our valley were not included on your advisory board. We believe that inclusion of these groups early on would have helped resolved some of the issues with your plan at an earlier stage. Including only the water companies, Newhall Land and Robinson Ranch effectively excluded many of the groups and individuals that have voiced strong concerns over your present actions. The water agencies have consistently excluded these groups from all water planning, including water supply reports and the Urban Water Management Plan process. We strongly suggest that a more inclusive committee be formed to include representatives of the environmental community and rural well owners who are now being affected by overdraft of the Santa Clara River.

We also note that there are no timelines for completion of any of the components of the plan. Without such timelines, it would seem that there is little real intention or commitment to follow through on the various parts of the plan.

The Land Use/Wellhead Protection Component of the Groundwater Management Plan

Perhaps the most significant out come of a ground water management plan in the Santa Clarita Valley would be implementation of the portion of Section 10753 which requires review of land use plans and coordination with land use agencies. Your plan assigns this area to

"secondary element 2", an indication that you do not intend to pay much attention to this important component.

The coordination of land use and water planning has been sadly lacking in the Santa Clarita Valley. A simple wellhead protection plan would help decision makers understand the potentially polluting impacts of certain land uses such as gas stations, auto repair shops, etc. and how they could negatively affect our water supply. Instead, these uses are routinely permitted next to water supply wells.

Paving over of prime re-charge areas is allowed without a word of protest from the water agencies, even though such loss of recharge capacity will severely affect water availability. Recreational uses should be encouraged in recharge areas that will accommodate and perhaps even enhance water re-charge and thus increase water availability.

Newhall County Water District began a well head protection program and educational presentations with its ground water management plan in the mid 90's, but efforts to both educate the planners and protect re-charge and water supply wells have been stifled by the strong developer involvement with water agency decisions. This involvement has precluded advocacy of long term decisions that would protect water availability and water quality in favor of short term profits for development companies.

The ground water management plan should stress the importance of avoiding the concreting of tributaries when approving new land uses and require adequate set back from natural water courses to allow those blue line streams to remain in a natural state. This will enhance water re-charge (and thus, ensure water availability). It will also aid water quality because riparian vegetation absorbs many pollutants before they can enter the ground water system.

It is an indication of the myopic view of the water agencies that this plan states its number one goal to be "Development of Local Groundwater for Water Supply". There are many other uses of ground water and surface water which are important to the community. These include recreational and aesthetic values, biological value and the quality of the water supply. More pumping will result in diminution of all these other aspects of our ground water resource and ignore the strong protests and demands for their protection which are already being heard from many voices in the community.

Monitoring of Ground Water and Surface to Establish Safe Yield

Agricultural Water Usage is Overestimated

In its presentation, Luhdroff and Scalmanini revise the previous perennial yield estimate of the Santa Clara River by Richard Slade (perennial yield 32,000 AF, Hydrology of the Alluvial Sediments of the Santa Clara River, 1988, page 109) to approximately 40,000 AF. This revision is based in part on an average agricultural usage from the 1940s to the 1960s. We believe that these calculations are incorrect for three reasons.

1. No inclusion of recharge from agricultural run off was included in the usage calculations as was included in previous reports. Agricultural run-off was a substantial source of re-charge to the river that no longer exists, therefore not as much water is available for extraction.

2. Agricultural withdrawal was not metered, so water usage is merely an estimate based on crops and weather. It appears that estimates of withdrawals may have been over-stated.
3. Agricultural lands provided a source of re-charge during wet years. Urbanization has paved over most of this area, so re-charge is no longer occurring. This will reduce that amount of recharge to the river alluvium and thus reduce the amount available for extraction. (Slade, 1988, Hydrological Investigation of the Perennial Yield of the Alluvial Aquifer, page 88)

These evaluation errors have caused the water companies to believe that they can withdraw a higher amount of water than can actually occur without causing impacts to public trust matters and small well users

Monitoring and Managing Surface Water Flows

Visual Historical Evidence has been ignored

There are numerous records and observations by long-time residents indicating that surface flow usually occurred year round. Ponding that harbored fish and amphibians (many of which are listed as threatened or endangered) in areas that did not support year round flow has also been attested to by local residents. The disappearance of year-round flows and ponding is an indication of overdraft of the alluvial system. The impacts to riparian life and water quality are substantial. A goal of returning or replacing these summer surface waters should be incorporated in your plan. Such replacement may help to avoid potential future litigation brought to enforce the Endangered Species Act.

Water Quality Monitoring

Water Pollution

We appreciate that the water agencies have finally admitted that 5 municipal wells are closed and that there is a concern that the pollution plume is moving in a westerly direction (Plan at page 32). It is very regrettable that these facts were not disclosed to decision makers over the past several years and, further, were even denied by representatives of the water agencies.

However, we believe it is imperative that this plan additionally include a disclosure of the current reduction in production capability due to pollution of the Saugus and alluvial aquifer by ammonium perchlorate. Continued pumping may extend the pollution plume and increase clean-up costs. It is important that the extent of the problem be honestly outlined for the public so that alternative remedies may be devised and discussed. Failure to disclose the extent of the pollution problem and its real impact may lead to serious water quality problems if the Saugus aquifer is relied upon for drought supply.

Conclusion

We submit the following recommendations

1. We encourage CLWA to re-form its advisory committee to be inclusive of the community and other local agencies.

2. We suggest that the goals of the plan be re-ordered to place land use issues in a position of significance, and include recommendations from other agencies, organizations and individuals that might enhance water availability and water quality.
3. A time line must be established, financial commitment discussed and responsibility assigned so that the water management goals will actually be attained.

Sincerely

Pat Saletore

Pat Saletore

Cc: City of Santa Clarita
County of Los Angeles
Regional Water Quality Control Board
Local Newspapers

AUG 0 3 2003
1:55 p.m.

Sand Canyon Area Well Owners Association
c/o 27363 Sand Canyon Road
Santa Clarita, CA 91387-3632

August 8, 2003

Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, CA 91350-2173

RE: Groundwater Management Plan ("AB 3030 Plan")

Gentlemen:

This letter is in response to your letter of June 16, 2003 which solicited comments about the above plan to ensure that the general public has had the opportunity to provide input on this local effort to manage our community's groundwater resources.

We are pleased to respond to your request for public participation. As well using residents of the Sand Canyon area who are affected by ground water use and plans for future use of it, we feel that our interests are very much at stake in determining how our river and ground water is to be used.

Our first and foremost concerns are that both river and ground water is being extensively pumped and that recharge areas are not being adequately protected. Surface flows and summer ponds have virtually vanished from our vicinity. In 1997, the water level in four wells adjacent to Sand Canyon Creek stood at twelve feet. As of last month, those same wells' water level now stands at ninety-three feet.

Other general concerns include the lack of representation on your advisory board by rural well owners. While water companies and the Robinson Ranch Golf Course have their own interests in how our community's water resources are used, many small well users have an equally valid interest in seeing that our area's water resources are managed in an equitable fashion that ensures no entity's use will result in the deprivation of others.

Also, none of we Sand Canyon area small well users have been consulted during the creation of water supply reports or the Urban Water Management Plan, despite the fact we are being affected by an increasingly serious overdraft of the Santa Clara River. Including members of our group in a groundwater management committee will bring important stakeholders to the planning process. We have important data to present.

It is disappointing to note that the ground water management plan specifies no timelines or dates for executing and completing its phases. We question whether there is sincere intent to carry out the plan given the lack of work plan.

On a broader scale, we are deeply concerned about the plan's land use and wellhead protection sections. Section 10753 calls for a review of land us plans and coordination with land use agencies, as stipulated in secondary element 2 of the plan. A critically important aspect of effective ground water management, such coordination has not taken place to any meaningful extent in the Santa Clarita Valley, and more specifically, in the Sand Canyon area. We have noted with dismay that vital recharge areas have been built upon and paved over with no comment from any water agencies, despite an obvious impact on water availability for all water users, particularly small well holders.

While intelligently planned development is meant to result in well designed, livable communities where all inhabitants are assured of fair access to resources, we note that ongoing strong developer involvement with water agency decisions has led to the potential compromise of water availability and quality in exchange for near term profits for developers and increased tax revenues for local governments.

In the draft plan's sections that deal with ground water monitoring to establish a safe yield, we believe that estimates of agricultural water consumption are not accurate. In Richard Slade's 1988 perennial yield estimate of the Santa Clara River, he stated on page 109 that it was approximately 32,000 acre-feet. Yet Luhdroff and Scalmanini raise this estimate to 40,000 acre-feet. They base their calculations on data measured for agricultural operations between the 1940's and 1960's.

Since our membership includes individuals who have farmed a large parcel in the Sand Canyon area from 1951, we feel qualified to comment on the above figures.

First, agricultural usage during the reference years was never metered. Usage during this period is estimated based on available crop reports (when they were recorded) and available weather data. A reading of withdrawal estimates raises a suspicion that they are overstated.

Second, the upward revision of Slade does not include agricultural runoff. Since agriculture in our area has virtually disappeared, it is no longer a contributing factor to aquifer recharge. Yet earlier estimates included agricultural runoff, a significant source of recharge.

Third, land in our area that previously was planted in both irrigated and dry land crops has now been paved over. During rainy years, farm fields were an important component of recharge, since rain soaked into them. Slade specifically mentions this reduction of extractable water on page 88 of his 1988 report.

Flawed calculations like these have caused water companies and other institutional users to think that they can extract more water than they can and should without adversely affecting small well users.

Primary element number two gives the appearance of an attempt to establish a commingled inter-relationship between the Saugus Formation and the Santa Clara River. With a clearly defined bed and banks, the Santa Clara River has historically behaved as a river, and despite severe depletion from over pumping, still exhibits the dynamics of a river during episodes of precipitation. With our members holding rights of diversion from the State Water Resources Board, we strongly feel that any attempt to define the river in terms of percolating groundwater defies logic and the laws of physics.

Also, in the "Existing and Projected Water Supplies" section, the draft report states that "...it is currently expected that ongoing utilization of local groundwater will continue to be in amounts that have historically been pumped, 30,000 to 40,000 afy from the Alluvium..."

As stated above, Slade's 1988 report clearly and unequivocally sets the upper pumping limit of the Santa Clara flow at 32,000 afy. By relying on generous overstatements and exaggerated potentials, a plan will go forward that will have serious negative impacts for small well users in the Sand Canyon area.

In primary element three, Determination of Basin Yield and Avoidance of Overdraft, we are concerned with the second paragraph's first sentence that states "...there has not been any widespread, steady degradation of groundwater conditions that might be indicative of overdraft..."

Again in Primary Element 4, the second sentence asserts..."Both ranges of numbers are consistent with recent historical pumping that has not resulted in any indication of overdraft or other undesirable conditions." And in Primary Element 5, the third sentence further posits that ..."Groundwater pumping has remained within a range that has not caused any evidence of overdraft, or associated undesirable impacts..."

It is the direct and incontrovertible evidence of water levels in our own wells that presents us with a clear contradiction to this assertion. Based on members' records that cover a fifty-year span, the current water levels in our wells have reached an unprecedented low. We are left with inescapable evidence that large users pumping from the Santa Clara River have contributed to a cone of depression that is negatively affecting our small wells.

In addition, riparian conditions along the tributaries and main channel of the Santa Clara River reflect highly stressed, water deprived environments. In areas away from river feeder creeks, some heritage California Coastal Oaks (Quericus Agrifolia) have begun showing signs of water deprivation.

In a related matter, the proposed plan calls for identification of potential sources of contamination to assure water quality. When Robinson Ranch Golf Course was granted permission to open and operate, the city stipulated that water quality adjacent to and on the golf course be monitored and that regular reports about it be published. These reports have not been included in the draft plan, despite the fact that Robinson Ranch is a participant on the advisory committee for this draft plan. Pesticide, insecticide, fertilizer, and other volatile organic compounds are all possible runoff and plume contaminants that may be leaching from the golf course.

As members of your advisory committee, we would be glad to share with others the data from five decades of small well usage. We believe that recent developments, specifically in our area, have seriously lowered both the alluvial water levels to historic levels.

While modeling, projection, and prediction can yield abstract theories, we small well users must live with the consequences of miscalculation, however unintentional or inadvertent.

Small well holders are franchised, integral, entitled members of the water using community, and as such, must be included in the planning process associated with any groundwater management plan that is to be implemented in the Santa Clarita Valley.

Primary element nine specifies a MOU (Memorandum of Understanding) executed between the United Water Conservation District in Ventura County as an example of..."a local agency relationship that has produced the beginnings of local groundwater management, now embodied in this comprehensive (sic) plan..." While we laud all attempts to widen the base of data and participation in the planning process for water resources, we are disappointed that as stakeholders in the Eastern Sub-basin of the Santa Clara River Valley, our interests are not being represented on the advisory committee that has been created to direct the groundwater management plan.

We ask to be included in the planning committee that is helping to shape the future of water use in our community.

Respectfully,

The Sand Canyon Area Well Owners Association
Robert and Jane Fleck
Eugene and Marylou Ruddell
Richard and Leslie Christensen
Shawn Clement
Joan Waldman

Friends of the Santa Clara River

660 Randy Drive, Newbury Park, California 91320-3036 • (805) 498-4323

AUG 0 8 2003

August 7, 2003

Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, CA 91350

Board of Directors

Ron Bottorff
Chair
Barbara Wampole
Vice-Chair
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California Native Plant Society
L.A./Santa Monica Mountains Chapter

Santa Clarita Organization for Planning the Environment (SCOPE)

Sierra Club
Angeles Chapter
Los Padres Chapter

Surfrider Foundation

Audubon Society
Ventura Chapter

Ventura County Environmental Coalition

Re: Groundwater Management Plan

Dear Sirs,

Friends of the Santa Clara River submits the following comments on the June 2003 Draft Groundwater Management Plan (Plan).

We are disappointed and dismayed that the Plan sets as its primary goal the "Development of Local Groundwater for Water Supply". While providing adequate water supplies is an important objective, it would seem to us that the primary goal should be the long-term protection of local groundwater resources, including groundwater quality. Groundwater resources provide many benefits to the community, including those related to the biological and environmental health of the river corridor. Long-term protection, if implemented, should curtail the over-pumping of local aquifers which is currently occuring.

We are also concerned that water agencies, in general, have failed to weigh-in on the paving over of recharge areas in the Santa Clarita Valley. Loss of recharge could have very substantial impacts on future water availability. The Plan should emphasize that concreting of ephemeral tributary streams reduces recharge, and thus should be avoided. Adequate setbacks, or buffer zones, around major streams should be stressed - an item that is rarely adequately addressed in development projects.

The Plan advisory board is too narrowly constituted. The Regional Water Quality Control Board should be represented, as should environmental groups and county agencies working on watershed protection.

Thank you for the opportunity to comment.

Sincerely,

Ron Bottorff

Ron Bottorff, Chair

Attention: CLWA Directors August 8, 2003

RE: Comments on Ground Water Management Plan

FAX: (661) – 297-1611

From: Henry Schultz
Phone: (661) 284-5613 or (805) 447-2863 (work) or FAX at (805) 480-1333
Email: hschultz@amgen.com, henry50@pacbell.net
Three pages total:

There follow 2 pages of comments on the water plan. If there are any questions I can be contacted at the above locations.

Henry Schultz
Chair, Santa Clarita Sierra Club Group

8/7/03

Castaic Lake Water Agency
272234 Bouquet Canyon Rd
Santa Clarita, CA 91350
FAX. 661-297-1611

RE: Ground Water Management Plan Comments

Dear Directors:

We appreciate the chance to comment on the ground water management plan. This plan has been a long time in the making. We hope that your response to concerned public input will make it a viable document. A few comments follow.

1. Based on the (too) long history of this plan, it is essential to include deadlines (with penalties for failure) for completion of the various components of the plan Otherwise our water will just slip away.

2. There is no accounting for loss of groundwater from pollution such as perchlorates. As soon as the magnitude of the problem has been adequately determined, a realistic plan can then be implemented. As it stands right now, the numbers do not adequately represent the real water supply

3. Loss of groundwater due to loss of percolation due to extensive development, which paves over permeable soil, is not considered It is a continuous and cumulative impact on the water supply. More generally, the water plan must address coordination of land use with water necessities such as the preservation of water percolation basins and similar amenities.

4 Drought planning is inadequate in the plan For example, if a water treatment plant is built, then a certain number of acre/ft of water can be reclaimed. Current planning would say that this is real water, which can be counted on. In a drought, not only do you lose primary water sources, but also the corresponding amount of reclaimed water, a double hit which must be accounted for in any realistic water plan.

5. The Sierra Club strongly supports an active river-monitoring program so that potential and existing water quality issues can be addressed in a timely manner. This must be an integral part of the plan. In lieu of the water agency producing reliable data, a citizen-monitoring program will have to be undertaken to assure the quality of our water.

6. The plan does not adequately discuss maintaining river and tributary habitats such as the biological unhealthy zones created from the Rio Vista Plant's outflow into the Santa Clara River. While there are green plants growing in the area, UCLA researchers have shown that it is barren of many insects, which would normally be present in such an environment. This engenders a ripple effect in the biota

7. Just as the City of Santa Clarita involves the public and other government and private agencies in its long range planning, CLWA should do the same with its water planning. People in the Santa Clarita Valley are just beginning to realize the importance and the fragility of their water supply. The time to start REAL planning is now.

Thanks for your kind attention.

Henry Schultz
Chair, Santa Clarita Sierra Club Group
21827 Parvin Dr.
Santa Clarita, CA 91350
Henry50@pacbell.net
661-284-5613

AUG 0 8 2003
4:19 p.m.

Ed & Joan Dunn
15414 Rhododendron Dr.
Canyon Country, CA 91387
August 8, 2003

Castaic Lake Water Agency
27234 Bouquet Canyon Road
Santa Clarita, CA 91350-2173

RE: Groundwater Management Plan (AB 3030)

Dear Sirs:

We are pleased to have the opportunity to comment on your draft AB 3030 Plan. Enclosed please find copies of individual pages of this plan and associated comments for these pages.

We are disappointed that the writing of this plan appears to be following the same path of the UWMP. We are also displeased there has not been an attempt to hold more public meetings prior to this draft release. As required in AB 134, when has the agency met regularly with the advisory council to consult on this plan? What was the frequency of the meetings and how many were there?

We are quite interested in an AB 3030 Plan and would appreciated this draft be made into an honest and truthful document, allowing it to go ahead on a timely schedule without challenges and delays.

Respectly submitted,

Ed and Joan Dunn

Enclosures: 3 Exhibits, 16 draft groundwater pages and 16 associated comment pages

Top of page:
Basin objective "manage groundwater levels and discharge to the Santa Clara River, at the west end of the basin"?
Wording should include "the entire basin".

Bottom paragraph, last sentence:
The plan is replenishing the aquifer with WHAT sufficient water?

and effects, e.g. chronic water level decline, loss of groundwater storage, onset of land subsidence, groundwater quality degradation, a corresponding basin objective is to manage groundwater levels and associated groundwater discharge to the Santa Clara River at the west end of the basin, and thus not adversely impact surface and groundwater discharges to the downstream basin(s).

3. Preservation of groundwater quality for beneficial use in the basin, and for beneficial use of surface water and groundwater discharges from the basin. Included in this management goal will be the active characterization and solution of any groundwater contamination problems, through cooperation with responsible parties or through independent action if timely action by responsible parties is not forthcoming and the preceding management objectives are thereby impacted or constrained.

4. Preservation of interrelated surface water resources. Included in this management goal will be the maintenance of appropriate surface water flows and non-degradation of surface water quality as a result of managing groundwater conditions to meet the other management goals for the basin.

Quantitatively, the preceding goals translate into general preservation of groundwater levels and quality in the Alluvial aquifer system consistent with the last 30 years, including fluctuations through seasonal demands and local hydrologic variations (wet and dry periods). As discussed in more detail in the next chapter, the hydrogeologic setting in the area has resulted in smaller Alluvial groundwater level fluctuations toward the western half of the basin (generally west of Bouquet Canyon), and larger fluctuations to the east. However, largely due in part to the importation of supplemental surface water over the last 20 years, and the integrated or conjunctive use of that supplemental water with local groundwater, there has been no chronic decline in groundwater levels or storage. A continuation of such basin conditions, possibly complemented by management actions to decrease the historical water level fluctuations in the eastern part of the basin, will accomplish the second basin objective, continued avoidance of overdraft as has been the ongoing historical condition in the basin, while continuing to utilize local groundwater to meet part of projected water requirements, the latter being the first management objective for the basin. Corresponding management actions to sustain recharge and not overdraft groundwater storage will accomplish the third basin objective by replenishing the aquifer system with sufficient water to sustain what has been generally consistent quality of groundwater on a long-term basis.

We question Slades 1986 and 2002 Report stating the alluvium has the capacity of 240,000 acre feet.

III. Groundwater Basin Conditions

Occurrence of Groundwater

Groundwater in the Santa Clara River Valley East groundwater subbasin occurs in two aquifer systems, the Alluvium associated with the Santa Clara River and its tributaries, and the Saugus Formation. There are also some scattered outcrops of Terrace deposits in the basin that likely have the capacity to contain limited amounts of groundwater; however, since these deposits are located in limited areas that are situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers and have consequently not been developed for water supply.

The Alluvial aquifer system, of Quaternary to Holocene (Recent) geologic age, consists primarily of stream channel and flood plain deposits of the Santa Clara River and its tributaries. The Alluvium is deepest along the center of the present river channel, with a maximum thickness of about 200 feet near the area known as Saugus. It thins toward the flanks of the adjoining hills and toward the eastern and western boundaries of the basin and, in the tributaries, becomes a mere veneer in their upper reaches. The spatial extent of the Alluvium throughout the basin is illustrated in Figure 3-1.

The Alluvium is the most permeable of the local aquifer units. Based on well yields and aquifer testing, transmissivity values in the range of 50,000 to 500,000 gallons per day per foot (gpd/ft) have been reported for the Alluvium, with the higher values where the Alluvium is thickest in the center of the valley and generally west of Bouquet Canyon (Slade 1986 & 2002). The amount of groundwater in storage can vary considerably because of the effects of recharge, discharge, and pumping from the aquifer. The maximum storage capacity of the Alluvium has been estimated to be about 240,000 acre-feet (af) (Slade, 1986 & 2002).

The Saugus Formation, of Pliocene to Pleistocene geologic age, has traditionally been divided into two stratigraphic units: the lowermost, geologically older Sunshine Ranch member, which is of mixed marine to terrestrial (non-marine) origin; and the overlying, of upper, portion of the Formation which is entirely terrestrial in origin. The Sunshine Ranch Member of the Saugus Formation has a maximum thickness of about 3,000 to 3,500 feet in the central part of the valley;

Top, bottom of first paragraph:
The plan states "the most significant period of Saugus pumpage was 1991 through 1994, when pumpage ranged from 10,600 afy to nearly 15,000 afy and averaged over 12,000 afy, during which time SWP water deliveries were reduced at the end of extended drought conditions".

It should be stated that the SWP water was INTERRUPTED for approximately 6 months. See Feb. 27,1991 Daily News newspaper article " Santa Clarita will turn to wells as state water supplies dry up". As stated in the article, the SWP water processing plant was shut down. Exhibit A.

"Officials say state's water delivery system inadequate". See Exhibit B

Since 1980, total pumpage from the Saugus Formation has ranged between about 3,850 afy and nearly 15,000 afy; average pumpage over that period has been about 6,900 afy. The great majority of pumpage from the Saugus is for municipal supply (nearly 6,300 afy, or 92 percent, on average). For comparison, although historical Saugus pumping records prior to 1980 are limited, there appears to have been essentially no pumping from the Saugus prior to 1960 (on the order of about 100 af in most years, beginning in 1948), and some increased pumping for agricultural water supply beginning in about 1962 (about 900 af). The largest amount of agricultural pumping from the Saugus was during the mid-1960's, when annual Saugus pumpage was about 3,000 af. Agricultural pumping from the Saugus declined to near zero by the late 1970's, but has been generally in the 500 to 1,000 afy range since 1982. There was no Saugus pumpage for municipal supply in the early 1960's; limited data suggests that municipal pumping from the Saugus began in the 1970's, and reached nearly 5,000 afy by 1980-81. The most significant period of Saugus pumpage was 1991 through 1994, when pumpage ranged from 10,600 afy to nearly 15,000 afy and averaged over 12,000 afy, during which time SWP water deliveries were reduced at the end of extended drought conditions.

Groundwater Monitoring Network and Program

There is no formal groundwater monitoring network of wells for groundwater level measurements and/or groundwater quality sampling in the basin. Consequently, one component of this Plan is to formalize both a network of wells for groundwater monitoring and a program for water level measurements, water quality sampling, and other pertinent groundwater data collection (Primary Plan Element 1). Despite the lack of an existing formal groundwater monitoring network and program, however, there is a significant amount of historical groundwater data, some of which dates back into the 1940's, on which to base reasonable assessments of groundwater conditions in the basin. For example, groundwater level measurements have been made over varying periods of record in a total of 154 wells, mostly alluvial wells, throughout the basin. Similarly, groundwater quality data, consisting of varying numbers of constituents analyzed, are available from some wells, but a much smaller number than is the case for groundwater level data. These data, along with direct measurements or indirect estimates of pumpage, primarily from high capacity municipal and agricultural wells, allow for analysis of groundwater basin conditions, as discussed in this Plan, and also provide the bases on which a groundwater model can be developed (Primary Plan Element 3) and on which various management criteria such as operational yield, baseline groundwater quality, etc. can be determined (Primary Plan Elements 3, 6 etc.).

Middle paragraph:
"Exceedence of action level of perchlorate".
Newhall County Water District perchlorate level was 19 micro-grams per liter and Santa Clarita Water Co. was 24 or more micro-grams per liter.
The statement that none (no wells) exceeded 18 micro-grams per liter is false. See Exhibit C

higher quality (low TDS) water and dry periods have resulted in the notable declines in water levels described above, with a corresponding increase in TDS (and individual component constituents) in the deeper parts of the Alluvium.

Due to a much more limited number of wells and the limited spatial extent of groundwater development in the Saugus Formation, long-term Saugus groundwater quality data are not sufficiently extensive to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. Based on the most complete historical record, over the last 35 years, however, groundwater quality in the Saugus has remained generally constant, and the Saugus Formation is, on a groundwater quality basis, a viable agricultural and municipal water supply.

The most notable groundwater quality issue in the basin centers around the detection and impact of perchlorate on several Saugus wells and one Alluvial well in the central part of the basin near the location of the former Whittaker Bermite facility, which is immediately southeast of the confluence of the main Santa Clara River and its South Fork tributary. In 1997, routine water quality sampling detected the presence of perchlorate in four municipal wells completed in the Saugus Formation (CLWA Santa Clarita Water Division Saugus Wells 1 and 2, Newhall County Water District Well 11, and Valencia Water Company Well 157). While there remains no primary or secondary drinking water standard for perchlorate, and although the detected concentrations of perchlorate in the Saugus wells did not exceed the Action Level established by the State Department of Health Services at that time (18 ug/l), all those wells were inactivated by their respective owners after detection of perchlorate; those wells remain out of municipal water supply service to date.

More recently, in late 2002, routine water quality sampling of Alluvial wells detected perchlorate in one of them (CLWA Santa Clarita Water Division Stadium Well) at a concentration which slightly exceeds the current Action Level (4 ug/l). This well has also been voluntarily inactivated, and thus remains removed from municipal water supply service.

This Plan, notably through Primary Plan Elements 1, 6 and 8, is intended to incorporate both short-term and long-term groundwater quality considerations in the management of the groundwater basin in order to formalize groundwater quality monitoring and assessment, to investigate and correct groundwater contamination problems, and to preserve or improve groundwater quality for ongoing water supply as well as for avoiding adverse water quality impacts on interconnected surface waters.

Paragraph #2:
The statement of this paragraph is misleading. The correction should show "out of service wells significantly reduced groundwater capacity for existing groundwater supplies, so much so, that a substantial increase of state water use, has been initiated".

Areas of Concern and Identified Problems

A number of concerns have been expressed about groundwater conditions in the basin. While not all of the expressed concerns have been substantiated, they are listed and briefly discussed here, and they are addressed in the management objectives for the basin, intended to be achieved via implementation of the various primary and secondary elements in this Plan.

The most notable concern in the basin, at least at present, is the impact of perchlorate contamination on a number of municipal water supply wells, thus affecting the available pumping capacity from some municipal wells. While perchlorate impacts on a few wells do not preclude the ability to pump groundwater in accordance with existing water supply plans, activities to characterize the contamination, and ultimately to control it and treat it, have been initiated in order to return the impacted wells' pumping capacity to water supply service. Primary Element 8 is included in this Plan to formalize the addressing of groundwater contamination issues in the basin.

Concern has also been expressed that groundwater development in the basin will adversely impact the quantity and/or quality of surface flows leaving the basin via the Santa Clara River. Such concern extends to the potential impact on groundwater in the next downstream basin, the Piru Basin in Ventura County. While there are no established provisions regarding surface flows out of the Santa Clara River Valley East subbasin, Primary Element 2 is included in this Plan to formally address the monitoring and management of surface water flows and quality within, and flowing out of, the basin. Some work is already ongoing related to this area of concern via a Memorandum of Understanding (MOU) among CLWA, other purveyors within CLWA's service area, and United Water Conservation District, which manages surface water and groundwater in the downstream basins on the Santa Clara River in Ventura County. That cooperative effort, which is incorporated into this Plan via Primary Element 9, includes integration of databases, development of a numerical groundwater flow model, and interpretation and reporting on surface water and groundwater conditions.

A third expressed concern in the basin, although never substantiated, is that groundwater is already overdrafted. Associated with that expressed concern is a related issue that reliance on overdrafted groundwater results in an overstated water supply in the basin. As discussed earlier in this Section, long-term groundwater levels, storage, and quality all indicate a lack of overdraft. As also discussed above, the importation of supplemental surface water over the last 23 years,

References to the Urban Water Management Plan (UWMP).
The UWMP of 2000 contains incorrect information and is under legal attack for correction. The UWMP does not address the total interruption of the state water supply in the event of drought, earthquake, or Delta problems. It is suggested that the UWMP not be utilized or referred to until its contents have been corrected to reflect accurate and truthful information.

32,000 afy. The history and trend of municipal groundwater use in the basin are illustrated in Figure 4-1.

As noted above, until 1980, all water supply in the basin was from local groundwater. Imported surface water was first available from the State Water Project (SWP) in 1980, when a total of 1,125 af were imported into the basin. Since then, importations of SWP water have increased in two separate steady trends, interrupted by a notable decrease at the end of, and following, the 1987-1992 drought period: a steady increase beginning in 1980, to about 21,600 afy in each of 1989 and 1990, followed by a substantial decrease, to less than 8,000 af in 1991, and then a steady increase back to about 21,000 afy in 1997 and 1998, followed by further increases to about 35,000 af in 2001. The history and trends in importation of SWP water to the basin are illustrated in Figure 4-2, which also illustrates the historical trends in groundwater pumping and total water use in the basin since the importation of SWP water.

In the context of this groundwater management plan, the historical utilization of imported SWP water to augment local groundwater represents the initiation of conjunctive use of surface water and groundwater supplies, a groundwater management principle which is intended to be continued via adoption of Primary Element 5 of this plan.

Projected Water Requirements

Detailed projections of municipal water requirements were most recently completed as part of the Urban Water Management Plan prepared by CLWA and the municipal water purveyors (Newhall County Water District, Santa Clarita Water Company, and Valencia Water Company) in 2000. Those projections, which are forecast for a 20 year period, also recognize an ongoing but decreasing agricultural water demand over the same period, from about 15,000 afy in 2005 to about 7,000 afy by 2020. The municipal water demand projections in the Urban Water Management Plan were derived from utilization and interpretation of multiple projection methods, including Per-Capita Water-Use applied to population projections; extrapolation of number of service connections (using two different projection techniques, an average rate and an accelerated rate projection) applied to the rate of service connection additions since 1990; and land use projections combined with unit water use factors on multiple land use categories (urban, including residential, commercial, industrial and recreational; irrigated agricultural; and vacant and open space). The water demand projections in the Urban Water Management Plan also considered weather effects (variations due to hot-dry years vs. cool-wet years) and conservation

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Top
"Local Groundwater" The statement is made: "That for all practical purposes the Saugus Aquifer underlies the entire CLWA service area". That statement is absolutely false! It does not!
Please correct.

Bottom paragraph:
Supplemental (SWP) Surface Water

CLWA's SWP Water Entitlement
The CLWA, indeed, has purchased water in addition to the original Table A entitlement, but cannot obtain contractual agreement to transport the additional water to the Santa Clarita Valley.

water and possibly some water supply derived from water transfers and desalination outside the basin.

Local Groundwater - Local groundwater has historically been developed from the two aquifers that comprise the groundwater basin, the Alluvium that underlies the Santa Clara River and its tributaries, and the Saugus Formation that underlies, for all practical purposes, the entire CLWA service area. Those two aquifers, and the groundwater basin they comprise, are the focus of this groundwater management plan. Based on historical experience and observation of groundwater conditions, it is currently expected that ongoing utilization of local groundwater will continue to be in amounts that are generally comparable to what has historically been pumped, 30,000 to 40,000 afy from the Alluvium and 7,500 to 15,000 afy from the Saugus Formation. It is also expected that there is some additional development potential in the Saugus Formation, in the range of 10,000 to 20,000 af which might be intermittently extracted during one or more dry years when supplemental imported water might be reduced. Ultimately, it is expected that local groundwater will continue to be a component of water supply, at appropriate production levels in both aquifers, in the basin. The intent of this groundwater management plan is to ensure that ongoing utilization of local groundwater continues to result in acceptable aquifer conditions, i.e. avoidance of overdraft (Primary Plan Element 3), no degradation of quality (Primary Plan Element 6), no adverse impacts to surface waters (Primary Plan Element 2), all via continuation of conjunctive use operations that have been ongoing since the initial importation of supplemental surface water in 1980 (Primary Plan Element 5) and via monitoring and interpretation of surface water and groundwater conditions on an ongoing basis (Primary Plan Elements 1 and 2).

Supplemental (SWP) Surface Water - CLWA has a contractual Table A amount of 95,200 af of water from the SWP. CLWA's original contract, signed in 1963, was for 23,000 af; that Table A amount was later increased to 41,500 af. In 1988, CLWA purchased a Table A amount of 12,700 af from Devil's Den Water District, and it acquired another Table A amount of 41,000 af in 1999 from Kern County Water Agency and its member district, the Wheeler Ridge-Maricopa Water Storage District. There is ongoing CEQA-related litigation over the most recent acquisition of the additional SWP Table A amount, the 41,000 af acquired from Kern County Water Agency and Wheeler Ridge-Maricopa WSD. However, there has been no invalidation of the completed agreement to transfer the 41,000 af Table A amount to CLWA; and current water supply planning includes that Table A amount as CLWA corrects the CEQA technicality by preparing a new EIR to address the environmental consequences of the transfer.

Top:
Recycled Water

It should be noted CLWA's planned recycle water program is and has been for one private business only. No public agency is receiving or is planned to receive recycled water from CLWA.

Recycled Water - In 1993, CLWA prepared a draft Recycled Water System Master Plan that outlined a multi-phase program to integrate recycled water into the overall water supply system in the basin. Construction has begun on Phase I of that project, which will deliver approximately 1,700 afy, and deliveries are expected to begin in 2003. Overall, recycled water is expected to ultimately reclaim up to 17,000 afy of treated waste water suitable for irrigation use on golf courses, landscaping, and other non-potable uses.

Plan, page #25 Dunn, page 10

Top:
Number 7 should read: Valleywide integration of recycled water.

Middle:
Secondary (Potential Elements) Item #2 Change to: involvement in land use planning per Water Code 10753.7 (l).

4. Development of Regular and Dry Year/Emergency Water Supply
5. Continuation of Conjunctive Use Operations
    - active and passive groundwater recharge
6. Long Term Salinity Management
7. Integration of Recycled Water
8. Identification and Mitigation of Soil and Groundwater Contamination
    - involvement with other local agencies in investigation, cleanup, and closure
9. Development and Continuation of Local, State and Federal Agency Relationships
10. Groundwater Management Reports

Secondary (Potential) Elements

1. Continuation of Public Education and Water Conservation Programs
2. Identification and Management of Recharge Areas and Wellhead Protection Areas
    - involvement in land use planning process
3. Identification of Well Construction Abandonment, and Destruction Policies
    - water quality protection
    - manage vertical distribution of pumpage
4. Provisions to Update the Groundwater Management Plan

Primary Element I - Monitoring of Groundwater Levels, Quality, and Production

Prior to 1980, all water supply in the Upper Santa Clara River Area was developed from local groundwater; since 1980, imported surface water has become an increasing component of overall water supply in the area, but groundwater continues to meet all agricultural water demand and a significant part of municipal water demand. As a result of the long term development and use of groundwater in the area, there is a fairly substantial amount of historical groundwater level data, and a useful amount of groundwater quality data, and groundwater pumping data that has been collected in the basin. All the available historical groundwater level, quality, and pumping data have been organized into a computerized data base for the Upper Santa Clara River Area. That data base, while separate, has been coordinated with an equivalent data base maintained by United Water Conservation District for the downstream basins on the Santa Clara River. The intent of database coordination has been to facilitate interpretation and reporting on groundwater and other water resource related issues by the respective agencies overlying the various basins along the River.

Bottom:
As stated earlier the UWMP is inacurate and under legal attack-and not certified by the courts.
Primary Element 4 – Development of Regular and Dry Year/Emergency Water Supply

40,000 acre feet from the aluvium and 15,000 a/f from the Saugus is optimistic.
We strongly suggest developing an emergency plan for an extended interruption of the state water project. How many times must we ask for such an obvious safeguard?

conditions (and associated fluctuations in recharge and pumping). Such fluctuations are typical of groundwater basin conditions in any conjunctive use setting, such as in this basin: groundwater is utilized from storage during dry years, or dry periods, and that storage is replenished during alternate wet years, or periods. The observation of these historical groundwater conditions, in combination with knowledge of pumpage from both the Alluvial and Saugus Aquifers, has led to current operational practices as well as general expectations regarding the approximate yield of the local groundwater system as discussed in this plan.

While historical operating experience, complemented by observed groundwater conditions, is an appropriate basis for generally planning for available groundwater supplies, it is possible and appropriate to more precisely analyze the basin to determine values or ranges of yield under varying hydrologic conditions, and to assess the impacts of various management actions that might be implemented in the basin. The MOU process described in Primary Element 9 of this Plan includes the development of a numerical groundwater flow model which is intended to be utilized for determination of the yield of the basin under existing land use and under existing groundwater and surface water development conditions. It is also expected to be used for implementation of this Plan Element in order to assess the yield of the basin under future land use conditions as well as future ranges of surface water importation, groundwater development, and recycled water use through varying hydrologic conditions, i.e. wet and dry periods that affect the availability of imported surface water.

The ultimate intent of this Plan Element is to develop an understanding and quantification of the yield of the basin, under varying hydrologic conditions and developing local cultural conditions, in order that groundwater development and use be managed in such a way to meet an appropriate fraction of total water demand while avoiding levels of groundwater use that would result in overdraft conditions. Thus, implementation of this Plan Element is essential to accomplishing the first and second management objectives (goals) for the basin.

Primary Element 4 - Development of Regular and Dry Year/Emergency Water Supply

The most recent updated Urban Water Management Plan (UWMP, December 2000) prepared by CLWA and the other purveyors in the basin (Newhall County Water District, Santa Clarita Water Company, and Valencia Water Company) includes plans to develop 30,000 to 40,000 acre-feet per year (afy) from the Alluvial aquifer and 7,500 to 15,000 afy from the Saugus Formation in average/normal years. Both ranges of numbers are consistent with recent historical pumping that

The SWP water received in 1991 is erroneous. The chart indicates 8,000 a/f. It is incorrect. CLWA only received 10% of its then allocation 54, 200 a/f. The 10% was received in January and the plant shut down in March. See Exhibit A. It should be noted that this is a state water project interruption for months, not a reduction.

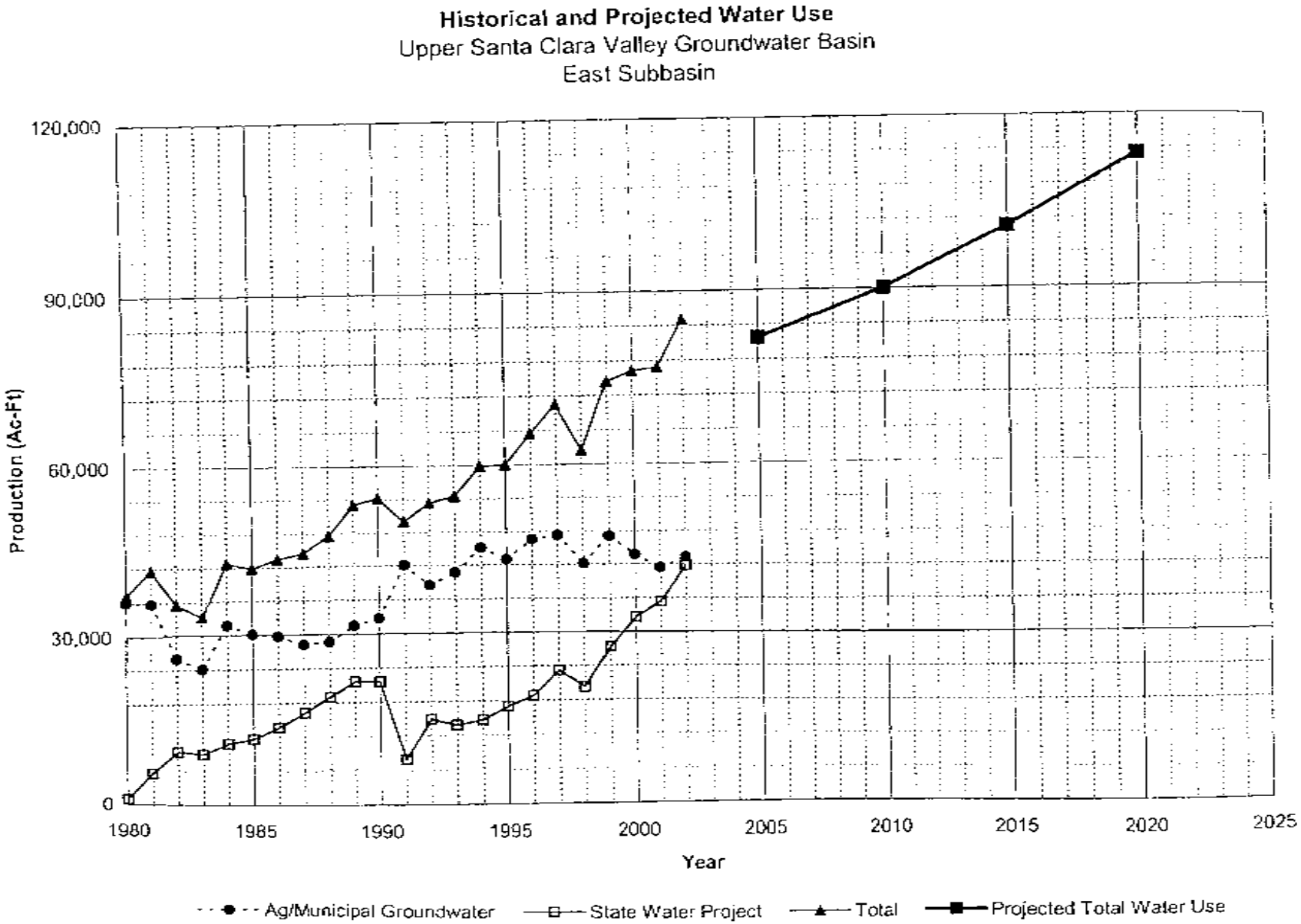

Historical and Projected Water Use
Upper Santa Clara Valley Groundwater Basin
East Subbasin
120,000
90,000
60,000
30,000
0
Production (Ac-Ft)
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
Year
Ag/Municipal Groundwater
State Water Project
Total
Projected Total Water Use

Figure 5-4

Plan, page #30 Dunn, page 13

Top paragraph:

There is no mention what the folks can do if groundwater cannot meet demand and the supplemental water is not there for an extended period of time. Please develop a plan to solve this most serious occurance.

Conjunctive use of local groundwater and imported surface water will continue to be a key element in meeting all the goals for the basin, most notably utilizing groundwater for water supply without overdrafting the basin. Historical experience with groundwater pumping and aquifer response to varying hydrologic conditions has shown that the groundwater basin can support notable variations in pumping during wet and dry periods, but it cannot support continuous pumping at rates high enough to meet total local water demand. Thus, utilization of imported surface water in conjunction with local groundwater will be essential to the management of groundwater for water supply without overdrafting that resource.

As part of conjunctively using surface water and groundwater, it is recognized that, particularly when the surface water supply is imported from the State Water Project, there will be variations in the amount of available surface water supply from year to year. Similarly, there are expected to be variations in local groundwater conditions as a function of local hydrologic conditions which affect, among other things, the natural recharge to the groundwater basin from year to year. In the case of this basin, local (Southern California) hydrology which affects local groundwater conditions may not necessarily be the same as the hydrology in a distant (Northern California) location that directly affects the availability of supplemental, imported surface water in any given year. Thus, conjunctive use management is challenging, but is notably important to ensure that the groundwater basin is maintained to meet a regular component of water supply and to also be able to meet a larger component of water supply during "dry periods" that affect supplemental surface water availability. Conjunctive use management is similarly important to ensure that local groundwater can be replenished, via reduced pumping and/or as a result of wetter local hydrologic conditions, during periods of wet/normal surface water availability. In light of all the preceding, implementation of this Plan Element is essential to accomplishing all the management objectives (goals) for the basin.

Primary Element 6 - Long Term Salinity Management

In general, groundwater quality in the basin is such that groundwater supplies meet standards for beneficial use in the basin, most of which now is for municipal (domestic) use but some of which remains for agricultural and some other irrigation (non-domestic) use. There also have been no notable historical trends of groundwater quality degradation in the basin over time. However, a number of geologic and hydrologic factors suggest that observations and interpretation of groundwater quality warrant some focus to ensure long-term preservation of groundwater quality. Notable among those geologic and hydrologic factors are: 1) the largely "closed" geologic nature

Plan, page #34 Dunn, page 14

Bottom of page:

Is appears the entire paragraph is false. There is no knowledge of such meetings occurring.

Newhall County Water District, Los Angeles County Waterworks District No. 36, Valencia Water Company, and its own Santa Clarita Water Division. As such, CLWA has a historical and ongoing working relationship with all those local agencies, as well as with other local groundwater pumpers, to manage water supplies in order to effectively meet water demands within the available yields of imported surface water and local groundwater. In fact, the Advisory Council convened to assist in the preparation of this Plan is comprised representatives of all the local water purveyors and significant groundwater pumpers.

A local MOU process among CLWA, other purveyors within CLWA's service area, and United Water Conservation District in neighboring Ventura County is a classic illustration of a local agency relationship that has produced the beginnings of local groundwater management, now embodied in this comprehensive plan, most notably in Primary Elements 1 through 5. In 2001, out of a willingness to seek opportunities to work together and develop programs that mutually benefit the region as well as their individual communities, those agencies prepared and executed a Memorandum of Understanding (the MOU) that initiated a collaborative and integrated approach to several of the aspects of water resource management that are now included in this Plan. United WCD manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County, downstream of the East Subbasin of the Santa Clara River Valley that is the focus of this Plan. United is thus a logical partner in the cooperation of management efforts to accomplish the objectives (goals) for this basin, particularly as they relate to preservation of surface water resources that flow through the respective basins. As a result of that MOU, the cooperating agencies have integrated their database management efforts (part of Primary Elements 1 and 2 of this Plan), have initiated the development of a numerical groundwater flow model (for utilization in Primary Elements 3, 4 and 5 of this Plan), and are continuing to prepare reports on the status of basin conditions, as well as on geologic and hydrologic aspects of the overall stream-aquifer system.

A local extension of the interaction among CLWA, the retail water purveyors, and United is an ongoing working relationship with the City of Santa Clarita. CLWA and the municipal purveyors meet regularly with City staff and also present water supply conditions via study sessions with the City Council on a regular basis. It is expected that the implementation of this Plan will result in the availability of a broader range of information transfer with the City relative to the existing and future water supply to its residents. OH?

This Primary Element is included in this Plan to formalize the historical local and state agency

Plan, page #35 Dunn, page 15

Middle:

Primary Element 10-Groundwater Management Reports
These secretly created reports contain erroneous numbers to overstate supply and understate demand. The creators meet secretly, allow no public participation or oversight and meet without authority or sanction from any public agency. The meetings are held secretly and without benefit of the Brown Act. Since these reports are created with no public oversight, do not appear to have credibility, and usually are not signed by anyone, they should not be included as part of an AB3030 groundwater management plan. It is time to form an official joint powers authority between the purveyors and other participating parties.

working relationships as part of comprehensively managing local groundwater, in concert with imported surface water and local recycled water, to accomplish all the management objectives (goals) for the basin.

Primary Element 10 - Groundwater Management Reports

As briefly described in the Introduction of this Plan, local groundwater management planning already includes, among several other activities, analysis of groundwater conditions and preparation of annual reports on groundwater and all other aspects of water resources and water supplies in the Santa Clara River Valley East ground water basin. In addition, recently formalized cooperative work with neighboring United Water Conservation District includes both regular reporting on the status of groundwater conditions and specific reporting on geologic and hydrologic aspects of the overall stream-aquifer system. For example, documentation of the numerical groundwater modeling work currently in progress is expected to be the first of the latter reports in the next year.

Beginning in 1998, CLWA and the retail water purveyors in the basin have prepared a series of annual reports, known locally as the Water Report, to describe all aspects of water supply and water resource conditions in the basin. That report provides current information to local City and County land use agencies, and to other interested parties, about current water requirements, use of groundwater and treated imported surface water to meet those water requirements, groundwater conditions (pumping, groundwater levels and quality, etc.), local surface water conditions, the status of imported surface water supplies including details of delivered SWP water in the reported year as well as an up-to-date summary of available imported SWP water for the next year, a short-term projection of water requirements in the next year, and other appropriate details about water requirements and supplies such as, for example, the status of introducing recycled water as a component of non-potable water supply.

