ADDENDUM TO THE FINAL EIR AND ADDITIONAL ANALYSIS FOR THE NEWHALL RANCH SPECIFIC PLAN AND WATER RECLAMATION PLANT (SCH NO. 1995011015)

Los Angeles County Project No. 94-087(5)

Addendum Regarding Formation of the Newhall Ranch County Sanitation District

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ADDENDUM REGARDING FORMATION OF THE NEWHALL RANCH SANITATION DISTRICT

I. INTRODUCTION

This document is an Addendum to the certified Final Environmental Impact Report and Final Additional Analysis for the Newhall Ranch Specific Plan and Water Reclamation Plant project (collectively, "Newhall Ranch EIR"). The Newhall Ranch EIR evaluated the environmental impacts, mitigation and alternatives associated with implementing the Newhall Ranch Specific Plan ("Specific Plan") and constructing the Newhall Ranch Water Reclamation Plant ("WRP").

On May 27, 2003, the Los Angeles County Board of Supervisors certified the adequacy of the Newhall Ranch EIR, as revised by the Final Additional Analysis, pursuant to the California Environmental Quality Act ("CEQA;" Pub.Res.Code §21000, *et seq*.), the CEQA Guidelines (14 Cal.CodeRegs. §15000 *et seq*.), and the County's Environmental Document Reporting Procedures and Guidelines. After certification, the Board of Supervisors adopted the required resolution, findings and conditions approving the Specific Plan, WRP and other associated project approvals, including Conditional Use Permit No. 94-087, which authorizes construction of the WRP.

The Newhall Ranch EIR evaluated the impacts of constructing the WRP at a project level, and included an adopted mitigation measure (No. 5.0-52) contemplating formation of a county sanitation district to provide wastewater treatment service to the approved Specific Plan site. The project applicant has requested that the Board of Supervisors implement this mitigation measure by adopting a resolution to proceed with formation of a county sanitation district for the Specific Plan area. The resolution, if adopted, would be submitted to the Los Angeles County Local Agency Formation Commission ("LAFCO"). If the Board of Supervisors approves initiation of formation proceedings, LAFCO will consider the formation request, hold a noticed public hearing and may either approve, modify or deny the proposed formation.

This Addendum has been prepared to include new information not available at the time the Newhall Ranch EIR was certified, which new information does not trigger the need for further

environmental analysis in a subsequent or supplemental EIR under the requirements of CEQA and the CEQA Guidelines.[1]

II. PURPOSE OF ADDENDUM

Under CEQA, when an EIR has been certified for a project, a subsequent EIR is prepared for that project only when the lead agency determines, based on substantial evidence in light of the whole record, that one or more of the following circumstances has occurred:

(1) Substantial changes are proposed in the project, or occur with respect to the circumstances under which the project is undertaken, which will require major revisions in the previously certified EIR due to the involvement of new significant environmental effects, or a substantial increase in the severity of previously identified significant effects (CEQA Guidelines §15162(a)(1), (2)); or

(2) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:

(a) The project will have one or more significant effects not discussed in the previously certified EIR;

(b) Significant effects previously examined will be substantially more severe than shown in the certified EIR;

(c) Mitigation measures or alternatives previously found not to be feasible would, in fact, be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or

(d) Mitigation measures or alternatives which are considerably different from those analyzed in the certified EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measures or alternatives (*see*, CEQA Guidelines §15162(a)(3)(A)–(D)).

The lead agency may choose to prepare a supplement to an EIR, rather than a subsequent EIR, if one or more of the conditions described above for a subsequent EIR exist, but only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation. *See*, CEQA Guidelines §15163(a).

An addendum to an EIR shall be prepared if changes or additions to the project or the EIR are necessary and none of the conditions described in Section 15162 have occurred. A brief explanation of the decision not to prepare a subsequent EIR, supported by substantial evidence,

[1] *See*, specifically, Section 15162 (subsequent EIR), Section 15163 (supplemental EIR) and Section 15164 (Addendum) of the CEQA Guidelines.

should be included in the addendum, in the findings on the project, or elsewhere in the record. The decision-making body shall consider the addendum with the Final EIR prior to making a decision on the project.

This Addendum has been prepared for the Board of Supervisors' review and consideration prior to taking action on adoption of a resolution of intention and request to LAFCO to form a new county sanitation district for the Newhall Ranch Specific Plan area because neither this proposed action nor the new information contained in this Addendum gives rise to any of the above circumstances requiring a subsequent or supplemental EIR. As shown in this Addendum: (1) formation of a new county sanitation district was addressed in the Newhall Ranch EIR; (2) no substantial changes are proposed in the approved project, or occur with respect to the circumstances under which the project is undertaken, which will require major revisions to the Newhall Ranch EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; and (3) no new information (as defined above) results in any new or more severe significant effects not discussed or analyzed in the Newhall Ranch EIR.

III. BACKGROUND

A. PROJECT SUMMARY

The "project" analyzed in the Newhall Ranch EIR is the adopted Specific Plan, the WRP and other associated project approvals. In the EIR, the Specific Plan was evaluated at a "program" level of analysis, and the WRP was evaluated at a "project" level of analysis. The approved Specific Plan, including the WRP site, encompasses approximately 11,963 acres and is generally located in the northern portion of unincorporated Los Angeles County in the Santa Clarita Valley planning area. The WRP will provide wastewater treatment, disposal and reclamation of treated water for reuse within the Specific Plan site.

A detailed discussion of the WRP, including its potential environmental impacts and mitigation, is found in the Newhall Ranch EIR in Section 5.0 of the Final EIR for the Newhall Ranch Specific Plan and Water Reclamation Plant (March 8, 1999). In addition, Section 3.0 of the Newhall Ranch Revised Additional Analysis, Volume V (March 2003), assessed and updated various WRP alternatives, including the adopted On-Site Alternative (Reduced Habitat Impacts).

In summary, the adopted WRP alternative entails situating and arranging the plant in a manner that avoids permanent impacts to sensitive and non-sensitive habitats. The approved WRP site,

consisting of approximately 14.3 acres, is to be located in one of the Business Park areas on the south side of SR-126, north of and adjacent to the Santa Clara River, and near the Los Angeles County/Ventura County boundary line on the west edge of the Specific Plan site.

The approved WRP is sized to serve the needs of the Specific Plan. The WRP 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 per day of wastewater when the Specific Plan site is fully developed and occupied. The WRP will consist of primary, secondary and tertiary treatment facilities, as well as solids handling and disinfection facilities. The WRP will reclaim the maximum amount of wastewater generated by the Specific Plan development in order to meet a portion of the non-potable water demand of the Specific Plan area. As such, the WRP would be a zero, or near zero, discharge system. Such a system is intended to reclaim all treated wastewater for re-use within the Specific Plan area for irrigation purposes, except for potentially wet winters when irrigation demands would be lower and some discharge of unused reclaimed water to the Santa Clara River would occur. The WRP is the only aspect of the Newhall Ranch project that was reviewed at a project construction level of detail in the Newhall Ranch EIR and approved under Conditional Use Permit 94-087.

B. FORMATION OF A NEW COUNTY SANITATION DISTRICT HAS BEEN ADDRESSED IN THE NEWHALL RANCH EIR

The Newhall Ranch EIR addressed the environmental impacts associated with the formation of a new county sanitation district, with its boundaries coinciding with that of the approved Specific Plan site.[2] After assessing the environmental impacts associated with the land uses within the new district boundaries, the Newhall Ranch EIR adopted Mitigation Measure 5.0-52, which specifically stated that a "new County sanitation district shall be formed to administer operation of the Newhall Ranch water reclamation plant." The mitigation measure also stated that the new county sanitation district would "encompass the entire Newhall Ranch Specific Plan site." *Id.* This mitigation measure was adopted by the Board of Supervisors when it certified the Newhall Ranch EIR on May 27, 2003.

C. CURRENT PROPOSED ACTION

The current proposed action is for the Board of Supervisors to initiate proceedings for formation of a county sanitation district for the Specific Plan area, pursuant to California Health and

[2] *See*, Section 5.0 of the Final EIR for the Newhall Ranch Specific Plan and Water Reclamation Plant (March 8, 1999), and Section 3.0 of the Revised Additional Analysis to the Newhall Ranch Specific Plan and Water Reclamation Plant Final EIR, Volume V (March 2003).

Safety Code §4700, *et seq*. Under the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 ("the Reorganization Act;" Gov.Code §56000, *et seq*.), the formation of a county sanitation district constitutes a "change in organization" that requires approval by LAFCO.

At the request of the project applicant, the Board of Supervisors would begin the formation process by adopting a resolution of intention, requesting that LAFCO initiate proceedings for formation of a county sanitation district for the Specific Plan area, to be known as the "Newhall Ranch County Sanitation District," as required by California Health and Safety Code §4710 and California Government Code §56654.

D. SANTA CLARITA VALLEY URBAN WATER MANAGEMENT PLAN

Since certification of the Newhall Ranch EIR, recent action was taken by the Castaic Lake Water Agency ("CLWA") and the local retail water purveyors (Santa Clarita Water Division of CLWA, Newhall County Water District and Valencia Water Company), which involved the re-adoption of the *2000 Urban Water Management Plan* ("*2000 UWMP*"), as amended, after a public hearing held on January 24, 2005.

By way of background, in late September 2004, the Court of Appeal for the Fifth District concluded that the *2000 UWMP* did not fully meet the requirements of the Urban Water Management Planning Act ("UWMP Act;" Water Code §§10610, *et seq*.). Specifically, the Court concluded that the *2000 UWMP* should have addressed "the time needed to implement the available method for treating the [perchlorate] contaminated water [in the local groundwater basin]," and should have described "the reliability of the groundwater supply during that [treatment] implementation."[3]

In response to this court decision, CLWA and the retail water purveyors in the Santa Clarita Valley directed the joint preparation and completion of the "Groundwater Perchlorate Contamination Amendment and Other Amendments" ("Amendment") to the *2000 UWMP*. The Amendment provides information responsive to, and consistent with, both the Court of Appeal's decision and the UWMP Act. The focus of the Amendment is on updating the significant progress made by CLWA, the local water purveyors and others, in responding to the perchlorate-contaminated groundwater in portions of the Saugus Formation and Alluvial aquifer, the two aquifer systems that comprise the local Santa Clara River Valley East

[3] For a copy of the published Court of Appeal decision (*Friends of the Santa Clara River v. Castaic Lake Water Agency* (2004) 123 Cal.App.4th 1), please see **Appendix A** to this Addendum.

Groundwater Subbasin. This subbasin is the source of the local groundwater used to meet portions of the Santa Clarita Valley's potable water supply.[4]

The County has independently reviewed the Newhall Ranch EIR's water analysis, and has determined that the water supply and demand assessment is adequate under CEQA and consistent with the recent Court decision involving the *2000 UWMP*. The Newhall Ranch EIR presents a thorough water supply and demand assessment of both the Specific Plan and other projects planned in the Santa Clarita Valley.

The County reviewed the Newhall Ranch EIR's water supply and demand assessment for consistency with the Amendment to the *2000 UWMP*. Based on that review, the County has determined that: (1) the Newhall Ranch EIR's water analysis presents a stand-alone water supply assessment of the Specific Plan, in conjunction with other projects in the Santa Clarita Valley, and it correctly concludes that an adequate supply of water exists for the development authorized by the Specific Plan, in conjunction with other development in the Santa Clarita Valley; (2) the Newhall Ranch EIR's water analysis already contains a detailed analysis of perchlorate-contaminated groundwater in the local subbasin, even absent the information presented in the Amendment to the *2000 UWMP*; and (3) the additional information provided in the Amendment to the *2000 UWMP* regarding remediation of the perchlorate-contaminated groundwater is consistent with the information previously presented in the Newhall Ranch EIR.

The Amendment to the *2000 UWMP* revised or replaced selected sections of the *2000 UWMP* in response to the recent Court decision. The Amendment, which has been independently reviewed by County staff, addresses the time needed to implement perchlorate treatment, and describes the reliability of the groundwater supply during treatment implementation.

In summary, the Amendment to the *2000 UWMP* concludes, based on substantial evidence presented, that in all cases (both near-term and long-term operational scenarios) total existing water supply will be sufficient to meet projected demand for the Santa Clarita Valley. CLWA and the water purveyors' treatment plan for perchlorate is scheduled to come on-line in 2006, at which time treated well water would become available. In the near term, the treatment plan projects that the impacted water will remain unavailable through 2006, and, during that time, the non-impacted groundwater and other available supplies will be sufficient to meet near-term supply water requirements of the Santa Clarita Valley. After treatment, the total groundwater

[4] The *2000 UWMP*, as amended, is available for public review and inspection at CLWA, 27234 Bouquet Canyon Road, Santa Clarita, CA 91350-2173, and is incorporated by reference in this Addendum.

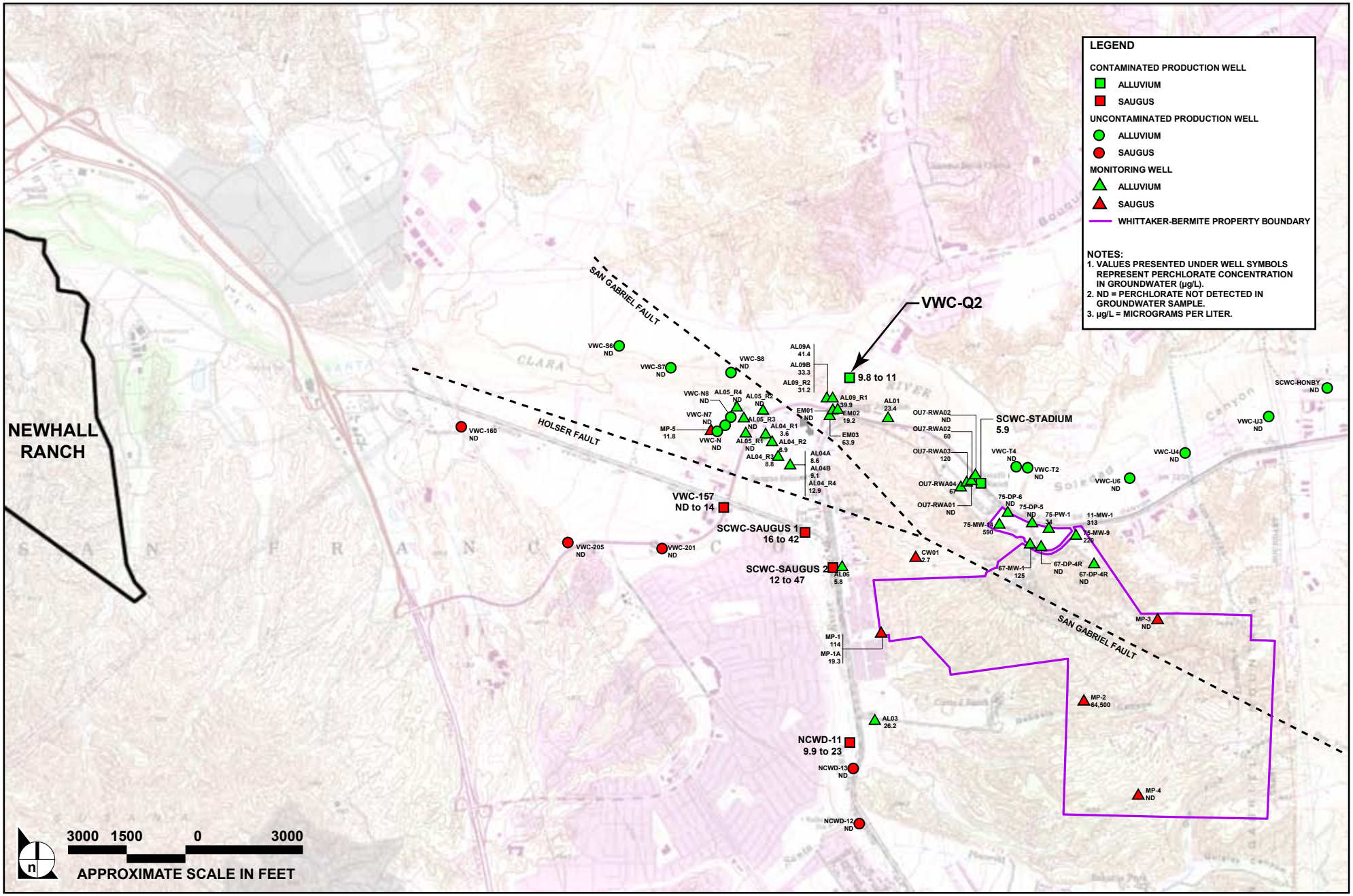
capacity will be sufficient to meet the normal and dry-year conditions as provided in the long-term operating plan for groundwater supply. Before plan completion, issuance of a permit by the State Department of Health Sciences ("DHS") will be required to verify that water is considered potable and safe for delivery to customers. The Amendment to the *2000 UWMP* focuses on the following:

- Restoring the impacted water supply capacity in the perchlorate-contaminated wells;
- Controlling the movement of perchlorate-contaminated groundwater and protecting other municipal supply wells;
- Selecting treatment methods;
- Restoring the perchlorate-impacted groundwater to safe drinking water standards; and
- Analyzing the reliability of the local groundwater supplies, both during the interim of the containment treatment period (2006) and through the 20-year planning horizon of the *2000 UWMP*.

The facts and findings presented in the Amendment to the *2000 UWMP* are consistent with the water-related information presented in the Newhall Ranch EIR and do not give rise to any of the circumstances requiring a subsequent or supplemental EIR for the proposed formation of a county sanitation district to serve the Newhall Ranch Specific Plan area.

E. VALENCIA WELL Q2 PERCHLORATE CONTAMINATION

In April 2005, Valencia Water Company ("Valencia"), the local retail water purveyor for the Specific Plan, advised the County that it had confirmed the detection of perchlorate in Valencia's Well Q2, an Alluvial well, in connection with the regular monitoring of active wells near the former Whittaker-Bermite facility in the City of Santa Clarita. One of the potable water sources for the Newhall Ranch Specific Plan site is groundwater from the Alluvial aquifer at a considerable distance downstream from Well Q2. Valencia's Well Q2 is located east of the confluence of Bouquet Creek and the Santa Clara River (**Figure 1-1**), at an elevation approximately 14 feet above the river bottom and outside the river channel. **Figure 1-2** depicts the Whittaker-Bermite site and Valencia's Well Q2 in relation to the Newhall Ranch Specific Plan site. Because Well Q2 is located approximately five miles east of the Newhall Ranch Specific Plan area and not located within the Specific Plan boundary, the well would not provide water to the Specific Plan site. The wells that would serve the Specific Plan development are located in and near the Valencia Commerce Center, which is located immediately adjacent to the northeast corner of the Specific Plan site.

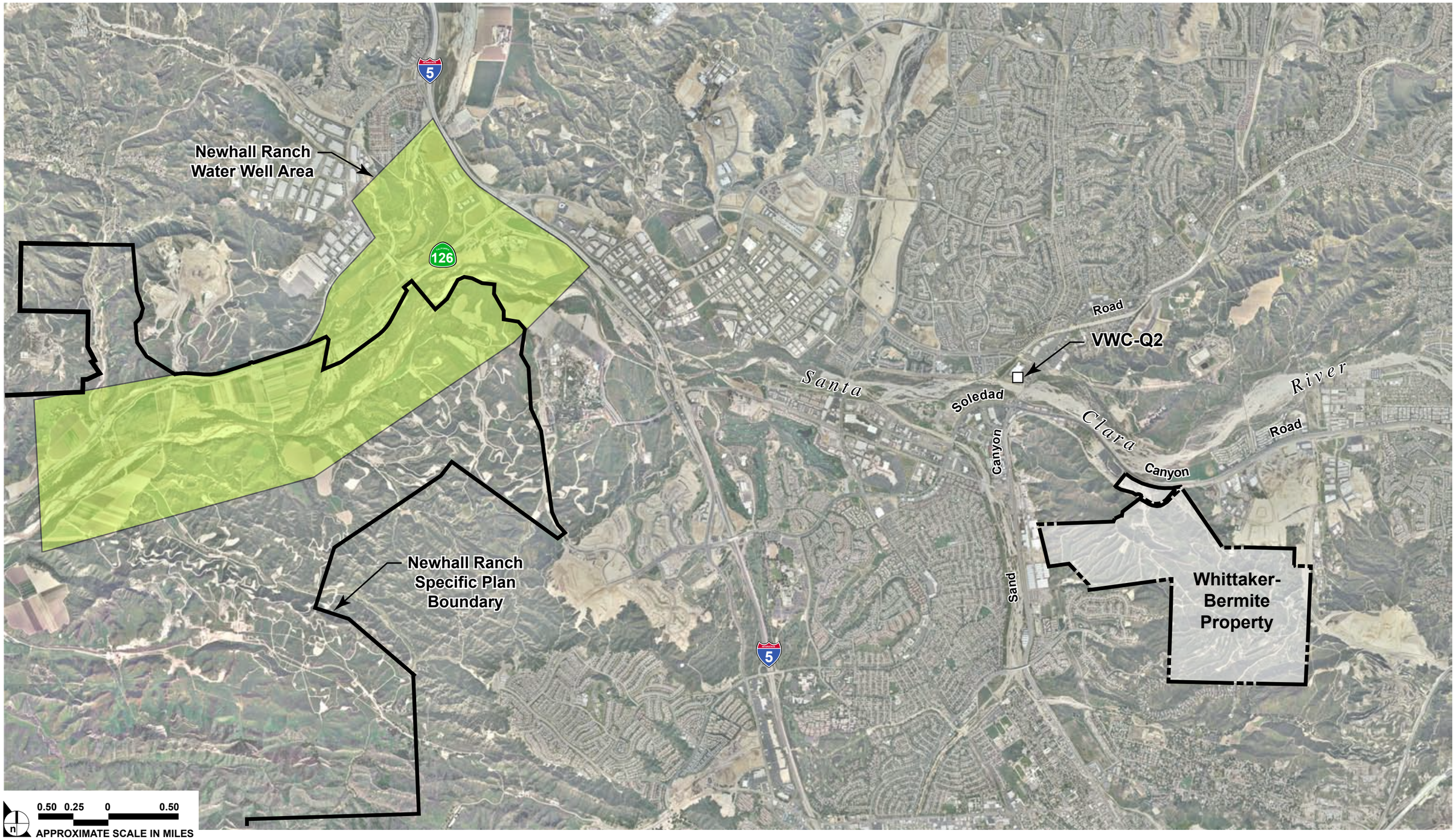


SOURCE: CH2MHILL – April 2005, Impact Sciences, Inc. – September 2005

FIGURE **1-1**

Well Location Map

32-211•09/05



SOURCE: AirPhoto USA – 2004, Impact Sciences, Inc. – September 2005

FIGURE **1-2**

Aerial Photo of Well Location

32-211•09/05

At present, perchlorate is not a regulated chemical in drinking water. However, the State DHS requires that water utilities test their water sources for certain unregulated chemicals, and perchlorate is one of those chemicals. The State DHS "notification level" for perchlorate is 6 micrograms per liter (ug/l).[5] State DHS currently anticipates proposing a Maximum Contaminant Level (MCL) for perchlorate in 2005.

The initial detection of perchlorate at Valencia's Well Q2 was at a concentration of 11 ug/l; two confirmation samples in the first two weeks of April detected perchlorate at concentrations of 9.8 and 10 ug/l, respectively. As a result of the detection and confirmation of perchlorate in its Well Q2, Valencia has removed the well from active service and is pursuing rapid permitting and installation of wellhead treatment in order to return the well to water supply service. **Appendix B** contains a summary entitled, *Valencia Water Company Executive Summary of Q2 Report*, prepared by the Valencia Water Company, dated April 2005, and a Letter to the County of Los Angeles from the Valencia Water Company, dated April 21, 2005. **Appendix C** contains a report entitled, *Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2*, prepared by Luhdorff & Scalmanini Consulting Engineers, dated April 2005; and **Appendix D** contains Valencia Water Company's Permit Application, dated May 2005, to the State DHS for wellhead treatment at Well Q2.

The Newhall Ranch EIR already disclosed the detection of perchlorate in municipal-supply wells in both the Saugus Formation and the Alluvial aquifer. Recent technical data presented in the Amendment to the *2000 UWMP* also acknowledged that some potential risk existed to other downgradient Alluvial aquifer wells in proximity to the former Whittaker-Bermite site.[6] In light of that risk, Valencia had been planning for some time to be in a position to respond to Alluvial wells impacted by perchlorate contamination through installation of ion exchange wellhead treatment, which is specially designed for the selective removal of perchlorate from well water, and, as such, has been certified for potable water use for drinking water system components.

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[5] "Notification level" means the concentration level of a contaminant in drinking water delivered for human consumption that the State DHS has determined, based on available specific information, does not pose a significant health risk but warrants notification pursuant to applicable law. Notification levels are nonregulatory, health-based advisory levels established by the State DHS for contaminants in drinking water for which maximum contaminant levels have not been established. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of maximum contaminant levels, but have not yet undergone or completed the regulatory standard setting process prescribed for the development of maximum contaminant levels. Notification levels are not drinking water standards.

[6] *See*, Amendment to the *2000 UWMP*, available for review at CLWA.

The Newhall Ranch EIR, the *2004 Santa Clarita Valley Water Report* (*see*, **Appendix E**) and the Amendment to the *2000 UWMP* also disclosed that, according to CLWA, Valencia and other retail purveyors, adequate water supplies exist to serve existing users and the Newhall Ranch Specific Plan at the time of need (2008 and beyond), in conjunction with other cumulative development in the Valley. CLWA, Valencia and other retail purveyors have advised the County that there is sufficient well capacity in uncontaminated portions of both the Saugus Formation and the Alluvial aquifer to pump the volumes of groundwater shown in the Newhall Ranch EIR. This determination is based on the information presented in the 2002, 2003 and 2004 *Santa Clarita Valley Water Reports*, the *2000 UWMP*, as amended, and other supporting documents. The determination is also based on the sufficiency of existing water supplies without taking into account water from Well Q2.[7]

Additionally, even with the detection of perchlorate at Well Q2, the well is still capable of being used as part of a viable water supply over the long-term, because the water is treatable through proven ion exchange technology already in use in California and elsewhere.[8]

Valencia's wellhead treatment system would be constructed at a location already developed with commercial uses, immediately adjacent to the existing Well Q2, outside of both the Santa Clara River and the 100-year floodplain. No waste brine would be created by the treatment process and all used resin would be disposed of in permitted off-site locations.

Funding for the wellhead treatment of Well Q2 has been secured by Valencia[9] and, therefore, such treatment is considered to be economically feasible. The wellhead treatment of Well Q2 is expected to be in place in 2005. This time frame is well before the Newhall Ranch Specific Plan development is anticipated to be constructed and occupied.

Based on a review of all the above documents and the other technical data herein, the County has determined that the detection of perchlorate at Well Q2 does not give rise to any of the

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[7] *Ibid*. *See also*, letter from the Valencia to the County of Los Angeles, dated April 21, 2005, included in **Appendix B**.

[8] The ion exchange treatment method already has been approved for use by the State DHS in the San Gabriel Basin, La Puente Valley County Water District and elsewhere in California. Other locations where this treatment method has been approved for use by DHS include: Lincoln Avenue Mutual Water Company near Altadena; San Gabriel Valley Water Company in El Monte; California Domestic Water Company in Whittier; City of Riverside; West San Bernardino Water District in Rialto; City of Rialto; City of Colton; Fontana Union Water Company, and the City of Pomona. *See*, Amendment to the *2000 UWMP*, pp. 2-28–2-30, available for review at CLWA.

[9] Personal communication by Robert DiPrimio, President, Valencia Water Company to Thomas Worthington, Impact Sciences, Inc., dated May 16, 2005.

circumstances requiring a subsequent or supplemental EIR for the proposed formation of a county sanitation district to serve the Newhall Ranch Specific Plan area.

IV. CONCLUSION

The Newhall Ranch EIR addresses all impacts and identifies all mitigation associated with construction of the WRP and formation of a county sanitation district for the Specific Plan area. No substantial changes are proposed in the project, or have occurred with respect to the circumstances under which the project is undertaken, which will require major revisions to the Newhall Ranch EIR due to the involvement of new or more severe significant environmental effects. The proposed formation of a new County sanitation district is within the scope of the previously certified Newhall Ranch EIR, and no new mitigation measures, alternatives or other information of substantial importance would be required to implement the Board of Supervisors' proposed action. Finally, no new information of substantial importance has been presented that gives rise to any new or more severe environmental effects than were previously identified in the Newhall Ranch EIR.

Accordingly, the County has concluded that a subsequent or supplemental EIR is not required and that this Addendum to the Newhall Ranch EIR complies with the requirements of CEQA and the CEQA Guidelines.

This Addendum relies on the certified Newhall Ranch EIR (as defined), the related Administrative Record, the *2004 Santa Clarita Valley Water Report*, the documentation presented in **Appendices B** through **D**, and the documentation presented in the *2000 UWMP*, as amended.

APPENDIX A

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

[No. F043273. Fifth Dist. Sept. 22, 2004.]

FRIENDS OF THE SANTA CLARA RIVER et al., Plaintiffs and Appellants, v.
CASTAIC LAKE WATER AGENCY et al., Defendants and Respondents.

SUMMARY

Nonprofit corporations filed a petition for writ of mandate alleging that an urban water management plan was prepared by water agencies in violation of the Urban Water Management Planning Act, Wat. Code, § 10610 et seq. Certain aspects of the urban plan concerned the effects of perchlorate contamination on the groundwater supply. The trial court denied the petition for a writ of mandate and entered judgment in favor of defendants. (Superior Court of Kern County, No. 245365, Richard J. Oberholzer, Judge.)

The Court of Appeal reversed and remanded with directions. The court held that the plan's description of the perchlorate contamination and the method for addressing that contamination were flawed because they failed 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. Although the plan mentioned that a groundwater cleanup plan was being developed to address the perchlorate contamination, it did not mention what stage of development had been reached or how much longer it would take to complete and implement that plan. Assuming the length of time needed to implement the plan was uncertain, the plan did not describe the factors that caused that uncertainty. Timing considerations of other aspects of the perchlorate contamination also affected the reliability of the supply of groundwater. To the extent that the answers to these timing issues were uncertain, the plan did not discuss how this uncertainty affected the reliability of the supply of groundwater. Without a reliable analysis of the availability of water, the plan was fatally flawed. Defendants did not proceed in a manner required by law in their preparation of the plan, thus prejudicially abusing their discretion. (Opinion by Cornell, J., with Vartabedian, Acting P. J., and Buckley, J., concurring.)

HEADNOTES

Classified to California Digest of Official Reports

(1) **Waters § 184—Public Utilities Selling Water—Public Regulation—Urban Water Management Planning Act—Water Management Plans—Long-range Planning.**—In 1983, the Legislature adopted the Urban Water Management Planning Act (UWMP Act), Wat. Code, § 10610 et seq., 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. 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. The plans must consider a 20-year time horizon (Wat. Code, § 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 (Wat. Code, § 10621, subd. (a)). The UWMP Act requires plans to address specific issues. It also sets forth the procedural steps that urban water suppliers must follow when preparing, reviewing, and amending their plans.

(2) **Waters § 184—Public Utilities Selling Water—Public Regulation—Urban Water Management Plan—Appellate Review.**—In a mandate proceeding to review the decision of a public agency to adopt an urban water management plan, the appellate court's standard of review is set forth in Wat. Code, § 10651.

(3) **Waters § 184—Public Utilities Selling Water—Public Regulation—Urban Water Management Plan—Appellate Review—Abuse of Discretion.**—The role of an appellate court in reviewing an administrative record for a prejudicial abuse of discretion under Wat. Code, § 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.

(4) **Waters § 184—Public Utilities Selling Water—Public Regulation—Urban Management Water Plan—Mandatory Contents.**—Wat. Code, § 10631, specifies some of the mandatory contents of an urban water management plan. Under § 10631, subd. (b), a plan shall identify 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.

(5) **Waters § 184—Public Utilities Selling Water—Public Regulation—Urban Water Management Plan—Alternative Sources.**—When any

water source may not be available at a consistent level of use, the urban water management plan must describe plans to replace that source with alternative sources.

(6) **Waters § 184—Public Utilities Selling Water—Public Regulation—Urban Water Management Plan—Failure to Address Timing Issues Related to Perchlorate Contamination—Plan Legally Inadequate.**—An urban water management plan's description of the reliability of the groundwater supplied from aquifers was inadequate under Wat. Code, § 10631, subd. (c), where it failed to address timing issues related to the perchlorate contamination. Simply stating that a treatment technology was available and that a groundwater treatment plan was being developed without discussing when the plan might 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. This gap rendered the plan legally inadequate.

[4 Witkin, Summary of Cal. Law (9th ed. 1987) Real Property, § 81.]

COUNSEL

Law Offices of Stephan C. Volker, Stephan C. Volker and Gretchen E. Dent for Plaintiffs and Appellants.

Horvitz & Levy, William N. Hancock, Jon B. Eisenberg; McCormick, Kidman & Behrens, Russell G. Behrens and David D. Boyer for Defendants and Respondents Castaic Lake Water Agency and Santa Clarita Water Company.

Gatzke Dillon & Ballance, Mark J. Dillon, Michael S. Haberkorn and Heather S. Riley for Defendant and Respondent Valencia Water Company.

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 Act (UWMP Act), Water Code section 10610 et seq.[1] Among the many grounds for reversal asserted is

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

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.

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.[2]

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. 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 Castaic Lake Water Agency Law. (Stats. 1962, 1st Ex. Sess., ch. 28, § 1, p. 208, 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.

Newhall County Water District (Newhall) is a district formed by election under California's County Water District Law (§ 30000 et seq.). Newhall is a

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

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.[3]

Santa Clarita Water Company (SCWC) is a California corporation and retailer of 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.[4] At the end of 1999, SCWC served approximately 21,100 connections.

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.

[3] 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.

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

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.[5] 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.[6]

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 projects can be identified to supplement the existing sources of water.

[5] 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].

[6] 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].

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.[7] 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,[8] 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

[7] The County of Ventura did not appeal from the denial of its petition.

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

$177.49), and [VWC's] administrative record charges ($4,191.31)."[9] 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.

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

DISCUSSION

(1) 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. 3555.) 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 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*

(2) 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 of discretion is

[9] 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 x 16 copies) = $0.16934 per page).

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.

(3) 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 *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 prejudicially have 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.

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. [¶] . . . [¶]

"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 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 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.

"An ion exchange process has also been developed that successfully treats and removes perchlorate. This process is called the continuous ion exchange

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.[10]

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.[11] Assuming the length of time

[10] 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."

[11] 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).)

needed to implement the plan is uncertain, the UWMP does not describe the factors that have caused that uncertainty.[12]

Timing considerations of other aspects of the perchlorate contamination also affect the reliability of the supply of groundwater. For instance, the UWMP does not 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.[13]

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-6 months, design-3 months, construction & permitting-9 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*

(4) 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

[12] 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.

[13] 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 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.

(**5**) 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 dry years, the reliability of the water supply available during those dry periods could be affected significantly.

(**6**) 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.[14] 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.

[14] 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 water years." (*Ibid.*)

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,[15] the consequences to those who relied on the UWMP, as well as those who share a water supply with them, could be severe. The ability to modify and review the plan does not overcome the initial failure.

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 (rev. 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.

Vartabedian, Acting P. J., and Buckley, J., concurred.

[15] 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.

APPENDIX B

Valencia Water Company, Executive Summary of Q2 Report,
dated April 21, 2005

Valencia Water Company

24631 Avenue Rockefeller • P.O. BOX 5904 • Valencia, CA 91385-5904
(661) 294-0828 • Fax (661) 294-3806

VALENCIA WATER COMPANY
EXECUTIVE SUMMARY OF Q2 REPORT

Valencia Water Company (Valencia) confirmed the detection of perchlorate in Valencia's Well Q2, an Alluvial well, in connection with its regular monitoring of active municipal-supply wells near the former Whittaker-Bermite site, located in the City of Santa Clarita, California, in April 2005. In response, Valencia removed the well from active service, and requested that Luhdorff & Scalmanini, Consulting Engineers, prepare a report assessing the impact of, and response to, the perchlorate contamination in Valencia's Well Q2 (Q2 Report)[1]. The Q2 Report documents that perchlorate detected in Well Q2 does not impact the water supplies used to meet demand in the Santa Clarita Valley and that Valencia's response plan for Well Q2 is to promptly pursue permitting and installation of wellhead treatment, as described in the Q2 Report, in order to return the well to water supply service. This is an executive summary of the completed Q2 Report.

Q2 Report Summary

The Q2 Report assesses the impact of the removal of Well Q2 on the overall adequacy of Valencia's water supply (Q2 Report, Section II). It also discusses Valencia's response to the perchlorate detection in Well Q2, as well as the response plan for non-impacted wells (Q2 Report, Sections III, IV). The Q2 Report further summarizes the status of the off-site restoration and containment plan of Castaic Lake Water Agency (CLWA) and the retail purveyors, which focuses on containment and removal of perchlorate from groundwater in addition to restoring lost pumping capacity in the Saugus Formation as part of the larger scale remediation activities overseen by the state Department of Toxic Substances Control (DTSC) on the Whittaker-Bermite site (Q2 Report, Section V).

As shown in the Q2 Report, removal of Well Q2 from active service does not impact the overall adequacy of Valencia's water supply because:

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1 The Q2 Report is entitled, "*Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2,*" prepared for Valencia by Luhdorff & Scalmanini, Consulting Engineers, dated April 2005.

