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November 5, 2014
Council of the City of Los Angeles
Los Angeles City Hall
200 North Main Street, Third Floor
Los Angeles, CA 90012

Re: Council Files 13-1152,13-1152-S1
Regulatory Controls Over Well Stimulation

Honorable City Councilmembers:
The Los Angeles Department of City Planning has prepared the attached report on the issue of oil and gas extraction through well stimulation in response to the City Council motion (Koretz-Bonin) adopted on February 28, 2014, and (Parks-Huizar) adopted on March 5, 2014.

Reports of health and safety problems associated with well stimulation have been brought before the City by residents who live, work, and attend schools near oil and gas facilities. For the purposes of this report, 'well stimulation' is a general term used to describe various methods for enhancing oil and gas production or recovery (including hydraulic fracturing, acidizing, and gravel packing). Upon the Council's direction, the Department of City Planning has been working with the City Administrator's Office and the City Attorney's office to prepare the attached report on how to address these concerns.

The report recommends pursuing new land use and zoning regulations with the assistance of an outside technical expert. Developing new regulations on this complex issue requires collaboration with an expert in petroleum and natural gas engineering or geology, and at present, there is no qualified City Staff with this set of expertise. Once hired, the technical expert will work with the Department of City Planning, and all other relevant departments, to identify new zoning and land use performance standards in order to mitigate potential direct and indirect impacts of oil and gas activity.

If you have any questions, please contact Hagu Solomon-Cary of the Department of City Planning by phone at 213.978.1394, or via email at hagu.solomon-cary@lacity.org.

Sincerely,

ALAN BELL
Deputy Director of Planning

Attachment

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Exhibits:

SUMMARY

This report has been prepared in response to the City Council motion adopted on February 28, 2014 (Council File No. 13-1152-S1) authored by Councilmembers Koretz and Bonin. It provides an overview for implementing new controls over oil and gas activity within the City of Los Angeles. In summary, the Planning and Land Use Management Committee ("PLUM") instructed the Department of City Planning ("DCP"), with the assistance of other relevant departments, to review and develop regulatory controls over fracking and prepare and present an ordinance to change the zoning code to prohibit all activities associated with well stimulation.

The DCP's review and summary of regulations controlling oil drilling districts, oil and gas production/injection/disposal wells, and well stimulation at the local, regional, and State level, aims to provide clarity and insight on the changing regulatory landscape and the procedural and administrative opportunities to implement new controls locally.

Currently, the State of California allows various forms of well stimulation, including hydraulic fracturing and acidizing. Recent statewide legislation (Senate Bill 4) will increase public disclosure of well stimulation activities, however, concerns about the bill's adequacy to protect human health, safety, and the protection and conservation of water and other natural resources, have been raised by residents, community groups and environmental organizations within the City of Los Angeles.

The State's authorization to conduct well stimulation does not preempt local jurisdictions from establishing traditional land use and zoning regulations which can dictate *where* oil and gas activity takes place. The oil industry, however, has challenged local government's authority to regulate or prohibit specific well stimulation activities under principles of field preemption. The oil industry has argued that local jurisdictions have no authority to regulate *how* oil and gas extraction occurs. This issue is the subject of pending litigation in Western States Petroleum Association v. City of Compton et al. (LASC Case No. BC552272). The lawsuit is in response to an ordinance passed in Compton prohibiting hydraulic fracturing, acidizing, and other well stimulation activities. It is unlikely that this legal issue will be resolved anytime soon. As of September 24, 2014, the City Council of Compton rescinded the moratorium at the City Attorney's recommendation.

In addition to Federal, State, and regional regulations over oil operations, spills, noticing, reporting, and equipment permits, the City of Los Angeles has the following roles and authorities governing oil and gas activity within its jurisdiction:

L.A. Municipal Code	L.A. Municipal Code	L.A. Municipal Code	L.A. Administrative Code	California Uniform Fire Code	L.A. Municipal Code
City Council	DCP-Zoning Administrator	LADBS-Permits/Code Enforcement	CAO-Petroleum Administrator	LADF-Permit/Inspection	LADWP
Adopts oil drilling districts via ordinance (i.e. Supplemental Use Districts).	Issues permit approval for establishing oil drilling districts and entitlements for oil and gas drilling via CUPs and Plan Approvals.	Permits and inspects any structure built to enclose oil and gas activities. Enforcement of authorized activities and restrictive conditions.	Investigates applications, consults with experts and decision makers, awards and executes leases/agreements, sureties, forfeitures, and reservations.	Issues operational permits required to operate an oil well, issues action permits for the drilling, re-drilling, or abandonment of oil wells.	Evaluates plans, roads, and well casings to assure safety of existing water mains/wells. Reviews and inspects methods for protection of public water supply.

As stated earlier, there remains legal uncertainty around the extent of local government authority to regulate or prohibit well stimulation treatments. As such, the Department recommends against pursuing interim or permanent regulations governing well stimulation at this time. Regardless of how this legal issue of field preemption is ultimately resolved, the Planning Department believes that there is significant room for improvement in the way the City currently regulates and administers oil and gas activity. A local example of rigorous land use standards can be found in the County of Los Angeles' Baldwin Hills Community Standards District (CSD) overlay zone (see page 11 for more details). To that end, the Department recommends the retention of a technical expert to: 1) provide further review of legal and regulatory developments regarding well stimulation, and 2) advise the City on how to better implement zoning and land use regulations in order to address potential direct and indirect effects of both conventional and unconventional oil and gas activity.

Technical expertise leading to an update of Section 13.01 of the LAMC, referenced in the chart above, would include specific performance standards and mitigation measures, improvement to the current administrative and regulatory process, and implementation of a proactive code enforcement process to protect public health. In general, new regulation would apply to new oil and gas permits, while the creation of a proactive code enforcement process would monitor and regularly enforce current conditions of compliance of existing oil and gas operations. This proactive approach is similar to the fee-supported Annual Inspection Monitoring (AIM) program for auto related uses, junk yards, and recycling centers, among others uses. This type of fee-based inspection program and overall update to Section 13.01 of the LAMC will be a major undertaking for the City. It would include code amendments, creation of a fee schedule and collection process, citation and revocation process and some environmental clearance.

BACKGROUND

Oil and gas well stimulation is a general term used to describe various methods that enhance oil and gas production. Well stimulation operations differ from region to region nationwide based on geology and other natural factors. In the recent past, specific well stimulation treatments have raised environmental concerns including: 1) air quality as a result of increased truck traffic and fugitive methane emissions; 2) induced seismicity as it relates to waste water injection wells; 3) sensitive receptors (residential, institutional, etc.) in proximity to noxious emissions, noise, and new industrial infrastructure; 4) water quality as it relates to potential contamination of ground water and surface water; and 5) water quantity as it relates to the supply of water, particularly in light of drought conditions. In 2010, Congress ordered the Environmental Protection Agency (EPA) to research the dangers posed to drinking water sources by hydraulic fracturing. The draft assessment will be released in December 2014 for peer review and public comment. Recently, an independent review of scientific and technical information on advanced well stimulation technologies in California was released[1]. The research was published on August 28, 2014 and focuses on the direct impacts of well stimulation but did not analyze the long or short term indirect impacts of said activities. A summary of the findings can be found in Exhibit C1 within this report.

Although a number of Federal regulations govern well stimulation processes, States have regulatory primacy. Now that well stimulation treatments have been brought to public attention, issues surrounding State preemption over local authority are being determined. For example, on July 21, 2014, Western States Petroleum Association ("WSPA")—through the law firm of Latham & Watkins LLP—sued the City of Compton, the City Council, and the Mayor for declaratory and injunctive relief challenging an ordinance prohibiting hydraulic fracturing, acidizing, and other well stimulation activities. WSPA alleges that the ordinance is unconstitutional because it purports to regulate a field that is fully occupied by state law—i.e., the method and manner of oil and gas

[1] http://ccst.us/publications/2014/2014wst.pdf

extraction—and, therefore, is preempted. "By banning only the well stimulation activities set forth in the Ordinance while continuing to allow oil production activities themselves, the City has purported to regulate the method and manner of oil and gas extraction in the City." (Compl. ¶ 53.) On September 23, 2014 the City Council of Compton withdrew the moratorium. The Los Angeles City Attorney's Office is actively monitoring the outcome of this action.

REGULATORY LANDSCAPE

The following is an overview of the relevant State, regional, and local regulations that control oil and gas activity taking place in the City of Los Angeles.

California State Regulations.

In California, where oil production is high and natural gas production is on the rise, there exists no current ban or moratorium on fracking or acidizing. Senate Bill 1132 (Mitchell), which failed to pass through the Senate in May 2014, would have prohibited Division of Oil, Gas and Geothermal Resources ("DOGGR") from authorizing any well stimulation treatment on or after January 1, 2015 until an in-depth, independent scientific study was completed, opened for public comment, and submitted to the Governor for a positive determination. There are, however, oil and gas drilling regulations (Public Resources Code Section 3000 et seq) and the recently passed Senate Bill 4, which impose additional requirements described in detail below.

Senate Bill 4 (Pavley). SB 4 was approved by Governor Brown on September 20, 2013 and is included in the California Public Resource Code (Section 3150-3161). It requires DOGGR, within the State Department of Conservation, to implement additional requirements over the existing laws that regulate drilling, operation, maintenance, and abandonment of oil and gas wells, tanks, and facilities in order to improve safety and mitigate environmental impacts. In summary, SB 4 will: 1) require DOGGR to study and adopt new regulations, 2) require noticing and publication requirements; and, 3) create new definitions and penalties (see Exhibit C2 for the latest version of DOGGR's interim regulations, including definitions).

As a result of SB 4, DOGGR released draft regulations on November 15, 2013. Final regulations are expected to take effect on July 1, 2015. According to DOGGR, owners and operators that use well stimulation techniques must act in accordance with current interim regulations. This includes providing notice in the form of an application which is verified for completion by the Division. Once well stimulation is complete, operators must also abide by the disclosure requirement described below. DOGGR has been officially tracking well stimulation notices on their website since January 1, 2014 as a result of the interim rules. Lastly, SB 4 also requires DOGGR to prepare an Environment Impact Report (EIR) by July 1, 2015 to evaluate the potential impacts of the proposed project (fracking, defined broadly) within DOGGR's six administrative districts. The City of Los Angeles is within District 1: Cypress (see Exhibit A3 for a map of the districts).

DOGGR's interim regulations are described below and organized by the primary entity responsible for compliance.

Division of Oil Gas & Geothermal Resources

- Define the terms well stimulation treatment, hydraulic fracturing, and hydraulic fracturing fluid,
- Require well owner or operator to record and include all data on acid treatments and well stimulation treatments,
- Require DOGGR, in conjunction with the Department of Toxic Substance Control (DTSC), the State Air Resources Board (ARB), the State Water Resource Control Board (SWRCB), the Department of Resources Recycling, and Recovery (and any other local air district or

regional water quality control board in areas where stimulation may occur) to adopt rules and regulations specific to well stimulation, including governing the construction of well casings and full disclosure of the composition and disposition of well stimulation fluids, and to authorize DOGGR to allow well stimulation treatments if specific conditions are met,

- Prior to performing a well stimulation treatment, operators must apply for a permit with the State Oil and Gas Supervisor or district deputy which prohibits the operator from either conducting a new well stimulation treatment or repeating a well stimulation treatment without a valid, approved permit,
- Prohibit the approval of a permit application that is incomplete,
- Require DOGGR, within 5 business days of issuing a permit to commence well stimulation treatment, to provide a copy to specific boards and entities and to post the permit on a publicly accessible portion of its Internet Web site,
- Require DOGGR to start the process of developing an Internet Web site for operators to report specific information related to well stimulation treatments and require the Internet Web site to be operational no later than January 1, 2016.
- Authorize DOGGR to direct reporting to an alternative Internet Web site and require the Division to obtain the data reported to the alternative Internet Web site and make it available to the public,
- Ensure that a well stimulation treatment permit expires one year from the date on which the permit is issued,
- Require DOGGR to perform random periodic spot-check inspections during well stimulation treatments,
- Provide that, where the Division shares jurisdiction over a well with a federal entity, DOGGR's rules and regulations apply in addition to all applicable federal laws and regulations.

State Regional Water Quality Control Board

- Require SRWQCB, on or before July 1, 2015, to develop groundwater monitoring model criteria to be implemented either on a well-by-well basis or on a regional scale on how to conduct appropriate monitoring on individual oil and gas wells subject to well stimulation treatment.

Secretary of the Natural Resources Agency

- Require the Secretary of the Natural Resources Agency to conduct and complete an independent scientific study on well stimulation treatments, including acid well stimulation and hydraulic fracturing treatments prior to or by January 1, 2015,
- Require the Secretary of the Natural Resources Agency to notify various legislative committees on the progress of the independent scientific study on well stimulation and related activities until the study is completed and peer reviewed by independent scientific experts.

Well Operators and Suppliers

- Require well operators and suppliers to provide a copy of the approved well stimulation treatment permit to specified tenants and property owners at least 30 days prior to commencing a well stimulation treatment,
- Require the operator to provide notice to the Division at least 72 hours prior to the actual start of a well stimulation treatment in order for the Division to witness the treatment,
- Require the supplier of the well stimulation treatment to provide the operator, within 30 days following the conclusion of the treatment, certain information regarding the well stimulation fluid,

- Require the operator, within 60 days of the cessation of a well stimulation treatment, to post on a publicly- accessible web site, specified information on the well stimulation fluid,
- Require a supplier claiming trade secret protection for the chemical composition of additives used in a well stimulation treatment to disclose the composition to the DOGGR, in conjunction with a well stimulation treatment permit application, but with certain exceptions, prohibit those with access to the trade secret from disclosing it.

This bill will generate money for deposit into the Oil, Gas, and Geothermal Administrative Fund from annual charges levied, assessments collected, and violation fees from civil penalties payable to the Treasurer. The bill allows these monies to be used for all costs associated with scientific study required to evaluate treatment, inspections, and any air and water quality sampling, monitoring, and testing performed by public entities. The money will also be used to cover the costs to the State Water Resources Control Board and the Regional Water Quality Control Boards in carrying out specific responsibilities relating to well stimulation and groundwater monitoring. SB 4 requires that by January 1, 2016 (and annually thereafter), a comprehensive statewide report on well stimulation be provided to the Legislature and the public.

Despite these additional requirements, some community groups have raised concerns about transparency, namely because well operators or owners are not required to *publicly* disclose the chemical make-up of the well stimulation fluid prior to the act of injection. They are only required to disclose this information to DOGGR prior to the well stimulation. Public disclosure is required sixty days after the cessation of well stimulation via an Internet Website. Others have expressed concerns surrounding DOGGR's ability to address local impacts caused by well stimulation via a Statewide EIR. It should be noted that the mandated Statewide EIR does not preclude local jurisdictions from conducting their own EIR processes (Public Resource Code Section 3161b1c).

Interim Regulations	Independent Scientific Study	Final Regulations	Statewide EIR
January 1, 2014 – July 1, 2015	January 1, 2015	July 1, 2015	July 1, 2015

Regional Regulations

Air Quality Management District Rule 1148.2. The South Coast Air Quality Management District ("SCAQMD") covers four counties including urban portions of Los Angeles and is primarily responsible for monitoring and enforcing point, stationary, and area sources of air pollution. Specific to oil and gas activity, SCAQMD developed Rule 1148.2 Notification and Reporting Requirements for Oil and Gas Wells and Chemical Suppliers. This rule was adopted in April of 2013 and preceded SB 4 and the DOGGR's subsequent interim regulations. SCAQMD created this rule in response to the lack of information available on oil and gas well stimulation and to gather air quality-related data on oil and gas well drilling, well completion, and well reworks. There is some redundancy in the notification and reporting requirements now that SB 4 is chaptered and DOGGR's interim regulations have been established. To that end, SCAQMD has a two year window in which it can report back to their Board with recommendations on how to move forward with the reporting guidelines. In addition, DOGGR should be working in conjunction with SCAQMD to establish local standards per the interim regulations resulting from SB 4.

The SCAQMD also regulates production equipment such as flares or gas separation equipment. These are regulated via standard air quality permits which are pulled by operators or suppliers of equipment and are enforced by SCAQMD inspectors. In addition, well equipment does require a registration permit. At present, the SCAQMD standard air quality permits or registration permits are independent of State permitting processes.

Local Regulations

Los Angeles Municipal Code "O" Oil Drilling Districts. Section 13.01 of the Los Angeles Municipal Code ("LAMC") addresses the creation of oil districts, "where the drilling of oil wells or the production from the wells of oil, gases or other hydrocarbon substances (are) permitted." This section does not apply to subterranean gas holding areas which are operated as a public utility. In addition, this section does not apply to M3 zones unless oil drilling operations or the establishment of an oil drilling district are within 500 feet of a more restrictive zone. It should be noted that, according to Council File records, the last oil district was established in May of 1990, approximately 24 years ago.

Section 13.01 is written as an applicant-initiated zoning overlay used primarily to establish oil drilling districts, and has comparatively little to do with land use compatibility or potential noxious emissions. Many of the Section 13.01 provisions were established in the Code prior to 1970, and thus do not specifically address requisite State or City environmental review procedures implemented under the California Environmental Quality Act (CEQA). Additionally, most plan approvals have previously qualified for categorical exemptions under State CEQA guidelines (Article II: Exemptions, Class 5: Alterations in Land Use Limitations). Essentially, these categorical exceptions are granted under the basis of there being no change in land use.

As long as the applicant is in compliance with the authorized activities identified under prior plan approvals or conditions, an administrative review process is granted without a public hearing or EIR process. Since there is no mention of extraction methods within Section 13.01, the use of specific well stimulation treatments does not require City clearance or review. Requests to initiate modifications of existing entitlements and/or conditions *would trigger* the appropriate environmental clearance and public hearing as part of the Zoning Administrator's review process.

A brief summary of Section 13.01 is provided below for context:

A. ***Application*** for districts where wells of oil, gases, or other hydrocarbon substances are permitted.
B. ***Definitions*** include, but are not limited to, "Class A" and "Class B" wells that distinguish between production and injection wells, respectively.
C. ***Status of Areas*** classified as either "Urbanized" or "Non-Urbanized". Such classifications determine the allowable size of the oil districts and the total drillable land area.
D. ***Requirements for Filing*** an oil district that is either in a(n): Urbanized area, Non-Urbanized area, Offshore area, Los Angeles City Oil Field Area, or General-All Areas. The establishment of "General-All Areas" requires a submittal to the authorized person in charge of Petroleum Administration.
E. ***Standard Conditions*** within each oil drilling district described in part D.
F. ***Additional Conditions*** imposed when establishing an oil district (for example, equipment delivery hours, landscaping and fencing requirements, subsurface production and storage equipment, fire safety precautions, etc.).
G. ***Description of Districts*** referenced in maps held in the City Planning Office showing boundaries for each oil drilling district described in Part D (see Exhibit A1 for map).
H. ***Drilling Site Requirements*** determined by the Zoning Administrator to drill or deepen a well in an oil drilling district that has been established by ordinance, or to drill or deepen and subsequently maintain an oil well in an M3 zone that is within 500 feet of a more restrictive zone.

I. ***Permits*** are required for drilling, deepening or maintaining oil wells, or converting an oil well from one class to another, and are issued by the Zoning Administrator or Area Planning Commission.
J. ***Termination of District*** and how to extend the timeline for that process under the discretion of the Zoning Administrator, the City Administrative Office, and the City Planning Commission.
K. ***Maintenance of Drilling and Production Site*** for existing and future oil and gas wells within the City.

Zoning Administrator. Under the 'O' Drilling District provisions, the Department of City Planning Zoning Administrator approves permitting activity. However, permit applications for well operations within the oil districts require involvement by the Los Angeles Fire Department ("LAFD"), the Petroleum Administration in the City Administrator's Office ("CAO"), the City Attorney, the Department of Building and Safety ("LADBS"), and the Department of Water and Power ("LADWP").

Fire Department. The Los Angeles Fire Department issues two types of permits to oil and gas well operators. The first is an operational permit known as Division 4. This permit is required to engage in the operation of an oil well. The second is an action permit for the drilling, re-drilling, or abandonment of an oil well. Although this is standard practice, Section 13.01 does not explicitly outline these steps in the permit process.

Petroleum Administration. Under the Los Angeles Administrative Code, the Director of the City Administrative Office serves as the City's Petroleum Administrator. Sections 19.48 -19.50 address the duties of the Director with respect to the management of petroleum matters affecting the City. These include, but are not limited to, addressing all matters related directly or indirectly to petroleum exploration and production and any matters concerning the creation of oil well drilling districts under the Los Angeles Municipal Code. Sections 19.53 -19.71 address duties including referrals, investigations of applications, consultation with experts, recommendations to decision makers, publications, conditions, award of leases or agreements, execution of leases, sureties, forfeitures, and reservations (subject to the State Lands Commission). The City does not currently have a Petroleum Administrator. Due to the intermittent and technical nature of this work, it is difficult to staff one person, full time, to fill this role. In other cities, technical experts are often kept on-call to support staff with certain duties delegated to the Petroleum Administrator.

CHALLENGES AND ISSUES

The following is an overview of the administrative and regulatory challenges that the City of Los Angeles faces in controlling local oil and gas activity under current regulation.