In light of the frequency and comprehensive nature of the annual Water Reports, and also in light of the planned preparation of more detailed technical reports on various aspects of the basin as appropriate, the continued preparation of those reports will serve as regular and complete reporting on all aspects of this groundwater management plan.

(Not much truth on this page.) CLWA constantly preaches conservation but continually sells more and more water. CLWA should provide the public with an accounting of the water CLWA is conserving.

Secondary Element 1 - Continuation of Public Education and Water Conservation Programs

CLWA has provided water conservation and public education programs that will continue and expand as a complement to and an element of this groundwater management plan. The expansion of water conservation will largely stem from CLWA's having signed the "Memorandum of Understanding Regarding Water Conservation in California" (Urban MOU) in 2001, which made CLWA a wholesaler member of the California Urban Water Conservation Council. CLWA has thus committed to implementation of cost-effective water conservation measures known as Best Management Practices (BMPs) that are included in the Urban MOU and are intended to reduce California's long-term urban water demands. The BMPs have been incorporated into the water demand management measures section of the Urban Water Management Planning Act.

Water conservation and related public education measures have generally been developed in California to achieve the following goals:

- meet legal mandates
- reduce average annual potable water demands
- reduce sewer flows
- reduce water demands during peak seasons
- meet drought restrictions.

As a wholesaler of imported surface water CLWA has implemented the following BMPs for several years prior to signing the MOU:

- distribution system water audits, leak detection and repair
- public information
- school education
- wholesale agency assistance ?
- conservation pricing ?
- conservation coordinator. ?

Plan, page #37 Dunn, page 17

Top:

(Not much truth here either.) Mostly deception. The UWMP doesn't exist for the reasons mentioned earlier. The UWMP must not be considered here.

As a signatory to the MOU, CLWA's water conservation and public education program will expand to include the following BMPs found to be locally cost-effective, as detailed in the 2000 Urban Water Management Plan for CLWA and the Santa Clarita Valley retail purveyors.

- water survey programs for single-family residential and multi-family residential ? programs
- residential plumbing retrofits
- metering with commodity rates for all new connections and retrofit of existing connections ?
- large landscape conservation programs and incentives
- high-efficiency washing machine rebate programs (when also provided by local energy providers or wastewater utilities)
- conservation programs for commercial, industrial, and institutional accounts
- wholesale agency programs to financially or otherwise support water conservation efforts by retailers (this measure will be expanded)
- residential ultra-low-flow toilet replacement program.

This Primary Element, while identical to independent CLWA efforts in water conservation and public education, is incorporated in this Plan to complement other Plan elements, and to move toward accomplishment of all management objectives (goals) for the groundwater basin.

Secondary Element 2 - Identification and Management of Recharge Areas and Wellhead Protection Areas

The 1986 Amendments to the federal Safe Drinking Water Act (SDWA) established a new Wellhead Protection Program (WPP) to protect groundwater that supplies drinking water wells for public water systems. Each state was required to prepare a WPP and submit it to the USEPA by June 19, 1989. However, California did not develop an active state-wide Wellhead Protection Program at that time. Subsequently, in 1996, reauthorization of the SDWA established a related program called the Source Water Assessment Program. In 1999, the California Department of Health Services (DHS) Division of Drinking Water and Environmental Management developed its Drinking Water Source Assessment Program (DWSAP), and EPA approved it. The overall objective of the DWSAP is to ensure that the quality of drinking water sources is protected.

As discussed in Section 1 of this Plan, the potential groundwater management plan component

EXHIBIT A

Santa Clarita will turn to wells as state water supplies dry up

2-27-91 D.N.

WATER / From Page 1

and Hasley Canyon — does not have a ground-water supply.

The county agency has drilled a well about 1,000 feet northwest of the intersection of Hasley Canyon and Del Valle roads that it had planned on using in about a year after building a 250,000-gallon storage tank, Assistant Deputy Director Gary Hartley said. However, with the new cutback, the county is hurriedly seeking permission from several property owners to run a temporary pipeline from that well to customers, Hartley said.

County officials hope to have the pipeline operating in about six weeks, he said. Meanwhile, the county is working on agreements with the three other purveyors in the valley — the public Newhall County Water District and the private Valencia Water Co. and Santa Clarita Water Co., Hartley said.

If the county cannot set aside enough well water from the other purveyors, there is a chance the state would send emergency supplies through the Castaic agency, he said.

While the city considers a law that would restrict wasteful practices in the hopes of achieving a 25 percent reduction in water use, Hartley said that county water officials are drafting a conservation proposal that would require different levels of participation in different areas. Because of the severity of the water cuts in the Val Verde and Hasley Canyon areas, he said he would expect a 20 percent to 30 percent mandatory cutback in water use.

Although the plant near Castaic Lake will be closed, the agency most likely will lay off just a temporary maintenance worker, Sagehorn said. The worker was hired when one of the two permanent maintenance workers was on medical leave and was kept on.

Suppliers driven into the ground

Drought forces area to rely on well water

2-27-91

By Kimberly Heinrichs
Daily News Staff Writer

SANTA CLARITA — The state is expected to stop water deliveries March 15 to the Santa Clarita Valley, forcing the area to rely on ground water as California's worst drought on record continues, officials said Tuesday.

The Castaic Lake Water Agency, which treats, stores and distributes state water to local purveyors, will close its plant after the last of the imported water arrives, agency General Manager Robert Sagehorn said.

Related story:
■ Conservation law gets OK. Page 4

"For all substantial purposes we're shutting the plant down on March 15," he said, adding, "No one's going to go bone dry over this."

Local water suppliers still will pump water from the Santa Clarita Valley's extensive network of wells, he said.

The state Department of Water Resources told Sagehorn on Saturday that the expected cut of 50 percent of the agency's water supply has been increased to 90 percent as the drought continues its fifth year. The agency will have received 10 percent of this year's water allocation by the middle of March, Sagehorn said.

Of the four purveyors receiving state water from the Castaic Lake agency, only the Los Angeles County Waterworks District No. 36 — which serves Val Verde

See WATER / Pg. 2

FOR PG. 17 + FIG. 5-4

EXHIBIT B

Officials say state's water delivery system inadequate

By Laura Myers
Associated Press

MONTEREY, Calif. — The tap has run dry too often and for too many years in California because of an inadequate water delivery system, representatives of the three main groups vying for the precious commodity complained Thursday.

The 5-year-old drought that saw everybody suffer when supplies were drastically cut only magnified the problem this year, said representatives of the urban, agriculture and wildlife interests.

"The biggest problem we have is that the reliability of the water supply is grossly inadequate," said Tim Quinn, conservation director for the urban Metropolitan Water District of Southern California. "The way the system works now, you just can't count on a steady water supply because the water delivery system just doesn't work like it should."

Quinn's comments came at the annual spring conference of the California Association of Water Agencies, which attracted more than 2,000 of the state's top water officials.

Stephen Hall, representing agriculture, and Charles Hanson, representing wildlife and the environment, agreed with Quinn that the State Water Project and the federal Central Valley Water Project can't satisfy competing supply needs.

All three men presented dire pictures of what would happen if they weren't the first in line for water if the drought continues — the quality of urban life will decline, farms will go under, workers will be jobless and wildlife will dwindle, with some species becoming extinct.

But beyond the growing instant competition for scarce supplies, they said water officials must improve the delivery and storage system that essentially hasn't developed for decades.

"We shouldn't have to continue to fight one another for resources," said Hall, executive director of the California Farm Water Coalition.

The Sacramento-San Joaquin Delta, the cornerstone of the delivery system, is a bottleneck even in non-drought years, Quinn and Hall said.

Part of the problem, according to Hanson, who has an environmental consulting business, is the growing importance on protecting endangered and threatened species while making water transfers in the delta.

The winter-run chinook salmon already is listed by state and federal wildlife officials as threatened and the delta smelt also is expected to make the U.S. Fish and Wildlife Service list soon.

Certain water flow rates from the river must be met when those fish spawn, under wildlife protection rules, he said.

"We need to manage the allocations to provide adequate water throughout the year," Hanson said.

PG. 12

EXHIBIT C

A boost for toxic cleanup in state

Feds back state on perchlorate

By Heather MacDonald
Staff Writer 8-8-03 D.N.

SANTA CLARITA — The Department of Defense agreed Thursday to obey California's drinking water standards for perchlorate and not try to avoid paying for cleanup of the toxic rocket fuel byproduct.

The agreement, announced by U.S. Sen. Barbara Boxer and Pentagon officials during a visit to a contaminated site in Rialto, could help speed the cleanup of the defunct Bermite explosives factory in the center of Santa Clarita, and dozens of other polluted sites all over California, officials said.

"This is an important breakthrough," said Boxer, a California Democrat. "Defense Department activities have been a major source of perchlorate contamination in California. This kind of active cooperation will help us find and fix perchlorate problems throughout the state."

The agreement also appeared to put to rest concerns expressed by Santa Clarita leaders that legislation introduced by President George W. Bush would exempt some defense contractors from having to pay for environmental cleanups in the name of military readiness.

The Newhall County Water District Board of Directors was afraid the language of the bill could be used to let Whittaker Corp., which operated the site until 1987 and has recently begun studying the best ways to clean up the pollution, off the hook.

"The well-being of millions of Californians depends on this agreement," Boxer said.

More than 7 million Californians drink water with at least traces of perchlorate, which can damage the thyroid gland and be risky for pregnant women, whose fetuses can be affected, according to the U.S. Environmental Protection Agency.

A provisional standard set by the EPA recommends that drinking water have no more than 1 part per billion of perchlorate. The old standard considered water with 32 parts per billion of perchlorate safe.

Although the EPA is not expected to set a final standard

See WATER / Page 2

Help on the way for toxic cleanups

8-8-03 D.N

WATER / From Page 1

until at least 2008, Boxer has called for the agency to act next year because of the threat perchlorate poses to California residents.

Five wells in Santa Clarita have been shut down because of high levels of perchlorate, with tests showing as much as 40 parts per billion of the toxin in the water, officials said. The wells draw on the Saugus Aquifer, which serves as a backup water supply for the Santa Clarita Valley in times of drought.

State officials believe the pollution is coming from the Bermite property near the Santa Clarita Metrolink Station on Soledad Canyon Road. From World War II to the end of the Cold War, several companies manufactured and tested munitions and explosives for the U.S. military on the 996-acre site.

While the California Department of Health Services requires that wells with more than 4 parts per billion of perchlorate be shut down, the state Office of Environmental Health Hazard Assessment has found that water with as much as 6 parts per billion is safe to drink.

Heather MacDonald, (661) 257-5257
heather.macdonald@dailynews.com

FOR PG. 15

-----Original Message-----
From: Diane Trautman [mailto:dianetrautman@comcast.net]
Sent: Friday, August 08, 2003 2:41 PM
To: Dan Masnada
Cc: Marsha McLean; Vince Bertoni
Subject: Draft Groundwater Management Plan

TO: Dan Masnada

RE: Draft Groundwater Management Plan

Following are my questions and comments related to the Agency's Draft Groundwater Management Plan:

1. What percentage of the 106,000 afy (needed over the next 20 years) will be drawn from local groundwater sources? Does the Agency expect to maintain roughly the same 60% SWP/40% local groundwater mix in most years?

2. If the Saugus Formation absorbs recharge much more slowly than the Alluvial Aquifer, won't pumping of the Alluvial Aquifer at the high end of the scale over a sustained period of time reduce recharge of the Formation and reduce the amount of potable water that can be drawn from the Formation in dry periods?

3. Both this report (p. 15) and the 2002 Water Report (p. 19) state that the Agency does not have sufficient groundwater quality data on the Saugus Formation to perform an analysis of "pumping related inpacts on quality." On page 25 of this report under Primary Element 1, the Agency states that it has "a useful amount of groundwater quality data." Is the latter in reference only to the Alluvial and not the Saugus? And if the Agency does not have sufficient data on quality of water from the Saugus Formation, how does the agency propose to collect that data to ensure quality in order to maintain the current pumpage level and to increase the yield as proposed on page 21?

4. Looking back at the 2002 Water Report, the Agency indicates (on page 19) that "there are limited Saugus (Formation) water level data." Does the Agency plan to collect more comprehensive data on the Saugus Formation general groundwater stability to determine reliability of projected yields and "artificial groundwater recharge" (p. 27) capacity?

5. Regarding Secondary Element 2,the Agency states: "The results of the DWSAPs can be used as a planning tool to guide land use development in the vicinity of water sources." Is the Agency currently sharing more recent, detailed information with the City regarding contamination risks in relation to the existing closed wells?

6. Where is the SCWC Stadium Well located?

7. Why is "Continuation of Public Education and Water Conservation listed as a Secondary (Potential) Element" when increased conservation savings are projected to reduce water demand by 10%? Shouldn't conservation be one of the primary elements of water management?

8. How is the Agency delivering recycled water to the TPC? Is it being run through a parallel piping system? Is so, what is the estimated cost and time frame for constructing such a system to carry the estimated 17,000afy? And how does the Agency propose to pay for this system?

9. How is the recycled water in locations, such as the golf course, reprocessed to remove pesticides and fertilizers?

10. What is the current average per capita water usage in afy?

11. The Semitropic Water Bank/Transfer is not mentioned in discussion of the Supplemental (SWP) Surface Water on page 21. Is that because it is a relatively short-term water supply? Are any of the other water transfers – Kern Water Bank, Kern Delta Water, North Las Posas Water Bank – as listed on UWMP p. 2-16, of limited duration? And if the Semitropic Water Bank Transfer is short term, how can it be included in the 105,000-106,000 afy need projected for the next 20 years? What will take its place?

12. What specific efforts will be made to manage salinity?

Thank you for giving me an opportunity to respond.

Diane Trautman

Responses to Trautman

1. In terms of groundwater management planning, projected urban water demand (the 106,000 afy projected urban demand in 2020) does not represent total valley-wide demand; total projected demand is 113,100 afy, including both urban and agricultural. In that light, on an average basis, local ground water is expected to be utilized to meet about 40 percent of total water demand.

   In regards to maintaining "roughly the same 60% SWP/40% local groundwater mix in most years", please refer to page 20 of the draft GWMP for a more complete response to your question. For example, about 54 percent of water demand in 2001 was supplied by local groundwater, and about 46 percent was supplied by imported SWP water. Also please refer to Table II-5 in the 2002 Santa Clarita Valley Water Report, which displays the build up of SWP water use through time, and the relative percentages of groundwater and SWP water used in a given year. As noted above, it is expected that, over time, again on an average basis, the annual amount of local groundwater pumping will not appreciably change but its fraction of total water supply will decrease. Conversely, over time, and once again on an average basis, both the annual volume of imported SWP water and its fraction of total water supply will increase.

2. No. Since the Saugus Formation is recharged over a much larger area, beyond the spatial extent of the Alluvium. There is a limited relationship between Alluvial pumping and recharge to the Saugus Formation.

   The fundamental tenet of the GWMP is to utilize groundwater for water supply within its sustainable yield (see the Management Objectives, or Goals, for the Basin, GWMP Section II; see also the various GWMP Elements intended to achieve those objectives, GWMP Section V). In that light, it is expected and intended to operate in such a way that recharge to the Saugus Formation will not be "reduced" by pumping from the Alluvial Aquifer and that groundwater will be available in varying amounts, as needed depending on weather year-types, within the sustainable yields of the respective aquifers (i.e. without overdrafting them).

3. The reference to "useful amount of groundwater quality data" in the GWMP includes both Alluvial and Saugus data. However, due to the historically greater development and use of groundwater from the Alluvium (number and distribution of wells, volume of pumping), and due to the historically smaller development and use of the Saugus Formation (fewer wells, smaller geographical distribution of wells, smaller pumpage), there is a comparatively limited ability to examine relationships among pumping, recharge, and quality in the Saugus. CLWA and the other purveyors intend to expand the overall knowledge of the Saugus Formation as that resource is further explored and

developed (number of wells, additional sampling as new wells are added, etc.). All that data will be included in ongoing implementation of GWMP Primary Element 1, Monitoring of Groundwater Levels, Quality, and Production.

4. The "limited nature of Saugus water level data" is a result of the same smaller extent of historical Saugus development described in the preceding answer. Acquisition of additional data on the Saugus Formation is planned as also described in the preceding answer.

5. All publicly available information regarding the investigation of perchlorate contamination, its extent, its impact on water supply, and plans for cleanup, control of migration, etc. is available to the City. Representatives of CLWA and the purveyors meet routinely with City representatives to review the status of perchlorate cleanup and remediation activities. CLWA and the impacted water purveyors will continue to pursue control and cleanup of perchlorate contamination in order to restore impacted groundwater pumping capacity and to ensure the long-term quantity and quality of groundwater in accordance with the GWMP. As a practical matter, there are no surface contamination risks relating to perchlorate that would affect land use development adjacent to the wells.

6. The stadium well is located on the south side of the Santa Clara River, approximately two miles upstream (east) of its confluence with the South Fork tributary, or about 4,000 feet east of the Bouquet Canyon Road crossing of the Santa Clara River.

7. The assignment of "primary" or "secondary" status to any GWMP element is discretionary and certainly not absolute. Secondary status is not intended to indicate that any element of the GWMP will not be implemented; all elements are intended to be implemented. Final status of all GWMP elements will be reviewed by the Advisory Council and decided by the CLWA Board.

8. Recycled water is being delivered to the TPC via the dedicated, recycled water distribution system, which is also capable of delivering water to other non-potable water users, and which will be expanded in accordance with the Draft Recycled Water Master Plan. The costs and time frame for expanding recycled water distribution and use are included in the Draft Recycled Water Master Plan, which is complementary to, but beyond the scope of the Groundwater Management Plan. The intent is to develop the 17,000 AFY of use by 2020. The capital cost of the complete system is estimated to be $68 million, and will be funded through CLWA's connection fee program.

9. Recycled water is not "reprocessed" at points of use such as the TPC golf course. In general, recycled water is highly treated (tertiary treated) waste water. In the case of the Santa Clarita Valley, treatment already occurs at the Valencia Reclamation Plant operated by the Sanitation Districts of Los Angeles County. The treated water, ready for non-potable use, is distributed from the plant site in a dedicated transmission pipeline system to end users such as the TPC. Pesticide and fertilizer uses, as part of cultural practices at end-user locations such as golf courses, are discretionary actions of the respective end users of recycled water.

10. Most water agencies no longer use "per capita" water use as a standard because it is not an accurate representation of actual per person water use, mainly due to the effects of landscape and commercial/industrial water use. (It is also expressed in "gallons per day," rather than "acre-feet per year, since it refers to individual water usage.") In general for the South Coast hydrologic region of California, water use is approximately 200 gallons per person per day (DWR Bulletin 160-98). Per capita use for the Santa Clarita Valley is slightly higher than this due to landscape irrigation demands caused by local climatic conditions.

11. The SWP is referred to as "supplemental" water because that is the original purpose of the SWP: to serve as a supply that would "supplement" local supplies (whether groundwater or local surface water or both). The specific amounts referred to in the GWMP are from the contractual terms between CLWA and the California Department of Water Resources.

    The water banked in the Semitropic Water Storage Program during 2002 is a short-term, dry period supply. The program has a term of ten years (i.e., the water must be returned to CLWA for use in its service area within that time period). Thus it is not included as a supply for long-term needs. However, the other programs listed in the UWMP (most of which, by the way, are not water "transfers," but are instead groundwater banking programs) are long-term sources of supply. As of this writing, the Agency is in the process of designing and implementing a Long-Term Reliability Plan to begin bringing such long-term programs on line as a means to store water available in wet years, for use in later dry years. CEQA analysis, with its accompanying public comment opportunities, will be part of the long-term reliability program approval process.

12. Primary Element 6 – Long Term Salinity Management is included in the GWMP for the reasons presented in the text discussion of that element. The element recognizes the need to plan for salinity management but also recognizes that, to the present, there has been no extraordinary trend of salinity increase. Hence, there are no specific efforts currently in place to "manage" salinity. It is envisioned that specific efforts will be developed over

time in response to implementation of the GWMP and, in particular, its Primary Element 6.

CLWA is participating in efforts by the Sanitation Districts of Los Angeles County to address the Los Angeles Regional Water Quality Control Board's proposed TMDL standard for chloride in the Santa Clara River. This effort is separate from and beyond the scope of the Groundwater Management Plan.

Additional Comments

Ed and Joan Dunn
15414 Rhododendron Dr.
Canyon Country, CA 91387
November 25, 2003

Castaic Lake Water Agency
President Peter Kavounas and Board of Directors
27234 Bouquet Canyon Road
Santa Clarita, CA 91350-2173

Re: Groundwater Management Plan (AB 3030) Nov. 2003 Draft

Dear President Kavounas and Directors:

We would like to comment on some statements of your new draft plan. On page 38 there is a bullet - Conservation pricing. Since we have never seen any conservation pricing locally, this should be explained or removed. We seriously question this being presently implemented.

On page 41, we ask why you are stating that only the eastern portion of the alluvium has experienced historical fluctuations in groundwater levels. How can there be constant groundwater levels in the western portion of the basin, when the western basin is supposed to receive its re-charge primarily from the eastern portion of the river? You imply that tributaries in the Bouquet Canyon area are the source of water in that area. We believe you are avoiding the real source of water to the area. That source appears to be the large amount of effluent from Sanitation District #26, and is maintaining the water level. Why is this not explained?

As usual, there is no explanation for a total extended interrupt of the state wholesale water system or the CLWA facilities!

We are disappointed that of the numerous comments of August 8, 2003 that we supplied, only a few were considered. We spent our time and efforts to supply comments and suggestions to make the water plan a good plan. So much for that!

Sincerely,
Ed Dunn
Joan Dunn
Ed and Joan Dunn

November 25, 2003

Mary Lou Cotter
Water Resources Manager
CLWA
via fax only

Subject: November 25, 2003 Groundwater Management Plan Protest Hearing

I will not be attending the protest hearing this evening, but I do have three comments on the materials you provided to me.

First, I commented previously on the proposed network of monitoring wells and the public availability of data. The monitoring wells in figures 5-1 and 5-2 appear to cover a wide range of the valley. However, the text on p. 27 states the network will be "mostly as illustrated in figures 5-1 and 5-2, but possibly expanded... " I hope the final network is extensive and covers all areas of the valley. Further expansion of the network would add valuable data points and should be encouraged.

I did not see any indication of whether the collected monitoring data would be publicly available. I have heard comments from others that some well data is not being released to the public, even upon request. I think that concerned citizens and groups should be allowed access to the monitoring database.

Second, I have one new comment on the wording on page 34, regarding perchlorate cleanup. The last paragraph states "the proposed pumping would be combined with approved wellhead treatment to render the treated water suitable for municipal supply." This may be a wording issue, but my understanding is that wellhead treatment is not always approved or allowed by the permitting agencies. This wording implies that wellhead treatment is already an approved scenario, while it may be determined that treatment followed by re-injection or non-potable usage makes more sense. I think it would be more accurate to not specify the final treatment scenario until the plume characterization is complete and the pilot studies are finished and accepted.

Finally, the plan is clearly an overview that will have to be expanded upon with supporting policies and target dates. Some commenters requested this information go in the groundwater plan. If the agency does not add implementation strategies and target dates to the plan, they should be prepared separately updated annually, and made available to the public upon request.

I understand the time for commenting may have past, but if you are able to address these concerns in the final draft it would be appreciated.

Sincerely,

Maria Gutzeit
24463 Shadeland Dr
Newhall, CA 91321

Appendix H

Historical Imported Supply Deliveries by Purveyor
(Expanded Table 3-3 from Section 3)

APPENDIX H
HISTORICAL IMPORTED SUPPLY DELIVERIES BY PURVEYOR (AF)
(Expanded Table 3-3 from Section 3 Water Resources)

Santa Clarita Water Division

Year	SWP Deliveries to Service Area[a]	Withdrawals from Out-of-Service Area Storage[b]	Other Imported Deliveries to Service Area[c]	Total Imported Supplies to Service Area
1980	1,210	0	0	1,210
1981	4,558	0	0	4,558
1982	6,358	0	0	6,358
1983	5,379	0	0	5,379
1984	6,905	0	0	6,905
1985	7,248	0	0	7,248
1986	8,469	0	0	8,469
1987	9,642	0	0	9,642
1988	11,353	0	0	11,353
1989	12,850	0	0	12,850
1990	12,784	0	0	12,784
1991	5,686	0	0	5,686
1992	6,313	0	0	6,313
1993	3,417	0	0	3,417
1994	5,127	0	0	5,127
1995	8,304	0	0	8,304
1996	9,174	625	0	9,798
1997	9,410	0	0	9,410
1998	8,681	0	0	8,681
1999	11,368	0	0	11,368
2000	13,119	1,093	0	14,212
2001	15,764	0	0	15,764
2002	19,062	179	0	19,241
2003	24,072	0	0	24,072
2004	22,165	0	0	22,165
2005	15,954	0	0	15,954
2006	16,714	0	0	16,714
2007	15,921	0	5,015	20,937
2008	14,216	0	4,905	19,121
2009	12,009	759	5,062	17,830

Los Angeles County Waterworks District 36

Year	SWP Deliveries to Service Area[a]	Withdrawals from Out-of-Service Area Storage[b]	Other Imported Deliveries to Service Area[c]	Total Imported Supplies to Service Area
1980	0	0	0	0
1981	0	0	0	0
1982	143	0	0	143
1983	214	0	0	214
1984	250	0	0	250
1985	285	0	0	285
1986	346	0	0	346
1987	358	0	0	358
1988	431	0	0	431
1989	459	0	0	459
1990	525	0	0	525
1991	402	0	0	402
1992	419	0	0	419
1993	463	0	0	463
1994	460	0	0	460
1995	498	0	0	498
1996	521	35	0	556
1997	730	0	0	730
1998	564	0	0	564
1999	690	0	0	690
2000	763	64	0	827
2001	914	0	0	914
2002	1,077	10	0	1,087
2003	1,369	0	0	1,369
2004	859	0	0	859
2005	828	0	0	828
2006	1,257	0	0	1,257
2007	1,083	0	341	1,424
2008	1,035	0	357	1,392
2009	842	53	355	1,250

Newhall County Water District

Year	SWP Deliveries to Service Area[a]	Withdrawals from Out-of-Service Area Storage[b]	Other Imported Deliveries to Service Area[c]	Total Imported Supplies to Service Area
1980	0	0	0	0
1981	0	0	0	0
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	0	0	0	0
1986	0	0	0	0
1987	22	0	0	22
1988	141	0	0	141
1989	430	0	0	430
1990	815	0	0	815
1991	623	0	0	623
1992	797	0	0	797
1993	1,071	0	0	1,071
1994	919	0	0	919
1995	1,362	0	0	1,362
1996	1,186	81	0	1,266
1997	1,231	0	0	1,231
1998	1,727	0	0	1,727
1999	5,329	0	0	5,329
2000	5,747	479	0	6,226
2001	5,493	0	0	5,493
2002	6,031	57	0	6,087
2003	7,654	0	0	7,654
2004	5,928	0	0	5,928
2005	5,731	0	0	5,731
2006	5,749	0	0	5,749
2007	4,990	0	1,572	6,562
2008	4,149	0	1,432	5,581
2009	3,271	207	1,379	4,857

Valencia Water Company

Year	SWP Deliveries to Service Area[a]	Withdrawals from Out-of-Service Area Storage[b]	Other Imported Deliveries to Service Area[c]	Total Imported Supplies to Service Area
1980	0	0	0	0
1981	1,203	0	0	1,203
1982	3,015	0	0	3,015
1983	3,883	0	0	3,883
1984	4,321	0	0	4,321
1985	4,868	0	0	4,868
1986	5,113	0	0	5,113
1987	6,145	0	0	6,145
1988	6,979	0	0	6,979
1989	7,980	0	0	7,980
1990	8,014	0	0	8,014
1991	646	0	0	646
1992	6,301	0	0	6,301
1993	8,394	0	0	8,394
1994	8,097	0	0	8,097
1995	7,577	0	0	7,577
1996	6,805	463	0	7,269
1997	9,223	0	0	9,223
1998	8,799	0	0	8,799
1999	11,404	0	0	11,404
2000	11,452	954	0	12,406
2001	13,461	0	0	13,461
2002	15,910	149	0	16,059
2003	18,640	0	0	18,640
2004	18,511	0	0	18,511
2005	14,233	0	0	14,233
2006	15,902	0	0	15,902
2007	12,925	0	4,071	16,996
2008	12,478	0	4,306	16,784
2009	9,974	631	4,204	14,809

Los Angeles County Honor Farm

Year	SWP Deliveries to Service Area[a]	Withdrawals from Out-of-Service Area Storage[b]	Other Imported Deliveries to Service Area[c]	Total Imported Supplies to Service Area
1980	0	0	0	0
1981	0	0	0	0
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	0	0	0	0
1986	0	0	0	0
1987	0	0	0	0
1988	0	0	0	0
1989	0	0	0	0
1990	0	0	0	0
1991	0	0	0	0
1992	981	0	0	981
1993	441	0	0	441
1994	316	0	0	316
1995	6	0	0	6
1996	762	52	0	814
1997	992	0	0	992
1998	12	0	0	12
1999	21	0	0	21
2000	3	0	0	3
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	1,650	0	38,746

Source: DWR Bulletin 132, Management of the California State Water Project; and DWR delivery files.

Notes:

(a) Includes deliveries of Table A supplies, carryover water, Article 21 water, Turnback Pool water, local supply (from West Branch reservoirs) and water purchased through DWR.

(b) Out-of-service area storage includes flexible storage in Castaic Lake, the Semitropic Banking Program and the Rosedale-Rio Bravo Banking Program.

(c) Deliveries from Buena Vista-Rosedale.

Appendix I

Perchlorate Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley

Appendix I

Perchlorate Contamination and Impact on Groundwater Supplies in the Santa Clarita Valley

Introduction

The detection of perchlorate in Santa Clarita Valley groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation where six wells have been impacted as a result of perchlorate. As discussed below, planning and implementation of remediation of the perchlorate, and restoration of impacted well capacity, have been substantially undertaken. While that work continues, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial Aquifer and Saugus Formation during the time necessary to fully restore perchlorate-impacted wells. CLWA, the local retail water purveyors, the California Department of Toxic Substances Control (DTSC) and the U.S. Army Corps of Engineers (ACOE) continue to work closely on the perchlorate contamination issue, which reasonably ensures a prompt response to any significant changes in conditions.

The following is a discussion of pertinent events related to perchlorate contamination. It illustrates that work toward the ultimate remediation of the perchlorate contamination, including the reactivation of impacted groundwater supply wells, has progressed on several integrated fronts over the last ten years. The following discussion is organized into several sections that focus on various aspects of the offsite impacts of perchlorate on water supply wells and the ongoing activities to remediate that problem and restore the impacted well capacity.

On-Site Investigations and Clean-up

On-site investigation and clean-up have continued at the former Whittaker-Bermite facility. The on-site investigation and clean-up activities at the source of the contamination are under the regulatory authority and control of DTSC.

Background

The Whittaker-Bermite site is located in the center of the Santa Clarita Valley and was operated as an explosives and munitions manufacturing, testing and storage facility since the late 1930's. It was first owned by the Los Angeles Powder Company and later by Golden State Fireworks, the Halifax Explosives Company, the Bermite Powder Company and the Whittaker Corporation (Whittaker), which assumed ownership of the site in 1967. Under contracts with the U.S. Department of Defense, Whittaker Corporation used perchlorate in the manufacture of solid propellants for rockets and missiles until operations ceased in 1987. There was a long history of perchlorate use and other chemical use at the site, and surface and subsurface investigations at the site revealed the presence of perchlorate and other contaminants in soil and groundwater.

The contaminants found in the soil that require clean-up are perchlorate and volatile organic compounds (VOCs). These chemicals were used in the manufacturing and testing of fireworks, dynamite, oil-field explosives, and munitions. The site encompasses 996 acres, with actual production facilities occupying approximately 50 acres. The property is characterized by chaparral covering the undisturbed portions of the site, fire breaks, dirt roads and remnants of facility foundations and buildings. The surrounding areas include commercial, light industrial and residential land uses. The facility was closed in 1987 and most of the structures on the property were removed at or about that time.

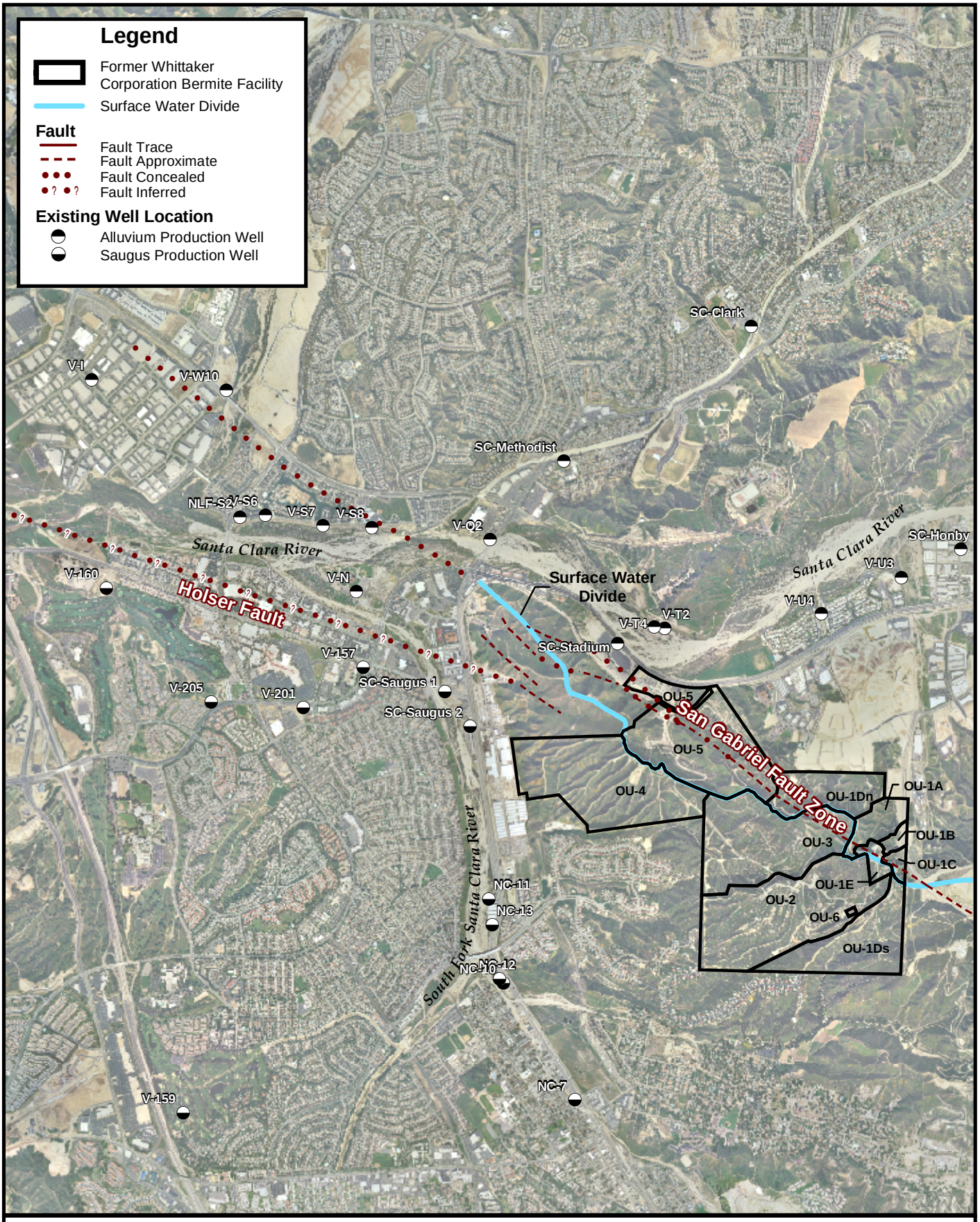
Between 1987 and 1998, Whittaker conducted environmental investigations and clean-up activities under the supervision of DTSC and its predecessor agency. In 1994, Whittaker entered into an enforceable agreement with DTSC to conduct a comprehensive site-wide investigation of areas of concern. In early 1997, with the remedial investigations under way, DTSC informed Whittaker that the soils, groundwater and surface runoff would have to be reassessed for the presence of perchlorate

In 1998, Whittaker sold the property to Santa Clarita LLC, a brownfield development company. In addition to assuming all clean-up responsibilities, Santa Clarita LLC acquired the right to develop the property contingent upon the full clean-up and certification of the property's reuse by DTSC. Between 1999 and 2001, Santa Clarita LLC expanded the site investigation and clean-up programs that had been initiated by Whittaker under the 1994 agreement. In 2002, however, with Santa Clarita LLC unable to fund additional site work due to financial difficulties, DTSC initiated negotiations with Whittaker to resume site investigation and clean-up work. In November 2002, DTSC issued an Order that required Whittaker to complete the site investigations and feasibility studies for all contaminants of concern under a tight time schedule.

Perchlorate Impacted Water Purveyor Wells

Perchlorate was initially detected in four Saugus Formation production wells operating near the former Whittaker-Bermite site in 1997. These wells – CLWA Santa Clarita Water Division's (SCWD) Wells Saugus 1 and Saugus 2, Newhall County Water District's (NCWD) Well NC-11 and Valencia Water Company's (VWC) Well V-157 – were removed from service. In 2002, perchlorate was detected in the SCWD Stadium well located directly adjacent to the Whittaker-Bermite site. This Alluvial well was also removed from service and subsequently capped in 2009. It was replaced with a new well, the SCWD Santa Clara well, also in 2009. Locations of the impacted wells and other nearby non-impacted wells, relative to the Whittaker-Bermite site are shown on Figure I-1. The restoration and/or replacement of these wells to service is discussed below.

Since the initial detection of perchlorate and resultant inactivation of impacted wells, the retail water purveyors have continued to conduct regular monitoring of active wells near the Whittaker-Bermite site. In late March 2005, that monitoring detected the presence of perchlorate in VWC's Well Q2, an Alluvial well located immediately northwest of the confluence of Bouquet Creek and the Santa Clara River.



CH2MHILL

0 3,500 7,000 Feet

Figure I-1
Site Location
Former Whittaker-Bermite Facility

SCO \\GALT\GIS2\SNTA_CLRTA\PLOTS\FIGURE_121404\FIGURE_2-16.MXD 12/14/2004

As a result of the detection and confirmation of perchlorate in its Well Q2, VWC removed the well from active service and immediately pursued permitting and installation of wellhead treatment. The well was returned to water supply service in October 2005.

In 2006, Saugus well NCWD Well NC-13 had detectable concentrations of perchlorate below drinking water standards; it has remained in active water supply service.

Most recently, in August 2010, VWC's water sample tests, taken from August 2010 through April 2011, confirmed the presence of perchlorate above the regulatory standard at VWC's Saugus Well 201, located downgradient from the Whittaker Bermite site and downgradient from the initially impacted Saugus 1 and 2 and V-157 wells. VWC immediately took the well out of service and notified the California Department of Public Health (DPH). VWC continues to monitor the inactive well on a monthly basis. The most recent sample confirmed that perchlorate is still present and that remediation is needed as outlined by the 2007 Whittaker-Bermite Litigation Settlement Agreement (Settlement Agreement; discussed below in the section entitled "Water Supplier Litigation and Settlement Agreements").

VWC is currently evaluating remediation alternatives and intends to pursue restoration of the well's capacity through such means as wellhead treatment as provided for in the Settlement Agreement. This and several other wells were identified as being potentially threatened by perchlorate in the Settlement Agreement. Therefore, provisions were made in the Settlement Agreement to provide for treatment for any additional wells that may be impacted by perchlorate.

Analysis of the planned program for restoration of originally impacted wells using the basin groundwater model estimated that perchlorate-contaminated groundwater would be contained and captured by pumping Saugus 1 and 2. Ultimately, however, the combination of litigation, settlement, permitting and construction constrained actual implementation of the containment program until 2010, six years after the impact of the containment program on perchlorate migration in groundwater was analyzed. That time, combined with the preceding seven years since perchlorate first impacted water supply wells, resulted in a greater risk of downgradient migration of perchlorate in the Saugus Formation, and is interpreted to be the primary reason for the recent detection of perchlorate in VWC Well 201. However, as mentioned above, that possibility was addressed in the Settlement Agreement as it includes provisions for providing treatment to wells that are impacted by perchlorate not contained or captured by the original containment program.

Regulatory Standards for Perchlorate

Perchlorate is a chemical salt and is very soluble in water. It is also very mobile in water and is persistent (i.e., does not degrade) under typical environmental conditions. The maximum contaminant level (MCL) for perchlorate of 6 micrograms per liter (ug/L) was established by DPH in October 2007. MCLs are based on health protection, technical treatment feasibility, analytical detection limits and costs.

Water Supplier Litigation and Settlement Agreements

On November 29, 2000, CLWA and the local retail water purveyors filed suit against the current and prior owners of the Whittaker-Bermite facility. The lawsuit included causes of action relating to payment of all necessary costs of response, removal of the perchlorate contamination, payment of remediation action costs and compensation for other damages associated with the perchlorate contamination. CLWA and the local retail water purveyors had incurred substantial response costs and other expenses as a result of production lost on account of the contamination

In late summer 2003, CLWA, the local retail water purveyors, Whittaker and Remediation Financial, Inc. (RFI) and Santa Clarita LLC (SCLLC) entered into an interim settlement agreement, in which the parties agreed to work cooperatively for a minimum of one year to further define long-term costs and possibly achieve a long-term settlement. The interim settlement agreement specified that Whittaker, RFI and SCLLC and/or their insurers would reimburse certain past costs as well as fund studies and prepare cost estimates for the clean-up plan to restore water production and capacity of the impacted wells and protect other wells from future contamination. The interim settlement provided for a one-year stay of the lawsuit between the parties and was subsequently amended to extend the stay through January 31, 2005. This allowed the parties to focus on the final elements of the clean-up plan, which was submitted to the regulatory agencies in early 2005 and approved in 2007.

In May 2007, a comprehensive settlement was executed by CLWA, the retail purveyors and Whittaker, RFI and SCLLC (Settlement Agreement). The water suppliers were reimbursed certain costs incurred as a result of the perchlorate contamination and funds were deposited in escrow to pay for the costs of restoration of wells and construction of treatment facilities and related pipelines. The Settlement Agreement also provides funds to pay for operation and maintenance costs for the treatment system for up to 30 years, which the agencies estimate to cost as much as $50,000,000.

Approximately $31,000,000 has been reimbursed to the agencies for past expenditures pursuant to the Perchlorate Contamination Settlement. Another $5,000,000 to $10,000,000 will be used to construct wells and pipelines to supply water that will replace capacity lost from impacted wells. An additional $10,000,000 is available to allow the water suppliers to immediately treat any additional wells that could become impacted by perchlorate in the future (i.e., the “Rapid Response Fund”).

DTSC/CLWA/Purveyor Environmental Oversight Agreement

In February 2003, DTSC and CLWA, NCWD, SCWD, and VWC entered into an Environmental Oversight Agreement (Agreement) whereby DTSC provides review and oversight of the response activities being undertaken by CLWA and the local retail water purveyors relating to the detection of perchlorate in the initially impacted wells.

The significance of the Agreement lies in the response actions to be undertaken in its “Scope of Work” (Exhibit B to the Agreement). Under the Scope of Work, CLWA and the retail water purveyors prepared (1) Well Characterization Reports, (2) a Health-Based Risk Assessment,

(3) a Regional Groundwater Flow Model and (4) a Treatment Technology Evaluation Report. The regional groundwater flow model and the treatment technology evaluation were key inputs to the permitting for restoring the impacted wells by returning them to water supply service as described below. Both were completed and utilized in conjunction to control contamination migration and restore impacted water supply well capacity. Most important, under the Scope of Work, CLWA and the retail water purveyors prepared and implemented a Remedial Action Plan (RAP) that is being used in connection with water treatment programs and/or well relocation. The RAP remains important to the retail water purveyors, who have been working cooperatively with DTSC to implement the groundwater clean-up.

Treatment Technology

A number of full scale perchlorate treatment systems were evaluated by a technical group to ensure the most efficient and cost-effective process to remove perchlorate was selected. The technical group was comprised of representatives from CLWA, the retail water purveyors and consultants retained by Whittaker-Bermite. It initially agreed to solicit competitive bids for the design, construction and operation of two treatment systems – ion exchange and biological.

After thorough evaluation of several bids, the technical group determined that ion exchange was the preferred technology based upon treatment performance, ease of regulatory compliance and comparison of costs associated with construction and operations and maintenance.

The preferred single-pass ion exchange treatment technology does not generate a concentrated perchlorate waste stream that would require additional treatment before discharge to a sanitary sewer or a brine line (if one is available). This technology incorporates an active resin (a material that attracts perchlorate molecules) that safely removes the perchlorate from water. The resin is contained in pressure vessels and the water is pumped through the vessel. The resin is eventually replaced with new resin after a period of time. The old resin is removed and transported by truck to an approved waste disposal site where it is safely destroyed. This technology is robust and reliable for use in drinking water systems.

DPH has approved operation of the perchlorate treatment plants currently in operation at the following locations:

- La Puente Valley Water District (2,500 gpm)
- San Gabriel Valley Water Company, El Monte (7,800 gpm)
- California Domestic Water Company, Whittier (5,000 gpm)
- City of Riverside (2,000 gpm)
- West San Bernardino Water District, Rialto (2,000 gpm)
- City of Rialto (2,000 gpm)
- City of Colton (3,500 gpm)
- Fontana Union WC (5,000 gpm)
- City of Pomona (10,000 gpm)
- Valencia Water Company (1,700 gpm)
- CLWA Santa Clarita Water Division (2,400 gpm)

Based on (1) the results of CLWA's investigation of perchlorate removal technologies, (2) the technical group's evaluation and (3) DPH's approval of single-pass ion exchange for treatment in other settings, CLWA and the local retail water purveyors selected and installed single-pass ion exchange as the treatment technology for restoration of impacted capacity (wells). The perchlorate treatment facility includes an ion exchange process located at the Rio Vista Intake Pump Station. The same single-pass ion exchange wellhead treatment is being considered for installation at the recently impacted VWC Well 201 to restore that impacted Saugus well capacity. This same treatment also was successfully implemented at VWC Well Q2 in 2007.

Restoration of Perchlorate Impacted Water Supply

Since the detection of perchlorate in the four Saugus wells in 1997, CLWA and the retail water purveyors recognized that one element of an overall remediation program would include pumping from impacted wells, or from other wells in the immediate area, to establish hydraulic conditions that would control the migration of contamination from further impacting the aquifer in a downgradient (westerly) direction. Thus, CLWA and the retail water purveyors expected that the overall perchlorate remediation program could include dedicated pumping from some or all of the impacted wells, with appropriate treatment, such that two desirable objectives could both be achieved. The first objective is control of subsurface flow and protection of downgradient wells and the second is restoration of some or all of the contaminated water supply. Not all of the initially impacted pumping capacity is required for control of groundwater flow. Some of the remaining capacity has been replaced by construction of replacement wells at other nonimpacted locations; and some capacity remains to be replaced by future new wells.

In cooperation with state regulatory agencies and investigators working for Whittaker-Bermite, CLWA and the local retail water purveyors developed an off-site plan that focuses on the above concepts of groundwater flow control and restored pumping capacity and is compatible with onsite and possibly other off-site remediation activities. Specifically relating to water supply, the plan includes the following:

- Constructing and operating a water treatment process that removes perchlorate from two impacted wells such that the produced water can be used for municipal supply
- Hydraulically containing the perchlorate contamination moving from the Whittaker-Bermite site toward the impacted wells by pumping the wells at rates that will capture water from all directions around them
- Protecting the downgradient non-impacted wells through the same hydraulic containment that results from pumping two of the impacted wells
- Restoring the annual volumes of water that were pumped from the impacted wells before they were inactivated, and also restoring the wells' total capacity to produce water in a manner consistent with the retail water purveyor's operational plan for groundwater supply.

An extended test of the wells that were eventually returned to service was performed as part of restoring a portion of the impacted well capacity and controlling the migration of perchlorate in the aquifer. Concurrent with the testing of the wells, several specific ion exchange resins were also tested to evaluate their performance and longevity.

The Final Interim Remedial Action Plan for containment and extraction of perchlorate was completed and approved by DTSC in January 2006. Construction of the perchlorate treatment facility and related distribution system, the main components of the "pump and treat program," began in November 2007 and was completed in May 2010. In combination with start-up of the treatment system, the SCWD Saugus 1 and 2 wells (two of the four wells that were taken out of service in 1997) were returned to service in January 2011 after DPH issued an amendment to CLWA's Operating Permit in December 2010 (see discussion of "Compliance with DPH Policy Memo 97-005" below). After consideration of groundwater modeling results and engineering analysis, the parties to the Settlement Agreement agreed to operate the Saugus 1 and 2 wells at 1,100 gallons per minute (gpm) each (2,200 gpm total) in order to optimize both the contaminant plume containment and well production.

Additionally, VWC well 157 that was taken out of service in 1997 was replaced by Well 206 in 2005.

In light of the preceding, with regard to the adequacy of groundwater as the local component of water supply in this UWMP, the impacted capacity of the previously out of service wells (not including VWC Well 201) is being restored by a combination of treatment (i.e., Saugus 1 and 2) and new wells in non-impacted areas (all funded by the Settlement Agreement), providing well capacity that is sufficient to meet near-term normal and dry-year water requirements. Achievement of the full range of normal and multiple dry-year groundwater supply as provided in the groundwater operating plan will require additional new well construction, as well as restoration of the recently impacted VWC Well 201.

Compliance with DPH Policy Memo 97-005

Returning contaminated wells to municipal water supply service by installing treatment requires issuance of permit from DPH before the water can be considered potable and safe for delivery to customers. The permit requirements are contained in DPH Policy Memo 97-005 for direct domestic use of impaired water sources. Before issuing a permit to a water utility for use of an impaired source as part of the utility's overall water supply permit, DPH requires that studies and engineering work be performed to demonstrate that pumping the wells and treating the water will be protective of public health for users of the water. The Policy Memo requires that DPH review the local retail water purveyor's plan, establish appropriate permit conditions for the wells and treatment system and provide overall approval of returning the impacted wells to service for potable use. Ultimately, CLWA and the local retail water purveyors' plan and the DPH requirements are intended to ensure that the water introduced to the potable water distribution system has no detectable concentration of perchlorate.

