

Thank you for your comment, Scott Sysum.

The comment tracking number that has been assigned to your comment is POCSWS50059.

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Well Stimulation Treatments on the Southern California OCS Draft EA
Comment ID: POCSWS50059

First Name: Scott
Middle Initial:
Last Name: Sysum
Organization: US EPA Region 9
Address: 75 Hawthorne St.
Address 2:
Address 3:
City: San Francisco
State: CA
Zip: 94105
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: WST_Comment_Ltr_EPAR9 3 23 2016.pdf

Comment Submitted:

Dear Mr. Yarde

I have been assigned as the lead reviewer for the U.S. EPA Region 9 for the draft Programmatic Environmental Assessment of the Use of Well Stimulation Treatments on the Outer Continental Shelf off Southern California. I have attached a pdf file of our comment letter regarding this project. The signed letter was mailed today to Mr. Rick Yarde.

Thank you for providing us the opportunity to review this interesting project. Please feel free to contact us if you have any questions, seek clarifications or if we can help in any other way.

v/r

Scott Sysum



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

MAR 23 2016

Rick Yarde, Regional Supervisor
Office of Environment - Pacific Region
Bureau of Ocean Energy Management
760 Paseo Camarillo, Suite 102 (CM-102)
Camarillo, CA 93010

Subject: Programmatic Environmental Assessment of the Use of Well Stimulation Treatments on the Outer Continental Shelf, Southern California Planning Area

Dear Mr. Yarde:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and our NEPA review authority under § 309 of the Clean Air Act.

The EPA regulates discharges from offshore oil platforms (including those associated with the use of well stimulation treatments) through the issuance of National Pollutant Discharge Elimination System permits under the Clean Water Act. Discharges from the platforms in the Southern California Planning Area are currently regulated under a general NPDES permit (No. CAG280000) that became effective in March 2014 and expires in February 2019. The potential environmental effects of well stimulation treatment (WST) discharges are the subject of ongoing review by the EPA, and we appreciate the considerable efforts of the Bureau of Ocean Energy Management and the Bureau of Safety and Environmental Enforcement in preparing the Draft Programmatic Environmental Assessment (PEA).

The enclosed detailed comments provide specific recommendations regarding analyses and documentation that should be considered prior to making a determination regarding the significance of potential impacts from the proposed use of WSTs on the California outer continental shelf and whether or not a "Finding of No Significant Impact" can be supported at the completion of the Final PEA.

We appreciate the opportunity to review the Draft PEA and are available to discuss our comments. When the Final PEA is released for public review, please send one hard copy and one electronic copy to the address above (mail code: ENF-4-2). If you have any questions, please contact Scott Sysum, the lead NEPA reviewer, at (415) 972-3742 or sysum.scott@epa.gov. In addition, Eugene Bromley of the NPDES Permits Office may be contacted at (415) 972-3510 or bromley.eugene@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Kathleen Martyn Goforth".

Kathleen Martyn Goforth
Manager, Environmental Review Section

Enclosure: EPA's Detailed Comments

cc: David Fish, Bureau of Safety and Environmental Enforcement

US EPA DETAILED COMMENTS ON THE FEBRUARY 2016 PROGRAMMATIC ENVIRONMENTAL ASSESSMENT OF THE USE OF WELL STIMULATION TREATMENTS ON THE OUTER CONTINENTAL SHELF, SOUTHERN CALIFORNIA PLANNING AREA, MARCH 23, 2016

The U.S. Environmental Protection Agency understands that the Bureau of Safety and Environmental Enforcement and Bureau of Ocean Energy Management intend to prepare a Final Programmatic Environmental Assessment and a Finding of No Significant Impact for the proposed use of well stimulation treatments on existing leases and platforms on the Southern California Outer Continental Shelf. As detailed below, the EPA recommends that the Final PEA provide additional analyses, include supporting documentation, and identify specific minimization or mitigation measures, as necessary, to support the finding of no significant impacts for this project.

