

# Inglewood Hydraulic Fracturing Study -- Background

- Study being conducted as a condition of the 7/15/11 settlement reached between L.A. County, PXP, Community Health Councils, CCSC, NRDC and other parties
- Condition 13 of the settlement requires the following:
  - PXP to retain and pay for an independent consultant to study the feasibility and potential impacts of the types of fracturing operations PXP may conduct in the Oil Field
  - Study must look at potential impacts to groundwater and subsidence among other topics
  - Study must consider historic and current use of gravel packing
  - Study and all the back-up information shall be reviewed by a qualified independent peer reviewer selected by the county and PXP
- First study of this nature in California

# Inglewood Hydraulic Fracturing Study -- Timelines

- Study must be completed and submitted to peer reviewer within twelve months of the date of the Agreement (7/15/12)
- Estimate peer reviewer will require approximately 1 month for review
- Under the terms of the settlement, if the peer reviewer determines the study is inadequate or requires additional information, the PXP retained consultant has 90 days to provide a revised draft of the study for supplemental review
- Once peer reviewer accepts and validates substance of the study, the study and all supporting non proprietary material will be forwarded to L.A. County, DOGGR, Regional Water Quality Control Board (RWQCB), Community Advisory Panel (CAP), settling parties, and public
- Current estimates place public release of study at mid to late August, 2012.

## Hydraulic Fracturing - Definition

- “Hydraulic Fracturing” is an overly broad term; definitions differ for engineering and regulatory purposes
- “The pumping of a fluid with proppant to create and maintain fractures as a stimulation method to increase productivity...” – *NY State CCR 550.3*
- “Hydraulic fracturing is the use of fluid and material to create or restore small fractures in a formation in order to stimulate production from new and existing oil and gas wells” – *Groundwater Protection Council*
- “The treatment of a well by the application of hydraulic fracturing fluid under pressure for the express purpose of initiating or propagating fractures in a target geologic formation to enhance production of oil and/or natural gas” – *TX Administrative Code Title 16, Part 1, Chapter 3, Rule 3.29*
- “Hydraulic Fracturing Treatment shall mean all stages of the treatment of a well by the application of hydraulic fracturing fluid under pressure that is expressly designed to initiate or propagate fractures in a target geologic formation to enhance production of oil and natural gas.” – *CO Code of Regulations 2 404-1, 100 Series*

# Types of Hydraulic Fracturing

- Distinctions made between the various “types” of hydraulic fracturing techniques
- High Rate Gravel Packs
  - Typical completion used at Inglewood Oil Field
  - Not designed to stimulate the oil/gas reservoir
  - Designed to fill and prop open perforations to ensure continuous oil flow and prevent unconsolidated formation sand from entering the wellbore
  - Typically utilizes between 42,000 – 250,000 gallons of fluid
- High Volume Hydraulic Fracturing (HVHF)
  - Used in the completion of tight gas and shale gas and oil wells with extremely low permeability
  - Definitions vary; generally defined as a stimulation technique utilizing > 80,000 gallons per stage
  - NY State regulations define HVHF as stimulation technique that uses more 300,000 gallons of fluid per well (*NY State CRR 750 3.2*)
  - HVHF treatments using less than 1,000,000 gallons of fluid may also be classified by engineers as conventional hydraulic fracturing
  - HVHF treatments in shale gas and oil formations with extremely low permeability may use as much as 2,000,000 to 5,000,000 gallons of fluid per well
  - HVHF is the type of activity that is the current focus of policy and media discussions

## Recent Hydraulic Fracturing Activity at Inglewood

- Shale at IW Oil Field has different characteristics than shale formations in PA and TX
- Two wells hydraulically fractured as part of “frac study”
- Tests meet definition of HVHF – albeit on extreme low end of spectrum
- VIC I-330
  - Fracked September 2011
  - Fracked at depth between 8,030 – 8,050’
  - Approximately 168,000 gallons of fluid used
- VIC I-635
  - Fracked January 2012
  - Fracked at depth between 8,430 – 8,450’
  - Approximately 125,000 gallons of fluid used
- Wells listed on [www.FracFocus.org](http://www.FracFocus.org); Complete listing of chemicals and concentration used in HVHF treatment available online