The DPH 97-005 Policy Memo requires, among other things, the completion of a source water assessment for the impacted wells intended to be returned to service. The purpose of the assessment is to determine the extent to which the aquifer is vulnerable to continued migration of perchlorate and other contaminants of interest from the Whittaker-Bermite site. The assessment includes the following:

- Delineation of the groundwater capture zone caused by operating the impacted wells

- Identification of contaminants found in the groundwater at or near the impacted wells
- Identification of chemicals or contaminants used or generated at the Whittaker-Bermite facility
- Determination of the vulnerability of pumping the impacted wells to these contaminant sources

CLWA worked directly with the retail water purveyors and its consultants on the development of the DPH 97-005 Policy Memo permit application. Drafts of all six elements of the 97-005 Policy Memo were submitted to DPH and the retail purveyors for review, including the Source Water Assessment, Raw Water Quality Characterization, Source Protection Plan, Effective Monitoring and Treatment Evaluation, Human Health Risk Assessment and the Alternatives Sources Evaluation. The Engineer's Report, which summarizes these six elements for the 97-005 process, was completed in 2005.

As noted above, CLWA and the local retail water purveyors recognized the need for some form of pumping in or near the impacted wells to extract contamination and protect downgradient non-impacted wells. As part of the permitting for use of impacted wells with treatment, DPH 97-005 Policy Memo requires an analysis to demonstrate contaminant capture and protection of other nearby water supply wells. The development and calibration of a numerical groundwater flow model of the entire basin was initiated as a result of a 2001 Memorandum of Understanding among the Upper Basin Water Purveyors (CLWA, CLWA SCWD, LACWWD #36, NCWD and VWC) and the United Water Conservation District in Ventura County.

The basin-wide groundwater model was initially intended for use in analyzing the yield and sustainability of groundwater in the Basin. That model, and the current updated model, was used to develop the sustainable groundwater pumping rates reflected in Section 3 of this UWMP. The model was also used to analyze both the sustainability of groundwater under an operational scenario that includes full restoration of perchlorate-contaminated supply and the containment of perchlorate near the Whittaker-Bermite property (i.e., by pumping some of the contaminated wells), including preventing movement of perchlorate contamination to other portions of the aquifer system. DTSC reviewed and approved the construction and calibration of the regional model as described in the final model report "Regional Groundwater Flow Model for the Santa Clarita Valley, Model Development and Calibration" (CH2M Hill, April 2004).

After DTSC's approval of the model, it was used to simulate the capture and control of perchlorate by restoring impacted wells, with treatment, as described above. The results of that work were summarized in a second report "Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California" (CH2M Hill, December 2004).

The modeling analysis indicated that the pumping of impacted wells Saugus 1 and Saugus 2 at a rate of 1,200 gpm each on a nearly continual basis would effectively contain perchlorate migrating westward in the Saugus Formation from the Whittaker-Bermite property (as previously noted, subsequent technical analysis resulted in the selection of a pumping rate of 1,100 gpm for each well). The analysis also indicates that (1) no new production wells are needed in the Saugus Formation to meet the perchlorate containment objective, (2) impacted well NCWD-11 is not a required component of the containment program and (3) pumping at Saugus 1 and 2 is

necessary to prevent continued migration of perchlorate to other portions of the Saugus Formation. The modeling report also includes the general design of a sentinel groundwater monitoring network and program required by DPH as part of its 97-005 Policy Memo permitting. The perchlorate containment report was approved by DTSC in November 2004. With that approval, the model was then used to support the source water assessment and the remainder of the permitting process required by DPH under its 97-005 Policy Memo.

Conclusions Regarding VWC Well 201

As noted above and in Section 3, perchlorate was detected in VWC Well 201 in the August 2010. This well was taken out of service and its capacity is not included in active groundwater sources delineated in Table 3-9 of this UWMP. VWC plans to actively seek remediation under the settlement agreement and rapidly restore the impacted well capacity. Given its experience of (1) bringing its Q2 well back into production, (2) actions under the DPH 97-005 Policy Memo, (3) participating in bringing treatment facilities on line for the Saugus 1 and Saugus 2 wells and (4) replacing capacity for its Well 157, VWC has determined that it could either install wellhead treatment to bring the well back into service or replace the capacity with a new well within two years.

Valencia Water Company, Well E-15 Water Quality Compliance Monitoring Results – 2006 to 2009

E15 - GMIO	2006	2007	2008	2009	Units
TH (as CaCO3)	497	468	418	434	mg/L
Ca	125	119	105	109	mg/L
Mg	45	41.3	38.1	39.2	mg/L
Na	104	103	88.3	99.4	mg/L
K	4	3.8	3.9	4.3	mg/L
Tot Alk	222	237	229	224	mg/L
HCO3	271	289	279	273	mg/L
SO4	315	311	286	271	mg/L
Cl	87.5	90.1	96	95	mg/L
NO3	15.8	21.2	13.3	12.8	mg/L
F	0.59	0.83	0.8	0.79	mg/L
pH	7.43	7.2	7.3	7.35	Unit
EC	1293	1314	1308	1303	mg/L
TDS	1066	950	921	815	mg/L
Color	<5	<5	<5	<5	Unit
Odor	1	1	1	1	Unit
Turbidity	0.1	0.06	0.06	0.05	NTU
Al	<DLR	<DLR	<DLR	<DLR	mg/L
An	<DLR	<DLR	<DLR	<DLR	mg/L
Ar	<DLR	<DLR	<DLR	<DLR	mg/L
Ba	<DLR	<DLR	<DLR	<DLR	mg/L
Br	<DLR	<DLR	<DLR	<DLR	mg/L
Cd	<DLR	<DLR	<DLR	<DLR	mg/L
Cr	<DLR	<DLR	<DLR	<DLR	mg/L
Fe	<DLR	<DLR	<DLR	<DLR	mg/L
Mn	<DLR	<DLR	<DLR	<DLR	mg/L
Ni	<DLR	<DLR	<DLR	<DLR	mg/L
Se	<DLR	<DLR	<DLR	<DLR	mg/L
Ag	<DLR	<DLR	<DLR	<DLR	mg/L
Th	<DLR	<DLR	<DLR	<DLR	mg/L
Zn	<DLR	<DLR	<DLR	<DLR	mg/L
LI	1.6	1.34	1.38	1.44	mg/L
Perchlorate	NA	<DLR	<DLR	<DLR	ug/L

E15 - VOC	2006	2007	2008	2009	Units
Benzene	<DLR	<DLR	<DLR	<DLR	ug/L
Carbon Tetrachloride	<DLR	<DLR	<DLR	<DLR	ug/L
1,2-Dichlorobenzene (o-DCB)	<DLR	<DLR	<DLR	<DLR	ug/L
1,4-Dichlorobenzene (p-DCB)	<DLR	<DLR	<DLR	<DLR	ug/L
1,1-Dichloroethane (1,1-DCA)	<DLR	<DLR	<DLR	<DLR	ug/L
1,2-Dichloroethane (1,2-DCA)	<DLR	<DLR	<DLR	<DLR	ug/L
1,1-Dichloroethylene (1,1-DCE)	<DLR	<DLR	<DLR	<DLR	ug/L
cis-1,2-Dichloroethylene (c-1,2-DCE)	<DLR	<DLR	<DLR	<DLR	ug/L
trans-1,2-Dichloroethylene (t-1,2-DC	<DLR	<DLR	<DLR	<DLR	ug/L
Dichloromethane (Methylene Chlorid	<DLR	<DLR	<DLR	<DLR	ug/L
1,2-Dichloropropane	<DLR	<DLR	<DLR	<DLR	ug/L
Total 1,3-Dichloropropene	<DLR	<DLR	<DLR	<DLR	ug/L
Ethyl Benzene	<DLR	<DLR	<DLR	<DLR	ug/L
Methyl tert-Butyl Ether(MTBE)	<DLR	<DLR	<DLR	<DLR	ug/L
Monochlorobenzene (Chlorobenzene)	<DLR	<DLR	<DLR	<DLR	ug/L
Styrene	<DLR	<DLR	<DLR	<DLR	ug/L
1,1,2,2-Tetrachloroethane	<DLR	<DLR	<DLR	<DLR	ug/L
Tetrachloroethylene (PCE)	<DLR	<DLR	<DLR	<DLR	ug/L
Toluene	<DLR	<DLR	<DLR	<DLR	ug/L
1,2,4-Trichlorobenzene	<DLR	<DLR	<DLR	<DLR	ug/L
1,1,1-Trichloroethane (1,1,1-TCA)	<DLR	<DLR	<DLR	<DLR	ug/L
1,1,2-Trichloroethane (1,1,2-TCA)	<DLR	<DLR	<DLR	<DLR	ug/L
Trichloroethylene (TCE)	<DLR	<DLR	<DLR	<DLR	ug/L
Trichlorofluoromethane (FREON 11)	<DLR	<DLR	<DLR	<DLR	ug/L
Trichlorotrifluoroethane (FREON 113)	<DLR	<DLR	<DLR	<DLR	ug/L
Vinyl Chloride (VC)	<DLR	<DLR	<DLR	<DLR	ug/L
m,p-Xylene	<DLR	<DLR	<DLR	<DLR	ug/L
o-Xylene	<DLR	<DLR	<DLR	<DLR	ug/L
Total Xylenes (m,p, & o)	<DLR	<DLR	<DLR	<DLR	ug/L
tert-Amyl-Methyl Ether (TAME)			<DLR		ug/L
Bromobenzene			<DLR		ug/L
Bromochloromethane			<DLR		ug/L
Bromomethane (Methyl Bromide)			<DLR		ug/L
n-Butylbenzene			<DLR		ug/L
sec-Butylbenzene			<DLR		ug/L
tert-Butylbenzene			<DLR		ug/L
Chloroethane			<DLR		ug/L
Chloromethane (Methyl Chloride)			<DLR		ug/L
2-Chlorotoluene			<DLR		ug/L
4-Chlorotoluene			<DLR		ug/L
Dibromomethane			<DLR		ug/L
1,3-Dichloropropane (m-DCB)			<DLR		ug/L
Dichlorodifluoromethane (Freon 12)			<DLR		ug/L
1,3-Dichloropropane			<DLR		ug/L
2,2-Dichloropropane			<DLR		ug/L
1,1-Dichloropropene			<DLR		ug/L
Diisopropyl Ether (DIPE)			<DLR		ug/L
Ethy-tert-Butyl-Ether (ETBE)			<DLR		ug/L
Hexachlorobutadiene			<DLR		ug/L
Isopropyltoluene (Cumene)			<DLR		ug/L
p-Isopropyltoluene			<DLR		ug/L
Napthalene			<DLR		ug/L
n-Propylbenzene			<DLR		ug/L
1,1,1,2-Tetrachloroethane			<DLR		ug/L
1,2,3-Trichlorobenzene			<DLR		ug/L
1,2,4-Trimethylbenzene			<DLR		ug/L
1,3,5-Trimethylbenzene			<DLR		ug/L
Methyl ethyl ketone (Butanone)			<DLR		ug/L
Methyl isobutyl ketone (MIBK)			<DLR		ug/L

	Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007	Units
Uranium		3.1			4	pCi/L
Radium 228		<1	<1	<1		pCi/L
Radium 228 (CE)			0.3	0.354		pCi/L
Gross Alpha	<3	3.5	<3	4		pCi/L
Gross Alpha (CE)	1.9	2	1.7	2.2		pCi/L
Gross Beta	5.2	<3	<4	<3		pCi/L
Gross Beta (CE)	1.6	1.5	1.5	1.6		pCi/L

Semitropic Water Storage District, December 31, 2010,
Letter to Newhall Land and Farming

NEWHALL LAND

August 12, 2011

Sam Dea
Supervising Regional Planner
Los Angeles County Department of Regional Planning
Hall of Records, 13th Floor
320 West Temple Street, Room 1382
Los Angeles, California 90012

Re: Newhall Ranch Semitropic Groundwater Bank 2010 Annual Report

Dear Mr. Dea:

This correspondence and the attached communication from Semitropic Water Storage District is Newhall's status report to the County of Los Angeles, Department of Regional Planning, indicating that the amount of water placed in the Semitropic groundwater bank under Newhall's stored water account is 23,167 acre-feet as of December 31, 2010. This status report is a requirement of the Newhall Ranch Specific Plan Program EIR, Mitigation Measure SP-4.11-18.

If you should have any questions, please do not hesitate to call me.

Sincerely,

Newhall Land

Alex Herrell
Director, Community Development

Attachment: Semitropic letter

25124 SPRINGFIELD COURT, SUITE 300, VALENCIA, CALIFORNIA 91355-1088 • PHONE 661.255.4000 FAX 661.255.3960 WWW.VALENCIA.COM WWW.NEWHALLRANCH.NET

1101 Central Avenue, P.O. Box 8043
Wasco, California 93280-0877

Telephone: (661) 758-5113
Bakersfield: (661) 327-7144
Facsimile: (661) 758-3219
Email: mail@semitropic.com

Newhall Land & Farming Company
Attention: Beverly Langeveldt
25124 Springfield Court, Suite 300
Valencia, CA 91355

Dear Ms. Langeveldt:

As of December 31, 2010, Newhall Land and Farming has 23,167Acre Feet (AF) of water stored in Semitropic Water Storage District.

Please let me know if you need further information.

Sincerely,

Judy Burns

Judy Burns
Accounting Supervisor

APPENDIX F4.11

Wastewater Disposal

Sanitation District of Los Angeles County – Memorandum, Response to SCOPE Letter and Testimony to the Board of Supervisors Regarding Formation of the Newhall Ranch Sanitation District (March 8, 2011)

SANITATION DISTRICTS OF LOS ANGELES COUNTY

STEPHEN R. MAGUIN
Chief Engineer and General Manager

Memorandum

Date: March 8, 2011

To: Supervisor Michael D. Antonovich, Mayor
Supervisor Gloria Molina
Supervisor Mark Ridley-Thomas
Supervisor Zev Yaroslavsky
Supervisor Don Knabe

From: Stephen R. Maguin SR Maguin
Chief Engineer and General Manager

Subject: **Response to SCOPE Letter and Testimony to the Board of Supervisors Regarding Formation of the Newhall Ranch Sanitation District (January 18, 2011 Board Agenda Item 25)**

On January 18, 2011, the Board of Supervisors (Board) approved a motion by Supervisor Antonovich directing the Sanitation Districts (Districts) to prepare a memorandum that responds to the issues raised by the testimony of Ms. Lynne Plambeck and Ms. Cam Noltemeyer of the Santa Clarita Organization for Planning and the Environment (SCOPE), and the letter from Ms. Plambeck dated January 13, 2011 (both documents are attached with issues numbered).

The memorandum presents background information on the proposed Newhall Ranch Development and the prior actions by the County and the Districts that provide context for the issues raised. SCOPE's issues are shown in bold followed by the Districts' response.

I. Background

On March 23, 1999, and, again, on May 27, 2003, the Board certified the environmental documents (collectively, Newhall Ranch EIR) for the Newhall Ranch Specific Plan and Newhall Ranch Water Reclamation Plant (NRWRP). The certified Newhall Ranch EIR evaluated the NRWRP at a project level of detail, and the Board approved the NRWRP under Conditional Use Permit No. 94-087-(5). The NRWRP is to provide treatment of the wastewater generated within the Specific Plan area as well as produce recycled water for the Specific Plan area.

The environmental analysis of the NRWRP is found in Section 5.0 of the Newhall Ranch Revised Draft EIR (March 8, 1999) and Section 3.0 of the Newhall Ranch Revised Additional Analysis, Volume VIII (May 2003). Section 3.0 assessed and updated various NRWRP alternatives including the approved NRWRP site.

The Newhall Ranch EIR contained a mitigation measure (Mitigation Measure 5.0-52), also reflected in the adopted Mitigation Monitoring Plan, requiring formation of a county sanitation district for the Specific Plan area. To fulfill mitigation requirements and establish a logical plan for development of the new district and its infrastructure, the Newhall Land and Farming Company (NLFC) and Sanitation Districts Nos. 26 and 32, later consolidated as Santa Clarita Valley Sanitation District (SCVSD), entered into an agreement (Interconnection Agreement) dated January 9, 2002.

On December 13, 2005, the Board adopted the resolution of intent to form the county sanitation district to be known as the Newhall Ranch County Sanitation District (NRSD). The Board also approved an Addendum to the Newhall Ranch EIR and Additional Analysis, which evaluated the environmental effects of NRSD formation. The Addendum determined that formation of the NRSD would not result in new or substantially more severe environmental impacts than those discussed in the prior Newhall Ranch environmental documents.

Thereafter, the County initiated proceedings for the formation of the NRSD, pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. On June 14, 2006, the Local Agency Formation Commission (LAFCO) for Los Angeles County adopted a resolution approving formation of the NRSD. On July 27, 2006, LAFCO issued a Certificate of Completion for formation of the NRSD.

On January 18, 2011, the Board considered a resolution confirming formation of the NRSD within the scope of the previously certified Newhall Ranch EIR and Addendum. At the January 18, 2011 Board meeting, representatives from SCOPE expressed their concerns by oral testimony and a letter.

II. Districts' Responses to SCOPE's Issues

1. "**Without the construction of the Sanitation plant as required by the Newhall Ranch Specific Plan, the public will bear the burden of the expensive clean up of chlorides required to comply with the Clean Water Act. This will entail a sharp increase in sewer fees to the general public."**

   Discharge of Newhall Ranch wastewater to the Valencia Water Reclamation Plant (VWRP) would be temporary until construction of the Newhall Ranch Water Reclamation Plant (NRWRP). The Newhall Ranch wastewater would neither add nor alleviate the SCVSD's financial burden to comply with the Upper Santa Clara River Chloride Total Maximum Daily load (Chloride TMDL).

   The Interconnection Agreement sets conditions under which the first 6,000 homes in Newhall Ranch may temporarily discharge wastewater to the VWRP. The conditions include payment of the standard SCVSD connection fee (fair share of the cost of the existing infrastructure) and transfer of title of the 22-acre NRWRP site to the NRSD. Newhall Ranch residents also would pay the SCVSD an annual service charge to recover the full cost of treating their wastewater at the VWRP. Temporary treatment of wastewater at the VWRP would not eliminate the need for the developer to construct the NRWRP. Prior to building more than 6,000 homes, the developer must construct the NRWRP.

   When operating at flows equal to or below the permitted plant capacity, compliance with the Chloride TMDL will depend on the chloride concentration in the treatment plant effluent. This concentration results from two primary sources: chloride concentration of the local water supply, and increased chloride concentration due to use of the water by the community. Local groundwater is the planned potable water source for the Specific Plan's Landmark and Mission Villages, the two developments whose wastewater might be temporarily treated at the VWRP under the Interconnection Agreement. The groundwater chloride levels for those communities are similar to that of the groundwater used by existing Santa Clarita Valley communities. Thus, no difference in chloride concentration is expected due to the water supply.

   Like Santa Clarita, Newhall Ranch will be a mixture of residential, commercial and industrial land uses. Use of automatic water softeners (AWS) was a significant chloride source for SCVSD wastewater prior to the 2008 ban on AWS. Per Specific Plan mitigation measure 5.0-52(b), the Newhall Ranch developer must request that NRSD ban AWS in Newhall Ranch. Districts' staff will also recommend that NRSD enact an AWS ban similar to the ban in the SCVSD. Consequently, the two communities are expected to produce similar increases in chloride concentrations due to use and similar overall wastewater chloride concentrations. Since final compliance will be determined by concentration, the addition of Newhall Ranch wastewater to the VWRP would neither add to nor alleviate the SCVSD's financial burden to comply with the Chloride TMDL.

2. **"…In addition, the agreement between the Santa Clarita Valley Sanitation District of Los Angeles County (SCV) and Newhall Land and Farming allows up to 6,000 capacity units to be treated at existing SCV wastewater treatment facilities as needed during construction of the Newhall Ranch Water Reclamation Plant. SCV has sufficient capacity to accommodate the use of its facilities." This statement cannot be made because the County is currently in the middle of analyzing the impacts for the first tract maps of Newhall Ranch. No certified EIR exists on either the Landmark tract or the Mission Village**

tract, which comprise approximately 6,000 units. Further, there is not even a Development Monitoring System analysis for sewer capacity included in the Mission Village EIR as required by the Court Decision in 2003."

Certification of an EIR is not required to estimate future flows and determine whether there is available capacity at existing treatment facilities. The 2003 Court Ruling by Judge Randall (Case Number S-1500-CV-239324, RDR) does not specify any requirements regarding a Development Monitoring System (DMS) analysis.

Wastewater flow projections for the two Newhall Ranch communities have been reviewed by the Districts. Estimates are 0.3 million gallons per day (mgd) for Landmark Village and 1.0 mgd for Mission Village (collectively 1.3 mgd). The Interconnection Agreement allows for temporary treatment at VWRP for up to 6,000 homes (about 1.6 mgd). The VWRP treated approximately 15 mgd in 2010 and currently has a capacity of 21.6 mgd (yielding 6.6 mgd of surplus capacity). Thus, the VWRP has sufficient capacity to accommodate the temporary use of its facilities as stated in the staff report for the January 18, 2011 Board agenda item. CEQA for the VWRP was addressed by the certified 2015 Santa Clarita Valley Joint Sewerage System Facilities Plan and EIR, which examined the environmental impacts of treating 27.6 mgd of wastewater at the VWRP.

The Newhall Ranch EIRs, certified by the Board in 1999 and 2003, evaluated the environmental impacts related to development of the Specific Plan, including construction of the NRWRP and the new sewage facilities to serve the Specific Plan area. At the project level, the County is in the process of completing further CEQA analysis for both Landmark Village and Mission Village. The CEQA compliance for Landmark Village is contained in the Landmark Village Draft EIR (November 2006), Final EIR (November 2007), and Recirculated Draft EIR (January 2010). CEQA compliance for Mission Village is contained in the Mission Village Draft EIR (October 2010). The EIRs contain a County DMS analysis and evaluate each project's wastewater conveyance/disposal effects including temporary wastewater treatment at the VWRP.

3. "**If the Sanitation Plant is not built in accordance with the mitigation requirements of the Newhall Ranch Specific Plan, the Plan cannot meet its requirements to provide non-potable water or to finance its own infrastructure expansion costs."**

   Temporary use of the VWRP for treatment of Newhall Ranch wastewater does not eliminate the Specific Plan requirement for the developer to construct the NRWRP and finance the new sewerage system. The temporary use of the VWRP addresses practical engineering considerations such as the need to build-up an adequate and steady flow of wastewater before start-up of the NRWRP. Whether Newhall Ranch wastewater is treated at the NRWRP or VWRP, the treated wastewater will be suitable for reuse and offsetting Newhall Ranch water demands.

4. "**Further, the Sanitation discharge permit granted by the Regional Water Quality Board required reverse osmosis treatment for the effluent from this plant. By attempting to evade this requirement, Newhall will put the added burden of removing salts from the Newhall Ranch effluent on the backs of the public."**

   Temporary use of the VWRP for treatment of Landmark Village and Mission Village wastewater does not eliminate the requirement for the developer to construct the NRWRP or finance the new sewerage system within the Specific Plan area. The developer must construct the NRWRP per the Specific Plan and must have it operating properly before the next phase after Landmark Village and Mission Village. As noted in the Item 1 response, temporary treatment of Landmark Village and Mission Village wastewater at the VWRP would neither add to nor alleviate the SCVSD's financial burden to comply with the Chloride TMDL.

   Temporarily treating wastewater from the first 6,000 Newhall Ranch homes at the VWRP is a practical engineering decision based on the need to build up an adequate, steady flow of wastewater before starting up

the NRWRP, especially the reverse osmosis units. Such an approach would match the slower pace of the development but would not eliminate the Specific Plan requirement for construction of the NRWRP.

5. "**The Santa Clarita Sanitation District's failure to meet the Clean Water TMDL standard for chloride of 100 mg/l in the Santa Clara River is a result in part due to the sharp and continuing increase in the use of imported State Water Project (SWP) water as seen by the chart below, (also supplied by the Sanitation Districts). This problem is aggravated by high levels of chlorides in the wells proposed to be used for these tracts, according to information found in both the Landmark and Mission Village DEIRs as indicated in the chart below. Therefore, if Newhall uses the Valencia treatment plant rather than building their own Sanitation Plant as required by the Specific Plan, the chloride levels in the effluent of that treatment plant will be substantially increased. Without the immediate construction of the Newhall Ranch Water Reclamation Plant, approved as an RO (reverse osmosis salt removal system) facility, the high chlorides in the wells proposed to be used by this project in the chart below and the additional imported Nickels water will add to this load."**

Imported water did not cause the chloride standard to be exceeded. Effluent from the VWRP has exceeded 100 mgd/l since the 1970s despite the fact that imported water was not delivered to Santa Clarita Valley until the 1980s. Nonetheless, as noted in the Item 1 response, the chloride concentrations of Newhall Ranch and SCVSD wastewater are expected to be similar. Thus, temporary treatment of Newhall Ranch wastewater at the VWRP would not change the SCVSD's ability to comply with the Chloride TMDL.

SCOPE implies that use of Nickel water[1] would contribute to increase the chloride load at the VWRP. While the Landmark Village and Mission Village projects are part of the potable water system for the entire Specific Plan, the projects do not rely on Nickel water to satisfy their potable water demands. As reported in the Newhall Ranch Revised Additional Analysis, Section 2.5, Water Resources (Volume VIII, May 2003), the Nickel water would only be needed in years when the Newhall Ranch agricultural water has been used, which is estimated to occur after approximately the 21st year of project construction. Therefore, the comment regarding use of Nickel water is not appropriate at this time.

6. **"How does a side agreement between the developer and the Sanitation Districts fit into the planning oversight purview of the Board of Supervisors? How can the Planning Department substantiate that sewer service complies with the County Development Monitoring System or is consistent with the general plan or specific plans if developers make side agreements with the Sanitation Districts?"**

Formation of a new sanitation district was identified in the Specific Plan EIR as a mitigation measure. The Interconnection Agreement was developed to fulfill this Specific Plan requirement and establish a logical plan for the development and administration of the new district and its infrastructure. This agreement ensures that the developer provides the necessary land and infrastructure. The Interconnection Agreement was considered and approved by the Sanitation Districts Nos. 26 and 32 Boards at their January 9, 2002 meetings, which were open to the public. Further, this agreement was referenced in previous County and LAFCO resolutions supporting formation of the new sanitation district.

As noted in the Item 2 response, the EIRs for both Landmark Village and Mission Village contain County DMS analysis. Moreover, the Newhall Ranch developer is required to build a new sewerage system to serve Newhall Ranch developments and, thus, the Specific Plan does not rely upon existing County sewerage facilities. The Districts and County have coordinated their efforts with regard to establishment of the new sanitation district and its sewerage conveyance system. This coordination enables the County to verify that the development is consistent with the County's General Plan and Specific Plan requirements.

[1] Nickel water refers to a source of potable water owned by NLFC that can be delivered to the Newhall Ranch development to supplement existing sources of potable water.

7. **"The agreement between the developer of the Newhall Ranch Project and the Sanitation District violates the conditions of the Newhall Ranch Specific Plan and puts the Santa Clarita Valley in jeopardy of continued non-compliance with the Clean Water Act Chloride TMDL. We therefore strongly object to this agreement and ask that the Board of Supervisors take action to rectify this issue."**

   The Interconnection Agreement is not in conflict with the Specific Plan and does not impact the SCVSD's ability to comply with the Chloride TMDL. As noted in the Item 1 and 4 responses, temporary treatment of Landmark Village and Mission Village wastewater at the VWRP would not eliminate the need for the developer to construct the NRWRP and to finance the new sewerage system, nor would it impact compliance with the Chloride TMDL. As presented in the Item 2 response, the VWRP has available capacity for temporary treatment of Landmark Village and Mission Village wastewater. Thus, no negative impact to the SCVSD's sewerage system is expected, and this approach does not conflict with the Specific Plan's requirement for construction of the NRWRP.

8. **"The public should not have to pay the costs of bringing the chloride level into compliance with an increase to their sewer fees."**

   By law, the users of the SCVSD's wastewater system must pay for Chloride TMDL compliance. As noted in the Item 1 and 4 responses, temporary treatment of Newhall Ranch wastewater would neither add to nor alleviate the SCVSD's financial burden to comply with the Chloride TMDL.

9. **"…but for the statement within the resolution that says that "The first 6,000 units of Newhall Ranch will be put through the Valencia Treatment Plant." That's not consistent with the Newhall Ranch that was passed for the formation of this, the Newhall Ranch sanitation plant."**

   The temporary treatment of Landmark Village and Mission Village wastewater at VWRP does not conflict with Specific Plan's requirements as described in the Item 4 and 7 responses.

10. **"And we ask that that be struck from the staff report because it seems to be a backdoor way of getting those approved when there's no E.I.R. on that and it's not consistent with the Specific Plan."**

    As noted in the Item 4 and 7 responses, temporary treatment of Landmark Village and Mission Village wastewater at the VWRP is not in conflict with the Specific Plan. Prior CEQA compliance was not required because temporary treatment at the VWRP was not proposed until the release of the Draft EIRs for both Landmark Village and Mission Village. Draft EIRs for both projects, including the Landmark Village Recirculated Draft EIR, have been the subject of extensive public review and comment as part of the County's environmental review process.

    As stated in the Item 2 response, the environmental implications of the build-out of the VWRP to its capacity were assessed in the SCVSD's certified EIR for the 2015 Santa Clarita Valley Joint Sewerage System Facilities Plan. The Newhall Ranch EIR, evaluated the environmental impacts related to development of the Specific Plan, including construction of the NRWRP to a project level and the new sewerage facilities at a programmatic level to serve the Specific Plan. The County is in the process of completing further CEQA compliance at a project level for both Landmark Village and Mission Village.

11. **"The addendum itself that … was passed … for the formation on the Sanitation District specifically says that the wastewater treatment plant will be built in stages as the specific plan area is developed and will ultimately be sized to treat up to 6.8 million gallons. So it, too, is not consistent with what is being said in the Staff Report. So we wonder how the Sanitation District would have made an agreement like that that's in violation of your environmental documents and the Specific Plan."**

    There is no inconsistency between the Staff Report and the Specific Plan. The fact that the Staff Report only addressed the temporary treatment of Newhall Ranch wastewater at the VWRP does not eliminate the Specific

Plan requirement for the developer to build the NRWRP and other sewerage infrastructure to serve the Specific Plan. For more information regarding consistency with the Specific Plan, see the Item 6 response. Regarding claims of violating CEQA, please see the Item 10 response.

12. **"Now we appear before you, and Newhall Land is claiming that they have this agreement with the Sanitation -- actually Santa Clarita Valley Sanitation District of Los Angeles County to allow these 6,000 units to be treated in our existing Santa Clarita wastewater facilities. Those facilities are not reverse osmosis plants. And if this is allowed, it will only create additional problem as far as the chlorides for our community. The reverse osmosis plant that is required with this Newhall Treatment Plant that will take care of chlorides. So definitely, they shouldn't be allowed to use any other treatment plant."**

    Discharge of Landmark Village and Mission Village wastewater to the VWRP will be temporary until construction and startup of the NRWRP. The Landmark Village and Mission Village wastewater would neither add to nor alleviate the SCVSD's financial burden to comply with the Chloride TMDL. For further explanation, see the Item 1 and 4 responses.

13. **"And it's a very, very expensive issue for our community. And we were promised that we would not be funding anything for the Newhall Ranch."**

    Temporary treatment of Landmark Village and Mission Village wastewater at the VWRP would neither add to nor alleviate the SCVSD's financial burden to comply with the Chloride TMDL as explained in the Item 1 and 4 responses.

14. **"And if that's what they're going to do, they have to have additional environmental analysis on it."**

    As noted in the Item 10 response, the EIRs for both Landmark Village and Mission Village evaluate wastewater disposal options including temporary treatment of Landmark Village and Mission Village wastewater at the VWRP. There will be no temporary treatment at the VWRP, unless and until the Board has considered and certified the project EIRs in accordance with CEQA.

Should you have any questions or concerns, please contact me, or Mr. Thomas J. LeBrun at (562) 908-4288, extension 2751 or via email at tlebrun@lacsd.org.

cc: Board of Directors – Santa Clarita Valley Sanitation District
Department of Public Works
Regional Planning Commission

SRM:TJL:ddg

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

March 8, 2011

Board of Directors
Santa Clarita Valley Sanitation District
of Los Angeles County

Directors:

Memorandum to Board of Supervisors – Newhall Ranch Sanitation District

Enclosed is the memorandum requested by the Board of Supervisors regarding formation of the Newhall Ranch Sanitation District and responses to the issues raised by the Santa Clarita Organization for Planning and the Environment.

Please contact me should you have any questions.

Very truly yours,

Stephen R. Maguin

Stephen R. Maguin

SRM:TJL:ddg

Enclosure

DOC # 1800048

Recycled Paper

SCOPE
Santa Clarita Organization for Planning and the Environment
TO PROMOTE, PROTECT AND PRESERVE THE ENVIRONMENT, ECOLOGY AND QUALITY OF LIFE IN THE SANTA CLARITA VALLEY
POST OFFICE BOX 1182, SANTA CLARITA, CA 91386

1-13-11

Attn: Executive Office
LA County Board of Supervisors
500 W. Temple St.
Los Angeles, CA 90012

Re: Agenda Item # 25 – Inconsistency with Newhall Ranch Specific Plan
Please copy to all Supervisors

Dear Sirs:

It has come to our attention that, while the staff report for this agenda item correctly states the timeline of the formation of the Newhall Ranch Sanitation District, it also includes erroneous information and brings to light an agreement made between the Sanitation Districts and Newhall Land and Farming that is inconsistent with the Newhall Ranch Specific Plan. Further, it misinforms the Board as to the financial impacts of such an agreement.

We ask that the Supervisors, and particularly Mr. Antonovich, as our representative on the Board of Sanitation District 26 and 32, immediately investigate and set aside this agreement. We request that Board of Supervisors, as ultimate oversight authority for the approval and conformity of the Newhall Ranch Specific Plan, object to this agreement between the Newhall Land Co. and the Sanitation Districts. We request that the Board delay approval of this agenda item until this investigation is completed and the staff report is corrected.

We particularly object to these two sections of the staff report:

1. **"FISCAL IMPACT/FINANCING**

   It is anticipated that the operation and maintenance of the District and its facilities would be funded through the imposition of service charges, which would be collected on the tax roll, and construction of the facilities would be financed by the developer for the Newhall Ranch project."

1 **Without the construction of the Sanitation plant as required by the Newhall Ranch Specific Plan, the public will bear the burden of the expensive clean up of chlorides required to comply with the Clean Water Act. This will entail a sharp increase in sewer fees to the general public.**

2. **"IMPACT ON CURRENT SERVICES (OR PROJECTS)**

   This project will not have an adverse impact on current sewage services because the District will build facilities to serve all new developments within the Newhall
2 Ranch Specific Plan area. In addition, the agreement between the Santa Clarita Valley Sanitation District of Los Angeles County (SCV) and Newhall Land and

Farming allows up to 6,000 capacity units to be treated at existing SCV wastewater treatment facilities as needed during construction of the Newhall Ranch Water Reclamation Plant. SCV has sufficient capacity to accommodate the use of its facilities."

2 **This statement cannot be made because the County is currently in the middle of analyzing the impacts for the first tract maps of Newhall Ranch. No certified EIR exists on either the Landmark tract or the Mission Village tract, which comprise approximately 6000 units. Further, there is not even a Development Monitoring System analysis for sewer capacity included in the Mission Village EIR as required by the Court Decision in 2003.**

Background

The Mitigation Monitoring Plan of the Newhall Ranch Specific Plan states that:
SP 4.11-1 The proposed Specific Plan **SHALL**[1] implement a water reclamation plant in order to reduce to specific plan's demand for imported potable water, The Specific Plan **SHALL** install a distribution system to deliver non-potable reclaimed water to irrigate land uses suitable to accept reclaimed water, pursuant to the Los Angeles County Department of Health Standards.
Mitigation 4.11-8 requires Newhall to pay for the cost of water expansion by paying for connection fees and **Mitigation 4.12-7** ensured the public would not have to pay for the development of Newhall Ranch by requiring that future tracts would have to be annexed into a sewer district.
SP 4.12-2 A 5.8 to 6.9 mgd water reclamation plant **SHALL** be constructed on the Specific Plan site, pursuant to County, State, and Federal design standards, to serve the Newhall Ranch Specific Plan.
SP 4-12-3 A Conceptual Backbone Sewer Plan **SHALL** be implemented pursuant to County, state and federal design standards.

Please note: The mitigation monitoring system does NOT say "may", it says, "**SHALL**".

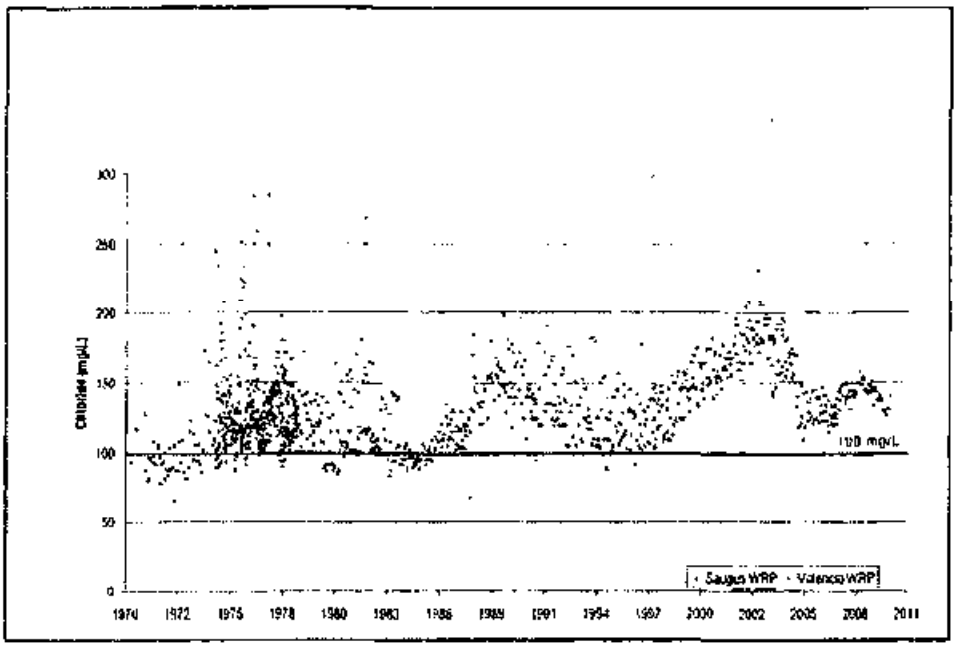
3 If the Sanitation Plant is not built in accordance with the mitigation requirements of the Newhall Ranch Specific Plan, the Plan cannot meet its requirements to provide non-potable water or to finance its own infrastructure expansion costs.

4 **Further, the Sanitation discharge permit granted by the Regional Water Quality Board required reverse osmosis treatment for the effluent from this plant. By attempting to evade this requirement, Newhall will put the added burden of removing salts from the Newhall Ranch effluent on the backs of the public.**

The CHLORIDE issue

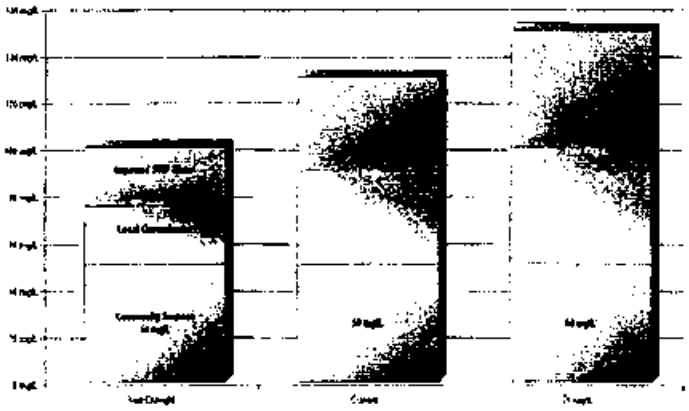
Currently the Sanitation Districts 26 and 32 in the Santa Clarita Valley do not comply with the Clean Water Act Act Total Maximum Daily Load (TMDL) effluent standard of 100 ugl for Cholride as indicated by the chart below supplied at a recent Sanitation District public hearing:

[1] Emphasis added to all "shalls" in this section



The Santa Clarita Sanitation Districts' failure to meet the Clean Water TMDL standard for chloride of 100mg/l in the Santa Clara River is a result in part due to the sharp and continuing increase in the use of imported State Water Project (SWP) water as seen by the chart below, (also supplied by the Sanitation Districts).

Chloride Sources During
Drought & Non-Drought Conditions



This problem is aggravated by high levels of chlorides in the well proposed to be used for these tracts, according to information found in both the Landmark and Mission Village DEIRs as indicated in the chart below. Therefore, if Newhall uses the Valencia treatment plant rather than building their own Sanitation Plant as required by the Specific Plan, the chloride levels in the effluent of that treatment plant will be substantially increased. Without the immediate construction of the Newhall Ranch Water Reclamation Plant, approved as an RO (reverse

osmosis salt removal system) facility, the high chlorides in the wells proposed to be used by this project in the chart below and the additional imported Nickels water will add to this load.

Water Quality Constituents of Concern
Secondary Standards:
(from Mission Village DEIR Appendix F4.8)

Parameter	MCL	DLR	Units	E-14	E-15	E-16	E-17
Chloride	250-500-600	NA	mg/L	75	88	89	74
	pH 6.5 - 8.5	NA	units	7.5	7.7	7.3	7.4
Specific Conductance (E.C.)	900-1600-2,200	NA	umho/cm	1240	1290	1390	1350
Sulfate	250-500-600	0.5	mg/L	340	330	340	340
Total Dissolved Solids (TDS)	500-1000-1500	NA	mg/L	900	890	950	960

Conclusion and Questions

How does a side agreement between the developer and the Sanitation Districts fit into the planning oversight purview of the Board of Supervisors? How can the Planning Department substantiate that sewer service complies with the County Development Monitoring System or is
6 consistent with the general plan or specific plans if developers make side agreements with the Sanitation Districts?

The agreement between the developer of the Newhall Ranch Project and the Sanitation District violates the conditions of the Newhall Ranch Specific Plan and puts the Santa Clarita Valley in
7 jeopardy of continued non-compliance with the Clean Water Act Chloride TMDL. We therefore strongly object to this agreement and ask that the Board of Supervisors take action to rectify this issue.

The public should not have to pay the costs of bringing the chloride level into compliance with
8 an increase to their sewer fees. Thank you in advance for addressing these issues.

Sincerely,

Lynne Plambeck
President

1 **LYNNE PLAMBECK:** GOOD AFTERNOON. WHO WOULD YOU LIKE TO START?
2 OKAY. MY NAME IS LYNN PLAMBECK, AND I'M HERE REPRESENTING
3 SANTA CLARITA ORGANIZATION FOR PLANNING AND THE ENVIRONMENT.
4 AND WE'RE CONCERNED ABOUT THIS AGENDA ITEM NOT FOR THE
5 RESOLUTION ITSELF, WHICH IS PERFECTLY CORRECT, BUT FOR THE
6 STATEMENT WITHIN THE RESOLUTION THAT SAYS THAT "THE FIRST
7 6,000 UNITS OF NEWHALL RANCH WILL BE PUT THROUGH THE VALENCIA
9 8 TREATMENT PLANT." THAT'S NOT CONSISTENT WITH THE NEWHALL RANCH
9 THAT WAS PASSED FOR THE FORMATION OF THIS, THE NEWHALL RANCH
10 SANITATION PLANT. THE NEWHALL RANCH SANITATION PLANT IS
11 SUPPOSED TO BE A REVERSE OSMOSIS PLANT, WHICH WILL HELP HANDLE
12 THE CHLORIDE PROBLEM WHICH MAYOR ANTONOVICH, I KNOW YOU'RE
13 WELL AWARE OF, AS YOU SIT ON OUR SANITATION DISTRICT AND HAD
14 TO GO THROUGH ALL THOSE HEARINGS. SO OUR OBJECTION IS NOT TO
15 THE RESOLUTION ITSELF, BUT TO THE FACT IN THE STAFF REPORT
16 THAT SAYS THOSE FIRST 6,000 UNITS WILL GO THROUGH THE EXISTING
17 VALENCIA TREATMENT PLANT, OR UP TO 6,000 UNITS. AND WE ASK
18 THAT THAT BE STRUCK FROM THE STAFF REPORT BECAUSE IT SEEMS TO
10 19 BE A BACKDOOR WAY OF GETTING THOSE APPROVED WHEN THERE'S NO
20 E.I.R. ON THAT AND IT'S NOT CONSISTENT WITH THE SPECIFIC PLAN.
21 THE ADDENDUM ITSELF THAT WAS PASSED FOR THE FORMATION IN 2005
22 AT L.A.F.C.O. FOR THE FORMATION OF THE SANITATION DISTRICT
11 23 SPECIFICALLY SAYS THAT THE WASTEWATER TREATMENT PLANT WILL BE
24 BUILT IN STAGES AS THE SPECIFIC PLAN AREA IS DEVELOPED AND
25 WILL ULTIMATELY BE SIZED TO TREAT UP TO 6.8 MILLION GALLONS.

11

SO IT, TOO, IS NOT CONSISTENT WITH WHAT IS BEING SAID IN THE STAFF REPORT. SO WE WONDER HOW THE SANITATION DISTRICT WOULD HAVE MADE AN AGREEMENT LIKE THAT THAT'S IN VIOLATION OF YOUR ENVIRONMENTAL DOCUMENTS AND THE SPECIFIC PLAN. SO WE ASK YOU TO INVESTIGATE THAT. AND THEN FURTHER WE ASK THAT THIS INFORMATION THAT 6,000 UNITS IS GOING TO GO THROUGH THE VALENCIA TREATMENT PLANT BE STRUCK FROM THE STAFF REPORT. BECAUSE THE NEXT THING THAT WILL HAPPEN IS IT WILL SHOW UP IN THE TRACT MAPS AS THOUGH YOU HAD APPROVED IT. WE DID SEND LETTERS TO EACH SUPERVISOR'S OFFICE. WE'D LIKE TO RESUBMIT THOSE LETTERS AT THIS TIME. THANK YOU. ONLY ENOUGH FOR THE SUPERVISORS. I'M SORRY I DIDN'T PROVIDE IT FOR YOU. THAT'S ALL I HAVE TO SAY, EVEN THOUGH I HAVE 35 SECONDS LEFT.

SUP. ANTONOVICH, MAYOR: THANK YOU, LYNNE, GOOD JOKE.

CAM NOLTEMEYER: MY NAME IS CAM NOLTEMEYER, ALSO SPEAKING FOR SANTA CLARITA ORGANIZATION FOR PLANNING AND THE ENVIRONMENT. MAYOR ANTONOVICH, I KNOW YOU WERE AT A MEETING IN SANTA CLARITA ALONG WITH A COUPLE OF OUR COUNCIL MEMBERS WITH REGARD TO THE SANITATION DISTRICT TRYING TO PUT UPON THE TAXPAYERS 250 MILLION TO 500 MILLION FOR THE COST OF A REVERSE OSMOSIS TREATMENT PLANT TO REMOVE CHLORIDES TO MEET THE CLEAN WATER STANDARD. BECAUSE OF THAT, THERE WAS A LOT OF PUBLIC PROTEST, AND THAT MEETING DECISION HAS BEEN POSTPONED. AT THAT TIME,

1 THEY NOT ONLY WERE OBJECTING TO THE COST OF 250 TO 500
2 MILLION, BUT THEY WERE ALSO CONCERNED ABOUT THE FACT THAT THEY
3 WERE FUNDING THE SANITATION DISTRICT FOR NEWHALL RANCH. AT
4 THAT TIME, THE SANITATION DISTRICT MADE IT VERY CLEAR THAT
5 THAT WOULDN'T HAPPEN. NOW WE APPEAR BEFORE YOU, AND NEWHALL
6 LAND IS CLAIMING THAT THEY HAVE THIS AGREEMENT WITH THE
7 SANITATION -- ACTUALLY SANTA CLARITA VALLEY SANITATION
8 DISTRICT OF LOS ANGELES COUNTY TO ALLOW THESE 6,000 UNITS TO
12 9 BE TREATED IN OUR EXISTING SANTA CLARITA WASTEWATER
10 FACILITIES. THOSE FACILITIES ARE NOT REVERSE OSMOSIS PLANTS.
11 AND IF THIS IS ALLOWED, IT WILL ONLY CREATE ADDITIONAL PROBLEM
12 AS FAR AS THE CHLORIDES FOR OUR COMMUNITY. THE REVERSE OSMOSIS
13 PLANT THAT IS REQUIRED WITH THIS NEWHALL TREATMENT PLANT, THAT
14 WILL TAKE CARE OF CHLORIDES. SO DEFINITELY, THEY SHOULDN'T BE
15 ALLOWED TO USE ANY OTHER TREATMENT PLANT. THEY CAN BUILD THIS
16 PLANT, AND IT'S QUITE CLEAR IN THE DOCUMENTS WE HAVE HERE THAT
17 THEY CAN BUILD THAT IN STAGES IN THE SAME WAY THEY ARE
18 PLANNING TO BUILD THE HOUSES IN STAGES. SO WE DEFINITELY ARE
19 OBJECTING TO ANY IDEA OF 6,000 UNITS OF NEWHALL RANCH BEING
20 ALLOWED TO USE THE CURRENT SANITATION FACILITIES BECAUSE OF
21 THE CHLORIDE ISSUE. AND IT'S A VERY, VERY EXPENSIVE ISSUE FOR
13 22 OUR COMMUNITY. AND WE WERE PROMISED THAT WE WOULD NOT BE
23 FUNDING ANYTHING FOR THE NEWHALL RANCH. I HAVE 31 SECONDS, BUT
24 THAT IS ALL I HAVE FOR TODAY, THANK YOU.
25

14

LYNNE PLAMBECK: AND IF THAT'S WHAT THEY'RE GOING TO DO, THEY HAVE TO HAVE ADDITIONAL ENVIRONMENTAL ANALYSIS ON IT.

SUP. ANTONOVICH, MAYOR: OKAY.