Administrative

The primary issues with administering the City's existing ordinance over oil and gas activity stems from the static nature of the regulation and its compounding implications. Updates to the code section have not kept time with the changing industry, economy, urban environment, or the City's evolving information management strategies. For example, there is no comprehensive way in which to track *all* oil and gas activity, permits, and their subsequent conditions of approval due to changes in record keeping over the past 65 plus years, and the fact that some oil wells predate zoning in the City altogether. Enforcement of existing regulation is complicated by this fundamental issue in addition to the lack of in-house technical expertise that was initially conceptualized at the time the ordinance was drafted. If new regulations are to be approved by the City Council, these issues could inhibit implementation and enforcement unless they are addressed therein.

Regulatory

The current oil and gas regulations that were established in the 1940's, adjusted in the early 1950's, and amended with ad hoc changes in more recent years. The italicized topics below outline the issues and opportunities with the City's current land use regulations -taking into account the external impacts of oil and gas activity. This preliminary overview aims to highlight the need for: 1) a technical expert in petroleum engineering or geology, 2) streamlining regulation with other regulatory entities, and 3) more compatible land use strategy within the oil districts in an effort to protect the comfort, health, safety and general welfare of the public.

Site Preparation. More oil and gas extraction activity within "O" districts will result in more movement of goods, on and off-road diesel equipment, traffic, and increased particulate emissions. These external impacts should be mitigated particularly for those districts that are within or in close proximity to residential zones and other sensitive uses. Additional regulation and/or enforcement on trucking hours, ingress and egress, idling, chemical storage, and circulation should be referenced in the zoning code in accordance to surrounding uses.

Air Quality. Section 13.01 does make reference to providing protection to surrounding properties with regards to odor, dust, and other harmful substances. The 'Additional Conditions' section states that no substances may be produced from any permitted well unless all the equipment is completely enclosed within a building but does not go beyond that to specify performance standards that could be measured to address these impacts. Best Management Practices (BMPs) and prescriptive performance standards for proper enclosure and ventilation should be explicitly defined and required to ensure the reduction of fugitive emission. In particular, fugitive emissions from disposal of the waste gas stream (flaring or venting), equipment leaks, process venting, and accidental failures should be addressed.

Water Quality. In California, underground injection of wastewater is currently the most common method for managing produced water.[2] Section 13.01 does not provide specificity on injection wells used for either disposal of waste fluids or to maintain oil reservoir pressure after well stimulation. DOGGR requires well operators to maintain data on the performance and safety precautions used in injection wells. Information provided by operators to DOGGR on this issue should be available for review by LADWP for additional oversight. EPA's Safe Drinking Water Act regulates source water quality through its Underground Injection Control (UIC) Program and in the recent past US EPA has been critical of DOGGR's implementation of the UIC Program. Additionally, the US EPA certifies the implementation of a Spill Prevention Countermeasure Control (SPCC) plan, under the Clean Water Act, for larger oil and gas operators to protect against spills that could contaminate ground water. Any new regulation should observe the EPA's revised UIC Class II permitting guidance practices and ensure compliance in accordance with SPCC plan, if applicable.

It is currently unclear if oil and gas operators within the City limits can pull an Industrial Wastewater Permit to discharge into publicly owned treatment facilities. US EPA, also under the Clean Water Act, regulates the Unconventional Extraction in the Oil and Gas Industry as it relates to wastewater. The EPA is currently developing pretreatment standards for release into Publicly Owned Treatment Works (POTWs). Any changes to Section 13.01 should include forthcoming EPA Effluent Limitations Guidelines in order to treat production waters in the municipal system.

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[2] https://www.law.berkeley.edu/files/ccelp/Wheeler_HydraulicFracturing_April2013(1).pdf/
http://www.rff.org/rff/documents/rff-rpt-managingrisksofshalegas-keyfindings.pdf

Geotechnical. In the 'Standard Conditions' portion of Section 13.01, there is mention of subsidence in ground elevation and the Zoning Administrator's ability to require producer(s) to take corrective action after the subsidence. A proactive approach would include site-specific geotechnical investigation to analyze grading, erosion control, ground movement (vibration), and the potential for seismically induced ground failure resulting from well stimulation and Class B wastewater injection wells. All findings and thresholds should be in accordance with technical experts and DOGGR's seismic monitoring tracking.

Setbacks/Distancing Requirements. Section 13.01 currently does not require any explicit setbacks from any sensitive uses, such as aquifers, surface water supply, homes, schools, business, places of worship, and hospitals unless well activity is within an M3 zone and within 500 feet of a more restrictive zone. While the Zoning Administrator maintains discretion to impose conditions when supported by findings, adding performance standards to sites that are within close proximity to sensitive uses should be incorporated into any new regulations.

Insurance. Section 13.01 requires liability insurance in the amount of $100,000 to cover owners, agents, lessees, etc. who are permitted to conduct drilling, production, or incidental operations. These insurance policies are subject to the approval of the City Attorney and should be provided to that office for each application. This coverage amount has not changed since Section 13.01 was enacted in the early 1950's. The City's current zoning regulation should either eliminate this type of non-land use related provision from the zoning code and assign it to the appropriate enforcement agency, or keep time with the current standards and coverage for various types of insurance coverage, including accidental contamination or pollution liability.

Monitoring & Mitigation. Section 13.01 does not currently reference any type of monitoring or mitigation plan or practices. Such proactive measures could be used to minimize odor, and ensure the use of best available control technologies (BACTs).

Emergency Response Plan/Procedure. Section 13.01 does not require well operators or owners to prepare an emergency response plan. The City has precedence in this area with regards to hazardous materials under the City's Certified Unified Program Agency (CUPA) out of the Los Angeles Fire Department. A similar emergency hazardous release plan should be in place and should include the City's Fire Department and other health professionals from the County Public Health Department, for example.

RECOMMENDATIONS

The Planning Department recommends pursuing permanent regulations that would result in new performance standards and mitigation measures, as well as proactive code enforcement of existing uses to protect the public's health and safety.

There are two main advantages of new regulations. The first advantage is that Section 13.01 can be expanded to include current and relevant definitions, development standards, procedures, permits, environmental review (where applicable), enforcement, public outreach and a more streamlined implementation processes. The second advantage is that the revision can more closely conform with re:code LA- a five year work program to comprehensively update the Zoning Code. New regulations resulting from this effort would be applied to "new" oil and gas projects. In some cases, "new" projects could include those with major changes to their original conditions under an existing CUP, in addition to a completely new CUP application. Developing new permanent regulations will require analysis and advisement by a technical consultant. In order to draft effective regulation, the City must identify a working group with a lead department to work with the technical consultant to ensure that any new standards have oversight and enforcement.

While the Department does not recommend a moratorium on well stimulation at this time, a technical expert may provide further review of regulations specific to unconventional high-pressure well stimulation, given additional developments in legal cases and Senate Bill 4, in the intervening time.

Technical Expert

To change the zoning code, a technical expert is needed to provide the scientific perspective and analysis from which new performance standards can be established. In addition, the Department of City Planning recommends that a working group, including representatives from all relevant departments, agencies, and bureaus including but not limited to the DCP, the City Attorney, the CAO, the LAFD, the LADWP, and the BOS-Regulatory Affairs Division, come together to discuss and determine roles and responsibilities, procedures, and enforcement of oil and gas related activity within the City. In addition, the working group should consult with relevant outside agencies including SCAQMD, RWQCB and DOGGR.

Scope of Work

The DCP will work with the CAO to draft a Request for Qualifications/Proposals for said technical consultant. The technical expert should provide a comprehensive review and analysis of oil and gas activity in the City including conventional and unconventional highly-pressurized oil extraction methods. The work program for the technical expert, in close coordination with the City working group, could include, but is not limited to the following analysis.

Background:

- Outline the technical issues of conventional and unconventional highly-pressurized oil extraction techniques including hydraulic fracturing, acidizing, gravel packing and related wastewater disposal. Include impacts of each method to human health and the environment. Outline solutions to curb potential direct and indirect impacts.
- Review existing scientific studies on the impacts of well stimulation in urban settings comparable to Los Angeles.

Reconnaissance:

- Review sites/facilities that have garnered public complaints, conduct site visits and cross reference well event data to better understand the chronic or acute nature of impacts. Assess well activity for these site to identify how better to mitigate all impacts.
- Identify site/facilities that have operated without public complaint and conduct site visits to identify what conditions or compliance measures that may be used as best management practices.

Best Management Practices:

- Identify planning and land use best management practices for reducing direct and indirect effects of all oil and gas activity including unconventional highly-pressurized oil extraction techniques. Outline a new land use ordinance and subsequent mitigation measures that could address potential negative impacts.
- Provide a status update on Federal, State, and regional regulation pertinent to oil extraction techniques.
- Advise on potential City regulations to further protect residents from unconventional high pressure extraction techniques.
- Implement a fee-based annual inspection of current oil and gas operations, similar to the AIM program, to ensure existing compliance with current case condition.

Administrative Process:

- Outline existing permit process among City departments and make recommendations on how to coordinate internal permit processes and strengthen oversight.
- Make recommendations on how to interface with other regional and State agencies in order to regularly track permits, maintain a consistent exchange of relevant information, and integrate their oversight into City permit processes and enforcement.

OTHER JURISDICTIONS

City of Carson. The City of Carson, in March 2014, unanimously approved an Interim Control Ordinance establishing a 45-day temporary moratorium on the drilling, re-drilling or deepening of *any* wells within their jurisdiction associated with oil and/or gas operation. In April 2014 the City Council voted against the extension of that moratorium. Under these circumstances, Government Code Section 65858(e) prohibits Carson from adopting another ICO on this issue due to the failed extension. As it was written, the ICO encompassed *all* new oil and gas drilling activities which is significantly more impactful to the oil and gas industry than regulating one or two methods that enhances extraction. In light of the failed ICO extension, the Council has instructed the City's Planning Department to re-write the code section that governs oil and gas activity. The department will start this process by selecting a consultant team with technical expertise in both the fields of petroleum engineering, land use, and zoning. In contrast to the City of Los Angeles, Carson has a limited number of oil and gas exploration and production companies operating within its city limits.

City of Beverly Hills. The City of Beverly Hills passed a prohibition on 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 within the City limits or any subsurface bottom hole in the City. The Ordinance became effective in June 2014 and barring any challenges within the first 90 days, can be found as an amendment to their Municipal Code. Their City Council found that the adoption of this Ordinance was exempt from CEQA pursuant to Section 15308 of the Guidelines for action taken by regulatory agencies to assure the maintenance, restoration, enhancement, or protection of the environment. The City found that the exemption is applicable because the Ordinance is intended to amend the City's regulatory process for permitting oil and gas production in such a way as to better protect the environment. The City does not have as much oil and gas extraction activity as the City of Los Angeles and this action was not in response to any application for hydraulic fracturing but was rather adopted on principle. Enforcement is not a significant concern due to the limited oil and gas activity within city limits.

Los Angeles County Department of Regional Planning. The County's Baldwin Hills Community Standard District (CSD)[3] is an example of a comprehensive approach to regulating oil and gas production. It was adopted by the Los Angeles County Board of Supervisors on October 2008 and did not address hydraulic fracturing. It was developed to provide a means for implementing regulations, safeguards, and controls for activities related to drilling for the production of oil and gas within the oil fields located in the unincorporated Baldwin Hills area. The purpose of the CSD is to: 1) help ensure that oil field operations are conducted using best management practices, 2) improve compatibility with adjacent land uses, 3) minimize potential adverse impacts of such operations, 4) regulate operations so they are compatible with surrounding land uses; and, 5) enhance the appearance of the site with landscaping and other property maintenance requirements.

[3] http://planning.lacounty.gov/assets/upl/project/bh_20081028-csd-final.pdf

The CSD covers both land use and operational regulations and had a comprehensive EIR. It is said to be the most regulated oil field in the State of California.[4] The CSD covers the following: intent, purpose, boundaries, definitions, development standards, procedures, permitting, enforcement, public outreach, and implementation processes. This oil field has a significant concentration of wells and activity and is comparable to the City of Los Angeles in terms of its oil and gas drilling and history of petroleum activity.

The CSD includes a periodic review process to determine if provisions are adequately protecting the health, safety, and general welfare of the public (see Exhibit B1 for review process flow chart). In a past review process, the County commissioned a study by petroleum geologists that lasted approximately two years and found that no significant environmental impacts resulted from hydro fractured wells. Based on the findings, a collective decision was made not to amend the CSD to ban or further regulate hydraulic fracturing beyond what is required in the CSD.

ENFORCEMENT

As stated earlier, new regulatory controls will focus on traditional zoning and land use such as performance standards and or mitigation measures. In order for such new land use regulation to be effectively enforced, however, procedures will need to be streamlined and permits will need to be automated for improved tracking and mapping. Cities like Dallas, Texas have relied exclusively on land use controls to regulate oil and gas activities. Their Council adopted a Planning Commission recommendation for a 1500 foot (formerly 300 foot) setback around gas wells. The ordinance prohibits drilling within 1500 feet of "protected uses" including homes, schools, churches, some retail spaces, and water wells. The ordinance requires a two-thirds Council vote on a specific-use permit for each proposed drill to reduce the setback amount for any particular well.

In addition, the City of Los Angeles has executed agreements in the past that can serve as an example for how a private operator can monitor a given aspect of their performance under explicit terms with responsibility to submit performance audits. For example, the City's Local Enforcement Agency (LEA), and the County has developed a Joint Powers Agreement (JPA) and a Memorandum of Understanding (MOU) with a private owner of a solid waste landfill known as Sunshine Canyon. The referenced JPA was initially executed on May 2008 and is periodically updated by the LEA. This could potentially serve as a model for reporting and documenting oil and gas operations in lieu of public enforcement on the method or manner in which oil and gas is extracted.

CONCLUSION

In conclusion, this report recommends pursuing new land use and zoning regulations upon retention and advisement of a technical expert. The expert, in collaboration with relevant City departments, will identify issues and subsequent performance standards and/or mitigation measures that can alleviate impacts of oil and gas activity broadly throughout the City. As new local land-use approaches are examined and empirical scientific research emerges, the City will be better positioned to address the direct and indirect impacts of well stimulation both in the short and long term.

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[4] http://www.inglewoodoilfield.com/future-of-inglewood-oil-field/

Exhibit A1: "O" Drilling Districts-Citywide

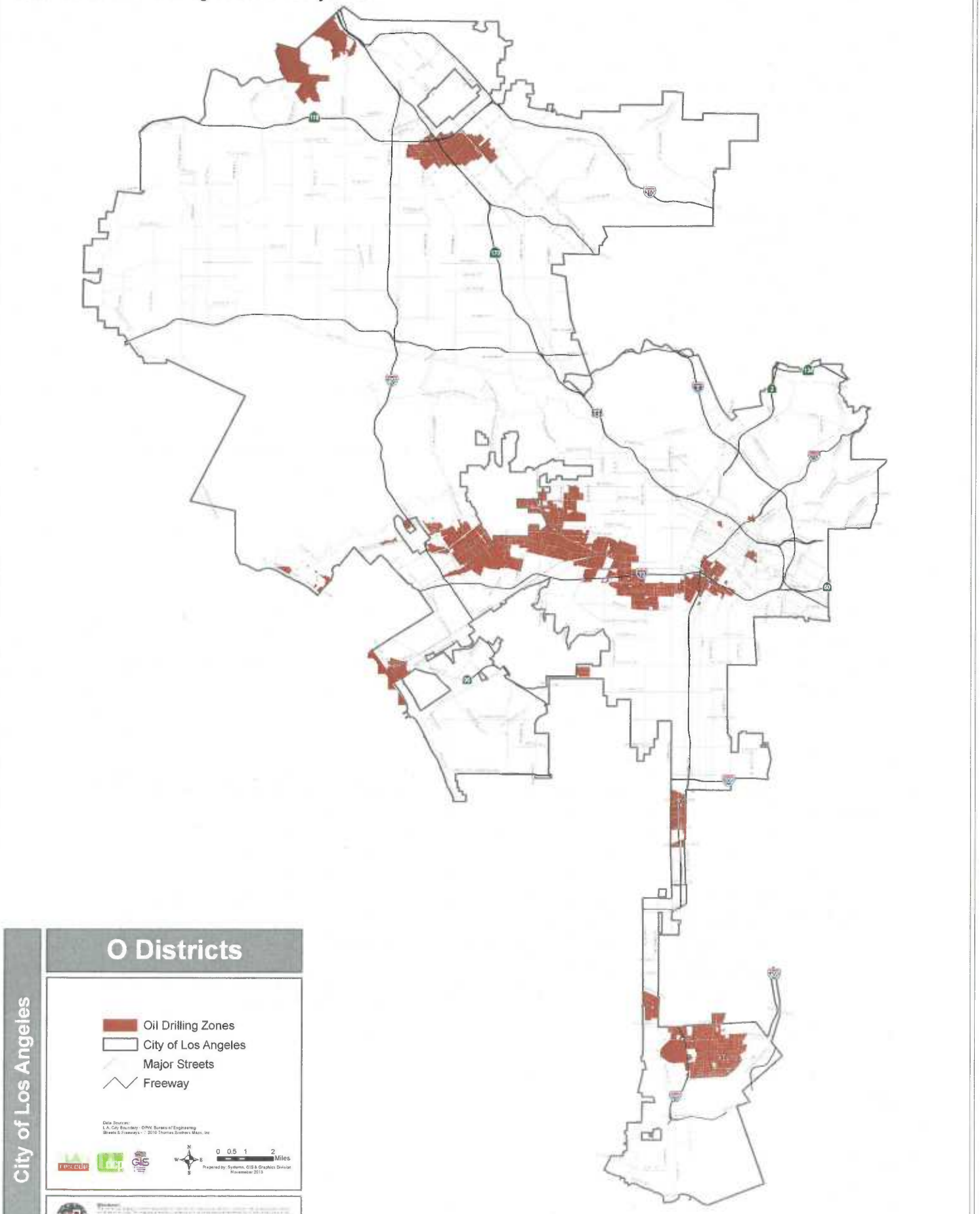
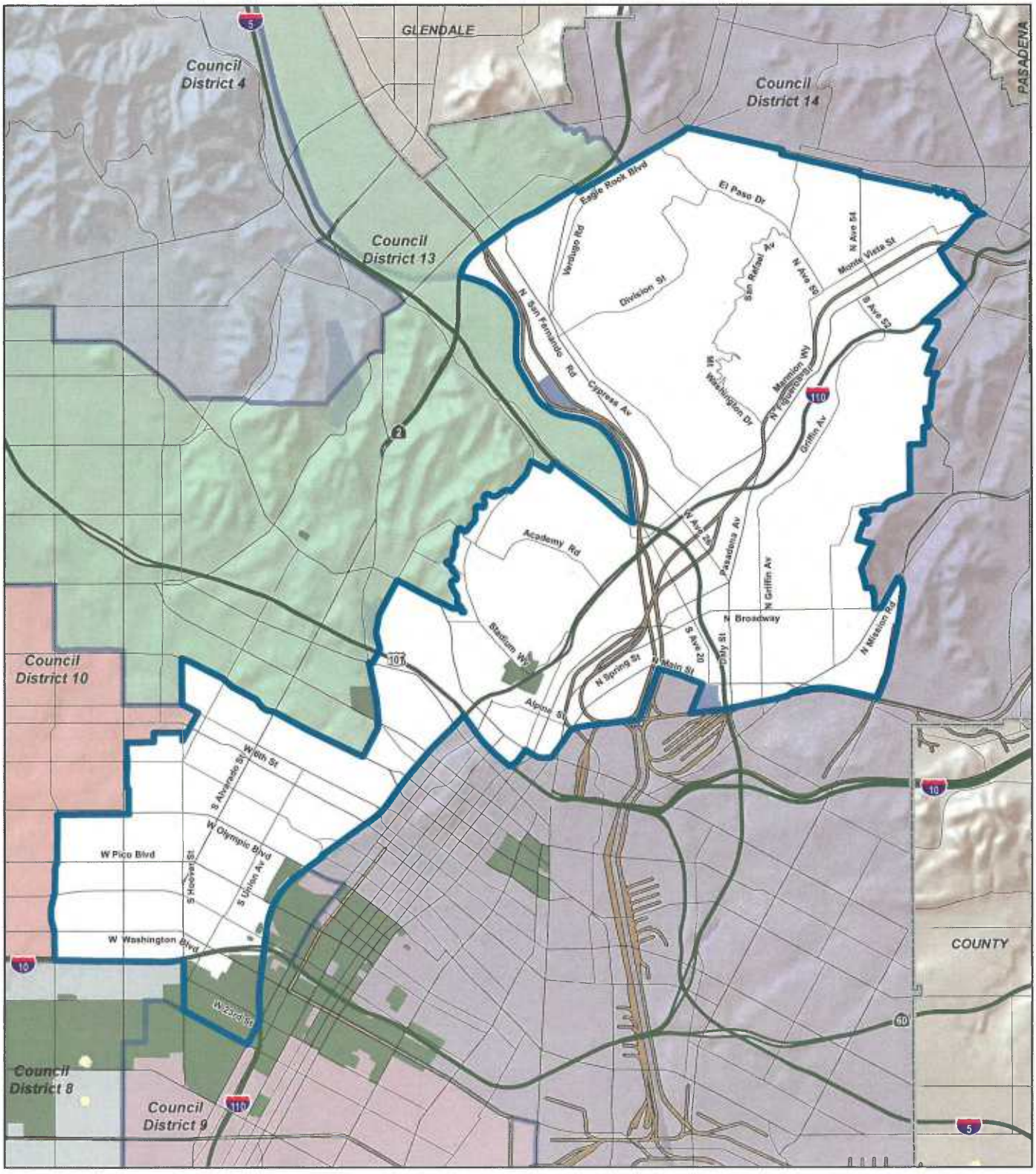


