



THE STATE BAR OF CALIFORNIA

Environmental Law Section

How Blue is Your Valley? Your Voice, Your Future: A Community Conference on Water in the San Joaquin Valley

Fracking in the San Joaquin Valley: What Does It Mean to You and Your Water Supply?

Friday, April 24, 2015
3:30 p.m.-5:00 p.m.

Moderator: K. Eric Adair
Panelists: Caroline Farrell, Jonathan Bishop, Peter Duchesneau and Catherine Engberg

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Model Criteria for Groundwater Monitoring – SB 4



Jonathan Bishop

State Water Resources Control Board

Presentation Overview

- Background
- Interim Groundwater Monitoring
- Development of Model Criteria
- Project Timeline

Background

- **DOGGR Draft Regulations** released Jan 2013
- **Public concern about water quality**
- **Senate Bill 4** (SB 4 Pavley, statutes of 2013)
 - Oil and Gas Well Stimulation – including hydraulic fracturing and acid well stimulation

Initial SB 4 Activity

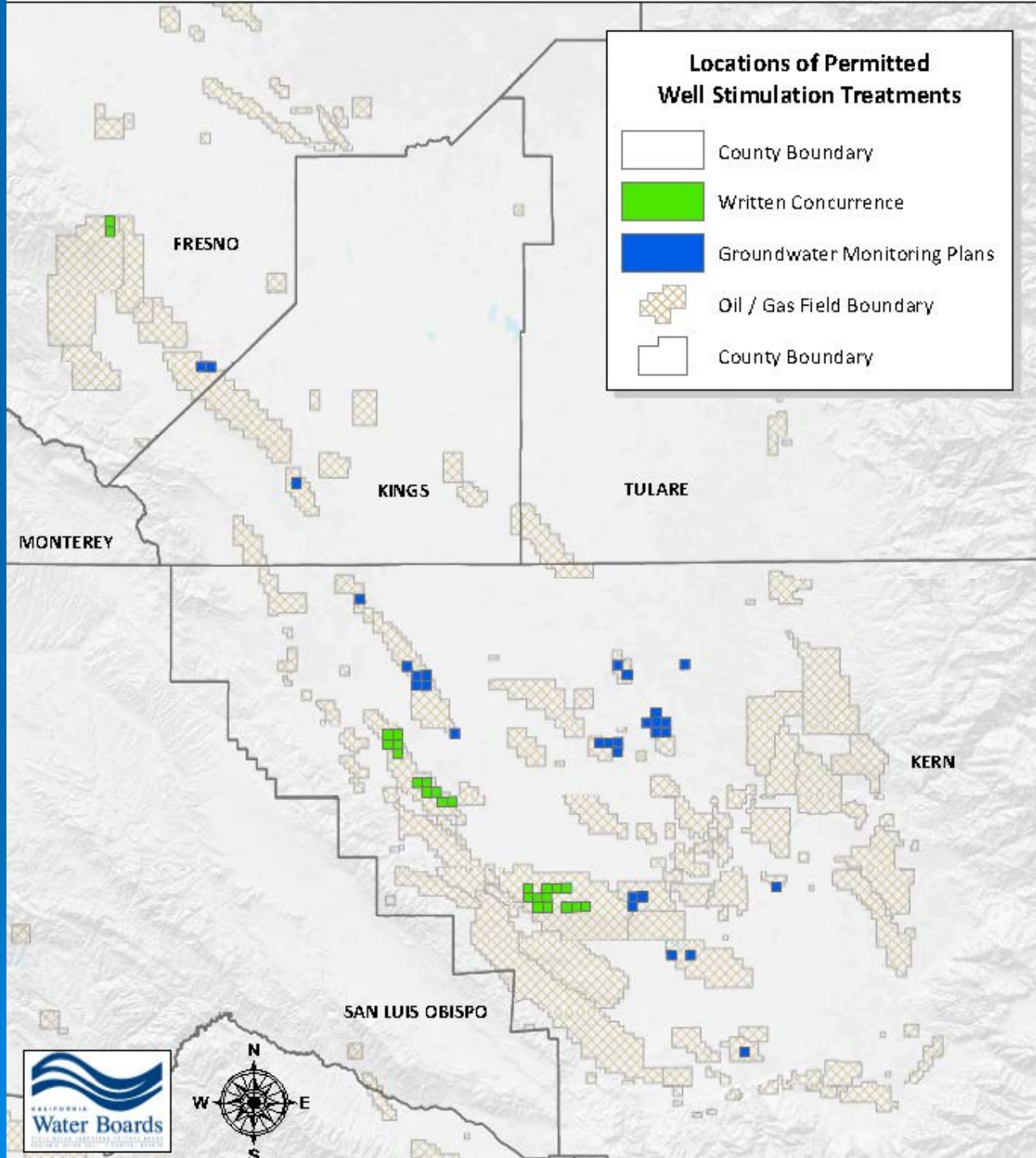
- **DOGGR Emergency Interim Regulations**
 - Includes current groundwater monitoring requirements
 - Active until July 1, 2015
- **Memorandum of Agreement (MOA)** on roles and responsibilities for SB4
 - Becomes effective July 1, 2015

Interim Groundwater Monitoring

➤ As of April 2015:

- 28 Groundwater Monitoring Plans Reviewed
 - ✓ 20 processed
- 31 Requests for Written Concurrence Reviewed
 - ✓ 20 agreed to
- 1044 Well Stimulation Permits processed in 2014

➤ Majority of well stimulation and groundwater monitoring takes place in Kern County



Interim Groundwater Monitoring (cont.)