MARK DILLON: MARK DILLON. GOOD AFTERNOON, SUPERVISORS. HERE SIMPLY TO SUPPORT YOUR STAFF AND THE ACTION HERE TODAY THAT IS BEFORE YOU. AND IF THERE ARE ANY QUESTIONS, I'M HERE TO ANSWER THOSE.

SUP. ANTONOVICH, MAYOR: OKAY, THANK YOU. THANK YOU. LET ME ASK DEPARTMENT OF PUBLIC WORKS? COULD YOU RESPOND TO THE NUMBER OF ISSUES THAT HAVE BEEN RAISED RELATIVE TO THIS PROPOSAL?

SPEAKER: TOM LE BRUN WITH THE SANITATION DISTRICT IS HERE WITH ME. HE MAY BE ABLE TO ANSWER THE QUESTIONS REGARDING THE CONCERNS REGARDING THE 6,000 UNITS.

TOM LEBRUN: THE SANTA CLARITA VALLEY BOARD APPROVED AN AGREEMENT WITH NEWHALL LAND AND FARMING IN 2002 WHICH ALLOWED UP TO 6,000 OF THE FIRST HOMES OF THE NEWHALL RANCH DEVELOPMENT TO GO THROUGH THE VALENCIA W.R.P. BUT IT REQUIRES THE NEWHALL COMPANY TO PAY THE SAME RATES THAT ANY OTHER DEVELOPER WOULD HAVE IN SANTA CLARITA SANTITATION DISTRICT, THAT BEING A CONNECTIONS FEE TO BUY INTO THE EXISTING SYSTEM,

AND THEN AN ANNUAL PAYMENT FOR THE COST TO OPERATE AND TREAT THE 6,000, THE WASTE FROM THE 6,000 HOMES. SO THAT AGREEMENT PREDATED SOME OF THE OTHER AGREEMENTS AND ACTIONS THAT THE BOARD AND L.A.P.C.O. HAVE TAKEN PREVIOUSLY. AND I THINK THAT WAS THE ONE QUESTION ABOUT WOULD THERE BE FUNDING BY SANTA CLARITA VALLEY RESIDENTS FOR NEWHALL RANCH? THE ANSWER IS NO. NEWHALL LAND AND FARMING WOULD HAVE TO PAY, JUST LIKE ANY OTHER DEVELOPMENT, TO USE THE VALENCIA W.R.P. I DON'T KNOW IF THERE WAS ANY OTHER SPECIFIC QUESTIONS ON --

SUP. ANTONOVICH, MAYOR: SO WHO PAYS FOR THE -- WHEN IT HAS TO BE ENLARGED, WHO PAYS FOR IT?

TOM LE BRUN: WHEN THE VALENCIA PLANT WOULD BE ENLARGED --

SUP. ANTONOVICH, MAYOR: THE NEW PROPOSAL, THE NEW DEVELOPMENT, IS THAT GOING TO HAVE A BUILT-IN FEE FOR EXPANSION OF THAT UNIT?

TOM LE BRUN: THE 6,000 HOMES WOULD USE UP SOME AVAILABLE CAPACITY IN SANTA CLARITA VALLEY. THIS IS A TEMPORARY ARRANGEMENT UNTIL THE NEWHALL RANCH W.R.P. IS CONSTRUCTED. THAT WOULD BE PAID FOR BY NEWHALL LAND AND FARMING. AND THEN THE FLOWS WOULD, INSTEAD OF BEING PUMPED TO VALENCIA, WOULD FLOW BY GRAVITY TO THE NEW TREATMENT PLANT AT THE COUNTY LINE.

SUP. ANTONOVICH, MAYOR: SO THEIR ADDITION IS NOT GOING TO MAXIMIZE THE CAPACITY, IT'S GOING TO USE EXISTING RESERVE CAPACITY SO WE DON'T HAVE TO BUILD A FUTURE ONE?

TOM LE BRUN: THAT IS CORRECT.

SUP. ANTONOVICH, MAYOR: AND THEY'RE GOING TO PAY A FEE TO USE THE EXISTING FACILITY WHILE THE NEW ONE'S BEING CONSTRUCTED?

TOM LE BRUN: THAT IS CORRECT.

SUP. ANTONOVICH, MAYOR: AND THE EXISTING FEE WILL PAY FOR ALL MAINTENANCE?

TOM LE BRUN: YES.

SUP. ANTONOVICH, MAYOR: IT WILL COVER THE MAINTENANCE.

TOM LE BRUN: THEY WILL PAY A FEE TO CONNECT, WHICH IS THE SAME THAT ANY DEVELOPER WOULD PAY ANYWHERE IN SANTA CLARITA VALLEY SANITATION DISTRICT, AND THEY WOULD HAVE TO PAY EVERY YEAR THE COST TO TREAT THE WASTE FROM THOSE 6,000 HOMES.

SUP. ANTONOVICH, MAYOR: WHAT ABOUT THE OTHER ISSUES THAT WERE RAISED?

TOM LE BRUN: I AM UNABLE TO TELL YOU BY MEMORY WHAT C.E.Q.A. COVERAGE THERE WAS IN 2002 WHEN THE AGREEMENT WAS PASSED. I JUST DO NOT HAVE THE ANSWER TO THAT. AND IN TERMS OF THE SPECIFIC COVERAGE IN THE NEWHALL SPECIFIC PLAN WITH THE ABILITY FOR THIS WASTEWATER TO TEMPORARILY GO TO THE VALENCIA PLANT, I AM UNAWARE OF THE DETAILS OF HOW THAT ISSUE'S COVERED IN THE NEWHALL RANCH SPECIFIC PLAN, THE E.I.R.

SUP. ANTONOVICH, MAYOR: COULD YOU ALSO REPORT TO THE BOARD ON THE POINTS THAT WERE RAISED AND THEIR TESTIMONY SO WE COULD HAVE THAT?

TOM LE BRUN: I'M SORRY, I DIDN'T HEAR YOU, SUPERVISOR.

SUP. ANTONOVICH, MAYOR: I WOULD LIKE YOU TO RESPOND TO THE BOARD IN A MEMO THE POINTS THAT WERE RAISED BY THE THREE SPEAKERS ON THIS ISSUE.

TOM LE BRUN: CERTAINLY.

LYNNE PLAMBECK: MR. MAYOR, COULD YOU SPECIFICALLY ASK HIM TO RESPOND TO WHO IS GOING TO PAY FOR THE COST OF THE CHLORIDES IN THE WATER? BECAUSE THERE IS NO REVERSE OSMOSIS.

SUP. ANTONOVICH, MAYOR: THAT'S ONE OF THE QUESTIONS THAT YOU RAISED, AND THAT WILL BE INCLUDED IN THAT REPORT.

LYNNE PLAMBECK: THANK YOU VERY MUCH.

SUP. ANTONOVICH, MAYOR: OKAY, THANK YOU. THANK YOU, THANK YOU. SO MOVED. SECONDED BY SUPERVISOR RIDLEY-THOMAS. WITHOUT OBJECTION, SO ORDERED. ITEM NO. 5. DAVID CZAMANSKE, LAURIE GOULD, CAMRON STONE, GLEN OWENS, AND CAROL, YOU'LL FOLLOW AFTER THE FIRST SPEAKER, OKAY? THAT'S THE ARTICLE FROM THE "WALL STREET JOURNAL." SO THE FIVE OF YOU ARE STILL HERE, RIGHT? COME ON UP AND TAKE YOUR SEAT. OKAY. YOU CAN GO IN THE ORDER YOU WANT.

LAURIE GOULD: I'M SPEAKING TO THE ESTABLISH A WORKING GROUP WITH COMMUNITY REPRESENTATIVES TO PROVIDE INPUT TO THE LOS ANGELES --

SUP. ANTONOVICH, MAYOR: GIVE YOUR NAME FOR THE RECORD, FIRST SO THAT WE CAN IDENTIFY YOU.

Interconnection Agreement Between County Sanitation Districts Nos. 26 and 32 of Los Angeles County and the Newhall Land Farming Company

(January 9, 2002)

CSD Contr#3868

AGREEMENT

BETWEEN COUNTY SANITATION DISTRICTS NOS. 26 AND 32 OF LOS ANGELES COUNTY AND THE NEWHALL LAND AND FARMING COMPANY REGARDING A PLAN FOR THE COORDINATION OF WASTEWATER MANAGEMENT FACILITIES RELATING TO THE NEWHALL RANCH SPECIFIC PLAN DEVELOPMENT

This Agreement is made and entered into this 9th day of January, 2002, by and between **County Sanitation Districts Nos. 26 and 32 of Los Angeles County** (collectively **Districts** and individually **District No. 26** or **District No. 32**, respectively), special districts organized and existing pursuant to the County Sanitation District Act, California Health and Safety Code Sections 4700 et seq., and **The Newhall Land and Farming Company (NLFC)**, a California limited partnership.

RECITALS

1. NLFC owns land in unincorporated Los Angeles County adjacent to and west of the Districts and is proposing to construct a new development pursuant to the Newhall Ranch Specific Plan.

2. NLFC is currently planning, designing, and engineering the wastewater conveyance, treatment and disposal systems to serve the Newhall Ranch Specific Plan development.

3. A site for a new wastewater treatment plant within the proposed development area is identified in the Newhall Ranch Specific Plan.

4. NLFC has proposed the formation of a new county sanitation district to provide wastewater management services for the Newhall Ranch Specific Plan area pursuant to the County Sanitation District Act of 1923 and the Cortese-Knox-Hertzberg Reorganization Act of 2000.

5. The Districts currently provide wastewater management services for areas immediately adjacent to the Newhall Ranch Specific Plan area.

6. The Districts, together with all of the other County Sanitation Districts of Los Angeles County, are signatory to the "Amended Joint Administration Agreement," effective July 1, 1980, (JAA) providing for the joint management, administration and staffing of the signatory districts.

7. The Districts are signatory to the "Joint Powers Agreement for a Regional Sewerage System in the Santa Clarita Valley," effective May 8, 1984, (SCVJSSA), which provides for the joint operation of the wastewater management facilities within the Districts.

8. There are benefits in coordinating the wastewater management services between the Districts and the areas that would be served by a new county sanitation district. To this end, NLFC and the Districts have previously entered into a Reimbursement Agreement to cover the expenses for joint planning of wastewater management facilities.

9. It is desirable to prepare a plan for coordinated wastewater management facilities prior to the formation of the new county sanitation district. This plan will serve as a "road map" for the formation of the new county sanitation district and its subsequent operation.

10. The anticipated total flow originating from within the boundaries of the new county sanitation district is 6.9 million gallons per day (mgd).

NOW, THEREFORE, in consideration of the promises and mutual covenants herein contained, the parties hereto agree as follows:

I. FORMATION AND GOVERNING AGREEMENTS

A. NLFC shall request that the Los Angeles County Board of Supervisors petition the Local Agency Formation Commission (LAFCO) to:

1. approve the formation of a new county sanitation district; and

2. use the terms of this Agreement as a guide for the preparation of the conditions of formation for the new county sanitation district; and

3. require, as conditions of the formation, that the new county sanitation district make formal application to the Districts:

a. to become signatory to the JAA, and

b. to enter into an agreement substantially similar to the existing SCVJSSA regarding the ownership and operation of wastewater management facilities in the Santa Clarita Valley.

NLFC shall be responsible for preparing and submitting any necessary documents requested by the Board of Supervisors to complete the petition for formation. The Districts shall provide assistance and information to LAFCO and NLFC as requested.

B. The agreement specified in Section I.A.3.b shall be functionally the same as the existing SCVJSSA attached as Exhibit A hereto, except that it shall contain the following modifications:

1. All existing and future treatment and disposal facilities and all existing and future conveyance facilities that carry wastewater from more than one District shall be jointly owned by all of the parties signatory to the modified SCVJSSA. These jointly owned facilities shall be referred to as the Santa Clarita Valley Joint Sewerage System (SCVJSS). The rights to use these facilities shall be on a first-come, first-serve basis, except as provided below:

   a. The new county sanitation district, at its own cost and expense, shall have the right to build and use up to 6.9 mgd of capacity at the site identified in the Newhall Ranch Specific Plan for the proposed Newhall Ranch Water Reclamation Plant (NRWRP).

   b. The new county sanitation district shall have limited rights to use capacity at the Valencia Water Reclamation Plant (VWRP), pursuant to Section II.

2. The cost of operating the jointly owned facilities shall be apportioned to each party on the basis of the number of sewage units, as that term is defined in the JAA, attributable to that party's use of the wastewater management facilities. Any costs not attributable to jointly owned facilities shall be the sole responsibility of the party that caused those costs to be incurred.

3. The decision to expand the capacity of the NRWRP shall only require the approval of one party to the modified SCVJSSA until the new county

sanitation district uses 6.9 mgd of capacity in the SCVJSS. After the new county sanitation district uses 6.9 mgd of capacity in the SCVJSS, the decision to expand the capacity of the NRWRP shall require majority approval.

II. INITIAL CONNECTION OF DISCHARGERS IN THE NEW COUNTY SANITATION DISTRICT

A. NLFC shall be allowed to connect parcels located within the new county sanitation district to the SCVJSSA with a discharge of up to 3,000 capacity units, upon compliance with all of the following conditions:

1. The new county sanitation district is formed.

2. The new county sanitation district becomes a party to both the JAA and modified SCVJSSA with the consent of the other parties thereto.

3. The new county sanitation district has enacted appropriate connection fee ordinances providing for the new county sanitation district to pay into the SCVJSS Capital Improvement Fund the same amount for each discharger within the new county sanitation district that District No. 32 would have paid into the SCVJSS Capital Improvement Fund if that discharger had been located within District No. 32.

4. The new county sanitation district and NLFC have executed an agreement pertaining to the initial management expenses pursuant to Section VIII.

5. NLFC conveys title to 21.5 acres of land to the new county sanitation district for siting the NRWRP.

B. In addition to the 3,000 capacity units allowed in Section II.A, NLFC shall be allowed to connect additional parcels with a discharge of up to 3,000 capacity units provided that:

1. The conditions of Section II.A are fulfilled.

2. An NPDES permit has been obtained for the initial 2 mgd stage of the NRWRP, pursuant to the terms of Section III of this Agreement.

III. NEWHALL RANCH WATER RECLAMATION PLANT

A. NLFC will design and obtain necessary permits from the Regional Water Quality Control Board for, and fund construction of, the initial 2 mgd stage of the NRWRP, including any necessary agreements or facilities for effluent disposal.

B. The initial 2 mgd stage of the NRWRP will be designed and permitted to have an effluent disposal system independent of the existing Districts' facilities, discharging either directly to the river or other permitted place of discharge or reuse. When the initial 2 mgd stage of the NRWRP is designed and permitted, a plan will be put in place to guarantee the discharge of up to 6.9 mgd of effluent to be disposed or reused in a manner similar to the first 2 mgd. This plan will be subject to the review and approval of the Districts' Chief Engineer and General Manager (Chief Engineer). This plan will include an agreement with the reclaimed water purveying agency to take effluent from the NRWRP. The Districts will allow, under terms agreeable to the Districts, available reclaimed water from the VWRP to be taken by a reclaimed water purveying agency for use on Newhall Ranch.

C. Upon completion of the construction of the initial 2 mgd stage of the NRWRP and a successful demonstration of its operation, the NRWRP shall become a jointly owned facility of the Districts and the new county sanitation district, and the Districts and the new county sanitation district will assume ownership of and responsibility for the operation and maintenance of the NRWRP and for future expansions of the NRWRP.

D. NLFC agrees to compensate the SCVJSS for any costs incurred by the SCVJSS to make the initial 2 mgd stage of the NRWRP compliant with any of the permits required for the operation and maintenance thereof if, upon initial start up and operation, it is unable to meet its permit conditions or requirements. The SCVJSS shall be responsible for bringing the NRWRP into compliance with any future changes to permit conditions or requirements.

IV. MANAGEMENT OF THE SANTA CLARITA VALLEY JOINT SEWERAGE SYSTEM

A. Upon acceptance of the initial 2 mgd stage of the NRWRP by the SCVJSS, the Chief Engineer shall have the right to divert flow from the Districts to the NRWRP as he deems necessary for the proper and economic operation of the NRWRP and the SCVJSS as a whole.

B. Upon the initial 2 mgd stage of the NRWRP becoming a SCVJSS facility, the SCVJSS shall be responsible for future expansions of the NRWRP except that the new county sanitation district will retain its right to construct up to 6.9 mgd of capacity at the NRWRP site at its own cost and expense pursuant to Section 1.B. The SCVJSS shall be relieved of this responsibility to construct additional capacity for the use of the new county sanitation district if insufficient disposal capacity exists for the proposed NRWRP expansion.

V. CONVEYANCE FACILITIES

A. NLFC will design, fund, and construct a sewer system to collect and convey all of the wastewater to be generated within the new county sanitation district to the proposed NRWRP.

B. NLFC will design, fund, and construct all sewers, pumping plants, or force mains required to convey any flow generated within the new county sanitation district that will be treated at the VWRP.

C. The Chief Engineer will identify those sewers, pumping plants, and force mains that will be owned and operated by the new county sanitation district or the SCVJSS during the review of the design for the sewer system. Sewers that will be owned by the new county sanitation district or the SCVJSS will be designated trunk sewers. Generally, an individual district or the SCVJSS will assume ownership of and operation and maintenance responsibilities for any sewers 18 inches in diameter and larger. The design of all sewers, pumping plants, and force mains to be owned by the new county sanitation district or the SCVJSS shall be subject to the design review and approval of the Chief Engineer.

D. NLFC will be responsible for operation and maintenance of the local sewers, pumping plants, and force mains, or transfer these responsibilities to another party willing to assume that responsibility.

E. If, during the design review, the Chief Engineer determines that the trunk sewers, pumping plants, or force mains should be increased in size for uses other than those in the new county sanitation district, then NLFC shall construct these facilities with the increased capacity specified by the Chief Engineer, subject to the reimbursement provisions, below.

VI. REIMBURSEMENT

A. NLFC shall be reimbursed for its costs for the design, permitting, and construction of the initial 2 mgd stage of the NRWRP and the conveyance system.

1. NLFC's reimbursable costs for the initial 2 mgd stage of the NRWRP shall be determined as follows:

   a. The costs for the construction shall be based on the amount approved by Chief Engineer.

   b. The costs for the design and planning (including permitting) shall be based on the amount of the construction contract and the allowance factors utilized under the State Revolving Fund (SRF) loan program.

   c. The costs for the site improvements shall be based upon the difference between the cost of the site improvements for all 21.5 acres and the cost to improve the site to accommodate a 6.9 mgd treatment facility.

2. The costs for the conveyance facilities related to upsizing requested by the Chief Engineer shall be based on the difference between the actual cost of the conveyance facilities as designed and constructed, and the Chief Engineer's determination of the estimated cost for design and construction of the conveyance facilities if upsizing had not been requested by the Chief Engineer.

3. The costs for the conveyance system not related to upsizing shall be based upon the difference between the actual cost of the conveyance system designed and constructed, excluding the cost of upsizing, as calculated in accordance with Section VI.A.2, and the Chief Engineer's determination of the estimated cost to design and construct a conveyance system to serve the initial stages of the Newhall Ranch Specific Plan development. The size of the conveyance system required to support the initial stages of the Newhall Ranch Specific Plan Development shall be determined by the parties hereto, including the new county sanitation district if already formed, following the completion of design.

4. The reimbursement of costs and expenses related to the construction of the initial 2 mgd stage of the NRWRP shall be in the form of:

   a. A cash payment equivalent to the amount of the connection fees paid for up to 3,000 capacity units connected pursuant to Section II.B during construction of the initial 2 mgd stage of the NRWRP. This payment shall be made at the time the NRWRP becomes a jointly owned facility of the new county sanitation district and the Districts pursuant to Section III.C.

   b. Credits to be applied against connection fees imposed by the new county sanitation district on connections made after the NRWRP becomes a jointly owned facility of the new county sanitation district and the Districts pursuant to Section III.C.

   For purposes of this Section, no credit or reimbursement shall be given for costs that were financed pursuant to Section VII of this Agreement.

5. The reimbursement for costs related to upsizing of the conveyance system requested by the Chief Engineer shall be, at the option of NLFC, in the form of either a credit to be applied against future connection fees imposed by the new county sanitation district or a cash payment.

6. The reimbursement for costs for conveyance facilities for the new county sanitation district not related to upsizing requested by the Chief Engineer

shall be in the form of a credit to be applied against future connection fees imposed by the new county sanitation district.

VII. STATE REVOLVING FUND LOANS

NLFC and the Districts agree to cooperate and use their best efforts to obtain low interest State Revolving Fund (SRF) loans to fund construction of the initial 2 mgd stage of the NRWRP. NLFC shall guarantee repayment of debt service if the connection fee revenue in the new county sanitation district is insufficient to meet the annual debt repayment.

VIII. INITIAL MANAGEMENT COSTS FOR THE NEW COUNTY SANITATION DISTRICT

NLFC agrees to pay the new county sanitation district for all costs related to operation of the new county sanitation district until the new county sanitation district begins collecting user fees adequate to fund its ongoing obligations. Terms for this agreement, including reimbursement, will be delineated in an agreement between NLFC and the new county sanitation district following its formation.

IX. CHLORIDE CONTROL MEASURES

A. NLFC shall support the efforts of both the new county sanitation district and the Districts (i) to implement ordinances regarding the control of chlorides; (ii) to defend the ordinances regulating chlorides against any legal or political challenges; and (iii) to implement or change chloride related legislation or regulatory requirements. As part of its assistance, NLFC shall not unreasonably withhold approval for the Districts to utilize lands owned by NLFC for a chloride threshold evaluation study.

B. NLFC will use its best efforts to assist in providing information to residential and commercial properties in the new sanitation district concerning regulations and issues pertaining to the control of chlorides.

X. FAILURE TO IMPLEMENT/COMPLY

A. If, following formation of the new county sanitation district, the new county sanitation district fails to make formal application to become signatory to the JAA, or refuses to sign the JAA, this Agreement shall terminate, except that NLFC shall

continue to be responsible for any cost or expense incurred by the Districts pursuant to the terms of the Reimbursement Agreement. If any of the other County Sanitation Districts of Los Angeles County refuse to allow the new county sanitation district to become a party to the JAA, this Agreement shall terminate, except that NLFC shall continue to be responsible for any cost or expense incurred by the Districts pursuant to the terms of the Reimbursement Agreement and the Districts shall continue to be responsible for reimbursing NLFC for any cost or expense incurred on behalf of the Districts pursuant to Section V.E of this Agreement.

B. If, following the formation of the new county sanitation district, the new county sanitation district fails to request that the Districts enter into an agreement substantially similar to the SCVJSSA or refuses to sign such an agreement, this Agreement shall terminate, except that NLFC shall continue to be responsible for any cost or expense incurred by the Districts pursuant to the terms of the Reimbursement Agreement. If the Districts refuse to enter into such an agreement with the new county sanitation district, this Agreement shall terminate, except that NLFC shall continue to be responsible for any cost or expense incurred by the Districts pursuant to the terms of the Reimbursement Agreement and Districts shall continue to be responsible for reimbursing NLFC for any upsizing cost or expense incurred on behalf of the Districts pursuant to Section V.E of this Agreement.

C. If NLFC fails to obtain an NPDES permit pursuant to the terms of Sections II and III of this Agreement, then NLFC shall pay to the Districts the full amount of the fees required to annex to District No. 32 any parcels that have been connected pursuant to Section II, and this Agreement shall terminate except that the Districts shall retain title to any lands transferred pursuant to Section II.

XI. EXCLUSIVE REMEDY

The parties to this agreement understand and agree that if the Districts or the SCVJSSA are unable, for reasons beyond their control, to construct further stages of the NRWRP, NLFC's sole and exclusive remedy is to construct or request the new county sanitation district to construct any needed capacity for the Newhall Ranch Specific Plan development at the NRWRP.

XII. ASSIGNMENT

Any of the parties may assign their interests in this Agreement to a third party with the approval of the other parties. This approval shall not be unreasonably withheld. NLFC hereby consents and approves any assignment by the Districts to any of the other County Sanitation Districts of Los Angeles County.

XIII. INDEMNIFICATION

A. NLFC agrees that neither the Districts, nor any of their officers, directors, or employees shall be liable for any costs or expenses arising out of NLFC's performance of its duties under the terms of this Agreement including, but not limited to, the formation of the new county sanitation district, the transfer of property related to the siting of the NRWRP, and the design and permitting of the initial 2 mgd stage of the NRWRP. NLFC shall fully indemnify and hold the Districts harmless from any and all claims, actions, liabilities, costs or expenses arising out of NLFC's performance of this Agreement, including reasonable attorneys fees, losses and/or liabilities incurred by the Districts as a result thereof.

B. NLFC agrees that neither the Districts, nor the SCVJSSA, nor any of their officers, directors, or employees shall have any liability to NLFC or its successors or assigns or otherwise have any responsibility to NLFC if, after assuming ownership and operation of the NRWRP, the SCVJSS is unable, for reasons beyond its immediate control, to construct further expansions of the NRWRP. NLFC shall hold the Districts and the SCVJSS harmless from any and all costs, expenses, and/or losses resulting from NLFC's inability to develop its holdings within the new county sanitation district under such conditions.

C. The Districts agree that neither NLFC, nor any of its officers, directors, or employees shall be responsible for any claims, liability, demands or actions arising out of the operation of the NRWRP once the SCVJSS has assumed ownership. It is also understood and agreed that the Districts shall fully indemnify and hold NLFC harmless from any and all costs or expenses incurred, including reasonable attorneys fees, losses and/or liability attributable to any such claims resulting from the Districts' actions unless otherwise provided for in this Agreement.

XIV. MISCELLANEOUS

A. Entire Agreement. This Agreement (i) contains, and is intended as, a complete statement of all the terms of the arrangements of the parties with respect to the matters provided for herein; (ii) supersedes any previous agreements, written or oral, and understandings among the parties with regard to those matters; and (iii) cannot be changed or terminated orally. Notwithstanding the foregoing, the parties acknowledge that the provisions of any other valid mutual written agreements shall remain in full force and effect.

B. Waiver. Any party may waive compliance by the other party with respect to any provisions of this Agreement. No waiver of any provision shall be construed as a waiver of any other provision. No waiver shall be construed as an ongoing waiver with respect to subsequent events unless it expressly so provides. Any waiver must be in writing, signed by the waiving party and recite the provisions being waived.

C. Binding Effect. Subject to the terms and conditions elsewhere in this Agreement, this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors and assigns. Except for rights created pursuant to the indemnity provisions of this Agreement, nothing in this Agreement shall create or be deemed to create any third party beneficiary rights of any person or entity not a party to this Agreement.

D. Duplicate Originals. This Agreement shall be executed in duplicate originals.

E. Further Assurances. Upon request by any party, the parties covenant, at any time and from time to time, to cooperate reasonably with each other and take all such further actions, including without limitation the execution and filing of additional instruments or documents, as may be reasonably necessary to carry out the intent, purposes and terms of this Agreement. Such cooperation shall be exercised in good faith with respect to any additional instruments or documents that may be necessary to carry out the intent, purposes, and terms of this Agreement, and any such additional instruments or documents shall be reviewed on their own merits, and not as a basis for the introduction of unrelated matters, nor require any additional consideration.

F. Applicable Law. This Agreement shall be construed in accordance with the laws of the State of California. Venue for any proceeding shall be the Superior Court of Los Angeles County.

G. Incorporation of Recitals. The Recitals to this Agreement are incorporated herein by this reference and are acknowledged by the parties to be true and correct.

H. Action By The Chief Engineer. Except as otherwise provided in this Agreement, the Chief Engineer shall have the authority to take all actions on behalf of the Districts in connection with any approvals or actions required of or by the Districts under this Agreement.

I. No Joint Venture. This Agreement does not constitute and shall not be construed as constituting a partnership or joint venture between the Districts and NLFC in any matter whatsoever.

J. Construction/Interpretation. The parties to this Agreement acknowledge that they have been represented by counsel in respect of the negotiation and drafting of this Agreement, and that no term, covenant or condition of this Agreement shall be construed or interpreted by reference to the extent to which either party participated in the drafting of the Agreement, or any party thereof.

K. Attorneys' Fees. In any action or proceeding arising under this Agreement, or to enforce the provisions of this Agreement, the parties shall bear their own attorneys' fees and costs.

L. Amendments in Writing/Cooperation. This Agreement may be amended or modified, but only in writing, duly executed by the parties to this Agreement. The parties shall cooperate in good faith with respect to any amendment or modification proposed in order to clarify the intent and application of this Agreement, and shall treat any such proposal on its own merits, and not as a basis for the introduction of unrelated matters.

M. Time of Essence. Time is of the essence in the performance of the provisions of this Agreement.

N. Notices. All notices, requests, demands, or other communications under this Agreement shall be in writing (except for any emergency notice, which must be followed by written notice as soon as reasonably possible but in no event more than twenty-four (24) hours from the oral notice) and sent to the addressees of each party. Notice will be sufficiently given for all purposes as follows:

PERSONAL DELIVERY: When personally delivered to the recipient. Notice is effective on delivery.

FIRST-CLASS MAIL: When mailed first-class to the last address of the recipient known to the party giving notice. Notice is effective five mail delivery days after it is deposited in a United States Postal Service office or mailbox.

CERTIFIED MAIL: When mailed certified mail, return receipt requested. Notice is effective on receipt, if a return receipt confirms delivery.

OVERNIGHT DELIVERY: When delivery by an overnight delivery service such as Federal Express, charged prepaid or charged to the sender's account. Notice is effective on delivery, if delivery is confirmed by the delivery service.

FACSIMILE DELIVERY: When transmitted by facsimile to a party's fax number, a written notice shall be contemporaneously sent by personal delivery, first-class mail, certified mail or overnight delivery. A facsimile notice is effective if received within the hours of 8:00 a.m. to 4:00 p.m. (local time of the recipient) during the business day and a transmission report is generated reflecting the accurate transmission of this facsimile. If a facsimile is received at any other time, it shall be deemed received the next business day. A "business day" shall be Monday through Friday except for any holiday recognized by the Districts.

Addresses for purpose of giving notice are as follows:

DISTRICTS:	Mr. James F. Stahl Chief Engineer and General Manager County Sanitation Districts of Los Angeles County 1955 Workman Mill Road Whittier, CA 90601-1400 Post Office Box 4998 Whittier, CA 90607-4998 Facsimile No.: (562) 695-8660
COPY TO:	B. Richard Marsh, Esq. Daniel V. Hyde, Esq. Lewis, D'Amato, Brisbois & Bisgaard LLP 221 North Figueroa Street, Suite 1200 Los Angeles, CA 90012 Facsimile No.: (213) 250-7900
NLFC:	Steven Zimmer Vice President The Newhall Land and Farming Company 23823 Valencia Boulevard Valencia, CA 91355 Facsimile No.: (661) 288-1052

IN WITNESS HEREOF, THE NEWHALL LAND AND FARMING COMPANY AND COUNTY SANITATION DISTRICTS NOS. 26 AND 32 OF LOS ANGELES COUNTY hereby cause this Agreement to be executed and agree to be bound by the terms and conditions set forth herein.

THE NEWHALL LAND AND FARMING COMPANY (A CALIFORNIA LIMITED PARTNERSHIP)

By: Newhall Management Limited Partnership, a California limited partnership, Its Managing General Partner

By: Newhall Management Corporation, a California corporation, Its Managing General Partner

By: _____
Its Vice President

By: _____
Its Assistant Secretary

ATTEST:

COUNTY SANITATION DISTRICT NO. 26 OF LOS ANGELES COUNTY

By: M. Alma Horvath
Secretary

By: Jo Anne Darcy
Chairperson, Board of Directors
JAN 0 9 2002

APPROVED AS TO FORM:
LEWIS, D'AMATO, BRISBOIS & BISGAARD, LLP

By: Daniel V. Hyde
District Counsel

ATTEST:

COUNTY SANITATION DISTRICT NO. 32 OF LOS ANGELES COUNTY

By: M. Alma Horvath
Secretary

By: Jo Anne Darcy
Chairperson, Board of Directors
JAN 0 9 2002

APPROVED AS TO FORM:
LEWIS, D'AMATO, BRISBOIS & BISGAARD, LLP

By: Daniel V. Hyde
District Counsel

APPENDIX A

Joint Powers Agreement for a Regional Sewerage System
in the Santa Clarita Valley

CONTR # 2694

JOINT POWERS AGREEMENT
FOR A REGIONAL SEWERAGE SYSTEM
IN THE SANTA CLARITA VALLEY

THIS AGREEMENT is made and entered into this 8th day of May, 1984 by and between

COUNTY SANITATION DISTRICT NO. 26 OF LOS ANGELES COUNTY, hereinafter referred to as "DISTRICT NO. 26", and

COUNTY SANITATION DISTRICT NO. 32 OF LOS ANGELES COUNTY, hereinafter referred to as "DISTRICT NO. 32".

WITNESSETH

WHEREAS, pursuant to the provisions of the County Sanitation District Act of 1923 (Chapter 3, Part 3, Division 5, of the Health and Safety Code of the State of California), DISTRICT NO. 26 and DISTRICT NO. 32, hereinafter referred to collectively as the "Districts", have heretofore acquired necessary lands and rights-of-way and have carried out the construction of a sewage collection and treatment system to serve certain areas in the Santa Clarita Valley; and

WHEREAS, the Districts and their potential areas for annexation and expansion lie in the same drainage basin; and

WHEREAS, the projected wastewater flow from future development in the drainage basin exceeds the existing capacity of the treatment plants in both Districts; and

WHEREAS, the nature of the land adjacent to the Saugus Water Reclamation Plant (District No. 26) limits the area available for construction of expanded treatment works; and

WHEREAS, the Valencia Water Reclamation Plant (District No. 32) site has suitable land adequate in size for the construction of a regional treatment plant that would meet the needs of both Districts; and

WHEREAS, the wastewater flows attributable to both Districts can be managed most efficiently and economically through the creation and operation of a regional sewerage system; and

WHEREAS, the Districts entered into an Interim Joint Sewage Disposal Agreement dated April 24, 1979, which provided for the short-term disposal needs of both Districts and provided for the preparation of a facilities plan to assist in the development of a long-term regional wastewater treatment and disposal plan; and

WHEREAS, the Districts prepared a facilities plan dated April 1980, setting forth the long-term needs and solutions for the provision of adequate wastewater conveyance, treatment, and disposal facilities for both Districts; and

WHEREAS, it is the intent of the Districts to jointly finance, construct, and operate the regional conveyance, treatment, and disposal facilities necessary to provide for the long-term needs of the Districts;

NOW, THEREFORE, it is hereby agreed as follows:

1. DEFINITIONS

As used in this Agreement, the following terms shall have the meanings herein set forth:

a. Capital Improvement Fund

A separate fund for which any monies deposited therein and any interest derived thereon are to be used exclusively for payment of capital facilities, either local sewerage facilities or Santa Clarita Valley Joint Sewerage System facilities, as hereinafter defined.

b. Capital Costs

All expenditures made for the acquisition of or addition to fixed assets and all allocations to a fund for such purposes.

c. Chief Engineer

The Chief Engineer and General Manager of District No. 26 and District 32 or his duly authorized deputy or agent.

d. Connection Fee Ordinance(s)

Connection fee ordinance(s) shall refer to the "Connection Fee Ordinance for County Sanitation District No. 26 of Los Angeles County" adopted January 12, 1984 and as thereafter amended; and to the "Connection Fee Ordinance for County Sanitation District No. 32 of Los Angeles County", adopted January 12, 1984 and as thereafter amended.

e. Local Costs

Costs expended for the acquisition, construction, repair, replacement, reconstruction, and operation and maintenance of local sewerage facilities, as hereinafter defined.

f. Local Sewerage Facilities

Those sewer lines or portions thereof, pumping plants, and other sewerage facilities utilized solely by one District, and which serve to benefit only that District, and which have not been defined as part of the Santa Clarita Valley Joint Sewerage System, as hereinafter defined.

g. Joint Costs

Costs expended for the acquisition, construction, repair, replacement, reconstruction, and operation and maintenance of the Santa Clarita Valley Joint Sewerage System, as hereinafter defined.

h. Operation and Maintenance

The operation and maintenance of, and the repair, replacement, and upkeep of all sewerage facilities inclusive of all expenses incidental thereto.

i. Santa Clarita Valley Joint Sewerage System

The system of wastewater collection, treatment, and disposal facilities that provides a benefit to more than one District, which will initially consist of the facilities defined in Exhibit I; and as those facilities may from time to time be modified or expanded.

j. Service Charge Ordinance(s)

Service Charge Ordinance(s) shall refer to the "1983 Service Charge Ordinance of County Sanitation District No. 26", adopted April 12, 1983, and as thereafter amended; and to the "1983 Service Charge Ordinance of County Sanitation District No. 32", adopted April 12, 1983, and as thereafter amended.

k. Sewage Unit

The average daily quantity of sewage flow and strength from a single family home measured in terms of flow, chemical oxygen demand, and suspended solids as defined in the Service Charge Ordinance.

l. Surcharge Revenue

The revenue derived from the Wastewater Treatment Surcharge Program as provided in the Wastewater Ordinance, as hereinafter defined.

m. Wastewater Ordinance

An ordinance providing for the administration of an industrial wastewater control system, for regulating sewer construction or use, for the imposition of a permit requirement for industrial wastewater dischargers, for the prohibition or pretreatment of industrial wastewaters, for the imposition of fees and charges for the distribution of revenue and for other methods of controlling and regulating the discharge of wastewaters, adopted April 1, 1972, as amended July 1, 1980 and as thereafter amended.

2. ESTABLISHMENT OF AND JOINT PARTICIPATION IN A REGIONAL SEWERAGE SYSTEM

The parties hereto shall participate jointly according to proportions hereinafter specified in the acquisition, construction, ownership, mainte-

nance, and operation of the system of main trunk sewers, pumping plants, treatment plants, and sanitation works herein referred to as the "Santa Clarita Valley Joint Sewerage System" including the parts heretofore acquired or which may hereafter be acquired and/or constructed; and to pay for such ownership, maintenance, and operation in the manner hereinafter specified.

District No. 26 and District No. 32, together with other County Sanitation Districts of Los Angeles County, entered into an Amended Joint Administration Agreement on July 1, 1980, providing for a single and centralized administrative organization. District No. 26 and District No. 32 agree that this Joint Powers Agreement shall be administered and executed pursuant to the provisions of said Amended Joint Administration Agreement.

All contracts for construction of Santa Clarita Valley Joint Sewerage System facilities shall be awarded and administered by the District in which the facilities will be located. However, no such contract shall be awarded without the approval of both Districts.

3. CAPITAL IMPROVEMENT FUND

Each District shall establish a capital improvement fund, hereinafter referred to as the "Local Capital Improvement Fund", which shall be solely owned and maintained by that District. The Districts shall also establish a capital improvement fund, hereinafter referred to as the "Joint Capital Improvement Fund," which shall be jointly owned and maintained by both Districts.

All connection fees, as provided for in the connection fee ordinances, shall be apportioned into local and joint shares. The allocation percentages for the local and joint shares shall be determined annually by the Chief Engineer and shall be based upon the percentages of the connection fee which are attributable to local and joint costs, respectively. The local share shall be deposited into the Local Capital Improvement Fund of the District which collected the funds and the joint share shall be deposited into the Joint Capital Improvement Fund. All interest shall remain with the capital improvement fund from which it was derived.

Any monies on deposit in the existing local capital improvement funds at the execution of this Agreement shall likewise be apportioned between the local and joint capital improvement funds established by this Agreement. The allocation percentages for this procedure shall be the same as those in effect at the time of execution of this Agreement.

No monies shall be withdrawn from the Joint Capital Improvement Fund without the approval of both Districts.

4. ALLOCATION OF COSTS ATTRIBUTABLE TO THE SANTA CLARITA VALLEY JOINT SEWERAGE SYSTEM

a. Operation and Maintenance

All costs for operations and maintenance which are attributable to the Santa Clarita Valley Joint Sewerage System shall be apportioned

to each District in the ratio that the number of sewage units originating from each District bears to the aggregate number of sewage units in both Districts. The Chief Engineer and General Manager shall determine annually the total number of sewage units attributable to each District.

b. Original Capital Construction

Each District agrees that certain facilities, described in Exhibit 2 hereof, would have been constructed irrespective of this Agreement. Both Districts agree to construct those same facilities and allocate costs for such facilities not funded through the Joint Capital Improvement Fund as set forth in Exhibit 2.

c. Expansion Capital

All capital costs for projects which increase the capacity of the Santa Clarita Valley Joint Sewerage System but do not provide a greater level of treatment or disposal shall be financed through the use of the Joint Capital Improvement Fund to the extent possible. If the cost of such a project exceeds the resources available in the Joint Capital Improvement Fund, the remaining cost shall be apportioned to each District in the ratio that the number of sewage units attributable to each District bears to the aggregate number of sewage units in both Districts.

d. Upgrade Capital

All capital costs for projects which provide a greater level of treatment or disposal but do not increase the capacity of the Santa Clarita Valley Joint Sewerage System shall be apportioned to each District in the ratio that the number of sewage units attributable to each District bears to the aggregate number of sewage units in both Districts. If the capacity of the Santa Clarita Valley Joint Sewerage System exceeds the requirements of both Districts at the time a contract for an upgrade capital project is awarded, the costs associated with the excess capacity shall be financed through the use of the Joint Capital Improvement Fund to the extent possible.

5. LOCAL SEWERAGE FACILITIES

All costs associated with local sewerage facilities shall be the responsibility of the District for whose benefit such costs are incurred, and shall not be allocated in any manner to the other District.

6. ALLOCATION OF REVENUES

a. Grants

All monies received as grants to be expended for capital projects associated with the Santa Clarita Valley Joint Sewerage System shall be apportioned to each District in the same ratio that the cost of

said projects is apportioned to each District as provided for in Article 4 hereof.

b. Joint Contract Revenue

All revenue which is derived from a Joint Contract for the disposal of sewage, brine, or industrial wastewater originating from outside of the Districts' boundaries, as hereinafter defined, shall be apportioned into joint and local shares based upon the ratio of the local and joint costs to the total costs incurred due to said contract. The allocation percentages shall be determined annually by the Chief Engineer. The local share of said revenue shall be given to the District which has incurred local costs in conjunction with the execution of said contract. The joint share shall be apportioned to each District according to the ratio of its obligation to pay for the operation and maintenance costs of the system as provided in Article 4 hereof.

c. Other Joint Revenues

All revenue received from the sale of sludge, effluent, surplus energy or other by-products or which otherwise arises out of the ownership or operation of any Santa Clarita Valley Joint Sewerage System facility shall be apportioned to each District according to the ratio of its obligation to pay for operation and maintenance cost of the system as provided for in Article 4 hereof.

d. Local Revenue

All other revenue including, but not limited to, ad valorem taxes, surcharge revenue derived pursuant to the Wastewater Ordinance, service charges, annexation fees, investment income, payments from local contracts as hereinafter defined, and local capital improvement fund monies shall remain with the District from which it originates.

7. DISPOSAL OF SEWAGE ORIGINATING OUTSIDE DISTRICTS

Each District undertakes and agrees that it will not permit or knowingly countenance the use of the Santa Clarita Valley Joint Sewerage System, directly or indirectly, for the disposal of sewage, brine, or industrial wastes originating outside of its territorial limits except in the manner, to the extent, and on the conditions agreed upon by both Districts. In the event, however, that the anticipated sewage units from said outside source do not exceed one-half of one percent (.5%) of the aggregate number of sewage units originating from both Districts, such agreement by both Districts shall not be required. Any disposal contract for which agreement is not required shall be considered a local contract and the sewage units received from such a contract shall be regarded as having originated from the District with which the contract is made for the purpose of determining the total number of sewage units attributable to that District.

Any disposal contract heretofore or hereafter entered into, for which the actual or anticipated sewage units exceeds one-half of one percent (0.5%)

of the aggregate number of sewage units originating from both Districts shall be considered a joint contract. The sewage units attributable to a joint contract shall be apportioned to each District in the ratio that the number of sewage units originating in each District bears to the aggregate number of sewage units originating in both Districts.

8. TITLE TO REAL PROPERTY

Fee title to real property required for the Santa Clarita Valley Joint Sewerage System for the use and benefit of both Districts shall be acquired by, and in the name of, the District in which the said real property is located, whether such acquisition is by purchase, condemnation, gift, or otherwise.

9. SETTLEMENT OF DISPUTE OR CONTROVERSY

Should any dispute or controversy arise in connection with the books, records, or accounts of either District pertaining to the Santa Clarita Valley Joint Sewerage System or in connection with the acquisition, construction, maintenance, operation, repair, reconstruction, or enlargement of the Santa Clarita Valley Joint Sewerage System, or in connection with any of the affairs or operation thereof, the Boards of Directors of the Districts shall appoint a mutually agreed upon arbitrator, and the determination of said arbitrator shall be binding and conclusive.

10. WITHDRAWAL

This Agreement and the Santa Clarita Valley Joint Sewerage System provided hereby shall continue in effect so long as it shall be in the interest of both Districts. If at any time it should cease to be in the interest of either District to continue as a party to this Agreement, and its Board of Directors shall so find and declare by resolution, it may withdraw herefrom and terminate its obligation hereunder after sixty (60) days notice in writing of its intention to do so, and by the full and complete discharge of all its debts and obligations hereunder for which it shall be or become liable up to the date of its withdrawal.

Disposition of all assets of the Santa Clarita Valley Joint Sewerage System shall be in proportion to the number of sewage units attributable to each District on the date of withdrawal.

11. EFFECTIVE DATE

This Agreement shall become effective on July 1, 1984.

12. TERMINATION OF PRIOR AGREEMENT

It is mutually agreed that, upon the effective date of this Agreement; the Interim Joint Sewage Disposal Agreement, dated April 24, 1979, shall terminate and be of no further force and effect but the parties to such Agreement shall nevertheless pay and discharge all obligations previously accrued thereunder.

IN WITNESS WHEREOF, the parties have executed this Agreement the date and year above set forth.

ATTEST:

By _____
Secretary

COUNTY SANITATION DISTRICT NO. 26
OF LOS ANGELES COUNTY

By _____
Chairman

ATTEST:

By _____
Secretary

COUNTY SANITATION DISTRICT NO. 32
OF LOS ANGELES COUNTY

By _____
Chairman

APPROVED AS TO FORM:

KNAPP, GROSSMAN & MARSH

By _____
B. Richard Marsh, Counsel
for County Sanitation Districts
of Los Angeles County

EXHIBIT 1

The following facilities shall be defined as being part of the Santa Clarita Valley Joint Sewerage System:

(1) Saugus Water Reclamation Plant

(2) Valencia Water Reclamation Plant

(3) District 26 Interceptor

(4) District 32 Main, Sections 1 and 2

(5) Saugus Water Reclamation Plant Waste Activated Sludge Force Main

EXHIBIT 2

Per Article 4b of this Agreement, the facilities to be constructed are as follows:

Saugus Water Reclamation Plant (WRP) Filtration and Chlorination Facilities (Existing plant to be upgraded to advanced treatment):

Primary sedimentation tank
Return sludge pumps
Waste activated sludge pump
Filters with filter feed and backwash pump stations
Filter waste backwash recovery tanks
Chlorine contact tank
Chlorination/dechlorination systems
Alum/Polymer systems and appurtenances
Standby power
High pressure effluent system
Office/lab addition

Saugus WRP Waste Activated Sludge Force Main (will convey waste activated sludge to the Valencia WRP):

An approximately 14,900 L.F. force main

Valencia WRP Stage III Expansion (3.0 mgd expansion of plant capacity to receive additional flow):

Influent pumps and metering
Primary sedimentation tanks
Aeration tank
Final clarifier
Return activated sludge pumps
Waste activated sludge pumps
Filters with filter feed pump station
Waste backwash decant tank
Chlorination/dechlorination equipment
Maintenance building
Effluent discharge line with meter
High pressure effluent and non-potable water systems

Saugus/Valencia Solids Processing Facilities (construction of sludge digestion and dewatering facilities to handle solids from both District 26 and District 32):

Dissolved air flotation thickener
Anaerobic digesters
Digester cleaning decant facility with submersible pump
Digested sludge holding tanks
Frame plate filter press and appurtenances

EXHIBIT 2 (cont.)

Filtrate equalization tank
Energy recovery system
Truck Maintenance Facility
Sludge Hauling Trucks

The Districts further agree to allocate the costs of these facilities according to the following percentages:

FACILITY	DISTRICT NO. 26 PERCENTAGE	DISTRICT NO. 32 PERCENTAGE
Saugus WRP Filtration and Chlorination Facilities	100%	0%
Saugus WRP Activated Sludge Force Main	100%	0%
Valencia WRP Stage III Expansion (2.0 mgd which is grant fundable)	100%	0%
Valencia WRP Stage III Expansion (1.0 mgd which is not grant fundable)	55%	45%
Anaerobic Digesters at Valencia WRP (7.0 mgd which is grant fundable)	100%	0%
Anaerobic Digesters at Valencia WRP (1.0 mgd which is not grant fundable)	55%	45%
Solids Processing Facility (excluding anaerobic digesters)	60%	40%
Draft Tubes for Existing Valencia WRP Digesters	0%	100%

APPENDIX F4.18

Agricultural Resources

California Resources Agency, "Memorandum Regarding Resources Agency Policy On Projects Involving Agricultural Land" (May 4, 2005)

STATE OF CALIFORNIA

RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor
MIKE CHRISMAN, Secretary

MEMORANDUM

TO: Resources Agency Departments, Boards and Commissions

FROM: MIKE CHRISMAN
Secretary for Resources

DATE: May 4, 2005

SUBJECT: Resources Agency Policy on Projects Involving Agricultural Land

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The purpose of this memorandum is to set forth the Resources Agency's policy with respect to projects undertaken by departments under Resources Agency involving agricultural lands. This policy flows from the joint memo issued by Secretaries Mike Chrisman of Resources Agency and A.G. Kawamura of the Department of Food and Agriculture (CDFA) in October 2004, which stated that the two agencies are "committed to working together to ensure that the policies of each agency are, to the fullest extent possible complementary rather than conflicting." The Secretaries asked staff to affirmatively and positively support efforts to harmonize policy between the agencies with respect to land and water use. The Secretaries also directed their respective departments to establish clear lines of communication and share information on actions. As indicated in this joint memo, it is the Resources Agency's policy that departments under Resources Agency should recognize the importance of both permanent preservation of productive agricultural land and restoration, protection and management of the state's natural, historical and cultural resources Departments' activities should strive to benefit both agricultural and resource lands. The application of this policy to resource-related projects involving productive agricultural land is specified below.