(a) There is sufficient source capacity in Valencia's active wells and at its CLWA turnouts to meet average/normal and dry year production demands;

(b) Both the Alluvial aquifer and the Saugus Formation can be considered sustainable water supply sources to meet CLWA and the purveyors' operating plan for the groundwater basin based on a combination of actual experience with Alluvial and Saugus aquifer pumping and modeling projections;

(c) The short-term response plan for other downgradient Alluvial wells, the closest to the Whittaker-Bermite site are owned and operated by Valencia, is to promptly install wellhead treatment to ensure adequate water supplies, and this plan compliments the longer term source control actions being taken by the Whittaker-Bermite property owner under supervision of DTSC to address perchlorate contamination in the Northern Alluvium (to the north of the former Whittaker-Bermite site) and subsequent restoration of the one other perchlorate contaminated Alluvial well (Stadium well); as well as the CLWA/purveyor plan for integrated control of contamination migration and restoration of impacted pumping capacity in the Saugus Formation by 2006;

(d) With recognition that some potential risk exists to other downgradient Alluvial wells in proximity to the former Whittaker-Bermite site, Valencia has been planning for some time to be in a position to respond to other Alluvial wells impacted by perchlorate contamination through installation of ion exchange wellhead treatment, which is the same method as planned for long-term treatment of two of the contaminated Saugus wells; and

(e) The Department of Health Services (DHS) has approved the use of ion exchange to accomplish removal of perchlorate from drinking water at several other locations in California.

Consistent with its immediate plans to prepare and submit an application to amend its water supply permit allowing treatment at Well Q2, Valencia has contacted USFilter to install and maintain treatment at Well Q2, which is capable of removing perchlorate pumped from the well to a non-detect level. The specific Well Q2 treatment system incorporates USFilter's ion exchange equipment that removes perchlorate with no waste brine generated from the treatment system.

Letter to the County of Los Angeles from the Valencia Water Company, dated April 21, 2005

Valencia Water Company

24631 Avenue Rockefeller • P.O. BOX 5904 • Valencia, CA 91385-5904
(661) 294-0828 • Fax (661) 294-3806

April 21, 2005

Via Fed Ex

County of Los Angeles
Mr. David E. Jannsen
500 W. Temple Street
Los Angeles, CA 90012

Re: Notification Level for Valencia Water Company's Well Q2

Dear Mr. Jannsen,

This letter is to inform the County of Los Angeles (County) that a positive result for perchlorate was detected in a well operated by the Valencia Water Company (Valencia) above the Notification Level of six parts per billion.[1] On April 8, 2004, Valencia confirmed perchlorate in Valencia's well Q2 at 10.4 parts per billion in test results averaged from two consecutive samples. This well draws water from the Alluvial Aquifer, which is part of the Santa Clara River Valley east groundwater subbasin. The local basin is comprised of two aquifer systems. The Alluvial Aquifer system generally underlies the Santa Clara River and its tributaries and the deeper Saugus Formation underlies almost the entire Upper Santa Clara River area. Valencia's well Q2 is located in the Alluvial Aquifer west of Bouquet Canyon Road, south of Newhall Ranch Road, in the Santa Clara Valley, Los Angeles County. The well has been removed from service.

At present, perchlorate is not a regulated chemical in drinking water. The California Department of Health Services (DHS) requires that water utilities test their water sources for certain unregulated chemicals. Perchlorate is one of those chemicals. Each of these unregulated chemicals has a Notification Level and, for perchlorate, it is six parts per billion. When a chemical is found at concentrations above its Notification level, Valencia is required to notify the County within 30 days after detection has been confirmed. Perchlorate has been linked to the function of the thyroid gland. It can interfere with iodide uptake by the thyroid gland, which can result in decreased production of thyroid hormones needed for prenatal and postnatal growth and development, as well as for normal metabolism and mental function in adults. Additional information about this chemical can be found on the following DHS web site: http://www.dhs.ca.gov/ps/ddwem/chemicals/perchl/perchlindex.htm.

Valencia believes the origin of the perchlorate found in well Q2 is from the former Whittaker-Bermite site, located at 22116 West Soledad Canyon Road, Santa Clarita Valley, Los Angeles County, California.

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[1] "Notification level" means the concentration level of a contaminant in drinking water delivered for human consumption that the Department of Health Services (DHS) has determined, based on available scientific information, does not pose a significant health risk but warrants notification pursuant to applicable law. Notification levels are nonregulatory, health-based advisory levels established by DHS for contaminants in drinking water for which maximum contaminant levels have not been established. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of maximum contaminant levels, but have not yet undergone or completed the regulatory standard setting process prescribed for the development of maximum contaminant levels and are not drinking water standards.

Several regulatory agencies such as the Department of Toxics and Substance Control (DTSC) and the Regional Water Quality Control Board are actively overseeing source control measures and clean-up activities with the owners of the former Whittaker-Bermite site. Valencia, working cooperatively with Castaic Lake Water Agency (CLWA) and the other water purveyors in the Santa Clarita Valley, are constructing a treatment system that will contain and remove perchlorate from the local groundwater basin. This project is scheduled to come on-line in 2006. Also, Valencia is working with DHS and DTSC to install wellhead treatment at well Q2 that will effectively remove perchlorate and restore this well to safe operation. The Q2 well treatment system is scheduled to come on-line after all required permits and approvals are obtained from the jurisdictional agencies.

By way of background, in 1997, perchlorate was detected in four Saugus Formation production wells located near the former Whittaker-Bermite site. In 2002, perchlorate was detected in one Alluvial production well (a Santa Clarita Water Division well known as the "Stadium well"), located directly adjacent to the Whittaker-Bermite site. To date, all six production wells have been removed from service due to perchlorate detection.

Based on the analysis recently conducted in the adopted Amendment to the 2000 Urban Water Management Plan, CLWA, Valencia and the other water purveyors have confirmed that sufficient water supplies are available to meet the current and projected water demands in the Santa Clarita Valley over the next 20-year horizon, even after taking into account the groundwater supplies impacted by perchlorate contamination. The water purveyors' treatment plan for perchlorate is scheduled to come on-line in 2006, at which time treated well water would be restored and available for use. In the interim, Valencia plans to proceed with wellhead treatment for the Q2 well in order to restore the perchlorate-impacted water to safe drinking water standards.

We believe the actions of Valencia, CLWA and the other water purveyors will ensure the safety and adequacy of our Valley's groundwater supplies. If you have any questions, please call me at (661) 295-6501.

Sincerely,

Robert J. DiPrimio
President

RJD:tr

cc: Eric Lardier, Whittaker Corporation
Sayareh Amir, Department of Toxics and Substance Control
Jeff O'Keefe, Department of Health Services
Jonathon Bishop, Los Angeles Regional Water Quality Control Board
Scott Wilk, Administrative Assistant to Howard P. "Buck" McKeon, Member of Congress
Patty Kelly, Local District Representative for Senator George Runner's office
Fred Trueblood, District Representative for Assemblymember Keith Richman's office
Millie Jones, Senior Deputy – Supervisor Michael D. Antonovich's office
Dan Masnada, Castaic Lake Water Agency
William Manetta, Santa Clarita Water Company
Steve Cole, Newhall County Water District
Dean Efstathiou, Los Angeles County Department of Public Works

APPENDIX C

Impact and Response to Perchlorate Contamination, Valencia Water Company Well Q2, **prepared by Luhdorff & Scalmanini Consulting Engineers, dated April 2005**

Impact and Response to Perchlorate Contamination

Valencia Water Company Well Q2

prepared for

Valencia Water Company

prepared by

Luhdorff & Scalmanini,
Consulting Engineers

April 2005

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

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List of Figures and Tables

I. Introduction and Background

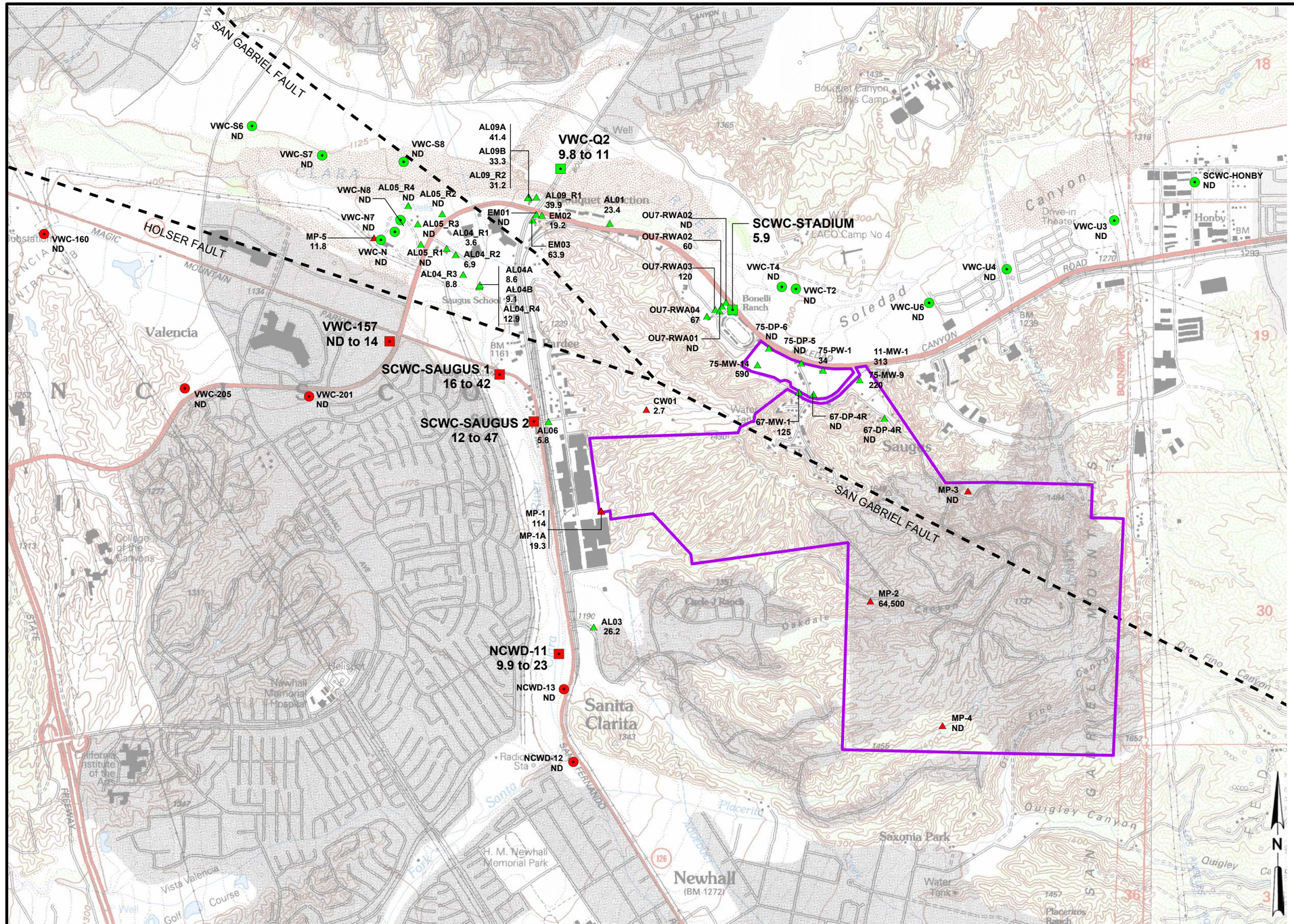
Perchlorate has been a water quality concern in the Santa Clarita Valley since 1997 when it was originally detected in four Saugus wells operated by the municipal water purveyors in the eastern part of the Saugus Formation, near the former Whittaker-Bermite facility. In late 2002, perchlorate was detected in a fifth municipal well, in this case an Alluvial well also located near the former Whittaker-Bermite site. The five perchlorate-impacted wells have been removed from active water supply service.

At present, perchlorate is not a regulated chemical in drinking water. However, the state Department of Health Services (DHS) requires that water utilities test their water sources for certain unregulated chemicals, and perchlorate is one of those chemicals. The DHS "notification level" for perchlorate is 6 micrograms per liter (ug/l).[1] DHS currently anticipates proposing a Maximum Contaminant Level (MCL) for perchlorate in 2005.

Since the detection of perchlorate and resultant inactivation of impacted wells, the Purveyors have been conducting regular monitoring of active wells near the Whittaker-Bermite site. In late March 2005, that monitoring detected the presence of perchlorate in Valencia Water Company's Well Q2, an alluvial well located immediately northwest of the confluence of Bouquet Creek and the Santa Clara River (Figure I-1). The initial detection of perchlorate was at a concentration of 11 ug/l; two confirmation samples in the first two weeks of April detected perchlorate at concentrations of 9.8 and 10 ug/l, respectively. As a result of the detection and confirmation of perchlorate in its Well Q2, Valencia has removed the well from active service and is pursuing rapid permitting and installation of wellhead treatment, as described herein, in order to return the well to water supply service.

For several years prior to the recent detection of perchlorate in Valencia's Well Q2, the water Purveyors have recognized that, among other aspects of an overall remediation program, such a program would most likely include an element of 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. The overall program would also include the installation of treatment to allow the restored pumping capacity to be used for municipal supply. In cooperation with state regulatory agencies and

[1] "Notification level" means the concentration level of a contaminant in drinking water delivered for human consumption that DHS has determined, based on available specific information, does not pose a significant health risk but warrants notification pursuant to applicable law. Notification levels are nonregulatory, health-based advisory levels established by DHS for contaminants in drinking water for which maximum contaminant levels have not been established. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of maximum contaminant levels, but have not yet undergone or completed the regulatory standard setting process prescribed for the development of maximum contaminant levels. Notification levels are not drinking water standards.



LEGEND

CONTAMINATED PRODUCTION WELL

- ALLUVIUM
- SAUGUS

UNCONTAMINATED PRODUCTION WELL

- ALLUVIUM
- SAUGUS

MONITORING WELL

- ALLUVIUM
- SAUGUS
- WHITTAKER-BERMITE PROPERTY BOUNDARY

NOTES:

1. VALUES PRESENTED UNDER WELL SYMBOLS REPRESENT PERCHLORATE CONCENTRATION IN GROUNDWATER (µg/L).
2. ND = PERCHLORATE NOT DETECTED IN GROUNDWATER SAMPLE.
3. µg/L = MICROGRAMS PER LITER.

FIGURE 1-1
WELL LOCATION MAP
SANTA CLARITA, CALIFORNIA

RDD \\ODIN\PROJ2\55\SANTACLARITA_MOU\FIGURES\MXD\042205\FIG01.MXD FIG01.PDF 04/22/2005

CH2MHILL

investigators working for Whittaker-Bermite, Castaic Lake Water Agency (CLWA) and the Purveyors, including Valencia Water Company, have developed an off-site plan that will include installation of water treatment facilities to remove perchlorate and restore operation of two of the initially impacted Saugus wells through that treatment process. The operation of those two wells with treatment, scheduled to be in service in 2006, will hydraulically contain the perchlorate contamination moving from the former Whittaker-Bermite site and protect downgradient non-impacted wells. It will also restore the annual volumes of water that were pumped from the impacted wells before they were inactivated. In concert with the installation of treatment and the return of certain impacted wells to active water supply service, the balance of total pumping capacity from the impacted wells will be restored by constructing replacement wells in a non-impacted portion of the basin west of Interstate 5.

The development of the control and restoration plan for the initially impacted wells included consideration that it should fit within the larger scale of on-site and possibly other off-site remediation activities. While such activities did not specifically anticipate the treatment of VWC's Well Q2 as described herein, utilization of the same treatment methodology and operation of the well to contain perchlorate from contamination of downgradient wells, are consistent with currently planned and other potential on-site and off-site remediation activities.

II. Impact of Water Supply

As a result of the recent detection of perchlorate, Valencia Water Company has removed Well Q2 from active water supply service until it can install wellhead treatment for perchlorate removal, as described herein, such that the well can be returned to service. Although it is expected that the permitting and installation of wellhead treatment can be accomplished by mid-summer, in advance of the peak water demand season, it is appropriate to assess the impact of the removal of Well Q2 on the overall adequacy of Valencia's water supply until such treatment is in place and the well is returned as part of Valencia's total water supply.

The overall adequacy of water supply derives from three considerations: 1) sufficient source capacity (wells and pumps, plus other sources such as, in this case, connections to CLWA's treated surface water distribution system); 2) sustainability of the groundwater resource to meet the demand of Valencia and other pumpers in the basin on a renewable basis; and 3) protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. All three considerations are discussed in the following sections.

Adequacy of Source Capacity

The temporary removal of Well Q2 from active service represents a reduction of 1,200 gpm of source capacity. After that removal, Valencia still has a total of 19 active operational wells, 14 wells completed in the Alluvial aquifer and 5 wells completed in the Saugus Formation. The combined pumping capacities of the 14 Alluvial wells is slightly more than 20,000 gpm, and the combined pumping capacities of the 5 Saugus wells is slightly more than 10,000 gpm. The individual pumping capacity of each Valencia well is listed in Table II-1.

In addition to its water supply wells, Valencia has six connections to CLWA's system that distributes treated surface water from the State Water Project to the various municipal purveyors in the Valley. The combined capacity of those four connections (Turnouts V2, V4, V5, V6, V7 and V8) is 26,500 gpm. The individual capacity of each CLWA turnout connection to the Valencia distribution system is listed in Table II-2.

The combined source capacity of Valencia's active wells, after temporary inactivation of Well Q2, and its CLWA turnouts is thus a total of about 57,000 gpm.

As part of recent review of its overall water supply, Valencia examined its maximum day demand in the last year, 2004. The maximum day demand occurred in July, when the largest historical single day demand of 143.3 acre-feet was experienced. That volumetric demand equates to an average flow on that day of nearly 32,500 gpm.

Table II-1
Active Groundwater Source Capacity
Valencia Water Company

Well	Pump Capacity (gpm)	Maximum Annual Capacity (af)	Normal Year Production[1] (af)	Dry Year Production[1] (af)
Alluvium				
Well D	1,050	1,690	690	690
Well N	1,250	2,010	620	620
Well N7	2,500	4,030	1,160	1,160
Well N8	2,500	4,030	1,160	1,160
Well S6	2,000	3,220	865	865
Well S7	2,000	3,220	865	865
Well S8	2,000	3,220	865	865
Well T2	800	1,290	460	460
Well T4	700	1,120	460	460
Well U4	1,000	1,610	935	935
Well U6	1,250	2,010	825	825
Well W9	800	1,290	600	600
Well W10	1,600	2,410	865	865
Well W11	1,000	1,610	350	350
Alluvial Subtotal	**20,350**	**32,760**	**10,720**	**10,720**
Saugus Formation				
159	500	800	50	50
160	2,000	3,220	1,000	1,330
201	2,400	3,670	100	3,577
205	2,700	4,350	1,000	3,827
206	2,500	4,030	1,175	3,500
Saugus Subtotal	**10,100**	**16,270**	**3,325**	**12,284**
Total Active Capacity	**30,450**	**49,030**	**14,045**	**23,004**

1. based on recent actual annual pumping; also as simulated in perchlorate containment analysis (CH2M Hill, 2004).

Table II-2
Turnout Connections to CLWA Treated Water Distribution
Valencia Water Company

Station Number	Number of Pumps and Total Horsepower	Capacity (gpm)
V2	Pressure Regulating Station	3,000
V4	3 – 195	4,500
V5	3 – 155	4,500
V6	2 – 25	1,500
V7	Pressure Regulating Station	5,000
V8	3 – 300	8,000
	Total	**26,500**

In accordance with the provisions of the Waterworks Standards in the California Health and Safety Code, and also in accordance with the provisions of the State Public Water Commission, the source capacity of a municipal water purveyor should be adequate to meet maximum day demand. Generally accepted engineering practice adds a factor of safety to those minimum requirements to account for possible outages of one or more supply sources during a period of maximum day demand. With total source capacity of about 57,000 gpm, after temporary deactivation of Well Q2, Valencia has sufficient source capacity to meet its maximum day demand of 32,500 gpm with allowance for potential outage of one or more individual sources (wells) or treated surface water connections. As a result, the temporary deactivation of Well Q2 does not adversely impact Valencia's ability to meet existing demands; in fact, Valencia has sufficient surplus source capacity to meet future increases in maximum day demand with existing sources, to be increased by returning Q2 to service after installation of treatment as described herein.

Sustainability of Groundwater

In contrast to assessing the adequacy of Valencia's source capacity by examining the total capacity of its water sources and comparing it to Valencia's maximum day demand, the sustainability of groundwater resources in the Valley is more appropriately assessed by

examining the response of the groundwater basin to the collective pumping demands placed on it for municipal and ongoing agricultural water supply. Until recently, the long-term renewability of Alluvial groundwater was empirically determined from approximately 60 years of recorded experience: long-term stability in groundwater levels and storage, with some dry period fluctuations in the eastern part of the basin, over a historical range of Alluvial pumpage from as low as about 20,000 afy to as high as about 43,000 afy. The long-term sustainability of Saugus groundwater was empirically determined from a more historical record that shows fairly low annual pumping in most years, with one four-year period of increased pumping up to about 15,000 afy, that produced no long-term depletion of the substantial groundwater storage in the Saugus. Those empirical observations in both the Alluvium and the Saugus Formation have now been complemented by the development and application of a numerical groundwater flow model, which has been used to predict aquifer response to the planned operating ranges of pumping from both aquifers for both municipal and agricultural water supply. The numerical groundwater flow model has also been used to analyze the control of contaminant migration under selected pumping conditions that would restore, with treatment, pumping capacity that has been inactivated due to perchlorate contamination detected in some wells in the basin as described herein.

To examine the yield of the Alluvium or, in other words, the sustainability of Alluvium on a renewable basis, the groundwater flow model was used to examine 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. To examine the response of the entire aquifer system, the model also incorporated pumping from the Saugus Formation in accordance with the normal (7,500-15,000 afy) and dry year (15,000-35,000 afy) operating plan for that aquifer. The preceding ranges of pumping from the two aquifer systems, commonly known locally as the operating plan for groundwater supply, are described in detail in the Amended 2000 Urban Water Management Plan prepared by CLWA and the municipal Purveyors in the Valley. The model was run over a 78 year hydrologic period which was selected from actual historical hydrology (i.e., precipitation) to examine a number of hydrologic conditions that would be expected to affect both groundwater pumping and groundwater recharge. The selected 78 year simulation period was assembled from an assumed recurrence of 1980 to 2003 hydrologic conditions, followed by an assumed recurrence of 1950 to 2003 hydrologic conditions. The 78 year period was analyzed to define both local hydrologic conditions (normal vs. dry), which affect the rate of pumping from the Alluvium, and hydrologic conditions that affect State Water Project operations, which in turn affect the rate of pumping from the Saugus.

The resultant pumping cycles are summarized as follows:

- Twenty-four years of dry year Alluvial pumping at 30,000 to 35,000 afy,

- One drought of four consecutive dry years of Alluvial pumping at 30,000 to 35,000 afy,

- Two droughts of three consecutive dry years each, with Alluvial pumping at 30,000 to 35,000 afy,

- Three selected years with assigned dry-year Alluvial pumping despite near-normal or above-normal rainfall because each selected year was preceded by a multi-year drought,

- Eighteen years of dry-year pumping from the Saugus, or an average of one dry year approximately every four years,

- Two droughts lasting three years, plus (in both cases) a dry year that occurs two years before the beginning of each three-year drought and another dry year that begins one year after each three-year drought has ended; Saugus pumping increased into the 15,000 to 35,000 afy range in all those years,

- Two droughts lasting two years; Saugus pumping increased into the 15,000 to 25,000 afy range in those years,

- Sixty years of normal-year Saugus pumping, 7,500 to 15,000 afy.

The preceding ranges of Saugus pumping included the planned restoration of recent historic pumping from the perchlorate-impacted wells. That pumping was analyzed to assess, in addition to the overall recharge of the Saugus, the effectiveness of controlling the migration of perchlorate by extracting and treating contaminated water close to the source of contamination.

Simulated Alluvial aquifer response to the preceding 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 consisted of: 1) generally constant groundwater levels in the middle to western portion of the Alluvium, and fluctuating groundwater levels in the eastern portion of the Alluvium 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. Based on the combination of actual experience with Alluvial aquifer pumping at capacities similar to those planned for the future and the resultant sustainability (recharge) of groundwater levels and storage, complemented by modeled projections of aquifer response to planned pumping rates that also show no depletion of groundwater, the Alluvial aquifer can be considered a sustainable water supply source to meet the Alluvial portion of the operating plan for the groundwater basin.

Simulated Saugus Formation response to the ranges of pumping under assumed recurrent historical hydrologic conditions was consistent with actual experience under smaller pumping rates. The response consisted of: 1) short-term declines in groundwater levels and storage near pumped wells during dry-period pumping, 2) rapid 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 pumping and recharge up to about 15,000 afy, now complemented by modeled projections of aquifer response that show 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, shows that the Saugus Formation can be considered a sustainable water supply source to meet the Saugus portion of the operating plan for the groundwater basin.

Protection of Other Sources (Wells)

Some detail of the overall perchlorate contamination issue, which has had a larger impact on the Saugus Formation than on the Alluvium, is included in **Status of Saugus Restoration and Containment** below. As detailed in that section, there has been extensive investigation of the extent of perchlorate contamination which, in combination with the groundwater modeling described above, has led to the current plan for integrated control of contamination migration and restoration of impacted pumping (well) capacity by 2006. While most of the perchlorate control and restoration plan is focused on the Saugus Formation, part of that plan includes induced capture of potentially contaminated groundwater in the Alluvium by pumping of selected Saugus wells. Specific long-term resolution of perchlorate contamination in the Alluvium, which had previously impacted just one water supply well, is currently expected to focus on source control through on-site treatment in the northern Alluvium (at the north of the former Whittaker-Bermite site) and subsequent restoration of the contaminated Stadium Well. In the interim, the questions are how the recently impacted Well Q2 will be resolved, and whether other active Alluvial wells could be contaminated and, if so, what effect that might have on the adequacy of Alluvial groundwater supplies.

Until the recent detection of perchlorate in Valencia's Well Q2, ongoing monitoring of all active municipal wells near the Whittaker-Bermite site had 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, there was logical concern that perchlorate could contaminate nearby, downgradient Alluvial wells, and, as a result, there have been provisions 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) for the time period through currently scheduled restoration of impacted contaminated wells by 2006. That capture zone analysis of Alluvial wells generally near the Whittaker-Bermite site suggested that inflow to those wells would either be upgradient

of the contamination site, or would be from the Alluvium beyond where perchlorate is most likely to be transported.

At the time of the preceding analysis, a noted possible exception to its conclusions involved Valencia Water Company's Pardee wellfield, which includes its Wells N, N7, and N8. Although the capture zone analysis did not show the Pardee wells to be impacted, they were considered to be at some potential risk due to the proximity of their capture zone to the Whittaker-Bermite site. Other nearby Alluvial wells, including Valencia's Well Q2, were considered to be at lesser risk due to their distances from the site, orientation to groundwater flow near the site, and other factors such as the presence of the Santa Clara River between the wells and the Whittaker-Bermite site.

With recognition that potentially at-risk wells such as Valencia's Pardee wellfield could be readily replaced on an interim basis by utilizing some of the surplus capacity among all the other Alluvial wells, Valencia has planned for some time that, if the Pardee wells were impacted by perchlorate contamination, it has made site provisions at those wells for installation of wellhead treatment. Such treatment would be the same methodology as planned for long-term treatment of the contaminated Saugus wells. With treatment installed, Valencia would retain the wells in service for the same objectives as planned for restoring impacted Saugus pumping capacity by extracting contaminated water, treating it for beneficial (drinking water) use, and controlling local groundwater flow to protect further downgradient wells. The response to perchlorate detection in Well Q2 is identical to what was envisioned in the event of contamination at the Pardee wells.

III. Response Plan for Well Q2

As described in the status discussion below, one of the completed tasks in the overall response to perchlorate contamination of four Saugus wells has been the evaluation of alternative treatment methodologies and the selection of ion exchange for removal of perchlorate from water to be pumped from the two impacted wells that will be used for a combination of containment and capture of perchlorate contamination. As a result of that completed work, Valencia was in a position to immediately respond to the confirmed detection of perchlorate in Well Q2 by opening contract discussions with a selected contractor who can furnish, install and operate the same ion exchange treatment methodology which has been selected for the impacted Saugus wells.

In light of the preceding, after detection of perchlorate in its Well Q2, Valencia contacted USFilter to prepare a complete turnkey service contract to install and maintain treatment facilities capable of removing perchlorate pumped from the well to a non-detectable level. USFilter would cover all major components and estimate of installation materials and labor for start-up. The specific Q2 treatment system will incorporate USFilter HP1220HF ion exchange pressure vessels operating in a lead/lag configuration. The vessels are 12 feet in diameter and each will contain a selective resin designed to remove perchlorate. There is no waste brine generated from this treatment system. If resign replacement is necessary, USFilter will remove the resin from the treatment system and destroy it by incineration at an approved waste site.

Well Q2 is located along Bouquet Canyon Road adjacent to the Rio Vista Pump Station owned by CLWA. The treatment system will be located on the existing well site property which is owned by Valencia or, if necessary, use a small portion of land owned by CLWA. Valencia is preparing a site plan that will require constructing a concrete foundation for the ion exchange pressure vessels and other ancillary equipment and controls required to integrate the treatment system into its water supply operations.

Installing wellhead treatment at Well Q2 will require review and approval by the California Department of Health Services (DHS). Valencia will prepare and submit an application to amend Valencia's water supply permit allowing wellhead treatment at Well Q2. DHS approval is expected since ion exchange technology is recognized by DHS as "best available technology" for perchlorate removal, and multiple ion exchange treatment systems have been approved and permitted by DHS for drinking water systems. Also, the Department of Toxic Substances Control (DTSC) will include this project as part of the interim actions required to address perchlorate contamination in the Northern Alluvium. Their review was contemplated under the existing Environmental Oversight Agreement between the water purveyors and DTSC.

Since Valencia is able to rapidly respond to the contamination of its Well Q2 by installation of site modifications and turnkey contracting for treatment equipment, it intends to cooperatively pursue the amended water supply permit so it can return the well to service as soon as possible.

IV. Protection Plan for Non-Impacted Wells

As noted above, based on a combination of proximity to the Whittaker-Bermite site and prevailing groundwater flow directions, there is a logical concern that perchlorate could impact nearby downgradient Alluvial wells, the closest of which are owned and operated by Valencia. As part of assessing their overall groundwater supply during the period before the impacted Saugus wells are restored in 2006, the Purveyors commissioned the use of the groundwater flow model to examine capture zones around nearby Alluvial wells under planned pumping operations through that time period. The results of that work, as reported in the CH2M Hill Technical Memorandum "*Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property*" (Santa Clarita, California), suggested that inflow to the nearby Alluvial wells would either be upgradient of the contamination site, or would be from the Alluvium beyond where perchlorate is most likely to be transported. However, again due primarily to proximity, in this case between the capture zones and the Whittaker-Bermite site, the nearest Valencia Pardee wellfield (Wells N, N7 and N8) was considered to be at some potential risk because perchlorate had been detected in nearby Alluvial monitoring wells that were installed as part of a federally funded investigation of the extent and nature of contamination by the Army Corps of Engineers. As previously described, the other nearby Alluvial wells, including Valencia's Well Q2, were considered to be at lesser risk. Ultimately, irrespective of model simulations or other considerations, Valencia has responsibilities to supply both adequate and safe municipal water and, as a result, is prepared to respond to impacts at any of its nearby Alluvial wells in a similar manner as described for Well Q2 herein.

Thus, the response by Valencia to any future well impacted by perchlorate contamination will be to install wellhead treatment as soon as practicable, thereby ensuring adequate supplies of high quality water to its customers. Toward that end, Valencia has already dedicated space at each of the nearest well sites for addition of wellhead treatment facilities, as will be installed at Well Q2, if necessary. This short-term response plan complements the longer term actions being taken by the property owner under supervision of DTSC. For example, studies conducted by consultants under contract with the property owner have completed successful testing of in-situ groundwater remediation of perchlorate. It is anticipated this program along with several other measures approved by DTSC will be implemented over time to contain and remove perchlorate from the Northern Alluvium. Once this is accomplished, the detection of perchlorate in the Northern Alluvium is expected to decline below detectable levels over time. Successful groundwater remediation will ultimately result in the removal of wellhead treatment at wells no longer impacted by perchlorate contamination.

V. Status of Saugus Restoration and Containment

From the outset of dealing with the detection of perchlorate in the four Saugus wells in 1997, the Purveyors have recognized that, among other aspects of an overall remediation programs, such a program would most likely include an element of 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, the Purveyors expected that, as the regulatory process moved forward, the overall perchlorate remediation program could include dedicated pumping from some or all of their impacted wells, with appropriate treatment, such that two desirable objectives could both be achieved: control of subsurface flow and protection of downgradient wells, and restoration of some or all impacted water supply. Not all impacted capacity is required, however, for control of groundwater flow. As a result, the remaining capacity would be replaced by construction of replacement wells at other non-impacted locations.

In cooperation with state regulatory agencies and investigators working for Whittaker-Bermite, CLWA and the water Purveyors in the Santa Clarita Valley have developed an off-site plan that focuses on the above concepts of groundwater flow control and restored pumping capacity, and also fits within the larger scale of on-site and possibly other off-site remediation activities. As specifically relates to water supply, the plan includes the following:

- constructing and operating a water treatment process that removes perchlorate from two contaminated 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 via the same hydraulic containment that results from pumping two of the contaminated 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 Purveyor's operational plan for groundwater supply.

The schedule for implementation of the plan to restore the initially impacted wells is that permitting, design and construction is to be complete by 2006.

Returning any of the contaminated wells to municipal water supply service by installing treatment requires issuance of a permit from DHS before the water can be considered potable and safe for delivery to consumers. The permit requirements, contained in DHS Policy Memo 97-005 for direct domestic use of impaired water sources, include formal studies and engineering work to demonstrate that pumping these wells and treating the water will be protective of public health for users of the water. The policy memo requires that DHS review the water purveyor's plan, establish appropriate permit conditions for the wells and treatment system, and provide overall approval of returning the contaminated wells to service for potable use. Ultimately, the Purveyor's plan and the DHS requirements are intended to ensure that the water introduced to the potable water distribution system has no detectable concentration of perchlorate.

As part of the formal permitting for use of impacted wells with treatment, DHS Policy 97-005 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 Santa Clarita Water Division, Los Angeles County Waterworks District 36, and Valencia Water Company) and the United Water Conservation District in Ventura County. Although the groundwater model was initially intended for use in analyzing the yield and sustainability of groundwater in the basin, it was adaptable to analyze both the sustainability of groundwater under an operational scenario that included the full restoration of perchlorate-impacted supply, and the containment of perchlorate near the Whittaker-Bermite property (i.e. by pumping some of the impacted wells), including preventing the 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 approval of the model, it was used to simulate the capture and control of perchlorate via restoration of contaminated wells, with treatment, as described above. The results of that work are summarized in a second report "*Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California*" (CH2M Hill, September 2004). The modeling analysis indicated that the pumping of contaminated wells SCWC-Saugus1 and SCWC-Saugus2 at rates of 1,200 gpm each on a nearly continual basis will effectively contain perchlorate migrating westward in the Saugus Formation from the Whittaker-Bermite property. The analysis also indicated 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) the use of other water supplies in lieu of pumping at SCWC-Saugus1 and SCWC-Saugus2 would likely be detrimental to the long-term quality of groundwater in the Saugus Formation because pumping at SCWC-Saugus1 and SCWC-Saugus2 is necessary to prevent migration of perchlorate to other portions of the Saugus Formation.

The perchlorate containment report also includes the general design of a sentinel groundwater monitoring network and program required by DHS as part of its 97-005 permitting. The perchlorate containment report was approved by DTSC in November 2004. With that approval, the model is now being used to support the source water assessment and the balance of the permitting process required by DHS under is 97-005 policy.

A detailed history of the perchlorate issue and its impact on municipal water supply in the Valley is included in the Amended 2000 Urban Water Management Plan for the Valley. Included in that history are discussions of the detection of perchlorate in municipal supply wells, investigation and oversight by regulatory agencies, federally funded investigation of the extent and nature of contamination, litigation by the affected Purveyors, and cooperative settlement work toward selection and implementation of solutions that will restore impacted municipal groundwater supply and control the migration of perchlorate, the latter to protect downgradient wells. As noted above, the overall schedule for installation of treatment and return of impacted wells to service has been that those facilities be operational by 2006. The most current status of overall work toward that schedule was prepared in early April 2005. As of that date, the treatment and well reoperation project description has been finalized, and final settlement discussions were proceeding between the Purveyors and the Whittaker-Bermite parties. A draft Remedial Action Plan (RAP) has been completed; finalization of the RAP is pending determination of requirements by DTSC. A final report on the federally funded conceptual hydrogeology investigation prepared by the Army Corps of Engineers was completed in January 2005; funding is in place for limited monitoring of existing test wells in the next fiscal year. Draft reports on Source Water Assessment, Water Quality Investigation, and Source Protection Plan, all part of the DHS 97-005 approval process, are complete and in review. Draft reports on Effective Monitoring and Treatment, Human Health Risk, and Alternatives Evaluation are scheduled for completion in early May and June, respectively. CEQA review is scheduled for completion by the first of July. In the general area of design and construction, pipeline alignment studies have been completed, and work is continuing on final treatment process selection. The start of construction is scheduled for October 2005, with startup of the restored wells and new treatment facilities scheduled for February 2006. Thus, the descriptions of planned perchlorate containment, restoration of impacted wells, and adequacy of water supply in the interim remain as detailed in the Amended 2000 Urban Water Management Plan. The response plan for Valencia's Well Q2, as detailed herein, is consistent with maintaining the planned volumes and distribution of Alluvial pumping that are part of the overall restoration of perchlorate-impacted groundwater supply in the Valley.