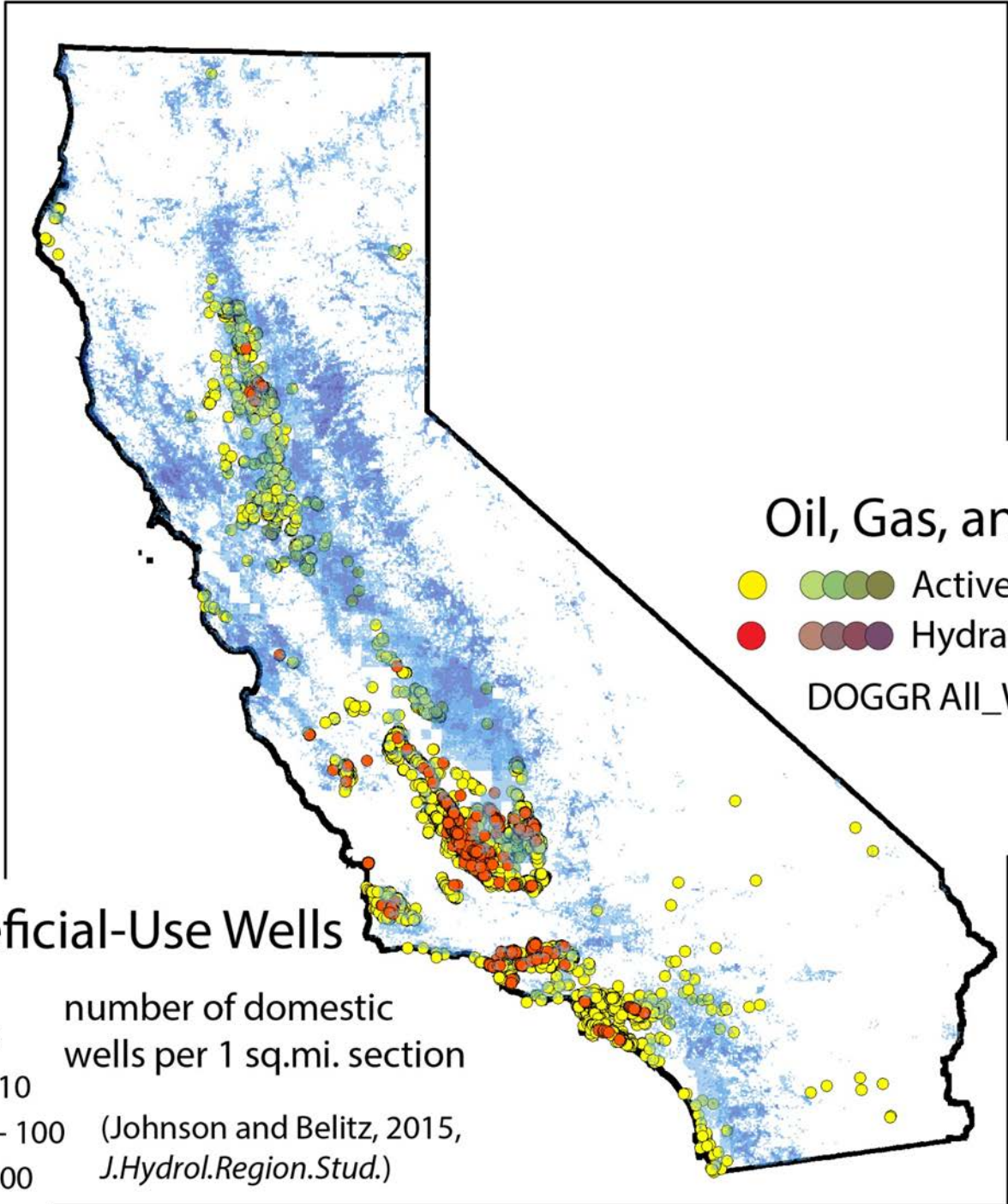
➤ Neighbor Requested Sampling:

- Property owners within 1,500 feet can request their water to be sampled
- Designated samplers (third party) perform sampling
- As of March 2015, one property owner has requested water to be sampled



Other Related Oil and Gas Activities

- Review of oil and gas wastewater disposal:
 - Aquifer exemption submittals
 - Underground Injection Control (UIC) wells – identify those potentially impacting water supply wells
 - Proposed UIC well projects
 - Produced water ponds (sumps)



Oil, Gas, and UIC Wells

- ● ● ● Active, idle, and new
 - ● ● ● Hydraulically fractured
- DOGGR All_Wells_11-19-14

Beneficial-Use Wells

- 0 number of domestic wells per 1 sq.mi. section
- < 3
- 3 - 10
- 10 - 100 (Johnson and Belitz, 2015, *J.Hydrol.Region.Stud.*)
- > 100

Development of Model Criteria for Groundwater Monitoring



Development of Model Criteria

- **Water Boards to oversee groundwater monitoring**
 - Develop “model criteria” for groundwater monitoring July 2015
 - Implement regional groundwater monitoring January 2016
- **The model criteria are to:**
 - Protect all waters designated for beneficial uses
 - Prioritize monitoring that is or has the potential to be a source of drinking water

Development of Model Criteria

- Lawrence Livermore National Laboratory (LLNL) to provide recommendations
- Model criteria is being developed in consultation with:
 - DOGGR
 - Technical Experts
 - Public Stakeholders
- U.S. Geological Survey collecting and analyzing data to develop model criteria

Development of Model Criteria

➤ Components:

- Groundwater monitoring near stimulated wells (Operators)
- Regional-scale monitoring (State Water Board)

➤ Model Criteria to include:

- Monitoring methods
- Chemicals to analyze
- Frequency/duration
- Areas to monitor



Project Timeline

- **August 2014** - Public stakeholder kickoff meetings
- **December 11, 2014** – LLNL hosted meeting with technical experts and stakeholders on model criteria design
- **April 8, 2015** - Board informational item for status of model criteria development
- **April 29, 2015** - Begins 30-day public comment period for draft model criteria

Project Timeline (cont.)

- **May 20, 2015** - State Water Board Workshop
- **June 19, 2015** -10 day public comment period for final model criteria
- **July 7, 2015** - Water Boards to develop final model criteria
- **January 1, 2016** - State Water Board to implement regional groundwater monitoring

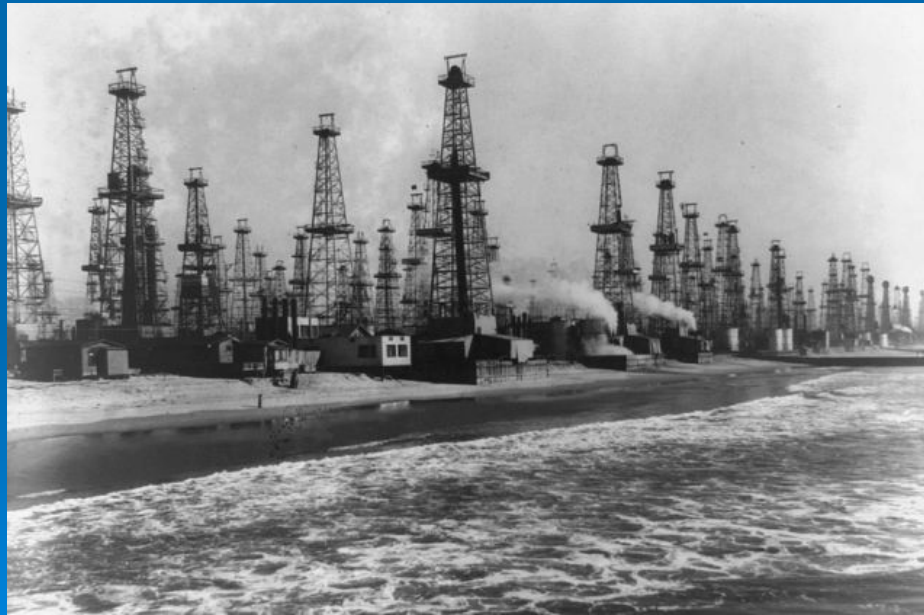
Additional Information

➤ **State Water Board Web Site**

http://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4.shtml

➤ **DOGGR Web Site**

<http://www.conservation.ca.gov/dog/Pages/WellStimulation.aspx#Item1>





Local Control of Oil and Gas Operations: Recent Efforts to Address Fracking at the Local Level

Catherine C. Engberg
April 24, 2015

Local Land Use Measures

- Discretionary permits prior to fracking
 - Santa Barbara County (2011)
 - San Benito County (2013)
 - Monterey County (upcoming)
- All oil and gas land uses prohibited
 - Santa Cruz County (2013)
 - Hermosa Beach (1932, 2015)



Marcellus Shale Fracking Operation

Local Land Use Measures

- Zoning regulations prohibiting fracking
 - City of Beverly Hills (2014)
 - City of Los Angeles (upcoming)
- Bans that failed to move forward
 - Carson City
 - City of Compton
 - Butte County



New Mexico Fracking Operation
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Local Land Use Measures

- City of Beverly Hills ordinance – adopted May 2014

“Notwithstanding any other provision of this article, it shall be unlawful to use or cause to be used hydraulic fracturing, acidizing, or any other well stimulation treatment in conjunction with the production or extraction of oil, gas or other hydrocarbon substances from any surface location in the City or from any site outside the City limits where the subsurface bottom hole is located in the City.”