Project Development

In selecting and developing resource-related projects, departments under Resources Agency should consider ways to reduce effects on productive agricultural lands. As a first step, all constituent departments should review the 24 different strategies for reducing the impact of the CALFED Ecosystem Restoration Program on agricultural land and water use, as set forth in Section 7.1 of Attachment 1 of the CALFED Programmatic Record of Decision in August 2000 (Impact 1, on pages 75-77). In certifying the CALFED Programmatic Environmental Impact Report, the Resources Agency committed, on its own behalf and on behalf of the Department of Water Resources and the Department of Fish and Game, to consider and adopt such strategies where appropriate in development and implementation of CALFED projects. Resources Agency believes that the strategies set forth in Section 7.1 are good examples of the types of approaches that can be used for many resource-related projects, not just CALFED projects. Resources Agency encourages all constituent departments to incorporate, where appropriate, one or more of these 24 strategies, or other similar strategies, in connection with their resource-related projects Resources Agency also encourages departments to work with local agencies and other State departments, including Department of Conservation and CDFA, to identify other methods to benefit both agricultural and resource lands

1416 Ninth Street, Suite 1311, Sacramento, CA 95814 Ph 916.653.5656 Fax 916.653.8102 http://www.resources.ca.gov

CEQA Review of Resource-Related Projects

The question whether conversion of productive farmland to a different use is per se a substantial adverse change in the physical environment is currently in litigation. Resources Agency is not taking a position on this issue outside of the litigation context. However, because Resources Agency and its departments are parties to litigation raising this issue, departments should avoid making statements in CEQA documents that could be used by litigants against Resources Agency in pending litigation.

While this legal issue remains open, as a matter of policy, departments should consider the following steps

First, as noted above, where feasible, the resource-related project should include both restoration and agricultural preservation benefits.

Second, CEQA documents (environmental impact reports and negative declarations) for resource-related projects that involve agricultural land should include a separate section that describes the social and economic consequences of a conversion. The inclusion of such information in CEQA documents is specifically authorized by Section 15131 of the CEQA Guidelines. Resources Agency encourages departments to identify within the document the steps the lead agency has taken in designing the project to minimize and avoid such consequences.

Third, the lead agency should analyze each situation on a case-by-case basis. Even if a court ultimately decides that conversion of productive farmland to some other use is not in itself a substantial adverse change in the physical environment, a resource-related project can still cause a potentially significant effect on the physical environment (*i.e.*, land, air, water, minerals, flora, fauna, etc.). For example, if intense activities to restore a wetland on former pasture land are required, there could be a loss of habitat for certain threatened or endangered species even though the project creates habitat for other threatened or endangered species. Therefore, the lead agency should carefully review physical changes associated with each project. If there is a reasonable possibility that the project will have a significant effect on the environment, a categorical exemption should not be used for the project.

Conclusion. Resources Agency encourages departments to implement this policy as a way to further the state's important policy goals of preserving productive agricultural land as well restoration, protection and management of the state's natural, historical and cultural resources.

APPENDIX F4.22

Cultural Resources

Programmatic Agreement Between the Los Angeles District, U.S. Army Corps of Engineers, and the California State Historic Preservation Officer Regarding the Newhall Ranch Resource Management and Development Plan Project

PROGRAMMATIC AGREEMENT
BETWEEN
THE LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS, AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN PROJECT,
LOS ANGELES COUNTY, CALIFORNIA

WHEREAS, the U. S. Army Corps of Engineers, Los Angeles District ("USACE"), under the authority of Section 404 of the Clean Water Act (33 U.S.C. §1344), plans to issue permits ("Undertaking") to the Newhall Land and Farming Company ("Newhall" or "Permittee") for the Newhall Ranch Resource Management and Development Plan Project ("project)" located in northern Los Angeles County, California; and

WHEREAS, the USACE has determined that the Area of Potential Effects ("APE") comprises the entire project area, and is shown graphically on page 4 of Appendix A; and

WHEREAS, the USACE has determined the Undertaking will have an adverse effect on archaeological sites CA-LAN-2133 and CA-LAN-2233, determined to be eligible for listing in the National Register of Historic Places under criterion d, and has consulted with the California State Historic Preservation Officer ("SHPO") and the Advisory Council on Historic Preservation ("Council"), pursuant to 36 C.F.R. Part 800, regulations implementing Section 106 of the NHPA, as amended; and

WHEREAS, the USACE has determined that historic property CA-LAN-962H, also determined to be eligible for the NHHP under criterion d, is located within the APE but has been purchased by the Archaeological Conservancy and it will therefore be avoided and is not further included in this programmatic agreement ("PA"); and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), the USACE has notified the Council of its adverse effect determination providing the specified documentation, and the Council has chosen not to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

WHEREAS, the USACE has consulted with Newhall, the Fernandeño Tataviam Band of Mission Indians, ("Fernandeño Tataviam Band"), the San Fernando Band of Mission Indians, the LA City/County Native American Indian Community, Charles Cooke, Randy Guzman-Folkes, Beverly Salazar Folkes, and the California Department of Transportation regarding the effects of the Undertaking on historic properties and has invited them to participate in this PA as concurring parties; and

NOW, THEREFORE, the USACE and the SHPO, collectively, referred to as "Signatories" or "Parties" shall ensure that the Undertaking is implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic

properties until this PA expires or is terminated.

STIPULATIONS

The Signatories shall ensure that the following measures are implemented.

I. DEFINITIONS

The definitions found at 36 CFR § 800.16 apply throughout this PA except where another definition is offered in this PA.

II. DETERMINATION OF TREATMENT AND EFFECTS

A. The USACE shall ensure that the Historic Properties Treatment Plan ("HPTP") entitled *Research Design and Treatment Plan for CA-LAN-2133 and CA-LAN-2233 for the Newhall Ranch Resource Management and Development Plan, Los Angeles County, California* (Appendix A) is implemented. The USACE shall further ensure the following measures are carried out by incorporating this PA as a special condition of any Clean Water Act Section 404 Permit ("Section 404 Permit") or Notices to Proceed ("NTP") under the permit issued by the USACE to Permittee. If the Permittee fails to carry out the measures necessary to implement the HPTP, the USACE will take steps in good faith to enforce the permit conditions and/or revoke the Section 404 Permit.

B. At any time following the execution of the PA, either Signatory may, in writing, propose that the HPTP be amended. The other Signatory and Concurring Parties shall have 30 days following receipt to review and comment on the proposed amendment. Should either Signatory and/or Concurring Parties propose modifications or object to modifications within the stipulated time frame, the Signatories and Concurring Parties shall consult for no more than 30 days following receipt of the proposed modifications or of the objection to consider the modifications or to resolve the objection. If at the end of this time frame either Signatory and/or Concurring Parties object to the proposed modifications or if the objection is not resolved, the Signatories shall proceed in accordance with Stipulation VII(D), Dispute Resolution.

C. Amendment of the HPTP will not require amendment of the PA.

III. AMENDMENT OF THE APE

A. The USACE may propose, in writing, that the APE be amended. SHPO and Concurring Parties shall have 30 days following receipt to review and comment on the proposed amendment. Should SHPO and/or Concurring Parties propose modifications or object to modifications within the stipulated time frame, the Signatories and Concurring Parties shall consult for no more than 30 days following receipt of the proposed modifications or of the objection to consider the modifications or to resolve the objection. If at the end of this time frame either Signatory and/or Concurring Parties object to the proposed

modifications or if the objection is not resolved, the Signatories shall proceed in accordance with Stipulation VII(D), Dispute Resolution.

B. Amendment of the APE will not require amendment of the PA.

IV. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

A. The USACE shall consult with the Signatory and Concurring Parties regarding recovery, analysis, and disposition of human remains and associated grave goods, in accordance with applicable State of California laws.

B. The Signatories agree that Native American burials and related items discovered during the implementation of the PA and the Undertaking will be treated in accordance with the requirements of 7050.5 (b) of the California Health and Safety Code. If, pursuant to 7050.5 (c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of 5097.98 (a)-(d) of the California Public Resources Code. To the extent permitted under 5097.98 and 5097.991 of the California Public Resources Code, the USACE will ensure any human remains and related items resulting from the work stipulated in this PA are returned by the Permittee to the Most Likely Descendant.

V. REPORTING

A. Except as limited by Stipulation VII(C), the USACE shall ensure that all draft and final reports resulting from actions pursuant to this PA are provided to the SHPO, Concurring Parties, and other interested persons. The SHPO shall have 30 days (after receipt) to provide comments on all draft reports. The USACE shall ensure that all reports are prepared pursuant to professional standards, the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (as amended and annotated), and SHPO guidance.

B. Annually following execution of this PA, beginning in October 2011, and biennially thereafter, the USACE shall provide to all parties to this PA a report that summarizes the USACE's NTPs in relation to historic properties. Electronic reporting will be utilized as the preferred method to transmit this information.

VI. DISCOVERIES AND UNANTICIPATED EFFECTS

A. The HPTP includes procedures for managing the discovery of unanticipated cultural resources (see Appendix A). If the USACE determines that implementation of the HPTP or the Undertaking will affect a previously unidentified property that may be eligible for the National Register, or affect a known historic property in an unanticipated manner, the USACE will address the discovery, or unanticipated effect, in accordance 36 CFR Part 800.13 and with those provisions of the HPTP that relate to the treatment of discoveries and unanticipated effects.

B. The USACE, at its discretion, may hereunder assume any discovered property to be eligible for inclusion in the National Register, and that compliance with this stipulation shall satisfy the requirements of 36 C.F.R. § 800.13(a)(2). The USACE agrees to include in its Section 404 Permit for the project a special condition requiring the Permittee to provide immediate notification if unanticipated cultural resources are discovered during project construction, to temporarily halt those activities, and to take steps to ensure that the area of the discovery is protected and secured. The USACE agrees to follow the procedures outlined in 36 C.F.R. § 800.13 if an unexpected archaeological discovery is made. Pursuant to 36 C.F.R. § 800.13, the USACE will notify SHPO and Concurring Parties within forty-eight (48) hours of the discovery. The notification shall describe the actions proposed by the USACE to resolve the adverse effects. The SHPO shall respond within seventy-two (72) hours of the notification. The USACE will ask the Concurring Parties to also respond within seventy-two (72) hours of the notification pursuant to 36 C.F.R. § 800.13. The USACE shall take into account their recommendations, and then carry out the appropriate actions.

VII. ADMINISTRATIVE STIPULATIONS

A. STANDARDS

1. *Professional Qualifications*. The USACE shall ensure that activities prescribed by Stipulations II, IV, V, and VI of this PA are carried out by, or under the direct supervision of, a person or persons meeting at a minimum the Secretary of the Interior's Professional Qualifications Standards (36 C.F.R. Part 61) in the appropriate disciplines.

2. *Historic Preservation Standards*. All activities prescribed by Stipulations II, IV, V and VI of this PA shall conform to applicable standards and guidelines established by the Secretary of the Interior and SHPO.

B. CURATION

The USACE shall ensure that all materials and records resulting from the implementation of this PA are curated in accordance with 36 C.F.R. Part 79, except where an alternative plan for disposition of human remains is developed in the HPTP or Stipulation VI.

C. CONFIDENTIALITY

The Parties acknowledge that historic properties covered by this PA are subject to the provisions of Section 304 of the NHPA relating to the disclosure of archaeological site information and having so acknowledged, will ensure that all actions and documentation prescribed by this PA are consistent with Section 304 of the NHPA.

D. RESOLVING OBJECTION

1. Should SHPO object to the manner in which the terms of this PA are implemented,

the USACE will consult with the SHPO to resolve the objection. If the USACE determines that the objection cannot be resolved, the USACE shall forward all documentation relevant to the dispute, including the USACE' proposed resolution, to the Council for their assistance in resolving the dispute. In the event the Council provides timely advice or comments, the USACE, prior to reaching a final decision on the dispute, shall prepare a written response that takes into account the recommendation or comment provided by the Council pertaining to the subject of the dispute, and provide them a copy of this written response.

2. The USACE's responsibility to carry out all actions under this PA that is not the subject of a dispute will remain unchanged.

3. At any time during implementation of the terms of this PA, should a written objection pertaining to the PA be raised by a Concurring Party, the USACE shall immediately notify the SHPO about the objection and take the objection into account. The SHPO may comment on the objection to the USACE. The USACE shall consult with the objecting party for a period of no more than 30 days from the date of the objection. Within 14 days following closure of consultation, the USACE will render a decision regarding the objection and notify all parties of its decision in writing. In reaching its final decision the USACE will take into account all comments from the parties regarding the objection. Any dispute pertaining to the NRHP eligibility of historic properties covered by this PA will be addressed by the Signatories pursuant to 36 CFR § 800.4(c)(2). The Signatories shall determine if Stipulation VII(D)(1) shall be implemented to resolve a dispute regarding the eligibility of such historic properties.

4. The USACE may authorize any action subject to objection under this stipulation to proceed after the objection has been resolved in accordance with the terms of this stipulation.

E. AMENDMENTS

Either Signatory may at any time propose amendments, whereupon the Signatories shall consult among each other for no more than 30 days to consider such amendments pursuant to 36 C.F.R. §§ 800.6(c)(l) and 800.6(c)(7). This PA may be amended only upon the written agreement of the Signatories. Amendments to this PA shall take effect on the dates that they are fully executed by the Signatories.

F. TERMINATION

1. If a Signatory proposes to amend this PA, and it is not amended as provided for in Stipulation VII(E), or if either Signatory proposes termination of this PA for other reasons, the Signatory proposing termination shall notify the other Signatory in writing, explain the reasons for proposing termination, and consult with the other Signatory for at least 30 days to seek alternatives to termination. Such consultation shall not be required if the USACE proposes termination because the Undertaking no longer meets the definition set forth in 36 C.F.R. § 800.16(y).

2. Should such consultation result in an agreement on an alternative to termination, then the Signatories shall proceed in accordance with the terms of that agreement.

3. Should such consultation fail, the Signatory proposing termination may terminate this PA by promptly notifying the other Signatory in writing. Termination hereunder shall render this PA without further force or effect.

4. If this PA is terminated hereunder, and if the USACE determines that the Undertaking will nonetheless proceed, then the USACE shall either consult in accordance with 36 C.F.R. § 800.6 to develop a new PA or request the comments of the Council pursuant to 36 C.F.R. Part 800.

G. DURATION OF THE PA

1. Unless terminated pursuant to Stipulation VII(F), another agreement executed for the Undertaking supersedes it, or the Undertaking itself has been terminated, this PA will remain in full force and effect until the USACE, in consultation with SHPO, determines that all aspects of the Undertaking have been completed and that all terms of this PA have been fulfilled in a satisfactory manner. Upon a determination by USACE that all aspects of the Undertaking have been completed and that all terms of this PA have been fulfilled in a satisfactory manner, the USACE will notify SHPO and concurring parties of this PA in writing of the agency's determination. This PA will terminate and have no further force or effect on the day that the USACE so notifies SHPO.

2. The terms of this PA shall be satisfactorily fulfilled within ten (10) years following the date of execution by SHPO. If the USACE determines that this requirement cannot be met, the Signatories will consult to reconsider its terms. Reconsideration may include continuation of the PA as originally executed, amendment, or termination and the employment of a replacement agreement document. In the event of termination, the USACE will comply with Stipulation VII(F)(4) if it determines that the Undertaking will proceed notwithstanding termination of this PA.

H. EFFECTIVE DATE

This PA and any amendments will take effect on the date that it has been executed by the SHPO. Execution of this PA by the USACE and SHPO, its subsequent transmittal by the USACE to the Council in accordance with 36 C.F.R. § 800.6(b)(1)(iv), and implementation of its terms, evidences that the USACE has afforded the Council an opportunity to comment on the Undertaking and its effect on historic properties and that the USACE has taken into account the effects of the Undertaking on historic properties. The Signatories to this PA represent that they have the authority to sign for and bind the entities on behalf of whom they sign.

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT

By: _____ Date: 9-23-2010

Name: David J. Castanon

Title: Chief, Regulatory Division

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 28 SEP 2010

Name: Milford Wayne Donaldson, FAIA

Title: California State Historic Preservation Officer

CONCUR:

NEWHALL LAND AND FARMING COMPANY

By: _____ Date: _____

Name: _____

Title: _____

FERNANDEÑO TATAVIAM BAND OF MISSION INDIANS

By: _____ Date: 11-9-10

Name: William Gonzalez

Title: THCP committee chair

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT

By: _____ Date: 9-23-2010

Name: David J. Castanon

Title: Chief, Regulatory Division

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 28 SEP 2010

Name: Milford Wayne Donaldson, FAIA

Title: California State Historic Preservation Officer

CONCUR:

NEWHALL LAND AND FARMING COMPANY

By: _____ Date: Oct 20, 2010

Name: STEVEN ZIMMER

Title: EXECUTIVE VICE PRESIDENT

FERNANDEÑO TATAVIAM BAND OF MISSION INDIANS

By: _____ Date: _____

Name: _____

Title: _____

CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: Ronald Kosinski Date: Oct 7, 2010

Name: RONALD KOSINSKI

Title: DEPUTY DISTRICT DIRECTOR, ENVIRONMENTAL PLANNING

SAN FERNANDO BAND OF MISSION INDIANS

By: Date:

Name:

Title:

LA CITY/COUNTY NATIVE AMERICAN INDIAN COMMUNITY

By: Date:

Name:

Title:

CHARLES COOKE

By: Date:

Name:

Title:

RANDY GUZMAN-FOLKES

By: Date:

Name:

Title:

BEVERLY SALAZAR FOLKES

By:_____Date:_____

Name: _____

Title: _____

APPENDIX A:

RESEARCH DESIGN AND TREATMENT PLAN FOR CA-LAN-2133 AND CA-LAN-2233 FOR THE NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN PROJECT, LOS ANGELES COUNTY, CALIFORNIA

APPENDIX A:

RESEARCH DESIGN AND TREATMENT PLAN FOR CA-LAN-2133 AND CA-LAN-2233 FOR THE NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN PROJECT, LOS ANGELES COUNTY, CALIFORNIA

APPENDIX A CONTAINS CONFIDENTIAL INFORMATION RETAINED BY THE PUBLIC AGENCIES

APPENDIX B:

MEMORANDUM OF AGREEMENT BETWEEN NEWHALL LAND AND FARMING COMPANY AND THE FERNANDEÑO TATAVIAM BAND OF MISSION INDIANS

EXHIBIT "E"

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement ("MOA") summarizes the terms and conditions of the Agreement for Cultural Enrichment Programs ("Agreement"), effective August 28, 2007, entered into by and between THE NEWHALL LAND AND FARMING COMPANY, Inc., a California limited partnership ("Newhall"), and the FERNANDEÑO TATAVIAM BAND OF MISSION INDIANS ("Tataviam").

RECITALS

A. Newhall is the owner and developer of certain real property located in the unincorporated northern portion of Los Angeles County in the Santa Clara River Valley, situated west of the Golden State Freeway/Interstate 5, and south and north of State Route 126. Newhall projects to be developed within this area include, but are not limited to, Newhall Ranch, Entrada, Legacy Village, and the build-out of the Valencia Commerce Center (collectively, "Newhall Projects").

B. The Tataviam is an historic Native American tribe of northern Los Angeles County. The Tataviam includes more than 700 members, the majority of whom live within the Tataviam's traditional homelands of the San Fernando Valley and Santa Clarita Valley described in Exhibit A. Newhall recognizes that the Tataviam is a Native American entity which is aboriginal to the lands described in Exhibit A and whose people have comprised a distinct community from historical times to the present. Newhall also acknowledges that the government of the Tataviam has exercised political authority over the Tataviam people from historical times to the present. The Tataviam is governed by an executive and the Tribal Senate, a nine-member legislative branch. The Tataviam is not presently included on the list of federally recognized tribes, but the Tataviam represents that it previously was recognized by the United States, and such recognition has not been lawfully terminated. For many years the Tataviam has taken an active role in environmental protection, and has registered sacred sites with the National Register of Historic Places in order to prevent destruction of culturally significant sites.

C. The Tataviam desires to further its existing working relationship with Newhall by contracting with Newhall for cultural resource management needs, including tribal monitoring, associated with development of the Newhall Projects. Based upon its experience, its ability to exert influence over tribal members to support Newhall Projects and to mobilize tribal members to serve as Native American consultants/monitors, and the fact that the Newhall Projects lie within the aboriginal territory of the Tataviam, the Tataviam is the most appropriate entity to provide such services for Newhall Projects located within the ancestral boundaries of the Tataviam people. The Native American Heritage Commission recognizes that the Tataviam is an organized Native American tribe, and includes the Tataviam on its Tribal Consultation list compiled pursuant to Government Code section 65352.3.

Under the Agreement, Newhall and the Tataviam have agreed as follows:

1. The recitals set forth above are true in all respects.

2. Newhall will provide funding to the Tataviam for use in the development of cultural enrichment programs associated with the Tataviam.

3. Newhall will convey to the Tataviam ownership of one-acre of land located within the proposed Newhall Ranch Homestead Central Neighborhood Park described in Exhibit B, or an alternative site, for use as a future Native American interpretive/cultural center.

4. Newhall will retain the Tataviam for all monitoring activities associated with grading and development of Newhall Projects.

5. The Tataviam will expend the funding provided by Newhall for cultural enrichment programs, including cultural research, professional consulting, and grant matching related to efforts by the Tataviam to become a federally recognized Native American tribe.

6. The Tataviam will utilize the land conveyed by Newhall to construct an interpretive/cultural center to enhance the activities of the Tataviam, educate the surrounding non-Native community, and allow the Tataviam an opportunity to preserve its rich heritage and culture for future generations.

7. The Tataviam, in its role as Newhall Projects monitor, will provide monitoring and consulting services and will supplement the more general knowledge of scientific experts with its special expertise relating to matters of Native American heritage and interest, and act as a liaison between the Native American community, archaeologists, developers, contractors, and public agencies.

8. The Tataviam will continue to support Newhall, and Newhall will continue to work with the Tataviam, to the maximum extent feasible as Newhall continues to build out the Newhall Projects.

9. In the event of a conflict between this MOA and the Agreement for Cultural Enrichment Programs ("Agreement"), the Agreement shall prevail.

THE NEWHALL LAND AND FARMING COMPANY
(a California limited partnership)

By: NWHL GP LLC
Its: General Partner

By: Steven D. Zimmer

Name: Steven P. Zimmer

Its: Exec. VP

By: _____

Name: Glenn Admirand

Its: VP

THE FERNANDEÑO TATAVIAM BAND OF MISSION INDIANS

By: _____

Name: RUDY ORTEGA SR.

Its: TRIBAL PRESIDENT

APPENDIX F4.23

Global Climate Change

Court Appeal, San Diego County – June 10, 2011

Filed 6/10/11; pub. order 7/8/11 (see end of opn.)

COURT OF APPEAL, FOURTH APPELLATE DISTRICT

DIVISION ONE

STATE OF CALIFORNIA

CITIZENS FOR RESPONSIBLE EQUITABLE ENVIRONMENTAL DEVELOPMENT, Petitioner and Appellant, v. CITY OF CHULA VISTA, Respondent;	D057779 (Super. Ct. No. 37-2009-00095947-CU-TT-CTL)
TARGET CORPORATION, Real Party in Interest.	

APPEAL from a judgment of the Superior Court of San Diego County, Ronald S. Prager, Judge. Affirmed in part, reversed in part, and remanded with directions.

Following preparation of an initial study under the California Environmental Quality Act (Pub. Resources Code, §§ 21000-21178.1; undesignated statutory references are to this code), the City of Chula Vista (City) adopted a mitigated negative declaration (MND) with respect to a project to replace a store operated by Target Corporation (Target), a smog check facility, and a small market (the existing

facilities) with a new larger Target store (the Project). Citizens for Responsible Equitable Environmental Development (Citizens) filed a petition for writ of mandate in the trial court against the City. Citizens appeals from the denial of the petition.

Citizens contends the trial court erred because there is substantial evidence of a fair argument that the Project may have a significant environmental impact on: hazards or hazardous materials; air quality for sensitive receptors; particulate matter and ozone; and greenhouse gas emissions and global climate change.

We conclude that the judgment denying Citizens's petition for a writ of mandate must be reversed to the extent it concluded that Citizens had not presented a fair argument that hazards and hazardous materials from the Project may create a potentially significant adverse environmental impact. In all other respects, the judgment is affirmed.

FACTUAL AND PROCEDURAL BACKGROUND

The Project site is a 9.9-acre shopping center parcel at the northwestern corner of North Fourth Avenue and C Street in Chula Vista, California. The Project proposes to demolish the existing facilities and replace them with a new Target store, resulting in a net size increase of 9,844 square feet of commercial development. The Project would increase the site's green space from 3.17 percent to 10.6 percent, and provide drainage facility improvements.

In November 2008, Target applied for the Project's preliminary environmental review. In January 2009, the City circulated its initial study which determined that the Project may cause potentially significant impacts and required Target to comply with a

series of mitigation measures set forth in the MND and an associated mitigation monitoring and reporting program (monitoring program). The City received no comments during the public review period. The MND concluded that the Project could have significant environmental impacts in the areas of air quality, geology and soils, hazards and hazardous material, hydrology and water quality, and traffic/transportation, but that those impacts could be mitigated. In June 2009, the City's planning commission recommended that the City Council approve the Project.

On July 13, 2009, the day before the City Council meeting, Citizens submitted a letter along with a CD-ROM containing thousands of pages of materials, asking that the council deny the Project. The following day, the City responded to each of the concerns raised by Citizens. After receiving no oral comments at the meeting, the City Council voted to approve the MND, monitoring program, and amend the zoning map. Citizens filed this action challenging the City's approval of the Project without preparing an environmental impact report (EIR).

The trial court issued a tentative ruling denying the petition for writ of mandate, and the parties submitted to the ruling. The court filed a judgment, and Citizens timely appealed.

DISCUSSION

I. *Standard of Review*

An EIR must be prepared "whenever it can be fairly argued on the basis of substantial evidence that the project may have significant environmental impact." (*No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75 (*No Oil*).) Under the fair

argument standard, we determine whether there is substantial evidence in the record to support a fair argument that the project may have a significant effect on the environment. (Cal. Code Regs., tit. 14, § 15064, subd. (f)(1).) (References to the "Guidelines" refer to title 14 of the California Code of Regulations.) Whether a fair argument exists is a question of law that we review de novo, with a preference for resolving doubts in favor of environmental review. (*Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 928.) Although our review is de novo and nondeferential, we must give the lead agency the benefit of the doubt on any legitimate, disputed issues of credibility. (*Ibid*.)

Under the fair argument standard, a project "may" have a significant effect whenever there is a "reasonable possibility" that a significant effect will occur. (*No Oil*, *supra*, 13 Cal.3d at pp. 83-84.) Substantial evidence, for purposes of the fair argument standard, includes "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact." (§ 21080, subd. (e)(1).) Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts unrelated to physical impacts on the environment. (§ 21080, subd. (e)(2).)

II. *Hazards and Hazardous Materials*

Citizens asserts the record contains substantial evidence of a fair argument that the Project may have a significant environmental impact due to contaminated soil, and the evidence does not show that the potential impact will be mitigated to a level of insignificance. We agree.

The MND notes that a gas station, formerly operating on a portion of the Project site, created environmental contamination "beneath the site" from leaking underground storage tanks and product lines. Since 1990, the groundwater at the site has been monitored. In 1996, "[c]onfirmatory soil sampling" was conducted. In 2008, a corrective action plan was created to reduce the remaining methyl tertiary butyl ether on the property. The Project's monitoring program indicates that the mitigation measures outlined in the corrective action plan must be complied with before building permits are issued. The MND anticipated that the required remediation would be completed before grading started, and if not completed, would continue during the grading activities.

The City asserts that the building permit stage is an acceptable deadline for completion of the remediation activities because it is groundwater that is contaminated and not soils; and existing groundwater contamination will not be affected by grading activities. The record, however, suggests otherwise.

The Guidelines define "substantial evidence" as "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (Guidelines, § 15384, subd. (a).) Here, the MND suggests that pollutants leaking from underground storage tanks contaminated the soil underneath the Project site before reaching the groundwater. Although the building permits are conditioned on compliance with the corrective action plan, it is unknown what, if any, mitigation measures in this plan address contaminated soils as the corrective action plan is not

part of the record. Thus, it can be fairly argued that the Project may have a significant environmental impact by disturbing contaminated soils.

Accordingly, the matter must be remanded to the trial court to determine whether the corrective action plan addresses contaminated soil. In the event the trial court determines that the corrective plan does not address contaminated soil, it is to order an EIR.

III. *Air Pollution Impact on Sensitive Receptors*

"Sensitive receptors" include children. Citizens contends that there are at least four schools and pre-schools within a mile of the Project, and that the nearest residence is within 500 feet of the Project; however, the MND does not mention sensitive receptors and merely identifies mitigation measures designed to reduce dust and exhaust emissions. It asserts that the Project will emit hazardous air pollutants, particularly diesel exhaust, during construction and normal operations, and that the emission of these pollutants warranted a health-risk assessment or, at a minimum, a health-risk screening. Because there is no analysis of the environmental impact of these pollutants, Citizens claims it is impossible to tell if the mitigation measures identified in the MND will be effective at reducing the sensitive-receptor impact to a level of insignificance. Thus, it concludes there is substantial evidence of a fair argument that the Project may have a significant impact by exposing sensitive receptors to increased air pollution. We disagree.

An "Air Quality Assessment" prepared for the Project analyzed potential air quality impacts caused by construction and operation of the Project. The Air Quality

Assessment states that a project would have a significant environmental impact if it would expose sensitive receptors, such as children or the elderly, to substantial pollutant concentrations. As required by the Guidelines, the Air Quality Assessment evaluated, among other things, whether the Project would expose sensitive receptors to substantial pollutant concentrations.

To determine whether the Project would produce emissions that could violate any air quality standard or contribute substantially to an existing or projected air quality violation, the City was guided by the CEQA Air Quality Handbook created by the South Coast Air Quality Management District (the District). The District is the agency responsible for regulating nonvehicular air pollution in certain counties in southern California. (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 317.) The District typically requires a health risk assessment of diesel particulate matter for projects that: (1) generate substantial truck traffic (such as a warehouse distribution center or a truck stop), or (2) substantially increase truck traffic over existing levels.

The Air Quality Assessment concluded that the Project would not significantly impact traffic, and determined that emissions associated with construction and operation of the Project did not exceed any air quality significance thresholds. Thus, there was no need for the City to conduct a health-risk assessment or screening. Citizens has not cited any evidence in the record to dispute these conclusions.

Finally, although a box in the initial study was marked to show that the impact of the Project with regard to exposing sensitive receptors to substantial pollutant

concentrations would be "less than significant *with mitigation incorporated*" (italics added), it appears this box was marked in error as the Air Quality Assessment established that the Project would not exceed any air quality significance thresholds. Additionally, the mitigation measures specified in the MND do not relate to mitigating pollution for sensitive receptors; rather, they relate to best management practices to control dust and reduce air emissions during construction activities, and design features in the Project to reduce greenhouse gas emissions.

Accordingly, we conclude there is no substantial evidence of a fair argument that the Project may have a significant impact by exposing sensitive receptors to increased air pollution.

IV. *Cumulative Impact on Particulate Matter and Ozone*

The federal Clean Air Act (42 U.S.C. § 7401 et seq.) requires that the United States Environmental Protection Agency establish national air quality standards. (42 U.S.C. § 7409(a), (b).) Additionally, the California Air Resources Board established its own standards for California. (Health & Saf. Code, § 39606, subd. (a)(2).) Areas that do not meet national or state standards for a particular pollutant are considered to be nonattainment areas for that pollutant. (42 U.S.C. § 7407(d).)

Citizens notes that the Air Quality Assessment indicated that the region where the Project is located is in nonattainment of federal standards for 8-hour ozone and in nonattainment of state standards for ozone and particulate matter. Citizens concludes that the Project may have a significant cumulative air-quality impact due to its

contribution of particulate matter and NOx (an ozone precursor) in a nonattainment area. The record does not support Citizens's assertion.

The Air Quality Assessment evaluated whether the Project would result in a cumulatively considerable increase of particulate matter, or exceed quantitative thresholds for ozone precursors. To determine whether the Project would cumulatively increase net particulate matter or exceed quantitative thresholds for ozone precursors for which the San Diego air basin is in nonattainment, the City evaluated Project emissions against the significance thresholds established by the District. (Guidelines, § 15064.7 [The lead agency may rely on a threshold of significance standard to determine whether a project will cause a significant environmental effect.].) For nonattainment pollutants, the Air Quality Assessment concluded that the Project could potentially result in "a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality" if the emissions exceeded the screening level thresholds.

A table in the Air Quality Assessment shows the screening level criteria for impacting air quality. Other tables list the screening level criteria for various emissions during construction and operation of the Project, along with estimated emissions during construction and operation of the Project. These tables show that the net emissions *increases* over the existing amounts are below the significance level for all pollutants.

Although the Project will contribute additional air pollutants to an existing nonattainment area, these increases are below the significance criteria and are thus

considered to have no significant impact on ambient air quality based on the standard articulated in the Air Quality Assessment. Citizens has not presented any evidence to contradict the conclusion in the Air Quality Assessment that these increases are below the significance criteria, nor does it assert that the Air Quality Assessment articulated an erroneous standard for determining whether the increases in nonattainment pollutants have a significant impact on ambient air quality. Thus, we conclude no fair argument exists that the Project will cause a significant unavoidable cumulative contribution to an air quality impact.

V. *Cumulative Impact on Greenhouse Gas Emissions and Climate Change*

The Air Quality Assessment shows that greenhouse gas emissions come from a variety of sources, including waste, and that waste generates two percent of total greenhouse gas emissions. Citizens argues that the Air Quality Assessment underestimated the Project's contribution to greenhouse gases because it failed to include waste as a greenhouse gas producer in its inventory. Citizens contends that because the store will be larger, it is reasonable to assume that it will generate more waste.

While the proposed Target store will be larger, Citizens's assumption that it will generate more waste is erroneous as the proposed store will maintain the existing dumpster, which will be emptied at the same frequency as the existing Target store. Thus, the increased store size is not projected to increase waste, or greenhouse gas emissions generated from waste. Moreover, Citizens's argument ignores that the Project eliminated two existing facilities that generated waste, a market and a smog

check facility. Taking into account the elimination of these waste producers, it is more reasonable to assume that the Project will result in a net decrease of waste and resultant greenhouse gas emissions. Thus, under these facts, the City did not err when it failed to include waste as a source of greenhouse gas emissions.

Citizens observes that the Air Quality Assessment indicated that the first part of the threshold of significance for the Project's greenhouse gas emissions and climate change impacts was whether the Project would "[c]onflict with or obstruct the goals or strategies of the California Global Warming Solutions Act of 2006 (AB 32) or its governing regulation." As a preliminary matter, Citizens takes issue with the City's use of AB 32 as the significance threshold. It asserts that the Project exceeds the significance thresholds under three other well-recognized potential thresholds of significance. As such, it contends that a fair argument exists that the Project will significantly impact greenhouse gas emissions and climate change.

Citizens does not contend, however, that there is one universally accepted significance threshold, and that the City erred by utilizing AB 32. Rather, the Air Quality Assessment made clear that, while guidelines were being proposed, none existed at that time for determining the impact of a project on greenhouse gas emissions or climate change. Accordingly, the Air Quality Assessment noted that lead agencies may exercise their discretion on what criteria to use. (Guidelines, § 15064(b) ["The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."].)

Effective March 18, 2010, the Guidelines were amended to address greenhouse gas emissions. (Guidelines, § 15064.4.) The amendment confirms that lead agencies retain the discretion to determine the significance of greenhouse gas emissions and should "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." (Guidelines, § 15064.4(a).) When assessing the significance of impacts from greenhouse gas emissions on the environment the lead agency should consider: the extent the project may increase or reduce greenhouse gas emissions; whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and the extent the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. (Guidelines, § 15064.4(b).) Thus, under the new guidelines, lead agencies are allowed to decide what threshold of significance it will apply to a project.

Here, the City properly exercised its discretion to utilize compliance with AB 32 as the threshold. Accordingly, we reject Citizens's argument that the City erred by not applying a different threshold.

We also reject Citizens's argument that the standard and analysis used by the City were arbitrary and unsubstantiated. AB 32 sets a target of reducing greenhouse gas emissions to 2000 levels by 2010 and 1990 levels by 2020. The Air Quality Assessment estimated that to reach 2000 levels by 2010 required 11 percent below business as usual emissions; and to reach 1990 levels by 2020 required 25 percent

below business as usual emissions. The Air Quality Assessment then established a target of 20 percent below business as usual as the appropriate standard, and not the 25 percent below business as usual that would be needed to be consistent with the estimate for reaching 1990 levels by 2020, stating that this is "an appropriate midpoint between the 2010 and 2020 targets set forth in AB 32 considering the timeframe for Project operations is within these dates."

Citizens contends that the City arbitrarily picked a number falling somewhere between the 2010 and 2020 targets, and that the standard selected was not supported by substantial evidence. Citizens is correct that the Air Quality Assessment established a target of 20 percent below business as usual as the appropriate standard, and not the 25 percent below business as usual that would be needed to be consistent with AB 32. However, the Air Quality Assessment ultimately concluded that, with implementation of emission reduction programs, the Project would reduce greenhouse gas emissions by 29 percent by 2020. This is four percent more than the AB 32 goal of 25 percent. Thus, it is irrelevant whether the Air Quality Assessment utilized a 20 percent reduction or a 25 percent reduction as the target, because the 29 percent reduction exceeded both goals.

The record supports the 29 percent reduction. The Air Quality Assessment listed the operational emissions for "business as usual" for the existing Target store and the proposed store at 8,280 metric tons per year and 10,337 metric tons per year, respectively. Thus, under "business as usual" the proposed Target store would increase greenhouse gas emissions by 2,057 metric tons. However, through the

implementation of energy saving measures, the operational greenhouse gas emissions for the proposed store is reduced to 7,381 metric tons per year, or 2,956 metric tons *less than* "business as usual." This amounts to a 29 percent reduction from business as usual.

Finally, Citizens argues that even assuming consistency with the goals of AB 32 was the proper significance threshold and that the 29 percent reduction cited in the Air Quality Assessment is accurate, the Project does not achieve a 33 percent reduction below the business as usual threshold required for San Diego County as set forth in an "On-Road Transportation Report" (the Report) which is a component of the San Diego County Greenhouse Gas Inventory. As we explained above, the City had the discretion to not adopt this different threshold. Thus, we do not respond to Citizens's arguments premised on this different inventory. In any event, the Report acknowledged that AB 32 does *not* require cities or counties to reduce emissions by a certain amount, and noted that the required reductions listed were "theoretical."

In summary, we conclude no fair argument exists that the Project will have a significant greenhouse gas emissions and climate change impact.

DISPOSITION

The judgment denying appellant's petition for writ of mandate is reversed to the extent it concluded that appellant had not presented a fair argument that hazards and hazardous materials from the Project may create a potentially significant adverse environmental impact. In all other respects, the judgment is affirmed. On remand, the trial court shall determine whether the corrective action plan addresses contaminated

soil. In the event the trial court determines that the corrective plan does not address contaminated soil, it is to order an EIR. The parties are to bear their own appellate costs.

MCINTYRE, J.

WE CONCUR:

MCDONALD, Acting P. J.

AARON, J.

Filed 7/8/11

CERTIFIED FOR PUBLICATION

COURT OF APPEAL, FOURTH APPELLATE DISTRICT

DIVISION ONE

STATE OF CALIFORNIA

CITIZENS FOR RESPONSIBLE EQUITABLE ENVIRONMENTAL DEVELOPMENT, Petitioner and Appellant, v. CITY OF CHULA VISTA, Respondent;	D057779 (Super. Ct. No. 37-2009-00095947-CU-TT-CTL) ORDER CERTIFYING OPINION FOR PUBLICATION
TARGET CORPORATION, Real Party in Interest.	

THE COURT:

The opinion filed June 10, 2011, is ordered certified for publication.

The attorneys of record are:

Briggs Law Corporation, Cory J. Briggs and Mekaela M. Gladden for Petitioner and Appellant.

Bart C. Miesfeld, City Attorney, and Michael J. Shirey, Deputy City Attorney; Gatzke Dillon & Ballance LLP, Mark J. Dillon and Rachel C. Cook for Respondent.

Holland & Knight LLP, Amanda J. Monchamp and Shannon K. Little for Real Party in Interest.

MCDONALD, Acting P. J.

Copies to: All parties

Kern County Order Denying Petition for Writ of Mandate and Judgment in Favor of Respondents and Real Parties in Interest

December 8, 2010

ENDORSED

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TEJON RANCHCORP, sued herein under
the name of its parent TEJON RANCH CO.

FILED
SUPERIOR COURT, METROPOLITAN DIVISION
COUNTY OF KERN
DEC 08 2010
TERRY McNALLY, CLERK
BY_____DEPUTY

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF KERN

CENTER FOR BIOLOGICAL DIVERSITY, WISHTOYO FOUNDATION, TRICOUNTY WATCHDOGS, and CENTER ON RACE, POVERTY & THE ENVIRONMENT, Petitioners, v. KERN COUNTY and KERN COUNTY BOARD OF SUPERVISORS, Respondents; TEJON MOUNTAIN VILLAGE, LLC, TEJON RANCH CO., and DOES 1-30, Real Parties in Interest.	Case No. S-1500-CV-268902 KCT [Proposed] **ORDER DENYING PETITION FOR WRIT OF MANDATE AND JUDGMENT IN FAVOR OF RESPONDENTS AND REAL PARTIES IN INTEREST** Before: Hon. Kenneth C. Twisselman II Dept.: 8 Petition Filed: November 12, 2009

The Petition for Writ of Mandate ("Petition") filed by Petitioners Center for Biological Diversity ("CBD"), Wishtoyo Foundation, TriCounty Watchdogs, and Center on Race, Poverty & the Environment (collectively, "Petitioners") came on regularly for trial before this Court on November 5, 2010, in Department 8, the Honorable Kenneth C. Twisselman II presiding. Adam Keats appeared for Petitioners CBD and Wishtoyo Foundation, Matthew Vespa appeared for Petitioner CBD, Jason A. Weiner appeared for Petitioner Wishtoyo Foundation, and Caroline Farrell appeared for Petitioners Center on Race, Poverty & the Environment and TriCounty Watchdogs. Charles F. Collins, Deputy County Counsel, appeared for Respondents County of Kern ("County") and Kern County Board of Supervisors. Jennifer L. Hernandez and Charles L. Coleman III appeared for Real Parties in Interest Tejon Mountain Village, LLC and Tejon Ranchcorp, sued under the name of its parent Tejon Ranch Co. (collectively, "Real Parties").

Having read and considered the pleadings, the parties' briefs and the administrative record in this matter, and having considered the arguments of counsel, the Court finds and orders as follows:

I. **Requests for Judicial Notice**

1. The Court grants the request for judicial notice as to Petitioners' Exhibits 1 and 3 (letters from the California Attorney General's office to the San Joaquin Valley Air Pollution Control District ("SJVAPCD")) and grants the request for judicial notice as to Respondents' and Real Parties in Interest's Exhibits A through E (consisting of: SJVAPCD Response to Attorney General's letter; SJVAPCD Guidance for Addressing GHG Emission Impacts; CEQA Guidelines Amendments regarding Greenhouse Gas Emissions; Thresholds of Significance from State CEQA Guidelines Amendments Pursuant to SB 97; and Presidential Memorandum re California Request for Waiver under the Clean Air Act). No party objected to the Court's taking judicial notice of the foregoing documents. The Court denies all other requests for judicial notice. Extra- record evidence is generally not admissible in CEQA proceedings and may never be admitted to contradict the evidence relied on or to question the correctness of the agency's decision. *See Western States Petroleum Association v. Superior Court* (1995) 9 Cal. 4th 573,

579; *San Joaquin Local Agency Formation Commission v. Superior Court* (2008) 162 Cal.App.4th 159, 169.

II. Matters Raised in the Pleadings But Not in Petitioners' Brief

2. Petitioners filed their writ petition ("Petition") challenging the Kern County Board of Supervisors' decision under the California Environmental Quality Act ("CEQA") on November 19, 2009 to approve the Tejon Mountain Village project ("TMV" or "the project") as proposed by Real Parties. The Petition raised many issues not covered in Petitioners' brief, including traffic effects and impacts on other biological resources (such as native vegetation, wildlife and plants), seismic road hazards, impacts on the Condor as a cultural resource, underestimating outdoor water requirements, growth inducing impacts, and other issues. Those issues which are not presented in Petitioners' brief are deemed waived for purposes of this Court's review. *See State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 836.

III. Standard of Review

3. The standard of review is well established in CEQA proceedings. In reviewing a lead agency's compliance under CEQA, the Court must determine whether the agency prejudicially abused its discretion. *See City of Long Beach v. Los Angeles Unified School District* (2009) 176 Cal.App.4th 889, 897; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197. "Abuse of discretion is established if the agency has not proceeded in a manner required by law or if the determination is not supported by substantial evidence." Pub. Res. Code § 21168.5. The reviewing court is not to determine whether the EIR's ultimate conclusions are correct but only whether they are supported by substantial evidence in the record and whether the EIR is sufficient as an informational document. *See Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App. 4th 1383, 1391 *citing Laurel Heights Improvement Association. v. Regents of the University of California* (1988) 47 Cal.3d 376, 407. Of course, the reviewing court is also to determine whether the agency has proceeded in a manner required by law.

4. The substantial evidence standard of review will apply in this case to challenges to the methodologies used, the reliability or accuracy of data upon which the EIR is based, and the formulation of significance thresholds, as these are factual determinations. *See Bakersfield Citizens*, 124 Cal.App.4th at 1198; *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, 493 (which held that "a lead agency has the discretion to determine whether to classify an impact described in an EIR as 'significant' depending on the nature of the area affected", citing CEQA Guidelines ("Guidelines"), including Guideline § 15064 (b)).

5. The Petitioner bears the burden to establish that the administrative record does not contain substantial evidence to support the County's conclusions. The Petitioner must lay out evidence favorable to the other side and then show why it is lacking. *See Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1266.

IV. <u>Exhaustion of Remedies</u>

6. The Respondents and Real Parties (sometimes referred to hereafter, collectively, as "Respondents") contend that the Petitioners have failed to exhaust administrative remedies concerning specific issues involving water supply, air quality, and greenhouse gas emissions. In deciding whether Petitioners properly exhausted administrative remedies, the Court must first examine the "true character" of the issue raised by Petitioners to the EIR. *See State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 793.

7. If the issue is properly raised in the administrative forum by Petitioners, then the Court may consider the validity of their challenge. *See Woodward Park Homeowners Association v. City of Fresno* (2007) 150 Cal.App.4th 683, 712. If not, then Petitioners' failure to exhaust will bar judicial review. *See Gilroy Citizens for Responsible Planning v. City of Gilroy* (2006) 140 Cal.App.4th 911, 920.

8. Respondents' exhaustion challenges will be addressed within the relevant topic areas of water supply, air quality, and greenhouse gases discussed below.

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V. Water Supply

A. Independent Assessment of the Water Supply by the County

9. A water supply and demand assessment, also referred to as a "WSA", is required for a project with more than 500 residential dwelling units. *See* Cal. Water Code §§ 10910(a); 10912 (a)(1). Pursuant to the Water Code, the public water system which serves or will serve the proposed project area prepares the WSA. *See* Water Code § 10910(b). In this case, the Tejon Castac Water District ("TCWD") is the only public water supply with boundaries overlapping the project area. Administrative Record ("AR") 17:5034, 5036; 13:3672. It was also disclosed in the Draft EIR that TCWD's boundaries would be expanded to cover the entire project site. AR 13:3672.

10. The TCWD did prepare the WSA in this case. Petitioners claim that TCWD's ties to the project proponent inherently preclude an independent evaluation of water supply as required under CEQA and the Water Code. *See California Water Impact Network v. Newhall County Water District* (2008), 161 Cal.App.4th, 1464, 1488 ("*C-WIN*"). Water Code § 34700 requires that each director of the local water district be: "(a) A holder of title to land within the district; (b) The legal representative of a holder of title to land within the district....(c) A representative designated by a holder of title to land within the district....". TCWD is, pursuant to § 34700 of the Water Code, wholly made up of management from Tejon Ranch Company. AR 170:48075.

11. The contention of Petitioners, the Court finds, is unsupported as far as an independent evaluation of the water supply being precluded. The authority cited by Petitioners, the *C-WIN* case, clearly describes the WSA as a technical informational advisory opinion of the water provider. *See C-WIN* 161 Cal.App.4th at 1486. It is not a final independent decision of the lead agency. In this case, the County explained in the Draft EIR that, as the lead agency, it would make the final determination regarding water supply for CEQA purposes and that TCWD's WSA served an advisory role. AR 17:5037, 17:5038. Further, the Final EIR addressed the Petitioners' conflict of interest concerns, noting the overlap between the Tejon Ranch

Company and TCWD directors and their duties under California's Political Reform Act (Government Code §§ 81000, *et seq.*). AR 82:23882.

12. Petitioners fail to cite evidence in the record which reflects a lack of independent analysis by the County. The County's independent evaluation is particularly evident in the Final EIR. In response to comments on the DEIR and WSA, the County employed a more conservative methodology to evaluate water availability in light of the evolving legal issues affecting the Sacramento Delta. As discussed in the next section of this Order, which deals with the criteria discussed in *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412 at pages 430, *et seq.* ("*Vineyard*"), the project in this case will utilize three water supplies: first, State Water Project ("SWP") deliveries; second, recycled water produced by the project's wastewater treatment plant; and third, water recovered during dry years from the TCWD water banking facilities in the Kern Water Bank and Pioneer Project. AR 83:24141-24142. The water source for the Kern Water Bank is derived from the SWP. The DEIR and WSA incorporated the most conservative levels of water delivery published by the California Department of Water Resources ("DWR") in its then-most recent SWP reliability report.