Exhibit A2



Council District 1 - Gilbert Cedillo

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	**Acidizing**	**Matrix Acidizing**	**All Events**
0 Events	0 Events	0 Events	0 Events
Acid Fracturing	**Maintenance Acidizing**	**Gravel Packing**	
0 Events	0 Events	0 Events	

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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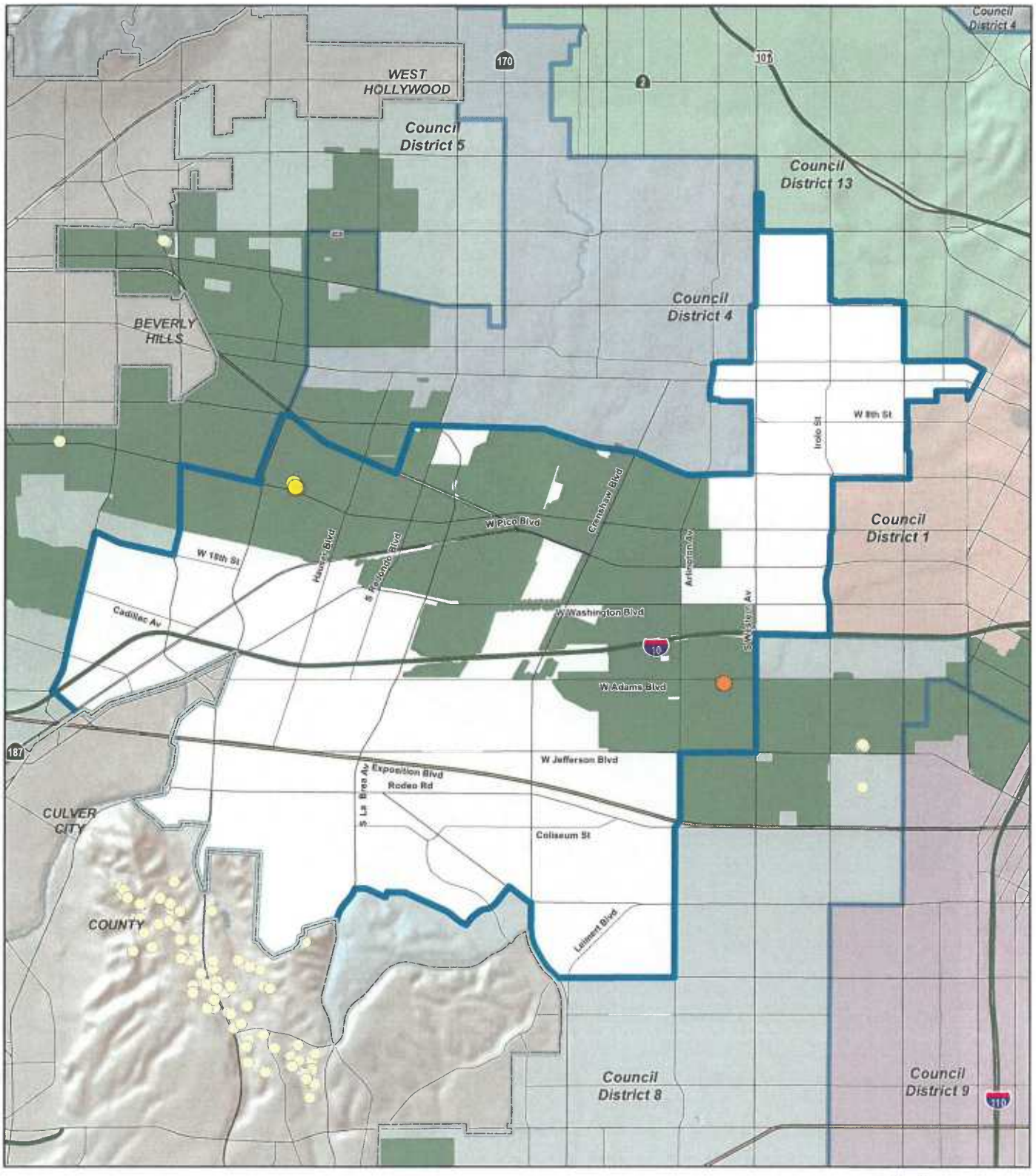

Council District 10 - Herb J. Wesson, Jr.

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas

M3 Zoning Class areas

Council District Boundary

City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	4 Events	0 Events	10 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	4 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014, Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief, ESRI, INC © 2014

1 in = 0.915 mi

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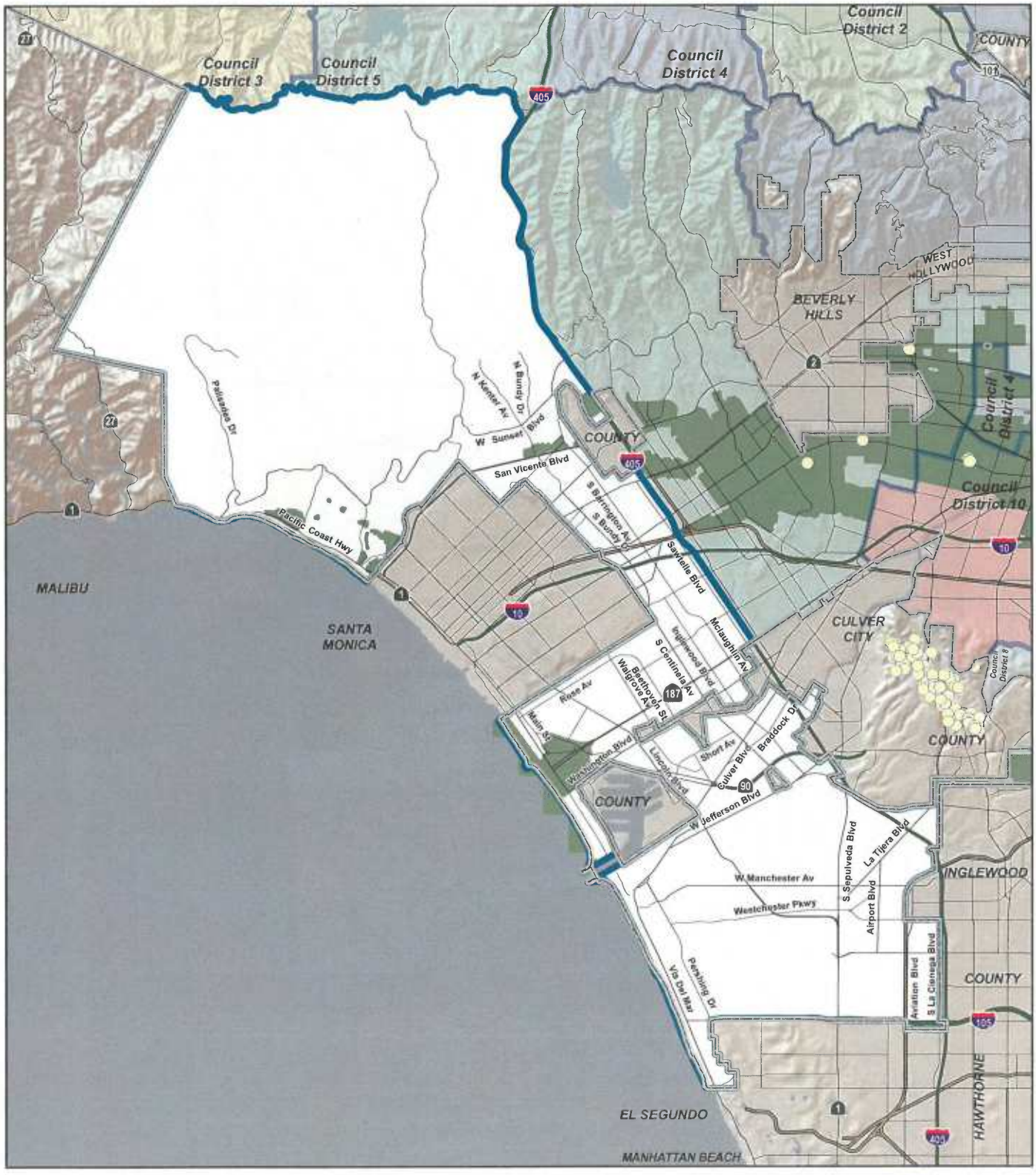

Council District 11 - Mike Bonin

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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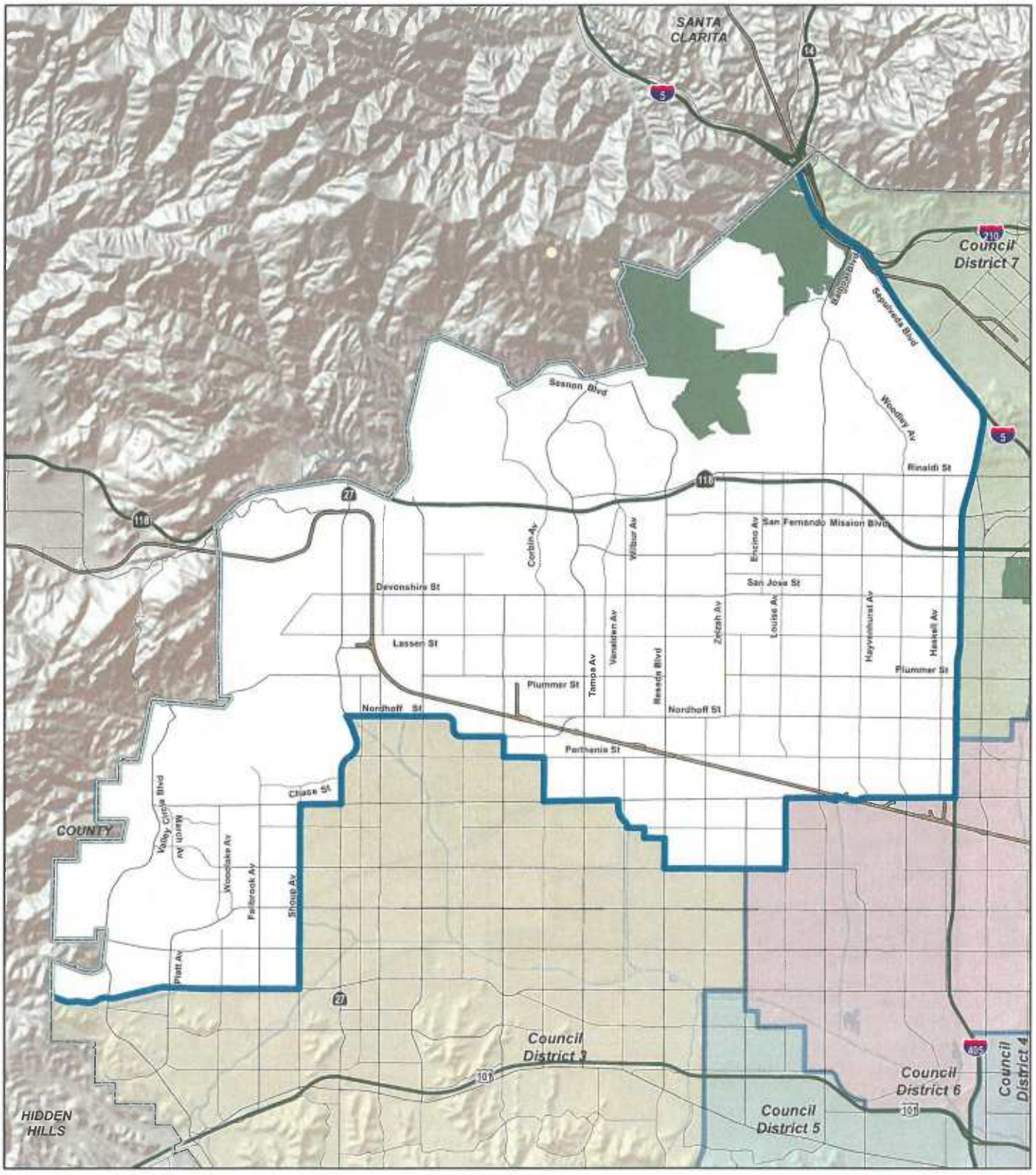

Council District 12 - Mitchell Englander

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	2 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014, Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Notifications © 2014, World shaded relief: ESRI, INC © 2014

1 in = 1.692 mi

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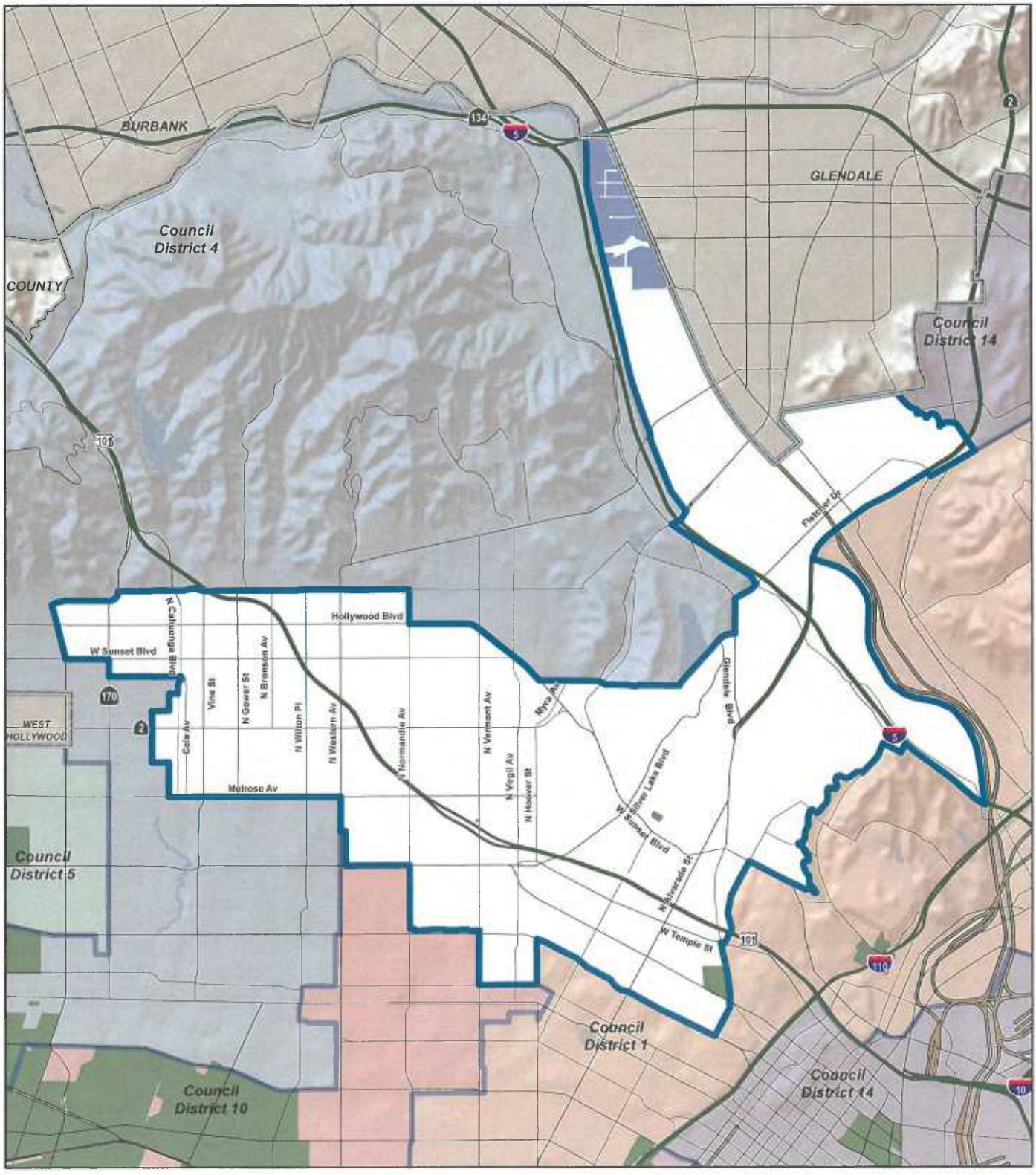

Council District 13 - Mitch O'Farrell

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

1 in = 0.994 mi

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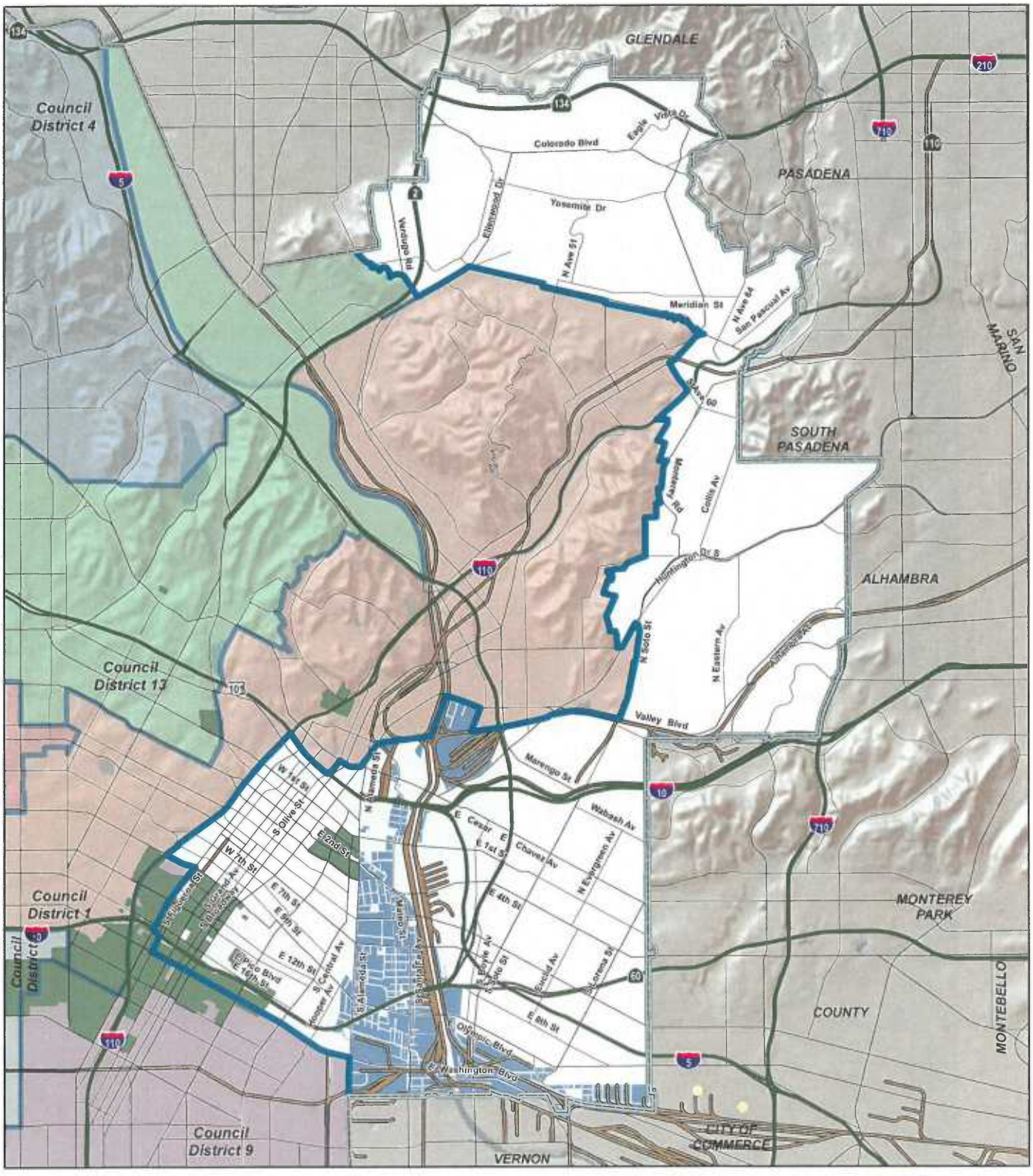