VI. References

California Department of Water Resources, **Final State Water Project Delivery Reliability Report, 2002**, May 2003.

Castaic Lake Water Agency (CLWA), CLWA Santa Clarita Water Division, Newhall County Water District, and Valencia Water Company, **Groundwater Perchlorate Contamination Amendment and Other Amendments, 2000 Urban Water Management Plan,** January 2005, including Black and Veatch, Reiter/Lowry/Consultants, and SA Associates **Urban Water Management Plan Update, 2000**, Castaic Lake Water Agency, Newhall County Water District, Santa Clarita Water Company, and Valencia Water Company.

CH2M Hill, **Regional Groundwater Flow Model for the Santa Clarita Valley, Model Development and Calibration**, April, 2004.

CH2M Hill, **"Analysis of Near-Term Groundwater Capture Areas for Production Wells Located Near the Whittaker-Bermite Property (Santa Clarita, California)",** Technical Memorandum prepared for the Santa Clarita Valley Water Purveyors, December 2004.

CH2M Hill, **Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita,** California, Prepared in Support of the 97-005 Permit Application, December 2004.

Luhdorff and Scalmanini, Consulting Engineers, **Santa Clarita Valley Water Report 2003**, prepared for Castaic Lake Water Agency, Los Angeles County Waterworks District 36, Santa Clarita Water Division of CLWA, Valencia Water Company, May 2004.

Luhdorff and Scalmanini, Consulting Engineers, **Draft 2004 Santa Clarita Valley Water Report,** prepared for Castaic Lake Water Agency, Los Angeles County Waterworks District 36, Newhall County Water District, Santa Clarita Water Division of CLWA, Valencia Water Company, April 2005.

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

APPENDIX D

Valencia Water Company Permit Application to the State Department of Health Services for Wellhead Treatment at Well Q2, May 2005

STATE OF CALIFORNIA

APPLICATION

FOR

DOMESTIC WATER SUPPLY PERMIT AMENDMENT

FROM

Applicant: Valencia Water Company
(Enter the name of legal owner, person(s) or organization)

Address: 24631 Avenue Rockefeller Valencia, CA 91355

System Name: Valencia Water Company

System Number: 1910240

TO: Department of Health Services
Southern California Branch
Drinking Water Field Operations
Los Angeles Region
1449 W. Temple St., Rm. 202
Los Angeles, California 90026

Pursuant and subject to the requirements of the California Health and Safety Code, Division 104, Part 12, Chapter 4 (California Safe Drinking Water Act), Article 7, Section 116550, relating to changes requiring an amended permit, application is hereby made to amend an existing water supply permit to Construct and operate one (1) Ion Exchange Treatment System at Well Q2 for the removal of perchlorate.

(Applicant must state specifically what is being applied for - whether to construct new works, make alterations or additions in works or sources, or change or modify treatment.)

I (We) declare under penalty of perjury that the statements on this application and on the accompanying attachments are correct to my (our) knowledge and that I (we) are acting under authority and direction of the responsible legal entity under whose name this application is made.

By: Keith Abercrombie

Title: Vice President/Operations

Address: 24631 Avenue Rockefeller
Valencia, CA 91355

Telephone: 661-295-6504

Dated: 5/6/05

DDW 05/2001

Valencia Water Company

24631 Avenue Rockefeller • P.O. BOX 5904 • Valencia, CA 91385-5904
(661) 294-0828 • Fax (661) 294-3806

May 6, 2005

Mr. Jeff O'Keefe, P.E.
Regional Engineer
Department of Health Services
Drinking Water Field Operations Branch
1449 West Temple Street, Room 202
Los Angeles, CA 90026

RE: Ion Exchange Treatment System for Perchlorate Removal at Well Q2

Dear Mr. O'Keefe,

Valencia Water Company is preparing to construct and operate one (1) Ion Exchange Treatment System at Well Q2 for the removal of ammonium perchlorate, and is hereby making application for an amended permit. I am enclosing an application form along with an Environmental Information Form for your review.

Please let me know if you need any further information at this time. Thank you for your assistance.

Sincerely,

Keith Abercrombie

Keith Abercrombie
Vice President/Operations

KA:cav

Enclosures (2)

T:\Operations\DHS_Regional Board Forms for New Wells\Well Q2\Permit Amend Cover Q2.doc

DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL INFORMATION FORM

(To be completed by mutual or investor owned utilities – not for use by public agencies)

General Information

1. Name of project: Well Q2 Perchlorate Removal System
2. Water system number 1910240 State Revolving Fund number (if any): _____
3. Name of applicant/water system: Valencia Water Company
   Address: 24631 Avenue Rockefeller
   City: Valencia Zip: 91355
4. Name of contact person for this project: Keith Abercrombie
   Address of contact person: 24631 Avenue Rockafeller, Valencia
   Phone Number: (661) 295-6504
5. Address of project: 26477 Bouquet Canyon Road
   City: Saugus Zip: 91350
6. USGS 7.5' Quad Section, township, range, base and meridian: 15-4N-16W-SBB&M
7. Existing zoning at project site: SP-Specific Plan
8. List and describe any other related permits and other public approvals required for this project, including those required by city, regional, state and federal agencies: None
9. Is this project part of a larger project or series of projects? ☐yes ☒no ☐unknown
10. Did a previous CEQA Document cover the project? ☐yes ☒no ☐unknown
    If yes, provide the name of the document: _____
11. Check the appropriate box below.
    - ☐ Construction completed
    - ☐ Construction in progress Completion date: _____
    - ☒ Construction Not Started Start date: 8/1/05 Completion date: 8/31/05
12. Describe the existing (pre-project) system, if present (fill in blanks or provide attachment, e.g., application description)
    a. Number of existing (pre-project) service connections: 28,110
    b. Description of pre-project service area: Valencia Water Company serves the communities of Valencia, Stevenson Ranch, and portions of Newhall, Saugus and Castaic
    c. Pre-project source information: (include name, capacity or flow, and condition)
       (1) Groundwater well: Q2 - capacity: 1700 gpm
       (2) Surface water diversion: _____
       (3) Connections with other systems: _____
       (4) Emergency connection: _____
    d. Pre-project water treatment: On-site chlorinator, calcium hypochlorite
    e. Pre-project storage facilities

(1) Tanks (physical dimensions, capacity, and condition): _____
(2) Open reservoirs (name, surface area, capacity, and condition): _____

f. Briefly describe how water is currently transmitted from the source(s) to the treatment facilities: None

g. Briefly describe how finished water is currently transmitted from the treatment/storage facilities to consumers (distribution system): NA

h. Present amount of water delivered: 1350 AFY Current demand: 30,000 AFY

i. Water quality problems in the last 3 years: Well Q2 tested positive for perchlorate on 3/23/05 at a level of 11 ppb. The result was confirmed on 4/5/05 with a sample result of 9.8 ppb.

Project Description (fill in blanks or provide attachment, e.g., application description, describing actions proposed by the project)

1. Describe project objectives. If the object is to comply with certain regulations, name them: Remove perchlorate from Well Q2 water to a level that is lower than the DLR (4 ppb). A complete project description is provided in Attachment A.
2. Project location (give description of the precise location and boundaries): The project site is located at 26477 Bouquet Canyon Road. A legal description of the site is appended as Attachment B.
3. Important - Attach a site plan and a 7.5' USGS topographical map section with the project's area of potential effects clearly delineated: Please see Figures 3 and 4 which depict the site plan and Area of Potential Effects, respectively.
4. Construction area: 0.0149 acres. Additional service connections: None
5. Proposed facilities -new facilities, modifications, or replacements (please indicate which)
   a. Wells (capacity, depth, and enclosing structure): _____
   b. Surface water diversions (source name, diversion structure, etc): _____
   c. Connections with other systems: _____
   d. Emergency connections: _____
   e. Treatment facilities (give size, capacities, and enclosing structures): USFilter HP1220HF Ion Exchange Resin system, pre-filtration and acid feed for scale protection of the resin. Included are two (2) 12' diameter pressure vessels and valve manifold, plumbed in a lead/lag configuration. Each vessel contains 350 cuft of selective resin (Amberlite PWA2) for perchlorate removal.
   f. Storage facilities
      (1) Tanks (physical dimensions and capacity; any location changes; and describe enclosing structure, if applicable): _____
      (2) Open reservoirs (surface area and capacity; any location changes): _____
   g. Conveyance facilities (give size of pumps, and length and diameter of pipelines - indicate if pipelines will be located entirely within rights-of-way): _____

h. Appurtenant structures (give the dimensions of any new structures and their purpose): a six-foot chain link fence will be installed around the site.

i. Parking facilities: _____

j. Staging areas: _____

k. Lighting: _____

6. Facilities or structures to be removed or wells to be closed: _____

7. Describe any grading or excavation work, and any planned measures to restore area: a concrete pad will be installed.

8. Will the project involve new disposal of waste? ☒yes ☐no ☐unknown

   a. If yes, identify the type of waste and the method and location of its disposal: U.S. Filter will remove and incinerate spent resin.

9. Will the project involve an increase in capacity? ☐yes ☒no ☐unknown

   a. Amount of capacity increase: None

   b. Needed to serve existing development? ☒yes ☐no ☐unknown

   c. Needed to serve projected development? ☐yes ☒no ☐unknown

      (1) Population basis for capacity determination (include year)

         (a) Current population: 94,000

         (b) Projected population: _____

10. If the project involves a variance, conditional use, or rezoning application, state this and indicate clearly why the application is required: _____

Environmental Setting

Include a discussion of all the following detailed elements as applicable; if an element is not present within the described area, give reasons or verify with investigative results. Consider all facilities; conveyance lines; storage, points of diversion; staging areas; and affected service area as applicable. Use attachments if necessary.

1. Topography and geology of the region

   a. Location of project area with regard to major topographical features: Project area is flat in an existing commercial parcel.

   b. Elevation range and slopes on project site (for grading / excavation activities): _____

   c. Attach any pertinent soil and geologic reports available for the site.

2. Land use

   a. At project site: Disturbed vacant

   b. Adjacent to project site: Utility pumping station, commercial, open space

   c. Along pipeline alignments: N/A

   d. At the point of diversion: N/A

3. Vegetation types

On Project Site Surrounding Area

	On Project Site	Surrounding Area
Urbanized	☒	☒
Landscaped	☐	☐
Ruderal (Weedy)	☐	☐
Grassland	☐	☐
Shrub/Chaparral	☐	☐
Woodland	☐	☐
Forest	☐	☐
Riparian/Streamside	☐	☒
Wetland	☐	☐

a. Current graded area (% of project area): 100%

4. Hydrology

a. Are there any streams at the project site? ☐yes ☒no ☐unknown

If yes, list and state whether it's flow is permanent, Intermittent, or ephemeral. _____

b. Is the project near a Wild and Scenic River? ☐yes ☒no ☐unknown

If yes, provide the name of the river: _____

Internet website address: http://www.nps.gov/rivers/wildriverslist.html#ca

c. Are there any wetlands at the project site? ☐yes ☒no ☐unknown

Basis for answer: The site is already occupied by a water well.

d. Groundwater: For proposed well sources, check any of the following that apply

(1) ☐ Fractured Rock Aquifer
(2) ☐ Adjudicated Groundwater Basin
(3) ☐ Contaminated or Polluted Groundwater Basin
(4) ☐ Aquifer with Salinity Intrusion
(5) ☐ Depleted Aquifer

5. Toxic Substances Control pursuant to Gov. Code 65962.5? ☐yes ☒no ☐unknown

6. Is the project located near an airstrip? ☐yes ☒no ☐unknown

a. Is the airstrip ☐public ☐private ☐unknown

b. Does the airstrip have lights for night use? ☐yes ☐no ☐unknown

c. Does it have a buffer zone, a safety plan, a land use plan or some other document that indicates how it will avoid land use conflicts with surrounding properties? ☐yes ☐no ☐unknown

d. Is any part of the project in the path of planes taking off or landing? ☐yes ☒no ☐unknown

If so, what are the new safety risks posed by that part of the project? _____

7. Is the site on or next to a designated scenic highway? ☐yes ☒no ☐unknown

If yes, give the name of the highway: _____

Internet website address: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

8. Does the site have any historic or prehistoric archeological sites, architecture, landscapes, features, structures, or objects, ☐yes ☒no ☐unknown
List or provide basis for "no" answer: Site is already occupied with a water well.

9. Does the site have any sacred lands or traditional cultural places? ☐yes ☒no ☐unknown
List or provide basis for "no" answer: Site is already occupied with a water well.

10. Does the site have any land within coastal zone jurisdiction? ☐yes ☒no ☐unknown

11. Does the site have any land within a national forest? ☐yes ☒no ☐unknown

12. Is the project located in a federal non-attainment area for any of the following air pollutants? Internet website address: http://epa.gov/region09/air/maps

    a. Ozone (O3) ☒yes ☐no ☐unknown

        (1) If yes, estimate annual project emissions of VOC and NOx (tons) resulting from construction and operation: Daily emissions for the 10-day construction period are estimated at 9.9 for VOC and 69.6 for NOx (does not exceed daily threshold limits of 75.0 and 100.0 lbs/day for VOC and NOx, respectively). During operation, one vehicle trip per week would be generated to monitor the proposed ion exchange treatment pressure system. One vehicle trip per week is considered negligible.

    b. Carbon Monoxide (CO) ☒yes ☐no ☐unknown

        (1) If yes, estimate annual project CO emissions (tons) resulting from construction and operation: Daily emissions for the 10 day construction period are estimated at 78.2 for CO (does not exceed the daily threshold limit of 550.0 lbs/day). During operation, one vehicle trip per week would be generated to monitor the proposed ion exchange treatment pressure system. One vehicle trip per week is considered negligible.

    c. Particulate Matter (PM10) ☒yes ☐no ☐unknown

        (1) If yes, estimate annual project PM10 emissions (tons) resulting from construction and operation: Daily emissions for the 10-day construction period are estimated at 4.1 (does not exceed daily threshold limit of 150.0 lbs/day). During operation, one vehicle trip per week would be generated to monitor the proposed ion exchange treatment pressure system. One vehicle trip per week is considered negligible.

13. Is the project site within a floodplain or subject to flooding? ☐yes ☒no ☐unknown
Attach flood maps if available – maps can be found at the Internet website addresses: http://www.esri.com/hazards/makemap.html and http://fema.gov/mit/tsd.

14. Agricultural land on project site (acres): None.
☐ prime farmland ☐unique farmland ☐farmland of statewide importance
Internet website address: http://www.consrv.ca.gov/dlrp/FMMP_maps.htm

Environmental Impacts

Check any of the following impacts attributable to the project. Discuss below all items checked "yes" (attach additional sheets as necessary).

	Yes	No	
1.	☐	☒	Removal of mature native/heritage trees: #_____ Type _____
2.	☐	☒	Clearing of native vegetation and/or habitat
3.	☐	☒	Interference with or blocking wildlife migration routes
4.	☐	☒	Effect on a special status species – List: _____
5.	☐	☒	Interference with or substantial use of recreational facilities
6.	☐	☒	Change in ocean, bay, lake, or stream water quality or quantity
7.	☐	☒	Alteration of existing drainage patterns
8.	☐	☒	Impacts associated with floodplains or flooding
9.	☐	☒	Change in existing features of any bays, tidelands, beaches, or hills, or substantial alteration of ground contours
10.	☐	☒	Depletion of groundwater supplies
11.	☐	☒	Change in groundwater quality
12.	☐	☒	Loss of mineral resources
13.	☐	☒	Change in scenic views or vistas from existing residential areas, or public lands or roads
14.	☐	☒	Change in pattern, scale or character of the general project area
15.	☐	☒	Significant amounts of solid waste or litter
16.	☐	☒	Change in dust, ash, smoke, fumes, or odors in the vicinity
17.	☐	☒	Substantial change in noise or vibration levels in the vicinity (beyond the property line)
18.	☐	☒	Site on filled land or on slopes of 10 percent or more
19.	☐	☒	Use or disposal of hazardous materials, flammables, or explosives
20.	☐	☒	Substantial change in demand for municipal services
21.	☐	☒	Substantial increase in traffic
22.	☐	☒	Substantial increase in fuel consumption (electricity, oil, natural gas, etc.)
23.	☐	☒	Impacts to wetlands
24.	☐	☒	Conversion of farmland
25.	☐	☒	Cumulative impacts of successive projects of the same type in the same place over time. List: _____

Discussion: Item #19 System will be using Sulfuric Acid (H2SO4); spent resin will be removed by U.S. Filter.

Describe any known potentially significant environmental effects that may result if the project is implemented (attach additional sheets as necessary): None.

Describe any mitigation measures that will be incorporated into the project to prevent the occurrence of any potentially impacts described above (attach additional sheets as necessary): None.

Project alternatives considered (required for federally funded State Revolving Fund applications and projects that may involve an Environmental impact report)

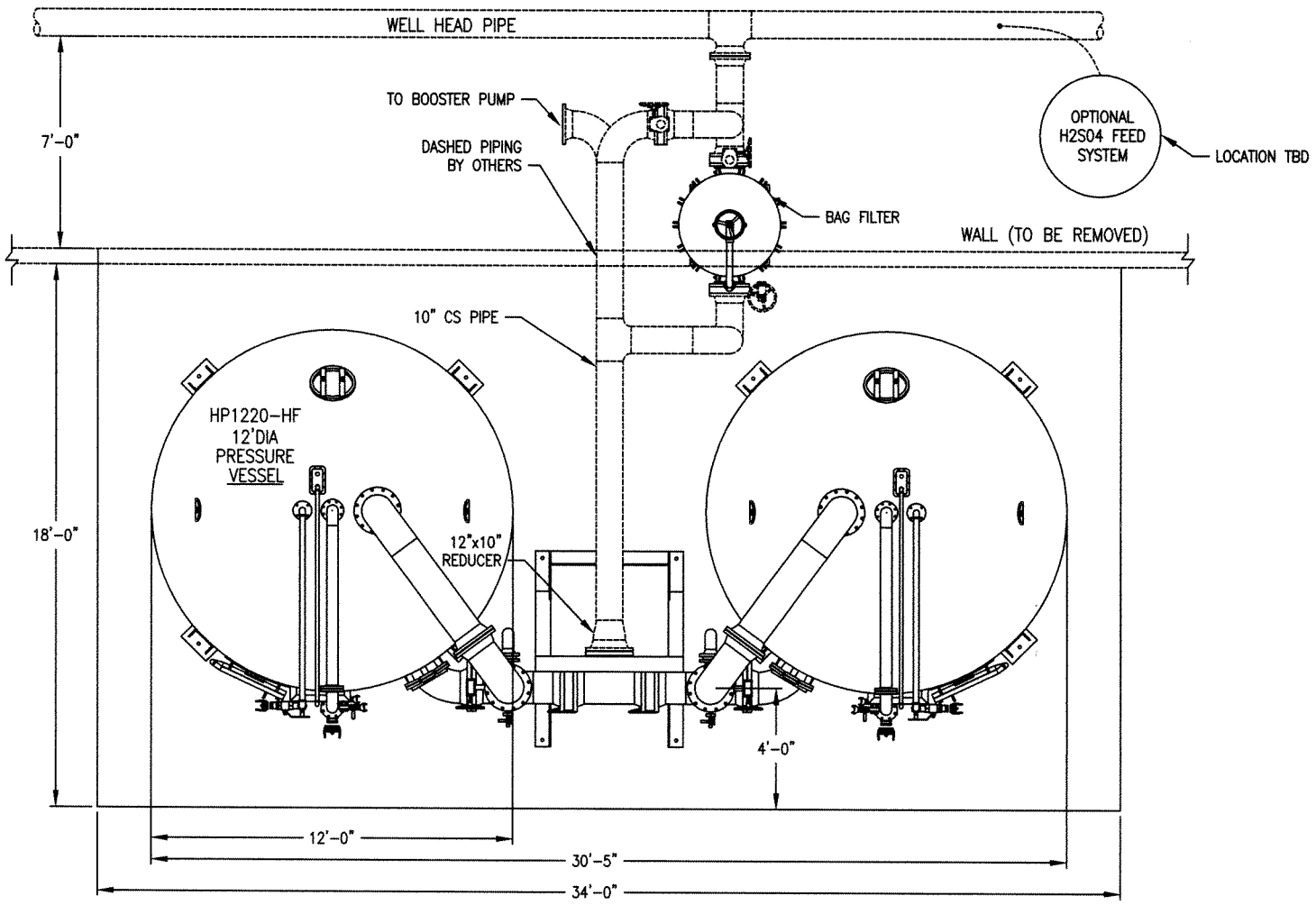
1. Leave source off. This alternative is not acceptable as the source is needed for supply for peak demand.
2. Replace source. This alternative is not feasible as other well locations are not available.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Signature: Greg Milleman Date: May 6, 2005

Name: Greg Milleman Title: Vice President of Administration

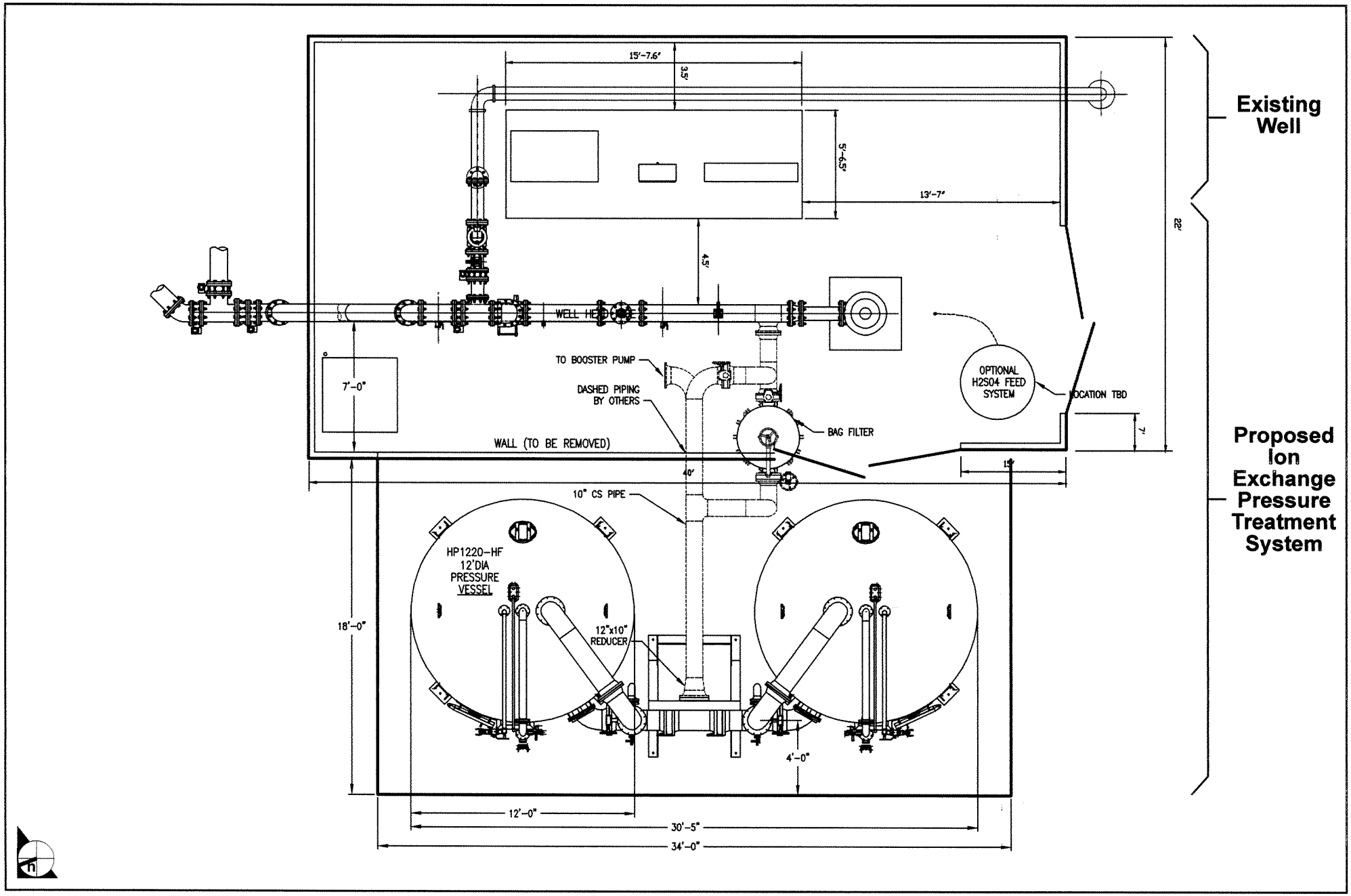


NOTES:
1. CONCRETE PAD, FENCING AND SECURITY BY OTHERS
2. INTERCONNECT PIPING TO/FROM SYSTEM BY OTHERS
3. ELECTRICAL CONNECTION TO ACID PUMP PANEL BY OTHERS
4. ACID STORAGE BUILDING, IF REQUIRED, BY OTHERS

SOURCE: US Filter Environmental Systems – April 2005

FIGURE 1

Proposed Ion Exchange Pressure Treatment System



SOURCE: US Filter Environmental Systems – Not Dated

FIGURE 2

Existing Well and Proposed Ion Exchange Pressure Treatment System

381-05•05/05

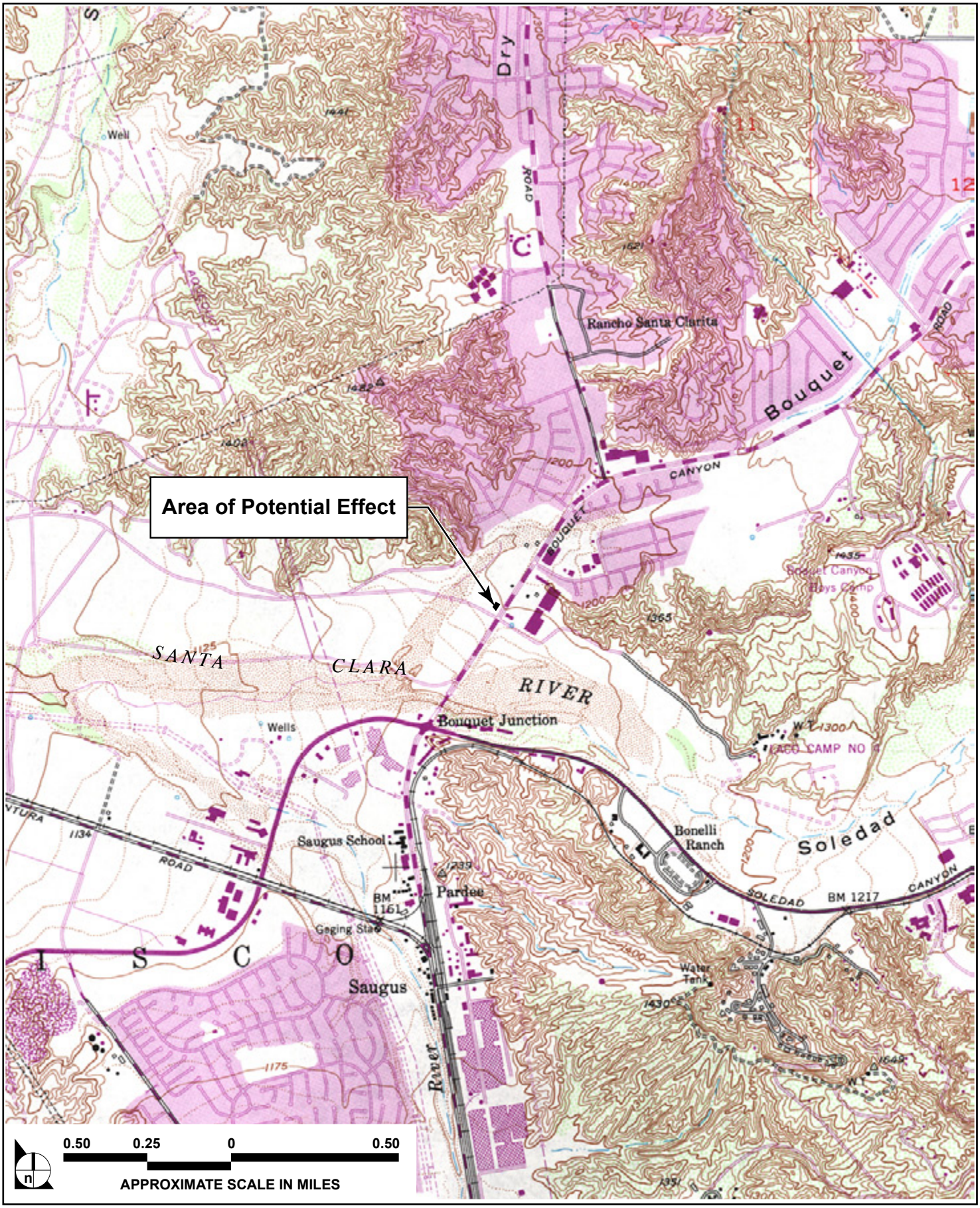
NOT TO SCALE

SOURCE: TBD

FIGURE 3

Site Plan

381-05•05/05



SOURCE: USGS Newhall Quadrangle – 1988, Impact Sciences, Inc. – May 2005

FIGURE **4**

Area of Potential Effect

T 05,7300 312 OCT 23 1970 2-01 BK D4869PG716

RECORDING REQUESTED BY

This instrument filed for record by Title Insurance and Trust Company as an accommodation only. It has not been examined as to its execution nor as to its effect upon the title.

3496

RECORDED IN OFFICIAL RECORDS OF LOS ANGELES COUNTY, CALIF. FOR TITLE INSURANCE & TRUST CO.
12 Min. Past 2 P.M. OCT 23 1970
RAY E. LEE, Registrar-Recorder

FEE $3.60 3N

When Recorded Mail To

Name: Valencia Water Company
Street Address: 28769 Castaic Canyon Road
City & State: Rural Route 3, Valencia, California 91355
Attn: Richard C. Hackney

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENTS TO

Name:
Street Address: same as above
City & State:

DOCUMENTARY TRANSFER TAX $ NONE
X COMPUTED ON FULL VALUE OF PROPERTY CONVEYED
— OR COMPUTED ON FULL VALUE LESS LIENS AND ENCUMBRANCES REMAINING AT TIME OF SALE
Signature of Declarant or Agent determining tax. Firm Name
D.T.T. $

Corporation Grant Deed

TO 406 CA (7-68) THIS FORM FURNISHED BY TITLE INSURANCE AND TRUST COMPANY

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
THE NEWHALL LAND AND FARMING COMPANY
a corporation organized under the laws of the state of California
hereby GRANTS to VALENCIA WATER COMPANY, a corporation,
an easement and right of way to lay, construct, repair, maintain, operate and renew water pipelines and appurtenances incidental thereto, with the right of ingress and egress to and from same, upon, over and across
the following described real property in the
County of Los Angeles, State of California:

(SEE LEGAL ATTACHED)

This easement grant does not convey any rights to surface or subsurface water that may now exist or may hereafter exist upon or under said land.

In Witness Whereof, said corporation has caused its corporate name and seal to be affixed hereto and this instrument to be executed by its Executive Vice President and _____ Secretary thereunto duly authorized.
Dated: October 16, 1970

THE NEWHALL LAND AND FARMING COMPANY
By James J. Finch Ex. Vice President
By Charles L. Maule Secretary

STATE OF CALIFORNIA } SS.
COUNTY OF Los Angeles

On October 16, 1970 before me, the undersigned, a Notary Public in and for said State, personally appeared James J. Finch, known to me to be the Executive Vice President, and Charles L. Maule known to me to be Secretary of the Corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.
Signature Dorrit L. Snow
Dorrit L. Snow
Name (Typed or Printed)

OFFICIAL SEAL
DORRIT L. SNOW
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires June 16, 1974
(This area for official notarial seal)

Title Order No. _____ Escrow or Loan No. _____

MAIL TAX STATEMENTS AS DIRECTED ABOVE

3496

THOSE PORTIONS OF SECTIONS 14, 15, AND 22 IN TOWNSHIP 4 NORTH, RANGE 16 WEST OF THE RANCHO SAN FRANCISCO, AS SHOWN ON MAP RECORDED IN BOOK 1, PAGE 521 AND 522 OF PATENTS, RECORDS OF LOS ANGELES COUNTY, INCLUDED WITHIN A STRIP OF LAND 12.00 FEET WIDE LYING 6.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

PARCEL A

BEGINNING AT A POINT ON THE SOUTHERLY BOUNDARY OF TRACT 29999 AS SHOWN ON MAP RECORDED IN BOOK 786, PAGES 81 TO 92 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SAID POINT BEARS NORTH 44°53'15" WEST 10.29 FEET FROM THE SOUTHEASTERLY CORNER OF SAID TRACT; THENCE

1ST. SOUTH 32°38'35" WEST 283.22 FEET ALONG A LINE PARALLEL WITH AND 2.00 FEET WESTERLY OF THE WESTERLY LINE OF BOUQUET CANYON ROAD DESCRIBED IN DEED RECORDED IN BOOK 6685, PAGE 170 OF OFFICIAL RECORDS OF SAID COUNTY AS HAVING A LENGTH OF 3730.38 FEET, TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHWESTERLY HAVING A RADIUS OF 100.00 FEET; THENCE LEAVING SAID PARALLEL LINE

2ND. SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 30°00'00" AN ARC DISTANCE OF 52.36 FEET; THENCE TANGENT

3RD. SOUTH 62°38'35" WEST 42.42 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHEASTERLY HAVING A RADIUS OF 100.00 FEET; THENCE

4TH. SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 30°00'00" AN ARC DISTANCE OF 52.36 FEET; THENCE TANGENT

5TH. SOUTH 32°38'35" WEST 182.67 FEET ALONG A LINE PARALLEL WITH AND 50.00 FEET WESTERLY OF THE WESTERLY LINE OF SAID BOUQUET CANYON ROAD TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHEASTERLY, HAVING A RADIUS OF 90.00 FEET; THENCE LEAVING SAID PARALLEL LINE

6TH. SOUTHEASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 12°43'57" AN ARC DISTANCE OF 20.00 FEET TO A POINT HEREINAFTER REFERRED TO AS POINT "A"; THENCE CONTINUING ALONG SAID LAST MENTIONED CURVE

7TH. SOUTHEASTERLY THROUGH A CENTRAL ANGLE OF 17°16'03" AN ARC DISTANCE OF 27.12 FEET; THENCE TANGENT

8TH. SOUTH 2°38'35" WEST 1.76 FEET TO THE BEGINNING OF A TANGENT CURVE SOUTHWESTERLY, HAVING A RADIUS OF 90.00 FEET; THENCE

9TH. SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 30°00'00" AN ARC DISTANCE OF 47.12 FEET; THENCE TANGENT

10TH. SOUTH 32°38'35" WEST 82.96 FEET ALONG A LINE PARALLEL WITH AND 50.00 FEET WESTERLY OF THE CENTERLINE OF SAID BOUQUET CANYON ROAD TO A POINT HEREINAFTER REFERRED TO AS POINT "B"; THENCE CONTINUING

11TH. SOUTH 32°38'35" WEST 1829.58 FEET; THENCE LEAVING SAID LAST MENTIONED PARALLEL LINE

12TH. SOUTH 36°29'30" WEST 477.02 FEET TO A POINT HEREINAFTER REFERRED TO AS POINT "C"; THENCE CONTINUING

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PARCEL A - PAGE 2

13TH. SOUTH 36°29'30" WEST 45.00 FEET; THENCE

14TH. SOUTH 6°29'30" WEST 34.00 FEET; THENCE

15TH. SOUTH 36°29'30" WEST 490.00 FEET ALONG A LINE PARALLEL WITH AND 33.00 FEET WESTERLY OF THE CENTERLINE OF SAID BOUQUET CANYON ROAD; THENCE LEAVING SAID PARALLEL LINE

16TH. SOUTH 40°29'30" WEST 52.00 FEET MORE OR LESS

PARCEL B

THAT PORTION OF SAID SECTION 14 LYING WITHIN A STRIP OF LAND 12.00 FEET WIDE, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT THE HEREINABOVE MENTIONED POINT "A"; THENCE

1ST. SOUTH 57°21'25" EAST 25.00 FEET

PARCEL C

THAT PORTION OF SAID SECTION 14 LYING WITHIN A STRIP OF LAND 12.00 FEET WIDE, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT THE HEREINABOVE MENTIONED POINT "B"; THENCE

1ST. NORTH 57°21'25" WEST 122.00 FEET TO A POINT HEREINAFTER REFERRED TO AS POINT "D".

PARCEL D - WELL SITE

THAT PORTION OF SAID SECTION 14 LYING WITHIN THE FOLLOWING DESCRIBED BOUNDARY

BEGINNING AT THE HEREINABOVE MENTIONED POINT "D"; THENCE

1ST. NORTH 32°38'35" EAST 25.00 FEET; THENCE AT RIGHT ANGLE

2ND. NORTH 57°21'25" WEST 50.00 FEET; THENCE AT RIGHT ANGLE

3RD. SOUTH 32°38'35" WEST 50.00 FEET; THENCE AT RIGHT ANGLE

4TH. SOUTH 57°21'25" EAST 50.00 FEET; THENCE AT RIGHT ANGLE

5TH. NORTH 32°38'35" EAST 25.00 FEET TO THE POINT OF BEGINNING.