13. With growing climate change concerns and pending litigation over fish protection measures in the Delta, SWP system delivery levels could change. To address this, the County employed an additional fifteen percent reduction in SWP deliveries in response to a June 4, 2009, National Marine Fisheries Service ("NMFS") biological opinion estimating a seven percent SWP impact, in addition to climate change and smelt-related impacts. In effect, the County doubled the NMFS opinion by going from a seven percent to a fifteen percent reduction. AR 83:24141-24145.

14. The County requested additional analysis in the WSA concerning water supply alternatives. AR 75:21763 - 21769. The Kern County Water Agency ("KCWA") provided additional technical support in that analysis (AR 83:24073), with review and comment by other agencies and stakeholders, including, for example, the Department of Water Resources (AR 91:26310-26315); the State Water Resources Control Board (AR 91:26318); the Central Valley

Water Board (AR 91:26411-26414); and the Santa Clarita Organization for Planning and Environment (AR 91: 24110- 24113). This evidence is substantial evidence demonstrating the County met its independent obligation to assess the sufficiency of the project's water supply.

B. Compliance with Vineyard Area Citizens

15. The project's WSA utilizes three water sources: (1) A water bank of nearly 30,000 acre feet of water; (2) SWP water delivery of 2100 acre feet per year; and (3) 800 acre feet per year of recycled water for outdoor irrigation produced by a proposed wastewater treatment facility. AR 17:5044-5056; 75:21743-21751; 82:23648-23663.

16. Initially, the Notice of Preparation for the project included local groundwater as a primary water source. AR 89:25765. However, several comments were received from community members questioning the potential groundwater impacts to local aquifers as a result of the project. AR 18:5402- 5405; 89:25765. In response, the TMV project's water components were revised to exclude any groundwater use. TMV, however, does retain senior overlying rights to extract water from the local aquifer for beneficial use within the project area. AR 75:21766. Additionally, the County, through DEIR Mitigation Measure 4.16, required TCWD to maintain a seven-year reserve for indoor water demand in its banking facilities for use by TMV in the event of extreme drought. AR 82:23648.

17. The California Supreme Court in the *Vineyard* decision prescribed four criteria that an EIR's water supply analysis must satisfy under CEQA. *First*, the decision makers must be presented with sufficient facts to evaluate the pros and cons of supplying the amount of water that the project will need. *Second*, the analysis cannot be limited to the first stage or the first few years. *Third*, the future water supplies identified and analyzed must bear a likelihood of actually proving available, so that speculative sources and unrealistic allocations, also referred to as "paper water," are insufficient bases for decision making under CEQA. *Fourth*, if it is impossible to confidently determine that anticipated future water sources will be available, CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water and of the environmental consequences of those contingencies. *See Vineyard*

Area Citizens for Responsible Growth v. City of Rancho Cordova (2007) 40 Cal.4th 412, 430-432.

18. The EIR in this case expressly applied *Vineyard*'s principles in its water supply evaluation. AR 82:23661- 23363; 128:36689-36690. Petitioners contend the EIR fails to meet each prong of the *Vineyard* case. Specifically, Petitioners contend that the EIR: (1) fails to disclose water contracts and entitlements, the source of banked water or how banked water will be replenished; (2) improperly limits the analysis to a 20-year period; (3) impermissibly relies on "paper water" through an unfunded wastewater facility, unreliable SWP delivery estimates versus historical delivery, and finite banked water with no independent source of replenishment; and (4) fails to consider reasonably feasible alternatives. These contentions are addressed separately below.

(i) **Sufficient Facts Regarding Water Supply**

19. First, as to the issues relating to water entitlements and water banking, the court in *C-WIN* interpreted Water Code § 10910(d) to require that the WSA shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project. *See C-WIN*, 161 Cal.App.4th at 148020.

20. Contracts, therefore, need not be included in the EIR as Petitioners contend, but entitlements must be identified. The EIR sufficiently identifies the water supply and entitlements thereto. AR 17:5047-5048; 75:21743- 21751 (WSA and Draft EIR). The Final EIR response to comments also relates to that subject. AR 82:23648, 23652-23654, 23661-23363. Although not required, the water service contracts were added to the administrative record in response to comments. AR 101:29149. The Petitioners do not challenge the accuracy or completeness of these entitlements. The EIR is, therefore, sufficient on this point.

21. Petitioners further claim that the EIR fails to identify the source for banked water and how it will be acquired by TCWD to sustain the project beyond the 20-year progression

required under Water Code § 10910(c) and (d).[1] This contention by Petitioners with regard to the failure to identify the source was not supported. The Petitioners themselves identified the source as TCWD's deliveries from the SWP. Petitioners' opening brief at 10:16-17. The record clearly confirms this source. AR 75:21754; 82:23658. The record also contains a substantial amount of information about the Kern Water Bank, water bank storage and recharge, and the Pioneer Project/SWP water storage option. *See* Respondents' brief at pages 20-21, footnote 23 and extensive AR citations therein.

22. Moreover, substantial evidence supports the County's assessment that water banking is an appropriate component of the project's water supply. The record reflects that TCWD receives an average of 3,325 acre feet per year of SWP Table A water, which is potable water, and existing supply totals 9,233 acre feet. The project will require 2100 acre feet per year of Table A water, while TCWD'S projected future water demand inclusive of the project is 4,102 acre feet per year. Sufficient evidence, and simple math, supports the conclusion that TCWD has a future water supply which will permit water banking deposits which may be tapped in dry- or drought-stricken years.

23. Further, in response to comments, the County employed an even more conservative assumption of future availability using the "worse drought scenario" recorded in 1977 through 1981, and notwithstanding these assumptions, the County found the water supplies adequate to meet project needs and TCWD demand. AR 17:5049; 83:24142-24145; 128:36691. The Petitioners' policy disagreement with the use of banked water as a supply source may not be transformed into a CEQA challenge regarding the sufficiency of the EIR. *See* Guidelines § 15003(i).

(ii) ***<u>Water Supply Analysis Not Limited to First Few Years</u>***

24. Under the second criterion in *Vineyard*, the Petitioners claim the EIR improperly limits this analysis to the first few years of development. The EIR, however, did not limit the

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[1] This was one issue that Respondents contend Petitioners failed to exhaust. However, I do find that TriCounty did sufficiently raise this question in its request concerning the source of banked water. AR 81: 23529 -23530. Accordingly, I find that the administrative remedy was properly exhausted as to that issue.

analysis to the first phases of the project. Rather, the water supply was analyzed under the assumption the project will require 100 percent of its full build-out needs in the first year and continue over an 82-year period.

25. As modeled by the KCWA, the WSA is based on an 82-year record of water delivery, taking into consideration climate and other conditions. This quantitative model includes DWR's 2008 final SWP Reliability Report, which significantly reduced DWR's previous estimates of future SWP deliveries in response to ongoing endangered fish litigation and potential climate change conditions. AR 17:5048; 75: 21756; 83:24072-24073; 131: 37432-37433, 37435-37436; 75: 21757; 128:36691.

26. Petitioners next challenge the reliability of the "black-box" CalSim-II model used in the WSA. Petitioners contend that the model overestimates water deliveries. *See Planning & Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892 ("*PCL*"). In *PCL*, the evidence showed that the SWP delivers about half of the forecast goal. The issue in this case, however, is not whether the CalSim-II model is irrefutable, but whether the study in this EIR sufficiently supports the County's decision. *See State Water Resources Control Board Cases*, 136 Cal.App.4th at 795; *see also*, CEQA Guidelines § 15151 (disagreement among experts does not invalidate an EIR).

27. The CalSim-II model was developed by the DWR to estimate future SWP deliveries. AR 75: 21754-21755. The predecessor to the CalSim-I and CalSim-II models was recently upheld in *Planning & Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210, 248-249. ("*PCL II*"). The record sufficiently explains the "Delta risk factors," in other words, climate change, pumping restrictions, *et cetera*, which are built into the CalSim-II model. AR 119:34197-34199, 34346-34363, 34091-34098.

28. Moreover, what Petitioners fail to note is that the County applied an additional fifteen percent reduction in SWP delivery estimates, notably in response to the ruling in *PCL*, reducing projected delivery below 48 percent. Nevertheless, the County concluded that future water supply would be adequate. AR 83:24142-24145.

29. The Court finds that the County's decision concerning adequate water supply is supported by a reasoned analysis and substantial evidence.

(iii) No Reliance on "Paper Water"

30. The Court will next address the issue of "paper water" versus real water. Petitioners assert that the EIR used inflated SWP reliability estimates in the range of 63 to 68 percent provided by the DWR, which runs afoul of the historical yield found in the *PCL* case, 83 Cal.App.4th at 908, footnote 5, and thus constitutes reliance on "paper water." As the court has discussed earlier, this contention lacks merit. The EIR adequately discusses use of the most conservative assumptions of CalSim-II, which provides an average delivery of 63 percent over an 82-year period, with a further fifteen percent reduction that brings delivery down to 48 percent under the analysis imposed by the County. AR 119:34087-34090, 34101-34102; 83:24142-24145.

31. Additionally, the EIR incorporated several additional conservative assumptions not mentioned by Petitioners. For example, the TCWD would not obtain any future supplemental supplies or storage augmentation rights, the County required maintenance of a seven-year indoor water reserve in the water banks, the analysis assumed a limitation on stored water of 24,000 rather than the current level of 30,000 acre feet, and further assumptions included no use of area groundwater, and no use of supplemental water which has historically been available from non-SWP sources to TCWD. ("Non-SWP" sources refers to sources historically available to TCWD other than the contractual SWP water. AR 17:5049.)

32. Next, Petitioners contend that reclaimed water from the project's proposed — not financed, cited or permitted -- wastewater treatment facility constitutes "paper water." The EIR, however, adequately describes facility location, build-out, permit requirements, financing, and evaluates impacts and prescribes mitigation measures for the wastewater treatment facility. AR 17:5055; 1:43, 66, 73, 146, 305-309; 75:21860; 76:21888-21916; 128: 36699. The EIR, therefore, adequately addresses the certainty of this source. The EIR further explained that the interim and permanent wastewater treatment facilities will be constructed in phases, matching project development and service needs over time, inclusive of the golf courses, ending with a full

wastewater treatment facility by project build-out. AR 17: 5055; 82:23665. And as a result of this analysis, the County found that no bonding or other financial security would be deemed necessary. AR 82:23665.

33. Finally, the Petitioners contend that water bank replenishment is based on "paper water" as it is "impossible to forecast any reliable supply" from the Kern Water Bank. Petitioners' brief at page 16, line 2. Again, however, Petitioners' emphasis is on disagreement with the methodology used rather than the sufficiency of the EIR. As discussed earlier and explained in the EIR, Table A SWP water deliveries will recharge the banks during wet years under the conservative assumptions of DWR, KCWA and TCWD which were used in the WSA. AR 128:36996-36697; *see also*, AR 128:36991-36992; 17:5050. Those estimates predict surplus water delivery which, as the EIR explains, will be conveyed for water bank replenishment and used in single and multiple dry years. AR 73:5050-5052; 128:36696-36697.

(iv) Reasonable Feasible Alternatives

34. As Petitioners note, the fourth criterion of *Vineyard* requires that the EIR address possible alternative supplies if future water sources cannot be confidently determined. The Court finds here, however, that there is sufficient evidence in the record to support the County's determination that the project's water supplies were, even under "worst-case scenarios" and also taking into account additional conservative assumptions, adequate to meet the project's full demand. A discussion of contingencies or alternatives is therefore unnecessary under *Vineyard*. Notwithstanding, the County did request, and the EIR sufficiently discusses, alternative sources. The WSA analyzes five additional sources of water supply. AR 75:21763-21769.

VI. Castac Lake

35. Petitioners object to the exclusion of Castac Lake from the project description and maintain that "the lake was omitted so that the EIR would not have to disclose or analyze the impacts of the lake management scheme" which itself includes depletion of area groundwater and increased flood risk. The Petitioners particularly emphasize that the Notice of Preparation initially included the lake and its uses, which were to be recreational (inclusive of a new marina) and also its groundwater sources. AR 18:5274.

36. The history of Castac Lake is detailed in the record. AR 79:22943-22958. What the review of that history reveals is that the lake is a natural resource, and activities relating to floodwater quality and fire control predate the TMV project by several years, having commenced around 2001. AR 79:22948.

37. For the reasons that were addressed in the EIR and also for the reasons summarized below, the Court finds that Petitioners' objections relating to Castac Lake are not proper challenges under CEQA. The CEQA scoping process fosters early review to address and resolve public concerns before a particular concern becomes a bigger problem later in the review process. *See* Guidelines § 15083. Castac Lake is a good example of project revisions resulting from early consultation and resolution prior to preparation of the DEIR. In response to community concerns about planned recreational use and groundwater extraction for the project, the proponents significantly altered the TMV Specific Plan to fully exclude the lake which, Petitioners acknowledge, benefited both the environment and the neighboring communities. *See* Petitioners' brief at page 18, line 16; *see also,* AR 13:3612-3613. The project does not include any development or use of the lake. AR 79: 22943. The FEIR explained in response to comments:

> "Lake management was not 'caused by' the project, in fact, the Pace Report and other information show that the lake has always existed, flooding and other lake management issues predate the project by decades, and the current lake management strategy was undertaken after a costly road relocation effort prompted by a 1999 through 2000 flood that predated any use of groundwater to stabilize the lake level." AR 79:22952.

38. The record further states: "CEQA requires that all components of a project being proposed for approval must be described in the EIR." 1 S. Kostka and M. Zischke, Practice Under the California Environmental Quality Act § 12.8 (2d Ed., CEB, 2008) ("*Kostka CEB Treatise*"). "The lake is an existing environmental feature for which no agency approvals are being sought, nor does the project propose any modifications to the lake. The lake is identified throughout the Draft EIR as part of Tejon Ranch and as part of the setting against which project impacts must be and have been evaluated. Major excerpts of the Draft EIR relating to the lake

are compiled in Part A of Global Response 7.5.1 above for the convenience of reviewers." AR 79:22956.

39. "Because the lake is not part of the project, TRC's[2] management of the lake," TRC's "management of the lake is not dependent on or otherwise a component of the project, and the project is not seeking to modify or change the uses or physical configuration of the lake. The management of the lake is considered part of the existing environmental setting for EIR purposes, and CEQA does not require or authorize mitigation for existing environmental conditions that are unrelated to a proposed project." AR 79:22958.

40. Where, as in this case, Castac Lake management and the TMV project are not interdependent (in other words, no changes are proposed to preexisting lake management), the lake management activity need not be included in the TMV project description. *See Communities for a Better Environment v. City of Richmond* (2010) 84 Cal.App.4th 70, at 101 ("*Richmond*"). In the *Richmond* case, the city's treatment of a hydrogen pipeline as being separate from a refinery project did not constitute illegal piecemealing. *See also*, *Black Property Owners Association v. City of Berkeley* (1994) 22 Cal.App.4th 974, 985, which held that because no changes were proposed to preexisting, exempt, housing-related ordinances, no assessment of their environmental effect was required under CEQA.

41. In the Petitioners' opening brief at page 19, line 13, the Petitioners assert that the EIR fails to adequately analyze the groundwater pumping impacts relating to ongoing Castac Lake management by TRC. The Court finds upon review of the record that there is substantial evidence in the record supporting the EIR's analysis of all potential project-specific and cumulative impacts relating to Castac Lake. AR 79:22943-22958.

42. The County evaluated comments critical of Tejon Ranch Company's management of Castac Lake. It reviewed expert reports, reviewed comments and conclusions by experts and nonexperts, and ultimately concluded that existing lake management activities are not adversely impacting the local aquifer or local water wells. AR 81: 23376 -23379.

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[2] "TRC" refers to Tejon Ranch Company.

43. In Petitioners' opening brief at page 20, line 2, they also assert that the EIR fails to analyze the increased flood risk relative to Castac Lake. The FEIR summarizes those portions of the DEIR which evaluated Castac Lake in relation to the project identified both impacts and mitigation measures to protect the lake. AR 79:22943-22947. Mitigation Measure 4.8-43 requires TMV to obtain a written commitment from Tejon Ranch Company ("TRC") that TRC will manage Castac Lake at an elevation of 3500 feet above sea level, providing an additional 1,076 acre feet of water storage below the elevation of 3,503 feet. AR 2:550. A flood risk analysis was conducted based on a Castac Lake level of 3,503 feet above mean sea level. AR 80:23208-23211. The County determined that the flood hazard relating to Castac Lake was reduced to less than a significant level by adopted mitigation measures. AR 1:266-271.

VII. <u>Air Quality</u>

44. Petitioners contend that the EIR fails to disclose the project's impacts on the adjacent Mojave Desert Air Basin ("MDAB") and relies on a deferred mitigation program to mitigate the significant quantities of air pollution that would be generated by the project. *See* Petitioners' brief, page 38, lines 12 through 14.

45. The Petitioners' first contention is that "the project will result in a significant increase in vehicle traffic in the MDAB primarily as a result of increased vehicle trips on State Route 138 running east from the project vicinity to the Lancaster-Palmdale metropolitan areas." The Court finds that this issue was not, as Respondents have noted, first presented to the County in the administrative process. The Petitioners fail to cite to anywhere in the administrative record where this issue was previously raised. Additionally, and though not used as the basis for Petitioners' argument that they have fully exhausted this issue, Petitioners' reference to indirect impacts from motor vehicle emissions in the MDAB (*e.g.*, the record citations at page 13, note 18, of Petitioners' reply brief) does not support Petitioners' contention that this direct impact from traffic on State Route 138 was raised in the administrative proceeding. *See* AR 135:38689-38690; 81:23360-23361, 23468; 95:27457.

46. The purpose of the exhaustion doctrine is to give public agencies the opportunity to decide matters within their expertise, respond to objections, and correct any errors before the

courts intervene. *See California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 616. The County did not get that opportunity. The issue of direct impacts on the MDAB from motor vehicle traffic on State Route 138 is, therefore, barred under the exhaustion doctrine. *See Coalition for Student Action v. City of Fullerton* (1984)153 Cal.App.3d 1194 at 1197, which held that Petitioners cannot rely on generalized environmental comments at public hearings to satisfy the exhaustion doctrine. *See also, Resource Defense Fund v. Local Agency Formation Commission* (1987) 191 Cal.App.3d 886 at 894, which held the exact issue raised in the lawsuit must have been presented to the administrative agency so that it will have had an opportunity to act and render the litigation unnecessary.[3]

47. Petitioners' second contention is that "air quality in the MDAB will be further impacted because meteorological conditions of the region contribute to the transport of criteria pollutants from the SJVAB to the MDAB across the project site." Petitioners' brief at page 40, line 7 through 10. However, the Court finds that this is more of a policy disagreement than a valid CEQA compliance argument. The EIR sufficiently discloses and explains the following: (1) "The nonattainment status of the three affected air basins - San Joaquin valley Air Basin (SJBAB), in which project development will occur, South Coast Air Basin (SCAB), and Mojave Desert Air Basin (MDAB)" (AR 13:3767 -3769) "and the challenges faced as a result."; (2) "The potential for air pollutant transport to the MDAB," AR 13:3762-37 63; 79:22720-27721; 128:36682-36683; (3) "TMV'S agreement with the San Joaquin Valley Air Pollution Control District ("SJVAPCD"), entitled Voluntary Emission Reduction Agreement" ("VERA"), "which commits the project to fully offset all project emissions of nitrogen oxide, reactive organic gas, and particulate matter within the SJAB," AR 13:3853-3857, "and explains how the VERA will

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[3] Notwithstanding the Petitioners' failure in this case to exhaust administrative remedies on this specific issue, the EIR does sufficiently explain that the project will not result in motor vehicle emissions within the MDAB, and the Court finds that Petitioners have failed to prove that this conclusion is not supported by substantial evidence. AR 13:3759. The record suggests no operational emissions within MDAB (AR 13:3879)), and indicates all trips outside of the San Joaquin Valley Air Basin ("SJVAB") would be in the South Coast Air Basin ("SCAB") (AR 14:3942). Respondents' brief, page 35, Note 57, citing the EIR'S traffic model, which demonstrated that no significant trips would continue east to Lancaster-Palmdale along State Route 138.

alleviate impacts to the MDAB," AR 79:22720-22721; 81:23399-233400; and (4) "The more than 15 air quality mitigation measures," AR 12:3458-3477. The Respondents note in their brief that the VERA is already being implemented before project approval and construction. AR 128:36681.

48. The Court finds that the EIR further explains that without mitigation and the VERA, the project could adversely affect air quality within the MDAB, but with the offset requirements in the VERA, the project will not adversely affect the MDAB. It also is noted that the SJVAPCD takes the position that the VERA fully mitigates the project's air pollutants to a less than significant level. AR 81:23316. Additionally, the Kern County Air Pollution Control District covers a large portion of the MDAB and has indicated that the EIR satisfies all of its concerns. AR 81:23399.

49. Also, with regard to the Court's reference to the offset requirements in the VERA, the project will not adversely affect the MDAB. AR 13:3865, 3878 and 3879. The Petitioners disagree with the County's conclusion. The court, however, may not pass on the correctness of the County's conclusion but only upon the sufficiency of the EIR as an informational document. *See Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.

50. Lastly, Petitioners contend that the EIR improperly defers the formulation of specific mitigation measures concerning emission reductions undermining CEQA's disclosure and public participation requirements. Specifically, Petitioners contend that Mitigation Measure 4.3-1, which relates to conflicts with or obstructing implementation of the applicable air quality plan, unlawfully defers the formulation of specific mitigation measures to future site development and, therefore, fails to address "what measures will actually be formulated to achieve the purported reductions required to comply with the EIR'S less than significant finding." Petitioners' brief, page 42, lines 13 and 14. Respondents argue that Mitigation Measure 4.3-1 meets all criteria set forth in *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93-95, which affirms under what circumstances a lead agency may defer the formulation of specific mitigation measures.

51. Deferral is permitted after the lead agency: (1) undertook a complete analysis of the significance of the environmental impact; (2) proposed potential mitigation measures early in the planning process; and (3) articulated specific performance criteria that would ensure that adequate mitigation measures would eventually be implemented. As Respondents note, the EIR includes a detailed analysis of potential air quality impacts and a description of the mitigation measures, all of which were presented in the DEIR at the earliest possible point in the CEQA process. AR 13:3830-14, 3982. The Court finds that this satisfies the first and second criteria in the *Richmond* case.

52. Mitigation Measure 4.3-1 provides:

> "Prior to issuance of any building permit, the applicant shall submit evidence verified by the SJVAPCD specific to any portion of site development that the residential and/or commercial development has total project construction and operations mitigated below two tons per year for nitrous oxide (total project construction and operations) and mitigated below two tons per year for PM10 emissions (total project construction and operations) within the SJVAB. Required reductions can be achieved from any combination of project design, compliance with the ISR[4] and/or a DMC[5] or VERA. If a DMC/VERA is utilized, a copy of the executed agreement and implementing reports shall be provided to the Planning Department to substantiate compliance. As there still could be unmitigated emissions of [ROG] under this mitigation measure, participation in any air mitigation program adopted by Kern County that provides equal or more effective mitigation than this mitigation measure can be utilized as a replacement for the requirements of this mitigation measure." AR 12:3458-3459.

53. Mitigation Measure 4.3-1 contains a clear performance standard and prohibits the issuance of building permits unless the project proponent demonstrates compliance with a two-ton-per-year performance standard. Further, VERA requires that mitigation must be implemented. Finally, the mitigation measure requires both the County and SJVAPCD to verify the adequacy of the emission reductions. AR 13:3863-3864. As a result, the Court finds the third criterion in *Richmond* is met.

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[4] "ISR" refers to the SJVAPCD's Indirect Source Review Program. AR 13:3817-3818.

[5] "DMC" refers to the Development Mitigation Contract. AR 13:3763, 3818.

54. Petitioners also argue that the two-tons-per-year emission standard is a "significant undertaking" and questions its feasibility. As Respondents point out, however, the EIR presents quantified mitigation measure reductions which do not include other anticipated reductions from other commitments, such as other motor vehicle and transit emissions reductions, as well as reductions under VERA, and although not anticipated by TMV, any shortfall in mitigation may be satisfied through the payment of mitigation fees calculated by SJVAPCD to fund emission reduction projects. AR 128:36684-36687.

VIII. <u>Climate Change</u>

55. California's AB 32, the Global Warming Solutions Act set forth in Health and Safety Code §§ 38500, *et seq.*, requires the California Air Resources Board ("CARB") to establish measures to roll back "business as usual" ("BAU") greenhouse gas ("GHG") emissions produced in 2020 to 1990 levels. Health and Safety Code § 38550. CARB determined the percentage of needed reduction is 28.356 percent and allocated as a part of CARB's scoping plan eight percent of the GHG emission reduction to the residential/commercial development sector. AR 232:64614 - 64615. Notwithstanding the eight percent allocation to residential/commercial, the County determined in this case that the significance threshold for analyzing the project's impacts concerning GHG emissions is AB 32's overall GHG reduction goal of 29 percent below BAU. AR 13:3858-3860; 79:22959-22962; 128:36656-36680.

56. The Petitioners' primary objection is that the "EIR's heavy reliance on state regulatory action to address project emissions functions to relieve the project applicant of any independent obligation to adopt needed additional measures to further reduce project emissions." Petitioners' brief, 35:6-9. They contend the Attorney General has opined that the 29 percent below BAU "does not withstand legal scrutiny" because it lacks factual support and "it seems new development must be more GHG-efficient than this average given that past and current sources of emissions, which are substantially less efficient than this average, will continue to exist and emit." Exhibit 1 to Petitioners' Request for Judicial Notice.

57. Petitioners contend the County disregarded other expert analyses, disregarded Executive Order S-3-05, which provides a longer range goal of 80 percent below 1990 levels by

2050, and improperly defers mitigation. For reasons the Court will discuss hereafter, the Court finds that the County's climate change analysis is supported by substantial evidence.

58. First, relating to the County's 29 percent below BAU threshold of significance: Significance thresholds may be based on existing environmental standards, such as statutes or regulations. *See Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1107, which held that a lead agency's use of existing environmental standards to determine the significance of a project's environmental impacts is an effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with environmental program planning and regulation.

59. The CEQA Guidelines which were pending during the CEQA review process for the project, and that were addressed in the EIR, recognize the agency's discretion in setting significance thresholds. *See* CEQA Guidelines Amendments § 15064.4. That provision is also referenced in Exhibit C to Respondents' and Real Parties' Request for Judicial Notice, of which (without objection) the Court has taken judicial notice.

60. New Guidelines § 15064.7(c) further provides that a lead agency "may consider thresholds of significance previously adopted or recommended by other public agencies..., provided the decision...is supported by substantial evidence." Notably, after EIR certification, the SJVAPCD issued its final guidelines applying the 29 percent below BAU goal for new projects. *See* Exhibit B to Respondents'/Real Parties' Request for Judicial Notice and AR 341:92867-92868. The EIR's methodological approach is consistent with SJVAPCD'S analysis.

61. The EIR also analyzes and explains why a significance threshold of zero emissions at 900 tons per year, as suggested by Petitioners, was not adopted by the County. The record reflects that other agencies have rejected a net zero approach, and CNRA, California Natural Resources Agency, similarly rejected adopting a zero emission threshold in the new CEQA Guidelines Amendments. AR 79:22964-22966; 316:86170.

62. Further, the EIR sufficiently addressed the California Air Pollution Control Officers Association ("CAPCOA") white paper relative to CEQA and climate change and explained the document was not a guidance document but rather intended as a resource and

explains that the standard of 29 percent below BAU is appropriate for the project. Like AB 32's Scoping Plan, the EIR also recognizes that additional GHG emission reductions may be necessary after AB 32's mandates are satisfied. The EIR further requires compliance with any Climate Change Action Plan developed by the County, including the requirements of SB 375. AR 79:22869, Mitigation Measure 4.3-18.

63. The Court finds that the issue of how to establish a significance threshold for GHG was sufficiently raised to apprise the County of the relevant facts and issues and the purpose of the exhaustion doctrine was satisfied. *See Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 890.[6] The Court finds, however, that this issue was adequately addressed in the EIR.

64. Petitioners' argument that the EIR disregarded the Executive Order S-3-05 target goal of 80 percent below 1990 levels by 2050 is not supported by the evidence. The EIR reflects that in amending AB 32, the Legislature declined to adopt the longer-term emission reductions, (AR 128:36675-36676), and that AB 32's goals for 2020 are not only grounded in hard science but represent the only legally enforceable emission limit under California law. AR 128:36663-36668; *see also* 128:36675-36677. Petitioners' disagreement does not make the EIR inadequate. *See* Guidelines § 15151.

65. On the subject of deferred mitigation, as discussed under "air quality" previously, the *Richmond* case affirms that details of mitigation may be deferred to a future date so long as the mitigation measure includes specified performance standards and identifies measures that may be implemented to achieve these standards. *See Richmond*, 184 Cal.App.4th at 95; *see also*, Guidelines § 15126.4 (a)(1)(b). The EIR addressed the significance standard early in the review process in the DEIR. AR 14:3962-3963. It also provided details how the GHG calculations

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[6] In the Real Parties in Interest's brief at page 8, lines 21 through 28, Real Parties in Interest argue that the issue of adopting a significance threshold by using the methodology developed by the Bay Area Air Quality Management District ("BAAQMD") was not raised in the administrative proceedings and, therefore, administrative remedies were not exhausted as to that issue. However, as the Petitioners note in their reply brief to the Real Parties in Interest at 4:9-11 and at pages 23 through 27, the BAAQMD proposal was before the County (AR 79:022960) and the Petitioners raised concerns that the County's significance threshold for GHG was not supportable and was contrary to expert evidence. AR 135:38684-38688.

were derived. AR13:3837-3853; 32:9256-37:11027. The EIR gives assurances of implementation with both County and SJVAPCD oversight, Mitigation Measure 4.3-18 (AR 79:22869), and it sets forth in detail criteria to assess the success of the mitigation measures.

66. The Court finds the Petitioners have failed to meet their burden to prove that the EIR is less than sufficient and complete in light of the foregoing.

IX. <u>Condors</u>

67. Petitioners' argument concerning the EIR'S condor impact analysis, mitigation measures and the conclusions reached by the County, is another example in the parties' briefs of expert disagreement, which does not invalidate the EIR. Petitioners' disagreements with the EIR's use of Global Positioning System ("GPS") data, whether loss of foraging habitat is a limiting factor concerning condor recovery and survival as opposed to lead poisoning, and the effect of a supplemental feeding program as mitigation, do not demonstrate that there is insufficient evidence in the record to support the County's findings and conclusions. The burden is on Petitioners to demonstrate that the EIR is inadequate as an informational document. By pointing to evidence in the record favorable to their position, Petitioners do not carry the required burden. *See California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603 at 626.

68. Petitioners do not dispute that the EIR discusses at length the factual and legal status of the California Condor. AR 14:4083-4095; 41:12113-12206. *See* the Tejon Ranch California Condor Conservation and Management Plan, also referred to as the Condor Report (AR 41:12113-12206); the US Fish & Wildlife Service ("FWS") California Condor Recovery Plan (AR 278:76668-76679 and 76981); the 2008 report from the American Ornithologists' Union and Audubon California entitled "Status of the California Condor and Efforts to Achieve its Recovery" ("AOU/Audubon Report") (AR 342:93236- 93360); TRC's pending application with FWS for approval of the Tehachapi Uplands Multispecies Conservation Plan ("HCP")(AR 13:3683;14: 4094); the Tejon Ranch Conservation and Land Use Agreement, also referred to as the "Ranchwide Agreement" (AR13:3679-3683); state and federal laws protecting the condor (AR 14:4093-4095); project impacts on foraging habitat (AR14:4092); project design to avoid

ridgelines and peaks (AR14:4089); mitigation requirements, particularly Mitigation Measure 4.4-6 requiring FWS-directed supplemental feeding (AR14:4118-4119); and opponents'/Petitioners' comments and responses thereto, noting in particular the EIR'S explanation why supplemental feeding results in a positive net effect on condor recovery (AR 128:36786-36787; 41:12120). This is substantial evidence supporting the conclusion that the EIR is adequate.

69. The Condor Report analyzed the TMV project and found that the proposed development associated with TMV will result in the loss of approximately 1,337 acres of foraging habitat for condors. In the opinion of condor expert Peter Bloom and other experts, this is not an impact that will significantly adversely affect the condor, nor rise to the level of causing injury or harm to condors or interfere with essential condor behavior patterns. AR 41:12158-12160.

70. The Condor Report (AR 41:12140) states that the latest version of the Condor Recovery Plan, the FWS 1996 version, suggests that habitat loss is not an important factor in recovery of the condor. Similarly, another expert, Snyder, in 2007 did not identify habitat loss as a limiting factor for wild California condors. The most important factor is to eliminate lead from the diet of condors. AR 41:12140.

71. In Petitioners' opening brief at page 25, line 9, they contend that the Ranchwide Agreement, referring to the Tejon Ranch Conservation and Land Use Agreement, the prior agreement between Tejon Ranch and the five conservation organizations in 2008, and also the HCP, referring to the Tejon Uplands Multispecies Habitat Conservation Plan, applied for by Tejon Ranch and being considered by the USFWS, are not valid mitigation relative to impact on the California Condor. Petitioners further assert in their brief, page 26, line 16, that neither the Ranchwide Agreement nor the HCP are actually projects properly included in the analysis of the cumulative impacts under CEQA. Petitioners assert at page 27, line 7, of their brief that mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments (Guidelines § 15126.4 (a)(2)), and also the formulation of mitigation measures should not be deferred until some future time (Guidelines § 15126.4 (a)(1)(b)). Petitioners also note that the Ranchwide Agreement purports to conserve approximately 240,000

acres of the ranch, but 62,000 acres must be purchased from Tejon Ranch Company in order to be conservation land or else they may be subject to development. AR 13:3680. And Petitioners assert that the HCP is an unenforceable mitigation measure because it is a federal requirement, not a state requirement, that has yet to be approved. AR 128:36789.

72. The Court notes that in the County staff's response to comments from Petitioner Center for Biological Diversity ("CBD"), the County staff notes that CBD is arguing that approval of the HCP by FWS should be required as a mitigation measure. AR 128:36789. County staff further notes that the County has included substantive mitigation measures to address significant and potentially significant impacts on the condor. CEQA does not allow for deferral of mitigation measures based on later actions that may or may not be taken by third-party agencies not within the jurisdiction or control of Kern County. AR 128:36789. The County asserted that it was not relying on either the HCP or the Ranchwide Agreement as mitigation measures relative to the condors.

73. Real Parties in Interest in their opposition brief, at page 24, dispute the claim by Petitioners that the Ranchwide Agreement and HCP are used as mitigation measures. They note that they are not part of the project (AR 13:3679 and 3683), that they are not identified as mitigation measures (AR 14:4115-4119), and that they are not included in the project in the mitigation monitoring plan (AR 2:337-592). Real Parties in Interest also contend that the Ranchwide Agreement and HCP both have land use consequences and are properly considered in the EIR's cumulative impact analysis, and they cite Public Resources Code § 21100(e), which provides that "previously approved land use documents, including but not limited to general plans, specific plans, and local coastal plans may be used in cumulative impact analysis".

74. In Petitioners' reply to the Real Parties in Interest's opposition brief at page 10, line 18, Petitioners contend that the EIR mischaracterizes expert reports regarding the importance of protection of habitat for condors. AR 342:93304. However, the reference to that citation is from the AOU/Audubon Report, which is making reference to future condor release sites and associated habitat. It is not referring to condor foraging habitat within the boundaries of the Tejon Mountain Village project.

75. A cumulative impact analysis should include all sources of related impacts, not simply similar sources or projects. *See City of Long Beach v. Los Angeles Unified School District* (2009)176 Cal.App.4th 889, 907. In the *Kostka CEB Treatise* §13.27, page 638, the authors note that, "[t]he lead agency has discretion to determine the appropriate way to analyze environmental impacts in an EIR. Disagreements with the adequacy of an EIR's impact analysis will be resolved in favor of the lead agency if there is any substantial evidence in the record supporting approach used." *See Laurel Heights Improvement Association v. Regents of the University of California,* (1988) 47 Cal.3d 376, 408-409; *Eureka Citizens for Responsible Government v. City of Eureka* (2007)147 Cal.App.4th 357 at 372; *State Water Resources Control Board Cases* (2006)136 Cal.App.4th 674, 795. Strike that. 674 at page 795. The authors further note that an EIR "need not follow the analytical methods recommended by regulatory agencies or other interested agencies as long as the method of analysis employed is supported by substantial evidence." *See Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383 at 1396-97; *see also, Gray v. County of Madera,* (2008) 167 Cal.App.4th 1099 at 1125; *Sierra Club v. City of Orange* (2008)163 Cal.App.4th 523 at 544-545.

76. *Bakersfield Citizens for Local Control,* 124 Cal.App.4th at 1213-1219 supports the proposition that a cumulative impacts analysis should inform the public and decision makers of future growth and land uses in the vicinity of a proposed project and how their impacts will interact with the proposed project. One of CEQA's most fundamental objectives is to disclose information to the public and decision makers about the environmental context and consequences. *See* Guidelines § 15002 (a)(4); *Protect Our Water v. County of Merced* (2003) 110 Cal.App.4th 362, 371-372;

77. In the *Kostka CEB Treatise*, at §12.10, page 588, the authors suggest that: "When additional future projects are anticipated or when a project is related to a larger series of independent actions, a discussion of the related projects and their potential effects can be included in general terms in the EIR for a particular project. Although inclusion is not mandated by the project description cases, it may be helpful in defending against challenges to the scope of the EIR." The authors refer to the following cases: *National Parks and Conservation*

Association v. County of Riverside (1996) 42 Cal.App.4th 1505 at 1514-1515; *Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351 at 372-373; *Del Mar Terrace Conservancy v. City Council* (1992) 10 Cal.App.4th 712 at 735; *Christward Ministry v. County of San Diego* (1993) 13 Cal.App.4th 31, 44-45. The authors state that in those cases:

> A factor supporting the adequacy of the project description was the inclusion of a general discussion of the contingent future projects. The *Christward Ministry* EIR discussed the relationship between the landfill expansion project and other proposed landfill and solid waste processing projects; the *National Parks* EIR generally described solid waste transfer stations; the *Rio Vista* EIR included some generalized discussion of the likely impacts of siting hazardous waste facilities under the hazardous waste plan; the *Del Mar* EIR disclosed potential future projects and their contingent nature so that the overall transportation scheme was discussed. Attorneys for project applicants or public agencies should try to anticipate creative arguments made by project opponents concerning reasonably foreseeable consequences of a project.

78. Having considered all of the positions argued by counsel, the authorities cited, and looking at the administrative record, the Court finds that substantial evidence in the record supports the methods employed by the County in analyzing the environmental impacts relating to the California Condor, including discussion and analysis of the Ranchwide Agreement and the HCP in the cumulative impact analysis. The Court does not find a prejudicial abuse of discretion by the County in this process.

X. <u>Cultural Resources</u>

79. Petitioners claim that Respondents' failure to disclose to the National American Heritage Commission ("NAHC") and Most Likely Descendant ("MLD") the exact location of cultural and historical resources on the project site violated Public Resources Code § 5097.98 and Guidelines § 15064.5(d). The Court finds that this contention misstates the requirements under these provisions. Neither Public Resources Code § 5097.98 nor Guidelines § 15064.5(d), requires the release of precise locational data. Rather, as the EIR explains, Native American consultation with the MLD regarding the recommendations when human remains are discovered is required. The EIR, in fact, evidences an incident when consultation did occur due to discovery of human remains in one location on the project site. AR 15:4560. Further, Mitigation Measure 4.5-42 requires ongoing compliance with Public Resources Code § 5097.98. AR 15:4570-4572.

80. As Respondents note, Petitioners have identified no legal authority requiring disclosure of exact site location information. To the contrary, and as the EIR explains, the County has a statutory duty to "protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features, and objects." *See* Government Code §65352.3(b) and § 6254(r), which permits the County to withhold from public disclosure records of Native American graves, cemeteries, and sacred places, features, and objects.

81. The Court finds, based on the evidence in the EIR and the record, that the County did comply with all Native American consultation requirements.

82. Petitioners next allege that the EIR failed to analyze impacts to several identified resources such as the "Ridge Route"; Castaic Creek Trail; the Huerta De Arriba Cemetery on Paso Creek; the Native American Schoolhouse; the Tejon Creek Cemetery; the Chumash Kaiawasu, Kitanemuk and Yowlumne "cultural landscapes"; and the KashtiqVillage within Castac Lake.

83. The Court finds that Petitioners have not correctly cited the record, have failed to accurately note comments raised, and have failed to disclose other information which is in the EIR. Only two cultural resources, the "Ridge Route" and Kashtiq, were generally addressed in comments within the vicinity of the project (AR 83:23902 and 23916-23). The EIR explains that the "Ridge Route" reference did not identify any new cultural site which could be impacted when compared to sites already surveyed (AR 83:23946 and 23956), and that the village of Kashtiq was fully discussed and analyzed in the EIR and is identified as site CA-KER-307 (AR 15:4538- 4539, and 4554, 4563).

84. Respondents, in their opposition brief, note that:

> "The EIR explains that Kashtiq is not currently underwater but was previously capped and preserved in place (AR 83:23944) No burial site associated with Kashtiq was identified (AR 83:23947), no Native American villages or burial sites were covered or disturbed when the lake level was stabilized (AR 82:23787), and that it is not possible to determine if any potential burial site is underwater due to fluctuating lake levels (AR 83:23947)." Real Parties in Interest's brief at page 33, footnote 70.

85. The remaining sites were raised by Petitioners in comments to a separate Environmental Impact Statement (" EIS") prepared by FWS for the HCP. Nonetheless, the EIR identified and discussed the sites within the project development envelope. AR 128:36793. The EIR also explained that cultural sites outside the project's development will not be impacted because they lie within permanent open space. AR 128:36793, AR 15:4556, AR 83:23942. Further, Petitioners fail to present legal authority that Native American "cultural landscapes" or "viewscapes" must be analyzed. These features are not "cultural resources" under Public Resources Code § 5097.98, nor are they included in the Guidelines. AR 15:4552.

86. Finally, Petitioners argue that the EIR failed to adequately mitigate significant effects on cultural resources by failing to consider the preferred "preservation-in-place" mitigation measure. *See* Guidelines § 15126.4(b)(3). However, Petitioners cite no authority which requires use of a particular "preservation-in-place" methodology. Moreover, Petitioners do not show that the County's 44 mitigation measures (AR 15:4560-4573), which include preservation-in-place, do not adequately mitigate cultural impacts to less than significant levels. When substantial evidence exists, as in this case, that the Court finds to support the agency's determination, the Court will defer to the agency's judgment that mitigation is adequate. *See Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376 at 407.

XI. <u>Wildfires</u>

87. Petitioners claim Respondents failed to proceed in the manner required by law by failing to evaluate increased wildland fire risk associated with changes in grazing management since the project will reduce cattle grazing to an unknown extent, increasing wildland fire risk. As with other topical areas discussed previously, the Court finds that Petitioners' objection is a disagreement with the conclusion reached rather than a demonstrated legal defect in the EIR. The EIR's analysis is based on a detailed Fire Protection Plan ("FPP"). AR 22:6422-6549. The EIR evaluates the project's potential wildfire risk considering grazing, site characteristics, and proposed project development, including analysis supporting County's determination that wildfire risk would be significant even with the FPP. AR 16:4677. Mitigation Measure 4.7-10

through 4.7-16 (AR 16:4682-4683), when implemented, adequately ensures that wildfire impacts are reduced to a less than significant level.

XII. Compliance with CEQA

88. In their briefs and again during oral argument, Petitioners have asserted that the standard of review applicable to many of Petitioners' challenges to the EIR is not the substantial evidence standard but is instead a matter of determining whether the County failed to proceed in the manner provided by law, *i.e.*, that the County engaged in a prejudicial violation of CEQA. To the limited extent, if any, that the "failure to proceed in the manner provided by law" standard is applicable to Petitioners' challenges to the EIR, the Court finds that the County did proceed in compliance with the law. Petitioners have failed to identify any prejudicial violations of CEQA or any other applicable law by the County. *Compare Berkeley Keep Jets Over the Bay Committee v. Port of Oakland* (2001) 91 Cal.App. 4th 1344 (involving multiple and substantial failures to comply with CEQA).

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Conclusion and Judgment of the Court

Based on the record and argument presented to the Court and on the findings summarized and set forth above, and good cause appearing therefor, IT IS HEREBY ORDERED, ADJUDGED AND DECREED that:

1. Petitioners' Petition for Writ of Mandate is DENIED, with prejudice;

2. Judgment is granted in favor of Respondents County of Kern and Kern County Board of Supervisors ("Respondents"), as well as Real Parties in Interest Tejon Mountain Village, LLC and Tejon Ranchcorp, sued herein under the name of its parent Tejon Ranch Co. ("Real Parties"); and

3. Respondents and Real Parties are awarded and shall recover their costs of suit in this action from Petitioners. Upon approval of memoranda of costs to be filed by Respondents and Real Parties, the Clerk of Court shall add to this Judgment the costs awarded to Respondents County of Kern and Kern County Board of Supervisors in the amount of $_____, and the costs awarded Real Parties in Interest Tejon Mountain Village, LLC and Tejon Ranchcorp, sued herein under the name of its parent Tejon Ranch Co. in the amount of $_____.

IT IS SO ORDERED.

Dated: DEC 08 2010

KENNETH TWISSELMAN II

Hon. Kenneth E. Twisselman II
JUDGE OF THE SUPERIOR COURT

Summary of Existing Emissions

Summary of Existing Emissions

This appendix summarizes ENVIRON International Corporation's (ENVIRON) estimates for existing greenhouse gas (GHG) emissions associated with the project site.

By way of background, the applicant periodically leases the Landmark Village area to the movie industry for set locations. Minor existing on-site structures within the Landmark Village area include employee houses, an oil company office, and miscellaneous structures. Portions of the Landmark Village area are leased for cattle grazing and agricultural operations. All existing emission sources would be eliminated during project buildout.

In light of the existing conditions, ENVIRON evaluated the following sources that currently exist on the project site:

1. Farmland/Agricultural Operations
    a. Water use
    b. Fertilizer
    c. Equipment

Please note that emissions associated with the periodic lease of the Landmark Village area to the movie industry were not accounted for in this emissions estimate as such activities are intermittent, limited, and unpredictable. Additionally, the emissions estimate does not account for the minor existing structures within the Landmark Village area due to the lack of data for these accessory structures. Finally, the cattle grazing and ranching activities were not accounted for as the lease of the project site for such uses is minimal. Because the emissions estimate does not fully account for these existing emission sources, the estimate likely understates existing emission levels on the project site.

That said, ENVIRON estimated the emissions associated with existing site conditions, and particularly farmland, to be roughly 553 metric tonnes of CO_2e per year (Table 2).

Farming/Agricultural Operations

Table 1 outlines ENVIRON's approach to calculating GHG emissions from farming operations that would be eliminated due to project buildout. GHG emissions include indirect emission associated with estimated water use, and direct emissions associated with fertilizer and equipment use. A variety of crops currently is grown on the site; however, because of limited data availability, ENVIRON relied upon general crop water use factors, general corn fertilizer factors, and general barley equipment-use factors. ENVIRON does not expect these assumptions to systematically over- or under-estimate actual emissions. ENVIRON then used appropriate emission factors to determine GHG emissions from water use, fertilizer emissions, and equipment fuel use.