Council District 14 - Jose Huizar

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas

M3 Zoning Class areas

Council District Boundary

City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014, Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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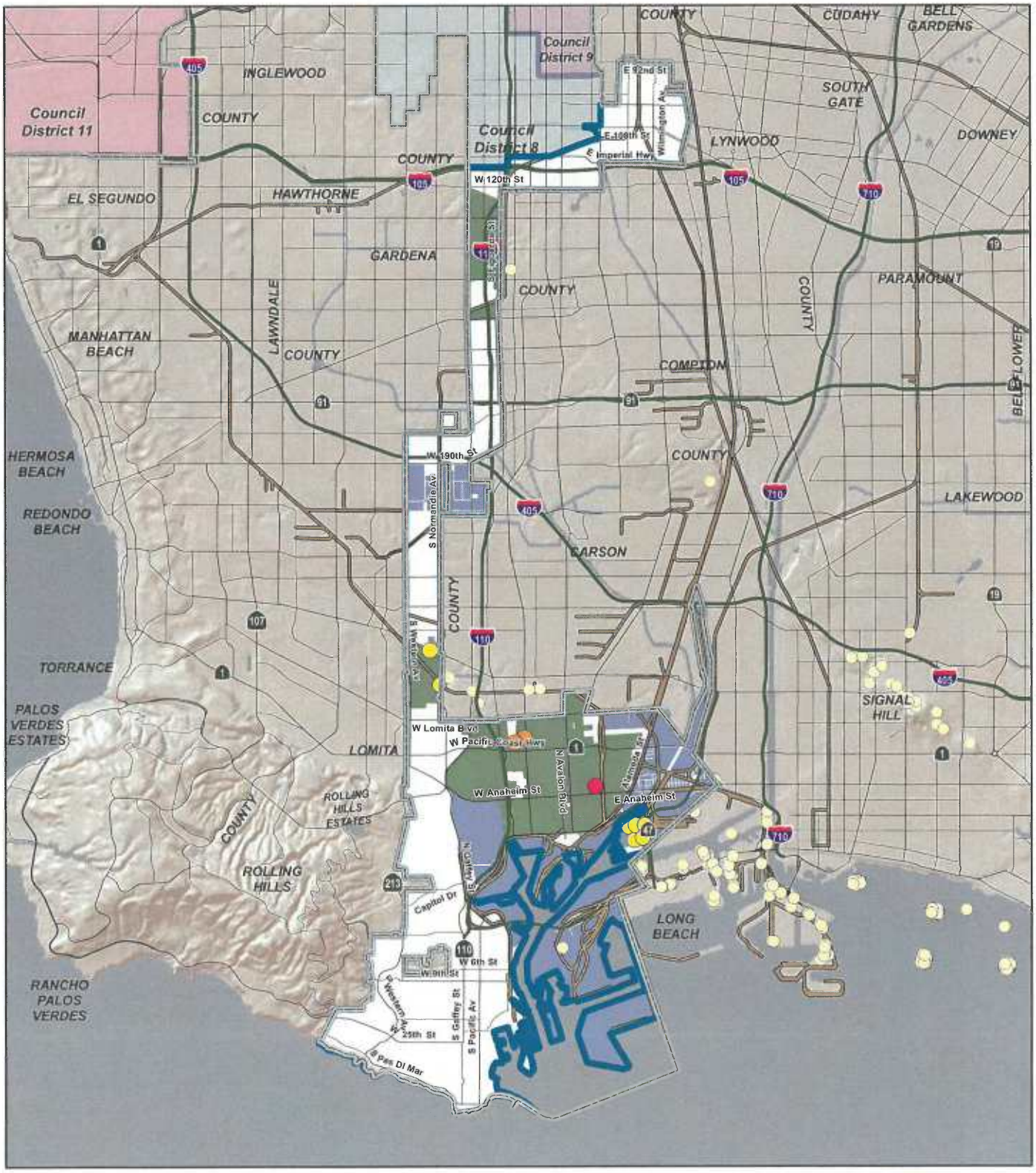

Council District 15 - Joe Buscaino

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas

M3 Zoning Class areas

Council District Boundary

City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	13 Events	0 Events	88 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	5 Events	9 Events

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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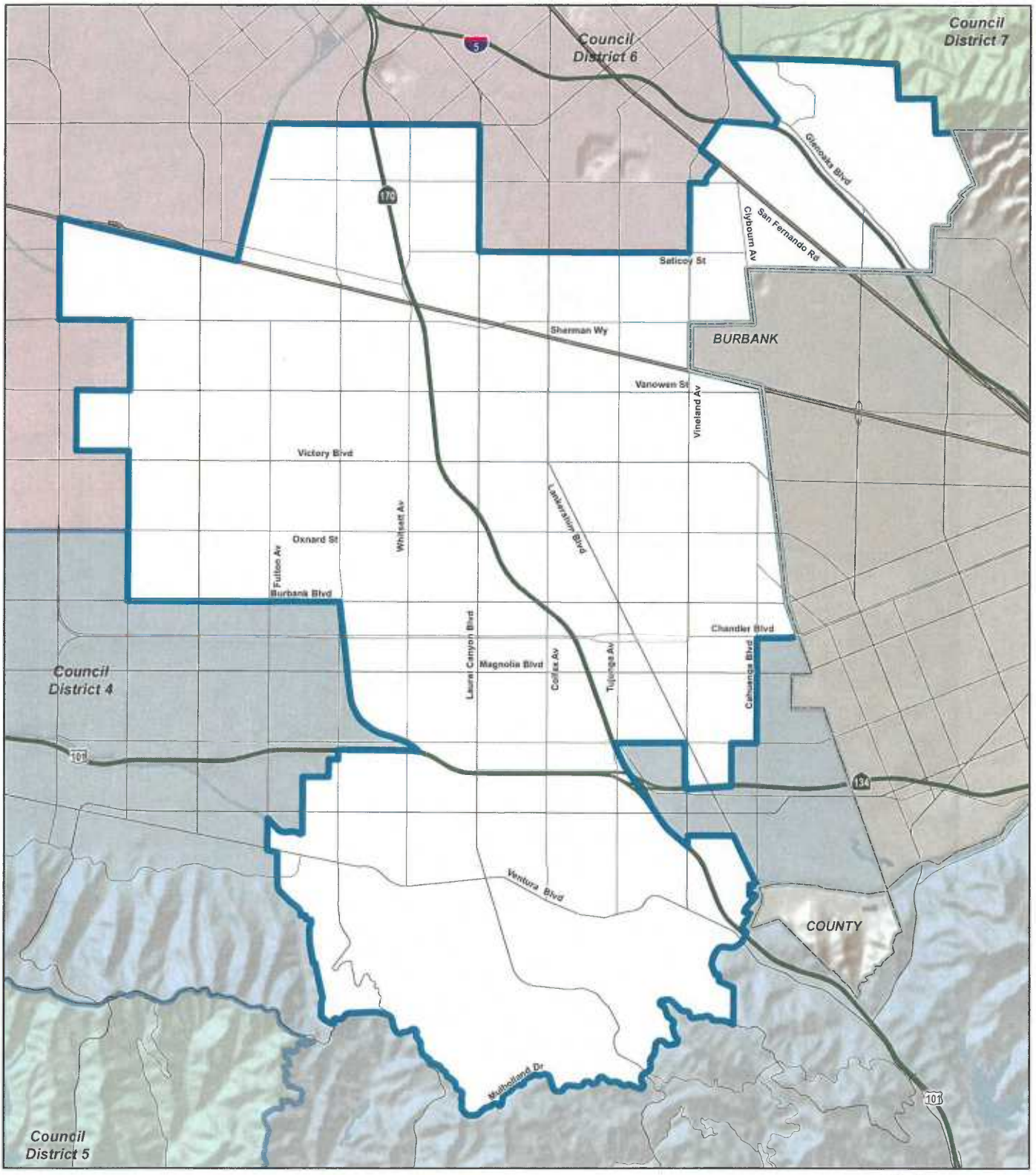

Council District 2 - Paul Krekorian

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Notifications © 2014; World shaded relief: ESRI, INC © 2014

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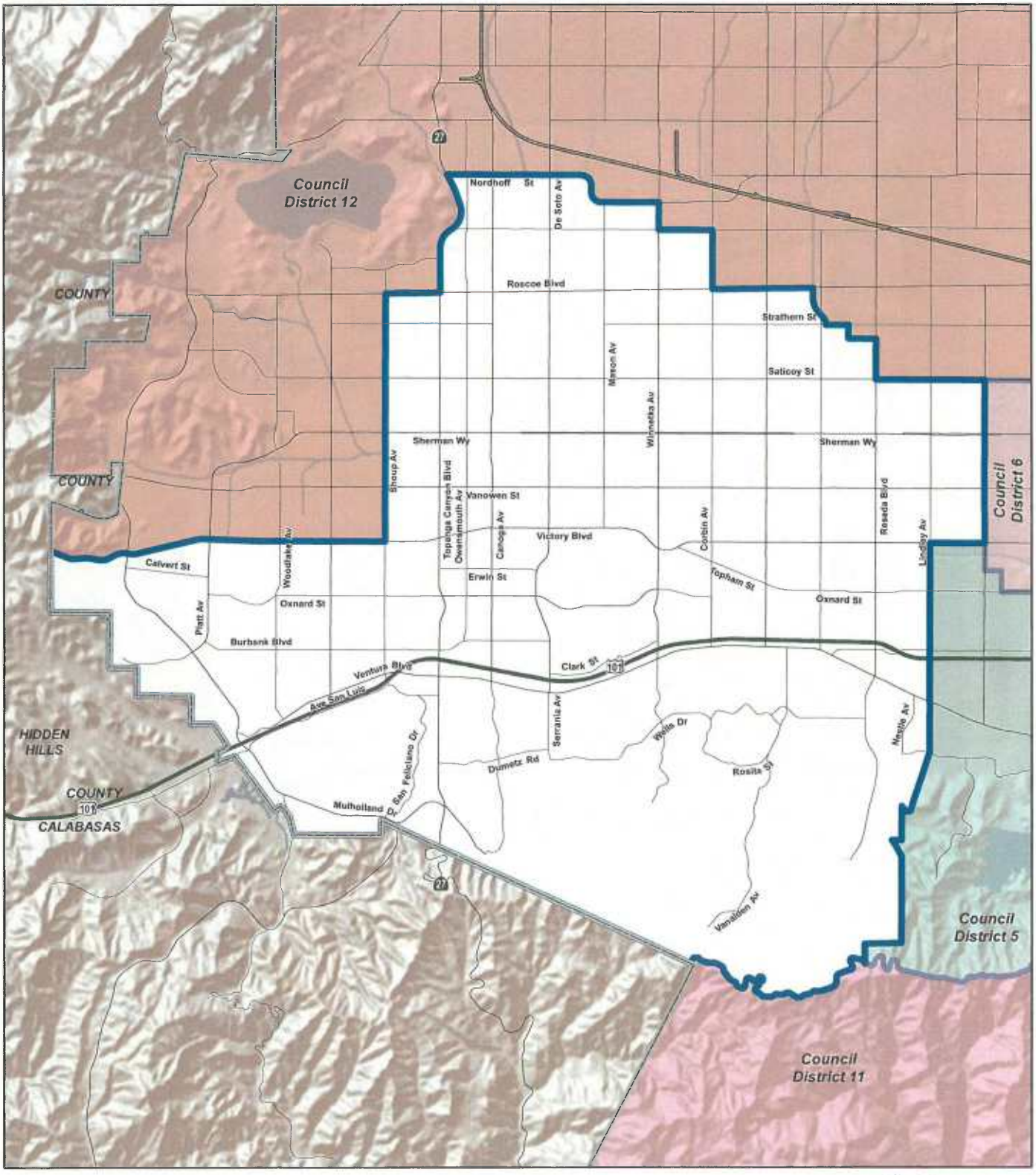

Council District 3 - Bob Blumenfield

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

1 in = 1.258 mi

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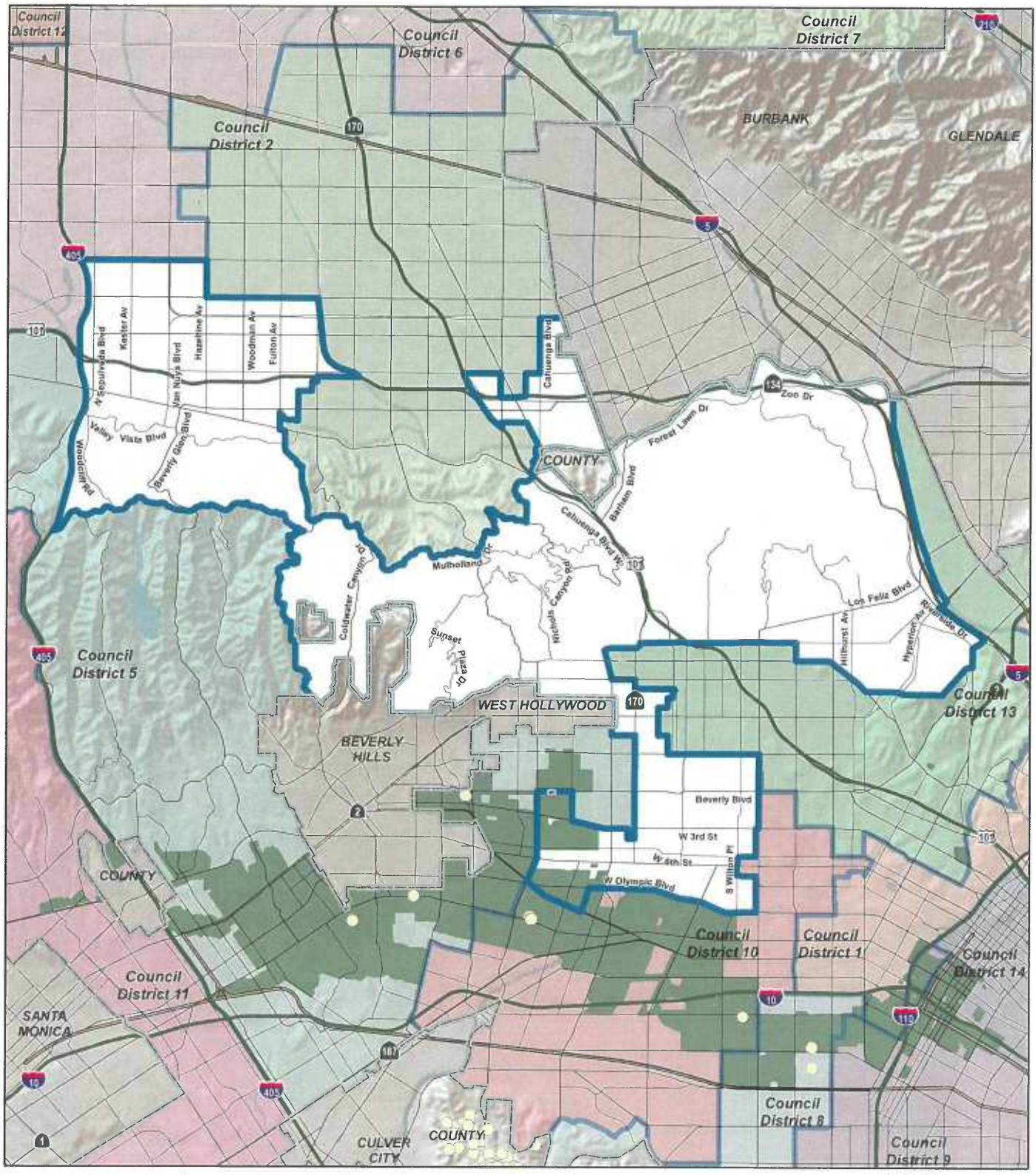

Council District 4 - Tom LaBonge

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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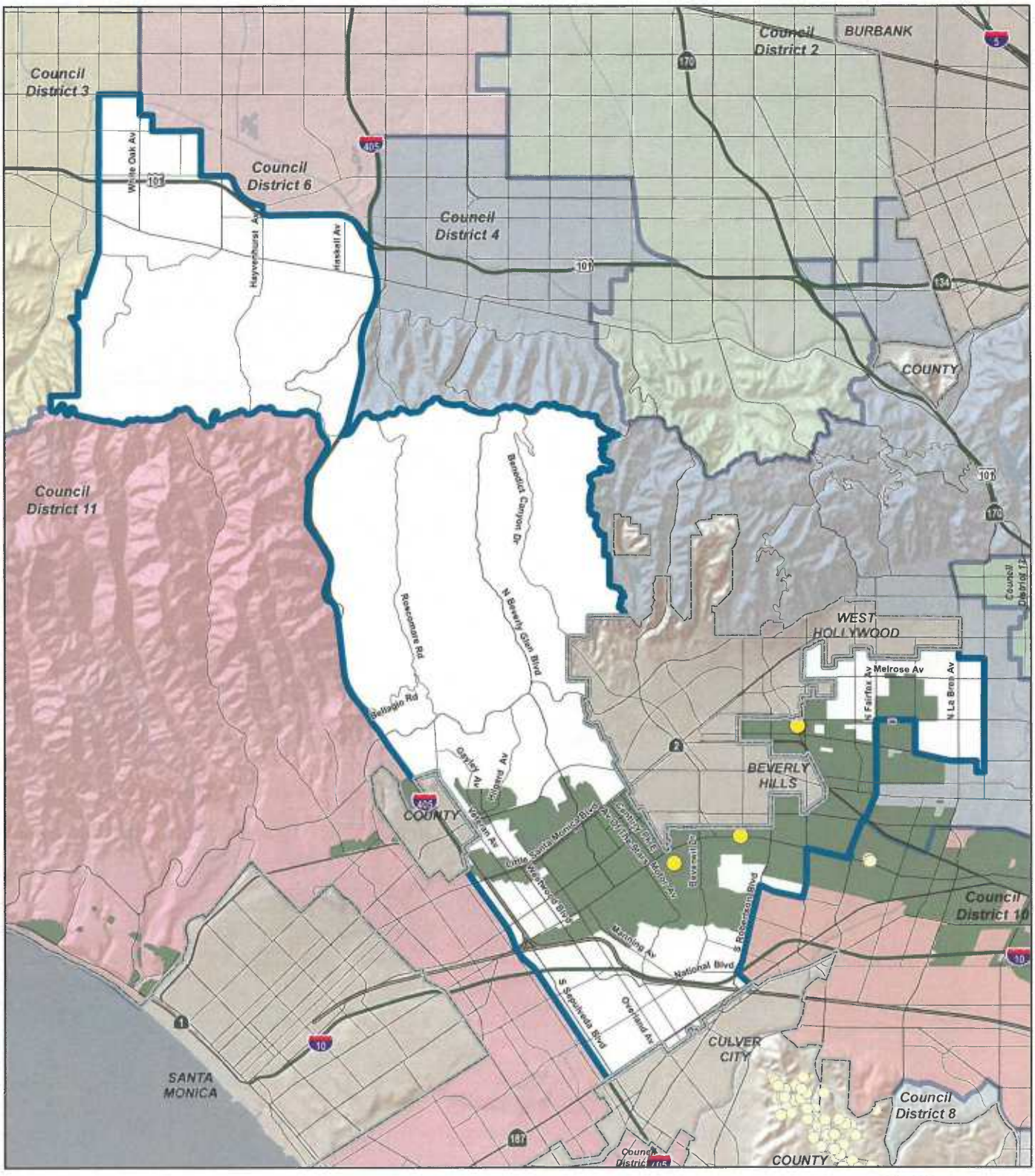

Council District 5 - Paul Koretz

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	23 Events	0 Events	28 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	2 Events	0 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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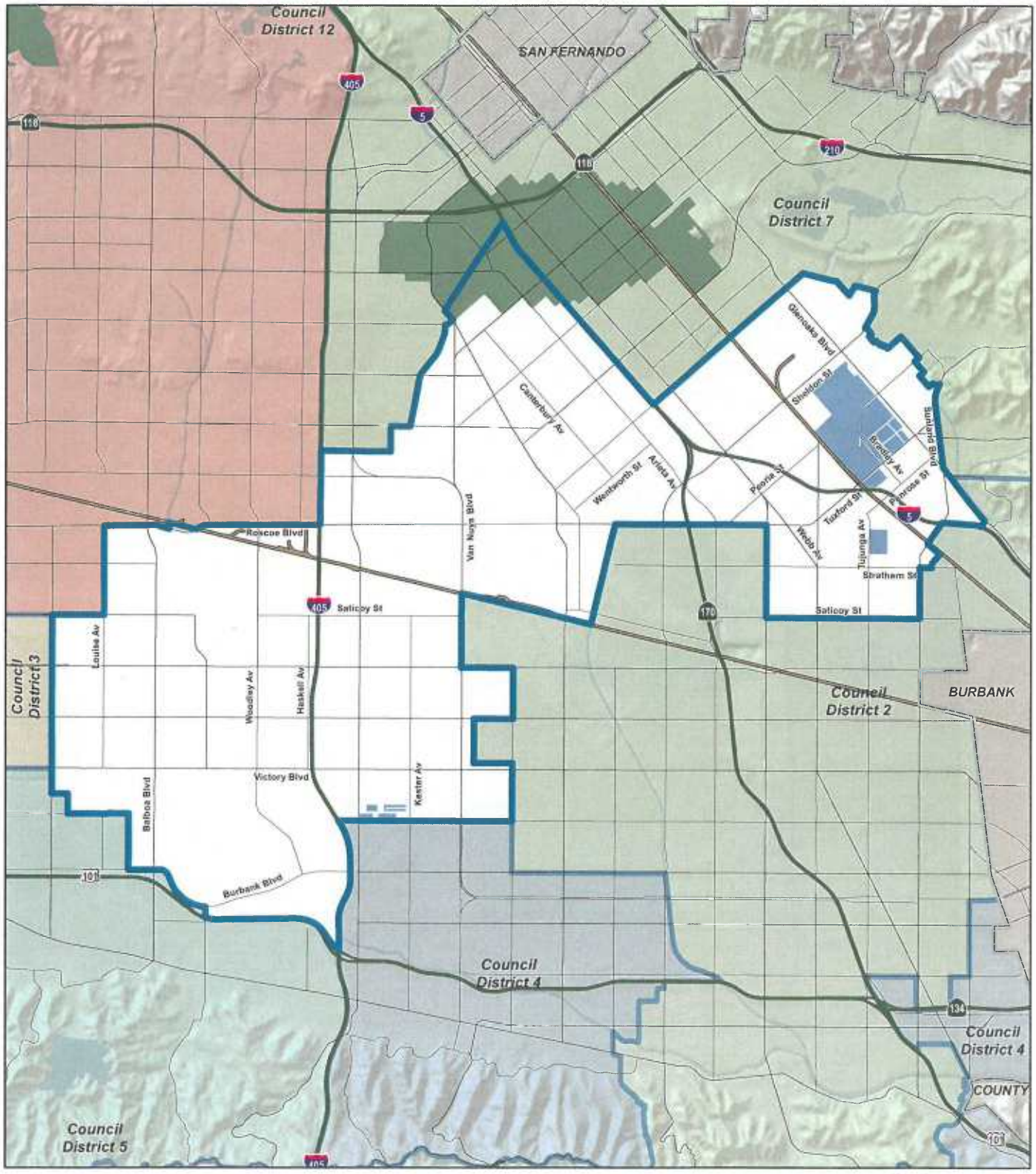