Local Land Use Initiatives

- Nov. 2014 Ballot
 - Santa Barbara Cnty (fail)
 - San Benito Cnty (pass)
 - Mendocino Cnty (pass)
- Mar. 2015 Ballot
 - La Habra Heights (fail)
- Nov. 2016 Ballot
 - Butte County



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San Benito County Measure J

Findings

- These operations are different.
- Water supplies should be preserved for agricultural and municipal uses.
- Cannot afford the risks of groundwater and surface water pollution.
- Inconsistent with agricultural heritage.
- Earthquake risks are already too high.
- Emissions will degrade air quality.
- Not the way to grow a healthy economy.

Initiative Measure to be Submitted Directly to the Voters
The county counsel has prepared the following title and summary of the chief purpose and points of the proposed measure:

Ballot Title and Summary

Initiative to Ban Well Stimulation Treatments and Enhanced Recovery (such as Fracking and Steam Injection) throughout all Unincorporated Areas of San Benito County and to Ban All Petroleum Operations in Residential General Plan Designations in Unincorporated San Benito County and Make Related Zoning Changes

The proposed initiative would adopt new General Plan policies to prohibit:

(a) the use of any land within the County's unincorporated area for "High-Intensity Petroleum Operations", as defined by the initiative to include well stimulation treatments (such as hydraulic fracturing, also known as fracking, and acid well stimulation treatments) and enhanced recovery wells (such as cyclic steam injection), and

(b) the use of land with a residential General Plan land use designation —i.e., lands designated Rural, Rural Transitional, Rural Residential, Rural/Urban, and Sphere of Influence Rural/Urban—within the County's unincorporated area for any Petroleum Operations.

"Petroleum Operations" includes all activities in connection with the exploration, drilling for, and the production of petroleum, gas and other hydrocarbons.

The initiative would establish a one-year amortization period for any existing High-Intensity Petroleum Operation(s) land use that has obtained a vested right under state law, as determined by the Planning Commission. The initiative provides a process by which well owners and operators may seek a determination from the Planning Commission to allow vested "High-Intensity Petroleum Operations" land uses to continue by an extension of the amortization period up to a maximum of three years. The initiative would not apply to any "Low-Intensity Petroleum Operation", as defined, that has obtained a vested right under state law by the time the measure becomes effective.

The measure would also add new sections to the Zoning Title (Title 25) and the Oil and Gas Well Chapter (Chapter 19.21) of the San Benito County Code to implement the new General Plan policies. Section 25.29.161 would prohibit any development or construction or use of facilities or equipment for "High Intensity Petroleum Operations." Section 25.29.162 would prohibit the development, construction, or use of any facilities or equipment for Petroleum Operations in Rural and Residential Zoning Districts, e.g. Rural (R), Rural Transitional (RT), Rural Residential (RR), Single-Family Residential (R1) and Residential Multiple (RM), except to the extent that "Low-Intensity Petroleum Operations" had already obtained a vested right.

General Plan policies and County Code provisions adopted through the initiative could not be amended or repealed except by a vote of County voters. The San Benito County Board of Supervisors may grant exceptions to application of the Initiative if the Board finds that the application would constitute a unconstitutional taking of property and the exception would be such to allow land uses only to the minimum extent necessary to avoid a unconstitutional taking.

The Initiative provides that the Board of Supervisors shall take all steps reasonably necessary to enforce the Initiative and defend it against any challenge.

If another measure appears on the same ballot and conflicts with any portion of the Initiative, then the measure receiving the most votes shall prevail.

NOTICE TO THE PUBLIC
THIS PETITION MAY BE CIRCULATED BY A PAID SIGNATURE GATHERER OR A VOLUNTEER. YOU HAVE THE RIGHT TO ASK.

ALL SIGNERS OF THIS PETITION MUST BE REGISTERED VOTERS IN SAN BENITO COUNTY

		Official Use Only
Print Name: _____	Residence Address ONLY: _____	
1. _____ (Signature)	(City)	
Print Name: _____	Residence Address ONLY: _____	
2. _____ (Signature)	(City)	
Print Name: _____	Residence Address ONLY: _____	
3. _____ (Signature)	(City)	
Print Name: _____	Residence Address ONLY: _____	
4. _____ (Signature)	(City)	

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San Benito County Measure J

“The development, construction, installation, or use of any facility, appurtenance, or above-ground equipment, whether temporary or permanent, mobile or fixed, accessory or principal, in support of High-Intensity Petroleum Operation(s) is prohibited on all lands within the County’s unincorporated area.”

Proposed cyclic steaming
project in San Benito



San Benito County Measure J

- “High-Intensity Petroleum Operations” means
 - (1) Well Stimulation Treatments and/or
 - Defined per SB4, includes fracking and acid matrix stimulation
 - (2) Operation of Enhanced Recovery Wells
 - Defined per County Code, includes waterflooding, steamflood injection, and cyclic steaming

Cyclic steaming
cogeneration plant



San Benito County Measure J

- Measure bans all oil and gas in residential areas
- Measure does not apply to:
 - Conventional, low-intensity operations outside residential areas
- Amortization period to phase out prohibited operations with a vested right
- Authorizes Board of Supervisors to grant exemptions when necessary to avoid an unconstitutional taking



Litigation?

- San Benito adopted implementing ordinances for considering vested rights and takings exemptions
 - Takings claims filed in San Benito
 - No exemption requests to date
- *Citadel v. County of San Benito*, San Benito Superior Court, filed Feb. 27, 2015 (State law preemption claims only)



State Law Recognizes Concurrent Local Authority

- Pub. Res. Code § 3012
 - State oil and gas laws “apply to any land or well situated within the boundaries of an incorporated city in which the drilling of oil wells **is now or may hereafter be prohibited**”
- Pub. Res. Code § 3690
 - “This chapter shall **not be deemed a preemption** by the state of any existing right of cities and counties to enact and enforce laws and regulations **regulating the conduct and location of oil production activities**, including, but not limited to, zoning, fire prevention, public safety, nuisance, [etc.]”
- 59 Ops. Cal. Atty. Gen. 461, 466 (1976)
 - “It is our opinion that cities and counties have the power to prohibit such [oil and gas] operations.”
 - Distinguishes between local regulations of surface (not pre-empted) and subsurface (pre-empted) activities

SB4 Savings Clause

- Senator Pavley SB4 Intent Letter
 - “In accordance with the savings clause in section 3160(n), [SB 4 is] **not intended to preempt** ... local government’s authority over land use.”
- Pub. Res. Code § 3160(n)
 - “This article does not relieve the division or any other agency from complying with any other provision of existing laws, regulations, and orders.”

