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Fracking response (long draft)

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To: Drew Mayerson <drew.mayerson@bsee.gov>

Dear Marie C. Vought,

Dear Leopoldo L. Lopez,

Secretary Salazar has asked that I respond to your concerns on his behalf regarding fracking in oil and gas reservoirs of the Pacific Federal Outer Continental Shelf Region. There have only been two occasions when hydraulic fracturing was utilized as a recovery technique in Federal waters off the California coast. According to the State Lands Commission which governs oil and gas operations in California state waters which extend 3 miles offshore, no fracking has been performed on any wells under their jurisdiction. Onshore fracking activities in California have generally been performed at true vertical depths ranging from 2500-6000' below the Earth's surface. The well casing perforation method described in the VC Reporter article as "drop a bomb" is inaccurate. In reality most oil and gas wells, including those that do not employ hydraulic fracturing, are completed at hydrocarbon-bearing zones by perforating the casing of the well with a lowered tool containing a grid of multiple directional charges designed to blast small, individual holes in the casing for production. Some oil and gas wells still utilize the earlier technology of open-hole completions when productive intervals are thick and reservoir pressures are low.

The only occasion that Venoco, Inc. utilized fracking for reservoir stimulation in the Pacific OCS region was in August 1992 in the Santa Barbara Channel approximately 10 miles off the coast of Oxnard, CA. The frac job was performed on well E-11 (API: 043112068200) off of Platform Gail in the Sockeye Field of the Santa Clara Unit, Federal lease P-205. The target was three intervals which were completed (perforated) in sandstone of the Upper Sespe Formation from: 6,288-6,287', 6,206-6,224', and 6,206-6,224' in measured depth, approximately 5,600' in true vertical depth beneath the drilling deck of the platform. At the location of Platform Gail the water depth is 730'. Oil and gas production from this well had dropped significantly in May 1992 from 2,700bbl/5,300Mcf per month to 1,500bbl/1,300Mcf per month, then steadily declined to 300bbl/4,000Mcf by August prior to the frac job. The hydraulic fracturing was unsuccessful and Venoco was only able to recover production to 833bbl/9,900Mcf per month which was quickly stunted to zero production by February 1993. The target was abandoned in March 1993 and the Sespe Formation intervals of the well were plugged. Venoco moved up hole to the Upper Topanga Formation which they have been producing through traditional recovery techniques for this region, not involving hydraulic fracturing.

The second instance of hydraulic fracturing was in late April 1997 when Chevron attempted to frac well C-11 (API: 560452006701) off Platform Hidalgo in the Pt. Arguello Field, Federal lease P-450 where the water depth is 430' approximately 6 miles offshore Vandenberg Air Force Base. The target was the M-1 zone of the Monterey Formation. They isolated a zone from 10,775' to 11,248' in measured depth at approximately 10,500' in true vertical depth, leaving a deeper Monterey completion unaffected by the frac job. Perforations were added to the isolated zone with 50 holes between 11,051'-11,061' MD. The planned operation was to inject 50,000gals of frac fluid containing 90,000lbs of proppant to maintain void space induced by the procedure at 30-40bpm into the reservoir maintaining a pressure of 5,500-7,500psi. It appears that they underestimated the requisite pressure to perform the job effectively causing the frac fluids to back up in the wellbore. They were only able to inject 62,622gals of frac fluid with 29,736lbs of proppant. The maximum flowback rate achieved after the main frac was 1.1bpm. As a result of the attempted fracking, production was decreased substantially in May and June 1997 from a steady 4,000bbl/mo prior down to 2,800bbl and 842bbl respectively. In June 1997 an enzyme breaker was injected into the reservoir and recovered steady production to approximately 4,000bbl/mo.

Flowback fluids from these frac jobs were cleaned and disposed of according to federal regulations just as any produced water from oil and gas operations. At the time of the oil spill on Platform Gail in 2010 there were no fracking operations being conducted and the claim that fracking had been performed in 2009 is inaccurate. In

the event of an oil spill, detailed spill contingency plans take effect which are required to be submitted, approved, and readied prior to oil and gas operations. On December 18, 2012 the California Division of Oil, Gas, and Geothermal Resources and the Department of Conservation released a draft of onshore regulations that are being developed for governing hydraulic fracturing operations including well design competency testing, well monitoring during and for 5 years following fracking activities, geologic modeling of the propagation of induced fractures, disclosure of operations on the currently active website fracfocusdata.org, the disclosure of frac fluid components, and the storage and handling of frac fluids. The Bureau of Land Management began an overhaul in 2012 of hydraulic fracturing regulations for Federal public and Indian lands that it oversees requiring similar disclosure and operational scrutiny. All regulations and findings determined by these agencies will be carefully evaluated when adopting future policies governing hydraulic fracturing operations in the Federal Pacific Outer Continental Shelf region.

If onshore fracking of the Monterey Formation turns out to be a successful, long-term recovery technique it may follow that operators who produce the Monterey in offshore regions of California may look to fracking as a viable enhanced-recovery technique. I assure you that at such time, the BSEE will treat these applications with the utmost scrutiny and will not allow such operations to be conducted until detailed environmental impact assessments, such as the EPA study of affects on drinking water due in 2014, are conducted and effective operating procedures are determined so that they may be enforced to preserve our environment and natural resources.

BSEE Director James Watson