Council District 6 - Nury Martinez

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas

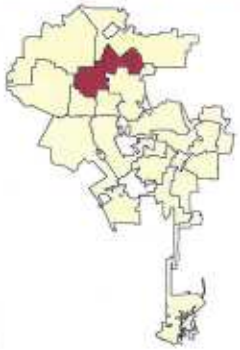
M3 Zoning Class areas

Council District Boundary

City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events



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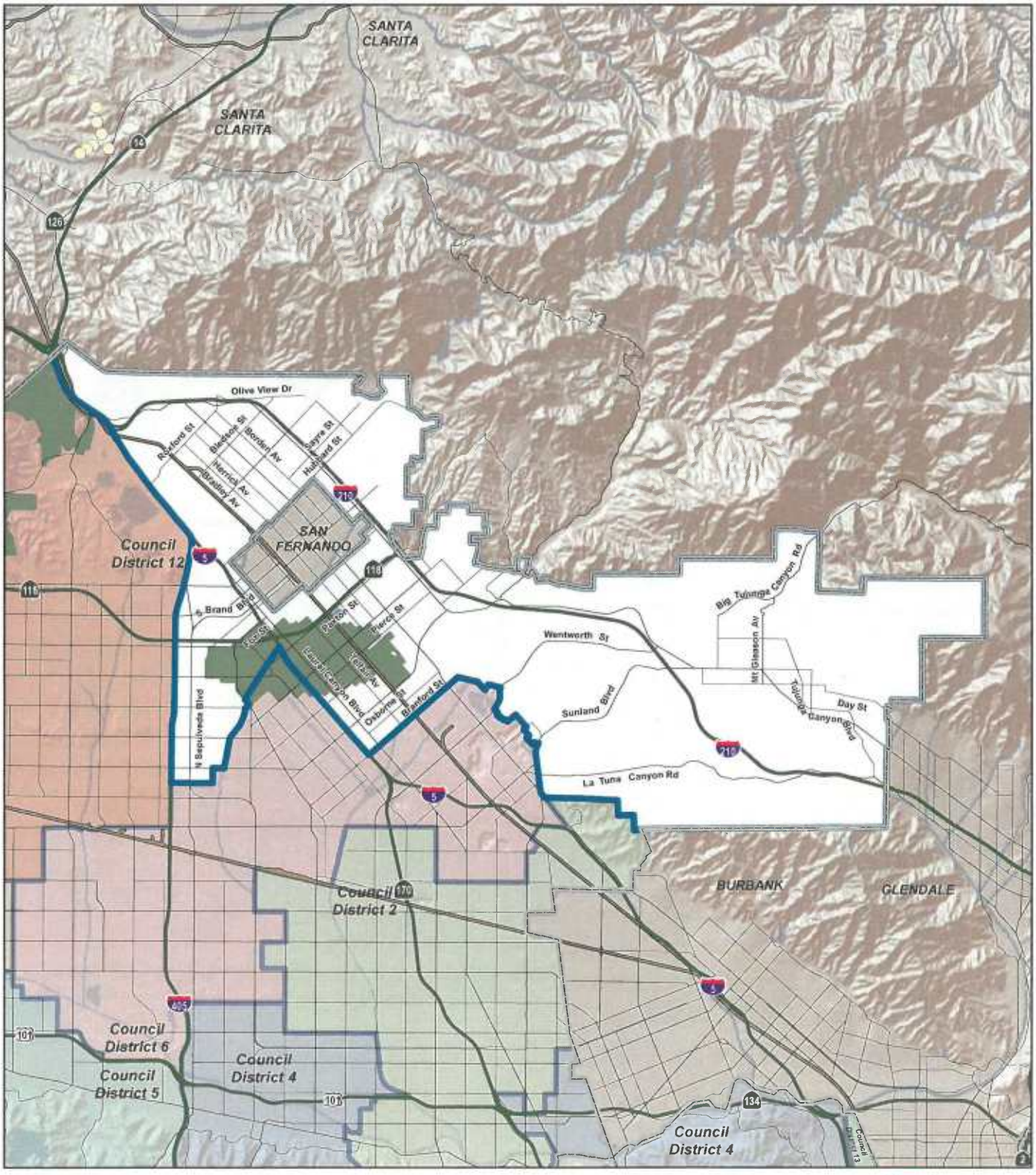

Council District 7 - Felipe Fuentes

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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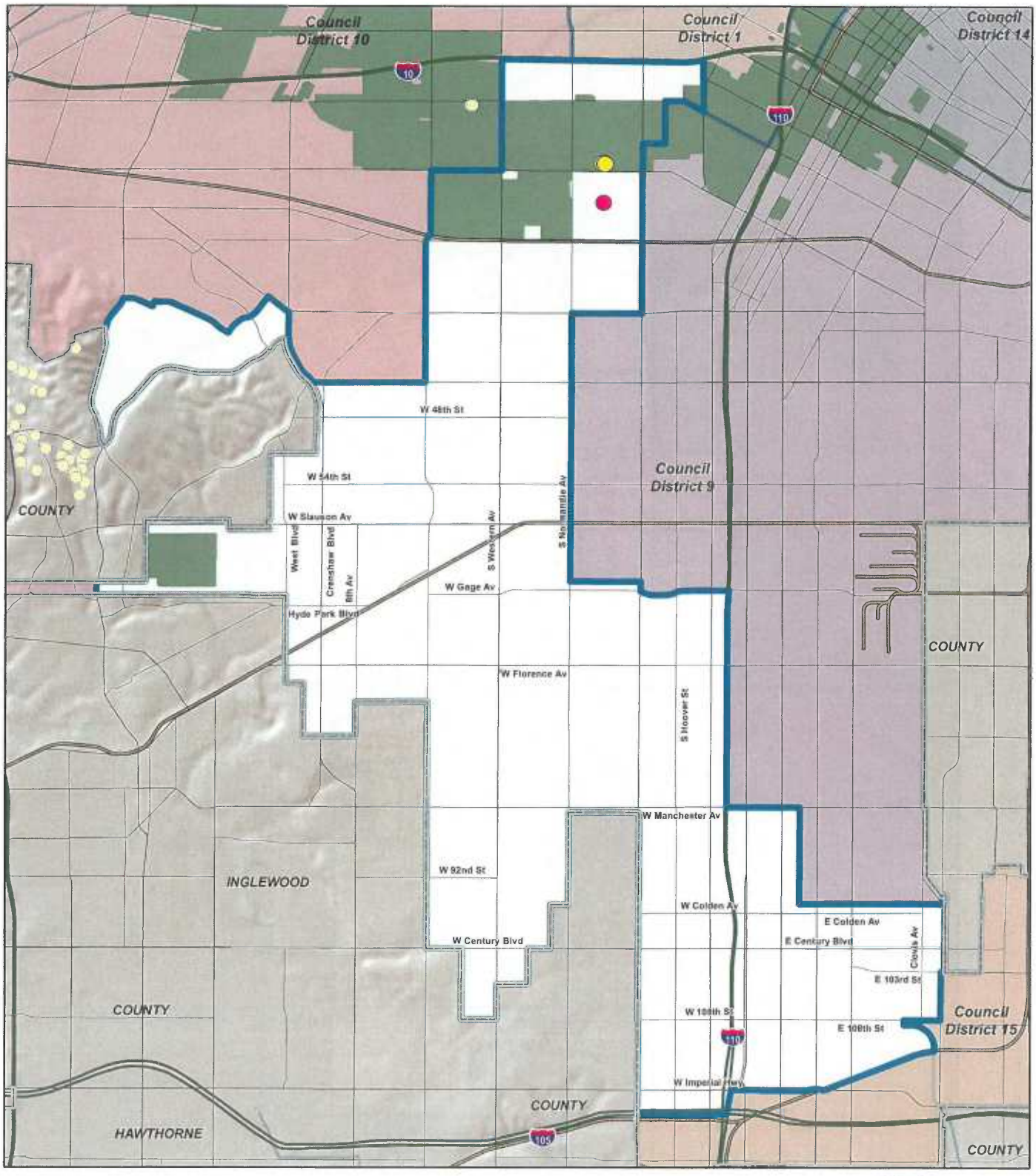

Council District 8 - Bernard C. Parks

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	3 Events	0 Events	5 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	1 Events	1 Events

Los Angeles Department of City Planning

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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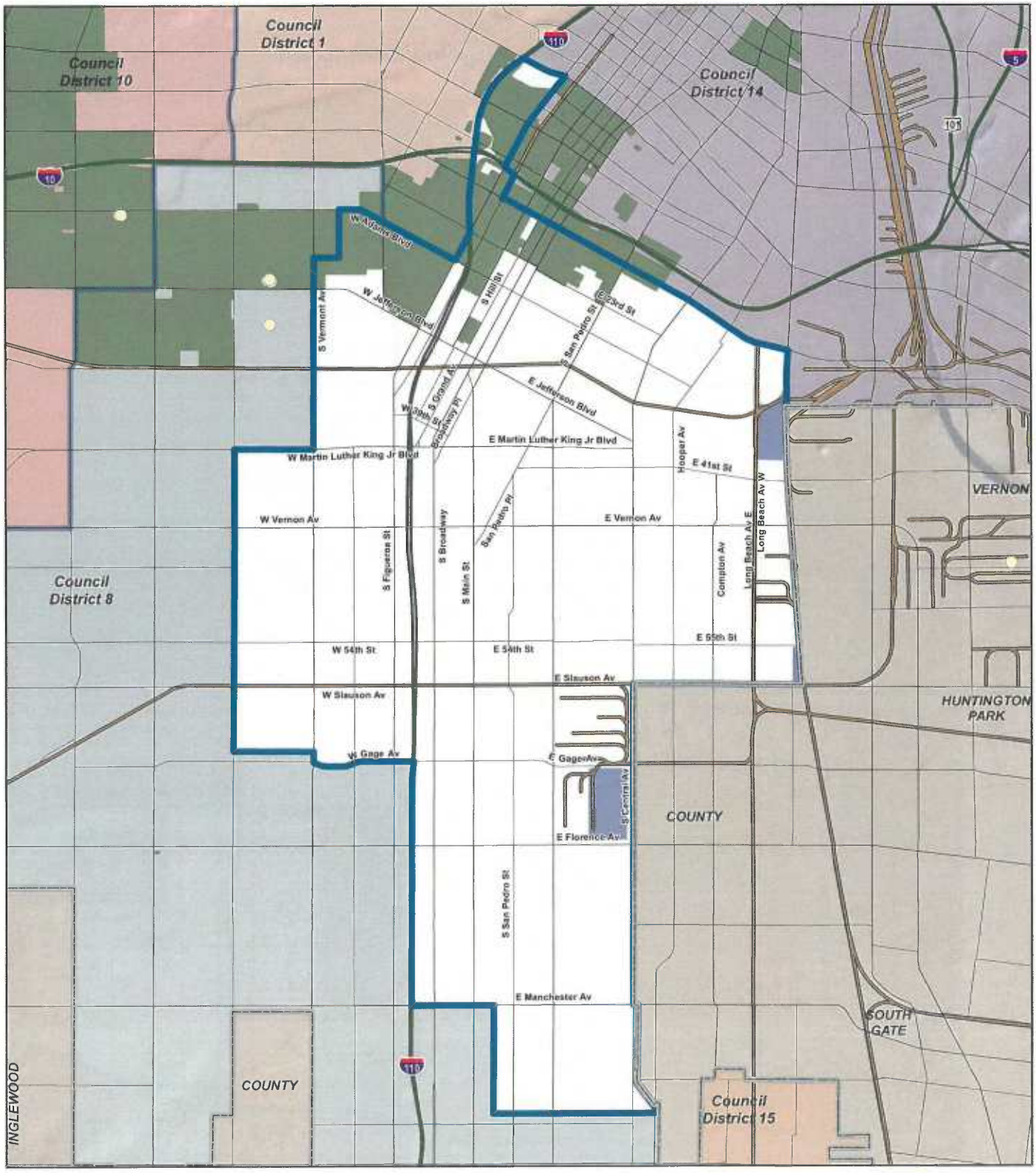

Council District 9 - Curren D. Price, Jr.

AQMD Rule 1148.2 Events

Data showing single events including but not limited to hydraulic fracturing and well stimulation.

-O Zoning District areas
M3 Zoning Class areas
Council District Boundary
City Boundary (BOE)

Hydraulic Fracturing	Acidizing	Matrix Acidizing	All Events
0 Events	0 Events	0 Events	0 Events

Acid Fracturing	Maintenance Acidizing	Gravel Packing
0 Events	0 Events	0 Events

Data Sources: Zoning, DCP © 2014; City Boundary and CDs, BOE © 2014; Streets, Fwys, and Cities TBM © 2011; Well Data, AQMD Event Nofications © 2014; World shaded relief: ESRI, INC © 2014

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Exhibit A3: DOGGR Administrative Districts

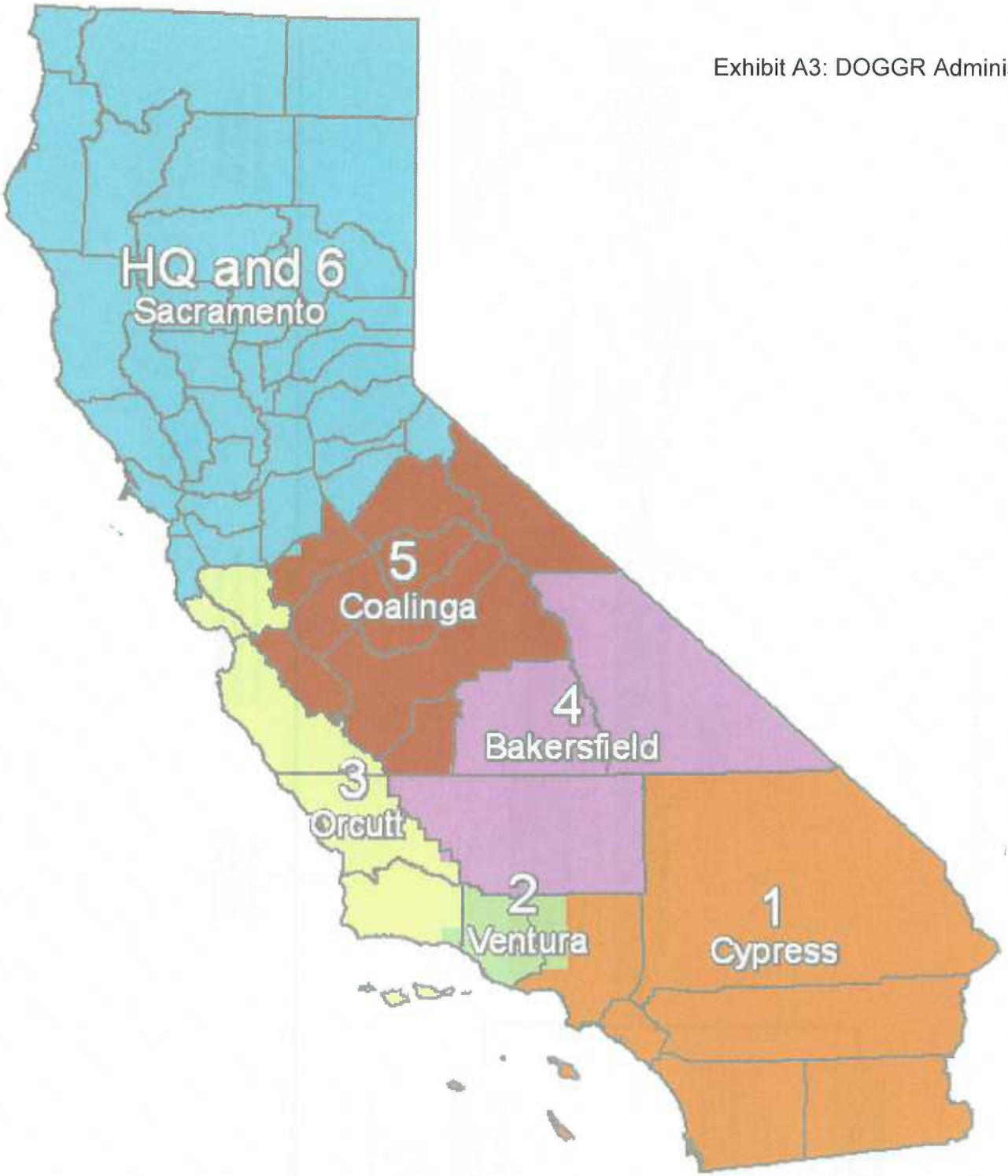
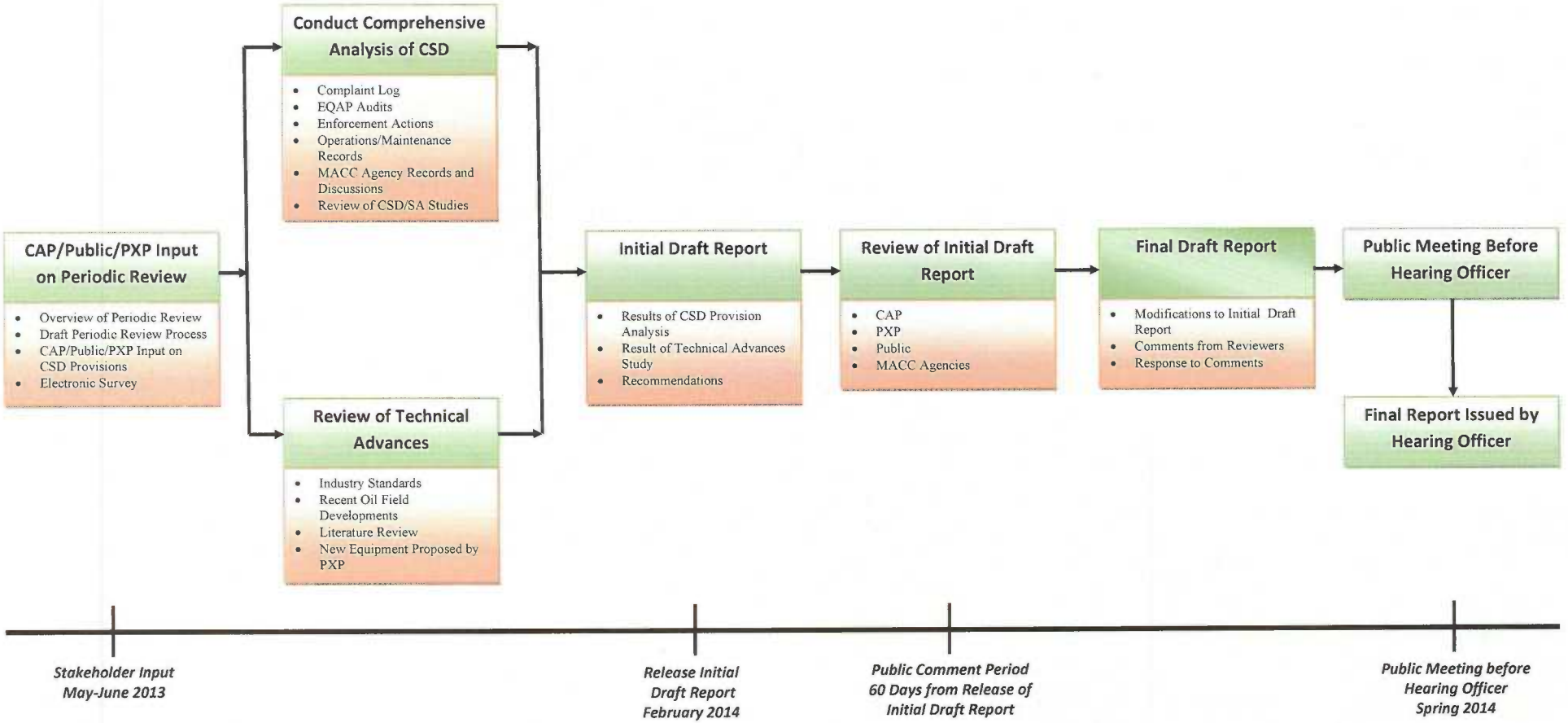


Exhibit B1

Baldwin Hills CSD

Periodic Review Flowchart



REPORT OF THE
CHIEF LEGISLATIVE ANALYST

DATE: September 5, 2014

TO: Honorable Mayor Eric Garcetti
Honorable Members, City Council
The Heads of All Departments
City of Los Angeles

FROM: Sharon M. Tso
Chief Legislative Analyst

SUBJECT: Legislative Report
Week Ending September 5, 2014

HIGHLIGHTS

WASHINGTON

- Congress was not in session

SACRAMENTO

- Legislative Calendar
- End of Session Wrap-Up
- S.B. 375 Regional Targets Update Process
- Fracking Report Released

GRANTS

Federal grant notices

FEDERAL REGISTER

Federal Register notices

FEDERAL REPORTS

Federally issued reports and other documents

Sacramento Report

Legislative Calendar

Aug 31	Last day for each house to pass bills. Final Recess begins upon adjournment.
Sept 30	Last day for Governor to sign or veto bills passed by the Legislature before Sept. 1 and in the Governor's possession on or after Sept 1.