Regulatory Takings Challenges

- Takings exception generally prevents facial takings claims
- As-applied challenges face a high bar
 - “Per se” taking must deprive landowner of 100% of the total economic value
 - Under *Penn Central*, taking must cause **substantial** diminution in value

Discussion



Hernandez Valley, San Benito County

Fracking in the San Joaquin Valley:

Mixing Oil and Environmental Justice

By Caroline Farrell

Executive Director, the Center on Race, Poverty & the Environment



Foundation of Environmental Justice

- Title VI, Civil Rights Act of 1964

Prohibits discrimination in services and programs against people in the United States on the **basis of race, color, and national origin by recipients of federal financial assistance.**

- Codified at 42 USC §2000d

- California Government Code § 11135 (a)

Prohibits discrimination on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, genetic information, or disability, in any program or activity by the state or by any state agency, or a recipient of any financial assistance from the state.

What is Environmental Justice?

- Environmental Justice is the **fair treatment** and **meaningful involvement** of all people regardless of **race, color, national origin, or income** with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
 - US Environmental Protection Agency definition, <http://www.epa.gov/environmentaljustice/>
- "The **fair treatment** of people of **all races, cultures, and incomes** with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies."
 - California Government Code Section 65040.12(e)
- The **right to a clean environment** where people live work play and pray.
 - Community Definition, <http://deohs.washington.edu/environmental-justice>

What is Fracking?

- A type of enhanced well stimulation
- Creates fractures in reservoir rocks in order to enhance the flow of fluids, including water, oil, or natural gas to the well.
- The operator pumps fluids containing a variety of chemicals into a zone of the well at high pressure to fracture the rock. Then, the operator pumps chemically treated silica sand called “proppant” into the fractures to keep them open during subsequent production.

<http://ccst.us/publications/2015/2015SB4-v1.pdf>

The San Joaquin Valley: The Intersection of Environmental Justice & Fracking

- About 95% of reported hydraulic fractures in California were in the San Joaquin Valley, nearly all in four oil fields in Kern County.
- It is expected this practice will continue in existing oil fields the San Joaquin Valley (likely Kern and Fresno) for the foreseeable future.
 - California Council on Science and Technology, An Independent Assessment of Well Stimulation in California, January 2015,
<http://ccst.us/publications/2015/2015SB4-v1.pdf>

Environmental Justice in the San Joaquin Valley

Key References:

CalEnviroScreen 2.0

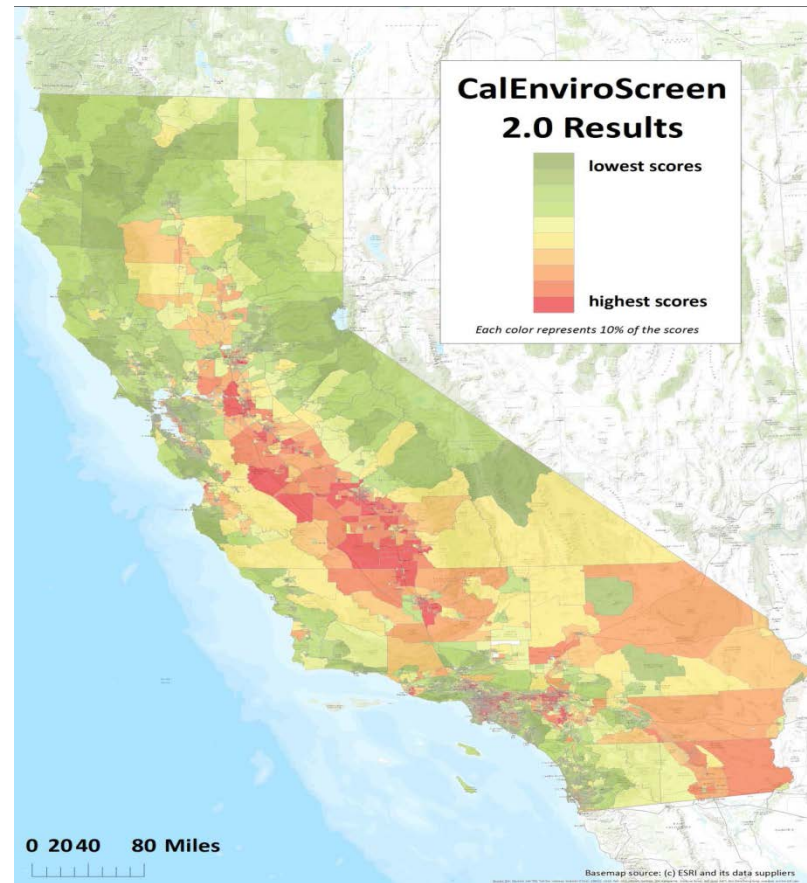
- <http://oehha.ca.gov/ej/ces2.html>

Drilling in California : Who is at Risk?

- NRDC Report, October 2014,
<http://www.nrdc.org/health/files/california-fracking-risks-report.pdf>

Hydraulic Fracturing Stimulations
and Oil Drilling Near California
Schools and within School Districts
Disproportionately Burdens
Hispanic and Non-White Students.

- Kyle Ferrer, the FracTracker Alliance ,
November 2014,
http://www.fracktracker.org/a5ej20sjfwe/wp-content/uploads/2014/11/FracTracker_SchoolEnrollmentReport_11.17.14.pdf



Environmental Justice & Enhanced Stimulation

- 55 census tracts in Kern County are among top 20% most impacted according to OEHHA
- 290,000 or 35% of the County's population lives within one mile of a well.
- 122,000 people live within one mile of a well and within one of the most vulnerable census tracts- 76% are people of color.
- 62.5% of students in the State attending schools within 1 mile of oil and gas well that has been fracked are Latino, 83.8% are students of color.
- 61.6% of students in the State attending school within half a mile of a well that has been fracked are Latino, 89.9% are students of color.
- The top 11 school districts with the highest well counts are located in the San Joaquin Valley. Ten of those school districts are located in Kern County, the other is located in Fresno County.

Water Impacts and Environmental Justice

- Life Cycle Concerns
 - Amount of Water Used
 - Undisclosed Chemicals
 - Exemptions from Federal Environmental Laws
 - Possible Groundwater Contamination during the process
 - Possible Groundwater Contamination from disposal of wastewater

Ways to Eliminate Disparities

- Local Land Use: Ordinances banning or regulating fracking, zoning restrictions, setbacks from sensitive receptors.
- Community Monitoring: Kern Environmental Enforcement Network, Fresno Environmental Reporting Network.
- Increased Enforcement by regulatory agencies.
- Increased transparency of location of fracking operations, and disclosure of chemicals.