PARCEL E - WELL SITE

THAT PORTION OF SAID SECTION 15 LYING WITHIN THE FOLLOWING DESCRIBED BOUNDARY

BEGINNING AT THE HEREINABOVE MENTIONED POINT "C"; THENCE NORTH 53°30'30" WEST 2.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE

1ST. NORTH 36°29'30" EAST 25.00 FEET; THENCE AT RIGHT ANGLE

2ND. NORTH 53°30'30" WEST 50.00 FEET; THENCE AT RIGHT ANGLE

3RD. SOUTH 36°29'30" WEST 50.00 FEET; THENCE AT RIGHT ANGLE

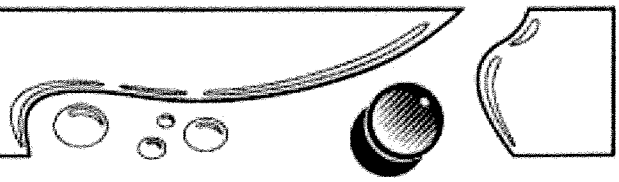
4TH. SOUTH 53°30'30" EAST 50.00 FEET; THENCE AT RIGHT ANGLE

5TH. NORTH 36°29'30" EAST 25.00 FEET TO THE TRUE POINT OF BEGINNING.

3496

ROHM HAAS

ION EXCHANGE RESINS



AMBERLITE® PWA2

STRONGLY BASIC ANION EXCHANGE RESIN

Amberlite® PWA2 is a specially designed ion exchange resin for the selective removal of perchlorate from potable water, and as such, Amberlite PWA2 has been certified for potable water use according to NSF/ANSI standard 61 for drinking water system components (for material requirements only).

PROPERTIES	
Matrix	Polystyrene divinylbenzene copolymer
Physical form	Amber translucent beads
Ionic form as shipped	Chloride
Total exchange capacity	0.60 eq/l minimum (Cl^- form)
Shipping weight	42 lbs/ft^3
SUGGESTED OPERATING CONDITIONS	
Optimum pH range	0 to14
Maximum operating temperature	140°F
Minimum bed depth	24 inches
Service flow rate	25 – 50 BV/hour

It is recommended that all potential users seek advice from Rohm and Haas Company to determine the optimum operating conditions.

SAFE HANDLING INFORMATION

Material Safety Data Sheets
Material Safety Data Sheets (MSDS) are available for all Rohm and Haas products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products.

We recommend that you obtain copies of our MSDS by calling 1-800-RH-AMBER before using our products in your facilities. We also suggest that you contact your suppliers of other materials recommended for use with our products for appropriate health and safety precautions before using them.

Caution: Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. In addition, the hazards of other organic solvents should be recognized and steps taken to control exposure.

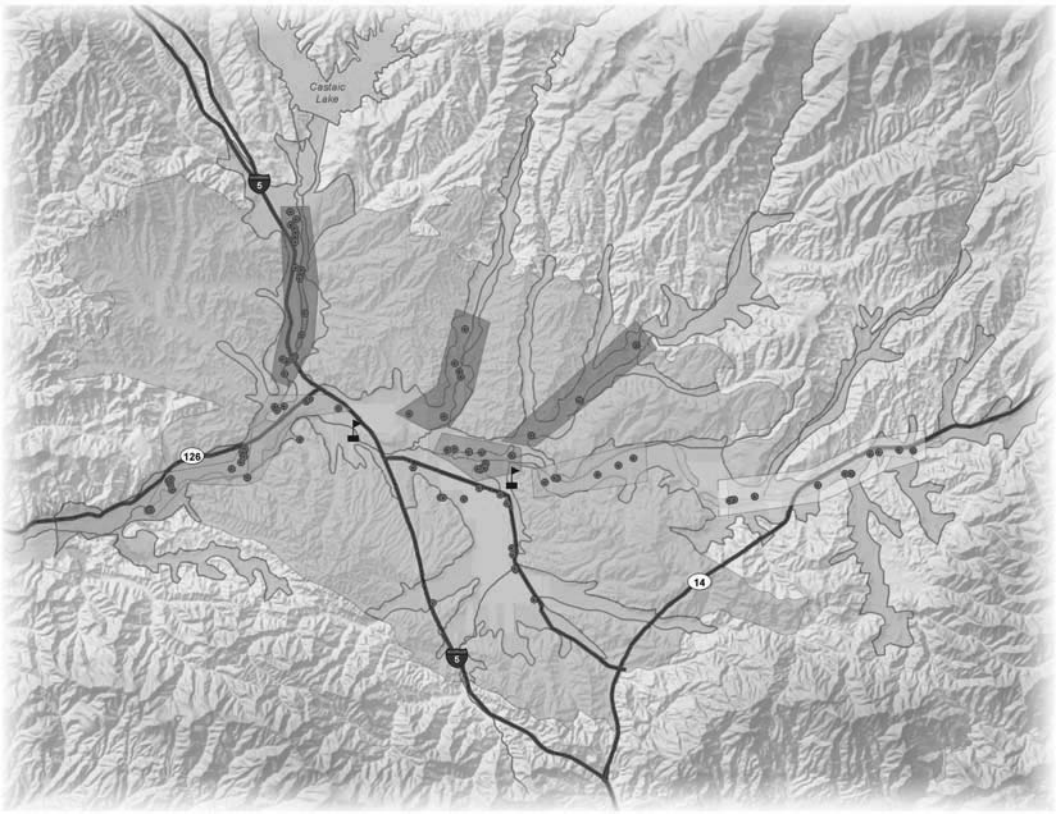
Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with ion exchange resins. Proper design of process equipment to prevent rapid build up of pressure is necessary if use of an oxidizing agent such as nitric acid is contemplated. Before using strong oxidizing agents in contact with ion exchange resins, consult sources knowledgeable in the handling of these materials.

Note: Ion exchange resins and polymeric adsorbents, as produced, contain by-products resulting from the manufacturing process. The user must determine the extent to which organic by-products must be removed for any particular use and establish techniques to assure that the appropriate level of purity is achieved for that use. The user must ensure compliance with all prudent safety standards and regulatory requirements governing the application. Except where specifically otherwise stated, Rohm and Haas Company does not recommend its ion exchange resins or polymeric adsorbents as supplied as being suitable or appropriately pure for any particular use. Consult your Rohm and Haas technical representative for further information.

APPENDIX E

***2004 Santa Clarita Valley Water Report*, dated May 2005,**
prepared by Luhdorff & Scalmanini Consulting Engineers
for Castaic Lake Water Agency

2004
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

May, 2005

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

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(all figures following their respective sections)

Tables

Executive Summary

This annual report, which is the seventh in a series that began in 1998, provides current information about the water requirements and water supplies of the Santa Clarita Valley. The report was prepared by Castaic Lake Water Agency (CLWA) and its Santa Clarita Water Division, Los Angeles County Waterworks District 36, Newhall County Water District, and Valencia Water Company.

The Santa Clarita Valley is served by four local retail water Purveyors: Castaic Lake Water Agency's Santa Clarita Water Division (SCWD), Los Angeles County Waterworks District 36 (LA36), Newhall County Water District (NCWD), and Valencia Water Company (VWC). The CLWA provides water from California's State Water Project (SWP) to the water Purveyors for distribution. Management from these entities and representatives from the City of Santa Clarita and the County of Los Angeles meet as required to coordinate the management of imported SWP water with local groundwater to meet water requirements in the Valley.

This report provides information about local groundwater resources, SWP water supplies, water conservation, and recycled water. The report also reviews the sufficiency and reliability of supplies in the context of existing water demand, as well as an overall outlook of water supply and demand.

In 2004, total water demands in the Santa Clarita Valley were about 87,900 acre-feet (af), of which about 82 percent (72,300 af) was for municipal use and the remaining 18 percent (15,600 af) was for agricultural and other (miscellaneous) uses. These total water demands were met by a combination of about 40,300 af from local groundwater resources (nearly 24,700 af for municipal and about 15,600 af for agricultural and other uses), about 47,200 af of SWP water, and about 450 af of recycled water.

Of the 40,300 af of total groundwater pumpage in the Valley in 2004, about 33,800 af were pumped from the Alluvium and about 6,500 af were pumped from the underlying, deeper Saugus Formation. Alluvial pumpage represented about a 200 af increase from 2003, and Saugus pumpage increased by about 2,300 af from 2003. Neither pumping volume resulted in any overall change in ongoing groundwater conditions (water levels, water quality, etc.) in either aquifer system. SWP deliveries to the Purveyors increased by 2,800 af over 2003, to 47,205 af in 2004. Water uses and supplies in 2004 are summarized in the following Table ES-1.

As discussed in the 2000 Water Report, a notable accomplishment in that year was the preparation of the Urban Water Management Plan (UWMP) for the Santa Clarita Valley. The UWMP, which is more technical and longer term in focus than this annual report, and which does not focus on recent or other historical water requirements and supplies, provides a projection of water demands through 2020. Among other details, it delineates a number of local and other groundwater supplies in conjunction with SWP water to meet those projected water demands over that time frame. It also identifies operating plans for dry periods of up to three consecutive dry years. This operating plan proposes using alternate supplies and/or development

Table ES-1
Santa Clarita Valley
Summary of 2004 Water Uses
(acre-feet)

Municipal		
State Water Project		47,205
Groundwater (Total)		24,671
Alluvium	*18,970*	
Saugus	*5,701*	
Recycled Water		448
Subtotal		**72,324**
Agriculture/Miscellaneous		
State Water Project		-
Groundwater (Total)		15,590
Alluvium	*14,787*	
Saugus	*803*	
Subtotal		**15,590**
Total		***87,914***

of future supplies from groundwater storage projects, short-term transfers, local groundwater and other supplies to offset potentially reduced deliveries of SWP water. Conjunctively, these supplies can meet demands without exceeding the operational yield of the aquifer system on a long-term basis. In litigation filed by Ventura County, The Sierra Club, and Friends of the Santa Clara River, the UWMP was upheld in April 2003 by the Kern County Superior Court as a fully legal and complete document. Notably, the Court rejected claims that population projections and associated water demand projections were underestimated, and that available water supplies were overestimated. Subsequently, however, in September 2004, the Appellate Court found that the 2000 UWMP should have addressed the time needed to implement available methodology for treatment of perchlorate contaminated groundwater, and should have described the reliability of groundwater supplies during the treatment implementation period.

As a result, the Purveyors prepared and adopted an amended 2000 Urban Water Management Plan to address three general topics: updated requirements of urban water management plans related to groundwater, as added to the Water Code since 2000; the reliability of local groundwater resources and the adequacy of groundwater supplies to meet groundwater demand without perchlorate-impacted wells; and detailed plans for the integrated control of perchlorate migration and full restoration of perchlorate-impacted water supply, scheduled for implementation by 2006. The 2000 Urban Water Management Plan **Groundwater Perchlorate Contamination Amendment and Other Amendments** was completed in January 2005 and formally submitted to the State Department of Water Resources in February 2005.

As introduced in the 2001 Water Report, a significant accomplishment in that year was the preparation and execution of a Memorandum of Understanding (MOU) between the Santa

Clarita Valley water Purveyors and the United Water Conservation District (United). United manages surface and groundwater resources in seven groundwater basins in the Lower Santa Clara River Valley Area, downstream of the Santa Clarita Valley. This regional MOU effort was born out of a willingness among the involved agencies to seek opportunities to work together and develop programs that mutually benefit the region and the communities they serve.

The MOU has initiated a collaborative and integrated approach to the following: 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 Water Report for current planning and consideration of development proposals, and also including less frequent but more technically detailed reports on geologic and hydrologic aspects of the overall stream-aquifer system. Integration of the Upper (Santa Clarita Valley) and Lower (United WCD) Santa Clara River databases was accomplished in 2003. Work was subsequently completed on the development and calibration of a numerical groundwater flow model of the entire Santa Clarita groundwater basin. That model will be further utilized in 2005 for evaluation of basin yield under varying management actions and hydrologic conditions.

In August 2002, the Department of Water Resources (DWR) released its Draft State Water Project Delivery Reliability Report. The report was finalized in May 2003. The report is intended to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies. The analyses contained in the report conclude that the SWP, using existing facilities and operated under current regulations, can deliver a long-term average of 76 percent of the primary contractual supply (defined as the Table A Amount) at the 2021 level of development described in the report. During infrequent dry periods deliveries are projected to be less than 50 percent, and possibly as low as 19 percent during an unusual single dry year condition that has historically occurred about once every 70 years. During very wet years, full contract amounts are available.

Significant accomplishments in 2002 and 2003 were the storing of 24,000 af of 2002 available SWP Table A water and 32,522 af of available SWP Table A water by CLWA in the Semitropic Water Storage District's groundwater banking program in Kern County. Over the subsequent ten years, this groundwater bank account will be used as an additional supply for the Santa Clarita Valley during a dry period. In accordance with the provisions of the banking agreements, CLWA can withdraw up to 50,870 af of the stored water to meet valley demands when needed.

Another notable accomplishment in water resource management in 2003 was the completion and adoption of a formal groundwater management plan. 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 10753, which was originally enacted by, and is commonly known as, Assembly Bill 3030. The general contents of that groundwater management plan were outlined in 2002, and a detailed plan was drafted in 2003 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. Among the elements of the adopted Plan is the preparation

of groundwater management reports. The annual Water Reports, like this one, were envisioned in that Plan to continue to provide regular reporting on many of the aspects of the groundwater management plan. Other more detailed technical reports were also envisioned in the Plan to address specific aspects of basin management. The first of these technical reports, on the development and calibration of a numerical groundwater flow model, was drafted in 2003.

Due to the nature of the above-noted issues with perchlorate contamination in the basin, the primary focus of efforts in 2004 centered around those issues. Significant accomplishments included the completion of an integrated plan for restoration of impacted groundwater supply wells, treatment of groundwater for removal of perchlorate, and containment of perchlorate contamination in order to protect other wells in the basin. Closely related to the completion of that plan was the utilization of the recently developed groundwater model, after approval of the model for that purpose by the State Department of Toxic Substance Control, for analysis of the required pumping rates and resultant containment of perchlorate contamination. Embedded in the latter analysis was the basin-wide utilization of groundwater for water supply as planned in the UWMP; the resultant analysis showed, over a long-term period of typical wet/normal/dry hydrologic conditions, that both aquifer systems responded in a sustainable manner, with no depletion or degradation of the basin.

As introduced above, water supplies to meet existing water demands in the Santa Clarita Valley include groundwater from the shallow Alluvial Aquifer and from the underlying deeper Saugus Formation, SWP water, and recycled water. The following summarizes the use and condition of those water resources in the Valley in 2004.

ES.1 Alluvial Aquifer

In light of Alluvial aquifer conditions over the last 10 to 20 years, during which Alluvial pumpage has increased without long-term adverse effects on water levels or quality, the UWMP includes Alluvial pumpage in the range of 30,000 to 40,000 acre-feet per year (afy) in average/normal years, and slightly reduced pumpage (30,000 to 35,000 afy) in dry years. Pumpage from the Alluvium in 2004 was 33,800 af, and remained in the overall UWMP range as it has over the last ten years.

On a long-term basis, 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. Higher than average precipitation in late 2004 and early 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 is in good operating condition and can continue to support pumpage in the range included in the UWMP, as has been the case for the last decade, 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 is 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 located near the former Whittaker-Bermite facility. The detected concentration was slightly below the Notification Level for perchlorate (6 ug/l), and the well has been inactivated for municipal water supply. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. 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. The Q2 Report (Luhdorff and Scalmanini, 2005) documents that the perchlorate detected in Well Q2 will not significantly impact the water supplies used to meet demand in the Santa Clarita Valley for the period of time required to respond to the contamination. The results of the Q2 analysis and Report are consistent with the analysis and conclusions in the Amended 2000 UWMP. Valencia's response plan for Well Q2 is to pursue permitting and installation of wellhead treatment by the fall of 2005, which will return the well to 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 routinely sampled and perchlorate has not been detected. As detailed in the Amended 2000 UWMP and the Q2 Report, the inactivation of two Alluvial wells due to perchlorate contamination does not limit the Purveyors' ability to produce groundwater from the Alluvium in accordance with the capacities delineated in the UWMP.

The ongoing characterization and plan for control and cleanup of perchlorate initially focused on the Saugus Formation as previously reported and discussed herein. However, as a result of the detection of perchlorate in one Alluvial municipal supply well, control and cleanup actions are also being planned for the Northern Alluvium.

ES.2 Saugus Formation

For long term planning purposes, the 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 UWMP recognizes 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.

Pumpage from the Saugus Formation was about 6,500 af in 2004; on average, Saugus pumpage has been about 7,000 afy since 1980. Both rates are near the lower end of the range included in the UWMP. Detailed records are not available prior to 1980, but historical pumpage from the Saugus was quite small prior to 1960 (100 to 200 afy) and was still small in the 1960's (peak pumpage of about 3,000 afy through the mid-1960's). Historical pumpage has been as high as nearly 15,000 af in 1991, and about 12,000 afy over a four-year period in the early 1990's. These amounts are near the upper end of the range included in the UWMP. As a result of long-term relatively low pumpage from the Saugus Formation, groundwater levels in that aquifer have remained essentially constant over the last 35 to 40 years; that trend continued in 2004.

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 on the east side of the basin. All four of those impacted wells exceed the current Notification Level of 6 parts per billion set by the California Department of Health Services (DHS) and have been taken out of active water supply service (water levels in the wells continue to be monitored). 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 on a routine basis and perchlorate has not been detected. However, the Purveyors have taken a cautious and prudent approach in utilizing Saugus groundwater, pending the installation of treatment facilities as part of control and cleanup of perchlorate contamination that will also restore the pumping capacity of the inactive wells. Ultimately, 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 UWMP.

Work toward the ultimate remediation of perchlorate contamination, including the restoration of impacted groundwater supply continued to progress on several integrated tracks in 2004. In February 2003, the Purveyors entered into a voluntary cleanup agreement with the State Department of Toxic Substances Control (DTSC) whereby DTSC is providing review and oversight of the activities by the Purveyors in response to the detection of perchlorate in the five impacted wells. In accordance with that agreement, the Purveyors have prepared a Work Plan for sampling of production wells, prepared a report on the results and findings of the production well sampling, prepared a draft Human Health Risk Assessment, prepared a draft Remedial Action Workplan, completed the evaluation of treatment technologies, and completed the development of the groundwater model described above. The Purveyors have also initiated a process for approval by DHS in accordance with its Policy 97-005 for restoration of water supply from "severely impaired" water sources such as the perchlorate-impacted wells. The evaluation of treatment technologies and development of the groundwater model noted above were key activities completed in 2003 and reported in 2004 for inclusion in the application for approval by DHS for the restoration of perchlorate-impacted water supply. CLWA, the Purveyors and Whittaker entered into an Interim Settlement Agreement (ISA) in 2003, wherein the parties agreed to work cooperatively for a minimum of a one-year period to further define long-term costs and reach a long-term settlement. The ISA expired in September 2004 but was extended by mutual consent of all parties until the end of January 2005. The ISA specifies that Whittaker and its insurers would reimburse certain past costs as well as ongoing costs incurred by CLWA and the Purveyors in responding to perchlorate contamination. Activities since execution of the ISA have continued on developing the elements of a remedial strategy that will entail, among other details, the pumping of two impacted wells for containment of perchlorate migration, utilization of the pumped water, after treatment, for water supply, and installation of replacement wells in non-impacted portions of the basin to restore the remainder of groundwater supply impacted by perchlorate. Activities since execution of the ISA have also involved negotiation of a long-term Settlement Agreement.

ES.3 Imported Water

CLWA's contractual Table A Amount is 95,200 af of water from the SWP. CLWA operates two water filtration plants and has a current total treatment capacity of 63.5 million gallons per day of capacity where the water is treated, filtered, and disinfected prior to being delivered to Purveyors

for distribution. CLWA has nearly completed construction that will expand the Earl Schmidt Filtration Plant from its existing rated capacity of 33.5 million gallons per day to 56 million gallons per day. Plant expansion is scheduled to come on line in mid-2005. Upon completion, CLWA will have combined treatment capacity of 86 million gallons per day.

CLWA's final allocation of Table A for 2004 was 65 percent, or 61,880 af. On December 1, 2003, the initial allocation for 2004 was announced as 35 percent. On March 1, 2004, it was raised to the final allocation of 65 percent. Utilizing SWP contract provisions, CLWA elected to "carry over" unused remaining Table A Amount into 2005.

The total available SWP supply in 2004 was 99,283 af, including 35,785 af of 2003 carryover delivered in early 2004, and 1,618 af of Article 21 water. CLWA deliveries were 47,205 af to the Purveyors and 3,776 af to the Devil's Den Ranch, with 15,522 af of the 2004 Table A Amount for potential carryover to 2005.

Late in 2003, CLWA negotiated a second groundwater banking agreement with the Semitropic Water Storage District in Kern County. CLWA delivered 32,522 af of 2003 carryover water for storage in Semitropic's program; actual delivery took place in January, February and March 2004. Over a ten-year period (until 2013), CLWA can withdraw up to 29,270 af of that stored water to meet valley demands when needed. Combined with its storage of water in 2002, CLWA now can withdraw up to 50,870 af from Semitropic to meet water demands in the Valley when needed.

SWP water deliveries are subject to reduction when dry conditions occur in Northern California. The UWMP addresses 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.4 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 448 af in 2004.

ES.5 Reliability Goal

Water consumers expect that their needs are going to be met with a high degree of quality and reliability of service. To that end, CLWA and the Purveyors are in the process of establishing a water reliability policy for planning purposes sufficient to meet projected demands 95 percent of the time over each 20-year period. In the remaining 5 percent of the time, it is planned that the maximum supply shortage will be 10 percent of demand. This level is being planned based on past experience that a 10 percent water demand reduction is feasible during a drought. When a shortage occurs, water consumers typically increase their awareness of water usage and voluntarily reduce water demands. During the last drought, in the early 1990's, voluntary conservation efforts by area residents resulted in a decrease in water demand of about 20 percent per year.

For planning purposes, water supplies and facilities are added on an incremental basis and ahead of need because it would be economically imprudent to immediately, or in the short term, acquire and/or construct all the facilities and water supplies needed for the next twenty to thirty years. This would represent an unfair shift of costs from future customers to existing customers.

ES.6 Water Supply Outlook

Total demand in 2004 was consistent with the year-to-year fluctuations in demand, taking into account increases in service connections. In 2005, total water demands are expected to be about 89,000 af, generally consistent with the growth rate in the UWMP while also recognizing the cool and wet early months of the year. Of the total, municipal demand is expected to be about 73,000 af. However, record rainfall in early 2005 has depressed demand, so total annual demand may be lower. Agricultural water demands are expected to be essentially unchanged. It is expected that water demands in 2005 will continue to be met with a generally similar mix of water supplies comprised of imported SWP water, local groundwater, and recycled water.

Recycled water will continue to supply a small portion of total water demand in 2005. CLWA anticipates continuing Phase 1 of its recycled water program in 2005 to provide delivery of up to 1,700 afy of recycled water for use on large landscape areas, roadway medians and other acceptable non-potable uses. In addition, surveys conducted by CLWA indicate an interest for recycled water by existing water users as well as future development when it becomes available.

Each year, DWR determines SWP deliveries. As of April 21, 2005, the allocation of water from the SWP is 80 percent of CLWA's Table A Amount, representing 76,160 af. Combined with local groundwater from the two aquifer systems (47,500 af), small additional surface water supplies (Article 21 and Flexible Storage Account, which represent about 6,200 af combined), net carryover SWP water from 2004 (1,657 af), and recycled water (up to 1,700 af), the total available water supplies for 2005 are slightly more than 133,000 af. As a result, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2005.

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, 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 Urban Water Management Plan. Due to the banking of excess 2002 and 2003 SWP water in the Semitropic Groundwater Storage Program, CLWA can draw upon its account as needed, pursuant to the terms of the banking agreement with Semitropic. The banked excess 2002 and 2003 SWP water now represents nearly 51,000 af of recoverable water for drought water supply.

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 water supplies that add diversity in water supply options, 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 during dry year conditions and thereby making the Purveyors less dependent upon direct deliveries from the SWP water supplies.

I. Introduction

1.1 Background

For most residents of the Santa Clarita Valley (Valley), domestic water service is provided by four water Purveyors. They are the Castaic Lake Water Agency Santa Clarita Water Division (SCWD), Los Angeles County Waterworks District 36 (LA36), Newhall County Water District (NCWD), and Valencia Water Company (VWC). Together, the Purveyors provide water to approximately 65,000 service connections. Castaic Lake Water Agency (CLWA) draws water from Castaic Lake where it is treated, filtered, and disinfected at two treatment plants before distribution to the Purveyors. The staff of these entities meet regularly to coordinate the supply of water in the Valley. Their respective service areas are shown in Figure I-1.

Water supply for a small percentage of Valley residents is provided by individual private water supply wells. The location, construction, annual pumpage and other information about these private wells are not currently available. CLWA is currently working with private well owners to receive information about their wells for incorporation in future reports and for planning purposes. Pumping as reported herein includes an estimate of groundwater pumped from private wells; it is expected that this estimate will be refined in future reports as more information about the private wells is obtained.

Over the years, CLWA and the Purveyors have reviewed and documented the availability of water resources in the region. Past studies have assessed the condition of the local groundwater aquifers, their hydrogeologic character, aquifer storage capacity, operational yield and recharge rate, and the potential for conjunctive use of groundwater and imported water resources.

Other efforts have included developing drought contingency plans, evaluating the impact of landfills on the groundwater basin, 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 had been coordinated among CLWA and the Purveyors so that there was general agreement about water supply and demand information for long term planning purposes. In December 2000, CLWA and the Purveyors updated the valley-wide UWMP, and that current UWMP remains the reference for projected water requirements and for municipal and agricultural water supplies in the Valley. The 2000 UWMP was amended in 2005 to specifically address the reliability of local groundwater resources and the adequacy of groundwater supplies to meet groundwater demand; the Amended 2000 UWMP also addressed the plans for integrated control of perchlorate migration and full restoration of perchlorate-impacted groundwater supply, scheduled to be implemented by 2006. The UWMP is being updated in 2005 in accordance with the California Urban Water Management Planning Act.

1.2 Purpose and Scope of the Report

The purpose of this report, which is the seventh in a series of annual water reports that began in 1998, is to provide current information about the available water supplies and demands of the Santa Clarita Valley. CLWA and the Purveyors have prepared this series of reports in response

to a request made by the Los Angeles County Board of Supervisors in 1998. This report was prepared by Castaic Lake Water Agency (CLWA) and its Santa Clarita Water Division, by Los Angeles County Waterworks District 36, by Newhall County Water District, and by Valencia Water Company. It establishes a format for providing information regarding the availability of water on an annual basis. It is intended to be a helpful resource for use by water planners and local planning agencies. This report is complemented by the more detailed UWMP for the area, which provides longer-term water supply planning over a 20-year period.

1.3 Santa Clarita Valley Water Purveyors

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 26,161 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. LACWWD 36 has 1,308 service connections. The District has traditionally obtained its full water supply from a connection to the CLWA's Castaic Conduit. In 2004, the District supplemented its surface water supply with groundwater purchased from the Los Angeles County Peter J. Pitchess Detention Center.

Newhall County Water District's service areas lie in four distinct geographical areas of the Santa Clarita Valley, designated as the service areas of Newhall, Pinetree, Castaic, and Tesoro. NCWD supplies water from both groundwater and CLWA turnouts to approximately 9,010 service connections.

Valencia Water Company's service area serves 28,296 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 some non-potable uses.

1.4 The Upper Santa Clara River Hydrologic Area

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 (Figure I-2). 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 it forms the outlet

for the Upper Santa Clara River Hydrologic Area. The principal tributaries of the upper river are Castaic Creek, San Francisquito Creek, Bouquet Creek, and the South Fork of the Santa Clara River. Additionally, 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 (Figure I-2).

The Santa Clara River traverses the Santa Clarita Valley. The mountainous area to the north of the river is dissected by long southwest draining canyons - San Francisquito, Bouquet and Mint Canyons. Castaic Lake and Lagoon are within this Sub-Area. The South Fork of the Santa Clara River, draining the mountains along the southern boundary, traverses the valley floor where it joins with the main stem of the Santa Clara River.

Beneath the Santa Clarita Valley, there are two aquifer systems that comprise the Santa Clara River Valley East Groundwater Subbasin. This groundwater basin is the source of 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 I-3.

There are two primary precipitation gages in the Santa Clarita Valley, the Newhall-Soledad 32c gage and the Newhall County Water District gage (shown in Figure I-4). 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. Intermittent periods of less-than-average precipitation are typically followed by periods of greater-than-average precipitation in a cyclical pattern, with each wetter or drier period typically lasting from one to five years. Long-term precipitation records for the Newhall-Soledad 32c gage are illustrated in Figure I-5. The long-term average precipitation is 17.90 inches (1931-2004). Figure I-5 also shows the yearly departure from mean annual precipitation. In general, periods of less-than-average precipitation are longer and more moderate than periods of greater-than-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. 2004 was a slightly wet year, with total precipitation of approximately 23 inches, about 5 inches above average. Wet conditions continued into early 2005; significant storm events in January 2005 produced over 13 inches of measured precipitation, or more than 70 percent of average annual precipitation in the first month of the year.

II. 2004 Water Demands and Supplies

In 2004, total water demands in the Santa Clarita Valley were 87,900 af, an increase of about 5,000 af from the previous year. Of that amount, 82 percent (72,300 af) was for municipal use and the remaining 18 percent (15,600 af) was for agricultural and other (miscellaneous) uses. These total water demands were met by a combination of 40,300 af from local groundwater resources (nearly 24,700 af for municipal and about 15,600 af for agricultural and other uses), about 47,200 af of SWP water, and 448 af of recycled water.

In 2004, the total water demand in the Santa Clarita Valley increased by slightly more than five percent from the previous year, and was approximately six percent higher than the short-term projected water demand of 83,000 af presented in last year's water report. This increase in water usage is related to an increase in the number of municipal connections served, from approximately 61,400 in 2003 to 64,800 in 2004. As presented in the 2000 UWMP, historical water use from 1985 to 1998 fluctuated notably, increasing up to 10.2 percent in hot dry years and declining by up to 3.7 percent in cool wet years. Although 2004 was a wetter-than-average year, demand per service connection remained the same as in the previous (slightly dry) year.

Tables II-1 through II-4 summarize the use of available water sources by each Purveyor to meet water demands since the importation of SWP water began in 1980. The historical distribution of water supply sources to meet cumulative municipal water demands is summarized in Table II-5; the trends in use of local groundwater and imported SWP water to meet total demand are illustrated in Figure II-1. Tables II-6 and II-7 summarize historical agricultural and miscellaneous water requirements and supplies. Finally, total water demands and supplies since 1980 are summarized in Table II-8.

Table II-1
Water Supplies for Los Angeles County Waterworks District 36
(Acre-Feet)

Year	*State Water Project*	*Alluvium*	*Saugus Formation*	**Total**
1980	0	-	-	**0**
1981	0	-	-	**0**
1982	145	-	-	**145**
1983	207	-	-	**207**
1984	240	-	-	**240**
1985	272	-	-	**272**
1986	342	-	-	**342**
1987	361	-	-	**361**
1988	434	-	-	**434**
1989	457	-	-	**457**
1990	513	-	-	**513**
1991	435	-	-	**435**
1992	421	-	-	**421**
1993	465	-	-	**465**
1994	453	-	-	**453**
1995	477	-	-	**477**
1996	533	-	-	**533**
1997	785	-	-	**785**
1998	578	-	-	**578**
1999	654	-	-	**654**
2000	800	-	-	**800**
2001	907	-	-	**907**
2002	1,069	-	-	**1,069**
2003	1,175	-	-	**1,175**
2004	854	380	-	**1,234**

Groundwater purchased from Los Angeles County Honor Farm

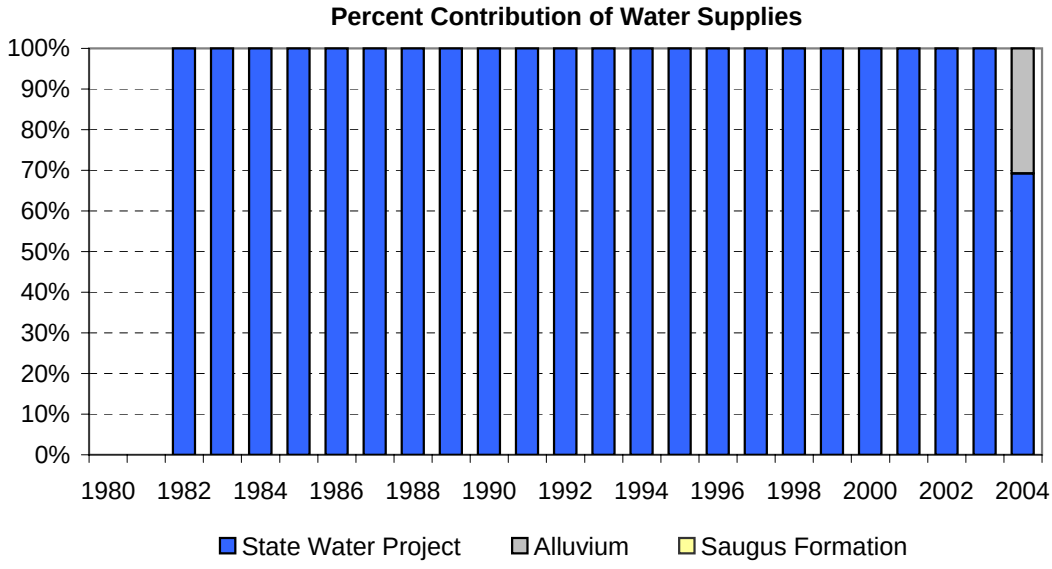


Table II-2
Water Supplies for Newhall County Water District
(Acre-Feet)

Year	*State Water Project*	*Alluvium*	*Saugus Formation*	**Total**
1980	0	1,170	2,363	**3,533**
1981	0	1,350	2,621	**3,971**
1982	0	1,178	2,672	**3,850**
1983	0	1,147	2,787	**3,934**
1984	0	1,549	2,955	**4,504**
1985	0	1,644	3,255	**4,899**
1986	0	1,842	3,548	**5,390**
1987	22	2,127	3,657	**5,806**
1988	142	2,283	4,041	**6,466**
1989	428	2,367	4,688	**7,483**
1990	796	1,936	4,746	**7,478**
1991	675	1,864	4,994	**7,533**
1992	802	1,994	5,160	**7,956**
1993	1,075	1,977	5,068	**8,120**
1994	906	2,225	5,103	**8,234**
1995	1,305	1,675	4,775	**7,755**
1996	1,213	1,803	4,871	**7,887**
1997	1,324	2,309	5,168	**8,801**
1998	1,769	1,761	4,557	**8,087**
1999	5,050	1,676	2,622	**9,348**
2000	6,024	1,508	2,186	**9,718**
2001	5,452	1,641	2,432	**9,525**
2002	5,986	981	3,395	**10,362**
2003	6,572	1,266	2,513	**10,351**
2004	5,896	1,582	3,739	**11,217**

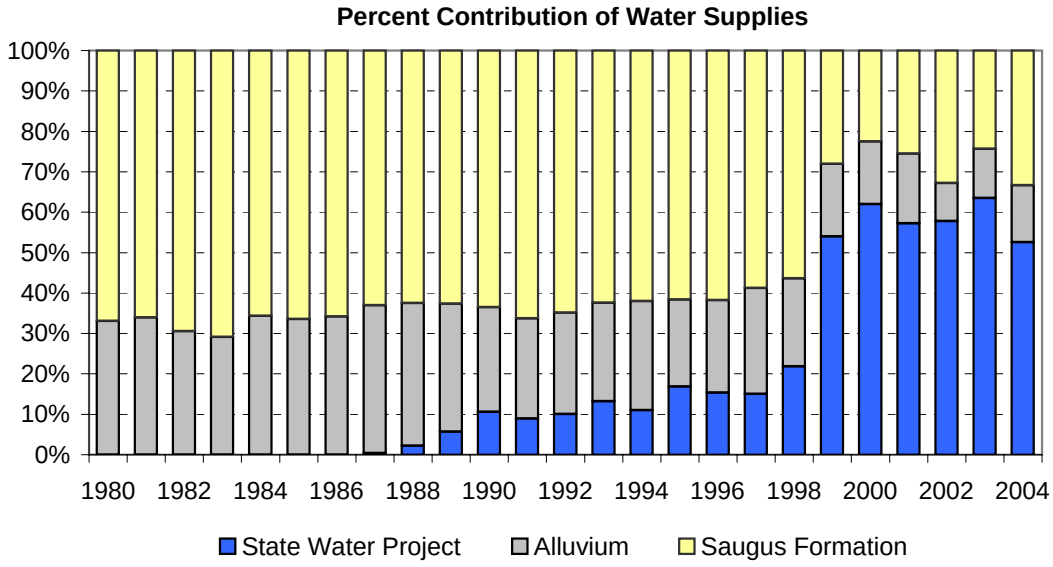


Table II-3
Water Supplies for CLWA Santa Clarita Water Division
(Acre-Feet)