Table 1 - Baseline Conditions
FARMING

Description	Activity Data	Units	Source(s)
Area of disturbed farmland	341	acres	Landmark Village Climate Change Technical Report
US average amount of water used for irrigation, in 2003	1.65	acre-feet water/acre irrigated	USDA. *Farm and Ranch Irrigation Survey (2003).* Table E (PDF page 20). (available from: http://www.agcensus.usda.gov/Publications/2002/FRIS/fris03.pdf Accessed April 9, 2010).
Total acre-feet used	563	acre-feet	Calculations: Area of disturbed farmland * US average amount of water used for irrigation, in 2003
kWh/acre-foot	3,170	kWh/acre-foot	Chino estimate. Landmark Village Climate Change Technical Report
Electricity use for water	1,783,601	kWh/year	Calculations: Total acre-feet used x kWh/acre-foot
Crop grown on an acre, per year	3,421	kg	Source: US Life Cycle Inventory (via SimaPro). "Corn, at field/kg/US". Included processes: Initially derived from data on farming of corn on 1 planted acre for 1 year (**yield=3421kg**). The module includes: - seed production, - tillage, - fertilizer and pesticide application, - crop residue management, - irrigation, - harvesting. Remark: Agricultural Crop Production, Harvested acres represent 91% of the planted acres (1998-2000 US average). 1 bu (corn) = 56 lbs. The impacts of producing 1 kg of seed are assumed equal to those of producing 1kg of grain.
Nitrogen fertilizer required to produce 1 kg of crop	0.0169	kg	Ibid.
Nitrogen fertilizer required for one acre of crop production	57.7	kg	Calculations: Crop grown on an acre, per year x Nitrogen fertilizer required to produce 1 kg of crop
Nitrogen fertilizer required for acreage	19,690	kg	Calculations: Area of disturbed farmland x Nitrogen fertilizer required for one acre of crop production
N2O Emission Factor for emissions from N inputs	1%		UNFCCC Clean Development Mechanism. "Estimation of direct nitrous oxide emission from nitrogen fertilization" Page 3. (Available from: http://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-07-v1.pdf Accessed April 10, 2010)
Total N2O Emissions	197	kg	Calculations: Nitrogen fertilizer required for acreage x N2O Emission Factor for emissions from N inputs
Total N2O Emissions (in CO2e)	61,040	kg	Calculations: Total N2O Emissions * GWP of N2O using IPCC Second Assessment Report references (310)
Tractor diesel fuel usage rate	6	gallons/acre	USDA estimates that the typical cropping and tillage system in the area requires six gallons of diesel per acre of barley.
Diesel fuel usage for acreage	2,046	gallons	Calculations: Area of disturbed farmland * Tractor diesel fuel usage rate

Acronyms:
bu - bushel
CO2e - carbon dioxide equivalents
GWP - global warming potential
hp - horsepower
IPCC - Intergovernmental Panel on Climate Change
kg - kilogram
kW - kilowatts
kWh - kilowatt-hour
lb - pound
N - nitrogen
N2O - nitrous oxide

UNFCCC - United Nations Framework Convention on Climate Change
USDA - Unites States Department of Agriculture

Table 2 - Baseline Conditions
TOTAL EMISSIONS

Description	Emissions	Units	Source(s)
Energy use associated with water	471	tonnes CO2e	Calculations: 582.7 lbs per MWh/2,205 lbs per metric ton x Electricity use for water / 1000 kWh per MWh. The Landmark Village 2010 RPS emission factor is 582.7 lbs CO2/MWh.
N2O emissions associated with fertilizer use	61	tonnes CO2e	Calculations: Total N2O Emissions (in CO2e) / 1000 kg per metric ton
Diesel fuel usage	21	tonnes CO2e	Calculations: Diesel fuel usage * 10.15 kg CO2 per gallon / 1000 kg per metric ton. 10.15 kg CO2 is produced by combusting one gallon of diesel fuel. This data is from The Climate Registry's General Reporting Protocol, Table 13.1.
TOTAL EMISSIONS	553	tonnes CO2e	

Acronyms:
bu - bushel
CO2e - carbon dioxide equivalents
kg - kilogram
kWh - kilowatt-hour
lb - pound
MWh - megawatt-hour
RPS - renewable portfolio standard

COURT OF APPEAL OF THE STATE OF CALIFORNIA
FIFTH APPELLATE DISTRICT

CENTER FOR BIOLOGICAL DIVERSITY, WISHTOYO FOUNDATION, TRICOUNTY WATCHDOGS, and CENTER ON RACE, POVERTY & THE ENVIRONMENT, Appellants / Petitioners, vs. KERN COUNTY and KERN COUNTY BOARD OF SUPERVISORS Respondents, TEJON MOUNTAIN VILLAGE, LLC, TEJON RANCH CO., and DOES 1-30, Real Parties in Interest.	)	Case No. F061908 On Appeal from the Superior Court of Kern, Case No. S-1500-CV-268902 KCT The Hon. Kenneth C. Twisselman Department 8

APPELLANTS' OPENING BRIEF

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TO BE FILED IN THE COURT OF APPEAL

APP-008

COURT OF APPEAL, APPELLATE DISTRICT, DIVISION	Court of Appeal Case Number: F061908
ATTORNEY OR PARTY WITHOUT ATTORNEY (Name, State Bar number, and address): Adam Keats, SB# 191157, Center for Biological Diversity, 351 California St., Suite 600, San Francisco, CA 94104, TELEPHONE NO.: 415-436-9682, FAX NO. (Optional): 415-436-9683, E-MAIL ADDRESS (Optional): akeats@biologicaldiversity.org, ATTORNEY FOR (Name): Petitioners Center for Biological Diversity et al.	Superior Court Case Number: Kern County CV-268902
APPELLANT/PETITIONER: Center for Biological Diversity, et al. RESPONDENT/REAL PARTY IN INTEREST: Kern County et al.	FOR COURT USE ONLY: COURT OF APPEAL FIFTH APPELLATE DISTRICT FILED MAR - 9 2011 By Deputy

CERTIFICATE OF INTERESTED ENTITIES OR PERSONS

(Check one): ☑ INITIAL CERTIFICATE ☐ SUPPLEMENTAL CERTIFICATE

Notice: Please read rules 8.208 and 8.488 before completing this form. You may use this form for the initial certificate in an appeal when you file your brief or a prebriefing motion, application, or opposition to such a motion or application in the Court of Appeal, and when you file a petition for an extraordinary writ. You may also use this form as a supplemental certificate when you learn of changed or additional information that must be disclosed.

1. This form is being submitted on behalf of the following party (*name*): Center for Biological Diversity

2. a. ☑ There are no interested entities or persons that must be listed in this certificate under rule 8.208.

   b. ☐ Interested entities or persons required to be listed under rule 8.208 are as follows:

	Full name of interested entity or person	Nature of interest (Explain):
(1)		
(2)		
(3)		
(4)		
(5)		

☐ Continued on attachment 2.

The undersigned certifies that the above-listed persons or entities (corporations, partnerships, firms, or any other association, but not including government entities or their agencies) have either (1) an ownership interest of 10 percent or more in the party if it is an entity; or (2) a financial or other interest in the outcome of the proceeding that the justices should consider in determining whether to disqualify themselves, as defined in rule 8.208(e)(2).

Date: May 7, 2011

Adam Keats (TYPE OR PRINT NAME)

▶ Adam Keats (SIGNATURE OF PARTY OR ATTORNEY)

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1. This form is being submitted on behalf of the following party (*name*): Wishtoyo Foundation

2. a. [✓] There are no interested entities or persons that must be listed in this certificate under rule 8.208.

   b. [ ] Interested entities or persons required to be listed under rule 8.208 are as follows:

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1. This form is being submitted on behalf of the following party (*name*): Center on Race, Poverty, & the Environment

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1. This form is being submitted on behalf of the following party (*name*): Tricounty Watchdogs

2. a. ☑ There are no interested entities or persons that must be listed in this certificate under rule 8.208.

   b. ☐ Interested entities or persons required to be listed under rule 8.208 are as follows:

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Date: May 7, 2011

Adam Keats
(TYPE OR PRINT NAME)

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TABLE OF CONTENTS

INTRODUCTION 1

STATEMENT OF FACTS 3

APPLICABLE LAW 6

Environmental Review Under CEQA 6

Standard of Review Under CEQA *8*

ARGUMENT 10

I. WATER SUPPLY 10

A. The EIR Contains Insufficient Information 10

B. The EIR's Analysis is Limited to the First Few Years of Development 13

C. The Project Impermissibly Relies on Speculative Sources 17

II. CASTAC LAKE AND WATER QUALITY 19

A. Castac Lake Is Impermissibly Excluded From the Project Description 20

B. The EIR Avoids Analysis of Significant Impacts by Excluding Castac Lake 23

1. *The EIR Fails to Adequately Analyze Groundwater Pumping Impacts* 23

2. *The EIR Fails to Analyze Increased Flood Risks of the Filled Lake* 25

III. CALIFORNIA CONDOR 26

A. The EIR Mischaracterizes Essential Facts and Significant Impacts 26

1. *The EIR Mischaracterizes the Importance of Foraging Habitat to Condors* 26
2. *The EIR Uses the Ranchwide Agreement and HCP to Skew Its Analysis* 29
a. Use of the Ranchwide Agreement and TUMSHCP Precludes Informed Decisionmaking 29
b. The Ranchwide Agreement and TUMSCHP are Improperly Included in Cumulative Impacts Analysis 32
3. *The EIR Fails to Properly Analyze the Use of the Project Site by Condors* 33
B. The EIR Fails to Properly Analyze the Impacts of Artificial Feeding of Condors 34
C. The EIR Improperly Defers Analysis of Impacts Caused by Reductions in Grazing and Hunting 37
IV. CULTURAL RESOURCES 39
A. The EIR Contains Inadequate Descriptions of Native American Historic Sites 40
B. The EIR Fails to Disclose Information to Native Americans as Required 41
C. Respondents Failed to Adequately Consult with Trustee Agencies 44
D. The EIR Fails to Analyze Impacts to Significant Historic, Cultural, and Sacred Sites 44
E. The EIR Fails to Adequately Mitigate Significant Impacts on Cultural Resources 45
V. AIR QUALITY 47
A. The EIR Improperly Defers Mitigation for Air Quality Impacts 47

1. *The EIR's Analysis of the Significant Impacts to Air Quality is Inadequate* 48
2. *Mitigation Measures to Reduce the Emissions in the Deferred Program Have Not Yet Been Proposed* 51
3. *The EIR Cannot Ensure That Adequate Mitigation Measures Will Be Implemented to Meet Alleged Performance Standards* 53

CONCLUSION 56

TABLE OF AUTHORITIES

CASES

Association of Irritated Residents v. County of Madera
(2003) 107 Cal.App.4th 1383 ..... 26, 44

Bakersfield Citizens for Local Control v. City of Bakersfield
(2004) 124 Cal.App.4th 1184 ..... 17, 37

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(2001) 91 Cal.App.4th 1344 ..... 9, 28

Californians for Alternatives to Toxics v. Dept. of Food and Agric.
(2005) 136 Cal.App.4th 1. 9

City of Marina v. Board of Trustees of California State University
(2006) 39 Cal. 4th 341 49

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(2010) 184 Cal.App.4th 70. ..... passim

County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d 185 ..... 20, 22

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(1999) 70 Cal.App.4th 20 ..... passim

Environmental Protection Information Center, Inc. v. Johnson
(1985) 170 Cal.App.3d 604 ..... 43, 44

Gray v. County of Madera (2008) 167 Cal.App.4th 1099 31

Kings County Farm Bureau v. City of Hanford
(1990) 221 Cal.App.3d 692 ..... 12, 32, 48, 51

Laurel Heights Improvement Ass'n of San Francisco v. Regents of the University of California (1988) 47 Cal.3d 376..... 7, 44, 45

Mountain Lion Found. v. County of Kern (1997) 16 Cal.4th 105..... 7

Napa Citizens for Honest Gov't v. Napa County Bd. Of Supervisors

(2001) 91 Cal.App.4th 342 19
Planning and Conservation League v. Department of Water Resources
(2000) 83 Cal.App.4th 892 18
Riverwatch v. Olivenhain Mun. Water Dist.
(2009) 170 Cal.App.4th 1186 ..... 22, 26
Sacramento Old City Association v. City Council
(1991) 229 Cal.App.3d 1011 53
San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus
(1994) 27 Cal.App.4th 713 ..... 9, 22, 23
Santa Clarita Organization for Planning the Environment v. County of Los Angeles (2003) 106 Cal.App.4th 715 39
Santa Clarita Organization for Planning the Environment v. County of Los Angeles, (2007) 157 Cal.App.4th 149. 17
Santiago County Water Dist. v. County of Orange,
(1981) 118 Cal.App.3d 818. ..... 13, 22, 23
Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors
(2001) 87 Cal.App.4th 99 ..... 28, 36
Save Tara v. City of West Hollywood (2008) 45 Cal.4th 116. 8
Sierra Club v. State Bd. of Forestry (1999) 7 Cal.4th 1215..... 9, 26
Sierra Club v. West Side Irrigation Dist. (2005) 128 Cal.App.4th 690 33
Stanislaus Natural Heritage Project v. County of Stanislaus
(1996) 48 Cal.App.4th 182. 13
Sundstrom v. County of Mendocino (1988) 202 Cal.App.3d 296. 54
Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council (2010) 190 Cal.App.4th 1351 ..... 26, 36
Tuolumne County Citizens for Responsible Growth v. City of Sonora
(2007) 155 Cal.App.4th 1214 ..... 21, 23
Uphold Our Heritage v. Town of Woodside

(2007) 147 Cal.App.4th 587 37

Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova (2007) 40 Cal.4th 412 ..... passim

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Woodward Park Homeowners Assn., Inc. v. City of Fresno (2007) 150 Cal.App.4th 683 ..... 33, 36, 37

STATUTES

Gov. Code § 6254 43

Gov. Code § 6254.10 43

Gov. Code § 65352.4 44

Gov. Code § 66473.7 ..... 14, 15

Pub. Resources Code § 21001. 8

Pub. Resources Code § 21002 55

Pub. Resources Code § 21002.1. ..... 7, 49

Pub. Resources Code § 21080.4 44

Pub. Resources Code § 21082.2. ..... 9, 17, 37

Pub. Resources Code § 21092.5 44

Pub. Resources Code § 21100 45

Pub. Resources Code § 21104 44

Pub. Resources Code § 21153 44

Pub. Resources Code § 21168.5. 8

Pub. Resources Code § 5097.94 44

Pub. Resources Code § 5097.95 44

Public Resources Code § 5097.98 42

Water Code § 10910 ..... 13, 14, 15

OTHER AUTHORITIES

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REGULATIONS

Guidelines § 15002 32

Guidelines § 15040 44

Guidelines § 15064.5 ..... 41, 42, 43

Guidelines § 15065. ..... 7, 8, 32

Guidelines § 15082 20

Guidelines § 15086 44

Guidelines § 15088 36

Guidelines § 15124 20

Guidelines § 15126 ..... 31, 39

Guidelines § 15126.2 45

Guidelines § 15126.4 ..... passim

Guidelines § 15144 ..... 39, 51

Guidelines § 15355 32

Guidelines § 15358 39

Guidelines § 15378 22

Guidelines § 15384 55

Guidelines App. G § III 48

INTRODUCTION

In October of 2009, Respondents Kern County and its Board of Supervisors ("Respondents") approved Tejon Mountain Village ("TMV" or the "Project"), a massive luxury resort development to be located in the Tehachapi Mountains east of Interstate 5. Appellants, four public interest organizations composed of environmental advocates, environmental justice advocates, Native Americans and local residents ("Appellants"), challenged the approval of the Project for its violation of the California Environmental Quality Act ("CEQA") and the Government and Water Codes. A hearing was held before the Honorable Kenneth C. Twisselman, II, Judge of the Superior Court of Kern County, on November 5, 2005, with an order denying Appellants' petition for writ of mandate and judgment in favor of Respondents being entered on December 8, 2010. (CT 3:823.)[1] Notice of entry of the order was served on Appellants by mail on December 10, 2010, and filed with the Superior Court on December 13, 2010. (CT 3:852A.) The order being the final judgment of this matter, Appellants filed their Notice of Appeal on February 8, 2011. (CT 3:862.)

The TMV site is located on Tejon Ranch, the largest single privately-owed property in California. It is one of three major developments proposed for the ranch, which has been used almost exclusively for ranching, hunting, agriculture, and some mining for its entire post-colonial ownership. The property was historically home to several Native American tribes, all of whom were displaced and dispossessed of their homes in the latter part of

[1] Citations to the Clerk's Transcript on Appeal are in the format (CT[*volume number*]:[*page number*]); citations to the Administrative Record are in the format ([*volume number*]:[*page number*]).

the 19th century but whose burial sites, ruins of villages, and other cultural resources still remain.

Much of Tejon Ranch, including all of the TMV site, has even longer been home to the California condor, one of the world's most endangered species and the subject of one of this country's greatest and most expensive wildlife recovery efforts. Its operation as a cattle ranch and hunting grounds—and its concomitant lack of development—is largely responsible for the continued survival of the last remaining condors before the start of the recovery program.

The rugged and steep Project site, sitting in the confluence of three major valleys, connecting three separate mountain ranges, and straddling multiple earthquake faults including the San Andreas, has for years resisted much of the urban growth and industrial agriculture pressures borne by surrounding areas. Despite these impediments, along with the site's sharing of three of the most polluted air districts in the state and its being nearly devoid of reliable natural surface water, Tejon Ranch now seeks to capitalize on its investment and build a sprawling luxury golf and vacation-home resort on nearly 26,000 acres in the heart of the ranch.

The TMV proposal, so dependent on the aesthetic appeal of its beautiful and wild surroundings, would sadly destroy most of those qualities: laundering water in its water banks to secure short-term entitlements; unsustainably pumping groundwater to keep its signature Castac Lake full of glistening water; replacing prime condor foraging habitat with a controlled, artificial feeding program; adding thousands of vehicle trips and their exhaust to an already overburdened and polluted region; destroying dozens of Native American cultural sites, many or most of which are now unknown to the area's Native Americans themselves; and placing

thousands of people in harm's way in an area known almost as much for its parched, tinderbox landscape as it is for its condors and "Grapevine" of a highway.

Respondents' approval of the Project, through their certification of the Project's Environmental Impact Report ("EIR") and granting of other approvals, violated CEQA, the Water Code, Government Code, and failed to comply with the procedures required by law. The trial court should be instructed to set aside the Project approval and the EIR and order that Respondents and Real Parties in Interest be barred from acting to implement the Project unless and until Respondents prepare and circulate for public comment a legally adequate EIR.

STATEMENT OF FACTS

The Tejon Mountain Village project is located entirely on land owned by the Tejon Ranch Company, approximately 60 miles north of Los Angeles and 40 miles south of Bakersfield just east of Interstate 5. (12:3435.) The Project site consists of approximately 26,417 acres of mixed terrain, including steep and rugged hillsides and ridgelines, oak woodlands, and savannah grasslands. (13:3621.) It is currently undeveloped, being used primarily as open ranchland but also for hunting and film production. (13:3624.) The Project would consist of 3,450 residences, up to 160,000 square feet of commercial development, two golf courses, riding and hiking trails, two helipads, community centers, and various assorted utility and infrastructure facilities. (13:3621.) The Project would be primarily a low-density development, scattering approximately 7,867 acres of developed land throughout the 26,417 acre Specific Plan site. The remaining 21,335

acres would remain ranchlands and various degrees of open space. (13:3629-33.)

TMV will require 2,900 acre-feet per year ("AFY") of water; approximately 2,100 AFY of potable water and 800 AFY of non-potable water. (75:21738.) The EIR, relying heavily on a Water Supply Assessment ("WSA") prepared by the Tejon-Castac Water District ("TCWD"), identifies three sources for this water: the State Water Project, stockpiled water in water banks, and recycled water from a yet-to-be-built facility. (17:5048, 81:23393-94.) Both the stockpiled water in the water banks and the recycled water from the treatment facility will come from the State Water Project ("SWP"), resulting in the Project's exclusive reliance on the state water delivery system that has long ago exceeded its ability to meet demand. TCWD's creative use of water banking and recycling allows it to claim that its (optimistic) average deliveries of 2,826 to 3,483 acre-feet per year will reliably satisfy its demands of 4,102 acre-feet per year. (17:5050; 83:24143.)

The Project's boundaries have been drawn to exclude yet surround Castac Lake, a natural but artificially maintained water body that provides the Project one of its primary geographical features. (16-4694-95; 13:3626.) The lake is located in the southwest portion of the Project site, adjacent to the Project's main entrance road. (*Id*.) Castac Lake's natural water level varies widely depending on the season and drought conditions, but since 2001 Tejon Ranch Company has been artificially maintaining the levels of the lake by discharging groundwater into the lakebed, as well as engaging in other management such as aeration. (16:4694.) The lake was originally included in the Project description when the Notice of Preparation ("NOP") was issued; the filled lake has been expressly linked to the planned

recreational components and aesthetic characteristics of the Project ever since. (18:5295; 133:38125-26.) After various commenters expressed concerns with the Project's pumping of groundwater in order to maintain the lake, however, the boundaries of the Project were redrawn to exclude the lake. (16:4698; 79:22943.) The Project applicant claimed that the lake was excluded to "improve the environmental 'footprint' of the TMV project," as "the lake itself was identified as a significant resource that should be avoided by the project." (89:25767.)

The TMV site sits at the heart of ancient and current habitat for the California condor, considered so important to the survival of the species that much of it has been designated as Critical Habitat by the U.S. Fish and Wildlife Service. (41:12164.) The California condor is one of the world's most endangered and iconic species, with a total of 327 birds in existence, 167 of which are in the wild, and 84 of which are in California. (41:12133.) The TMV site is located at the lynchpin of the two halves of the species' historical habitat (136:38780) and to this day it remains vital foraging habitat for the species. (136:38799-800.)

Tejon Ranch contains the former communities, ancestral homes, sacred places, burial sites, and historical remains of the Chumash, Kaiawasu, Kitanemuk, and Yolumne Native Americans. (83:23901-02.) Over a century after they were forcibly evicted by the Ranch, these Tribes retain strong cultural and religious attachments to the area in and around the Project development envelope. (83:23901.) The Project site includes several important cultural and historical resources important to Native Americans, including the "Huerta de Arriba" (the high orchard) cemetery on Paso Creek (135:38601; 135:38555); the historic Native American schoolhouse (135:38552-53; 135:38555; 135:38601-02); the Tejon Creek

cemetery (135:38555; 135:38601-02); the Native American village of Kashtiq, now apparently submerged by Castac Lake (83:23903, 83:23916-20.); and finally, the traditional Chumash, Kaiawasu, Kitanemuk, and Yowlumne Native American cultural landscapes which include the villages and associated sacred sites and burial sites and historical inter-community passageways including the "Ridge Route" chronicled by Bonnie Ketter Kane (83:23902; 83:23946) and the Castaic Creek Trail (83:23918) with their natural viewscapes scattered within and outside the TMV development envelope. (135:38552-55; 135:38600-03.)

The Project sits at the juncture of three of California's most polluted air basins: the San Joaquin Valley Air Basin ("San Joaquin Air Basin"), South Coast Air Basin ("SCAB"), and Mojave Desert Air Basin ("Mojave Air Basin"). (13: 3760). All three air basins are designated as "nonattainment" for ozone and particulate matter ("PM"), pollutants regulated under Clean Air Act's federal and state ambient air quality standards. (13:3767-9).

On September 10, 2009, the Kern County Planning Commission held a public hearing regarding the Project, recommending approval by a vote of 3 in favor to 2 against. On October 5, 2009, Respondent Kern County Board of Supervisors held a public hearing on the Planning Commission's recommendation, unanimously voting to approve the Project, approve and certify the EIR, and approve the associated resolutions, ordinances, maps, and plan amendments. A Notice of Determination was filed on October 13, 2009, with the Kern County Clerk, who posted it on October 14, 2009. (1:1-3.)

APPLICABLE LAW

Environmental Review Under CEQA

"CEQA is a comprehensive scheme designed to provide long-term protection to the environment." (*Mountain Lion Found. v. County of Kern* (1997) 16 Cal.4th 105, 112.) Environmental protection is the guiding concept in interpreting CEQA. "The foremost principle under CEQA is that the Legislature intended the act 'to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" (*Laurel Heights Improvement Ass'n of San Francisco v. Regents of the University of California* (1988) 47 Cal.3d 376, 390 ("*Laurel Heights*") [citation omitted].)

"The EIR is the primary means of achieving the Legislature's considered declaration that it is the policy of the state to 'take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.'" (*Laurel Heights*, 47 Cal.3d at 392 [citation omitted].) "The EIR is also intended to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action." (*Id.*) Thus, the EIR is an accountability document and the EIR process "protects the environment but also informed self-government." (*Id.*)

An EIR must identify the significant effects on the environment of a project, identify alternatives to the project, and indicate the manner in which those significant effects can be mitigated or avoided. (Pub. Resources Code § 21002.1(a).) A project may also have a significant effect on the environment where the project's environmental effects are "individually limited but cumulatively considerable." (CEQA Guidelines, 14 Cal. Code Regs. (hereinafter "Guidelines") § 15065(a)(3).) Public agencies may not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen or avoid the

project's significant environment effects. (Pub. Resources Code § 21001; Guidelines § 15065(c)(3).)

Standard of Review Under CEQA

In evaluating an EIR for CEQA compliance, a reviewing court must determine whether the agency has prejudicially abused its discretion. (Pub. Resources Code § 21168.5.) "An abuse of discretion is established if the agency has not proceeded in a manner required by law or if the determination or decision is not supported by substantial evidence." (*Id.*) The California Supreme Court has clarified that there are two distinct grounds for finding that the agency abused its discretion under CEQA, each of which has a significantly different standard for determining error. (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435 ("*Vineyard Area Citizens*"); *Save Tara v. City of West Hollywood* (2008) 45 Cal.4th 116, 131.) "In evaluating an EIR for CEQA compliance … a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens*, 40 Cal.4th at 435.)

Challenges to an agency's failure to proceed in the manner required by CEQA, such as the failure to address a subject required to be covered in an EIR or to disclose information about a project's environmental effects, are subject to a less deferential standard than challenges to an agency's substantive factual conclusions. (*Vineyard Area Citizens*, 40 Cal.4th at 435.) In reviewing these claims, the court must "determine de novo whether the agency has employed the correct procedures, 'scrupulously enforc[ing] all legislatively mandated CEQA requirements.'" (*Id.*) In reviewing whether the agency proceeded in the manner required by CEQA,

the court must determine whether the EIR is sufficient as an informational document. (*Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 26.) Thus, as a matter of law, courts reject EIRs that do not "provide certain information mandated by CEQA and [] include that information in the environmental analysis." (*Vineyard Area Citizens*, 40 Cal.4th at 435; *see also Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 83 ("*Richmond*") [conclusion the project would not result in capacity to process lower quality crude oil not adequately supported by facts and analysis]; *Berkeley Keep Jets Over the Bay Com. v. Board of Port Cmrs.* (2001) 91 Cal.App.4th 1344, 1371 ("*Berkeley Keep Jets*") [EIR failed to support conclusory statements with scientific or objective data]; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 729; *Sierra Club v. State Bd. of Forestry* (1999) 7 Cal.4th 1215, 1236.)

The substantial evidence standard of review applies to factual disputes such as a dispute over a finding that mitigation measures adequately mitigate project impacts. (*Vineyard Area Citizens*, 40 Cal.4th at 435.) While a court reviewing an agency's decisions under CEQA does not pass on the correctness of an EIR's environmental conclusions, it must determine whether these conclusions are supported by substantial evidence, which includes "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts" and excludes "[a]rgument, speculation, unsubstantiated opinion or narrative, [and] evidence which is clearly inaccurate or erroneous…" (Pub. Resources Code § 21082.2(c); *see also Californians for Alternatives to Toxics v. Dept. of Food and Agric.* (2005) 136 Cal.App.4th 1, 17 ["[C]onclusory statements do not fit the CEQA bill."].)

ARGUMENT

I. WATER SUPPLY

An EIR's analysis of a Project's water supply must meet each of four criteria set forth in *Vineyard Area Citizens* to comply with CEQA:

> (1) Decision makers must be presented with sufficient facts to evaluate the pros and cons of supplying the amount of water that the project will need;
>
> (2) The analysis cannot be limited to the first stage or the first few years;
>
> (3) Future water supplies identified and analyzed must bear a likelihood of actually proving available; speculative sources and unrealistic allocations ('paper water') are insufficient bases for decisionmaking under CEQA;
>
> (4) If it is "impossible to confidently determine that anticipated future water sources will be available, CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies.

(*Vineyard Area Citizens*, 40 Cal.4th at 430-432.)

The EIR fails to satisfy the *Vineyard* requirements, resulting in an analysis of the Project's water supply that fails to comply with CEQA and that is not supported by substantial evidence.

A. The EIR Contains Insufficient Water Supply Information

The first prong of the *Vineyard Area Citizens* analysis requires the EIR to disclose and analyze sufficient facts to evaluate the pros and cons of supplying the amount of water that the project will need. (*Vineyard Area Citizens*, 40 Cal.4th at 430-431.) The EIR did not satisfy this requirement for several reasons. First, neither the Draft EIR nor the WSA reveal that Tejon Ranch Corp., the land owner and primary proponent of the Project, completely controls TCWD, the author of the WSA. (17:5034; 17:5037-38 [EIR's description of TCWD with no mention of Tejon Ranch Corp.];

75:21736-37 [WSA's description of TCWD with no mention of Tejon Ranch Corp.].) Second, the EIR fails to provide sufficient information regarding the source of the water banked water.

Several commenters raised the issue of Tejon Ranch's control of TCWD, warning that it called into question the usefulness of the WSA and created a heightened obligation by Respondents to independently assess the project's water supply. (135:38694-95; 81:23523; 170:47996-97.) The EIR's responses were evasive, failing to admit that the allegations of Tejon Ranch's control were true and ducking behind an irrelevant discussion of California's conflict of interest laws. (128:36692-93; 82:23647-48.) It was not until the final Board of Supervisors' hearing, when the project was approved and the FEIR certified, that Respondents finally admitted to Tejon Ranch's complete control of TCWD. (170:48074-75 [discussion at Board of Supervisors hearing][2].)

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[4] *Supervisor Watson, questioning a representative of TCWD*: "Mr. Conant, while you're up there, I just happened to think of a comment that was made much earlier today, and that has to do with the relationship of Tejon Ranch to the water district up there. Could you elaborate on that?"
Mr. Conant: "Like any water district in the state that's based on landowner voting, that is the landowners select the Board; the landowners in Tejon-Castac elect the Board. And so there's nothing unique about that. There are representatives, of course, of Tejon Ranch on the Board of Directors. The approach that we took in preparing this water supply assessment was to ensure that it received a lot of scrutiny from the very beginning, including involvement of County Planning, the Kern County Water Agency, and others under, you know, my supervision to ensure that it was done in a conservative, straightforward approach."
Supervisor Watson: "Mr. Conant, are there board members who are not employees of Tejon Ranch?"
Mr. Conant: "There are not."
Supervisor McQuiston: "Thank you."
(170:48074-75.)

By hiding Tejon's control of the water district, Respondents failed this essential first prong of the *Vineyard* analysis, and therefore failed to proceed in a manner required by CEQA. This misled the public and decisionmakers into thinking that there was independent support for the EIR's assessment of the Project's water supply. (*See Kings County Farm Bureau v. City of Hanford*, (1990) 221 Cal.App.3d 692, 718 ["The misleading nature of the discussion and the failure to include relevant evidence… related to the project renders the EIR inadequate as an informational document."].) But TCWD is not an "independent" public agency—it is controlled by the Project applicant. Without disclosing these important facts, it was impossible for the public or decisionmakers to make an informed decision regarding the Project's water supply or the impacts that supplying that water will cause.

Respondents also fail to provide sufficient information regarding the source of water that will replenish the water banks. The EIR's use of water banking as a significant source of water for a permanent housing development is novel, and raises legitimate and serious questions about the Project's long term water supply.[3] A water bank is not truly a "supply," as it is nothing more than a temporary storage facility for a finite amount of water, not a naturally replenishing aquifer, reservoir, spring, or river. A water bank is thus only as good as is its own supply of water, and without assurances that these supplies exist—and that the public agency has fully

[3] These questions were asked of Respondents (81:23529-30), who assured the skeptical public that they fully analyzed the Project's water supply needs for the next 82 years and that these supplies were more than adequate. (82:23658.) As described below, this assurance is not supported by the evidence.

analyzed these supplies—banked water cannot be properly considered for a project's long-term supply. (*Vineyard Area Citizens*, 40 Cal.4th at 431.) The EIR states generally that the water banks will be replenished during wetter years (75:21754), but offers insufficient details and no guarantees of replenishment beyond a 7-year reserve of potable water. (2:305.) Significantly, while the EIR conclusively states that TCWD "holds contractual rights to SWP water" (75:21743) and that it holds "rights to receive a maximum of 5,278 AFY of SWP Table A Water" (75:21745), neither these contracts nor any other "proof of entitlement" are contained in the WSA, in violation of the Water Code. (Water Code § 10910 (d)(1) and (2).)

B. The EIR's Analysis is Limited to the First Few Years of Development

The second prong of the *Vineyard Area Citizens* analysis requires that an EIR's analysis of a project's water supply not be limited to the first stage or the first few years, but rather "must assume that all phases of the project will eventually be built and will need water, and must analyze, to the extent reasonably possible, the impacts of providing water to the entire project." (*Vineyard Area Citizens*, 40 Cal.4th at 431 *citing Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal.App.4th 182, 206.) The EIR must enable decision-makers to "evaluate the pros and cons of supplying the amount of water that the [project] will need." (*Id.*, *quoting Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829.) An assessment of a project's water supplies thus cannot be artificially limited in time: "the entire project" must assume the entire

lifespan of the project, to the extent that an analysis of it is reasonably possible.[4]

Here, the EIR limits its analysis to the first 20 years:

> …TCWD would have sufficient water supplies to meet the project demands… throughout the 20-year analysis period. …The analysis of TCWD's available water supplies under applicable California Water Code criteria and additional conservative assumptions demonstrates that the District has sufficient water resources to meet the project's demands in normal, dry-year, and multiple-dry-year conditions over a 20-year period.
>
> (17:5053.)[5]

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[4] This is supported by the Water Code, which requires that a WSA assess whether the "total projected water supplies…will meet the projected water demand associated with the proposed project" (Water Code § 10910 (c)(3) and (4)), as well as the Government Code, which requires that subdivisions be approved only if they prove that they have a sufficient water supply "that will meet the projected demand associated with the proposed subdivision." (Gov. Code § 66473.7 (b)(3).)

[5] The EIR is replete with references to its 20-year analysis; *see* 17:5047 ["California Water Code Section 10910 et seq. requires an analysis of the sufficiency of a project's water supplies over a 20-year period...]; 17:5048 ["Significant factors that could affect TCWD's water supplies during the 20-year analysis period required by the California Water Code include…"]; 17:5049 ["The analysis assumed that TCWD would be required to meet full-buildout demand for both projects in the first year of the 20-year analysis period."]; 17:5050 ["If average-year deliveries were maintained throughout the 20-year analysis period…"]; 17:5050 [Table 4.16-4, showing analysis from 2008-2028]; 17:5051 [Table 4.16-5, showing analysis from 2008-2028]; 17:5053 ["…TCWD would have sufficient water supplies to meet the project demands…throughout the 20-year analysis period. …The analysis of TCWD's available water supplies under applicable California Water Code criteria and additional conservative assumptions demonstrates that the District has sufficient water resources to meet the project's demands in normal, dry-year, and multiple-dry-year conditions over a 20-year period."]; 82:23661 ["A 20-year water supply analysis is specifically mandated by Water Code Section 10910(c)(3) for CEQA purposes. There is no requirement in the Water Code or in CEQA

The EIR erroneously interprets the Water Code's requirement that a "20-year projection" be included in water supply assessments as defining the maximum that the EIR is required to demonstrate and discuss. (Water Code § 10910 (c) and (d); *see* 82:23661; 75:21759-60 [WSA Tables 11 and 12 assuming 20 year supply]; *see also* FN 5, above.) Section 10910 of the Water Code is meant to ensure that a water supply assessment will properly consider California's periodic drought and surplus cycles, as a 20-year projection should sufficiently include these high and low periods. But this provision should not be read to limit the requirements (found in CEQA, Water Code § 10910 (c)(3) and (4), and Gov. Code § 66473.7 (b)(3)) that water supply assessments and EIRs analyze the total water needs of the entire project. At the minimum, Respondents' statement that "[a] 20-year water supply analysis is specifically mandated by Water Code Section 10910(c)(3) for CEQA purposes," (82:23661) is in error, as CEQA clearly requires more. (*Vineyard Area Citizens*, 40 Cal.4th at 431.)

This is an important issue because this Project relies so heavily on banked water for its supply. Although the WSA's figures show a net bank surplus over a twenty year period (assuming overly-optimistic average year SWP deliveries of about 3,325 AFY), the more reasonable figures supplied in the responses to comments that attempt to consider endangered species and climate change issues show a net loss of water bank water—even assuming average-year deliveries. (17:5050 [Table 4.16-4]; 83:24143 [Table A].) The net loss of water banked water is far greater in the single-

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that water supplies be 'available on an insurable basis' for any time period or in any manner to certify an EIR."]; 83:24143; 128:36691 ["the analysis shows that TCWD can meet all future requirements, including Project demand, over the 20-year period required by the Water Code and CEQA."].

dry and multi-year drought analyses that follow. (83:24144-45 [Table B and C].) By limiting their analyses to 20 years, the WSA and EIR avoid answering the difficult and essential questions of how long the water banked water will last over the lifespan of the Project and whether it will be a sustainable, replenishing source.[6]

The EIR claims that its analysis actually extends for 82 years, based on its use of the "CalSim II" model. (82:23658 ["model was used to project TCWD water supplies over the 82-year period..."]; 83:24073; 128:36691; 128:36697.) But CalSim II was not used to analyze 82 years of the Project's water supply needs; it was used only to determine the "most significant factors that may affect TCWD's supplies during the twenty-year analysis period..." (75:21754.) In other words, CalSim II was used to help form the required range of possibilities that might occur during the 20-year projection:

> The CalSim II model was utilized by KCWA at the request of TCWD to provide the statistical basis for analyzing potential hydrological conditions during average years, a single dry year, and multiple dry years in this WSA.
>
> (75:21755; *see also* 17:5048; 75:21754-63.)

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[6] Another problem with the analysis is that it misleadingly uses inappropriate starting volumes of stockpiled water for each of its models. Table B suggests that this figure is 15,077 acre feet, and then confidently states that five different modeled single-dry years won't appreciably change this figure, while Figure C starts with 19,813 acre feet and shows the bank being reduced to 15,692 after 4 years. (83:24144-45.) Although the WSA asserts that TCWD has currently stockpiled 29,728 acre feet of water (75:21748), the only reasonably assured stockpile available at any given time in the future is 7,000 acre feet. (2:305 [MM 4.16-5].) By using inflated amounts of 15,077 acre feet and 19,813 acre feet rather than 7,000 acre feet, the model prevents an accurate assessment of the water banks' ability to supply water to the Project.

This limited use of CalSim II is demonstrated clearly in Table 10 of the WSA, which lists these estimated delivery percentages and shows the years within the *historical* 82-year period on which they are based. (75:21756.)

There is simply no evidence that the EIR or the WSA analyzed the project's water supply needs beyond twenty years. The responses to comments (82:23658; 83:24073; 128:36697) point to WSA Tables 12, 13, and 14 and EIR Tables 4.16-5, 4.16-6, and 4.16-7 as evidence of the 82-year analysis, but these tables only prove the above point: Tables 12 / 4.16-5 show single dry year projections over a 20-year period (75:21760, 17:5051); Tables 13 / 4.16-6 show a 4-year multi-year drought analysis based on 1931-34 conditions (75:21761; 17:5052), and Tables 14 / 4.16-7 show six years of water bank reserves based on 1987-92 conditions. (75:21762; 17:5052.) The EIR's lack of any evidence or support for its conclusions regarding the Project's supposed "82-year water supply" constitutes a clear violation of CEQA. (Pub. Resources Code § 21082.2 (c); *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1198.)

C. The Project Impermissibly Relies on Speculative Sources

The third prong of the *Vineyard Area Citizens* analysis prohibits a project from relying on speculative sources and unrealistic allocations. (*Vineyard Area Citizens*, 40 Cal. 4th at 432; *Santa Clarita Organization for Planning the Environment v. County of Los Angeles*, (2007) 157 Cal.App.4th 149, 158-159.) According to the EIR, TMV will use 1,158 AFY of recycled water that will be supplied by a wastewater reclamation facility to be built by TCWD. (17:5050; 17:5054-56.) But with no enforceable mechanism to

ensure that this facility will actually be built, the inclusion of recycled water from this source is paper water, representing nothing more than the "hopes and dreams" of Respondents. (*Planning and Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 919.)

The EIR discusses the wastewater reclamation facility in numerous places, but contains no provisions ensuring that it will actually be built. (*See* 1:303-307; 13:3672-77; 17:5054-56; 75:21860-77; 80:23087-91.) The Project is not conditioned on construction of the wastewater reclamation facility, and the EIR specifically acknowledges that it contains no guarantees for funding the construction of the facility. (82:23665 ["…the facilities will be expanded as necessary to accommodate increased service requirements. …[a]s a result, no bonding or other financial security is necessary to ensure that the wastewater and water treatment facilities required by the Project will be constructed…"].) And although there is a conceptual plan for the facility (75:21860-77), there is only minimal information provided for its location within the Project site (13:3677) and even this is just hypothetical, as the "location of facilities may deviate from the conceptual plan due to site-specific physical constraints and land use considerations." (13:3675.)

The wastewater reclamation facility is important because it provides a very large portion of the Project's water supply already stretched to an extreme through its use of water banking. (17:5050.) Without the facility, the Project will not have a reliable water supply, especially after endangered species and climate change considerations are taken into account. (17:5050; 83:24143-45 [Tables A, B, and C].) This creates a justifiable fear that the Project will ultimately rely on alternate water supplies, the impacts of which

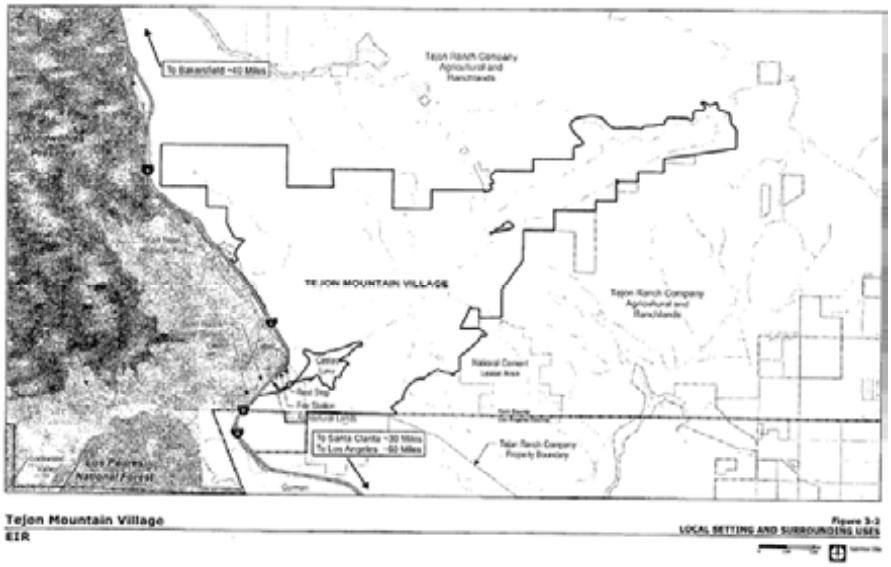
were either not analyzed in the EIR or are determined to be infeasible. (75:21767-70.)

The provisioning of recycled water and wastewater treatment for TMV is of greater uncertainty than the measures found inadequate in *Napa Citizens.* (*Napa Citizens for Honest Gov't v. Napa County Bd. Of Supervisors (2001)* 91 Cal.App.4th 342, 373.) Even though the project in that case had already contracted with an existing wastewater facility, the court concluded that the EIR was deficient for failing to discuss the possibility that it might become necessary to treat wastewater elsewhere while the additional facilities were constructed. (*Id*.) In the present case, TMV lacks both a present-day facility with which to contract for the water and provisions to supply water in the interim from elsewhere. Further, the timeline of development assures that the Project's golf courses will require their full allotment of water (792 AFY) before the Project reaches full build-out and produces an equivalent amount of reclaimed water, meaning the golf courses will have to use potable water for irrigation, further depleting the projected SWP supplies beyond the forecasts in the WSA and EIR. (75:21750 [WSA explaining that the 800 AFY of recycled water available at full build-out is for supplying the 792 AFY required for the golf courses].) By assuming the TMV wastewater facility will be built despite a lack of firm assurances, the water to be supplied by the wastewater treatment facility is nothing more than a speculative source.

II. CASTAC LAKE AND WATER QUALITY

The Project's heaviest concentration of development –including most of the Project's commercial and public facilities—will envelop Castac Lake and the immediate vicinity. (12:3441; 133:38125-26 [comments describing

EIR, Figure 1-3].) Castac Lake is an integral part of the Project, being both within the Project's "geographical boundaries" and quite obviously one of the Project's chief "environmental characteristics." (Guidelines §§ 15124 (a) and (c), 15378(a); *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192 ("*County of Inyo*").) But rather than properly including Castac Lake as part of the Project and fully analyzing the impacts of the lake management activities in the EIR, the boundaries of the Project were gerrymandered to exclude the lake:



(13:3626.)

A. Castac Lake Is Impermissibly Excluded From the Project Description

CEQA encourages an applicant to revise a project after receiving comments about potential impacts (*see* Guidelines § 15082(b)), but rather than actually addressing the concerns raised by the management of the lake, the exclusion of the lake from the Project reflects a calculated attempt to avoid disclosure and analysis of significant Project impacts.

The EIR claims that pumping groundwater in order to maintain the lake at high levels is an activity unrelated to the Project (79:22949), but this is unconvincing. The management of the lake and the Project are not "independently justified, separate projects with different project proponents[,]" but "are piecemealed components of the same project." (*Richmond*, 184 Cal.App.4th 70, 99.) Though the two activities might theoretically be independent, that alone is not sufficient "for segmenting the environmental analysis of the two matters." (*Tuolumne County Citizens for Responsible Growth v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1230.) A demonstration of independence must be based "on what is actually happening." (*Id.*)

Tejon Ranch's filling of the lake was and is in anticipation of and for the benefit of the Project. The use of groundwater to stabilize lake levels has direct and important benefits to the Project, including reducing flood risks, reducing alkali dust, providing a source of water for fire fighting, and avoiding "potential adverse consequences to Ranch access" caused by fluctuating lake levels. (79:22950-51.) The artificially-filled lake also provides clear aesthetic benefits to current Project plans, including the Project's detailed lakeside open space and trail amenities that depend on the filled lake. (79:22950; 13:3673.) As Tejon Ranch CEO Bob Stine admitted, this aesthetically-pleasing condition of the lake was specifically produced for the benefit of the Project. (133:38126.) The reasons for maintaining lake levels demonstrate that "a larger project was contemplated and the County is chopping it up into smaller projects rather than dealing with it as a total 'program.'" (*City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1454.)

The EIR further demonstrates this interrelationship by containing several specific mitigation measures that alter the current management of the lake, including that it be kept at a level no more than 3,500 feet to provide for additional flood storage (lowering its level by 3 feet (81:23344); that flood control berms be constructed; and that various culverts be raised and redesigned in order to provide flood control benefits. (1:269-270; *see also* 89:25765.) Finally, although the EIR claims that "swimming or other contact recreational activity shall be permanently prohibited in Castac Lake," (2:539) "[r]esidents of [TMV], like other Mountain Community residents, will have access to the Lake only through [Tejon Ranch Co.] or the Tejon Ranch Conservancy." (79:22950.) In other words, aside from swimming, recreational use of the lake—such as boating—has not been prohibited; its management has merely been shifted from one Tejon entity (TMV) to another Tejon entity (Tejon Ranch Co. or Tejon Ranch Conservancy) in order to avoid the environmental review required by CEQA.

Because management of Castac Lake is part of the Project, the lake must be included in the Project description. (Guidelines § 15378(a); *Riverwatch v. Olivenhain Mun. Water Dist.* (2009) 170 Cal.App.4th 1186, 1201 ["If a final EIR does not 'adequately apprise all interested parties of the true scope of the project …,' informed decisionmaking cannot occur under CEQA and the final EIR is inadequate as a matter of law."]; *County of Inyo*, 71 Cal.App.3d at 192 ["A curtailed or distorted project description may stultify the objectives of the reporting process."]; *Santiago County Water Dist.*, 118 Cal.App.3d at 829; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730.) Whether certain activities constitute "the 'whole of an action'…is a question of law that

appellate courts independently decide based on the undisputed facts in the record." (*Tuolumne,*155 Cal.App.4th at 1224.)

B. The EIR Avoids Analysis of Significant Impacts by Excluding Castac Lake

Due to the EIR's failure to provide a complete and accurate project description that includes Castac Lake, the EIR avoids the required disclosure and analysis of the Project's significant environmental impacts. (*See, e.g.*, *Santiago County Water Dist.*, 118 Cal.App.3d at 829 [inadequate project description leads to inadequate discussion of impacts]; *San Joaquin Raptor*, 27 Cal.App.4th at 730.) These impacts include the heavy use of the area's groundwater to artificially maintain the lake and the increased risk of flooding of the lake and points downstream due both to the increased runoff from the project and the maintenance of artificially high lake levels.

1. The EIR Fails to Adequately Analyze Groundwater Pumping Impacts

The maintenance of the lake at an artificially high level has required pumping of copious amounts of groundwater: 1,500 acre-feet in 2002, 400 acre-feet in 2003, and 1,300 acre-feet in 2004. (16:4694.) TMV's extraction of groundwater was a major concern for many commenters, including several agencies and neighboring residents of communities dependent on the same groundwater basin for their water supply. (*See* 80:23272 [comments by Regional Water Quality Control Board]; 81:23343 [comments by Kern County Engineering Department]; 81:23505-16.) The EIR's primary response to these concerns is to repeatedly emphasize that the maintenance of Castac Lake, including the pumping of groundwater, is not part of the Project and need not be analyzed in the EIR. (79:22943-58; 80:23282-83.)

The EIR nonetheless does provide some analysis in its responses, but this analysis raises more questions than it answers, emphasizing the need for a full analysis of the impacts that would be afforded if the lake was properly part of the Project and the EIR. For example, the EIR cites to figures from a 2006 report commissioned by Tejon Ranch (Stetson) for the proposition that the groundwater pumping for Castac Lake is sustainable. (81:23376.) But this proposition relies on the continuation of average historic groundwater pumping rates from the Tejon Basin between 1940 and 2004. (81:23376.) By relying on historic rates over this period, the EIR fails to consider the cumulative effects in light of anticipated future withdrawals.

Moreover, though the EIR relies on Stetson, the report itself expressly rejects the claim that groundwater pumping for Castac Lake is sustainable. For its estimated lower range of groundwater withdrawals, the EIR cites Stetson's finding that TRC pumped an average of 740 AFY between 1940 and 2004. *Id*. Stetson, however, also estimated that TRC would or presently does extract an average of 1,026 AFY. (330:90219.) The EIR ignores this figure without explanation. The EIR also ignores anticipated groundwater extraction by other proposed developments in the area—including the nearby proposed Frazier Park Estates—that will further deplete the neighboring water tables. (330:90010 [downward gradient supplies "Tejon Lake" aquifer from neighboring aquifers].) Relying on historic withdrawals, the EIR states that estimated pumping rates from the Tejon Basin are as low as 1,345 AFY, which it notes is within Stetson's estimated perennial yield of the basin (1,950 AFY to 2450 AFY). (81:23376.) But Stetson estimates that total future pumping would be 2,499 AFY, exceeding the estimated perennial yield. (330:90219.)

Properly including Castac Lake as part of the Project would reveal the true extent of Tejon Ranch's past groundwater pumping and provide an opportunity to ensure that future extractions will not overdraw the basin—a scenario Tejon Ranch so desperately sought to avoid it was willing to gerrymander the borders of its Project.

2. The EIR Fails to Analyze Increased Flood Risks of the Filled Lake

The filling of Castac Lake combined with the run-off caused by TMV impermissibly increases the flood risk for TMV and surrounding areas. (16:4719.) California Department of Parks and Recreation expressed concern over increased flood risk to Fort Tejon State Park caused by the lake and TMV's development; a concern with merit considering damage the park suffered in 2005 due to Castac Lake's flooding. (80:23199; 133:38132-33.) Likewise, Kern County's Engineering Department warned that TMV's development will exacerbate flood risk to Castac Lake, and that the lake's filling has significantly reduced the flooding storage capability. (81:23343.) Yet the EIR's primary response to these concerns is that the lake is outside the Project area. (80:23208.)