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State Bar of California, Environmental Law Section

**Fracking in the San Joaquin Valley: What Does It
Mean to You and Your Water Supply?**

***An Independent Scientific Assessment of Well
Stimulation in California - Volume I***

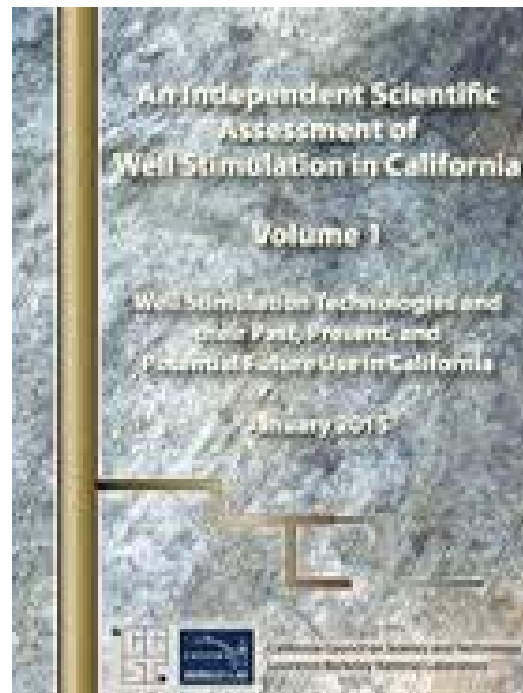
Peter Duchesneau, Esq.

Manatt, Phelps & Phillips, LLP

April 24, 2015

- **SB4** requires the Natural Resources Agency to conduct an independent scientific study on well stimulation treatments, including hydraulic fracturing and acid well stimulation treatments. The scientific study shall evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. Public Resources Code § 3160(a).
 - Volume I - Describes well stimulation technologies, how and where operators deploy these technologies for oil and gas production in California, and where they might enable production in the future (January 2015).
 - Volume II – Will address how well stimulation affects water, the atmosphere, seismic activity, wildlife and vegetation, traffic, light and noise levels and explore human health hazards, and identify data gaps and alternative practices (to be released July 2015).
 - Volume III – Will provide case studies to assess environmental issues and qualitative risks for specific geographic regions (to be released July 2015).

- *An Independent Scientific Assessment of Well Stimulation in California (ISAWSC) - Volume I, Well Stimulation Technologies and their Past, Present, and Potential Future Use in California (January 2015)*



http://ccst.us/projects/hydraulic_fracturing_public/SB4.php

▪ California Council on Science and Technology

CCST is a non-profit organization established in 1988 at the request of the California State Government and sponsored by the major public and private postsecondary institutions of California and affiliate federal laboratories in conjunction with leading private-sector firms. CCST's mission is to improve science and technology policy and application in California by proposing programs, conducting analyses, and recommending public policies and initiatives that will maintain California's technological leadership and a vigorous economy.



▪ Lawrence Berkeley National Laboratory

Berkeley Lab is a member of the national laboratory system supported by the U.S. Department of Energy through its Office of Science. It is managed by the University of California (UC) and is charged with conducting unclassified research across a wide range of scientific disciplines.



- Overview CCST ISAWSC – Volume I
 - Hydraulic Fracturing of Onshore Oil Wells
 - Stimulation of Dry Gas Wells
 - Hydraulic Fracturing Offshore
 - Acid Stimulation

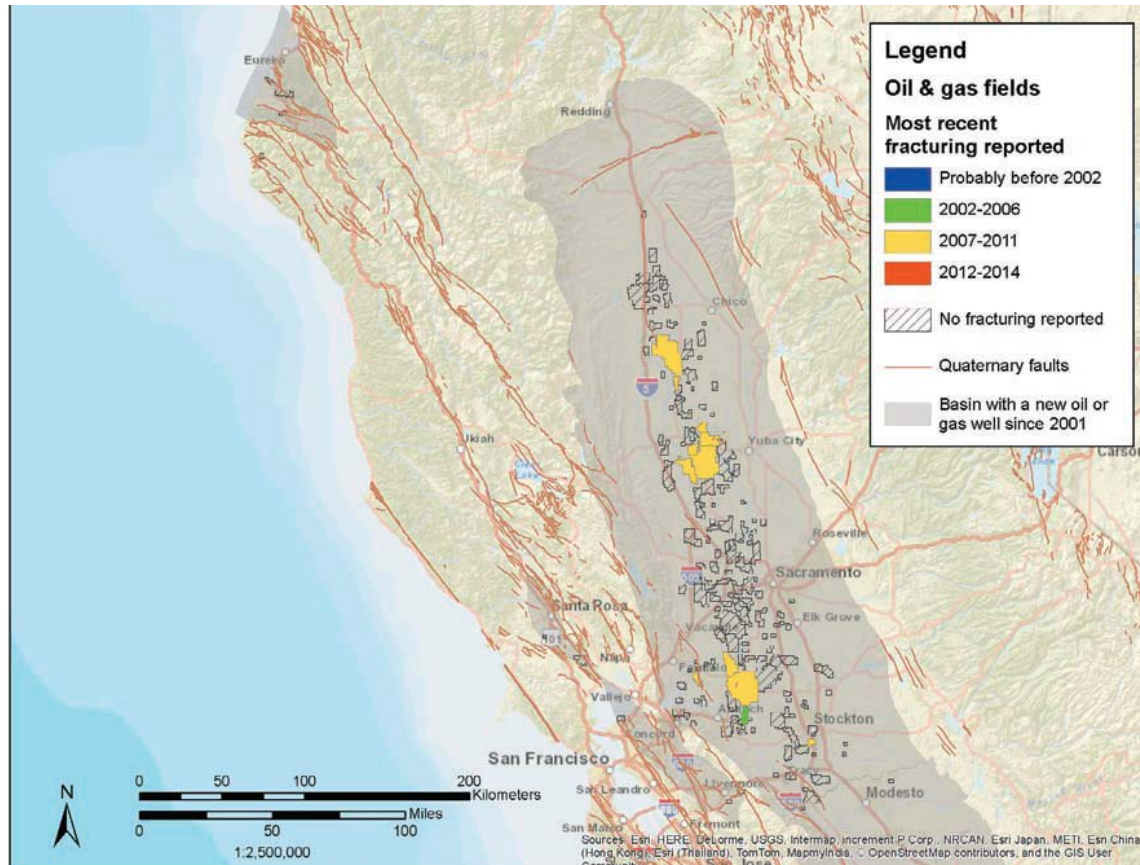
Note: The information herein is a solely intended to provide a summary of the findings and conclusions of ISAWSC – Volume I. It does not necessarily constitute the opinion of the presenter or Manatt.