Year	*State Water Project*	*Alluvium*	*Saugus Formation*	**Total**
1980	1,125	9,460	0	**10,585**
1981	4,602	7,109	0	**11,711**
1982	6,454	4,091	0	**10,545**
1983	5,214	4,269	0	**9,483**
1984	6,616	6,057	0	**12,673**
1985	6,910	6,242	0	**13,152**
1986	8,366	5,409	0	**13,775**
1987	9,712	5,582	0	**15,294**
1988	11,430	5,079	63	**16,572**
1989	12,790	5,785	0	**18,575**
1990	12,480	5,983	40	**18,503**
1991	6,158	5,593	4,781	**16,532**
1992	6,350	8,288	2,913	**17,551**
1993	3,429	12,016	2,901	**18,346**
1994	5,052	10,996	3,863	**19,911**
1995	7,955	10,217	1,726	**19,898**
1996	9,385	10,445	2,176	**22,006**
1997	10,120	11,268	1,068	**22,456**
1998	8,893	11,426	0	**20,319**
1999	10,772	13,741	0	**24,513**
2000	13,751	11,529	0	**25,280**
2001	15,648	9,896	0	**25,544**
2002	18,921	9,513	0	**28,434**
2003	20,668	6,424	0	**27,092**
2004	22,045	7,146	0	**29,191**

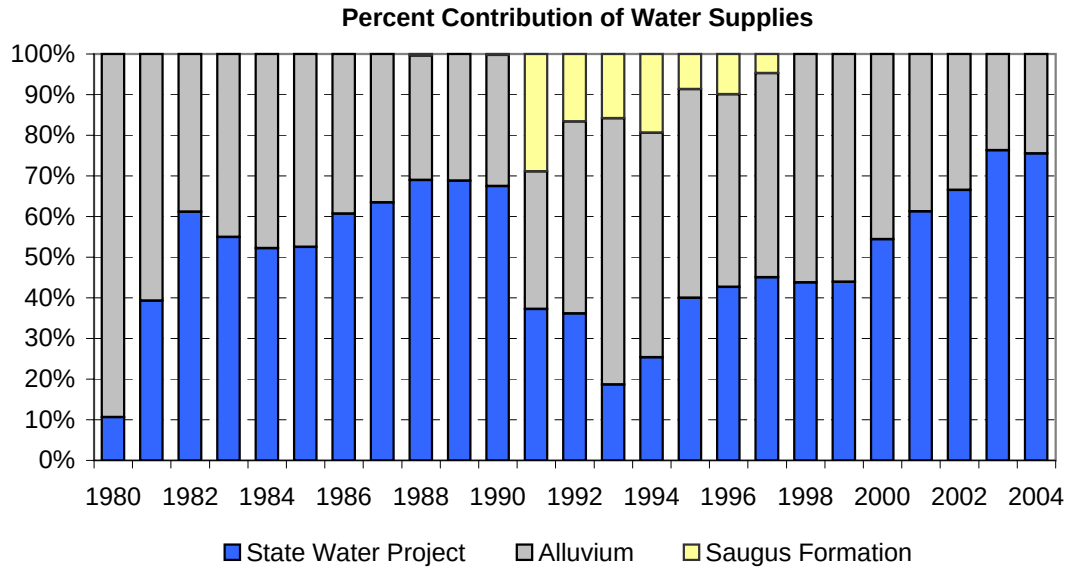


Table II-4
Water Supplies for Valencia Water Company
(Acre-Feet)

Year	*State Water Project*	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	0	5,995	2,206	-	**8,201**
1981	1,214	5,597	2,329	-	**9,140**
1982	3,060	3,415	897	-	**7,372**
1983	3,764	3,387	611	-	**7,762**
1984	4,140	4,975	854	-	**9,969**
1985	4,641	4,633	885	-	**10,159**
1986	5,051	5,167	1,427	-	**11,645**
1987	6,190	4,921	1,305	-	**12,416**
1988	7,027	4,835	2,300	-	**14,162**
1989	7,943	5,826	2,529	-	**16,298**
1990	7,824	5,232	3,516	-	**16,572**
1991	700	9,951	4,642	-	**15,293**
1992	6,338	6,615	2,385	-	**15,338**
1993	8,424	5,815	2,182	-	**16,421**
1994	7,978	6,847	2,565	-	**17,390**
1995	7,259	8,698	1,586	-	**17,543**
1996	6,962	12,433	326	-	**19,721**
1997	9,919	11,696	516	-	**22,131**
1998	9,014	10,711	149	-	**19,874**
1999	10,806	11,823	106	-	**22,735**
2000	12,004	12,179	1,007	-	**25,190**
2001	13,362	10,518	835	-	**24,715**
2002	15,792	11,603	965	-	**28,360**
2003	16,004	11,707	1,068	700	**29,479**
2004	18,410	9,862	1,962	448	**30,682**

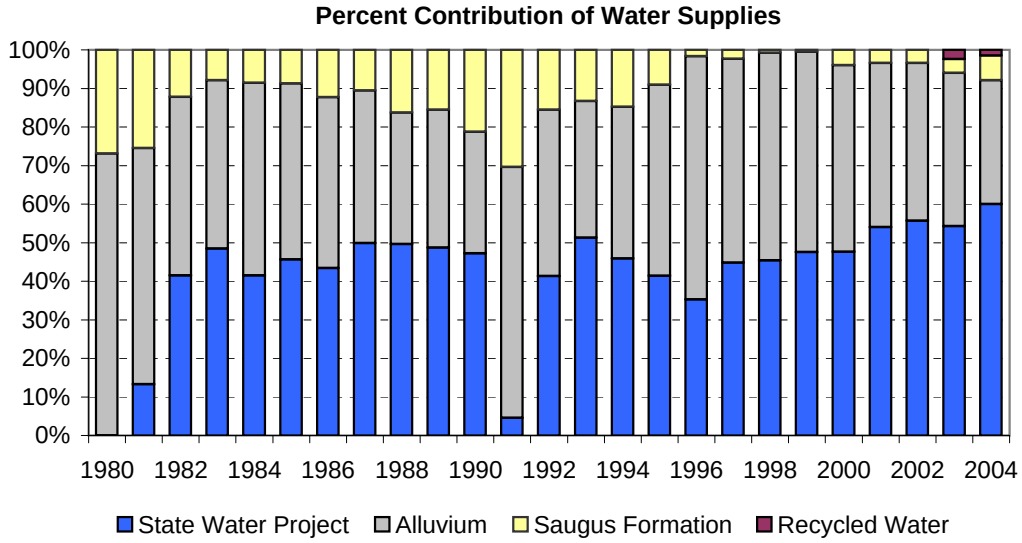


Table II-5
Total Water Supplies for Municipal Purveyors*
(Acre-Feet)

* includes LACWD 36, NCWD, SCWD and VWC

Year	*State Water Project*	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,125	16,625	4,569	-	**22,319**
1981	5,816	14,056	4,950	-	**24,822**
1982	9,659	8,684	3,569	-	**21,912**
1983	9,185	8,803	3,398	-	**21,386**
1984	10,996	12,581	3,809	-	**27,386**
1985	11,823	12,519	4,140	-	**28,482**
1986	13,759	12,418	4,975	-	**31,152**
1987	16,285	12,630	4,962	-	**33,877**
1988	19,033	12,197	6,404	-	**37,634**
1989	21,618	13,978	7,217	-	**42,813**
1990	21,613	13,151	8,302	-	**43,066**
1991	7,968	17,408	14,417	-	**39,793**
1992	13,911	16,897	10,458	-	**41,266**
1993	13,393	19,808	10,151	-	**43,352**
1994	14,389	20,068	11,531	-	**45,988**
1995	16,996	20,590	8,087	-	**45,673**
1996	18,093	24,681	7,373	-	**50,147**
1997	22,148	25,273	6,752	-	**54,173**
1998	20,254	23,898	4,706	-	**48,858**
1999	27,282	27,240	2,728	-	**57,250**
2000	32,579	25,216	3,193	-	**60,988**
2001	35,369	22,055	3,267	-	**60,691**
2002	41,768	22,097	4,360	-	**68,225**
2003	44,419	19,397	3,581	700	**68,097**
2004	47,205	18,970	5,701	448	**72,324**

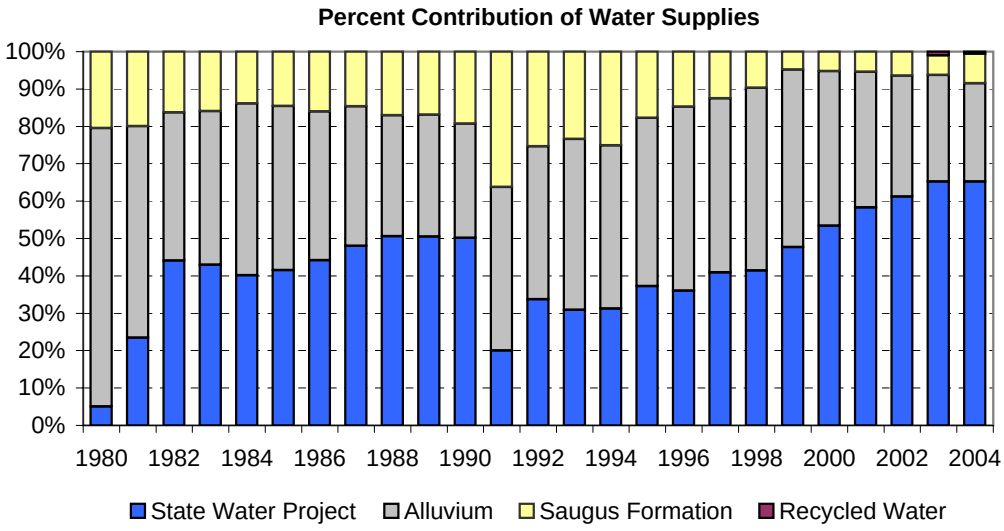


Table II-6
Water Supplies for Agriculture and Miscellaneous Uses
(Acre-Feet)

	Newhall Land and Farming			***Los Angeles County Honor Farm***			***Irrigation, Golf Courses and Miscellaneous Uses***		
Year	*Alluvium*	*Saugus Formation*	**Total**	*Alluvium*	*State Water Project*	**Total**	*Alluvium* [1]	*Saugus Formation* [2]	**Total**
1980	11,331	20	**11,351**	3,000	0	**3,000**	500	0	**500**
1981	13,237	20	**13,257**	3,000	0	**3,000**	500	0	**500**
1982	9,684	20	**9,704**	3,000	0	**3,000**	500	501	**1,001**
1983	7,983	20	**8,003**	3,000	0	**3,000**	500	434	**934**
1984	11,237	20	**11,257**	3,000	0	**3,000**	500	620	**1,120**
1985	9,328	20	**9,348**	3,000	0	**3,000**	500	555	**1,055**
1986	8,287	20	**8,307**	3,000	0	**3,000**	500	490	**990**
1987	6,512	20	**6,532**	3,000	0	**3,000**	500	579	**1,079**
1988	5,951	20	**5,971**	3,000	0	**3,000**	500	504	**1,004**
1989	6,243	20	**6,263**	3,000	0	**3,000**	500	522	**1,022**
1990	8,225	20	**8,245**	2,000	0	**2,000**	500	539	**1,039**
1991	7,039	20	**7,059**	2,240	0	**2,240**	500	480	**980**
1992	8,938	20	**8,958**	1,256	987	**2,243**	500	446	**946**
1993	8,020	20	**8,040**	1,798	443	**2,241**	500	439	**939**
1994	10,606	20	**10,626**	1,959	311	**2,270**	500	474	**974**
1995	11,174	20	**11,194**	2,200	6	**2,206**	500	453	**953**
1996	12,020	266	**12,286**	1,237	780	**2,017**	500	547	**1,047**
1997	12,826	445	**13,271**	1,000	1,067	**2,067**	500	548	**1,048**
1998	10,250	426	**10,676**	2,000	12	**2,012**	500	423	**923**
1999	13,824	479	**14,303**	1,842	20	**1,862**	500	509	**1,009**
2000	11,857	374	**12,231**	1,644	3	**1,647**	932	513	**1,445**
2001	12,661	300	**12,961**	1,604	0	**1,604**	953	573	**1,526**
2002	13,514	211	**13,725**	1,602	0	**1,602**	890	589	**1,479**
2003	10,999	122	**11,121**	2,273	0	**2,273**	909	504	**1,413**
2004	10,991	268	**11,259**	2,725	0	**2,725**	1,071	535	**1,606**

1. Robinson Ranch Golf Course irrigation and estimated private pumping.

2. Valencia Country Club and Vista Valencia Golf Course irrigation.

Table II-7
Total Water Supplies for Agriculture and Miscellaneous Uses
(Acre-Feet)

Year	*State Water Project*	*Alluvium*	*Saugus Formation*	**Total**
1980	0	14,831	20	**14,851**
1981	0	16,737	20	**16,757**
1982	0	13,184	521	**13,705**
1983	0	11,483	454	**11,937**
1984	0	14,737	640	**15,377**
1985	0	12,828	575	**13,403**
1986	0	11,787	510	**12,297**
1987	0	10,012	599	**10,611**
1988	0	9,451	524	**9,975**
1989	0	9,743	542	**10,285**
1990	0	10,725	559	**11,284**
1991	0	9,779	500	**10,279**
1992	987	10,694	466	**12,147**
1993	443	10,318	459	**11,220**
1994	311	13,065	494	**13,870**
1995	6	13,874	473	**14,353**
1996	780	13,757	813	**15,350**
1997	1,067	14,326	993	**16,386**
1998	12	12,750	849	**13,611**
1999	20	16,166	988	**17,174**
2000	3	14,433	887	**15,323**
2001	0	15,218	873	**16,091**
2002	0	16,006	800	**16,806**
2003	0	14,181	626	**14,807**
2004	0	14,787	803	**15,590**

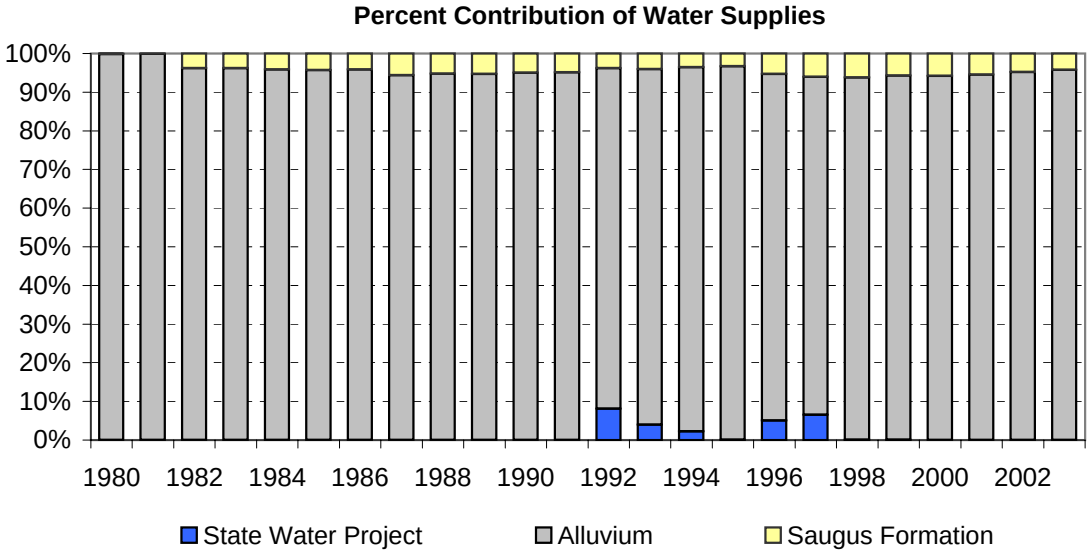
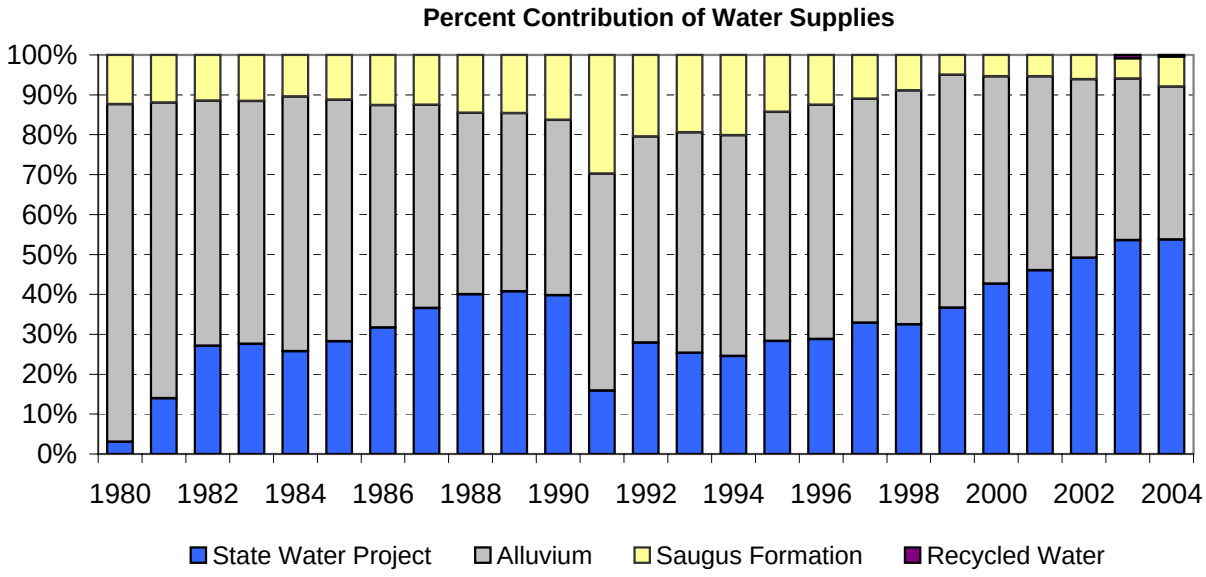


Table II-8
Total Water Supplies for Municipal, Agriculture and Miscellaneous
(Acre-Feet)

Year	*State Water Project*	*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	39,649	4,080	-	**76,311**
2001	35,369	37,273	4,140	-	**76,782**
2002	41,768	38,103	5,160	-	**85,031**
2003	44,419	33,577	4,207	700	**82,904**
2004	47,205	33,757	6,503	448	**87,914**



III. 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. In 2003, those water supplies began to be augmented by the initiation of deliveries from CLWA's recycled water program. Ongoing expansion of this program is anticipated to increase the recycled water supply. This section describes the groundwater resources of the Santa Clarita Valley, SWP water supplies, and CLWA's recycled water program.

3.1 Santa Clara River Valley Groundwater Basin – East Subbasin

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. 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 any significant water supply. 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 III-1. The 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 include:

- Description of the extensive additional data available since the original Alluvium and Saugus Formation reports were prepared in 1986 and 1988, respectively;
- Organization of historic data into a Geographic Information System (GIS) database;
- Description of the overall groundwater basin in conformance with that being mapped by the State Department of Water Resources;
- Analysis of historical groundwater levels and production, and conclusions that there have been no conditions that would be illustrative of groundwater overdraft;
- Suggestion that 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;

- Conclusion that operational yield of the Alluvium would typically be as included in the UWMP: 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;

- Conclusion that operational yield of the Saugus Formation could also be as included in the UWMP: in the range of 7,500 to 15,000 afy on a long-term basis, with 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.

In 2004, as part of analyzing the restoration of perchlorate-impacted groundwater supply, a numerical groundwater flow model was utilized to analyze the response of the groundwater basin to long-term operation at the operational yields noted above. 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 (CH2M Hill, 2004).

3.2 Alluvium – General

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 III-1.

Groundwater generally moves toward the outlet of the basin, which is also the outlet of the Upper Santa Clara River HA. Thus, groundwater movement in the Alluvium beneath the tributaries is toward their confluence with the Santa Clara River and then westward in the Alluvium. From about Castaic Junction to Blue Cut, the Alluvium thins and narrows. This configuration forces groundwater to rise, keeping the depth to water at or close to the land surface. As discussed in more detail below, the general groundwater flow direction has remained unchanged whether groundwater levels are high or intermittently depressed. The San Gabriel and Holser faults traverse the basin but neither fault measurably affects groundwater levels or flows in the Alluvium.

Alluvial wells are distributed throughout the basin along the Santa Clara River and its southwest draining tributaries. Figure III-2 illustrates the location of the Purveyor-operated Alluvial wells and other Alluvial wells considered in this water report. The Alluvium is the most permeable of the local aquifer units. Based on well yields and aquifer testing, estimated transmissivity values of 50,000 to 500,000 gallons per day per foot 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. The amount of groundwater in storage in the Alluvium 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 240,000 acre-feet (af).

Consistent with the 2001 Update Report and the UWMP, the current management practice of the Purveyors is to 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 water levels and 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 pumpage 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 pumpage limit the amount of water level decline, and normal to wet-period recharge result in a rapid return of groundwater levels to historic highs. Historical groundwater data collected from the Alluvium over many hydrologic cycles provide assurance that groundwater elevations, if locally lowered, recover in average or wet years following dry periods during which the groundwater elevations have declined. 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 results of the recently developed groundwater flow model, there is ongoing confidence that groundwater can continue to be a sustainable source of water supply at the rates of pumping described in the 2001 Update Report and in the 2000 UWMP.

Long-term adverse impacts to the Alluvium could occur if the amount of water extracted from the aquifer exceeds the amount of water that recharges the aquifer over an extended period. However, the quantity and quality of water in the Alluvium and pumpage from the Alluvium are routinely monitored, and no long-term adverse impacts are evident. However, 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 imported SWP surface 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, and expanded use of other alternative supplies such as recycled water.

3.2.1 Alluvium – Historical and Current Conditions

Total pumpage from the Alluvium in 2004 was about 33,800 af, essentially the same as the preceding year with an increase of about 200 af. Of the total Alluvial pumpage in 2004, about 56 percent (19,000 af) was for municipal water supply, and the balance, about 44 percent (14,800 af), was for agriculture and other (minor) miscellaneous uses.

Alluvial pumpage has been recorded beginning in the mid-1940's, and consistently since 1980. When pumpage records are unavailable, data have been approximated to obtain a continuous historic record (Figure III-3). Alluvial pumpage from private wells, estimated to be at most 500 afy, has been included in the total Alluvial pumpage. 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). Agricultural pumpage remained stable from the mid-1940's through about 1960, generally ranging from 33,000 to 37,000 afy, with annual pumpage as high as 41,000 af. From 1960 through the late 1970's, agricultural pumpage declined in a nearly linear trend, and has fluctuated slightly since then, between approximately 10,000 and 16,000 afy. As agricultural pumpage declined, municipal

pumpage from the Alluvium increased from less than 4,000 afy in the 1950's to approximately 17,000 afy in 1980. Beginning in 1980 with the importation of SWP water, municipal pumpage from the Alluvium declined to about 12,500 afy and remained stable throughout the 1980's. Municipal pumpage has subsequently increased to the current range of approximately 20,000 to 25,000 afy. Overall, there has been a change in municipal/agricultural pumping distribution since 1980, toward a slightly higher fraction for municipal water supply (from about 50 percent to nearly 60 percent of Alluvial pumpage), which reflects the general land use changes in the area.

Historical estimates (Slade, 1986, 2002; Amended 2000 UWMP; CH2M Hill, 2004) have suggested and shown that the operational yield of the Alluvium is from 30,000 to 40,000 afy in average and wet years, and in the range of 30,000 to 35,000 afy in dry years. On a long-term basis since the importation of SWP water, total Alluvial pumpage has been about 30,500 afy (31,300 af in years with less-than-average precipitation, and 29,400 af in years with greater-than-average precipitation). These averages are at the lower end of the range of operational yield of the Alluvium.

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, 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. Figure III-2 groups the Alluvial wells into areas with similar groundwater level fluctuations. Figures III-4 and III-5 present historical groundwater levels organized into hydrograph form (groundwater elevation vs. time) for four areas throughout the basin. The other areas shown in Figure III-2 exhibit groundwater level responses that are similar to those in these four areas.

The 'Mint Canyon' area is located at the far eastern end of the groundwater basin along the Santa Clara River. In this area, the Alluvium is shallower than in the westerly parts of the basin; consequently, the area has historically exhibited the most dramatic responses to climatic fluctuations. The 'Above Saugus WRP' and 'Bouquet Canyon' areas generally exhibit groundwater level responses that are similar to those in the 'Mint Canyon' area. As described and discussed above, the Alluvium has historically experienced a number of alternating wet and dry hydrologic conditions (Figures III-4 and III-5) during which groundwater level declines are followed by returns to historic highs. Since the Alluvium is thinner to the east, the resulting groundwater fluctuations are most dramatic in this area, up to 75 to 100 feet. When water levels are low, well yields and pumping capacities in this area can be impacted. The affected Purveyors respond by increasing use of Saugus Formation and imported (SWP) supplies, as shown in Table II-8. The Purveyors also shift a fraction of the Alluvial pumpage that would normally be supplied by 'Mint Canyon' area wells to areas further west, where well yields and pumping capacities remain fairly constant because of smaller groundwater level fluctuations. As shown in Figure III-6, the Purveyors decreased total Alluvial pumpage from the 'Mint Canyon' area steadily from 2000 through 2003, and offset these decreases by increasing pumpage in the 'Below Saugus WRP' and 'Below Valencia WRP' areas. This allowed the Purveyors to maximize the available supply from the Alluvium during dry periods to best meet demand. In spite of a continued period of below-average precipitation from 1999 to 2003, groundwater

levels in the ‘Mint Canyon’ area ceased to decline in 2002 and 2003. This is illustrative of the Purveyor’s integrated use of surface water and groundwater to maintain local groundwater resources within their overall yield during dryer than average periods.

The ‘Below Saugus WRP’ area is located along the Santa Clara River immediately downstream of the Saugus Water Reclamation Plant. The ‘San Francisquito Canyon’ area generally exhibits groundwater level responses that are similar to those in the ‘Below Saugus WRP’ area. In this middle part of the basin, historical groundwater levels were lower in the 1950's and 60's than current levels. The historically lower groundwater levels were likely a result of the higher agricultural pumpage of the 1950's before the importation of SWP water. Increased return flows to the river from treated wastewater discharge have also more recently augmented groundwater recharge. Groundwater levels in this area 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 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. Most recently, groundwater levels have recovered significantly following a wetter-than-average year in 2004 and heavy precipitation in January 2005, indicating that the groundwater level decline that occurred from 1999-2004 also represented a temporary dry-period decline.

The ‘Castaic Valley’ area is located along Castaic Creek below Castaic Lake. In that area, groundwater levels have remained fairly constant, with slight responses to climatic fluctuations, since the 1950’s.

The ‘Below Valencia’ WRP area is located along the Santa Clara River downstream of the Valencia Water Reclamation Plant, and receives recharge from the treated wastewater discharged from the Valencia WRP to the Santa Clara River. Groundwater levels in this area exhibit slight, if any, response to climatic fluctuations, and have remained fairly constant since the 1950’s despite, over the last 20 years, a notable increase in pumping in that area.

As previously mentioned, it is possible to intermittently utilize some water from storage in the aquifer, such as has historically been the case in the eastern part of the basin. This results in temporarily lower groundwater levels, which subsequently recover during periods of reduced pumpage or higher than average precipitation. Records of groundwater levels, pumpage and precipitation suggest that declines and subsequent rises in groundwater levels are influenced more by fluctuations in the availability of water for recharge than by pumpage. When less water is available for recharge, during periods of lower-than-average precipitation and streamflow, groundwater levels decline even when pumpage remains constant. Conversely, when an abundance of water is available for recharge because of wet conditions, pumpage can increase significantly without affecting groundwater levels.

During the period from 1984 through 1991, which experienced eight consecutive years of lower than average precipitation (with one average year in the middle), pumpage from the Alluvium averaged 24,000 afy, well below the dry-year operational yield. During this same period, water levels declined over 80 feet in the eastern part of the basin. Subsequently, from 1992 to 1996, when precipitation was generally higher than average, groundwater levels recovered to and

maintained historic highs, despite a steady increase in annual pumpage. From 1999 to 2003, precipitation was again generally lower than average but average pumping from the Alluvium had increased to about 38,400 afy; as a result, during that period, groundwater levels again declined in some areas. Annual pumpage from the Alluvium has now decreased from 2000 to present, and is currently within the operational yield. The previous annual report stated that it was likely that groundwater levels would not return to historic highs until a period of higher-than-average precipitation occurred. As mentioned above, early 2005 data indicates that groundwater levels have already recovered significantly (approaching historic highs) in response to very high precipitation and runoff in January.

In summary, depending on the period of available data, all the history of groundwater levels in the Alluvium show the same general picture: recent (last 30 years) groundwater levels have exhibited historic highs; 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 23 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 signs of water level-related overdraft, i.e., no trend toward decreasing water levels and storage. Consequently, pumpage from the Alluvium has been and continues to be within the operational yield of that aquifer.

3.3 Saugus Formation – General

Late Pleistocene older Alluvium, known as terrace deposits, is elevated along the Santa Clara River to form terraces and mesas. These terrace deposits define the extent of the Saugus Formation in the groundwater basin. Because they are elevated, they usually lie above the regional water table and act as areas of infiltration and percolation to the underlying formation.

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; 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 water 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 III-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. The storage capacity of the Saugus has most recently been estimated to be 1.65 million acre-feet between

depths of 300 feet and approximately 2,500 feet (to the base of the Saugus, or to the base of fresh water if shallower than 2,500 feet). Groundwater in the Saugus Formation generally moves north along the South Fork of the Santa Clara River, towards the Santa Clara River and the outlet of the basin. Saugus wells operated by the Purveyors (shown in Figure III-7) are located in the southern portion of the basin, south of the Santa Clara River.

For long term planning purposes, the UWMP includes pumping from the Saugus in the range of 7,500 to 15,000 afy in average/normal years, a conservative estimate in light of historical estimates of potential recharge to the Saugus, complemented by observations of high groundwater levels in the overlying Alluvium over the last 30 years. The UWMP also includes planned dry-year pumping from the Saugus 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 pumpage (the 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 pumpage from the Saugus in 2004 was 6,500 af, an increase of about 2,300 af from the preceding year. Of the total Saugus pumpage in 2004, most (5,700 af) was for municipal water supply, and the balance (800 af) was for agricultural and other (minor) uses. The majority of pumpage from the Saugus (an average of about 90% of total Saugus pumpage) is for municipal supply. Groundwater pumpage from the Saugus peaked in the early 1990's and then steadily declined through the remainder of that decade. Saugus pumpage has subsequently increased gradually since 1999.

Historical pumpage records for the Saugus formation are limited prior to 1980, but suggest that pumpage from the Saugus was minimal at that time. When pumpage records are unavailable, data have been approximated to obtain a continuous historic record (Figure III-8). There was essentially no pumping from the Saugus prior to 1960 (on the order of about 100 af in most years, beginning in 1948). Some increased pumping for agricultural water supply (about 900 af) began in about 1962. The largest amount of agricultural pumping from the Saugus was during the mid-1960's, when annual pumpage was about 3,000 af. Agricultural pumping from the Saugus declined to near zero by the late 1970's, but has generally ranged from 500 to 1,000 afy since 1982. There was no Saugus pumpage for municipal supply in the early 1960's; post-1980 data suggests that municipal pumping from the Saugus began in the 1970's, and reached nearly 5,000 afy by 1980-81.

Historical estimates and recent analyses (Slade, 1988, 2002; Amended 2000 UWMP; CH2M Hill, 2004) have suggested and shown that the operational yield of the Saugus Formation is in the range of 7,500 to 15,000 afy in average years, with an increase to up to 35,000 afy in multiple dry-year periods. On a long-term average basis since the importation of SWP water, total pumpage from the Saugus Formation has ranged from a low of about 3,700 afy (in 1999) to a high of nearly 15,000 afy (in 1991); average pumpage from 1980 to present has been about 6,700 afy. These pumping rates are within, and generally at the lower end of the range of the

operational yield of the Saugus Formation.

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 the distribution of the wells in this Formation and the periods of record. 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 III-9). Based on these data, there is no evidence of any historic or recent trend toward permanent water level or storage decline.

Records of groundwater levels, pumpage and precipitation suggest that declines and subsequent rises in groundwater levels in the Saugus Formation are more influenced by pumpage than by climatic fluctuations. Water levels in wells in the Saugus Formation are highly dependent on pumping in the respective well. In contrast to the Alluvium, where pumpage is fairly evenly distributed among a number of wells in a given area, there are fewer active wells in the Saugus Formation, and pumping at one well can create a localized pumping depression that is evident in groundwater level hydrographs. Water levels in the Saugus Formation also exhibit stronger seasonal (pumping) fluctuations over a year than in the Alluvium (generally more than 20 feet in active Saugus wells, as opposed to generally less than ten feet in Alluvial wells). These responses to pumping are characteristic of the lower transmissivity of the Saugus Formation.

During the period from 1985 through 1991, which experienced consecutive years of lower-than-average precipitation (with one average year in the middle), pumpage from the Saugus increased from 4,700 afy to nearly 15,000 afy, and groundwater levels declined more than 100 feet in some cases. However, the subsequent rise in water levels at an individual well depended on pumping at that well. For example (as illustrated in Figure III-9), pumping of Saugus wells declined dramatically beginning between 1993 and 1995, and water levels in individual wells subsequently rose when pumping decreased. From 1999 to 2003, water levels in the Saugus were stable and exhibited very slight, if any, response to less-than-average precipitation. The amount of pumpage from Saugus wells in 2004 was about the same as in 1997 and 1998, and groundwater levels were also about the same as in those years. A slight pumping depression is evident around active wells. Water levels in the Saugus remain at or above historic averages, and there is no trend toward a sustained decline in Saugus water levels or storage that would be indicative of overdraft.

Consistent with the 2001 Update Report and the UWMP, and consistent with the recently modeled basin response to UWMP pumping, the current management practice of the Purveyors is to maintain water levels in the Saugus Formation so this supply is available during drought periods, when available Alluvial groundwater and SWP supplies are anticipated to decrease. The period of increased pumpage during the late 1980's and early 1990's is a good example of this management strategy. Most notably, in 1991, when SWP deliveries were substantially reduced, increased pumpage from the Saugus made up almost half of the decrease in SWP deliveries. This increased Saugus pumpage resulted in short-term declining water levels reflecting the use of stored water. However, the water levels subsequently rose when pumpage declined, reflecting recovery of storage capacity of the Saugus Formation.

3.4 Imported Water

CLWA obtains water supplies from the SWP, which is managed by DWR. CLWA is one of 29 contractors holding long-term SWP contracts with the State of California DWR. SWP water originates from 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 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, 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 entire City of Santa Clarita and the surrounding unincorporated communities. CLWA obtains SWP water from the upper reservoir at Castaic Lake. The water is treated, filtered and disinfected at CLWA's Earl Schmidt Filtration Plant and Rio Vista Water Treatment Plant. CLWA has a current capacity to treat a total of 63.5 million gallons per day. CLWA has nearly completed construction that will expand the Earl Schmidt Filtration Plant from its existing rated capacity of 33.5 million gallons per day to 56 million gallons per day. Plant expansion is scheduled to come on line in mid-2005. CLWA will then have 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 11 turnouts.

In 2004, CLWA fulfilled the following major accomplishments in order to enhance, preserve, and strengthen the quality and reliability of existing and future supplies:

- Delivered approximately 32,000 af of SWP water to be banked in the Semitropic groundwater banking program;
- Continued construction for expansion of the Earl Schmidt Filtration Plant from 33.5 mgd to 56 mgd;
- Continued implementation of various water supply programs recommended in the Amended 2000 UWMP;
- Amended the 2000 UWMP to reflect updated information about perchlorate contamination;
- Continued implementation of the water conservation Best Management Practices, as recommended in the UWMP;
- Continued work under the Interim Settlement Agreement toward a possible long-term settlement that will accomplish containment of perchlorate and restoration of perchlorate-impacted water supply wells and associated cost recovery;
- 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 affect the cleanup and remediation of all aspects of the former Whittaker-Bermite site, including the perchlorate groundwater contamination;

- Obtained $700,000 in Federal funding for continued analysis of perchlorate contamination and $500,000 for expansion of recycled water system;
- 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 contract is through 2035 and is renewable after that year. Although the SWP has not been fully completed, the SWP can deliver all of the 4.1 million af of Table A Amounts during very wet years.

CLWA has a contractual Table A Amount of 95,200 af per year of water from SWP. The original contract for 23,000 af was signed in 1960 and the Table A Amount was later increased to 41,500 af. CLWA increased its Table A Amount to its current level of 95,200 af by purchasing 12,700 af from Devil's Den Water District in 1988 and acquiring 41,000 af in 1999 from Kern County Water Agency and its member district, the Wheeler Ridge-Maricopa Water Storage District (WRMWSD).

CLWA acquired the 41,000 af from WRMWSD by way of a Table A water transfer agreement executed in March 1999. CLWA prepared an environmental impact report (EIR) to address the environmental consequences of the transfer agreement. The environmental review for the project by CLWA was the subject of litigation in Los Angeles Superior Court. CLWA prevailed in the EIR litigation at the trial court; however, the project opponents (Friends of the Santa Clara River) filed an appeal.

In January 2002, the Court of Appeal issued a decision ordering the Superior Court to decertify the EIR for the transfer agreement on the grounds that it had tiered off of another EIR that had been subsequently decertified in other litigation. In doing so, however, the Court of Appeal also examined all of the plantiffs' other arguments, found them to be without merit, and held that, if the tiering problem had not arisen, it would have affirmed the earlier trial court judgment upholding the EIR.

The Court of Appeal did not invalidate any portion of the completed 41,000 afy transfer agreement. Instead, the Court directed the trial court to vacate certification of the EIR, and to retain jurisdiction until CLWA corrects the tiering technicality by preparing a new EIR. In September 2002, the Los Angeles Superior Court refused to prohibit CLWA from using the 41,000 af of Table A water while a new EIR is being prepared. The Superior Court decision on remand was appealed by Friends of the Santa Clara River to the appellate court in January 2003. In December 2003, the appellate court denied any relief to Friends and affirmed the trial court's ruling.