End of Session Wrap-Up

The 2013-14 biennial legislative session wrapped up after 3:00 a.m. on August 31, the last day of the session. The Governor has 30 days to sign bills passed by the Legislature.

During the final hours of the legislative session, a number of significant bills were passed — among them measures dealing with enhanced infrastructure financing districts (SB 628), successors to redevelopment agencies, and an effort to restore local control over the regulation of massage practitioners (AB 1147) .

The League of California Cities has identified several bill of interest and concern in an End of Session Wrap-Up, available on their website. The full wrap-up can be found at: http://www.cacities.org/Top/News/News-Articles/2014/September/End-of-Session-Wrap-Up

S.B. 375 Regional Targets Update Process

The California Air Resources Board (ARB or Board) will host three public workshops throughout the State in September to seek public input on issues that should be considered before the Board updates the regional passenger vehicle greenhouse gas emission reduction targets (SB 375 targets) for the State Metropolitan Planning Organizations (MPO). ARB staff has released a Preliminary Draft Staff Report on the SB 375 Greenhouse Gas Reduction Target Update Process, posted at http://www.arb.ca.gov/cc/sb375/pre draft target update sr.pdf that identifies issues to be considered. At the workshops, ARB staff will present background information on the target update process, and will seek public input on the issues outlined in the preliminary draft staff report. ARB staff will consider all input received at these workshops before preparing a revised staff report with recommendations for target updates. The revised staff report and recommendations will be presented to the Board at a public meeting in October 2014.

One of the meetings will be held at the South Coast Air Quality Management District, Conference Room GB, 21865 Copley Drive, Diamond Bar, on September 11, 2014, at 1:30 p.m.

Fracking Report Released

California Council on Science and Technology (CCST) has released an independent report that reviews well stimulation technologies, including hydraulic fracturing, used in on-shore oil reservoirs in the state of California. This study was commissioned by the Federal Bureau of Land Management (BLM) and will inform BLM's oil and gas policies in California.

The findings of this CCST report describe current well stimulation activities in California, how, when and where they are currently applied, where they might be applied in the future and how this practice differs from other states. The report assesses information relevant to the potential future use of these technologies, and how they might or might not directly impact water supply, water quality, air quality, greenhouse gas emissions, seismicity, ecology, traffic and noise.

This independent scientific assessment of the available facts presents information for public use and will help to guide regulation and policymaking. A second expanded report on the same topic is currently in preparation for the California Natural Resources Agency in response to Senate Bill 4.

Lawrence Berkeley National Laboratory (Berkeley Lab), with help from the Pacific Institute, developed the report findings under the guidance of a steering committee of experts chartered by CCST. The steering committee, chaired by Dr. Jane C. S. Long, consisted of 12 subject-matter experts drawn from many of the major research institutes in the state as well as experts from other states with experience in well stimulation technology.

Commissioned in September 2013 by BLM, the independent report compiles existing data and literature about the nature of well stimulation in California. The report arrives at 11 main conclusions. Key among them are:

- **Well stimulation in California is different than in other states**. Available data suggest that present-day well stimulation practices in California are different from other states such as Texas and North Dakota primarily due to differences in the geology of the petroleum reservoirs. Information from well records indicates that hydraulic fracturing has been the main type of well stimulation applied in California to date and is performed on an estimated average of 100 to 150 wells per month, which is a modest level of activity compared to about 2,900 per month in the U.S. as a whole reported by FracFocus. Generally, hydraulic fracturing in California tends to be performed in shallower wells that are vertical as opposed to horizontal; requires much less water; but uses fluids with more concentrated chemicals than hydraulic fracturing in other states. Consequently, the experiences with hydraulic fracturing in other states do not necessarily apply to current hydraulic fracturing in California.

- **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 quite similar to the production practices of today**. Existing and likely future production in California takes place in reservoirs that contain oil that has migrated from the rocks where it was formed ("source rocks") to relatively near surface reservoirs where it can be produced. Over 85% of all well stimulation applications in California take place in four fields of the San Joaquin Valley in reservoirs that rely on hydraulic fracturing to enable production. It is highly likely that expanded production in similar reservoirs in the San Joaquin Valley would also use this technology. Current production in the Los Angeles Basin does not depend heavily on well stimulation and similar future production could likely occur without these technologies.

▸ **Recent reports from the Energy Information Agency (EIA) have indicated there may be a new class of very deep unconventional reservoirs in the source rocks themselves, especially in the Monterey Formation.** The 2011 EIA report suggested 15-billion barrels of recoverable oil in these source rocks but a subsequent 2014 correction by EIA reduced the estimate to 0.6 billion barrels. Recovering these resources would certainly require well stimulation. However, Berkeley Lab investigators found no reports of successful production from these deep source rocks and had questions about the EIA estimation methodology. The study's review of the two resource projections from deep source rocks in the Monterey Formation developed by EIA concluded that both these estimates are highly uncertain.

▸ **Current hydraulic fracturing operations in California require a small fraction of statewide water use.** In California a hydraulic fracturing operation can consume between 130,000 to 210,000 gallons of water per well on average, compared to about 4 million gallons per well used on average in the Eagle Ford Formation in Texas. The study estimates that California operators conduct 100 to 150 well stimulations per month, which currently requires about 150 to 400 million gallons (450-1,200 acre-feet) of water per year. Even with the relatively low water use of California operations, hydraulic fracturing can contribute to local constraints on water availability given the extreme drought in the state.

▸ **There are no publicly reported instances of potable water contamination from subsurface releases in California**. However, more than half of the stimulated oil wells in California have shallow depth (less than 2,000 feet). Shallow hydraulic fracturing poses a potential risk for groundwater if usable aquifers are nearby. Some shallow hydraulic fracturing occurs where groundwater is highly saline, or non-existent. However, investigators could not determine the groundwater quality near many hydraulic fracturing operations and found that existing data was insufficient to evaluate the extent to which contamination may have occurred. California needs to develop an accurate understanding about the location, depth and quality of groundwater in oil- and gas-producing regions in order to evaluate the risk of well stimulation to groundwater.

▸ **The toxicity of chemicals used in hydraulic fracturing fluids warrants further review now that SB 4 requires disclosure**. Based on the voluntary database FracFocus, most of the chemicals used in California well stimulations are not considered to be highly toxic. However, a few of these chemicals, especially the biocides and corrosion inhibitors, are acutely toxic to mammals. No information could be found about the toxicity of about a third of the chemicals and few of the chemicals have been evaluated to see if animals or plants would be harmed by chronic exposure. Mandatory disclosure should improve our understanding, as previous data acquired from FracFocus does not consistently disclose all chemicals and may not always be complete or accurate.

▸ **Some chemicals used for hydraulic fracturing may become incorporated in the water that is produced along with the oil ("produced water")**. In some cases, operators dilute produced water with fresh water for use in agriculture and some produced water is pumped into unlined pits where it could seep into the groundwater. Current practice and testing requirements do not necessarily protect against adding produced water contaminated with hydraulic fracturing fluid to water used in agriculture.

- **Well stimulation technologies, as currently practiced in California, do not result in a significant increase in seismic hazard**. The pressure increases from hydraulic fracturing are too small and too short in duration to be able to produce a felt, let alone damaging, earthquake. In California, only one minor, anomalous earthquake (which occurred in 1991) has been linked to hydraulic fracturing to date. In contrast, disposal of water produced from oil and gas operations into deep injection wells has caused felt seismic events in several states. Expanded oil production for any reason, including expanded use of hydraulic fracturing, would lead to increased volumes of produced water, which, if injected underground could increase seismic hazards.

- **Overall, in California, for industry practice of today, the direct environmental impacts of well stimulation practice appear to be relatively limited**. If these well stimulation technologies enable a significant increase in production in the future, the primary impacts on California's environment will likely be caused by the increase in production activities in general. Impacts of increased production will vary depending on whether this production occurs in existing production areas (both rural and urban), or in regions that have not previously been developed for oil and gas production - as well as on the nature of the ecosystems, geology, and groundwater in the vicinity.

The scientific review carefully assessed the direct environmental, climate, and public health impacts of well stimulation within the limits of available data. Records filed with state agencies before the enactment of Senate Bill 4 do not comprehensively record well stimulation events. Voluntarily submitted data, such as those available on FracFocus, although very useful, are not required to be either complete or accurate. The limitations of the data are described throughout the report in order to transparently qualify the conclusions.

Report summary available at: http://ccst.us/publications/2014/2014wstES.pdf

Full report: http://ccst.us/publications/2014/2014wst.pdf

Grants

{NOTE: The following is a listing of new or recent grant items appearing in the Federal Register, Grants.gov, and other federal sites}

Federal Transit Administration, September 5, 2014. Pages 53095-53099. Notices. Funding Availability: Innovative Public **Transportation Workforce Development Program** (Ladders for Opportunity Initiative).

Federal Transit Administration, September 4, 2014. Pages 52799-52804. Funding Availability: **Transit-Oriented Development Planning** Pilot Program Project Proposals.

{Note: The following is a listing of new or recent grant items appearing in http://www.grants.gov }

Close Date	Opportunity Title	Agency	Funding Opportunity
11/30/2014	Notice of Intent - **Off Hours Freight** Delivery	DOT Federal Highway Administration	NOI-15-OFF-HOURS-FREIGHT-DELIVERY
11/14/2014	Comprehensive High-Impact **HIV Prevention Projects** for Community-Based Organizations	Centers for Disease Control and Prevention	CDC-RFA-PS15-1502
11/03/2014	FY 2014 **Regional Innovation Grants**	Department of Commerce	EDA-HDQ-OIE-2014-2004219

Exhibit C2

SB 4 WELL STIMULATION TREATMENT REGULATIONS

FIRST REVISED TEXT OF PROPOSED REGULATIONS

Added text in originally proposed regulations is shown in underline.

Added text in revised proposed regulations is shown in double underline.

Deleted text in revised proposed regulations is shown in ~~double strikethrough~~.

CHAPTER 4. DEVELOPMENT, REGULATION, AND CONSERVATION OF OIL AND GAS RESOURCES

Subchapter 2. Environmental Protection

Article 1. General.

1751. Single-Project Authorization.

(a) For the purposes of this section, "single-project authorization" shall mean a single Division approval for multiple applications for permits to perform well stimulation treatments under Public Resources Code section 3160, subdivision (d), and/or notices of intent to drill or rework wells under Public Resources Code section 3203.

(b) A request for a single-project authorization shall include:

(1) Identification of each of the applications and notices that are part of the request;

(2) The applications and notices that comprise the request for a single-project authorization.

(c) The Division will review each application and notice submitted for single-project authorization in the same manner as it would had the application or notice been submitted individually. A single-project authorization shall specify which of the application or notices have been approved and the conditions of each approval. ~~specify what operations are approved by a single-project authorization and the conditions under which the operations are approved.~~

(d) Operations approved by a single-project authorization that have not commenced within one year shall not be commenced without first obtaining a new approval for those operations from the Division.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Sections 3106, 3160, and 3203 Public Resources Code.

Article 2. Definitions

1761. Well Stimulation and Underground Injection Projects.

(a) The following definitions are applicable to this ~~chapter~~ subchapter:

(1) "Well stimulation treatment" means a treatment of a well designed to enhance oil and gas production or recovery by increasing the permeability of the formation.

(A) Well stimulation is a short term and non-continual process for the purposes of opening and stimulating channels for the flow of hydrocarbons. Examples of well stimulation treatments include hydraulic fracturing, acid fracturing, and acid matrix stimulation.

(i) A treatment at pressure exceeding the formation fracture gradient shall be presumed to be a well stimulation treatment unless it is demonstrated to the Division's satisfaction that the treatment, as designed, does not enhance oil and gas production or recovery by increasing the permeability of the formation.

(ii) A treatment that involves emplacing acid in a well and that uses a volume of fluid equal to or greater than the Acid Volume Threshold for the operation shall be presumed to be a well stimulation treatment unless it is demonstrated to the Division's satisfaction that the treatment, as designed, does not enhance oil and gas production or recovery by increasing the permeability of the formation.

(iii) The searchable index maintained by the Division under Section 1777.4(d) will clearly indicate each submission for a treatment that exceeds the formation fracture gradient or emplaces acid in the well and exceeds the Acid Volume Threshold, and such submissions shall include the Division's determination that the treatment is not a well stmulation treatment and the basis for the determination.

(B) Well stimulation treatment does not include routine well cleanout work; routine well maintenance; routine treatment for the purpose of removal of formation damage due to drilling; bottom hole pressure surveys; routine activities that do not affect the integrity of the well or the formation; the removal of scale or precipitate from the perforations, casing, or tubing; a gravel pack treatment that does not exceed the formation fracture gradient; or a treatment that involves emplacing acid in a well and that uses a volume of fluid that is less than the Acid Volume Threshold for the operation

and is below the formation fracture gradient ~~does not penetrate into the formation more than 36 inches from the wellbore~~.

(2) "Underground injection project" or "subsurface injection or disposal project" means sustained or continual injection into one or more wells over an extended period in order to add fluid to a zone for the purpose of enhanced oil recovery, disposal, or storage. Examples of underground injection projects include waterflood injection, steamflood injection, cyclic steam injection, injection disposal, and gas storage projects.

(3) "Acid Volume Threshold" means a volume, in gallons, per treated foot of well stimulation treatment, calculated as follows: ((48,858 inches^3 x treated formation porosity) – wellbore volume of treated zone (inches^3)) / (231 (inches^3)/gallon).

(b) Well stimulation treatments and underground injection projects are two distinct kinds of oil and gas production processes. Unless a regulation expressly addresses both well stimulation and underground injection projects,

(1) Regulations regarding well stimulation treatments do not apply to underground injection projects; and

(2) Regulations regarding underground injection projects do not apply to well stimulation.

(3) If well stimulation treatment is done on on a well that is part of an underground injection project then regulations regarding well stimulation treatment apply to the well stimulation treatment and regulations regarding underground injection projects apply to the underground injection project operations.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Section 3106, 3157, and 3160, Public Resources Code.

Article 3. Requirements

1777.4. Well Maintenance and Cleanout History.

(a) Within 60 days of completing an operation on a well that involves emplacing fluid containing acid in the well, the operator shall submit the following information with the Division for inclusion in the well history:

(1) A description of the nature and purpose of the operation;

(2) The volume of fluid emplaced in the well in the course of the operation, including specification of the gallons per treated foot; and

(3) Calculation of the Acid Volume Threshold for the operation.

(b) Within 60 days of completing an operation on a well that involves application of pressure to the formation, the operator shall submit the following information with the Division for inclusion in the well history:

(1) A description of the nature and purpose of the operation; and
(2) The bottom-hole pressure applied to the formation.
(c) This section does not apply to the following operations:
(1) Well stimulation treatments regulated under Article 4 of this subchapter;
(2) Underground injection project operations regulated under Sections 1724.6 through 1724.10 or Sections 1748 through 1748.3; or
(3) Drilling. redrilling, reworking, plugging, or abandonment operations permitted under Public Resources Code section 3203 or 3229.
(d) The Division will maintain a searchable index of submission made under this section, and the index will be made available on the the Division's public internet website. The searchable index will clearly indicate each submission for a treatment that exceeds the formation fracture gradient or emplaces acid in the well and exceeds the Acid Volume Threshold, and such submissions shall include the the Division's determination that the treatment is not a well stmulation treatment and the basis for the determination.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Section 3106, 3160, and 3213 Public Resources Code.

Article 4. Well Stimulation Treatments

1780. Purpose, Scope, and Applicability.

(a) The purpose of this article is to set forth regulations governing well stimulation treatments, as defined in Section 1761~~, subdivision~~ (a)(1), for wells located both onshore and offshore.~~ except that the requirements of this article do not apply to acid matrix stimulation treatments that use an acid concentration of 7% or less. Nor is an operator required to obtain a permit under Public Resources Code section 3160, subdivision (d), prior to performing an acid matrix stimulation treatment that uses an acid concentration of 7% or less.~~
(b) Well stimulation treatments are not subsurface injection or disposal projects and are not subject to Sections 1724.6 through 1724.10 or Sections 1748 through 1748.3. This article does not apply to underground injection projects.
(c) For purposes of this article, a well stimulation treatment commences when well stimulation fluid is pumped into the well, and ends when the well stimulation treatment equipment is disconnected from the well.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1781. Definitions.

The following definition shall govern this article:

(a) "**Acid fracturing**" means a well stimulation treatment that, in whole or in part, includes the pressurized injection of acid into an underground geologic formation in order to fracture the formation, thereby causing or enhancing, for the purposes of this division, the production of oil or gas from a well.

(b~~a~~) "**Acid matrix stimulation treatment**" means an acid treatment conducted at pressures lower than the applied pressure necessary to fracture the underground geologic formation.

(c~~b~~) "**Acid well stimulation treatment**" means a well stimulation treatment that uses, in whole or in part, the application of one or more acids to the well or underground geologic formation. The acid well stimulation treatment may be at any applied pressure and may be used in combination with hydraulic fracturing treatments or other well stimulation treatments. Acid well stimulation treatments include acid matrix stimulation treatments and acid fracturing treatments.

(d~~c~~) "**Acid stimulation treatment fluid**" means one or more base fluids mixed with physical and chemical additives for the purpose of performing an acid well stimulation treatment.

(e~~d~~) **"Additive"** means a substance or combination of substances added to a base fluid for purposes of preparing well stimulation treatment fluid, including, but not limited to, acid stimulation treatment fluid and hydraulic fracturing fluid. An additive may serve additional purposes beyond the transmission of hydraulic pressure to the geologic formation. An additive may be of any phase and may include proppants.

(f~~e~~) **"Base fluid"** means the continuous phase fluid used in the makeup of a well stimulation treatment fluid. The continuous phase fluid may include, but is not limited to, water, and may be a liquid or a hydrocarbon or nonhydrocarbon gas. A well stimulation treatment may use more than one base fluid.

(g~~f~~) "**Chemical Disclosure Registry**" means ~~the Internet Web site developed by the Division for the purpose of reporting the information required under Section 1788. Until the Division has completed development of the reporting website, "Chemical Disclosure Registry" shall mean~~ the chemical registry Internet Web site known as fracfocus.org developed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission~~, or another publicly accessible information Internet Web site that is designated by the Division~~.

(h) "**Designated Contractor for Water Sampling**" means an independent third-party person or entity designated by the State Water Board to sample water well and surface water in accordance with Public Resources Code section 3160, subdivision (d)(7).

(ig) "**Flowback fluid**" means the fluid recovered from the treated well before the commencement of oil and gas production from that well following a well stimulation treatment. The flowback fluid may include materials of any phase.

(jh) "**Hydraulic fracturing**" means a well stimulation treatment that, in whole or in part, includes the pressurized injection of hydraulic fracturing fluid into an underground geologic formation in order to fracture the formation, thereby causing or enhancing, for the purposes of this division, the production of oil or gas from a well.

(ki) "**Hydraulic fracturing fluid**" means one or more base fluids mixed with physical and chemical additives for the purpose of hydraulic fracturing.

(l) **"Independent third party"** means a person or entity responsible to an operator, but who is not an employee of the operator, is not under the ownership or direct control of the operator, and does not have a direct financial interest in the production activities of the operator.

(mj) "**Proppants"** means materials inserted or injected into the underground geologic formation that are intended to prevent fractures from closing.

(nk) "**Protected water**" means water outside of a hydrocarbon zone that contains no more than 10,000 mg/l total dissolved solids unless the water has been determined to be an exempt aquifer pursuant to the Code of Federal Regulations, title 40, part 146.4.

(ol) "**Regional Water Board**" means the Regional Water Quality Control Board with jurisdiction over the location of a well subject to well stimulation treatment.

(p) "**State Water Board**" means the the State Water Resources Control Board.

(qm) "**Surface property owner**" means the owner of real property as shown on the latest equalized assessment roll or, if more recent information than the information contained on the assessment roll is available, the owner of record according to the county assessor or tax collector.

(r) **"Tenant"** means a person or entity with a possessory interest in and right to occupy a legally recognized parcel, or portion thereof.