▪ Hydraulic Fracturing of Onshore Oil Wells

- Almost all hydraulic fracturing in California occurs in the San Joaquin Basin in wells that produce primarily oil.
- Hydraulic fracturing has been applied in numerous oil fields in California for decades, starting in 1953. The use of hydraulic fracturing increased substantially with the development of some of California's largest oil accumulations in the late 1970s and early 1980s, just before oil production in the state peaked.
- Current hydraulic fracturing activities in California are different than in other states, and as such recent experiences with hydraulic fracturing in other states do not necessarily apply to current hydraulic fracturing in California.
- Current hydraulic fracturing in California tends to be performed in shallower wells that are vertical as opposed to horizontal; and requires much less water per well, but uses fluids with more concentrated chemicals than hydraulic fracturing in other states.
- Consequently, the practices and impacts of hydraulic fracturing in other states do not directly apply to current hydraulic fracturing in California.

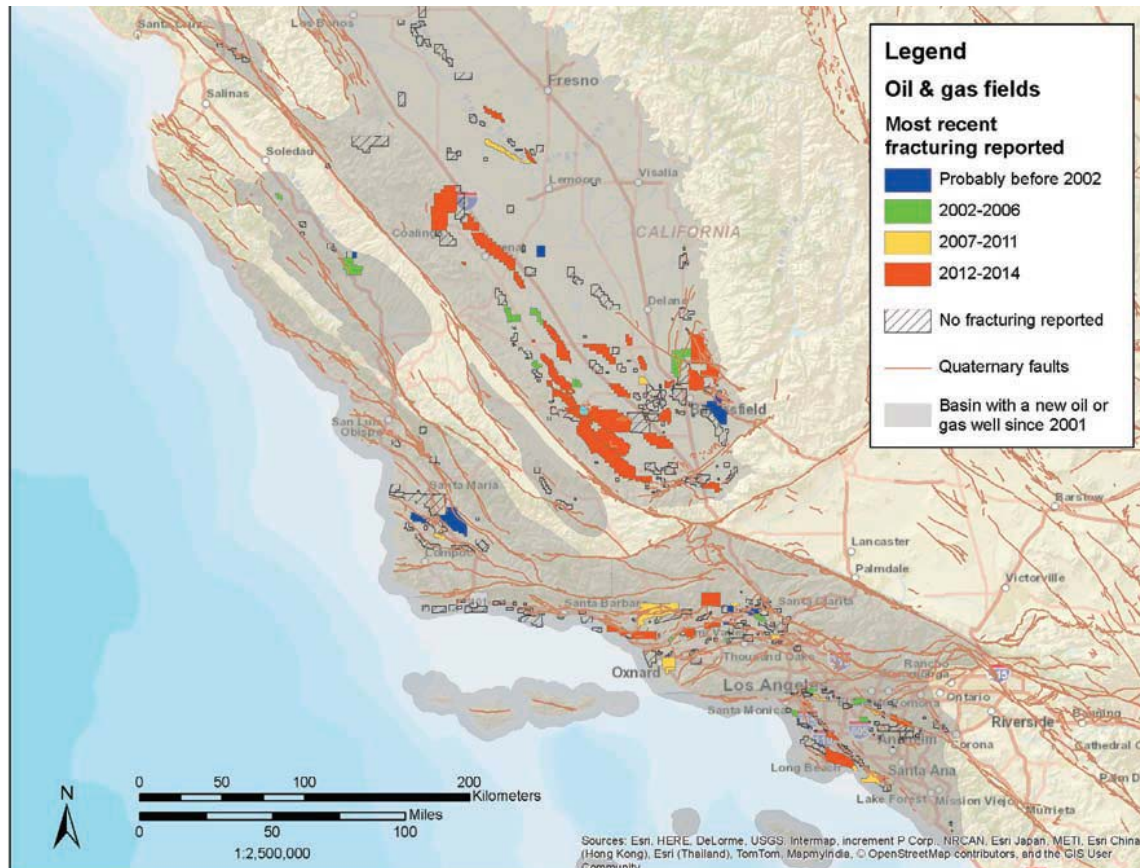
▪ Hydraulic Fracturing of Onshore Oil Wells (Cont.)

- Over the last decade, about one fifth of oil production in California came from wells that had been subject to hydraulic fracturing.
- In this time period, operators fractured about 125 to 175 wells of the approximately 300 wells installed per month in California. Available data indicate that hydraulic fracturing has been the main type of well stimulation.
- The vast majority of hydraulic fracturing in the state takes place in the San Joaquin Basin in reservoirs that depend on this technology for economic production.
- The most likely scenario for future oil recovery using hydraulic fracturing is expanded production in and near existing oil fields in the San Joaquin Basin in a manner similar to the production practices of today. A significant amount of oil remains in these reservoirs and highly likely that continued production in these reservoirs will use hydraulic fracturing.



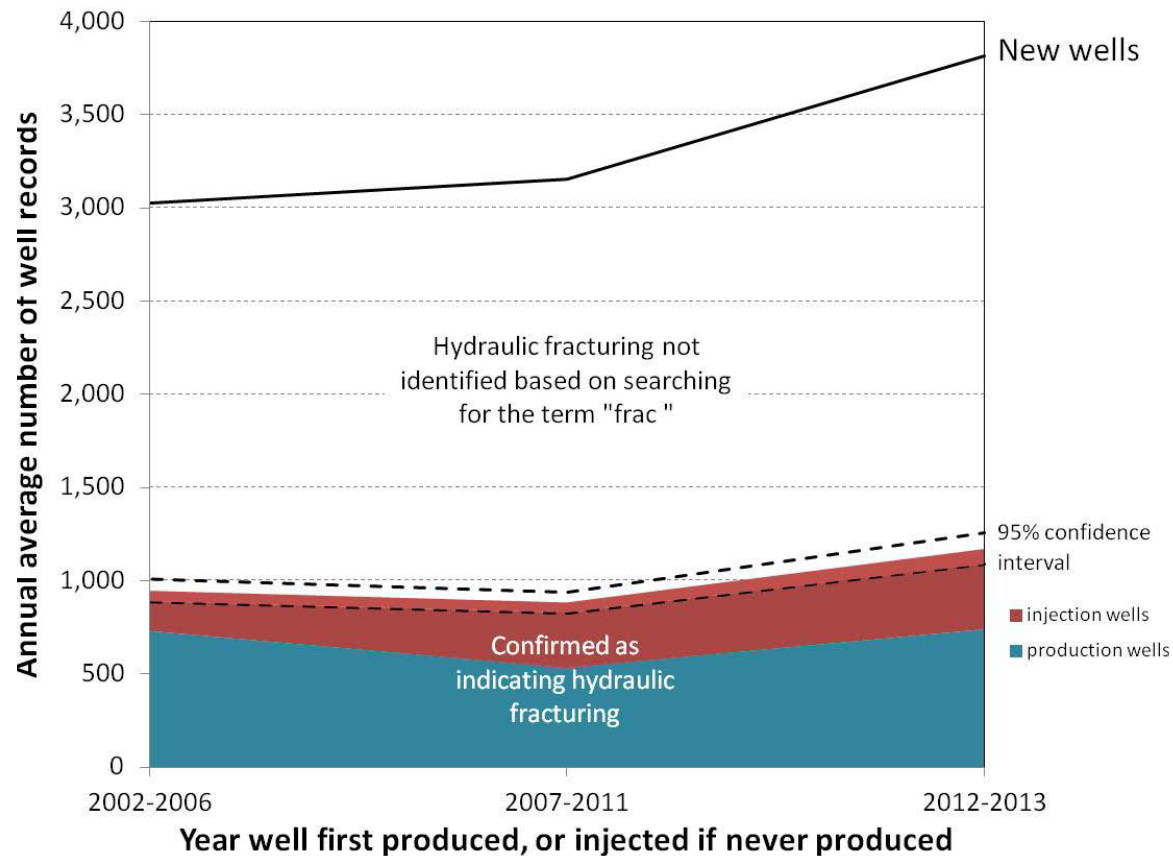
CCST ISAWSC – Volume I, Figure 3-11.