The new EIR was released for public review and comment in April 2004. It was subsequently certified by the CLWA Board of Directors on December 23, 2004. On January 24, 2005, separate lawsuits challenging the environmental review for this same project were filed by California Water Impact Network and Planning and Conservation League in the Ventura County

Superior Court. Hearings on motions to transfer the cases to the Los Angeles Superior Court are pending.

CLWA's final allocation of Table A for 2004 was 65 percent, or 61,880 af. On December 1, 2003, the initial allocation for 2004 was announced as 35 percent. On March 1, 2004, it was raised to the final allocation of 65 percent. Utilizing SWP contract provisions, CLWA elected to "carry over" unused remaining Table A Amount into 2005. As of April 21, 2005, CLWA's allocation of Table A for 2005 is 80 percent, or 76,160 af.

As shown in Table III-1, due to the 65 percent allocation, CLWA had excess SWP water in 2004. As DWR increased the allocation through the year, and due to a total of 35,785 af of carryover from 2003 and 1,618 af of Article 21 water, the total available SWP supply in 2004 was 99,283 af. CLWA deliveries were 47,205 af to the Purveyors and 3,776 af to Devil's Den Ranch, with 15,522 af of the 2004 Table A Amount for potential carryover to 2005.

As noted above, CLWA had slightly more than 35,000 af of excess Table A water in 2003, which it elected to carry over to 2004. The CLWA Board of Directors instructed staff to search out possibilities for storing the excess water in a groundwater banking program. An agreement was reached with the Semitropic Water Storage District in Kern County, and 32,522 af were banked in Semitropic's 2003 groundwater bank account. Of that amount, CLWA can withdraw up to 29,270 af as a short-term dry year supply over the next ten years (until 2013). Combined with 24,000 af banked in Semitropic's 2002 account, of which 21,600 af can be withdrawn, CLWA now has a total of 50,870 af of short-term dry year supply available for extraction from groundwater storage in Kern County.

3.4.2 Imported Water Supply Reliability

In May 2003 the Department of Water Resources finalized its State Water Project Delivery Reliability Report. This report is intended to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies.

The Reliability Report is based on a computer model commonly known as CALSIM II, which calculates SWP delivery probabilities under different hydrologic year types, based on long-term historical data and a variety of operating parameters. The analyses contained in the report conclude the SWP, using existing facilities and operated under current regulations, can deliver an average of 76 percent of the primary contractual supply (defined as the Table A Amount) at the 2021B level of development described in the report. During infrequent dry periods, deliveries are projected to be less than 50 percent, and possibly as low as 19 percent during an unusual single dry year condition that historically occurs about once every 70 years. During very wet years, full contract amounts are available.

The report will be updated with new information and calculations of delivery reliability every two years. The report is available on-line at *http://swpdelivery.water.ca.gov/*.

Some of the most significant opportunities for meeting the future water supply needs of the Santa Clarita Valley are from supplies available from the SWP. In the resource planning process of the

Table III-1
2004 CLWA State Water Project Supply and Demand Schedule
(acre-feet)

Supply		
Net 2003 Carryover to 2004 [1]		3,263
CLWA 2004 Final Allocation [2]		61,880
Article 21 Water		1,618
Total 2004 SWP Supply [1]		**66,761**
Demand		
Purveyor Deliveries (Total)		47,205
CLWA SCWD	*22,045*	
Valencia Water Company	*18,410*	
Newhall County Water District	*5,896*	
Los Angeles County WWD 36	*854*	
CLWA/ Purveyor Metering		258
Devils Den Ranch		3,776
2004 Table A Carryover to 2005 [3]		15,522
Total 2004 SWP Demand [4]		**66,761**

1. Total Carryover from 2003 was 35,785 af, resulting in a total 2004 SWP supply of 99,283 af; of that amount, 32,522 af were banked in Semitropic WSD, leaving a net carryover of 3,263 af.

2. Final 2004 allocation was 65% of contractual Table A amount of 95,200 acre-feet, which progressed as follows:
   Initial allocation (Dec. 1, 2003) 35%
   Allocation increase (Jan. 15, 2004) 50%
   Final allocation (March 1, 2004) 65%

3. Total excess 2004 SWP supply; of that amount, 13,865 af spilled in early 2005 at San Luis Reservoir, leaving a net carryover of 1,657 af.

4. Includes total 2004 Table A carryover.

SWP, there are a number of complex issues facing delivery of CLWA's Table A Amount of 95,200 af. These factors include annual hydrologic conditions, environmental requirements, and evolving policies in the Bay-Delta. However, there are a number of programs and approaches that improve reliability of SWP water supplies.

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 during wet years in groundwater basins. Conjunctive use is the coordinated operation of multiple water supplies to achieve improved supply reliability. During wet periods, additional surface water supplies from the SWP can be used to recharge a local groundwater basin and then recovered for delivery during dry periods. In 2002 and 2003 CLWA took advantage of such a program on a short-term basis (10 years or less) by placing 24,000 af of available 2002 Table A water and 32,522 af of 2003 Table A water in the Semitropic Water Storage District's Groundwater Banking Program. Over the next ten years, CLWA can withdraw up to 50,870 af of that stored water to meet valley demands when needed. The Amended 2000 UWMP Supplement includes additional information about these and other programs.

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 Health Services (DHS). The Purveyors in turn supply this safe and potable water to their customers. An annual Consumer Confidence Report is provided to all Santa Clarita Valley residents who receive water from one of the four water retailers. In that report, there is detailed information about the results of quality testing of the groundwater and treated SWP water supplied to the residents of the Santa Clarita Valley during 2004.

Water quality regulations are constantly changing as contaminants that are typically not found in drinking water are being discovered, and new standards are adopted. In addition, existing water quality standards are becoming more stringent in terms of allowable levels in drinking water. In light of these changes, several constituents of particular 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 establishes a new MCL of 80 ug/L (based on an annual running average) for Total Trihalomethanes (TTHM). TTHMs are a byproduct that is created when free chlorine is used as a means for disinfection. In December 2004, as part of regular quarterly TTHM monitoring, Newhall CWD detected TTHM concentrations that resulted in the running annual average TTHM concentrations to slightly exceed the MCL of 80 parts per billion (ppb) in its Pinetree and Tesoro service areas. The respective running average annual TTHM concentrations for the fourth quarter 2004 were 82.6 ppb and 80.8 ppb. In August 2004, Los Angeles County WWD 36 reported its running annual average TTHM concentration to also exceed the MCL, in that case at 88 ppb. To address potential TTHM formation in the future, CLWA and the Purveyors are implementing an alternative method of disinfection (i.e., chloramination) to be able to maintain compliance with the new rule and future regulations

relating to disinfection byproducts.

Arsenic

The United States Environmental Protection Agency has revised the Federal MCL for arsenic from 50 ug/L to 10 ug/L. Compliance with the Federal standard is not required until 2006. In April 2004, the Office of Environmental and Health Hazard Assessment (OEHHA) finalized a new Public Health Goal (PHG) for arsenic at 4 parts per trillion (ppt). State Health and Safety Code required DHS to establish a new MCL for arsenic by June 30, 2004. Because the PHG was not available until April of that year, the process for establishing the new arsenic MCL has been delayed. DHS has not made public a revised schedule for the MCL process. Historically, naturally occurring arsenic has been detected at concentrations of less than 5 ug/L in a few local groundwater supplies, and at concentrations of less than 3 ug/L in SWP water supplies. Most groundwater wells in the valley have non-detectable (less than 2 ug/L) concentrations of arsenic.

Perchlorate

Perchlorate has been a water quality concern in the Valley since 1997 when it was originally detected in four Saugus 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 also located near the former Whittaker-Bermite site. In early 2005, perchlorate was detected in a second Alluvial well near the former Whittaker-Bermite site. The six perchlorate-impacted wells have been removed from active water supply service. The Purveyors are continuing to test for perchlorate in all of their active Alluvial and Saugus wells. The current DHS Notification Level for perchlorate is 6 micrograms per liter (ug/l). DHS currently anticipates proposing a Maximum Contaminant Level (MCL) for perchlorate in 2005.

In the meantime, the impacted Purveyors (CLWA, SCWD, NCWD, and VWC) and CLWA are developing a plan for a water treatment process to restore the impacted pumping capacity as soon as possible. The plan for restoring "severely impaired" water sources such as the perchlorate-impacted wells must comply with the provisions of the State Department of Health Services' (DHS) Policy Memo 97-005. Work on the documentation required by Policy Memo 97-005 continued in 2004 on interrelated fronts: 1) development of a pumping plan for restoration of some perchlorate-impacted groundwater supply by installing treatment at two impacted wells, together with a plan for construction of replacement wells to restore the balance of impacted groundwater supply; 2) analysis of the capture zones around wells to contain further migration of perchlorate and protect non-impacted wells; 3) analysis of overall groundwater reliability during the period before restoration of impacted supply, currently scheduled for 2006; and 4) analysis of overall groundwater resource sustainability under long-term pumping that would both contain perchlorate migration and meet municipal and agricultural water requirements in accordance with the UWMP.

Pilot studies of an ion exchange treatment system and two biological treatment systems were completed in 2003; the results of those studies were the basis for selection of ion exchange as the treatment process for removal of perchlorate from groundwater pumped for control of perchlorate migration in the aquifer system.

The numerical groundwater flow model was originally envisioned as a tool for analysis of basin-wide water supply and management issues. In addition to that use, which is ongoing, the model was initially approved by regulatory agencies in 2003 and formally approved in 2004 for use in evaluating the effectiveness of pumping on the extraction of contaminants and the control of contaminant migration in the affected aquifers. The initial use of the model in 2003 was to evaluate the effectiveness of pumping at capacities equivalent to replacement of the perchlorate-impacted wells. In 2004, the model was used to simulate long-term aquifer response to basin-wide pumping in accordance with the operational plans in the UWMP; included in that analysis was the selective pumping of impacted wells, with treatment, for a combination of restoring some impacted water supply and controlling perchlorate migration. The results, derived from simulation over a 78-year period that includes a range of wet/normal/dry hydrologic conditions, showed the aquifer system to be sustained with no long-term adverse conditions such as groundwater level decline, groundwater storage depletion, or depletion of surface stream flows. The modeled results also showed that the pumping of selected impacted wells for water supply, with treatment, will contain the migration of perchlorate and thus provide a level of protection against contamination of additional downgradient wells. The modeling results and the evaluation of treatment alternatives are being submitted to DHS for its approval of a program to restore the impacted water supply in accordance with its Policy Memo 97-005.

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 Department of Toxic Substance Control (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 impacted Purveyors related to the detection of perchlorate in the five impacted wells. Under the Agreement's Scope of Work, the impacted Purveyors have prepared a Work Plan for sampling the production wells, prepared a report in the results and findings of the production well sampling, prepared a draft Human Health Risk Assessment, prepared a draft Remedial Action Workplan, completed the evaluation of treatment technologies, and completed the development of the groundwater model described above.

In 2000, CLWA and the impacted Purveyors had filed a lawsuit against Whittaker Corporation (the former owner of the contaminated property) and Santa Clarita LLC and Remediation Financial, Inc. (the current owners). The lawsuit seeks to have the defendants pay all necessary costs of response, removal of the contaminant, remedial action costs, and any liabilities or damages associated with the contamination. In late summer 2003, CLWA, the Purveyors and Whittaker entered into an Interim Settlement Agreement (ISA) wherein the parties agreed to work cooperatively for a minimum of a one-year period to further define long-term costs and reach a long-term settlement. The ISA expired in September 2004 but was extended by mutual consent of all parties until the end of January 2005. The ISA specifies that Whittaker and its insurers would reimburse certain past costs as well as ongoing costs incurred by CLWA and the Purveyors in responding to perchlorate contamination. Activities since execution of the ISA have continued on developing the elements of a remedial strategy that will entail, among other details, the pumping of two impacted wells for containment of perchlorate migration, utilization

of the pumped water, after treatment, for water supply, and installation of replacement wells in non-impacted portions of the basin to restore the remainder of groundwater supply impacted by perchlorate. Activities since execution of the ISA have also involved negotiation of a long-term Settlement Agreement.

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 related to drinking water standards are discussed below. In terms of the aquifer system, however, there is no convenient long-term record of water quality, i.e. water quality data in one or more single 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, one approach is to integrate individual records from several wells completed in the same aquifer materials and in close proximity to each other. Several such integrated records are illustrated in Figures III-10 and III-11, which show trends in groundwater quality for the 'Above Saugus WRP', 'Below Saugus WRP', 'Bouquet Canyon' and 'Castaic Creek' areas. Specific conductance (or Electrical Conductivity, EC) was chosen to represent water quality because it is generally a good indicator of overall trends in water quality, and because the records for this parameter are the most comprehensive. Based on these records of groundwater quality, wells within the Alluvium have experienced historical fluctuations in EC, which correlate with fluctuations of individual constituents that contribute to EC. The limited historic water quality data indicate that on a long-term basis, there has not been a notable trend and specifically, there has not been a decline in water quality within the Alluvium.

Specific conductance within the Alluvium exhibits a westward gradient, corresponding with the direction of groundwater flow in the Alluvium, which is also westward. EC is lowest in the easternmost portion of the basin, and highest in the west. Water quality in the Alluvium generally exhibits an inverse correlation with precipitation and streamflow, with a stronger correlation in the easternmost portion of the basin where groundwater levels fluctuate the most. Wet periods have produced substantial recharge of higher quality (low EC) water and dry periods have resulted in the notable declines in water levels described above, with a corresponding increase in EC (and individual contributing constituents) in the deeper parts of the Alluvium.

In the 'Above Saugus WRP' area, EC correlates strongly and inversely with precipitation and streamflow, showing an increase during periods of lower-than-average precipitation and a decrease during periods of higher-than-average precipitation. There is inadequate data for this area to determine the relationship of current levels of EC with long-term historic trends. The limited historic data from other areas indicate that, despite the recent increase, overall levels of EC around 1960 were higher than current levels. Water quality in the 'Mint Canyon' area is similar to that in the 'Above Saugus WRP' area.

Water quality in the 'Below Saugus WRP' area has also historically exhibited noticeable inverse fluctuations with precipitation and streamflow. Limited data from the early 1960's indicates that the recent increases (since 2001) in levels of EC in this area have not resulted in measured historic highs. EC in this area has experienced similar increases to those in the 'Above Saugus WRP' area, and is currently within the same range. This is an indication that the recent increase

in EC in the 'Below Saugus WRP' area may not be a result of salt loading from recharge of treated wastewater discharged to the Santa Clara River from the Saugus Water Reclamation Plant.

In the 'Bouquet Canyon' area, water quality appears to have generally improved since the 1950's and 1960's, and has remained fairly stable for the last thirty years. The 'San Francisquito Canyon' area has exhibited similarly consistent water quality.

Fluctuations in water quality in the 'Castaic Creek' area have been recorded since the 1950's, but there has been no long-term change in overall level of EC. Levels of EC generally declined in the 1990's, and limited recent data indicates that levels may be increasing, but are still below historic highs. Water quality in the 'Below Valencia WRP' area is similar to that in the 'Castaic Creek' area; however, no water quality data within the last 25 years is available for this area.

Throughout the Alluvium, measurements of EC have generally been made about every three years, as is typically required for public water supply wells. While this frequency is adequate to determine long-term trends and fluctuations in EC, it is not sufficient to identify the timing of the water quality response to wet or dry conditions. Occasional more frequent measurements of EC indicate that in the central to eastern portions of the basin there is a lag time in water quality response to precipitation, and levels of EC do not appear to decline substantially until there are at least two consecutive years of higher-than-average precipitation. The last such instance was in 1992 to 1993, which corresponded to the last significant decline in EC. It is likely that levels of EC will not decline substantially until a period of consecutive years of higher-than-average precipitation occurs. Monthly data collected by VWC in 2004 show that EC levels declined gradually during the year. Analysis of water quality data to be collected in 2005 may provide a better understanding of the correlation between groundwater levels and water quality within the Alluvium, and allow for better characterization of the Alluvial water quality response to precipitation.

Specific conductance throughout the Alluvium is currently below the Secondary (aesthetic) Upper Maximum Contaminant Level of 1600 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.

As discussed above, in 2002, one Alluvial well located near the former Whittaker-Bermite facility was inactivated for municipal water supply due to detection of perchlorate slightly below the Notification Level. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. 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. The Q2 Report (Luhdorff and Scalmanini, 2005) documents that the perchlorate detected in Well Q2 will not significantly impact the water supplies used to meet demand in the Santa Clarita Valley for the period of time required to respond to the contamination. The results of the Q2 analysis and Report are consistent with the analysis and conclusions in the Amended 2000 UWMP. Valencia's response plan for Well Q2 is to pursue permitting and installation of wellhead treatment by the fall of 2005, which will return

the well to water supply service. All other Alluvial wells operated by the Purveyors continue to be used for municipal water supply service. Those Alluvial wells near the Whittaker-Bermite property are routinely sampled and perchlorate has not been detected. As detailed in the Amended 2000 UWMP and the Q2 Report, the inactivation of two Alluvial wells due to perchlorate contamination does not limit the Purveyors' ability to produce groundwater from the Alluvium in accordance with the capacities delineated in the UWMP. The characterization and plan for control and cleanup of perchlorate, initially focused on the Saugus Formation due to the contamination and resultant inactivation of four Saugus wells in 1997, includes the Alluvial aquifer as well.

3.5.2 Groundwater Quality – Saugus Formation

As discussed above for the Alluvium, groundwater quality in the Saugus Formation is a key factor in assessing that aquifer as a municipal and agricultural water supply. As with groundwater level data, long-term Saugus groundwater quality data are not sufficiently extensive (few wells) to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. As with the Alluvium, specific conductance (EC) has been chosen as an indicator of overall water quality, and records have been combined to produce a long-term depiction of water quality within the Saugus Formation (Figure III-12). Water quality in the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Based on the historical record over the last 50 years, groundwater quality in the Saugus has exhibited a slight overall increase in EC. More recently, several wells within the Saugus Formation have exhibited an additional increase in EC similar to that seen in the Alluvium. This is possibly a result of recharge to the Saugus Formation from the Alluvium. In 2004, monthly data collected by VWC for two Saugus wells shows that the overall level of EC remained fairly stable during the year. Levels of EC in the Saugus Formation remain below the Secondary (aesthetic) Upper Maximum Contaminant Level for EC. 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 previously noted, in 1997, ammonium perchlorate was discovered in four Saugus wells located generally on the east side of the basin in the vicinity of the former Whittaker-Bermite facility. All four impacted wells were removed from active water supply service, and are expected to remain inactive until the extent of contamination is fully characterized and appropriate treatment facilities are installed for contaminant control and removal. The other Saugus wells owned and operated by the Purveyors continue to be sampled on a routine basis and have not detected perchlorate.

The Amended 2000 UWMP specifically addressed the adequacy of groundwater supply in light of the inactivation of the four impacted Saugus wells; and it addressed the plan and schedule for restoration of perchlorate-impacted wells, including the protection of existing non-impacted wells. The Amended 2000 UWMP analysis showed that the inactivation of the impacted wells does not constrain the ability to meet the groundwater component of water supply through the scheduled period for restoration, through 2006. The same analysis showed that the restoration of pumping capacity, with treatment to meet drinking water standards, will effectively contain perchlorate migration and protect downgradient wells from perchlorate impacts.

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 EPA and DHS. SWP water has different aesthetic characteristics than groundwater with hardness (as CaCO3) ranging from 130 to 170 milligrams per liter (mg/L) and TDS of approximately 280 to 314 mg/L.

3.6 Recycled Water

Recycled water is available from two existing 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 has completed environmental review on the construction of Phase I of the project, which will deliver 1,700 afy of water. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips. In 2004, recycled water deliveries were 448 af.

Surveys conducted by CLWA indicate an interest for recycled water by existing water users as well as future development when it becomes available. The Purveyors encourage and support the use of recycled water to help augment and drought proof existing supplies. Overall, the program is expected to ultimately reclaim up to 17,000 af of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping and other non-potable uses, as set forth in the UWMP.

In October 2004, CLWA began California Environmental Quality Act (CEQA) analysis of the Recycled Water Master Plan (2002). This analysis will result in a Program Environmental Impact Report covering the various options for a recycled water system outlined in the Master Plan. A Notice of Preparation was released for public review in April 2005.

3.7 Santa Clara River

As noted above, a significant accomplishment in 2001 was the preparation and execution of a 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. The MOU initiates 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. In 2002, work commenced on the development and calibration of a numerical groundwater flow model of the entire Santa Clarita groundwater basin; model development and calibration was completed in 2003 and reported in early 2004. The model has been used as

described above for assessing the effectiveness of various 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. In 2005, it is planned to utilize the model for ongoing evaluation of basin yield under varying management actions and hydrologic conditions.

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. The long-term history of groundwater levels in the western and central part of the basin, as illustrated in Figures III-4 and III-5, suggests that groundwater has not been lowered in such a way as to induce infiltration from the river. Long-term stream flow data gauged near the County line shows notably higher flows from the Santa Clarita Valley into the uppermost downstream basin, the Piru Basin, over the last 30 to 35 years, as illustrated in Figure III-13.

IV. Summary of 2004 Water Supply and 2005 Outlook

As reported herein, total water demands in the Santa Clarita Valley were 87,900 af in 2004. This represented an increase of slightly more than five percent from total demand in 2003. Of the total demand, about 72,300 af was for municipal water supply, and the balance (15,600 af) was for agricultural and other minor uses. As also discussed herein, the total demand in 2004 was met by a combination of local groundwater and imported SWP water, both within their respective operational yields and contractual Table A Amounts respectively, and by a small amount of recycled water.

The demand in 2004 was greater than the short-term projected demand that was estimated in the 2003 Water Report and it was also greater than the demand estimated in the UWMP. For illustration, historical water use from 1980 through 2003 is plotted in Figure IV-1; also shown with that historical record are the projected total water demands in the UWMP through 2020. As discussed in the 2000 UWMP, the year-to-year fluctuations in historical water demand range from about three percent below to about ten percent above the projection, primarily related to growth, 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, drier years result in higher water demand. Extended drier periods, however, have resulted in decreased demand due to conservation and water shortage awareness. The decline in water demand at the end of the 1987-92 drought is a good example of such reduced demand. Ultimately, however, it would appear that the growth rate in the Santa Clarita Valley over the last three years has exceeded the rate estimated in the 2000 UWMP. Over the same time, the average rate of water use per service has remained nearly constant. The combination of a nearly constant unit water demand and a greater number of services has resulted in municipal water demand increasing over the last five years at a slightly higher rate than was estimated in the UWMP in 2000. Projected water demands will be updated in the 2005 UWMP currently in preparation.

For short-term planning, recognizing the continuation of recent higher-than-originally-estimated growth, and significantly above-normal precipitation in early 2005, water demand in 2005 is projected to be about 89,000 af. It is expected that both municipal and agricultural water demands in 2005 will be met with a generally similar mix of water supplies as in previous years, notably local groundwater and imported SWP water, complemented by recycled water that will continue to supply a small fraction of total water demand.

As of April 21, 2005, the allocation of water from the SWP is 80 percent of CLWA's Table A Amount, or 76,160 af. Combined with local groundwater from the two aquifer systems (47,500 af), small additional surface water supplies (Article 21 and Flexible Storage Account, which represent about 6,200 af combined), net carryover SWP water from 2004 (1,657 af), and recycled water (up to 1,700 af), the total available water supplies for 2005 are slightly more than 133,000. Consequently, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2005. A summary of projected 2005 water supply and demands is presented in Table IV-1.

Table IV-1
2005 Water Supply and Demand
(acre-feet)

Projected 2005 Demand [1]		**89,000**
Available Water Supplies		
Local Groundwater		47,500
Alluvial Aquifer [2]	*40,000*	
Saugus Formation [3]	*7,500*	
Imported Water		84,101
Table A Amount [4]	*76,160*	
Article 21 Water Program for 2005 [5]	*1,600*	
Net Carryover from 2004 [6]	*1,657*	
CLWA Flexible Storage Account [7]	*4,684*	
Recycled Water		1,700
Total Available 2005 Supplies		**133,301**
Dry Year Supplies [8]		
Semitropic Groundwater Storage Bank		50,870
2002 Account	*21,600*	
2003 Account	*29,270*	
Total Supplemental Dry Year Supplies		**50,870**

1. Refer to the Amended 2000 UWMP for long-term projections of supply and demand. The projected 2005 water demand is based on recent actual water demands, with adjustment for significantly wet conditions in early 2005.

2. The Alluvium represents 30,000 – 40,000 afy of available supply under wet-normal conditions, and 30,000 – 35,000 afy under dry conditions. Available supply in 2005 is shown to be the average/wet range due to significantly above-average precipitation in late 2004 and early 2005.

3. The Saugus 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 2005 is shown to be limited to very wet conditions; no short-term increase in Saugus pumping is required or shown for 2005 water supply.

4. CLWA's SWP Table A amount is 95,200 af. The 2005 allocation, as of April 21, 2005, is 80 percent (76,160 af).

5. Through March 2005. Article 21 Water Program refers to a provision in the SWP contract for delivering water that is available in addition to CLWA's Table A allocation. This water is typically available only for a limited time from January through March, as hydrologic and SWP storage conditions allow.

6. Total excess 2004 SWP supply was 15,522 af; of that amount, 13,865 af spilled in early 2005 at San Luis Reservoir, leaving a net carryover delivery of 1,657 af.

7. CLWA can directly utilize up to 4,684 af of storage capacity in Castaic Lake.

8. Recoverable portion of 24,000 af and 32,522 af of excess in 2002 and 2003 Table A water banked in Semitropic WSD, respectively. 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 planned groundwater storage programs. Refer to the Amended 2000 UWMP for more information on these and other programs.

In addition to the preceding, it is noteworthy that, while not required to meet projected demand in 2005, a total of nearly 51,000 af of recoverable water has been stored in a Kern County groundwater storage bank account for dry-year deliveries.

A significant number of local projects are part of an overall program currently funded by CLWA 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.

The Purveyors strive 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.

Dry-year 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 vice versa.

For this reason, CLWA and the Purveyors have emphasized developing water supplies that add diversity allowing water supply options especially in dry years. Diversity of supply is considered a key element of reliability, giving the Purveyors the ability to draw on multiple sources of supply during dry-year conditions and thereby making the Purveyors' water deliveries more reliable. As a result of this advance planning, no water shortages are anticipated in CLWA's service area for the foreseeable future.

For long-term planning purposes, water supplies and facilities are added on an incremental basis and ahead of need. It would be economically to immediately, or in the short term, acquire all the facilities and water supplies needed for the next twenty to thirty years. This would represent an unfair shift of costs from future customers to existing customers.

There are many ongoing efforts to produce an adequate and reliable supply of good quality water for Valley residents. Water consumers expect that their needs are going to be met with a high degree of reliability and quality of service. To that end, CLWA and the Purveyors are in the process of establishing a water reliability policy for planning purposes sufficient to meet projected demands 95 percent of the time over each 20-year period. In the remaining 5 percent of the time, it is assumed that the maximum allowable supply shortage will be 10 percent of overall demand.

This shortage level is being recommended because a 10 percent water demand reduction is feasible during a drought based on past experience. When a shortage occurs, water consumers

typically increase their awareness of water usage and voluntarily reduce water demands. During the 1987–1992 drought, voluntary conservation efforts by area residents resulted in a decrease in water demand of about 20 percent per year.

V. 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 BMPs included in the MOU are intended to reduce California's long-term urban water demands. The BMPs are currently implemented by the signatories to the MOU on a voluntary basis. However, the CalFed Bay-Delta Program has included mandatory implementation of the BMPs and certification of water use efficiency programs in its final Environmental Impact Statement/Report and Record of Decision. This certification requirement would take effect after enabling legislation is passed and would apply to any agency subject to the Urban Water Management Planning Act that is located in the CalFed solution area. In addition, the BMPs are specified as part of the Urban Water Management Planning Act.

CLWA signed the urban MOU in 2001 on behalf of its wholesale service area. Since then, CLWA has instituted implementation of BMP 2 (Residential Plumbing Retrofits) and BMP 14 (Residential ULFT Replacement Programs). NCWD signed the MOU in 2002 on behalf of its own retail service area. As a separate MOU signer and due to its role as a retailer, NCWD is committed to implementing additional BMPs that are feasible and applicable in its service area. Efforts are made to coordinate with CLWA and the other purveyors wherever possible to maximize efficiency and ensure the cost effectiveness of NCWD's conservation program.

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 sessions
- Meeting drought restrictions

In coordination with the Purveyors in its service area, CLWA has been implementing the following urban water conservation Best Management Practices (BMPs) (which pertain to wholesalers) for several years:

BMP 3	System Water Audits, Leak Detection and Repair
BMP 7	Public Information Programs
BMP 8	School Education
BMP 10	Wholesale Agency Programs
BMP 11	Conservation Pricing
BMP 12	Water Conservation Coordinator
BMP 13	Water Waste Prohibition (Implementation during last drought)

CLWA and the Purveyors have been implementing the listed BMPs valley-wide since 2002. In addition, interior plumbing code changes that have been in effect since 1992, as well as changes in lot size and reduction in exterior square footage of new housing and commercial developments, have begun to impact overall demand in the Valley. The valley's water suppliers will continue to monitor water demand trends through time to assess which factors are accounting for the reduction, and to attempt to quantify them.

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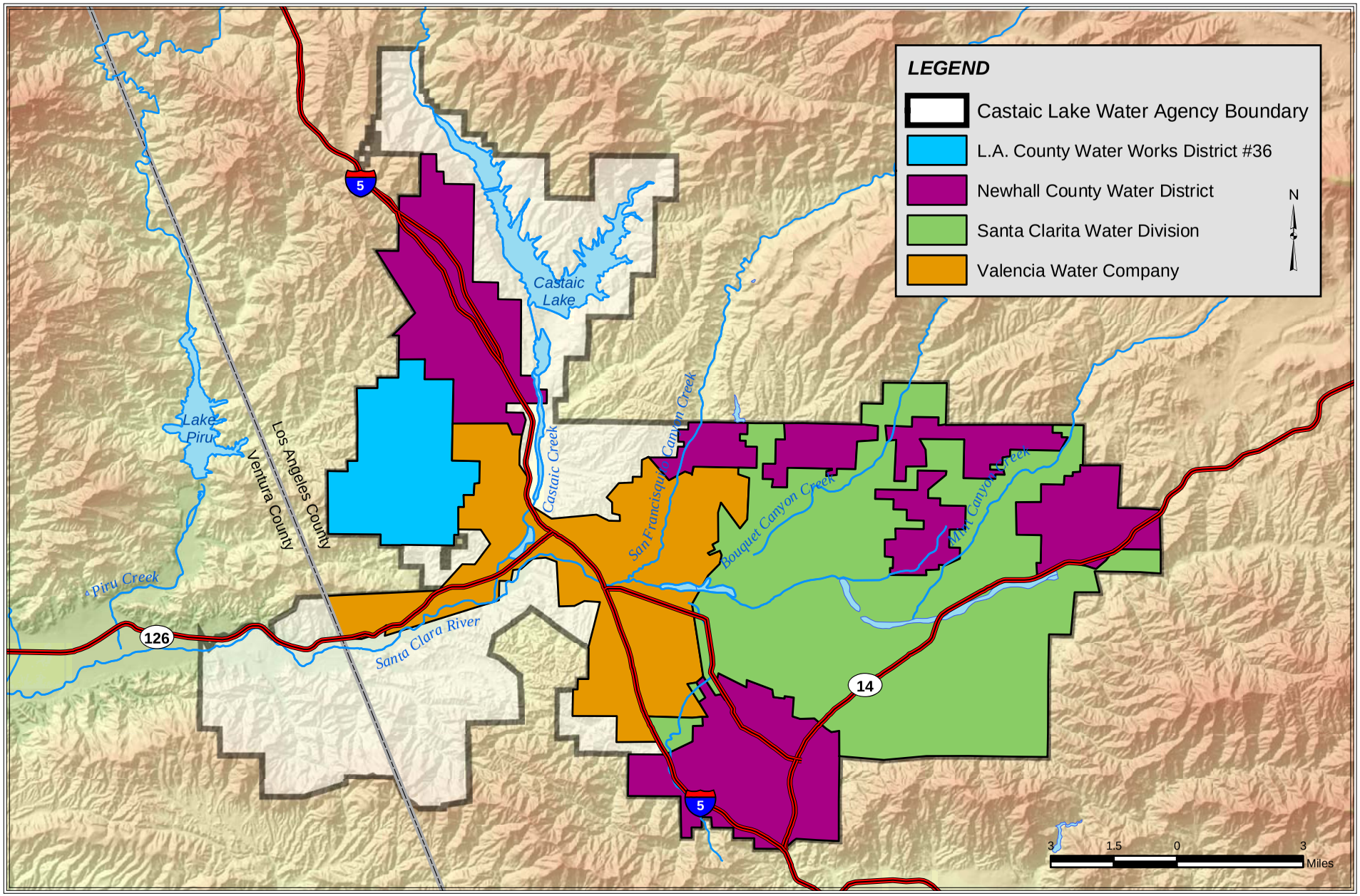

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Figure I-1
CLWA and Purveyor Service Areas

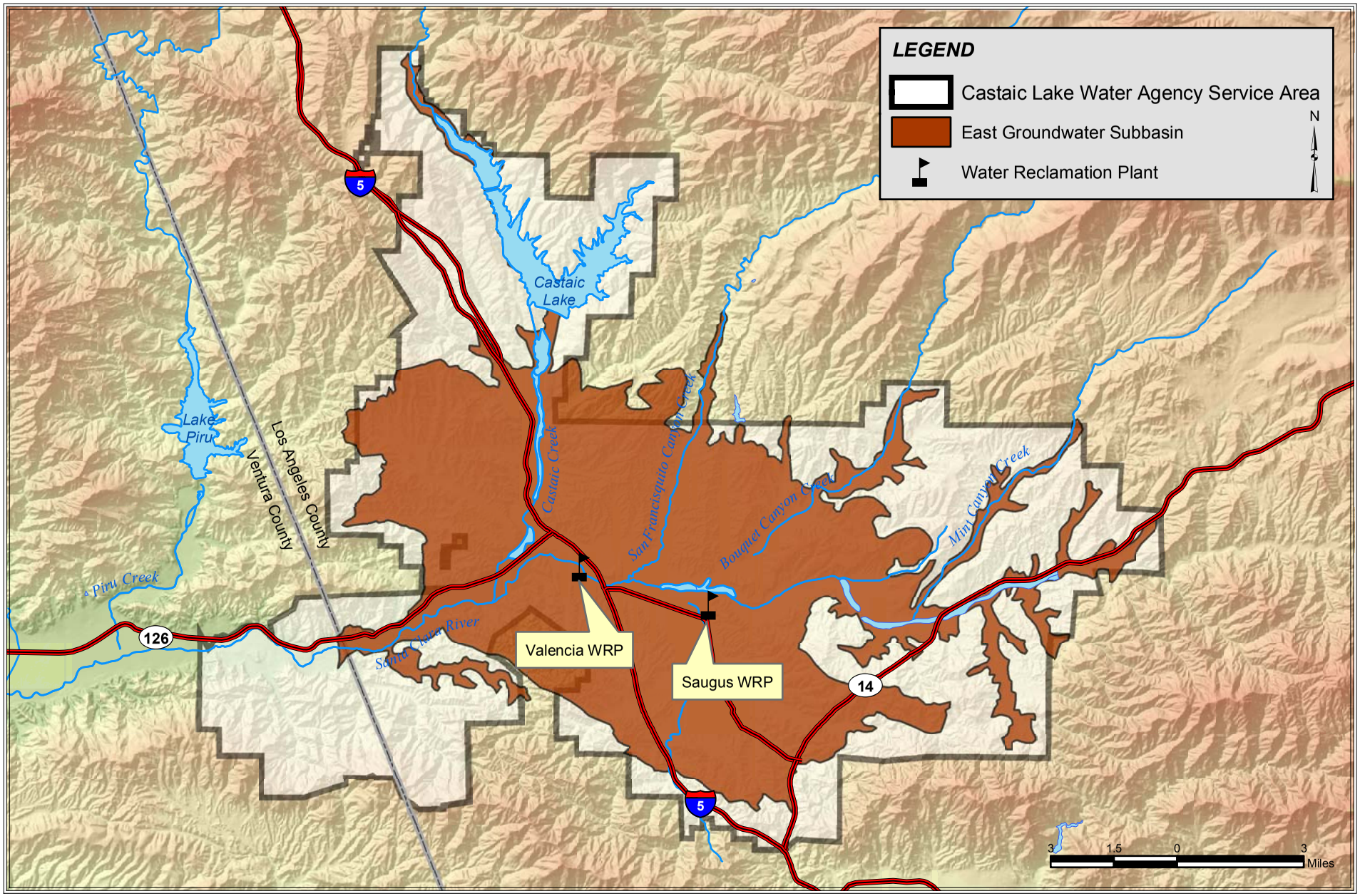

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Figure I-2
Santa Clara River Valley
East Groundwater Subbasin