Indeed, the EIR's own calculations demonstrate that construction of TMV will cause increased flooding of Castac Lake, which has already occurred twice since the lake level was artificially raised in 2001. (16:4694.) The EIR states that the lake is maintained at 3,503 feet, that flooding occurs at 3,505 feet (16:4694) and that run-off will double without mitigation from 1,216 to 2,527 acre-feet. (16:4719.) Though the EIR purports to address flood risks, it only considers impacts associated with future Project construction. (1:268-270 [noting that the Project could result in flooding impacts due to certain drainage modifications].) The EIR fails to

discuss flooding impacts caused by the artificial filling of the lake itself or how these impacts will be mitigated.

The EIR's failure to disclose and analyze the high-impact maintenance of the lake by the Project proponents, with its increased flood risks and unsustainable drawing down of the regional aquifer, constitutes a failure to proceed in the manner required by law by precluding informed public participation. (*See Sierra Club*, 7 Cal.4th at 1236; *Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351, 1383; *Riverwatch*, 170 Cal.App.4th at 1201; *Ass'n of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1391.)

III. CALIFORNIA CONDOR

The EIR promises to mitigate all of the Project's impacts to condors to a less-than-significant level, but it ignores and improperly downplays these impacts, while still failing to adequately mitigate them. In so doing, it fails to be the informational document CEQA requires. (*Dry Creek Citizens*, 70 Cal.App.4th at 26.) The EIR fails to clearly admit or properly analyze the sad trade-off the Project proposes: the destruction of thousands of acres of some of the most important foraging habitat of one of the world's most endangered species in exchange for 50 years of artificial food subsidies that will condemn the species to a permanent zoo-like existence. (165:46810; 165:46840.)

A. The EIR Mischaracterizes Essential Facts and Significant Impacts

1. The EIR Mischaracterizes the Importance of Foraging Habitat to Condors

The EIR repeatedly declares that "the USFWS [U.S. Fish and Wildlife Service] does not consider the loss of foraging habitat as a limiting factor with respect to condor recovery and survival," citing the 1996 Condor Recovery Plan.[7] (15:4519.) This is a serious mischaracterization of the Recovery Plan, which actually states the *exact opposite*. (94:27185 ["An important factor in the successful establishment of wild condor sub-populations is the existence of suitable habitat… [P]reservation [of foraging habitat] is necessary to the maintenance of wild populations of California condors."].) Protecting condor habitat is one of five specific goals for the program described in the Recovery Plan, which devotes four pages to the subject and even highlights the importance of Tejon Ranch itself as foraging habitat. (94:27180-88.)[8] This is not a trivial mischaracterization, as the EIR uses it to justify its conclusion that the Project will not have a significant adverse effect on condors. (41:12159-60; 128:36783.) Indeed, it goes to the

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[7] *See also* 41:12140 ["Importantly, the latest version of the Condor Recovery Plan (FWS 1996) suggests that habitat loss is not an important factor in the recovery of the condor."]; 41:12159-60 ["because the loss of foraging…habitat is not considered an important factor with respect to the recovery of the condor (FWS 1996), the loss of a small amount of foraging habitat…is not considered an impact that will significantly adversely affect this species…"]; 128:36783. The EIR also cites to the Recovery Plan for the premise that habitat loss is not considered the primary cause of the historical decline of the species; although this (very different) statement is essentially accurate on its own, it is improperly and illogically used as support for the EIR's conclusion that the Project's impacts on habitat will not significantly affect the species. *See* 14:4090-91, 14:4093; 130:37319.

[8] As stated clearly in the Recovery Plan, the five goals of the recovery program are: 1) preserve the gene pool; 2) reintroduce California condors to the wild; 3) provide habitat for condor recovery in the wild; 4) minimize mortality factors in the natural environment; and 5) implement information and education programs on condor habitat use and protection needs. (94:27180-88.)

heart of the conflict caused by this Project: important foraging habitat would be destroyed, mitigated primarily by a supplemental feeding program that would itself significantly impact the species (*see* Section III.B., below).

Falsely claiming that the Recovery Plan (a USFWS document that serves as the foundation for all efforts to bring the species back from the brink of extinction) does not consider the loss of foraging habitat as either a "limiting factor" or an "important factor" to the recovery of the species is a clear failure to make "a reasoned and good faith effort to inform decisionmakers and the public" about the significant impacts of the Project and therefore violates CEQA. (*Berkeley Keep Jets*, 91 Cal.App.4th at 1367; *Dry Creek Citizens*, 70 Cal.App.4th at 26.) Just as in *Berkeley Keep Jets*, the EIR's mischaracterization of this essential point acts to "prevent a decisionmaker and the public from gaining a true understanding of one of the most important environmental consequences" of the project: the loss of foraging habitat, which is absolutely important to the recovery of the species. (*Id*.)

Respondents' mischaracterization of the Recovery Plan is a failure to proceed in the manner required by the law, and therefore not deserving of any deference from the Court. (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118; *Berkeley Keep Jets*, 91 Cal.App.4th at 1367.) Respondents have argued, however, that Appellants' concerns are mere "policy disagreements among experts (and are thus subject to review under the substantial evidence standard)." (CT 2:397.) Respondents appear to suggest that if the EIR's overall analysis is supported by substantial evidence (which Appellants contest), it is irrelevant whether it blatantly mischaracterizes a key fact used in support. Had the EIR accurately described the Recovery Plan and its conclusions regarding

foraging habitat, perhaps this would be a dispute among experts, with deference given to the agency if its conclusion was supported by substantial evidence. But this is not the case: the EIR expressly states that in light of the preservation of some foraging habitat, the implementation of some mitigation measures, "*and because the loss of foraging…habitat [sic] is not considered an important factor with respect to the recovery of the condor (FWS 1996)*, the loss of a small amount of foraging habitat associated with…TMV is not considered an impact that would significantly adversely affect this species..." (41:12159-60 (emphasis added); 128:36783.) In order for Respondents to be granted any deference on this issue, they must first make a "good faith effort" to inform the public and decisionmakers of the essential facts on which they base their conclusion. Here, by completely mischaracterizing the Recovery Plan, they fail this essential requirement and thus fail to proceed in the manner required by law.

2. The EIR Uses the Ranchwide Agreement and HCP to Skew Its Analysis

a. Use of the Ranchwide Agreement and TUMSHCP Precludes Informed Decisionmaking

The EIR repeatedly cites to, references, and discusses the "Tejon Ranch Conservation and Land Use Agreement" and the "Tejon Uplands Multi-Species Habitat Conservation Plan" ("Ranchwide Agreement" and "TUMSHCP", respectfully), including both in the Project Description chapter off the EIR. (13:3679-83.) The Ranchwide Agreement is a private agreement struck between Tejon Ranch Company and five conservation organizations in 2008 that provides for some protection of some of Tejon Ranch in exchange for those groups' not opposing Tejon's development plans. (13:3679-80.) TUMSHCP refers to a Habitat Conservation Plan

applied for by the Tejon Ranch Company and currently being considered by the U.S. Fish and Wildlife Service. (13:3683.)

The FEIR contains at least 74 explicit references to the Ranchwide Agreement[9] and 37 explicit references to the TUMSHCP[10] as circumstances that help ensure that impacts within TMV do not rise to the level of "potentially significant" under CEQA. The "preservation" of land related to these documents is even directly referred to as mitigation:

> [T]he preservation of up to 240,000 acres of Tejon Ranch, including approximately 80% of the Project area, combined with management measures that ensure clean food sources will be available to Condors within the preserved areas of the Ranch, will provide and enhance sufficient foraging habitat for Condors and *mitigate for all Project impacts to the species*.

(165:46700, emphasis added.)

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[9] *See, e..g.*, 14:4088; 14:4095; 15:04454 ["Due to these measures, the conservation and management of mountain landscapes provided for in the Ranchwide Agreement, and conservation measures for this species incorporated in the draft TUMSHCP, cumulatively considerable impacts to this species are not anticipated"]; 15:4455-58; 15:4469-73; 15:4475; 15:4477; 15:4479; 15:4482-83; 15:4492; 15:4494; 15:4496; 15:4498-500; 15:4505; 15:4511; 15:4514-15; 15:4518-19; 41:12141; 41:12158-59; 41:12183-85; 41:12187-88; 41:12198; 82:23712; 82:23715; 82:23718-19; 82:23721-25; 82:23831-32; 83:24106-07; 98:28300; 128:36649; 128:36777; 128:36779; 128:36782-83; 128:36787; 128:36790; 131:37441; 131:37444 ["[t]he Project, in conjunction with the Ranchwide Agreement, will avoid all historical Condor roosting habitat within the Ranch and permanently preserve and manage up to approximately 240,000 acres (90%) of the Ranch for the benefit of the Condor and other species"]

[10] *See, e.g.*, 15:4452-58; 15:4469-73; 15:4475; 15:4477; 15:4479; 15:4482-83; 15:4492; 15:4494: 15:4496; 15:4498-500; 15:4505; 15:4511; 15:4514-15; 15:4515; 15:4519; 41:12184-85; 128:36781; 128:36790; 129:36948; 129:36949 ["Project-related impacts to condor foraging land are fully compensated with the extensive preservation of land in the TMV and throughout the Ranch combined with the management measures described in the EIR and TUMSHCP."]

The effect of the EIR's repeated references to the Ranchwide Agreement and the TUMSHCP is that they are used as *de facto* mitigation; although they are not included as official mitigation measures in the EIR (14:4115-19), and therefore are not enforceable, they are cited throughout the EIR in order to lessen or soften the Project's impacts.[11] Proposed "mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments" (Guidelines § 15126.4(a)(2)) and cannot be deferred (Guidelines § 15126.4(a)(1)(B).) Given their ubiquitous presence throughout the EIR, one might be excused for believing that the Ranchwide Agreement and the TUMSHCP are parts of the Project and that the TUMSHCP is a final, approved plan. Yet the Ranchwide Agreement is a private agreement between private parties, with limited enforceability provisions available only to the parties to that agreement (13:3679) while the TUMSHCP is a federal permit that has yet to be approved. (128:6789.) By conflating the Project, the Ranchwide Agreement and the TUMSCHP, and repeatedly analyzing the Project's potential impacts only through the lens of two independent and unenforceable plans (one that is a mere proposal), the EIR fails to adequately describe the Project or analyze its significant impacts and unfairly determines that potential impacts will be less than significant. (*See Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1129 [County's reliance on an unenforceable mitigation measure precluded informed decisionmaking and informed public participation]; *cf. Kings County Farm*

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[11] *See, e.g.*, FN 9 and 10, above*;* 165:46601 ["The design of the project, the proposed conservation planning documents [the TUMSHCP and the Ranchwide Agreement], and proposed mitigation measures made all project related impacts less than significant."]

Bureau, 221 Cal.App.3d at 728 ["failure to evaluate whether the [mitigation] agreement was feasible and to what extent water would be available for purchase was fatal to a meaningful evaluation by the city council and the public"].)

b. The Ranchwide Agreement and TUMSCHP are Improperly Included in Cumulative Impacts Analysis

The Ranchwide Agreement and the TUMSHCP are also included in the EIR's cumulative impacts analysis, where they are described as "two further undertakings that are relevant to the cumulative analysis of biological resources within the vicinity of" TMV. (15:4451.) The EIR concludes that the Ranchwide Agreement and TUMSHCP "projects… would result in substantial conservation" of special-status species and therefore the Project would "result in less-than-significant [and even beneficial] cumulative impacts to special-status species within the cumulative study area." (15:4453.)

However, an EIR's cumulative impacts analysis is meant to consider effects that are together "considerable or which compound or increase other environmental impacts" (Guidelines § 15355.); it does not serve as a forum to recite potential beneficial effects in order to avoid discussion of adverse impacts. The Ranchwide Agreement and the TUMSHCP certainly are not described by the EIR as compounding or increasing other environmental impacts. (15:4453.) Moreover, their effects are not cumulatively considerable. Two or more individual effects are cumulatively "considerable" when the incremental effects of an individual project are "significant" (Guidelines § 15065 (a)(3)); that is, when the effects produce "a substantial *adverse* change." (Guidelines § 15002(g), emphasis added.)

In sum, "[t]he project must make some contribution to the impact; otherwise, it cannot be characterized as a cumulative impact of that project." (*Sierra Club v. West Side Irrigation Dist.* (2005) 128 Cal.App.4th 690, 700, *quoting* 1 Kostka & Zischke, Practice Under the Cal. Environmental Quality Act (Cont.Ed.Bar 2003) § 13.36, p. 533.)

Respondents discuss both the Ranchwide Agreement and the TUMSHCP as beneficial considerations in order to reduce and minimize the Project's impacts. It matters not that Respondents nonetheless found the Project's cumulative impacts to be significant and unavoidable because Respondents cannot assure that other agencies will take proper actions to benefit the species (15:4521); the "purposes [of the statement of overriding considerations] are undermined if its conclusions are based on misrepresentations of the contents of the EIR or it misleads the reader about the relative magnitude of the impacts and benefits the agency has considered." (*Woodward Park Homeowners Assn., Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 718 "*Woodward Park*".) Because the EIR's cumulative impacts analysis skews the EIR's perspective by including the Ranchwide Agreement and the TUMSHCP in its cumulative impacts analysis, it misleads the reader and thus fails as a matter of law.

3. The EIR Improperly Rejects the Use of Buffers around GPS Data Points

Respondents reject out-of-hand the suggestion of using buffers around GPS data points, claiming that they are "unsupported by any science or precedent." (128:36779.) Not only does this response ignore the support for buffers by distinguished condor biologists and the literature (136:38793-94, 136:38801) but it ignores the fundamental point of buffers: they are a means to more accurately account for the species' use of an area, including active foraging over a wide

expanse, and not merely the sporadic occupancy of a pinpoint location at any given time. (135:38727.) This is especially important given that Respondents were warned that the available GPS data, while useful in showing where condors *may* forage and roost, is useless in determining where they do *not* forage and roost, due to the fact that the GPS data reflects an extremely small sample size (a maximum of 14 to 17 birds)[12] comprised of recently released condors entirely dependent on artificial feeding and rarely engaging in natural foraging behavior. (41:12131; 135:38726-28.) As the EIR repeatedly makes assertions such as "[l]ess than 1% of the data points are within the Tejon Mountain Village site," it is incumbent that it accurately describe the usage of the Project site reflected by these data points; failure to do so here "precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process." (*Dry Creek Citizens*, 70 Cal.App.4th at 26; 135:38727-28.) This point raised by commenters is again ignored by Respondents. (129:36778-82.)

B. The EIR Fails to Properly Analyze the Impacts of Artificial Feeding of Condors

The EIR ignores the significant impacts of a core proposed mitigation measure: the artificial feeding of condors. Mitigation Measure 4.4-6 is intended to mitigate for the loss of suitable condor foraging habitat, the threat of lead poisoning, and habituation-related problems including the ingestion of microtrash. (*See* 14:4092; 14:4095; 14:4118.) Numerous

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[12] Although the Addendum to the Condor Conservation and Management Plan admits that the number of condors "equipped with GPS units" is "an important variable in the GPS dataset," it fails to identify how many condors are represented in the data it analyzes. Nor does the EIR or the Condor Plan itself reveal this number. (129:36934.)

commenters (including a number of condor experts) expressed serious concerns about supplemental feeding-related impacts that—far from compensating effectively for the loss of foraging habitat associated with TMV—could jeopardize the long-term prospects for California condor recovery and eventual delisting. (82:23674; 83:24105; 135:38734-37; 165:46807-08; 165:46810; 165:46840-41; 165:46851-53.) The EIR largely ignores these concerns, resorting to conclusory analyses, over-simplification of the issues,[13] and mischaracterization and minimization of the available evidence, concluding that there are no potential significant impacts related to supplemental feeding.

As argued by several commenters, the risks associated with supplemental feeding are many and include creating a regime of dependency in which condors, in the short term, have no incentive to engage in natural foraging behaviors and, in the long term, have no ability to do so, in part because increasing development pressures and an increasing condor population could result in insufficient habitat for individual birds to successfully find enough widely dispersed, "natural" sources of food. (*See* 135:38724; 135:38735; 165:46807-08; 165:46810; 165:46851; 270:74556.) Commenters also pointed out that artificial feeding manipulates other natural behaviors of the species: influencing where condors roost, narrowing the composition of their diet, detrimentally altering the frequency with which chicks are fed, and, due to the protected nature of the feeding stations,

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[13] (*E.g.*, 128:36786. [the "opinion that supplemental feeding 'dooms' the condor to [existence as] a 'virtual zoo animal' . . . . is at odds with the reality of every California condor feeding program, which in turn exists and has been determined to be critical to the success of every released population of California condors."].)

fostering an unnatural lack of awareness of potential threats that leaves condors more vulnerable to predators. (*See* 165:46807-08; 165:46852; 259:71814-17; 270:74548-49; 342:93280.) Commenters further observed that because artificially-fed condors do not need to spend most of their time searching the landscape for food, they generally devote more time to "non-essential activities," including finding and ingesting human-generated microtrash. (*See* 135:38736; 165:46807; 165:46851; 270:74546; 342:93269; 342:93277-80.)

Respondents initially ignored these concerns and then subsequently denied any potentially significant negative impacts of the artificial feeding mitigation measure. (128:36787.) The EIR, however, addresses only one of the many concerns raised about artificial feeding, summarily dismissing the conclusions of peer-reviewed literature that artificial feeding may increase the risk of micro-trash ingestion as mere "conjecture" (128:36787.) Respondents fail to discuss the many other identified impacts of artificial feeding; instead dismissing all concerns on the grounds that artificial feeding is necessary because of the threat of lead poisoning. (128:36786.) But even if artificial feeding is necessary at this time because of lead poisoning risks, its potential impacts still must be disclosed, discussed, and mitigated or avoided. (*See Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351, 1392 [decisionmakers and ordinary citizens should not be left wondering" about the extent of a project's impacts]; *Woodward Park*, 150 Cal.App.4th at 709.) Respondents' failure to acknowledge the many potential impacts that would be caused by the artificial feeding mitigation measure is a failure to proceed in the manner required by CEQA. (*See* Guidelines § 15126.4 (a)(1)(D); Guidelines § 15088 (c); *Save Our Peninsula*, 87 Cal.App.4th at 130.)

To the extent that Respondents supported their conclusion at all, they failed to do so with substantial evidence. (*See Woodward Park*, 150 Cal.App.4th at 723; *cf. Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 599.) Respondents provide little more than a conclusory statement that the feeding programs will not adversely impact condor behavior, relying on the deficient logic that since the artificial feeding provides short-term benefits, negative impacts are necessarily insignificant. (*See* 128:36787.) But as demonstrated by Petitioners and numerous independent commenters, including almost all of the independent condor conservation scientific community, artificial feeding causes significant impacts. (*See* 135:38735-6; 165:46807-08; 165:46810, 165:46851-2; 270:74546; 270:74556; 342:93269; 342:93277-80.) The EIR's response is nothing more than argument, speculation, unsubstantiated opinion and narrative, and therefore in no way qualifies as substantial evidence. (Pub. Resources Code § 21082.2 (c); *Bakersfield Citizens*, 124 Cal.App.4th at 1198.)

C. The EIR Improperly Defers Analysis of Impacts Caused by Reductions in Grazing and Hunting

The Project is made up of a series of narrow development peninsulas totaling 7,867 acres interspersed among 18,550 acres of open space. (13:3657.) The fragmentation of the open space significantly impacts its habitat qualities and exposes the development areas to hazards, including that of wildfire risk. The EIR reveals that both hunting and grazing will be limited within the Specific Plan's open space, but fails to give any more details. (14:4092; 130:37319.) The EIR neither discusses nor references any sort of detailed hunting management plan and defers a required Grazing Management Plan until after Project approval. (2:395.) As a result, the EIR

fails to reveal the extent that either hunting or grazing will be reduced and what may be the environmental impacts of that reduction.

One of the foreseeable significant impacts of reducing current hunting and grazing activities in TMV will be a loss of food availability for foraging condors. As the EIR acknowledges, condors are opportunistic scavengers that maintain wide-ranging foraging patterns—and consequently habitat use—depending on overall food availability (165:46601), which in turn largely depends on hunting and grazing activities. (14:4092.) But the EIR fails to describe how much either hunting or grazing will be curtailed as a result of the Project, ignoring comments by Appellants and submitted expert opinion. (14:4092; 135:38730; 136:38795.) As to grazing, the EIR simply provides that a grazing management plan will be prepared in the future without disclosing how grazing practices will in fact be altered. (14:4129.) The EIR consequently is incapable of making any determination as to how many acres of condor foraging habitat will be lost and what the impact of this loss would be.

The EIR similarly fails to evaluate the consequences of altering the grazing regime on fire safety. As the EIR notes, it is likely that the relatively low frequency of fires on the site is directly related to the presence of ongoing grazing operations. (16:4677 [“Cattle remove or reduce fuel, resulting in a lower probability that a wildfire will ignite and spread.”].) The reduction of grazing will have a concomitant effect on the vegetation that provides the fuel for wildland fires, but the EIR fails to disclose or analyze this apparent increase the wildland fire risk. Similarly, it is impossible for the public or decisionmakers to determine whether the Project’s Fire Protection Plan and additional mitigation measures are adequate because

none of them consider the future changes to grazing. (16:4677; 16:4682-83.)

Because the EIR fails to include any detail on its hunting management plans and defers its grazing management plan until after Project approval, it does not and cannot evaluate the consequences of altering either activity on condor foraging activities or fire safety. The EIR thus violates CEQA's demand for meaningful information, which "is not satisfied by simply stating information will be provided in the future." (*Vineyard Area Citizens*, 40 Cal.4th at 431, *quoting Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 723.) As the courts have long emphasized, "the time to analyze the impacts of the Project and to formulate mitigation measures to minimize or avoid those impacts [is] during the EIR process, *before* the Project [receives] final approval. (*Richmond*, 184 Cal.App.4th at 95.) By deferring development of the grazing management plan, Respondents fail to disclose foreseeable impacts and are "obviously unable to gather sufficient information during the EIR process itself to develop specific mitigation measures." (*Richmond*, 184 Cal.App.4th at 95.) Respondents therefore failed to proceed in the manner required by law by violating CEQA's disclosure requirements. (*See* Guidelines §§ 15126 [all project phases must be considered in evaluating environmental impacts]; 15358 (a)(2) ["effects" include project's indirect or secondary effects]; 15144 [lead agency must use best efforts to "disclose all it reasonably can."].)

IV. CULTURAL RESOURCES

Properly followed, CEQA's procedures should not only fully inform Native American communities about the Project's impacts to their

resources, but should also identify and prevent significant impacts to their cultural, religious, and historical resources. Despite the numerous important Native American historical, cultural, and religious sites contained within the Project footprint, these sites are reduced to insignificance in the EIR. In failing to adequately inform local tribes about the Project's impacts to their resources, and to adhere to procedures needed to identify and protect Native American historical and cultural resources, Respondents did not proceed in the manner required by CEQA.

A. The EIR Contains Inadequate Descriptions of Native American Historic Sites

The EIR contains curtailed and distorted descriptions of Native American historic and cultural site locations, making it "simply impossible to know" the precise location of the Native American historic and cultural sites, and "render[ing] the protection of cultural resources a guessing game at best…." (83:23901.) Native American representatives such as Delia Dominguez[14] have been prevented from obtaining practical knowledge of what cultural sites the EIR identifies as within the Project envelope because the EIR does not indicate the likely significance of sites, broadly categorizes sites as prehistoric camps or bedrock mortar station, does not include figures displaying the location of the sites on maps, and includes only rough proxies such as: "immediately north of Tejon Lake Drive, about 2.6 miles east of Tejon Lake (Figure 3)… near the top of a small north south tributary of Pastoria Creek/Bear Trap Canyon," as the totality of site

[14] Ms. Dominguez, Chairwoman of the Kitanemuk and Yowlumne Tejon Indians (83:23901), is identified in the EIR as a Most Likely Descendant (hereinafter "MLD") for the Kitanemuk and Yowlumne Yokuts Indian Tribes (15:4560) and is identified by the Native American Heritage Commission ("NAHC") as a Tribal Contact for the Project (80:23161-63).

descriptions.[15] (49:14356.) In addition, although sacred burial and ritual sites are among the best known of the uses and descriptions which would be useful to Native Americans, the EIR's mere labeling of sites as, for example, "bed rock mortar stations" fails to help identify these significant cultural sites. (83:23901-05; 48:14263-70; 48:14277-78; 48:14282-301; 49:14327-14338; 49:14356-72; 49:14508-16.) As a result, Native American representatives are unable to judge the importance of these sites or whether their cultural and sacred sites have been identified because their location and purpose cannot be ascertained.

B. The EIR Fails to Disclose Information to Native Americans as Required

CEQA instructs lead agencies to "work with the appropriate Native Americans as identified by the Native American Heritage Commission" to mitigate project impacts on Native American burial sites. (Guidelines § 15064.5 (d).) Local Native Americans requested, as observed by Respondents, that Respondents disclose the exact location of the cultural and historical resources on the Project site, including burial sites, sacred

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[15] Other examples include the EIR's descriptions of CA-KER-4010 ("It is located in a small creek that is tributary to Castac Valley, about two miles east of Tejon Lake (Figure 6)") (49:14358); CA-KER-5357 ("It is located near the southeastern limits of the Tejon Mountain Village study area, just north of the Los Angeles County line. More specifically, it is located on the northern slope of a small east-west canyon that is tributary to southern Oso Canyon (Figure 6))" (49:14361); CA-KER-6720 ("This site is located on another high ridge immediately north of Tejon Lake Drive. In this case the ridge containing this second site is south of CA-KER-6719 and separated from the ridge containing the previous site by a low saddle (Figure 3))" (49:14366); CA-KER-6732 ("This site is located in a limestone bedrock outcrop near the southeastern limits of the Tejon Mountain Village study area on the southern slopes of a high peak (Figure 6), at 1270 meters elevation") (49:14370-71). The referenced Figures 3 and 6 were not included in the EIR.

places, villages, and objects. (83:23901; 83:23942; 82:23856; 80:23198; 80:203208; 135:38739-40.)[16] Rather than providing this information to or working with Ms. Dominguez, Respondents provided a map to the Kern County Planning Department but required that it be kept confidential, in order to "ensure the protection of these cultural resources" from defilement, and because "publicly disclosing the exact locations of cultural resources sites is not lawful." (15:4560; 128:36793-95; 83:23941-42; 82:23864-65.) While Appellants agree the information should not be made "public," it is crucial that the information is made available to tribal representatives such as Ms. Dominguez so local Native Americans can intelligently assess the impact of the TMV development on their cultural and historical resources.

Guidelines Section 15064.5(d) provides that Respondents had a continuing duty to work with the appropriate Native Americans as identified by the NAHC when the initial study identified the existence of or probable likelihood of Native American human remains. Guidelines Section 15064.5(d) and Pub. Resources Code Secion 5097.98 mandate that Native Americans be made aware of the location of their burial sites through a "discuss and confer process" process, in order to identify and mitigate the impacts to Native American cultural resources.

Respondents failed utterly in complying with the disclosure and consultation requirements of both provisions. Kern County and TMV claim their failure to work with local Native Americans and their intentional failure to reveal the location of Native American burial sites to

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[16] Ms. Dominguez stated in her comments that "[u]sing numeric identifiers makes it simply impossible to know if the many villages and sacred sites around the Castac Lake site are the ones identified in the DIER ... This is a critical problem with the DEIR that renders the protection of cultural resources a guessing game at best." (83:23901.)

the appropriate Native Americans are supported by nondisclosure laws. (15:4560 4.5-1; 128:36793-95; 83:23941-42; 82:23864-65.) However, nondisclosure to affected Native Americans is contrary to CEQA per Guidelines Section 15064.5(d), and not justified under other laws cited by Respondents. While Government Code Sections 6254.10 and 6254 (r) allow for the discretionary withholding of Native American archaeological site information, the provision is not intended to block disclosure to Native Americans, especially those with a MLD designation or that are listed as Tribal Contacts by the NAHC. Moreover, the State of California Tribal Consultation Guidelines specifically state that *tribal designees* may obtain information about a given Native American site. (State of California Tribal Consultation Guidelines (November 14, 2005), pp. 27-28, at http://www.opr.ca.gov/programs/docs/09_14_05%20 Updated%20Guidelines%20(922).pdf.) Respondents' withholding of information runs contrary to *EPIC*, which held that an agency's refusal to provide to Native Americans a report evaluating the presence of Native American archeological resources on the project site violated CEQA, because disclosure of the report was needed to allow the Native Americans to intelligently assess the impact of the Plan on the archeological site. (*Environmental Protection Information Center, Inc. v. Johnson* (1985) 170 Cal.App.3d 604, 628-30 ("*EPIC*").) Like the Native Americans in *EPIC*, Ms. Dominguez and the Tejon Indian Tribe should have been provided with all information concerning their cultural resources.

Respondents' failure to disclose the location of Native American cultural, religious, and historical resources to local Native Americans on the NAHC's list of tribal contacts and designated as MLDs violates CEQA's requirement for a good faith and full disclosure of a project's significant environmental effects and precludes informed decision-making and

informed public participation. (*See Laurel Heights*, 47 Cal.3d at 392; *Bakersfield Citizens*, 124 Cal.App.4th at 1197; *Association of Irritated Residents*, 107 Cal.App.4th at 1390; 15:4560; 128:36793-95; 83:23941-42; 82:23864-65; 174:49152; 174:49156; 174:49158.)

C. Respondents Failed to Adequately Consult with Trustee Agencies

Respondents violated CEQA's requirement to consult with trustee agencies by not disclosing the reports detailing the precise location and complete description of Native American cultural resources on the project site to the NAHC. (Pub. Resources Code §§ 5097.94, 5097.95, 21080.4, 21104(a), 21153(a), 21092.5; Guidelines § 15086; Gov. Code § 65352.4; *EPIC*, 170 Cal.App.3d at 626-27.) If Respondents had disclosed the detailed archeological reports to the NAHC, the NAHC could have provided the exact locations of the Native American sites to the MLD and local Native Americans on the NAHC's list of tribal contacts, allowing MLD's and tribal contacts to conduct an adequacy and completeness analysis and to make mitigation recommendations. In addition, by refusing the Native Americans' requests for complete disclosure of the exact location of cultural resources, Respondents ignored the NAHC's specific request for Respondents to consult with the Native Americans the NAHC listed as tribal contacts regarding their cultural resources. (Guidelines § 15040(e); 80:23161-4; 83:23901; 83:203208; 174:49159; 83:23941-42.) Respondents' mere mailing of form notice letters to the NAHC and corresponding failure to adequately consult deprived Native Americans of any meaningful opportunity to protect their cultural resources under CEQA.

D. The EIR Fails to Analyze Impacts to Significant Historic, Cultural, and Sacred Sites

Due largely to the vague and inadequate project description, the Project's impacts to significant Native American cultural and historical resources are unidentified and unanalyzed in the EIR, despite being highlighted by commenters. (*See* Statement of Facts, above.) This failure makes the EIR insufficient as an informational document, violating CEQA. (Pub. Resources Code § 21100 (b)(1); Guidelines § 15126.2(a); *Laurel Heights*, 47 Cal.3d at 390; *Dry Creek Citizens*, 70 Cal.App.4th at 26.)

Numerous comments from Native Americans raised the issue of the submerged village of Kashtiq (83:23903; 135:38600-03, 135:38740-41; 170:47898-99; 171:48208; 81:23363-64), yet Respondents argue that Castac Lake is not part of the Project and that the filling of Castac Lake does not require an analysis of impacts. (16:4698; 79:22943.) As described in Section II, above, Castac Lake is properly considered part of the Project, but even if not, the EIR must still discuss the Project's impacts on the village of Kashtiq, which will be entirely surrounded by the Project. (81:234555-56; 82:23853.)

E. The EIR Fails to Adequately Mitigate Significant Impacts on Cultural Resources

For mitigation of impacts to Native American sites, the Guidelines state a preference for the use of "preservation-in-place," which maintains the relationship between artifacts and the archaeological context. (Guidelines § 15126.4 (b)(3).) Notably, the Guidelines require that the EIR consider and discuss different means that may achieve preservation-in-place, and also that the EIR identify the basis for selecting a particular measure. (*Id.*; Guidelines § 15126.4 (a)(1)(B).) Yet the EIR repeatedly fails to discuss different means that would achieve preservation-in-place and fails to state whether a greater degree of mitigation would be achieved

by implementing one method of preservation in place over the other. (15:4560-66.)

Similarly, where the EIR identifies Project features such as roadways, utility infrastructure, or grading that may impact a Native American cultural and historical resource, the EIR leaves to the developer's discretion whether to implement avoidance and preservation via open space, or to use other methods that actually exacerbate impacts to the historic cultural resources. (15:4560-66.) At the minimum, these decisions should include a mitigation effectiveness analysis. For example, Mitigation Measures 4.5-22 and 4.5-25, 26, and 27 merely state that "utilities that may overlie the geotextile matting and fill will be embedded within the fill cap, above the geotextile mat, or routed northeast of the site" or that "if the construction requires encroachment on the bedrock mortars on the south side of the site and upslope of the archaeological deposit, these shall be covered with geotextile matting and fill." (15:4560-66.) These mitigation measures were imposed without analyzing the relative impacts resulting from different methods that may achieve preservation-in-place, despite the clear disadvantage of using geotextile covering, a "preservation" method that could obliterate many of the cultural historic resources. (15:4560-66; Guidelines § 15126.4 (a)(1)(B), 15126.4 (b)(3).) Notably, many Native American sacred sites and burials can only truly be preserved by avoidance due to their sacred, religious, and spiritual values, or need to be visually observed in order for their historic and cultural significance to be recognized. (170:47943-44; 170:47924; 170:47955; 83:23901-05.) Respondents' failure to analyze the effectiveness and adequacy of proposed mitigation measures to protect, and preserve in place, Native American cultural and historical resources as required by

CEQA threatens to permanently erase vital components of the local Tribes' culture, history, and connection to their ancestors.

V. AIR QUALITY

A. The EIR Improperly Defers Mitigation for Air Quality Impacts

Californians experience the worst air quality in the nation, with annual health and economic impacts estimated at 8,800 deaths and $71 billion per year. (314:85755.) The Project will degrade the air quality in three air basins (12:3459; 12:3466), yet the EIR claims that the Project will not conflict with or obstruct implementation of the applicable air quality mitigation plan within the San Joaquin Air Basin—and will thus have a less than significant impact—because Mitigation 4.3-1 will reduce ozone precursors and PM pollution within the San Joaquin Air Basin to below two tons per year. (*See, e.g.*, 12:3458; 13:3863.) Mitigation 4.3-1, however, improperly defers formulation of specific mitigation to future site development when the applicant is required to "submit evidence" of reductions below two tons per year through several vaguely defined future mitigation programs: project design, compliance with the San Joaquin Valley Air Pollution Control District ("SJVAPCD") Independent Source Review Program ("ISR"), a Voluntary Emissions Reduction Agreement ("VERA"), or "participation in any air mitigation program adopted by Kern County that provides equal or more effective mitigation than this mitigation measure." (12:3458; 13:3863-64.) While Respondents' findings relating to the Project claim to rely upon the VERA as the primary mechanism to reduce the Project's air quality impacts (1:161), the Mitigation and Monitoring Program approved as part of the EIR reveals that any of the above programs could be used as mitigation. (2:342.)

Deferral of mitigation measures is not normally permitted under CEQA. (Guidelines § 15126.4(a)(1)(B); *Richmond*, 184 Cal.App.4th at 92.) Deferral may be appropriate only when the lead agency "(1) undertook a complete analysis of the significance of the environmental impact, (2) proposed potential mitigation measures early in the planning process, and (3) articulated specific performance criteria that would ensure that adequate mitigation measures were eventually implemented." (*Id.* at 95.) The EIR fails to meet this standard as (1) its analysis of the significant impacts to air quality is inadequate, (2) mitigation measure 4.3-1 contains vague and undefined programs, and (3) the VERA cannot ensure that adequate mitigation measures will be implemented to meet the ostensible performance standards.

1. The EIR's Analysis of the Significant Impacts to Air Quality is Inadequate

The EIR fails to conduct the necessary analysis and disclosure of significant air quality impacts, contributing to the erroneous conclusion that mitigation measures will address the potentially significant impacts of the Project's air quality emissions on the adjacent Mojave Air Basin. The EIR must analyze whether the Project "[v]iolates *any* air quality standard or contributes substantially to an existing or projected air quality violation." (Guidelines App. G § III(b) (emphasis added).) The EIR's analysis of air quality impacts is acutely important where, as here, the Project borders—and impacts—three of the most heavily polluted air basins. *Kings County Farm Bureau*, 221 Cal. App. 3d 692, 723-724.

Appellants emphasized that because of the Project's location "at the southern end of the San Joaquin Valley, emissions from the project affect not only the San Joaquin Valley but also the adjacent South Coast

(metropolitan Los Angeles) air basin and Mojave Desert air basin." (135:38689.) It was thus crucial to model the Project's potential contribution to exceedances of National Ambient Air Quality Standards in the region "even if the speculative emissions reductions achieved through compliance with" the ISR and VERA actually do equal the amounts alleged in the EIR. (135:38689-90; *see* Guidelines § 15125(c) ["the regional setting is critical to the assessment of environmental impacts" to "permit the significant effects of the project to be considered in the full environmental context"].)

Appellants further noted that it was not adequate to simply assert that the purchase of emissions reduction credits ("ERCs") under the VERA would alleviate the Project's air quality impacts on the Mojave Air Basin because the Project "will still emit ozone, and ozone will be carried to the Mojave." (81:23360.) The purchase of ERCs "fail[s] to ensure that the emission reductions will occur locally," allowing locally emitted pollutants to travel to adjacent air basins. (*Id*.) Because the ERCs will not offset local emissions that would impact communities within or adjacent to the Project, the "exact same amount of ozone will be transported from the San Joaquin Valley to the Mojave as a result of this Project." (*Id*.)

Despite the Project's additional impacts on the already severe air quality in adjacent air basins, the EIR asserts that the ozone and PM pollution impacts on the adjacent air basins are "not analyzed in depth" because of the Project's VERA with the SJVAPCD. (13:3763; 128:36683.) Reliance on the VERA, however, does not excuse the EIR's failure to disclose the Project's significant impacts on adjacent basins. (*City of Marina v. Board of Trustees of California State University* (2006) 39 Cal. 4th 341, 348 *citing* Pub. Resources Code § 21002.1(a).)

The EIR repeatedly recognizes that the meteorological conditions of the region contribute to the transport of air pollution from the San Joaquin Air Basin to the Mojave Desert Air Basin across the Project site. (*See, e.g.*, 13:3763 "ozone transport does occur from the [San Joaquin Air Basin] to the [Mojave Air Basin]"; 13:3761; 27:22720). The transport of pollutants like ozone from the San Joaquin Air Basin to the Mojave Air Basin is a significant contribution to the Mojave Air Basin's air quality problems. (13:3763.) The EIR similarly admits that the transport of PM pollution "can occur" between the basins yet "the EIR does not specifically discuss the possibility of $PM_{2.5}$ transport" into the Mojave Air Basin. (128:36683.)

The Project's emission of particulate pollutants adjacent to the Project area cannot simply be mitigated by offsetting emissions in other portions of the San Joaquin Air Basin. Respondents acknowledge that particulate pollution "is considered to be a localized as well as regional pollutant," (13:3781), and "not all emission reduction projects achieved pursuant to the VERA will necessarily occur in the immediate Project vicinity." (CT 464-5 fn 60.) When emission reductions occur far from the Project site the localized pollution generated by the Project on the edge of the Mojave Air Basin will have a greater affect on the Mojave Air Basin than an offset of localized pollution generated in Fresno.

Given the Mojave Air Basin's non-attainment of air quality standards for PM (13:3768), the transport of air pollutants from the Project vicinity that results in the Mojave Air Basin's failure to meet federal and state ambient air quality standards (CT 461), the Project's adjacency to the Mojave Air Basin, and the Project's 164.7 tons per year of PM pollution even after mitigation (13:3895), the EIR must disclose and analyze to what extent PM pollution will be transported from the Project and impact the Mojave Air Basin. Simply proposing mitigation to address an

environmental problem does not allow the lead agency to short circuit CEQA's informational requirement of first fully disclosing and analyzing the extent of the problem. (Guidelines § 15144 ["an agency must use its best efforts to find out and disclose all that it reasonably can."].) These impacts are not "hypothetical" as alleged by Respondents, but real and can lead to severe health impacts. (13:3788-89.) This type of informational omission is particularly egregious when the EIR admits that the Project will have significant impacts due to ozone and PM pollution and the adjacent Mojave Air Basin receiving the Project's emissions is in nonattainment for those very same pollutants. (12:3459, 12:3466; 13:3768.) An EIR's failure to analyze the air quality impacts by improperly limiting the scope of analysis for applicable air basins runs contrary to CEQA. (*Kings County Farm Bureau*, 221 Cal.App.3d at 723-724.) Where, as here, Respondents mask the Project's impacts on adjacent air basins by improperly narrowing the impact area, the EIR must be rejected.

2. Mitigation Measures to Reduce the Emissions in the Deferred Program Have Not Yet Been Proposed

The EIR fails to describe the potential mitigation measures to reduce the Project's significant air quality impacts within the San Joaquin Air Basin through the deferred mitigation scheme. CEQA requires that when a performance standard is relied upon to reduce the Project's impacts to below a significant level, the potential mitigation measures to reduce those impacts must be disclosed. (*See Richmond,* 184 Cal. App. 4th at 95.)

Respondents incorrectly argue that because they provided "a description of extensive mitigation measures… at the earliest possible point in the process" that the EIR can properly defer the mitigation measures that actually reduce the air quality impacts to a less than significant level. (CT 2:465.) While the EIR proposes some mitigation measures to reduce air

quality impacts, those impacts remain significant. Contrary to CEQA, the EIR punts on defining the mitigation measures to achieve the two tons per year performance standard. The analysis of other mitigation measures to reduce the Project's significant impacts below two tons per year is improperly deferred.

Formulation of the specific mitigation measures is deferred to future site development when the applicant is required to "submit evidence" of those reductions through a range of undefined and vague mitigation measures: project design, compliance with the San Joaquin Air District's ISR program, the Project VERA, or "participation in any air mitigation program adopted by Kern County that provides equal or more effective mitigation than this mitigation measure." (12:3458; 13:3863-64.)

There is no discussion of how future "project design" or "participation in any air mitigation program adopted by Kern County" would function to mitigate air quality emissions. The EIR provides some detail regarding the ISR and VERA program. Off-site emissions reductions under the San Joaquin Air District's ISR program are achieved through upgraded existing diesel engines to clean diesel or electric engines.[17] The VERA first refers to coordination with the San Joaquin Air District and existing commitments in the EIR to support the deferred mitigation scheme. (13:3854-5). Like the ISR, the VERA then proposes the same emissions reductions engine replacement program, but the total VERA program has only achieved a 0.35 tons per year reduction for PM. (13:3857.) Finally, the VERA proposes off-

[17] ISR off-site emissions reductions were achieved through "re-powering various type of diesel powered industrial portable equipment such as top grinder, oil drill rig, plastic granulator and agricultural irrigation pumps, with either cleaner diesel engines or by conversion to electric motors." (23:6661.)

site mitigation from a Container Trip Reduction Facility that has not been built and an unapproved Biodiesel Research Facility. (13:3857-95.) In sum, the EIR fails to describe the full range of emissions reductions projects contemplated in the VERA, to what extent those emission reductions would occur, and how much emissions could feasibly be reduced. This is the same type of "nonexclusive, undefined, untested" mitigation measures "of unknown efficacy" that have been condemned by the courts. (*Richmond*, 184 Cal. App. 4th at 93.)

3. The EIR Cannot Ensure That Adequate Mitigation Measures Will be Implemented to Meet Alleged Performance Standards

An EIR can only appropriately defer the formulation and analysis of mitigation measures where "'mitigation is known to be feasible'." (*Richmond*, 184 Cal. App. 4th at 94, *citing Sacramento Old City Association v. City Council* (1991) 229 Cal.App.3d 1011, 1028-1029.) In this case the EIR does not provide substantial evidence that the daunting task of mitigating emissions to two tons per year is feasible. On the contrary, there is clear evidence that the mitigation is infeasible.

The EIR is clear that even after the existing mitigation measures are implemented the Project will result in 164.7 tons per year of PM_{10} emissions. (13:3895; 26:7588-89; 23:6658-59.) At least 51 tons per year of PM pollution must be eliminated through the VERA or ISR program through the payment of fees for off-site projects because they cannot be reduced on-site. (*Id*.) Individually or together, the four vague and deferred mitigation schemes—project design, the ISR program, VERA, or "any air mitigation program"—cannot demonstrate the type of emission reductions to achieve the two tons per year performance standard. Somehow hoping future project design or mitigation schemes will reduce the impacts that

cannot be reduced now does not meet CEQA's requirements. (*See, e.g., Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308 [mitigation conditions require "'meaningful information' reasonably justifying expectation of compliance"].)

After current project design mitigation the Project will result in 164.7 tons per year of PM_{10} emissions. (13:3895; 26:7588-89; 23:6658-59.) The data provided to demonstrate the feasibility of the ISR program can only demonstrate off-site reductions of 9 tons of PM_{10} within the entire San Joaquin Air District. (23:6656.) Similarly, the VERA can only demonstrate the feasibility of reducing PM_{10} emissions by 0.35 tons. (13:3894; 128:36681.) There is no showing whatsoever regarding the emission reductions achieved through "participation in any air mitigation program adopted by Kern County."

Even assuming that the Project can take credit for the emission reductions from the Biodiesel and Container Trip Reduction Facility mentioned in the VERA, which have yet to be completed and are speculative at best, the additional reductions for PM_{10} would amount to 19.5 tons per year. (13:3895.) Thus, even under the most optimistic scenario, total potential emission reductions identified in the EIR would result in less than 30 tons of PM_{10} reductions per year, which is just a fraction of the total 164.7 tons per year emitted from the Project as a whole, or directly within the San Joaquin Air Basin.[18]

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[18] Even if the EIR only intends to apply measure 4.3-1 to the 29% of total Project's operational emissions the EIR claims occur within the San Joaquin Air Basin, not only does the EIR fail to clearly disclose this more limited mitigation obligation, but the identified mitigation would fall short of reaching this objective.

Respondents' assertion that on-site reductions achieved by other projects, as required by the ISR, can somehow constitute available emission reductions for this Project is inaccurate and misleading. (128:36687.) As both the EIR and the 2008 Annual Report on the ISR program recognize, the ISR program requires individual developers to reduce their on-site emissions themselves. (128:36681; 23:6658.) On-site reductions from other projects involved in the ISR program demonstrate that 1,087 tons of PM that have been reduced. (CT 467 fn. 64.) However, "nine tons of reductions reflects only those off-site projects funded by mitigation fees." (CT 467 fn. 64.)

The EIR relies on over 51 tons per year of off-site mitigation, which is several times greater than the yearly allowance for the entire San Joaquin Air Basin. The EIR's assertion that the emissions credits available for the Project are *more* than the total off-site emission reductions for the entire San Joaquin Air District is a "clearly erroneous or inaccurate" statement that does not constitute substantial evidence. (Guidelines § 15384(a). The EIR's use of emissions credits would leave no other projects in the San Joaquin Basin with available off-site mitigation opportunities and still not achieve the ostensible two tons per year threshold. Because of the failure to provide substantial evidence of whether sufficient mitigation opportunities even exist in the San Joaquin Air Basin, the EIR does not provide the requisite assurances that proposed mitigation is "both feasible and efficacious" and fails as a matter of law. (*Richmond*, 184 Cal.App.4th at 95.)

Importantly, deferral of mitigation to another time and in consultation with another agency violates CEQA's fundamental policy that public agencies "should not approve projects" when there are feasible mitigation measures to reduce significant environmental impacts. (Pub. Resources Code § 21002.) By relying on a vague and infeasible mitigation scheme the

EIR repeatedly asserts that it has adopted all the feasible mitigation because it has already reduced the emissions to below two tons per year, then fails adopt other feasible mitigation.

Respondents use the deferred mitigation scheme as a tool to avoid their obligations to further reduce the Project's air quality impacts. In circumstances where the lead agency cannot demonstrate the feasibility of potential mitigation measures to reduce the Project's impacts, the "solution [is] not to defer the specification and adoption of mitigation measures…, but, rather, to defer approval of the Project until proposed mitigation measures were fully developed, clearly defined, and made available to the public and interested agencies for review and comment." (*Richmond*, 184 Cal. App. 4th 70, 95.)

CONCLUSION

For each of the reasons discussed above, Appellants respectfully request that this Court reverse the court's denial of Appellants' Petition for Writ of Mandate, with instructions that Respondents' approval of the Tejon Mountain Village project be vacated and granting other such relief as requested and appropriate.

I certify that the total word count of this brief, including footnotes, is 13932 words, as determined by the word count of the Microsoft Word program on which this brief was prepared.

DATE: June 15, 2011 Respectfully Submitted,

Adam Keats
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PROOF OF SERVICE BY MAIL

I, Candice McLaughlin, declare as follows:

I am employed in the County of San Francisco, State of California. I am over the age of eighteen and my business address is 351 California St., Suite 600, San Francisco, CA 94104.

On June 15, 2011, I served the following document(s) entitled:

APPELLANTS' OPENING BRIEF

by placing a copy thereof enclosed in a sealed envelope addressed as follows:

For Respondents County of Kern and Kern County Board of Supervisors:
Charles F. Collins, Esq.
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For Real Parties in Interest Tejon Ranch Co. and Tejon Mountain Village, LLC:
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Kern County Superior Court
Hon. Kenneth C. Twisselman
Department 8
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California Supreme Court (via electronic mail)

I am readily familiar with my office's practice for collection and processing of correspondence and other materials for mailing with United States Postal Service. On this date, I sealed the envelope(s) containing the above materials and placed the envelope(s) for collection and mailing on this date at the address stated above, following our office's ordinary business practices.

I declare under penalty of perjury under the laws of the state of California that the foregoing is true and correct and that this Proof of Service was executed on June 16, 2011, at San Francisco County, California.

C. McLaughlin

Candice McLaughlin