(sn) "**Well stimulation treatment fluid**" means a base fluid mixed with physical and chemical additives, which may include acid, for the purpose of a well stimulation treatment. A well stimulation treatment may include more than one well stimulation treatment fluid. Well stimulation treatment fluids include, but are not limited to, hydraulic fracturing fluids and acid stimulation treatment fluids.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Sections 3106, 3150, 3151, 3152, 3153, 3154, 3156, 3158, 3159, and 3160, Public Resources Code.

1782. General Well Stimulation Treatment Requirements.

(a) When a well stimulation treatment is performed, the operator shall ensure that all of the following conditions are continuously met:

(1) Casing is sufficiently cemented or otherwise anchored in the hole in order to effectively control the well at all times;

(2) Geologic and hydrologic isolation of the oil and gas formation are maintained during and following the well stimulation treatment;

(3) All potentially productive zones, zones capable of over-pressurizing the surface casing annulus, or corrosive zones be isolated and sealed off to the extent that such isolation is necessary to prevent vertical migration of fluids or gases behind the casing;

(4) All well stimulation treatment fluids are directed into the zone(s) of interest;

(5) The wellbore's mechanical integrity is tested and maintained;

(6) The well stimulation ~~treat~~ treatment fluids used are of known quantity and description for reporting and disclosure as required pursuant to this ~~A~~article; and

(7) The well stimulation treatment fluid is not of a concentration level that will damage the well casing, tubing, cement, or other well equipment, or would otherwise cause degradation of the well's mechanical integrity during the treatment process~~.~~;

(8) Well breach occurring during well stimulation treatment will be reported as required in Section 1785, subdivision (d); and

(9) Well stimulation treatment operations are conducted in compliance with all applicable requirements of the Regional Water Board, the Department of Toxic Substances Control, the Air Resources Board, the Air Quality Management District or Air Pollution Control District, the Certified Unified Program Agency, and any other local agencies with jurisdiction over the location of the well stimulation activities.

(b) In addition to specific methods set forth in these regulations, to achieve the objectives of this section, the operator shall follow the intent of all applicable well construction requirements, use good engineering practices, and employ best industry standards.

(c) The operator terminate well stimulation treatment soon as it is safe to do so after it determines, or is informed by the Division, that any of the conditions of subdivision (a) are not being met.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1783. Application for Permit to Perform Well Stimulation Treatment.

(a) A well stimulation treatment or repeat well stimulation treatment shall not commence without a valid permit approved by the Division and shall be done in accordance with the conditions of the Division's approval.

(b) An application for a permit to conduct well stimulation operations shall include all of the information listed in Section 1783.1 and shall be submitted electronically to the Division on a digital form specified by the Division and available on the Division's public internet Web site at http://www.conservation.ca.gov/DOG/Pages/Index.aspx.

(c) Upon receipt of a complete application for a permit to conduct well stimulation treatment, the Division will provide a copy of the permit application, including information in the application designated as trade secret or confidential, to the Regional Water Board, the Department of Toxic Substance Control, the Air Resources Board, and the local air district where the well stimulation treatment may occur, provided that the manner and timing of providing copies of permit applications has been specified in a written agreement between the Division and the receiving agency.

(c) The operator shall notify the Division at least 72 hours prior to commencing well stimulation so that Division staff may witness. Three hours prior to commencing, the operator shall confirm with the Division that the well stimulation treatment is proceeding. Upon receipt of 72-hour notice from an operator, the Division will relay the notice to the Regional Water Board, the Department of Toxic Substance Control, the Air Resources Board, and the local air district where the well stimulation treatment may occur, provided that the manner and timing of relaying the notice has been specified in a written agreement between the Division and the receiving agency.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Sections 3106 and 3160, Public Resources Code.

1783.1. Contents of Application for Permit to Perform Well Stimulation Treatment.

(a) An application for a permit to perform a well stimulation treatment shall include the following:

(1) Operator's name;

(2) Name and telephone number of person filing the form;

(3) Name of person to contact with technical questions regarding operations;

(4) Telephone number and email address of person to contact with technical questions regarding operations;

(5) Lease name and number of the well;

(6) Location of the well, submitted as a six-digit decimal degrees, non-projected, Latitude Longitude, in the General Coordinate System (GCS) NAD83.

(7) API number assigned to the well by the Division;

(8) Type of well;

(9) Name of the oil field;

(10) County in which the well is located;

(11) The estimated two-week time period during which the well stimulation treatment is planned to occur.

~~(12) For directionally drilled wells, the proposed coordinates (from surface location), the true vertical depth at total depth, and the wellbore path;~~

(12~~13~~) Estimated measured and estimated true vertical depth of the well, and, for directionally drilled wells, a description of the wellbore path that is specific enough to identify the location of the well stimulation treatment;

(13~~14~~) ~~Name~~ Formation name and vertical depth of the top and bottom of the productive horizon where well stimulation treatment will occur;

(14) The number of stages in the well stimulation treatment;

(15) ~~The~~ For each stage of the well stimulation treatment, the measured and true vertical depth of the planned ~~location~~ interval of the well stimulation treatment on the well bore;~~, the~~

(16) The estimated length (measured perpendicular to the wellbore), height (measured perpendicular to the length), and direction of the induced fractures or other planned modification~~, if any, and the location of existing wells, including plugged and abandoned wells, that may be impacted by these fractures and modifications~~;

(17~~16~~) Depth of the base of protected water, including method used to determine protected water;

(18~~17~~) ~~Anticipated~~ For each stage of the well stimulation treatment, the anticipated volume, rate, and pressures of fluid to be injected;

(19~~18~~) Identification of all wells that have previously been ~~hydraulically fractured~~ subject to well stimulation treatment in the same production horizon within the area of twice the anticipated ~~fracture~~ radius of the planned fracture or modification;

(20~~19~~) Identification of where in the operator's Spill Contingency Plan handling of well stimulation fluid and additives has been addressed;

(21~~20~~) The operator's plan for completing the cement evaluation required under Section ~~1784(a)(1)~~ 1784.2(a), or a request for approval of an alternate cement evaluation plan under Section 1784.2(c);

(22~~21~~) The information required for the well stimulation treatment radius analysis ~~required~~ under Section 1784(a)~~(2), including identification of all water within the area of the well stimulation treatment radius analysis, and the names and API numbers of all wells within the area of the well stimulation treatment radius analysis~~;

(23~~22~~) The well stimulation treatment design required under Section 1784(b)~~(a)(3)~~;

(2423) A water management plan that includes all of the following:

(A) aAn estimate of the amount of water to be used in the treatment;;

(B) aAn estimate of water to be recycled following the well stimulation treatment;;

(C) A description of how and where the water from a well stimulation treatment will be recycled, including a description of any treatment or reclamation activities to be conducted prior to recycling or reuse;

(D) tThe anticipated source of the water to be used in the treatment, including how the water will be acquired, where the water will acquired, and, if the water will be purchased, from whom the water will be purchased; and

(E) tThe anticipated disposal method that will be used for the recovered water in the flowback fluid from the treatment that is not produced water that would be reported pursuant to Section 3227;

(25) A description of anticipated procedures to comply with the Hazardous Waste Control Law (Health and Safety Code §§ 25100 et seq.) and implementing regulations pertaining to the activities and information provided under this article;

(26) The anticipated source, amount, and composition of the base fluids to be used in the treatment, including pH, flash point, and any constituents listed in California Code of Regulations, title 22, section 66261.24, subdivision (a)(2);

(2724) The estimated amount of treatment-generated waste materials that are not addressed by the water management plan, and the anticipated disposal method for the waste materials;

(2825) Certification Documentation from either the State Water Board or the Regional Water Board that the well subject to the well stimulation treatment is covered by a well-specific, field-wide, or regional ground water monitoring plan developed in accordance with Water Code section 10783; and

(2926) A complete list of the names, Chemical Abstract Service numbers, and estimated concentrations, in percent by mass, of each and every chemical constituent of the well stimulation fluids anticipated to be used in the treatment. If (if a Chemical Abstract Service number does not exist for a chemical constituent, another unique identifier may be used, if available);

(30) The State Clearinghouse Number or other identification of all documents prepared under the California Environmental Quality Act that relate to the proposed well stimulation treatment; and

(31) Other information as requested by the Division.

(b) A claim of trade secret protection for the information required under this section shall be handled in the manner specified under Public Resources Code section 3160, subdivision (j).

(c) Notwithstanding any claim of trade secret protection, the Division shall not approve as complete an application for a permit to perform a well stimulation treatment unless all of the information specified in this paragraph has been provided to the Division.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Sections 3106 and 3160, Public Resources Code; Section 10783, Water Code.

~~**1783.2. Copy of Well Stimulation Permit; Notice of Availability for Water Testing, Sampling.**~~

~~(a) At least 30 days in advance of commencing well stimulation treatment, the operator of any oil or gas well receiving a well stimulation treatment permit from the Division is required to provide to surface property owners and tenants of legally recognized parcels of land situated within a 1500 foot radius of the wellhead of any such well, or within 500 feet of the horizontal projection of the subsurface parts of any such well, the following:~~

~~(1) A copy of the well stimulation treatment permit;~~

~~(2) Notice of the availability for water sampling and testing of any water well suitable for drinking or irrigation purposes; and~~

~~(3) Notice of the availability for water sampling and testing of any surface water suitable for drinking or irrigation purposes.~~

~~(b) For the purposes of this section, "tenant" means a person or entity possessing the right to occupy a legally recognized parcel, or portion thereof, by way of a valid written agreement.~~

~~(c) For the purposes of this section, "horizontal projection" means the surface representation of the horizontal path of the wellbore.~~

~~NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.~~

~~**1783.3. Duty to Hire Independent Third Party to Provide Copy of Permit, Notice of Water Testing, Sampling.**~~

~~(a) It is the operator's responsibility to identify the surface property owners and tenants to whom a copy of the well stimulation treatment permit must be provided and notification is required under Section 1783.2. To fulfill this responsibility, the operator or owner must hire an independent person or entity to provide a copy of the permit and the notification required.~~

~~(b) Any person or entity hired by the owner of a well to provide a copy of the permit and notice in accordance with this regulation shall, after providing such notice, deliver to the Division, in writing, the following:~~

~~(1) The names of the property owners or tenants identified;~~
~~(2) The method by which the copy of the permit was provided, and the date on which the copy of the permit was provided; and~~
~~(3) The method by which the notice of the availability of water sampling and testing was provided, and the date on which the notice was provided.~~
~~(c) Information about the availability of water quality testing may be included in the notification or the notification may reference a website with further information about testing options.~~

~~NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.~~

1783.2 Neighbor Notification, Duty to Hire Independent Third Party.

(a) The operator of any oil or gas well receiving a permit to conduct well stimulation treatment from the Division shall hire an independent third party to perform the following actions:

(1) Identify surface property owners and tenants of legally recognized parcels of land situated within a 1500-foot radius of the wellhead receiving well stimulation treatment, or within 500 feet of the surface representation of the horizontal path of the subsurface parts of such well, other than the surface property owner of the parcel upon which the oil or gas well receiving the well stimulation treatment is located;

(2) Provide all surface property owners and tenants so identified, or their duly authorized agents, with neighbor notification that shall include and must be limited to both of the following:

(A) A copy of the approved well stimulation treatment permit; and

(B) A completed Well Stimulation Treatment Neighbor Notification Form (1/15 version), hereby incorporated by reference; and

(3) Compile and mail to the Division a declaration of notice pursuant to subdivision (h).

(b) Neighbor notification is not required if the independent third party determines that there are no surface property owners or tenants as described in subdivision (a)(1).

(c) A well stimulation treatment subject to the neighbor notification requirements of this section shall not commence until 30 calendar days after all required notices are provided, as defined in subdivision (e). If the independent third party has made a determination under subdivision (b) that neighbor notification is not required, then the well stimulation treatment shall not commence until at least 72 hours after the operator provides the Division with a signed written statement from the independent third party certifying that determination.

(d) The notice required under subdivision (a)(2) may be given by any of the following means:

(1) Personal delivery;

(2) Overnight delivery by an express service carrier;

(3) Registered, certified, or express mail;

(4) Electronic mail or facsimile, but only if the person to be notified has agreed in writing prior to the notice to accept notice by electronic mail or facsimile. The prior written agreement shall contain the email address or facsimile number of the person to be notified, which address or number shall be used until otherwise instructed by the person to be notified.

(e) The notice required under this section is deemed to have been provided at the following times:

(1) If given by personal delivery, when delivered;

(2) If given by overnight delivery by an express service carrier, 2 calendar days after the notice is deposited with the carrier;

(3) If given by registered, certified or express mail, 5 calendar days after the notice is deposited in the mail;

(4) If given by electronic mail or facsimile, 2 calendar days after the notice is transmitted.

(f) Any notice that is given to surface property owners by overnight delivery by an express service carrier or by registered, certified, or express mail shall be addressed to the address of record for that person, or his/her duly authorized agent, as shown on the latest equalized assessment roll, county assessor or tax collector records. In addition, if the owner's address of record is different from the physical address of the property within the notification radius, and if that property is capable of receiving mail, a copy of the notice shall also be delivered or mailed to that property.

(g) No notice to any tenant shall be considered deficient for lack of a named individual. Notice to any tenant can be addressed generally to "current resident," "current occupant," or such other non-specific addressee, as may be appropriate.

(h) In addition to the means set forth in subdivision (d), tenants of a residential or commercial property that has 10 or more individual units for lease may be provided notice by leaving the copy of the permit and Well Stimulation Treatment Neighbor Notification Form at the individual residential or commercial unit between the hours of eight in the morning and six in the evening, with some person not less than 18 years of age who provides a signature acknowledging receipt of the notice. Notice given in accordance with this subdivision shall be treated as a personal delivery for purposes of determining when such notice is deemed provided under subdivision (e).

(i) The independent third party hired by the operator to provide notice under this section shall, within 5 calendar days of all required notices having been provided for a well stimulation treatment, submit to the Division in a text-searchable electronic format, directed to the email address "NeighborNotificationWST@conservation.ca.gov" a declaration of notice that states all of the following:

(1) Identifying information for the well receiving well stimulation treatment and the operator of that well;

(2) A list of all notices provided, itemized by the name of each surface property owner, name of each tenant, or designations for any non-specific addressees under subdivision (g);

(3) The County Assessor's Parcel Number for the property within the notification radius that corresponds to each notice provided;

(4) The specific method of providing each notice, including the physical or electronic address to which each notice was sent;

(5) The date each notice was personally delivered, deposited with an express carrier or mail service, or transmitted electronically;

(6) The date each notice is deemed to have been provided in accordance with subdivision (e); and

(7) Representative copies of the completed Well Stimulation Treatment Neighbor Notification Form that were provided.

(j) If any additional surface property owners or tenants are notified after the original declaration of notice is provided to the Division, then the independent third party shall within 5 calendar days submit to the Division a supplemental declaration of notice that contains the information listed in subdivision (i).

(k) Each independent third party hired by the operator to provide notice under this section shall retain copies of all of the following:

(1) A representative copy of the well stimulation treatment permits provided to surface property owners and tenants;

(2) Representative copies of the completed Well Stimulation Treatment Neighbor Notification Form provided to surface property owners and tenants;

(3) Documentation demonstrating that the notices required under this section were provided, including documentation from the United States Postal Service or express service carrier such as proof of payment records, return receipts, delivery confirmations, and tracking records; and

(4) Records relied upon to identify surface property owners and tenants who must receive notice under this section.

(l) Records specified for retention under subdivision (k) shall be made available to the Division promptly upon request, and shall be maintained for at least 5 years from the

date that the declaration of notice required under subdivision (h) is submitted to the Division.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Sections 3106 and 3160, Public Resources Code.

1783.3 Availability of Water Testing, Request for Water Testing.

(a) A surface property owner notified pursuant to Section 1783.2 may request water quality testing on any existing water well or surface water located on the parcel that is suitable for drinking or irrigation purposes, provided that the request is made in writing and postmarked to the operator within 20 calendar days from the date notice is provided under section 1783.2(e).

(b) When a surface property owner makes a request for water quality testing on any water well or surface water pursuant to subdivision (a), sampling and testing shall be in accordance with the following:

(1) Water quality testing shall be performed by a Designated Contractor for Water Sampling.

(2) Water quality testing shall be conducted in accordance with the standards and protocols specified by the State Water Board pursuant to Public Resources Code section 3160, subdivision (d)(7)(B).

(3) Water quality testing shall include baseline measurements prior to the commencement of the well stimulation treatment, and follow-up measurements after the well stimulation treatment is completed.

(4) Any written request for water testing shall specify whether the surface property owner elects to select the Designated Contractor for Water Sampling and communicate directly with the contractor to arrange for testing, or, alternatively, elects to have the operator select the Designated Contractor for Water Sampling and arrange for testing.

(A) If the surface property owner elects to have the operator select and contract with the Designated Contractor for Water Sampling, the well stimulation treatment may not commence until the requested baseline water testing is completed, provided that the surface property owner moves expeditiously and makes necessary accommodations to enable the collection of baseline measurements without undue delay. The operator shall arrange for follow-up measurements to be taken between 30 and 60 calendar days after the well stimulation treatment is completed.

(B) If the surface property owner elects to select the Designated Contractor for Water Sampling and communicate directly with the contractor to arrange for testing, the surface property owner is responsible for scheduling baseline measurements to be taken prior to the commencement of the well stimulation treatment. The operator shall

immediately inform the surface property owner when the well stimulation treatment is completed so that follow-up measurements can be collected.

(5) The operator shall pay for all reasonable costs of water quality testing under this subdivision regardless of whether the surface property owner or the operator selects and coordinates with the Designated Contractor for Water Sampling.

(6) The results of any water quality testing shall be provided to the Division, the appropriate Regional Water Board, the State Water Board, the surface property owner, and any tenant notified pursuant to Section 1783.2 to the extent authorized by the tenant's lease.

(c) Groundwater quality data collected under subdivision (b) shall be submitted to the Regional Water Board in an electronic format that follows the guidelines detailed in California Code of Regulations, title 23, chapter 30.

(d) A tenant notified pursuant to Section 1783.2 that has lawful use of any existing water well or surface water located on the parcel that is suitable for drinking or irrigation purposes may independently contract with a Designated Contractor for Water Sampling for water quality testing of such water. A tenant that contracts for such testing is responsible for scheduling baseline measurements to be taken prior to the commencement of the well stimulation treatment. A tenant that contracts for water testing pursuant to this section is not entitled to reimbursement from the operator for the costs of such testing. If the operator is made aware of the tenant's contracting for water quality testing, then the operator shall immediately notify the tenant when the well stimulation treatment is completed so that follow-up measurements can be collected.

NOTE: Authority cited: Sections 3013 and 3160, Public Resources Code. Reference: Sections 3106 and 3160, Public Resources Code.

1784. ~~Evaluation Prior to~~ Well Stimulation Treatment Radius Analysis and Design.

~~(a) The operator shall do all of the following prior to commencing or recommencing well stimulation treatment operations:~~

~~(1) Allowing at least 48 hours to elapse after cement placement, the operator shall run a radial cement evaluation log or other cement evaluation method that is approved by the Division and capable of demonstrating adequate cementing. If the quality of the cement outside of the production casing is not sufficient to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatment, then the operator must develop a plan to remediate the cement and obtain approval from the Division for the remediation plan prior to proceeding. The operator is only required to evaluate the cement that is required to be in place under Section~~

~~1722.4. The Division may waive the requirement of doing a cement evaluation if the supervisor is satisfied that, based on geologic and engineering information available from previous drilling or producing operations in the area where the well stimulation treatment will occur, well construction and cementing methods have been established that ensure that there will be no voids in the annular space of the well.~~

~~(2) The~~

(a) As part of an application for a permit to conduct well stimulation, the operator shall conduct a well stimulation treatment radius analysis to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatment.

(1~~i~~) The operator shall utilize modelling approved by the Division that will effectively simulate the projected well stimulation treatment area of influence within the design limits of the projected well stimulation treatment operations. The criteria, assumptions, and outcomes used for the modeling shall be indicated in the well stimulation treatment analysis.

(2~~ii~~) The well stimulation treatment radius analysis shall include a review of all wells ~~and faults (active or inactive)~~ within a radius of twice the anticipated well stimulation treatment length from each point of well stimulation treatment to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation. For each well within the radius of twice the anticipated well stimulation treatment length from each point of well stimulation treatment, the well stimulation treatment analysis shall include the following information:

(A) Casing diagrams clearly indicating:

(i) Sizes and weights of casing;

(ii) Depths of shoes, stubs, and liner tops;

(iii) Depths of perforation intervals, water shutoff holes, cement port, cavity shots, cuts, casing damage, and top of junk or fish left in well;

(iv) Diameter and depth of hole;

(v) Cement plugs inside casings, including top and bottom of cement plug, with indication of method of determining;

(vi) Cement fill behind casings, including top and bottom of cement fill, with indication of method of determining;

(vii) Type and weight (density) of fluid between cement plugs;

(viii) Depths and names of the formations, zones, and sand markers penetrated by the well, including the top and bottom of the zone where well stimulation treatment will occur;

(ix) All steps of cement yield and cement calculations performed; and

(x) All of the information listed in this paragraph for all previous redrilled or sidetracked well bores.

(B) For directionally drilled wells, a wellbore path giving both inclination and azimuth measurements.

(3) The well stimulation treatment radius analysis shall include a review of all geologic features, including known faults (active or inactive), within a radius of five times the anticipated well stimulation treatment length from each point of well stimulation treatment to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation.