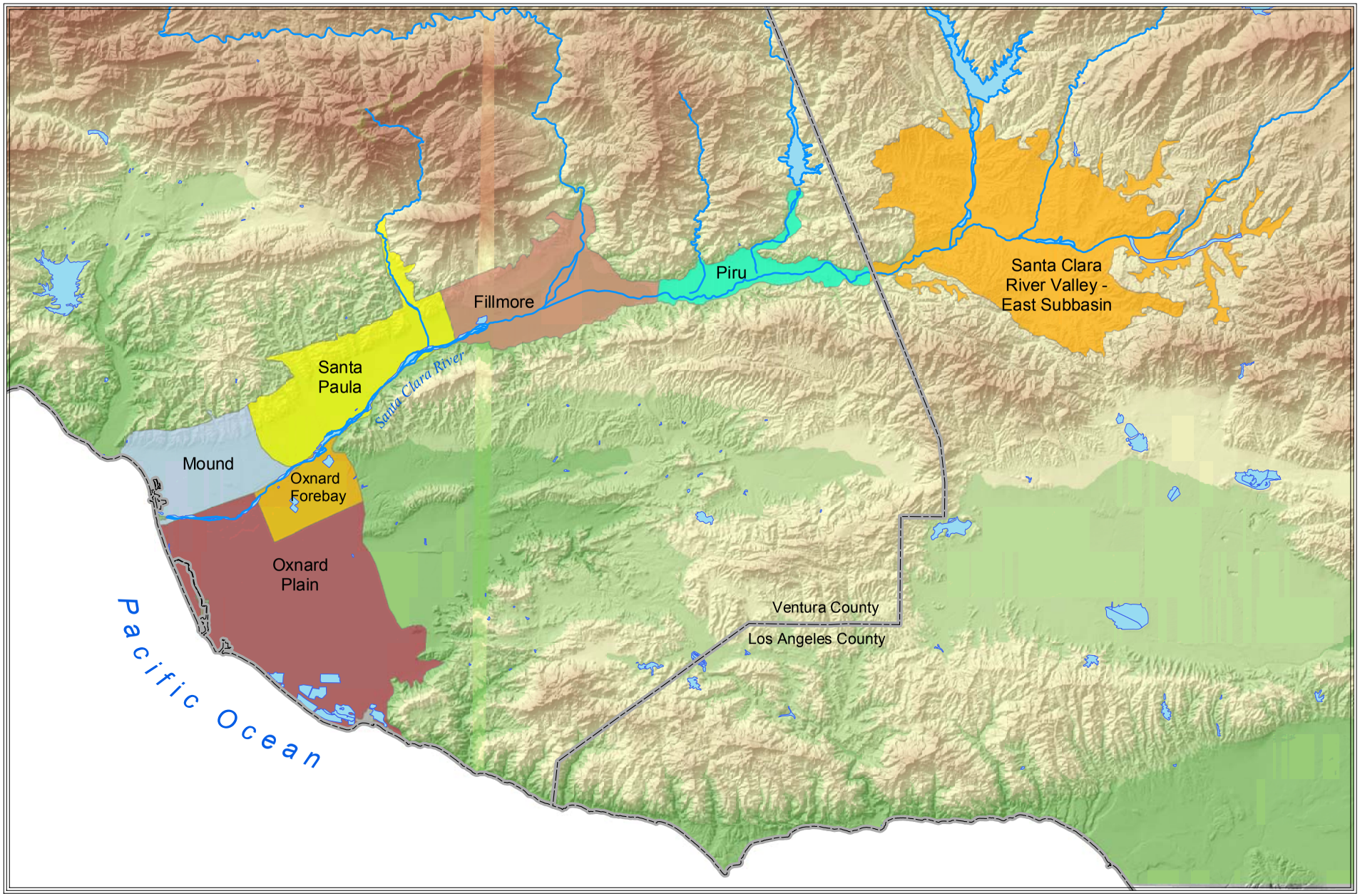

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Figure I-3
Upper and Lower Santa Clara River Basins

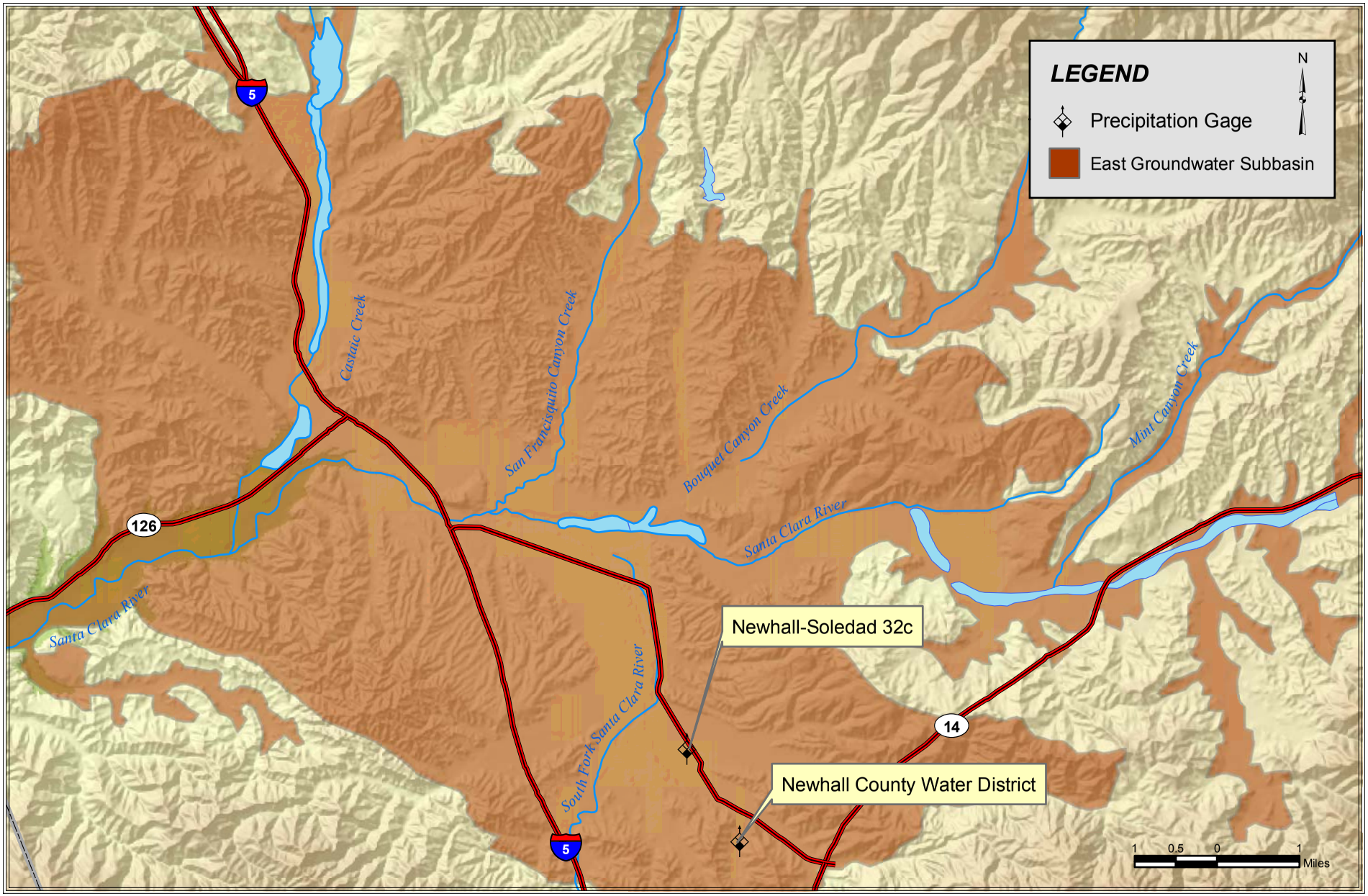

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Figure I-4
Precipitation Gage Locations
Santa Clara River Valley, East Groundwater Subbasin

Annual Precipitation and Departure from Mean Annual Precipitation
Santa Clara River Valley, East Groundwater Subbasin
(Newhall-Soledad 32c Gage)

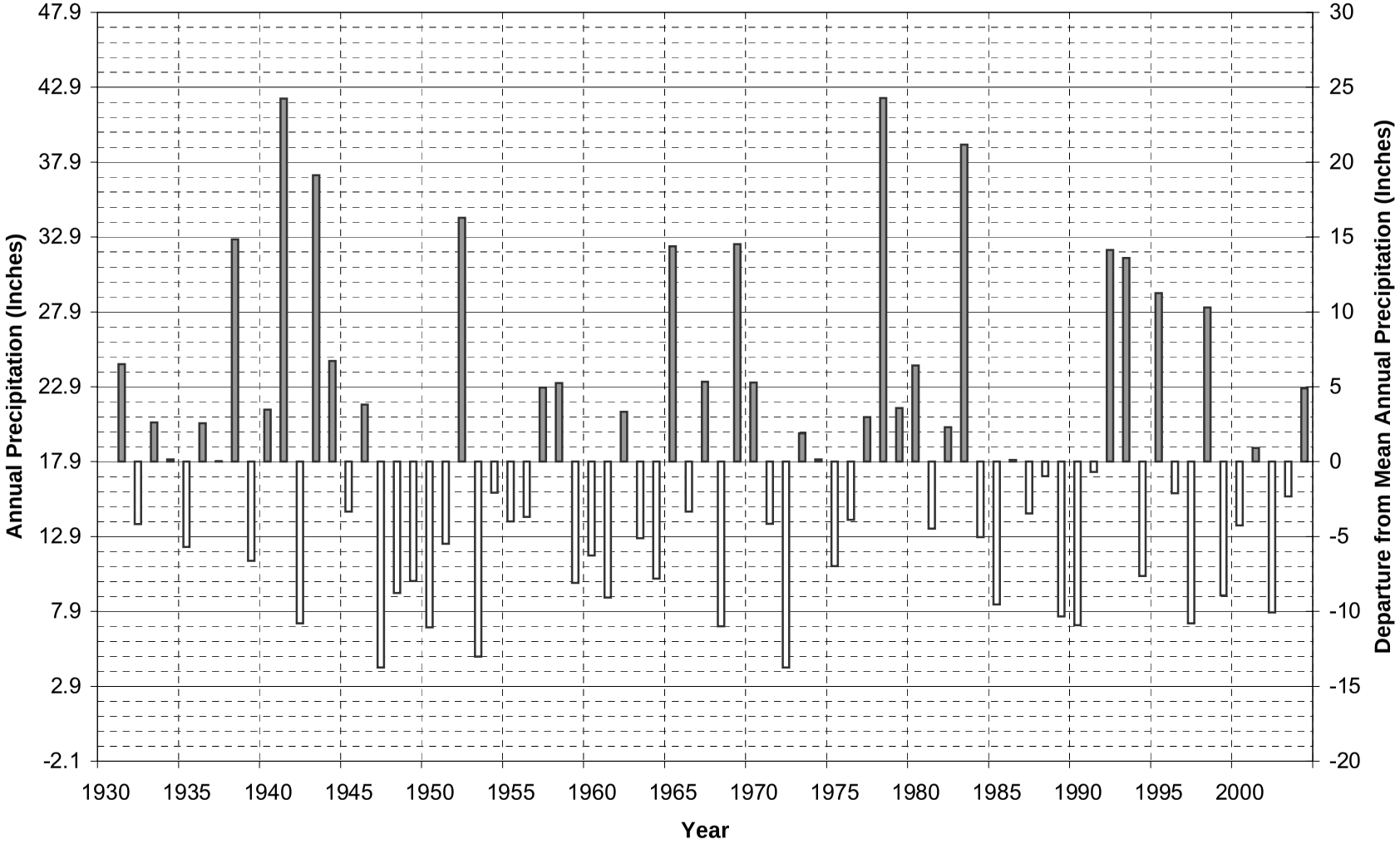

Figure I-5

Total Water Supplies for Municipal Purveyors
Santa Clarita Valley

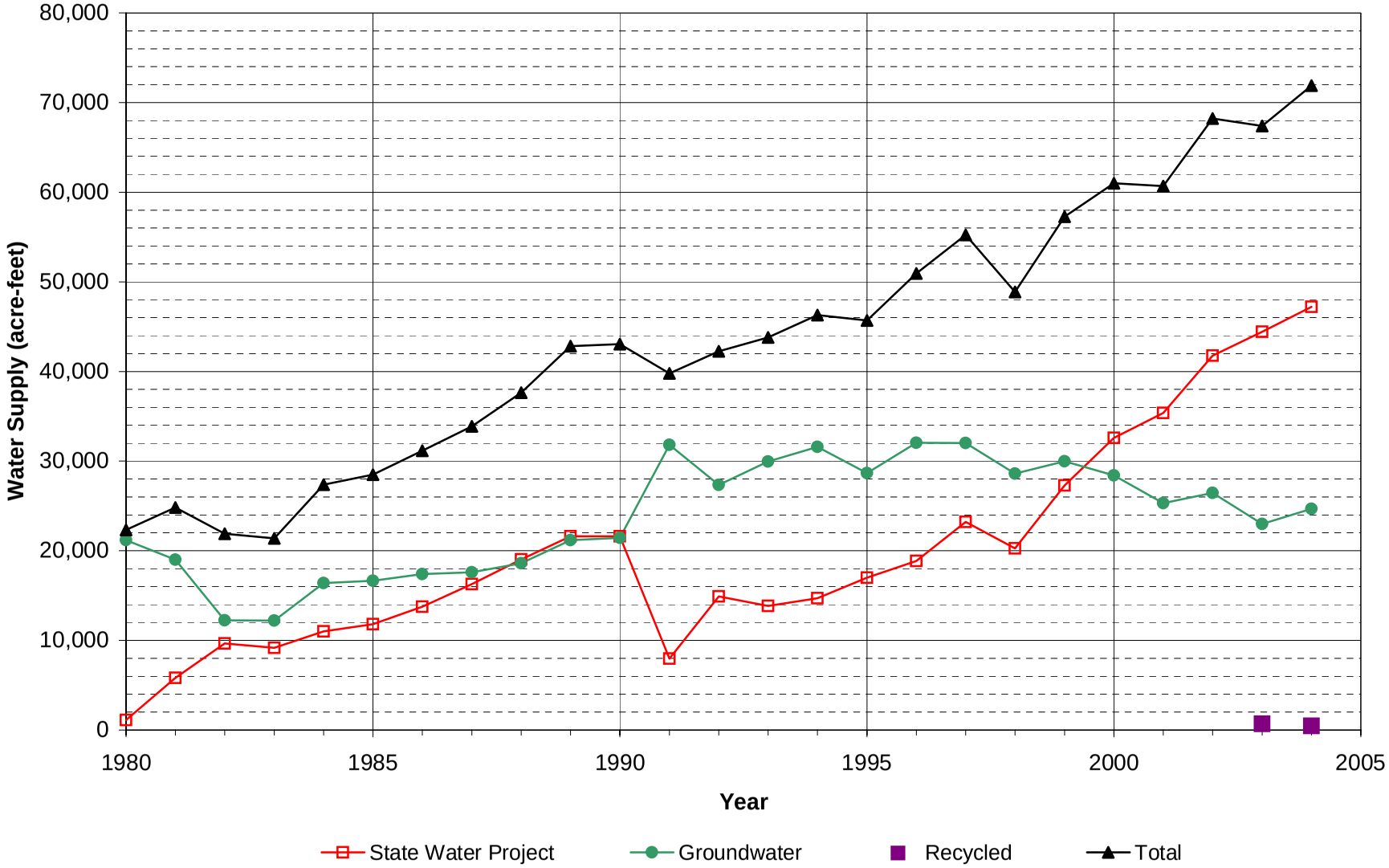

Figure II-1

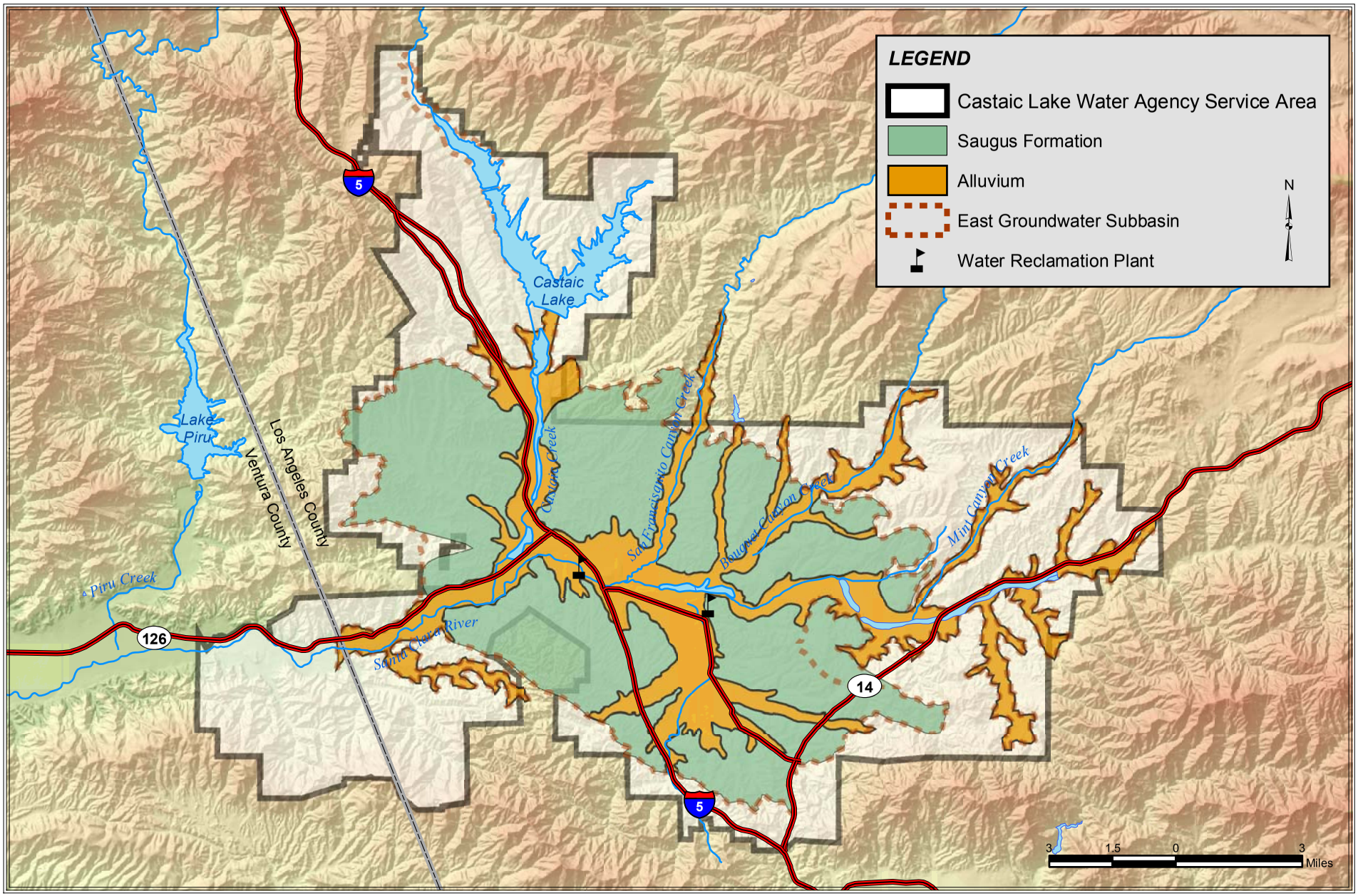

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Figure III-1
Alluvium and Saugus Formation
Santa Clara River Valley East Groundwater Subbasin

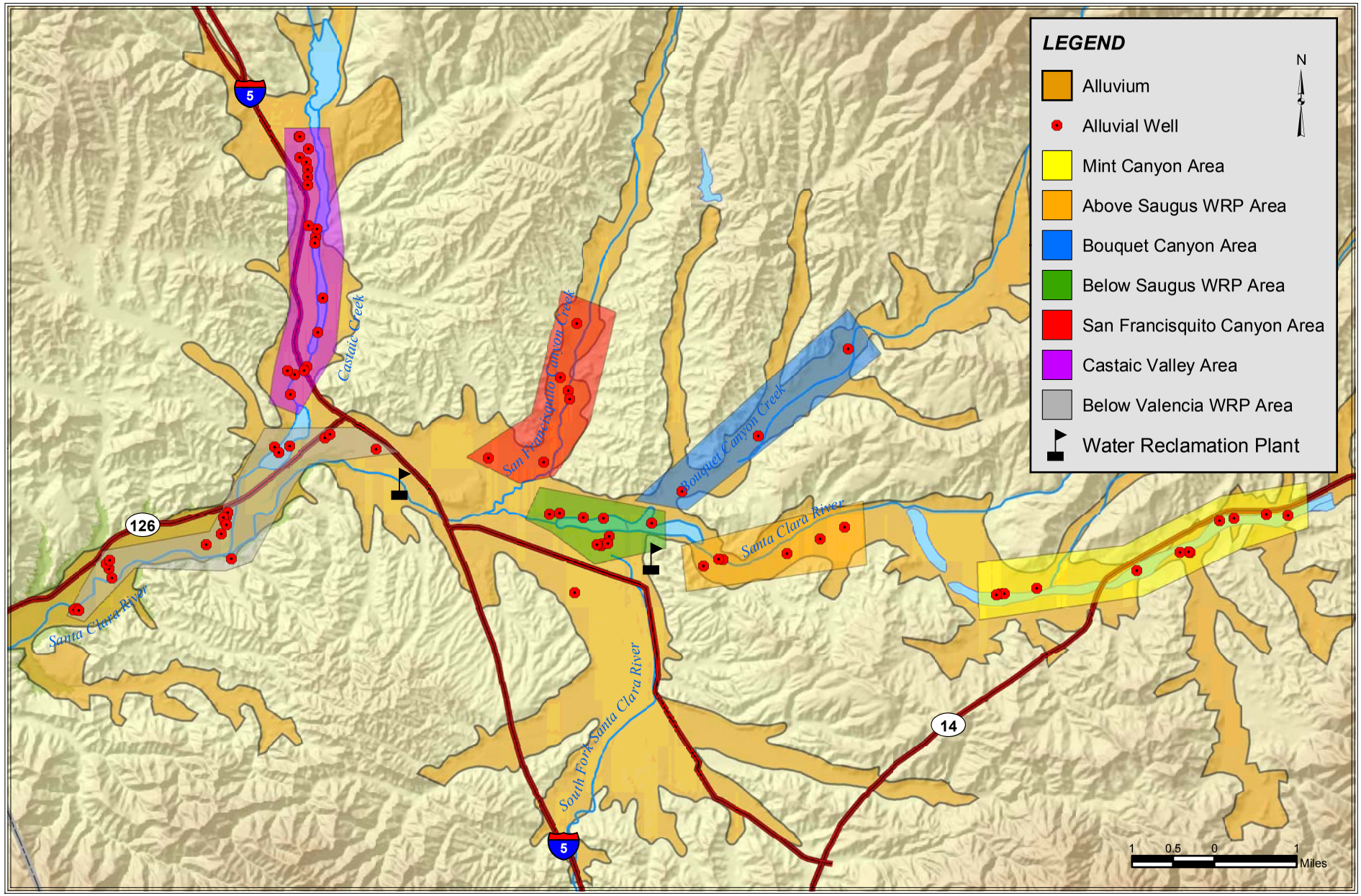

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Figure III-2
Alluvial Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin

Groundwater Production - Alluvium

Santa Clara River Valley, East Groundwater Subbasin

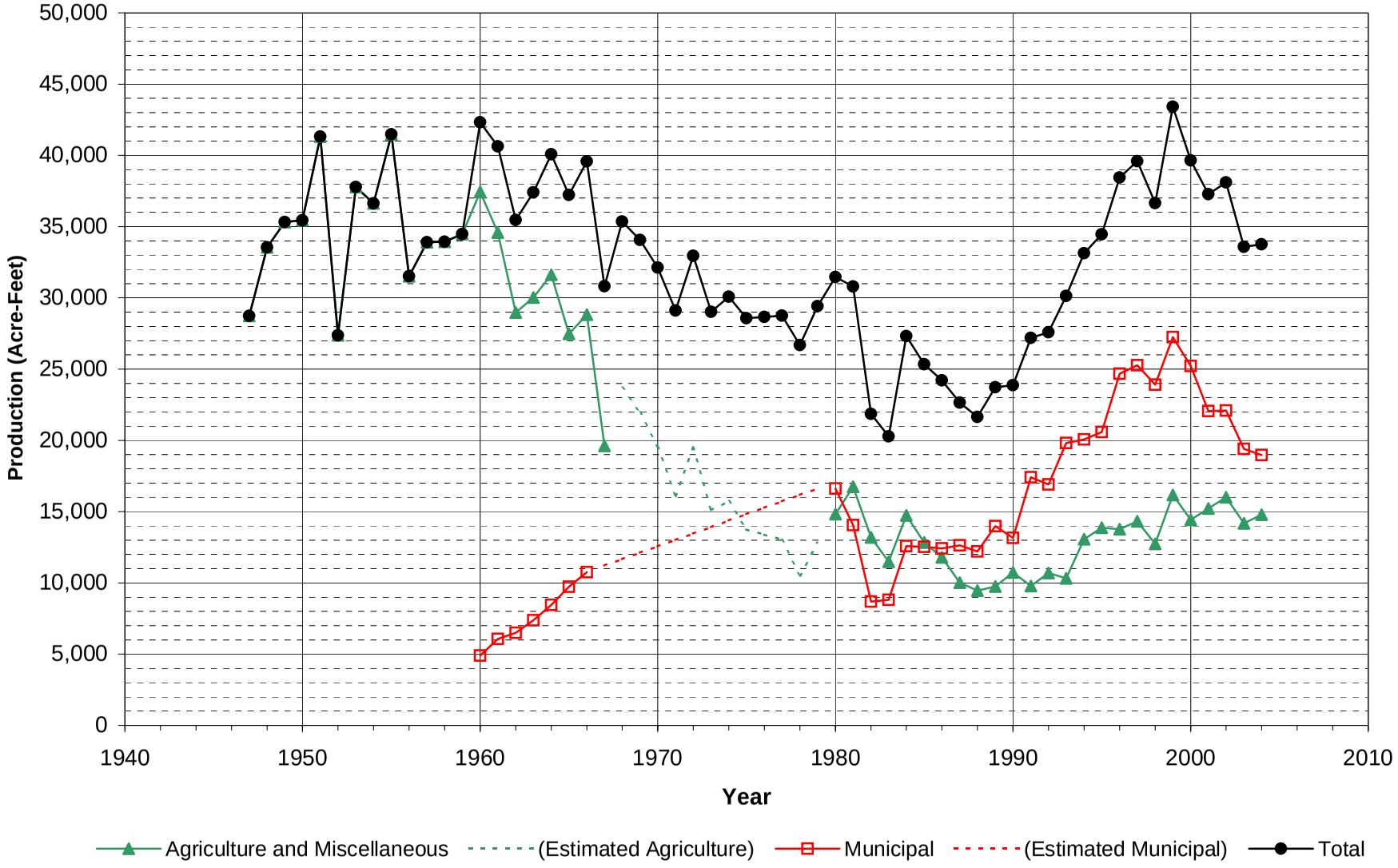
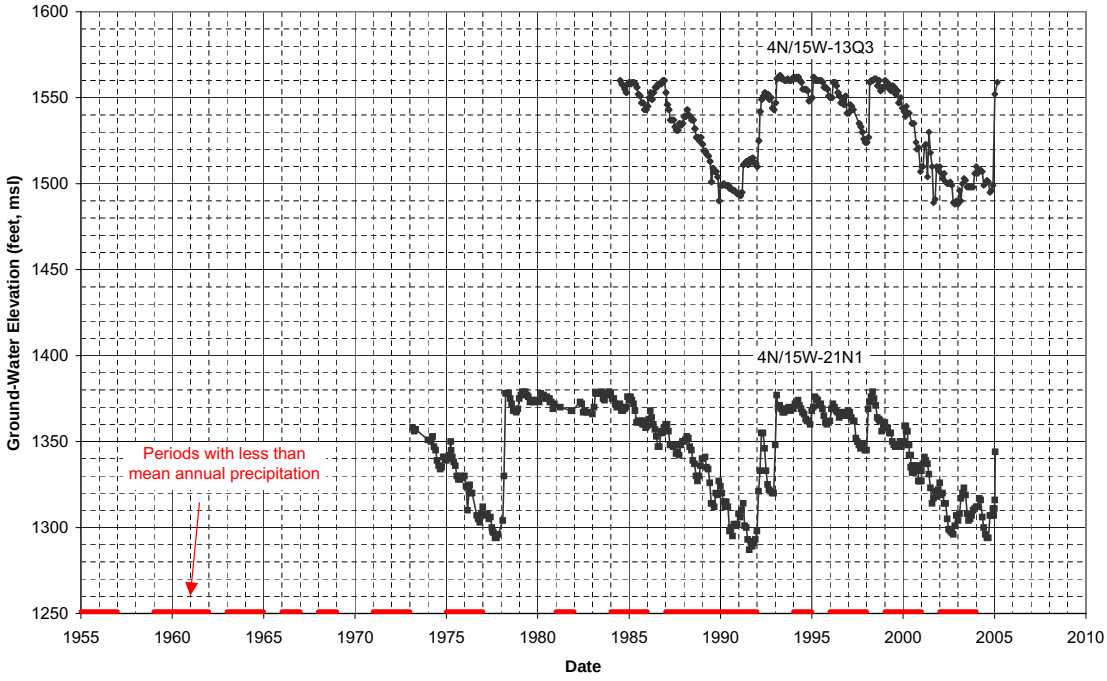


Figure III-3

Groundwater Elevation for 'Mint Canyon' Area Alluvial Wells
(lowest and highest for area shown)



Groundwater Elevation for 'Below Saugus WRP' Area Alluvial Wells
(lowest and highest for area shown)

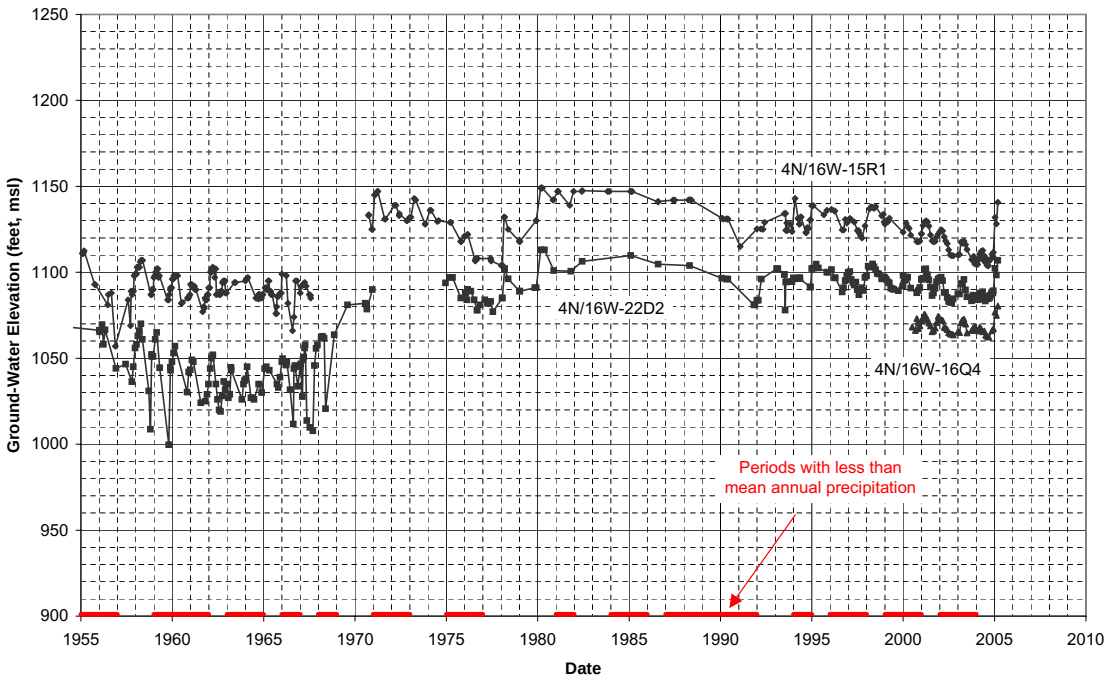
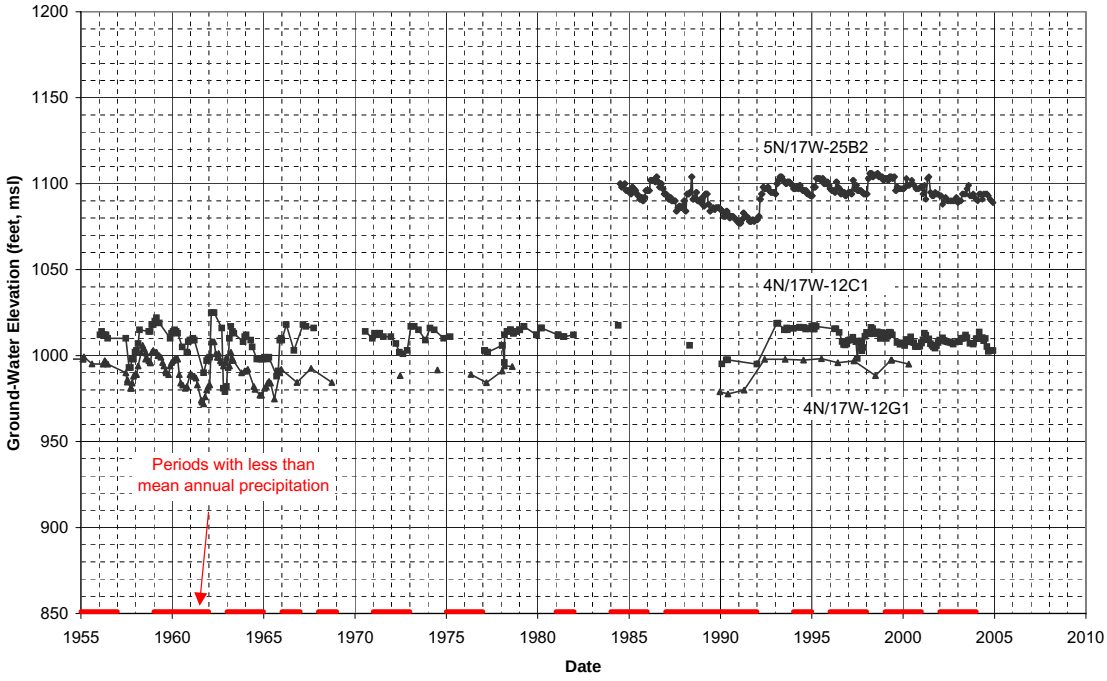


Figure III-4

Groundwater Elevation for 'Castaic Valley' Area Alluvial Wells
(lowest and highest for area shown)



Groundwater Elevation for 'Below Valencia WRP' Area Alluvial Wells
(lowest and highest for area shown)