Oil and gas fields with an administrative boundary defined by DOGGR (DOGGR, 2014b) and a record of hydraulic fracturing in northern California.



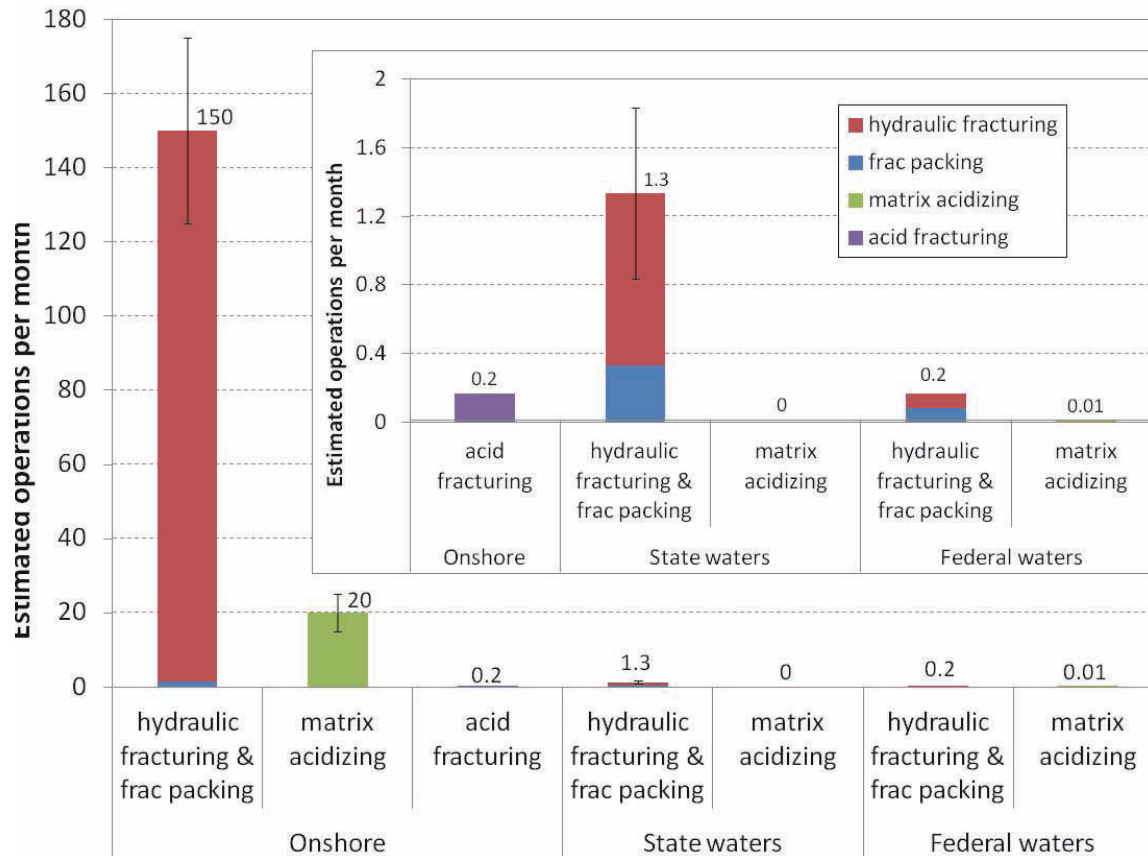
CCST ISAWSC – Volume I, Figure 3-11.

Oil and gas fields with an administrative boundary defined by DOGGR (DOGGR, 2014b) and a record of hydraulic fracturing in central and southern California.



CCST ISAWSC – Volume I, Figure 3-5.

Average annual number of well records confirmed as indicating hydraulic fracturing for wells first producing or injecting from 2002 to September 2013.



CCST ISAWSC – Volume I, Figure 3-25.

Estimated recent well stimulation activity in California (2012 and 2013). The inset shows the smaller rates on an expanded scale. (Modified without arrows/question marks indicating rates estimated from one, non-comprehensive data source.)

▪ Stimulation of Dry Gas Wells

- Dry (non-associated) gas wells are rarely stimulated. CCST does not expect this to change in the near future.
- Approximately ten dry gas wells per month were installed on average from 2002 through 2011, of which about one was hydraulically fractured. CCST found no records of hydraulic fracturing or acid stimulation of gas wells since 2011.
- Almost all wells that produce primarily gas are located in Northern California. Most of the gas production in the state is not from dry gas wells, but from wells that primarily produce oil.
- Most of the remaining undiscovered non-associated natural gas in California is likely to be similar to reservoirs in production today that do not use well stimulation technology.
- To enhance storage, about a third of natural gas subsurface storage wells in the state are hydraulically fractured, with most in one facility serving southern California. CCST expects practice to continue given the importance of facilities to balance urban natural gas demand from season to season.

▪ Hydraulic Fracturing Offshore

- Hydraulic fracturing is used in a small proportion of offshore wells. The majority of offshore production takes place without hydraulic fracturing.
- Most of the limited hydraulic fracturing activity is conducted on man-made islands close to the Los Angeles coastline in the Wilmington field.
- The only available survey of stimulation in federal waters records 22 fracturing stimulations conducted or planned from 1992 through 2013, compared to more than 200 wells installed during that period.
- Current production from offshore platforms uses some well stimulation to marginally improve productivity, but most production does not require well stimulation.
- About 10-40% of fracturing operations in wells in state waters and half of operations in federal waters were frac-packs, which is employed to deal with formation damage around a production well and/or sand production into the well.
- New production, if ever permitted (given restrictions of new production offshore), would likely resemble existing production.

▪ Acid Stimulation

- Use of acid for well stimulation reported much less often than hydraulic fracturing (about 10% as often as hydraulic fracturing in California).
- Of the known operations, most are matrix acidizing treatments conducted in oil wells in the San Joaquin Basin, with nearly all reported acid stimulation in the southwestern portion of the San Joaquin Basin.
- Operators commonly use acid treatments for well maintenance and remediation of damage caused by drilling.
- Although acid is commonly used for well maintenance and remediation, acid stimulation does not represent an important well stimulation technology in California compared to hydraulic fracturing.
- Geologic conditions in the state's oil reservoirs are not amenable to effective acid stimulation treatment. As such, acid is not useful now or in the future for creating major increases in the permeability of the formation.
- Acid stimulations in California reservoirs are not expected to lead to major future increases in oil and gas development in the state.