(4~~iii~~) If a radius of five times the anticipated well stimulation treatment length from a point of treatment extends beyond the productive horizon being evaluated for possible well stimulation treatment, then the well stimulation treatment radius analysis shall include a review of the geological formations adjacent to the productive horizon. The operator shall assess the mechanical rock properties, including permeability, relative hardness (using Young's Modulus), relative elasticity (using Poisson's Ratio), and other relevant characteristics of the geological formations to determine whether the geological formations will ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation.

(5) The well stimulation treatment radius analysis shall include identification of all water within a radius of twice the anticipated well stimulation treatment length from each point of well stimulation treatment.

(b~~3~~) Utilizing the well stimulation treatment radius analysis conducted pursuant to ~~subsection (a)(4)~~ subdivision (a), the operator shall design the well stimulation treatment so as to ensure that the well stimulation treatment fluids or hydrocarbons do not migrate and remain geologically and hydrologically isolated to the hydrocarbon formation. A well stimulation treatment shall not be designed to employ pressure exceeding 80% of of the API rated minimum internal yield on any casing string in communication with the well stimulation treatment.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1784.1. Pressure Testing Prior to Well Stimulation Treatment.

(a) The operator shall conduct pressure testing not more than 30 days before commencing well stimulation treatment, but after all operations that could affect well integrity are complete. Pressure testing shall include the following: ~~The operator shall do all of the following not more than 24 hours prior to commencing or recommencing well stimulation treatment:~~

(1) All cemented casing strings and all tubing strings to be utilized in the well stimulation treatment operations shall be pressure tested for at least 30 minutes at a pressure equal to 125% of the maximum surface pressure anticipated during the well stimulation treatment, but not greater than the API rated minimum internal yield of the

tested casing. The operator shall chart the pressure testing. If during testing, and after equilibrium has been reached, there is a pressure ~~drop~~ change of 10% or more from the original test pressure, then the operator shall immediately notify the Division, the operator shall provide the Division with copies of the charting of the pressure testing, and the tested casing or tubing shall not be used until the cause of the pressure drop is identified and corrected to the Division's satisfaction. No casing or tubing shall be used unless it has been successfully tested pursuant to this section.

(2) All surface equipment to be utilized for well stimulation treatment shall be rigged up as designed. The pump, and all equipment downstream from the pump, shall be pressure tested at a pressure equal to 125% of the maximum surface pressure anticipated during the well stimulation treatment, but not greater than the manufacturer's pressure rating for the equipment being tested. If during testing there is a pressure change of 10% or more from the original test pressure, then the operator shall immediately notify the Division, and the tested equipment shall not be used until the cause of the pressure change is identified and corrected to the Division's satisfaction. No equipment shall be used unless it has been successfully tested pursuant to this section.

(b) The operator shall notify the Division at least 24 hours prior to conducting the pressure testing required under ~~this section~~ subdivision (a) so that Division staff may witness. The charting of pressure testing required under subsection (a)(1) shall be provided to the Division not less than 12 hours before commencing well stimulation treatment.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1784.2. Cement Evaluation Prior to Well Stimulation Treatment.

(a) In advance of conducting well stimulation treatment, but at least 48 hours after cement placement, the operator shall run a radial cement evaluation log or other cement evaluation method that is approved by the Division , and the cement evaluation shall demonstrate the following:

(1) The well was and continues to be cemented in accordance with the requirements of Section 1722.4 if it is an onshore well, or Section 1744.3 if it is an offshore well; and

(2) The quality of the cement is sufficient to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatment.

(b) Documentation of the cement evaluation shall be provided to the Division not less than 72 hours before commencement of the well stimulation treatment. If the Division

identifies a concern with the cement evaluation, the well stimulation treatment shall not commence until the concern has been addressed to the Division's satisfaction.

(c) The Division may approve an alternate cement evaluation plan that waives the requirements of subdivisions (a) and (b) if the Division is satisfied that, based on geologic and engineering information available from previous drilling or producing operations in the area where the well stimulation treatment will occur, well construction and cementing methods have been established that ensure that there will be no voids in the annular space of the well. A request for approval of an alternate cement evaluation plan shall be submitted to the Division as part of the application for a permit to perform well stimulation treatment submitted under Section 1783.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1785. Monitoring During Well Stimulation Treatment Operations.

(a) The operator shall continuously monitor and record all of the following parameters during the well stimulation treatment, if applicable:

(1) Surface injection pressure;

(2) Slurry rate;

(3) Proppant concentration;

(4) Fluid rate; and

(5) All annuli pressures.

(b) The operator shall terminate the well stimulation treatment and immediately provide the collected data to the Division if any of the following occur:

(1) ~~A production-surface casing annulus pressure change of~~ A pressure change in the annulus between the tubing or casing through which well stimulation treatment fluid is conducted and the next larger tubular or casing more than 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion;

(2) Pressure exceeding 90% of the API rated minimum internal yield on any casing string in communication with the well stimulation treatment; or

(3) The operator has reason to suspect ~~any~~ potential breach in the production casing, production casing cement, or ~~isolation of any sources of protected water~~ the geologic or hydrologic isolation of the formation.

(c) If any of the events listed in subdivision (b) occur, then the operator shall perform diagnostic testing on the well to determine whether a breach has occurred. Diagnostic testing shall be done as soon as is reasonably practical. The Division shall be notified when diagnostic testing is being done so that Division staff may witness the testing. All diagnostic testing results shall be immediately provided to the Division.

(d) If diagnostic testing reveals that a breach has occurred, then the operator shall immediately shut-in the well, isolate the perforated interval, and notify the Division and the Regional Water Board with all of the following information:

(1) A description of the activities leading up to the well failure.

(2) Depth interval of the well failure and methods used to determine the depth interval.

(3) An exact description of the chemical constituents of the well stimulation treatment fluid, or of the fluid that is most representative of the fluid composition in the well at the time of the well failure~~, including:~~

~~(A) Total dissolved solids;~~

~~(B) Chloride, sodium, and all organic or inorganic chemicals listed in the tables in California Code of Regulations, title 14, sections 64431 and 64444; and~~

~~(C) Gross alpha, gross beta, uranium, tritium, radium 226+228, and all other radionuclides.~~

~~(4) An estimate of the volume of fluid lost during well failure.~~

~~(5) If available, groundwater quality data for the protected water closest to the well failure~~.

(e) Groundwater quality data submitted ~~to the Regional Water Boards~~ under ~~subsection~~ subdivision (d) shall be in an electronic format that follows the guidelines detailed in California Code of Regulations, title 23, chapter 30.

(f) If the surface casing annulus is not open to atmospheric pressure, then the surface casing pressures shall be monitored with a gauge and pressure relief device. The maximum set pressure on the relief device shall be the lowest of the following and well stimulation treatment shall be terminated if pressures in excess of the maximum set pressure are observed in the surface casing annulus:

(1) A pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet);

(2) 70% of the API rated minimum internal yield for the surface casing; or

(3) A pressure change that is 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1785.1. Monitoring and Evaluation of Seismic Activity in the Vicinity of Hydraulic Fracturing.

(a) From commencement of hydraulic fracturing until 10 days after the end of hydraulic fracturing, the operator shall monitor the California Integrated Seismic Network for indication of an earthquake of magnitude 2.0 or greater occurring within a radius of five times the anticipated fracture length from each point of fracture.

(b) If an earthquake of magnitude 2.0 or greater is identified under subdivision (a), then the following requirements shall apply:

(1) The operator shall immediately notify the division and inform the division when the earthquake occurred relative to the hydraulic fracturing operations.

(2) The division, in consultation with the operator and the California Geological Survey, will conduct an evaluation of the following:

(A) Whether there is indication of a causal connection between the hydraulic fracturing and the earthquake;

(B) Whether there is a pattern of seismic activity in the area that correlates with nearby hydraulic fracturing; and

(C) Whether the mechanical integrity of any active well within the radius specified in subdivision (a) has been compromised.

(3) No further hydraulic fracturing shall be done within the radius specified in subdivision (a) until the division has completed the evaluation under subdivision (b)(2) and is satisfied that hydraulic fracturing within that radius does not create a heightened risk of seismic activity.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1786. Storage and Handling of Well Stimulation Treatment Fluids and Wastes.

(a) Operators shall adhere to the following requirements for the storage and handling of well stimulation treatment fluid, additives, and produced water from a well that has had a well stimulation treatment:

(1) Fluids shall be stored in compliance with the secondary containment requirements of Section 1773.1, except that secondary containment is not required under this section for ~~portable or temporary~~ production facilities that are in one location for less than 30 days. The operator's Spill Contingency Plan shall account for all production facilities outside of secondary containment and include specific steps to be taken and equipment available to address a spill outside of secondary containment.

(2) Operators shall be in compliance with all applicable testing, inspection, and maintenance requirements for production facilities containing well stimulation treatment fluids.

(3) Fluids shall be accounted for in the operator's Spill Contingency Plan.~~;~~

(4) Fluids shall be stored in containers and shall not be stored in sumps or pits.~~;~~

(5) In the event of an unauthorized release, the operator shall immediately implement the Spill Contingency Plan; notify the Regional Water Board and any other appropriate response entities for the location and the type of fluids involved, as required by all applicable federal, state, and local laws and regulations; and shall perform clean up and remediation of the area, and dispose of any cleanup or remediation waste, as required by all applicable federal, state, and local laws and regulations.

(6) Within 5 days of the occurrence of an unauthorized release, the operator shall provide the Division a written report that includes:

(A) A description of the activities leading up to the release;

(B) The type and volumes of fluid released;

(C) The cause(s) of release;

(D) Action taken to stop, control, and respond to the release; and

(E) Steps taken and any changes in operational procedures implemented by the operator to prevent future releases.

(7) Operators shall ~~be~~ conduct all activities that relate to storage and management of fluids in compliance with all applicable requirements of the Regional Water Board, the Department of Toxic Substances Control, the Air Resources Board, ~~and~~ the Air Quality Management District or Air Pollution Control District, the Certified Unified Program Agency, and any other state or local agencies with jurisdiction over the location of the well stimulation activities.

(8) ~~If fluids will be transported offsite and not injected into a well regulated by the Division under Sections 1724.6 through 1724.10, then the fluids shall be evaluated to determine if they are hazardous waste, as defined by Department of Toxic Substances Control in its regulations.~~ An operator who generates a waste, as defined in Health and Safety Code section 25124 and California Code of Regulations, title 22, section 66261.2, in the course of conducting well stimulation activities, including but not limited to well stimulation treatment fluid, additives, produced water from a well, solids separated from well stimulation treatment fluid, remediation wastes, or any other wastes generated from the processing, treatment or management of these wastes, shall determine if the waste is a hazardous waste by sampling and testing the waste according to the methods set forth in California Code of Regulations, title 22, division 4.5, chapter 11, article 3 (section 66261.20 et seq.), or according to an equivalent method approved by the Department of Toxic Substances Control pursuant to California

Code of Regulations, title 22, section 66260.21, except where the operator has determined that the waste is excluded from regulation under California Code of Regulations, title 22, section 66261.4 or Health and Safety Code section 25143.2. Notwithstanding any other section in this article, wastes that are determined by the operator to be hazardous wastes shall be managed in compliance with all hazardous waste management requirements of the Department of Toxic Substances Control.

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1787. Well Monitoring After Well Stimulation Treatment.

(a) Operators shall monitor each ~~producing~~ well that has had a well stimulation treatment as specified in subdivision (b) to identify any indication of a well breach ~~potential problems with a well that could endanger any underground source of protected water or hydrocarbon zone. If there is any indication of a well failure, the operator shall immediately notify the Division and the Regional Water Board and perform diagnostic testing on the well to determine whether a well failure has actually occurred~~. If monitoring ~~the testing~~ indicates that a well ~~failure~~ breach has occurred, then the operator shall immediately take all appropriate measures to prevent contamination of all underground sources of protected water, hydrocarbon zones, and all surface waters in the area of the well and shall provide the Division and the Regional Water Board with the information described in section 1785(d).

(b) Operators shall adhere to the following requirements for a well that has had a well stimulation treatment:

(1) The production pressure of the well shall be monitored at least once every two days for the first thirty days after the well stimulation treatment and on a monthly basis thereafter. Information regarding production pressures shall be reported to the Division on a monthly basis.

~~(2) The well shall be monitored at least once every two days for the first thirty days after the well stimulation treatment and on a monthly basis thereafter to determine the amount of gas, oil, and water produced, including the volume of readily identifiable well stimulation treatment fluid flowback. The operator shall report the information to the Division on a monthly basis for 5 years or until there has been a 95% reduction in well stimulation treatment fluid contained in the produced fluid, whichever comes first.~~

(2~~3~~) The annular pressures of the well shall be reported to the Division annually. It shall be immediately reported to the Division if annular pressure exceeds 70% of the API rated minimum internal yield or collapse strength of casing, or if surface casing

pressures exceed a pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet).

(34) The annular valve shall be kept accessible from the surface or left open and plumbed to the surface with a working pressure gauge unless it has been demonstrated to the Division's satisfaction that there are no voids in the annular space.

(45) A properly functioning pressure relief device shall be installed on the annulus between the surface casing and the production casing, or, if intermediate casing is set, on the annuli between the surface casing and the intermediate casing and the production casing. This requirement may be waived by the Division, if the operator demonstrates to the Division's satisfaction that the installation of a pressure relief device is unnecessary based on technical analysis and/or operating experience in the area.

(56) If a pressure relief device is installed, then all pressure releases from the device shall be reported to the Division within 24 hours of detection. The maximum set pressure of a surface casing pressure relief device shall be the lowest of the following:

(A) A pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet);

(B) 70% of the API rated minimum internal yield for the surface casing; or

(C) A pressure change that is 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.

1788. Required Public Disclosures.

(a) Except as provided in subdivision (c), within 60 days after the cessation of a well stimulation treatment, the operator shall publicly disclose ~~post to the Chemical Disclosure Registry~~ all of the following information:

(1) Operator's name;

(2) API number assigned to the well by the Division;

(3) Lease name and number of the well;

(4) Location of the well, submitted as a six-digit decimal degrees, non-projected, Latitude Longitude, in the General Coordinate System (GCS) NAD83.

(5) County in which the well is located;

(6) Date that the well stimulation treatment occurred;

(7) The measured and true vertical depth of the well;

(8) ~~Name~~ Formation name and vertical depth of the top and bottom of the productive horizon where well stimulation treatment occurred;

(9) The trade name, supplier, concentration, and a brief description of the intended purpose of each additive contained in the well stimulation fluids used;

(10) The total volume of base fluid used during the well stimulation treatment;

(11) Identification of whether the base fluid is water suitable for irrigation or domestic purposes, water not suitable for irrigation or domestic purposes, or a fluid other than water;

(12) The source, volume, and specific composition and disposition of all water associated with the well stimulation treatment, including all of the following:

(A) The source of the water used as a base fluid for the well stimulation treatment, including how the water was acquired, where the water was acquired, and, if the water was purchased, from whom the water was purchased;

(B) Composition of water used as base fluid, including all of the following: total dissolved solids; metals listed in California Code of Regulations, title 22, section 66261.24, subdivision (a)(2)(A); benzene, toluene, ethyl benzene, and xylenes; major and minor cations (including sodium, potassium, magnesium, and calcium); major and minor anions (including nitrate, chloride, sulfate, alkalinity, and bromide); and trace elements (including lithium, strontium, and boron);

(C) Specific disposition of water recovered from the well following the well stimulation treatment, including method and location of disposal and, if the recovered water is injected into an injection well, identification of the operator, field, and project number of the injection project;

(D) Composition of water recovered from the well following the well stimulation treatment, sampled after a calculated wellbore volume has been produced back but before three calculated wellbore volumes have been produced back, and then sampled a second time 30 days after the first sample is taken, with both samples taken prior to being placed in a storage tank or being aggregated with fluid from other wells;

(E) Composition of water recovered from the well following the well stimulation treatment shall be determined by testing the samples taken under paragraph (D) for all of the following: total dissolved solids; metals listed in California Code of Regulations, title 22, section 66261.24, subdivision (a)(2)(A); benzene, toluene, ethyl benzene, and xylenes; major and minor cations (including sodium, potassium, magnesium, and calcium); major and minor anions (including nitrate, chloride, sulfate, alkalinity, and bromide); and trace elements (including lithium, strontium, and boron);

(F) All testing results shall have a cover page briefly describing when and where sampling was done and the results of the testing;

(G) Sampling and testing conducted under subdivision (a)(12) is separate from and in addition to any samping or testing that may be required to make hazardous waste determinations under the requirements of the Department of Toxic Substance Control;

~~, but not limited to, water used as base fluid and water recovered from the well following the well stimulation treatment that is not otherwise reported as produced water pursuant to 3227;~~

(13) Identification of any reuse of treated or untreated water for well stimulation treatments and well stimulation treatment-related activities;

(14) The specific composition and disposition of all well stimulation treatment fluids, including waste fluids, other than water;

(15) Any radiological components or tracers injected into the well as part of the well stimulation treatment, a description of the recovery method, if any, for those components or tracers, the recovery rate, and specific disposal information for recovered components or tracers;

(16) The radioactivity of the recovered well stimulation fluids, and a brief description of the equipment and method used to determine the radioactivity;

(17) ~~The~~ For each stage of the well stimulation treatment, the measured and true vertical depth of the location of the portion of the well subject to the well stimulation treatment and the extent of the fracturing or other modification, if any, surrounding the well induced by the treatment.

(18) The estimated volume of well stimulation treatment fluid that has been recovered; and

(19) A complete list of the names, Chemical Abstract Service numbers, and maximum concentration, in percent by mass, of each and every chemical constituent of the well stimulation treatment fluids used. If a Chemical Abstract Service number does not exist for a chemical constituent, the operator may provide another unique identifier, if available.

(b) For hydraulic fracturing well stimulation treatments, the operator shall post the information listed in subdivison (a) to the Chemical Disclosure Registry, to the extent that the website is able to receive the information. In addition, the operator shall provide all of the information listed in subdivision (a) directly to the Division on the Well Stimulation Treatment Disclosure Reporting Form. The Well Stimulation Treatment Disclosure Reporting Form is available on the Division's public internet website at ftp://ftp.consrv.ca.gov/pub/oil/forms/Oil%26Gas/OG110S.XLSX. The Well Stimulation Treatment Disclosure Reporting Form shall be submitted to the Division in an electronic format, directed to the email address "DisclosureWST@conservation.ca.gov". The Division will consolidate the information provided on Well Stimulation Treatment Disclosure Forms, and the Division will make the consolidated information available in an organized electronic format on the Division's public internet website.

~~If the Chemical Disclosure Registry is unable to receive information required to be reported under this section, then the operator shall provide the information directly to the Division.~~

(c) Except for the information specified in subdivision (a)~~items~~ (1) through (6)~~of subsection (a)~~, operators are not required to publicly disclose ~~post~~ information ~~to the Chemical Disclosure Registry if the information is~~ found in a well record that the Division has determined is not public record, pursuant to Public Resources Code section 3234. If information listed in ~~subsection~~ subdivision (a) is not publicly disclosed ~~posted to the Chemical Disclosure Registry~~ on this basis, then the operator shall inform the Division in writing, specifying the information that is not being publicly disclosed. It is the operator's responsibility to publicly disclose the withheld information in the manner described in subdivision (b) ~~post the information to the Chemical Disclosure Registry~~ as soon as the information becomes public record under Public Resources Code section 3234.

(d) A claim of trade secret protection for the information required to be disclosed under this section shall be handled in the manner specified under Public Resources Code section 3160, subdivision (j).

(e) Groundwater quality data reported under this section shall also be submitted to the Regional Water Board in an electronic format that follows the guidelines detailed in California Code of Regulations, title 23, chapter 30.

(f) If for any reason information specified in subdivision (a) cannot be collected within 60 days after the cessation of a well stimulation treatment, then the information shall still be publicly disclosed as soon as possible in the manner described in subdivision (b).

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Sections 3106, 3160, and 3234, Public Resources Code.

1789. Post-Well Stimulation Treatment Report.

(a) Within 60 days after the cessation of a well stimulation treatment, the operator shall submit a report to the Division describing:

~~(1) The results of the well stimulation treatment;~~

(1~~2~~) The pressures recorded during monitoring required under Section 1785(a) ~~encountered~~ during the well stimulation treatment; and

(2~~3~~) How the actual well stimulation treatment differs from what was anticipated in the well stimulation treatment design that was prepared under Section ~~1784(a)(5)~~ 1784(b); and

(3) How the actual location of the well stimulation treatment differs from what was indicated in the permit application under Section 1783.1(a)(12); and

(4) A description of hazardous wastes generated during the well stimulation activities and their disposition, including copies of all hazardous waste manifests used to transport the hazardous wastes offsite to an authorized facility.

~~(b) If data maintained by the U.S. Geological Survey indicate that, since the commencement of well stimulation treatment, an earthquake of magnitude 2.0 or greater has occurred in the area of the well stimulation treatment radius analysis required under Section 1784(a)(4), then the occurrence of that earthquake shall be noted in the report prepared under subsection (a).~~

NOTE: Authority cited: Section 3013 and 3160, Public Resources Code. Reference: Section 3106 and 3160, Public Resources Code.