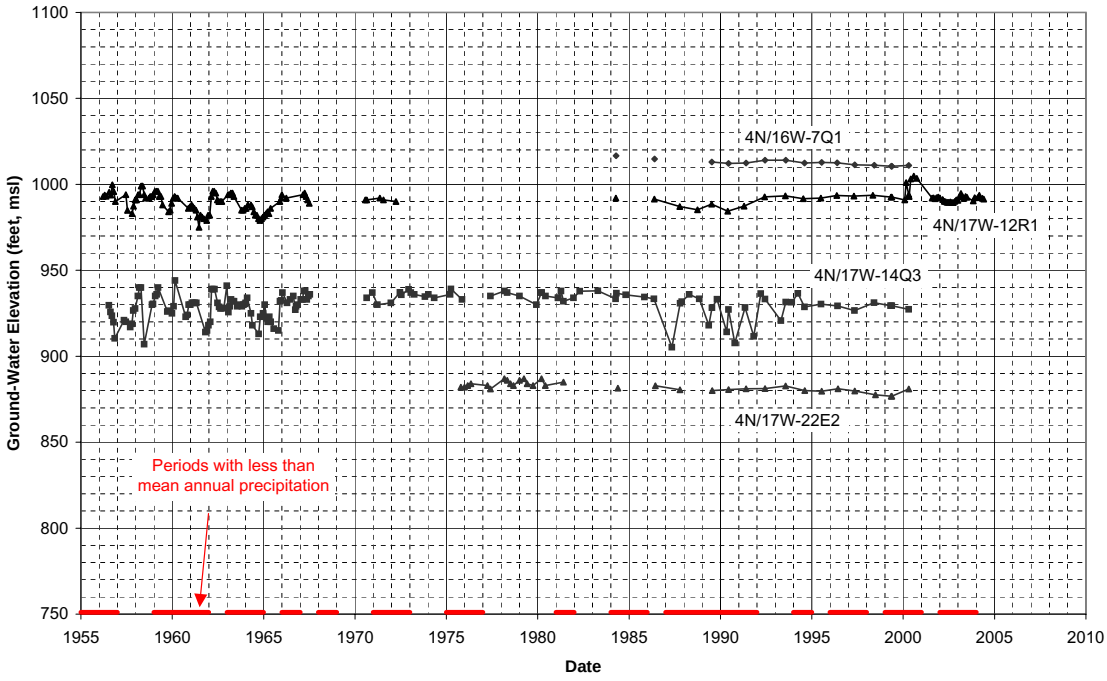


Figure III-5

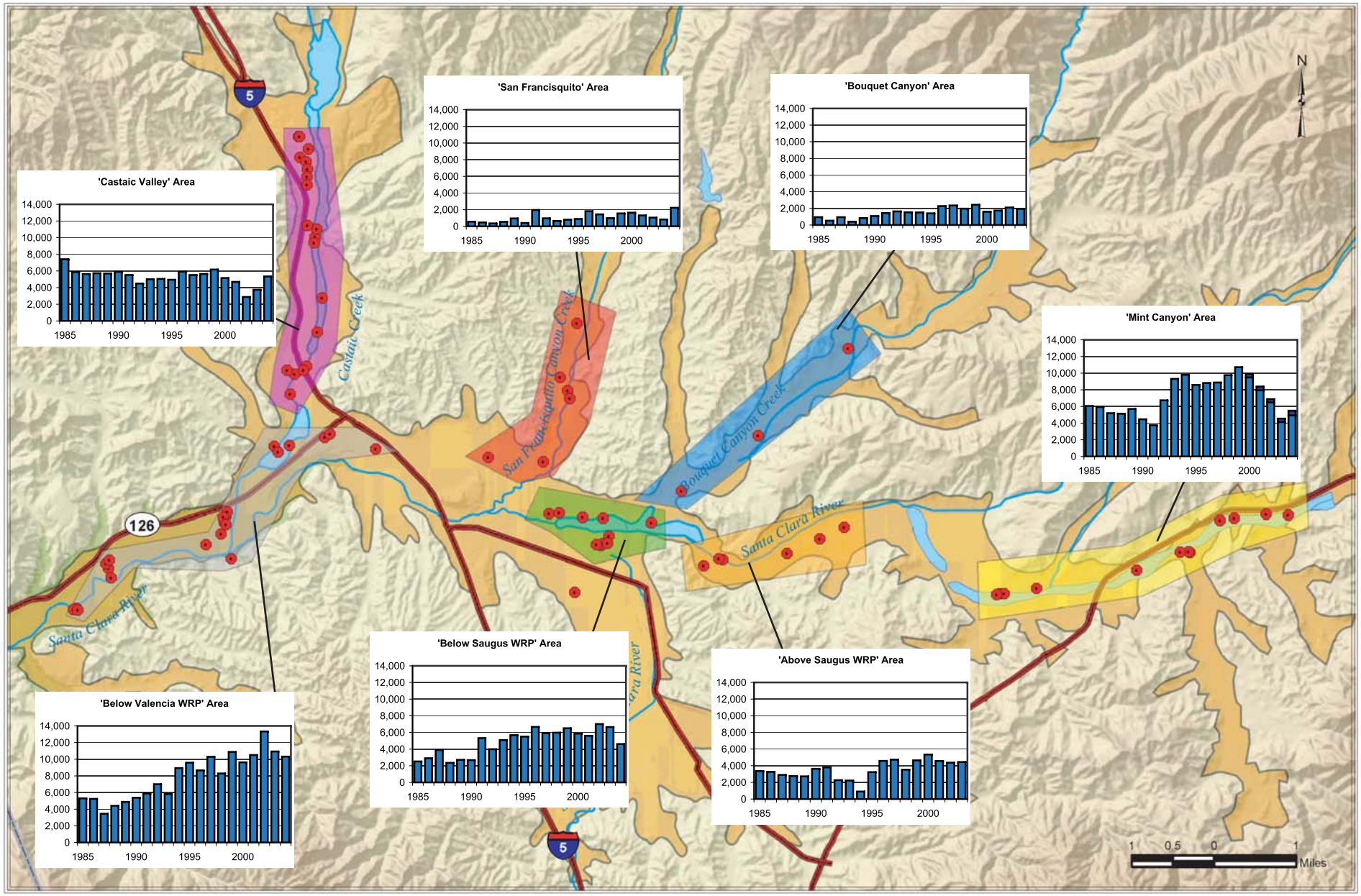


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Figure III-6
Annual Groundwater Production from Alluvium by Area (Acre-feet)
Santa Clara River Valley, East Groundwater Subbasin

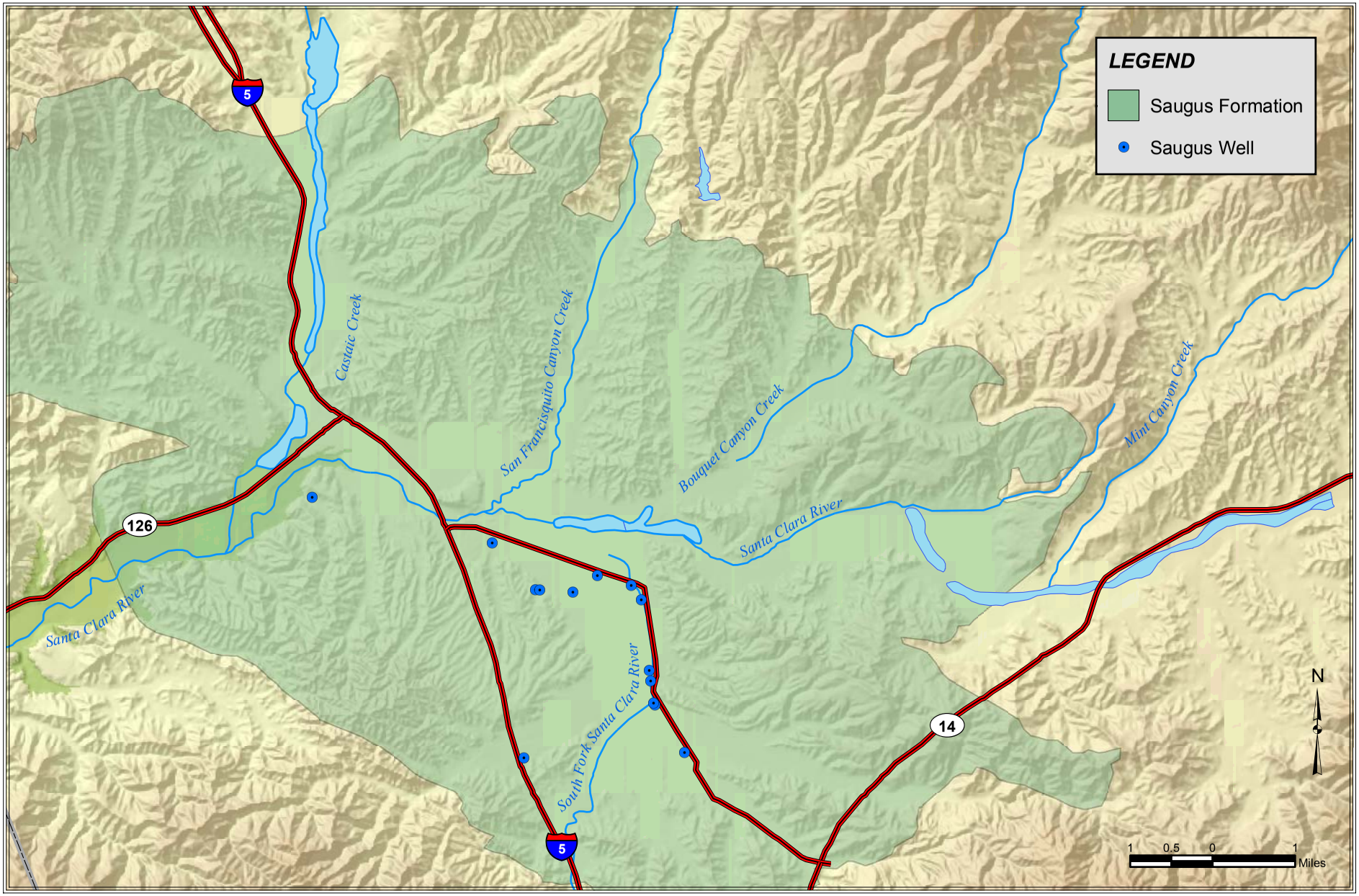

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Figure III-7
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

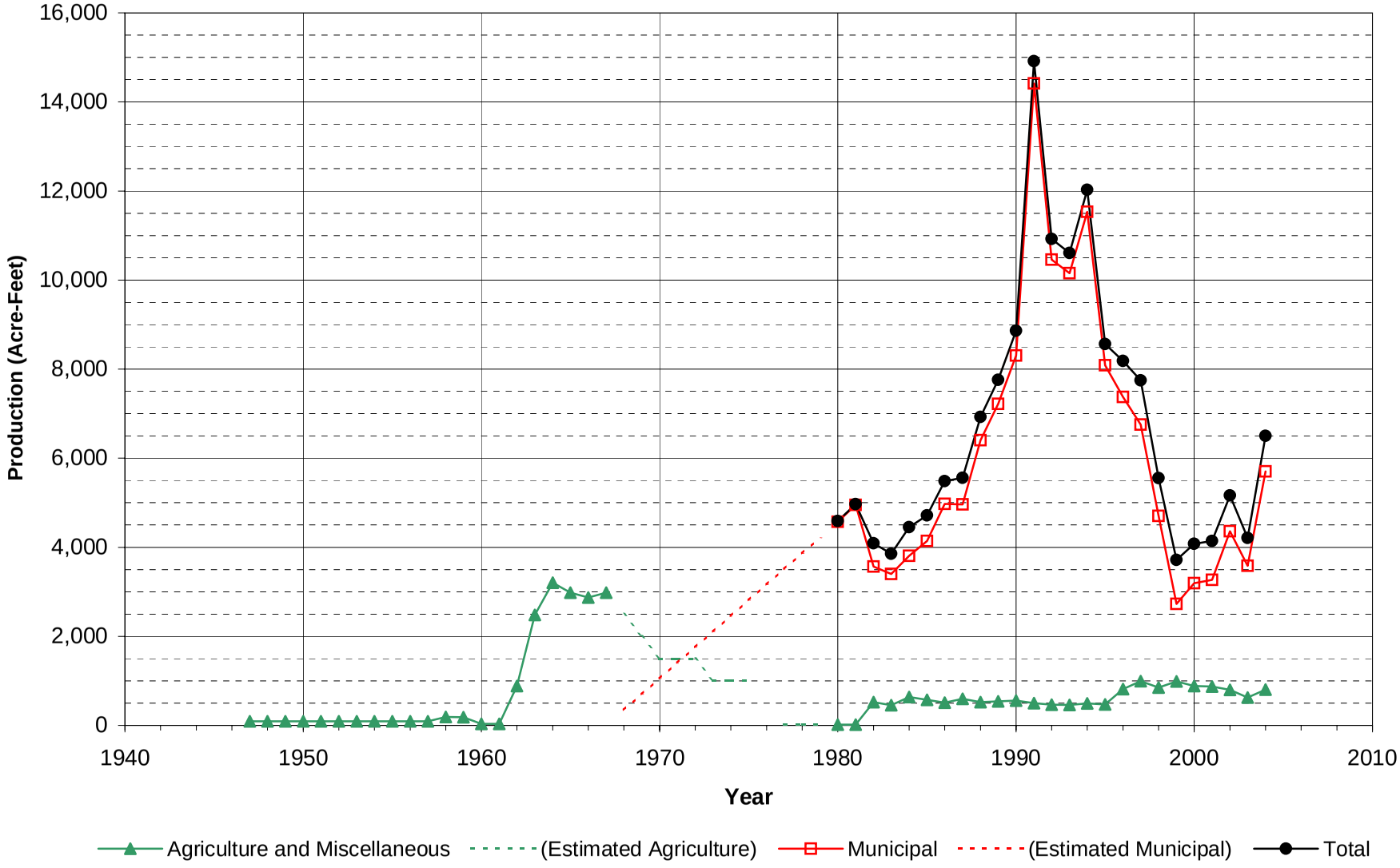
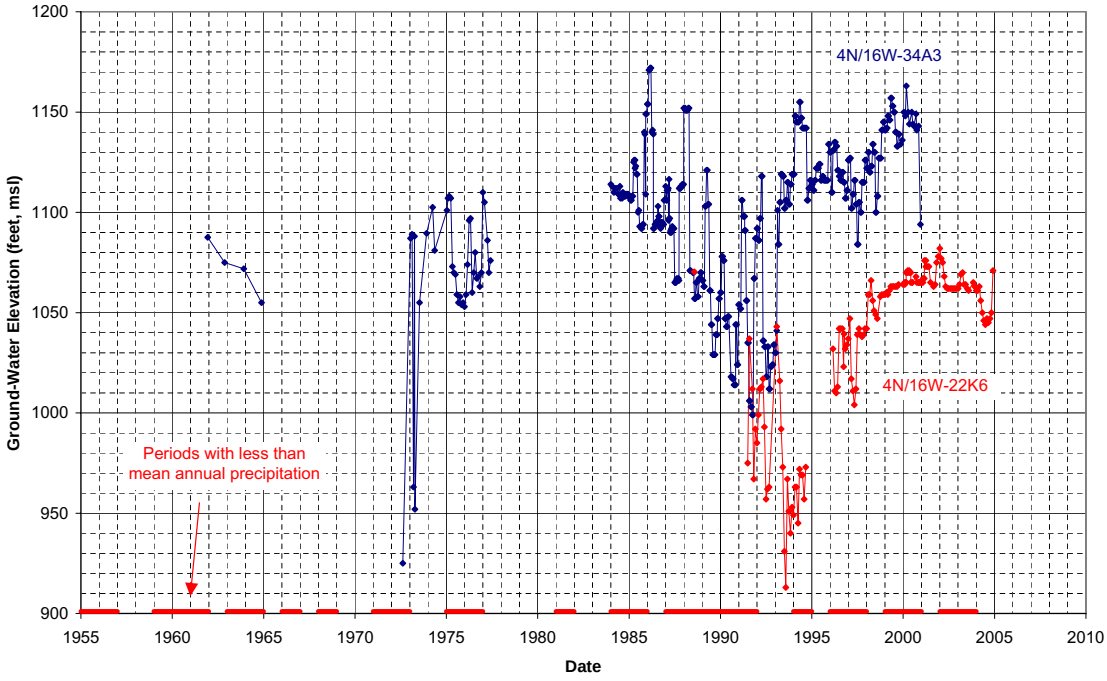


Figure III-8

Groundwater Elevation for Saugus Wells
(lowest and highest shown)



Groundwater Elevation for Saugus Wells
(long-term record)

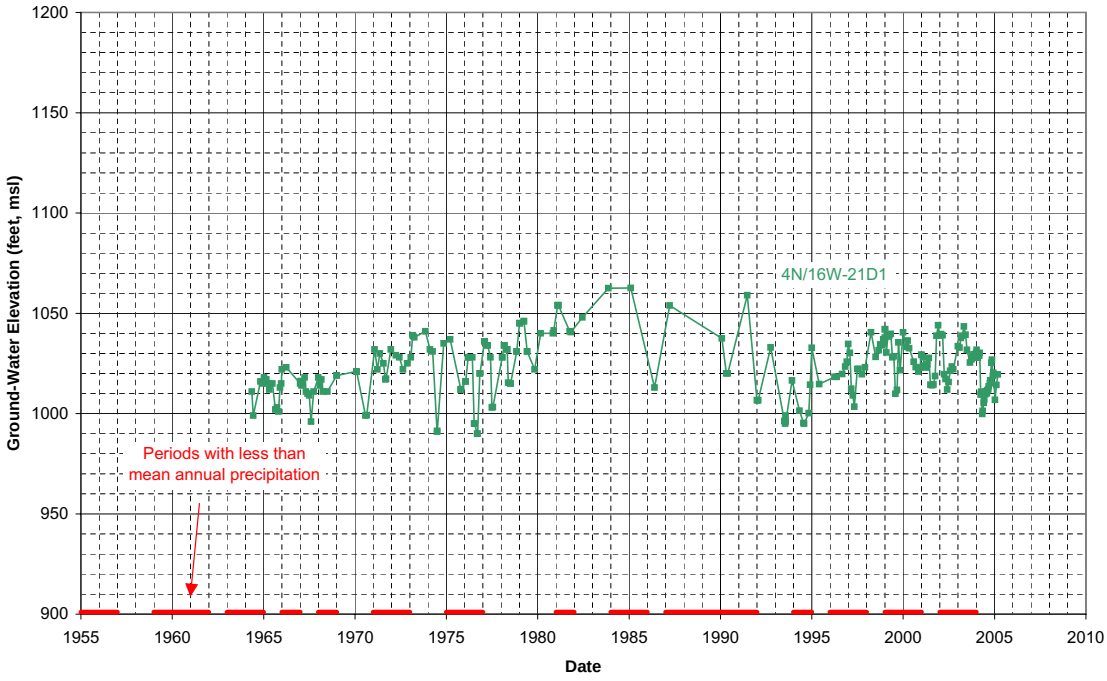
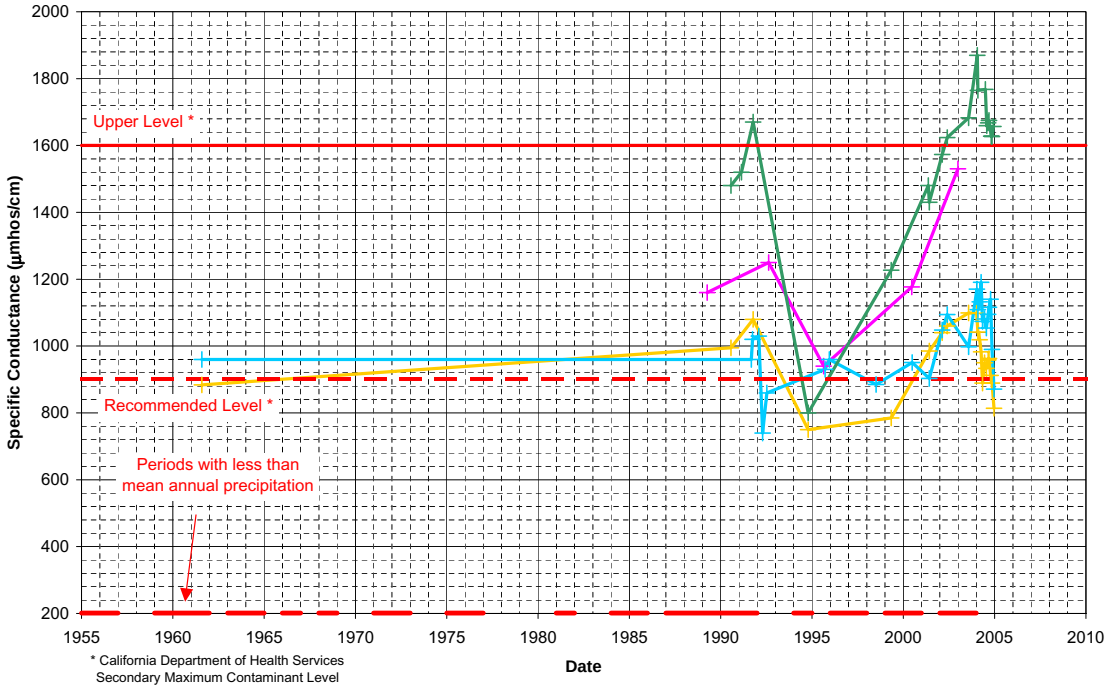


Figure III-9

Water Quality for 'Above Saugus WRP' Area Alluvial Wells
(representative selection for area shown)



Water Quality for 'Below Saugus WRP' Area Alluvial Wells
(representative selection for area shown)

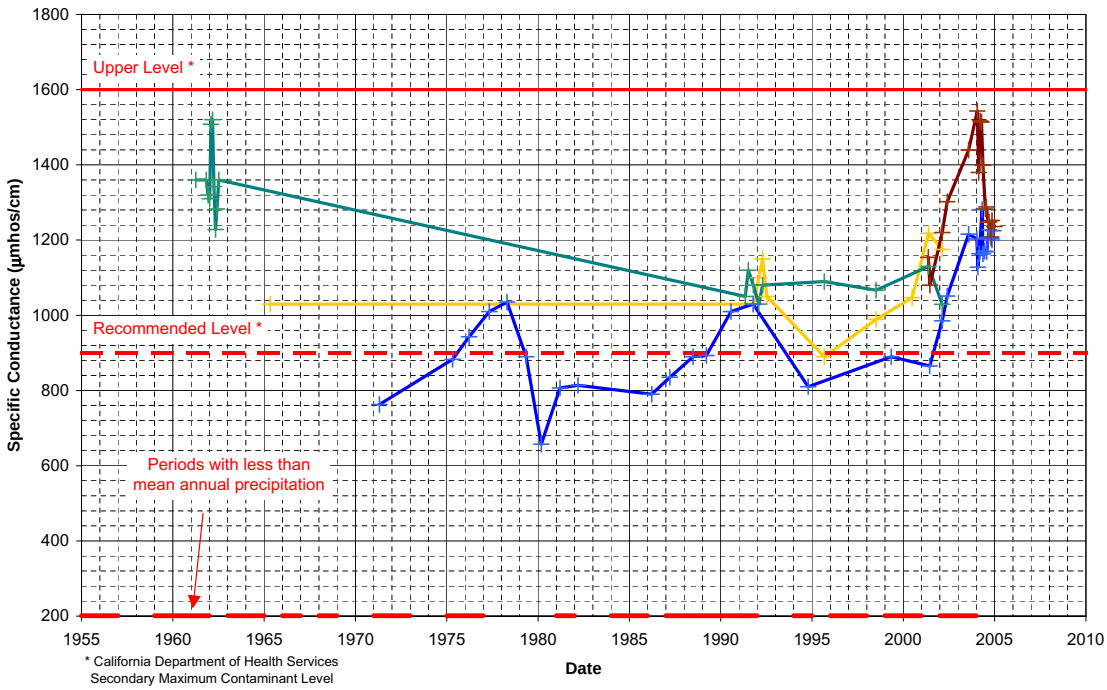
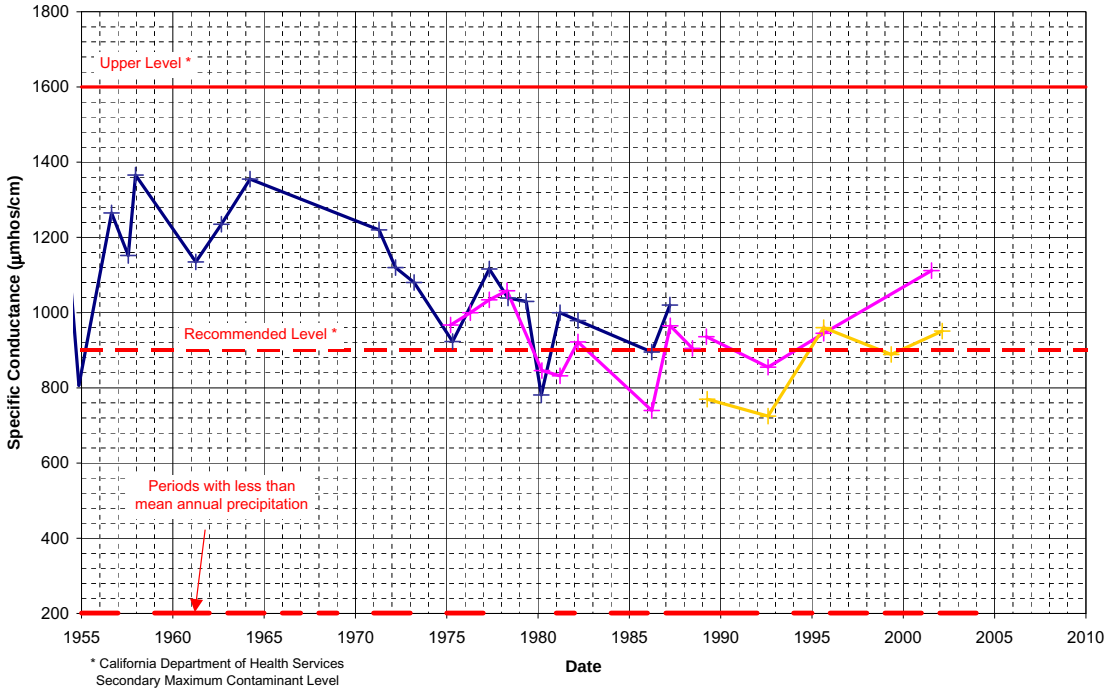


Figure III-10

Water Quality for 'Bouquet Canyon' Area Alluvial Wells
(representative selection for area shown)



Water Quality for 'Castaic Creek' Area Alluvial Wells
(representative selection for area shown)

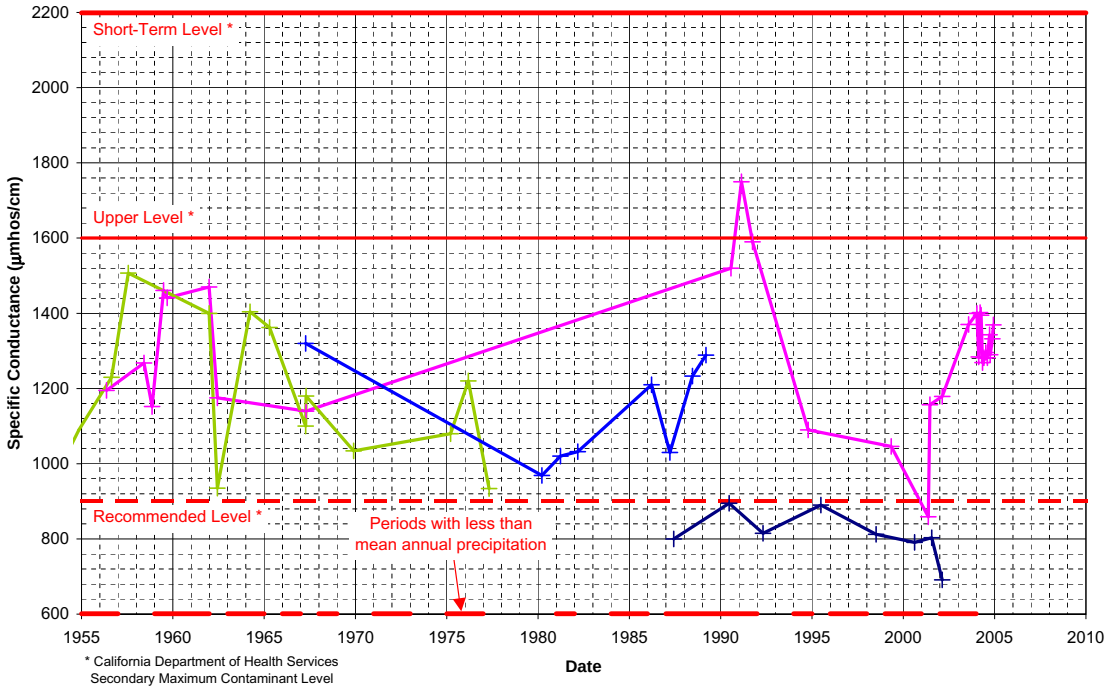


Figure III-11

Water Quality for Saugus Wells
(representative selection shown)

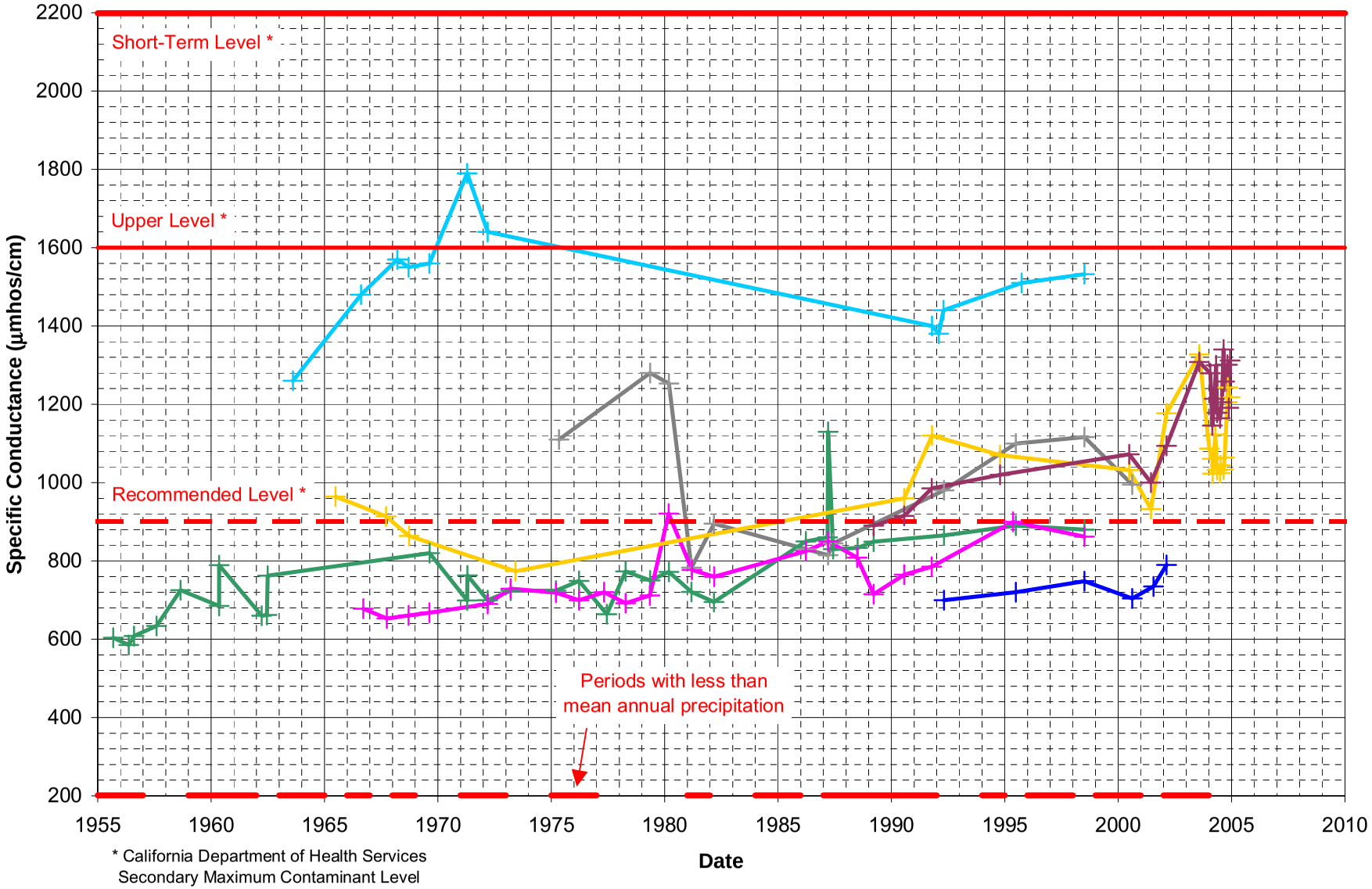


Figure III-12

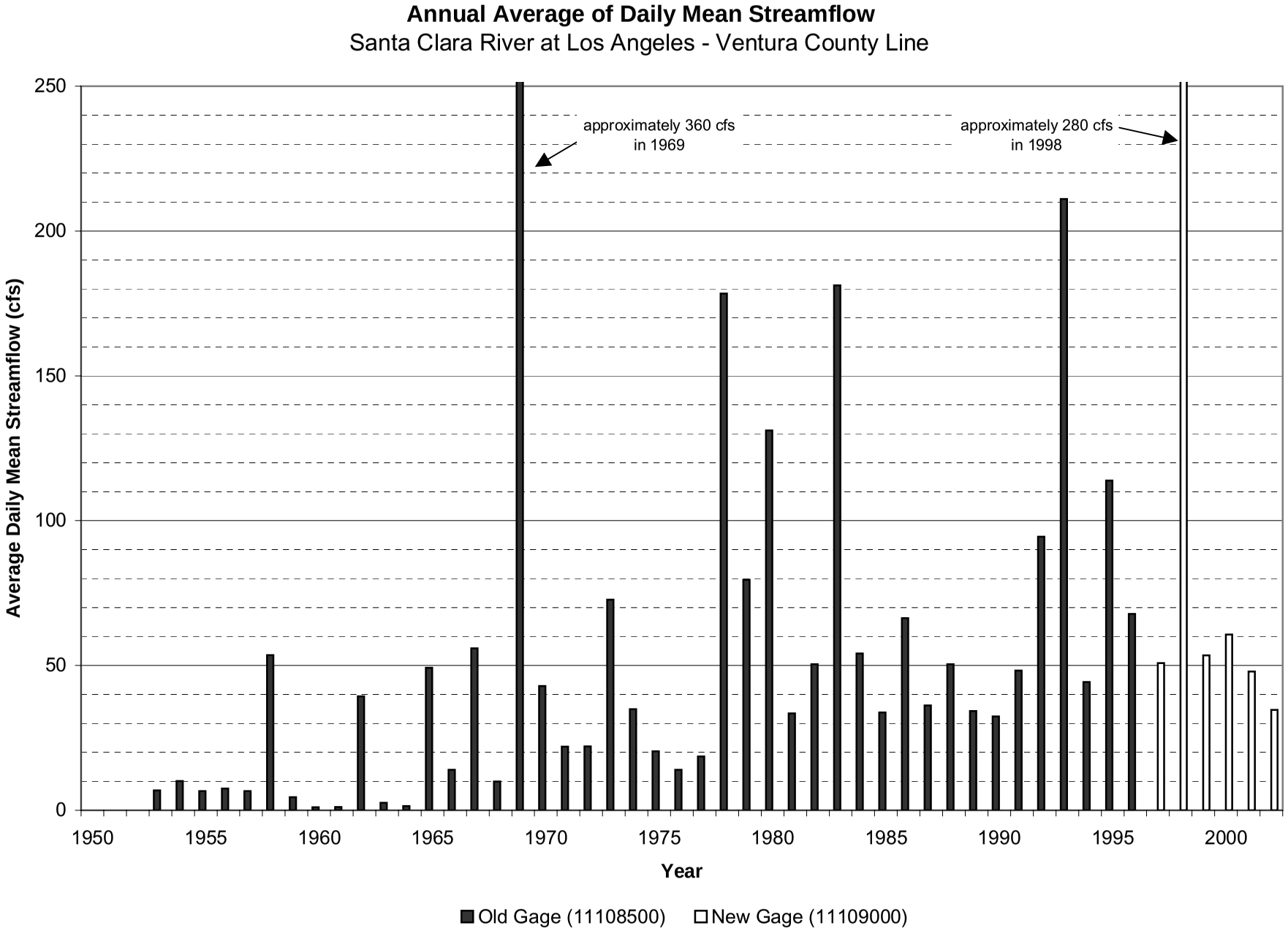


Figure III-13

Historical and Projected Water Use
Santa Clarita Valley

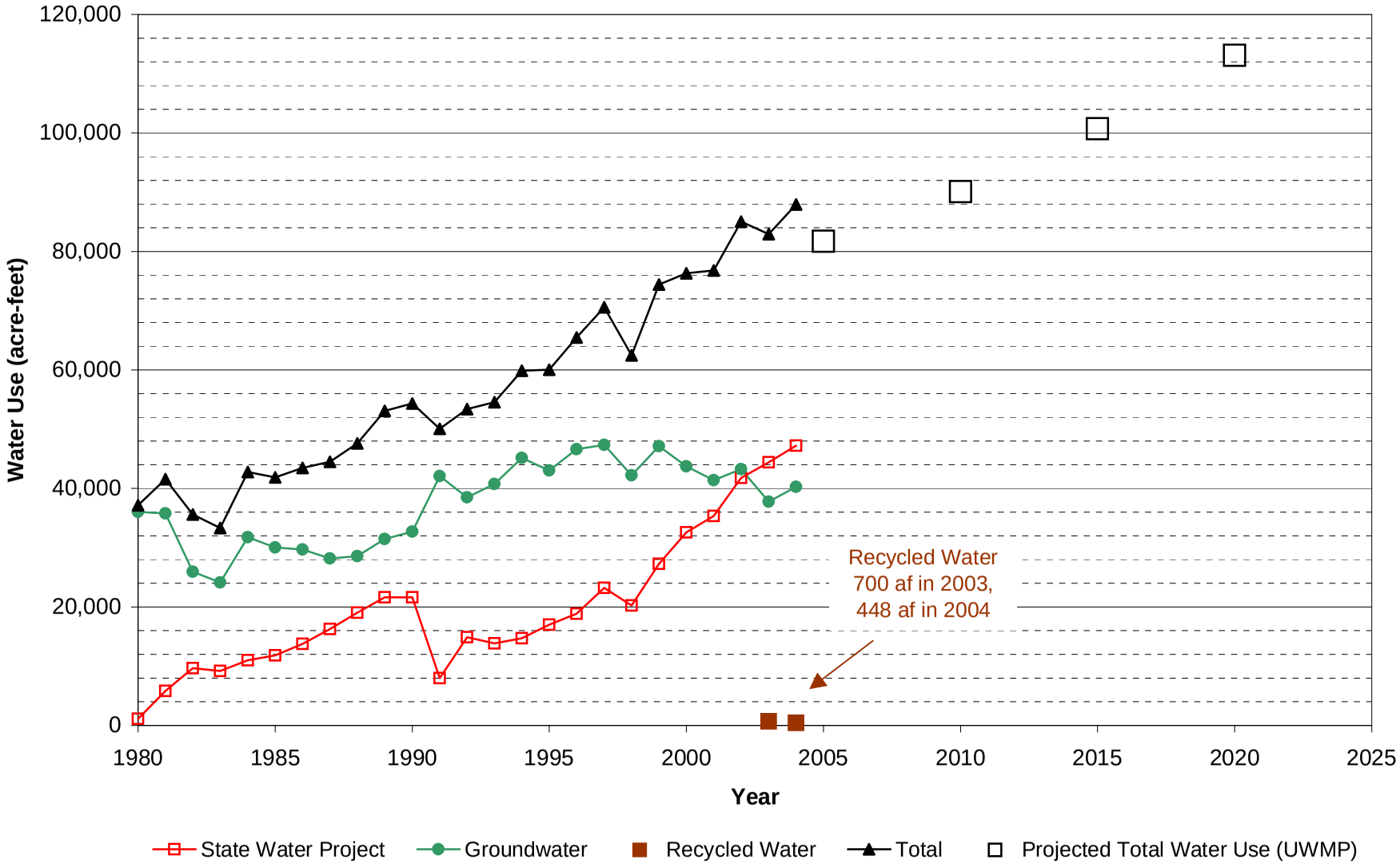


Figure IV-1