

CALIFORNIA LEGISLATURE

STATE CAPITOL
SACRAMENTO, CALIFORNIA
95814

May 30, 2013

Mark Nechodom, Ph.D., Director
California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

Dear Director Nechodom,

We are writing to inquire about well stimulation practices and their use in California. It has recently come to our attention that hydraulic fracturing is only one of possibly several different well stimulation treatments that may be in routine use here¹. Specifically, recent reports indicate that development of the Monterey Shale unconventional hydrocarbon resource may depend upon well stimulation treatments that are not hydraulic fracturing². As the Director of the Department of Conservation which includes the Division of Oil, Gas and Geothermal Resources, we would like to request background information from you on and related to these treatments and any potential risks associated with them of which the department is aware.

In your response to the questions below, please assume that "well stimulation" includes, but is not limited to all of the following: acid matrix stimulation, acid fracturing, stimulation treatments at pressures lower than the fracture gradient of the rock, and stimulation treatments that exceed the fracture gradient of the rock. If the department is aware of other techniques not specifically referenced, please include those, as appropriate, in the answers to the questions below. It is not necessary to include hydraulic fracturing, as defined in section 1780 (c) of your December 2012 "discussion draft" hydraulic fracturing regulations, as the department has already provided considerable information.

- What is the division's definition of well stimulation as distinct from enhanced oil recovery and well completion techniques? Please include a description of when well stimulation and well completion activities occur during the drilling or re-drilling of oil and gas wells and what types of wells would receive well stimulation and well completion treatments.

¹ see, for example, Economides, MJ and KG Nolte (2000). Reservoir Stimulation, 3rd edition, John Wiley and Sons, Ltd., Chichester, England., Kalfayan, L (2000) Production Enhancement with Acid Stimulation, PennWell Corporation, Tulsa, OK., SL James Oil Corporation, "The use of acid stimulation for restoring to production shut-in oil fields" and Portier, S, Andre, L and F-D Vuataz (2007) Review on chemical stimulation techniques in oil industry and applications to geothermal systems, Technical Report to Work Package 5, Enhanced Geothermal Innovative Network for Europe.

² "California's proposed moratoriums might not apply to other drilling in Monterey Shale" by AC Mulken, EnergyWire, May 20, 2013; "Insight: California environmentalists fear frack fight a distraction" by R Carroll and B Reddall, Reuters, May 28, 2013.

- What are the different types of well stimulation used in California? Please provide a comprehensive list.
- What is the procedure the division uses to review, approve or reject, and track the use of well stimulation treatments?
- What is the extent to which well stimulation is used, including the number and location of wells?
- What are the chemicals used in well stimulation treatments and how is this information disclosed to and tracked by the division? Please provide a comprehensive list.
- How many inspections of well stimulation treatments does the division perform annually?
- How much and what kind of specific training do division staff receive in order to effectively monitor, inspect and regulate well stimulation treatments?
- Are well stimulation treatments used in conjunction with enhanced oil recovery techniques?
- How much water, and from what sources, is used in well stimulation treatments?
- Which disposal method or methods are used for wastes and wastewater generated by well stimulation treatments?
- Is any information available regarding the safety, efficacy, necessity and risk analyses of well stimulation treatments?
- Is any information available regarding potential risks to occupational or public health and safety associated with well stimulation treatments?

We greatly appreciate your assistance in this matter, and for your work in ensuring the safe extraction of energy resources in our state.

Sincerely,



Fran Payley
 Senator, 27th District
 Chair, Senate Committee on Natural Resources
 and Water



Wesley Chesbro
 Assemblymember, 2nd District
 Chair, Assembly Committee on Natural
 Resources

Cc: Senator Jerry Hill, Chair, Senate Committee on Environmental Quality
 Cliff Rechtschaffen, Senior Advisor, Office of Governor Brown
 Martha Guzman - Aceves, Deputy Legislative Secretary, Office of Governor Brown
 Tim Kustic, Oil and Gas Supervisor, Division of Oil, Gas and Geothermal Resources
 Marni Weber, Assistant Director, Governmental and Environmental Relations, Department of
 Conservation