K. Eric Adair is a partner with the law firm of Hinson Gravelle & Adair LLP in Valencia, California. Eric's practice focuses on litigation involving natural resources claims and commercial disputes. He has practiced in the environmental and oil and gas arenas for most of his career, including as in-house counsel with Texaco Inc. and in the natural resources practice group at Gibson Dunn & Crutcher LLP, before forming his current firm with colleagues from Texaco. Eric has developed particular expertise on the legal and environmental issues associated with hydraulic fracturing, a topic on which he has written and spoken extensively.

Eric is an incoming member of the Executive Committee of the Environmental Law Section of the State Bar of California. He is also a member of the Executive Committee of the Los Angeles County Bar Association's Environmental Law Section. He is a graduate of the J. Reuben Clark Law School at Brigham Young University.

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JONATHAN BISHOP
Chief Deputy Director
State Water Resources Control Board



Jonathan has served as Chief Deputy Director at the State Water Board since 2007, where he oversees the Division of Water Quality and the Division of Financial Assistance, amongst other responsibilities. Jonathan worked for the Los Angeles Regional Water Quality Control Board for 23 years before being named as Executive Director of the regional board in 2004. Some of the highlights of Jon's tenure with the Los Angeles Regional Board include the development of a new program to investigate the sources of groundwater contamination impacting drinking water wells, the development of a comprehensive water quality data management system, and, the adoption of the first urban trash TMDL in the nation. Jonathan received a Bachelor's of Science degree in Environmental Engineering with an emphasis in water quality from Humboldt State University.



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PROFESSIONAL EXPERIENCE

Peter Duchesneau's practice focuses on most aspects of environmental law involving litigation, administrative proceedings, regulatory compliance and business transactions. He handles complex environmental litigation in federal and state courts, including CERCLA, RCRA, Clean Water Act, products liability, toxic tort, and Proposition 65 actions, among others. Mr. Duchesneau has significant experience with emerging chemicals and drinking water contamination.

In addition to litigation, Mr. Duchesneau counsels clients on regulatory compliance involving such matters as green chemistry, Proposition 65, FIFRA/pesticides, OSHA, TSCA, RoHS, air quality, climate change, SMCRA, wastewater and hazardous waste; and has successfully represented clients before administrative agencies, including the U.S. Environmental Protection Agency, the California Regional Water Quality Control Board, California Department of Toxic Substances Control, and the South Coast Air Quality Management District. He also advises on corporate and real estate transactions, Brownfields, and environmental due diligence as well as with regard to environmental auditing.

Prior to being an attorney, Mr. Duchesneau was an engineer with an international environmental consulting firm where he performed work for the U.S. EPA, the California Department of Toxic Substances Control, and DOD, among other clients. He later left consulting to join the corporate environmental management office of a *Fortune 100* company where he headed efforts to work with policy-makers in the development of environmental laws and regulations and managed air toxics and Superfund programs.

EDUCATION

National Institute for Trial Advocacy, Trial Advocacy Skills Program, 2003.

Southwestern School of Law, J.D., 1993.

University of Rhode Island, B.S., Chemical. Engineering, 1985.



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CATHERINE C. ENGBERG

Catherine Engberg joined Shute, Mihaly, & Weinberger in 2002 after completing a clerkship with the Honorable Barry Ted Moskowitz, United States District Court Judge for the Southern District of California. Ms. Engberg is a partner at the firm. Her practice includes municipal law, CEQA compliance and litigation, local initiatives and referendums, eminent domain, real estate transactions, and general plan and zoning law.

Ms. Engberg has served as acting City Attorney to both the City of Orinda and City of Saratoga, assisting City staff and officials with a wide array of legal matters. She regularly advises clients regarding open meeting laws, conflicts of interest, and public records.

Ms. Engberg has litigation experience in both state and federal court regarding constitutional, CEQA and election law matters. She has advised several public agencies in connection with updates to their general plans, housing elements and related CEQA documentation. Ms. Engberg routinely represents community groups in administrative proceedings and CEQA litigation over major infrastructure and residential projects.

Ms. Engberg is a member of the firm's initiative and referendum committee. She has drafted numerous ballot measures on behalf of community groups, including two countywide initiatives to ban fracking. Ms. Engberg recently authored an amicus brief on behalf of the Colorado PTA in the 10th Circuit Court of Appeals in the case *Kerr v. Hickenlooper*, in support of plaintiffs' challenge the voter-enacted Colorado Taxpayers Bill of Rights.

Ms. Engberg represents the Sacramento Area Flood Control Agency with respect to right of way acquisition related to the Natomas Levee Improvement Program. She has extensive trial and appellate litigation experience in right of way and eminent domain matters.

Ms. Engberg has published in the *Stanford Law Review* and the *Stanford Environmental Law Journal* on topics of ranging from citizen initiatives to legal issues regarding the decommissioning of dams. She has led CEQA, open government, and election law workshops sponsored by the Planning and Conservation League, Sierra Club and Friends of Harbors Beaches and Parks. In the fall of 2014, Ms. Engberg spoke at the Southern California County Counsels' Association Meeting on a panel entitled "Fracking: Discussion of Legal Issues Facing Local Governments."

Ms. Engberg received her law degree, with distinction, from Stanford Law School in 2001 and her undergraduate degree from Stanford University in 1995. Prior to attending law school, she worked as an environmental engineer and is a licensed Professional Civil Engineer.

In her spare time, Ms. Engberg serves on the Kensington Municipal Advisory Council, which provides recommendations on planning, design review and land use issues in her local community.

Ms. Engberg is a member of the Bar of the State of California.



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Farrell Biography

Caroline Farrell is the Executive Director of the Center on Race, Poverty & the Environment, otherwise called CRPE. Caroline is based out of CRPE's Delano office and for the last fifteen years has been working with low income communities and communities of color throughout the country, but primarily in the south San Joaquin Valley. Caroline has represented low income communities and communities of color on issues related to dairy development, hazardous waste facilities, land application of biosolids, and other industrial sources of pollution. Caroline serves as Vice-Chair of the Steering Committee for the Central Valley Air Quality Coalition, and as a Member of the Environmental Justice Advisory Committee on AB 32 for the California Air Resources Board from 2008 to 2010. She sits on the Board of Directors for Communities for a Better Environment, the Planning and Conservation League, and Act for Women and Girls. She co-authored with Luke Cole *Structural Racism, Structural Pollution and the Need for a New Paradigm* for the Washington University Journal of Law & Policy and authored, *SB 115: California's Response to Environmental Justice- Process over Substance*, for the Golden Gate Environmental Law Journal and *A Just Transition: Lessons Learned from the Environmental Justice Movement* for the Duke Forum for Law & Social Change. Caroline received the 2007 Dr. Zweig Community Health Advocate Award from the Center for Community Action and Environmental Justice and OMB Watch's Rising Star in Public Interest award in 2008.

Caroline graduated from Golden Gate University School of Law in 1999 with Highest Honors. She received her undergraduate degree in Political Science from Bates College in Lewiston, Maine.