Water Quality

The Draft PEA analyzes four alternatives including a no action alternative. Action alternatives 1 and 2 would allow the continued use of WSTs subject to existing regulatory requirements. The Draft PEA concludes that the impacts of the continued use of WSTs (including associated discharges to the ocean) would not be expected to adversely affect water quality. To support this conclusion, the Draft PEA qualitatively states that recovered fluids are “highly diluted” with produced water before discharge, thus mitigating the potential impacts of the discharges (p. 4-33).

Recommendation:

Provide, in the Final PEA, a quantitative assessment, including the expected dilution factors prior to discharge, to further evaluate potential impacts and to support the conclusion that water quality would not be adversely affected.

The Draft PEA notes that flowback fluids from acid treatments typically have a pH of 2-3 or greater, but further analysis of potential effects on the marine environment is not provided (p. 4-34).

Recommendation:

Include, in the Final PEA, a discussion of the fate of such acidic discharges in the ocean and how quickly the discharge plume would achieve compliance with benchmark criteria such as the California Ocean Plan standards for pH of 6-9 units.¹

The Draft PEA relied upon the chemical formulation information from onshore WSTs, and assumed offshore treatments would be similar (p. 4-25). The Draft PEA notes that two recent hydraulic fracturing operations were conducted at Platform Gilda (late 2014 – early 2015) (p. 4-31). The fluids used in these fracturing operations were not discharged from Platform Gilda, but the permittee provided the chemical inventory to EPA Region 9. To help inform analyses in the Final PEA, EPA Region 9 could forward this chemical inventory to the lead agencies. Similarly, information in recent Discharge Monitoring Reports (DMRs) submitted to EPA Region 9 may also be of interest to inform analyses in the Final PEA.

Recommendation:

Consider incorporating, in the Final PEA, additional data from the DMRs and relevant chemical inventories to further inform the evaluation of the potential impacts from WST discharges, as applicable. Contact Eugene Bromley at (415) 972-3510 or bromley.eugene@epa.gov to request this information.

¹ State Water Resources Control Board. *California Ocean Plan Water Quality Control Plan, Ocean Waters of California* Sacramento. 2012. http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/cop2012.pdf

The Draft PEA notes that the proposed action would allow *selected* WSTs to be used (p. ES-1).

Recommendation:

Clarify, in the Final PEA, whether the use of other WSTs, not evaluated in the PEA, would be restricted or prohibited or whether the composition of the allowed WSTs would be restricted in some manner.

Potential Marine Ecotoxicity

The Draft PEA refers to an evaluation of two WST procedures (hydraulic fracturing and acid stimulation) found in a 2015 California Council on Science and Technology report² (p. 4-34). The CCST report analyzes toxicity data for the materials used by the WST procedures. The report notes that toxicity data for two of the components of the acid stimulation fluid would exceed acute or chronic toxicity values even after application of a typical dilution factor of 746 for the 100 meter mixing zone for discharge to seawater assumed for an offshore platform. The Draft PEA states that the study referenced in the CCST report did not account for the recovery of WST fluids after use or for any dilution of WST components in produced water. Thus, the Draft PEA concludes, the actual concentrations at the mixing zone boundary would be far lower than the values assumed in the CCST evaluation (p. 4-35).

The CCST report states that direct evidence for impacts of WST fluid discharge into the marine environment is not available and there are no studies of stimulation or flowback fluids effects on the marine environment. The CCST report concludes that the documentation, on both a state and federal level, is incomplete and inadequate in terms of the compositions and quantities of stimulation fluids used, the depth intervals treated, the composition and quantities of stimulation fluid flowback, and the disposition of this fluid for disposal.³

Recommendations:

Cite, in the Final PEA, the studies supporting the statements regarding composition and amount of flowback fluid that is discharged as described in Section 4.5.1.3 of the Draft PEA. Consider the information provided in the Data Gaps section 2.7.4 of the CCST report.

In addition, to further assess the potential impacts to the marine environment, the Final PEA should evaluate potential concentrations of WST flowback fluids discharged with produced water, based on the typical and the lowest dilution factors expected.

Wellbore Casing Failure

The Draft PEA states that, during fracturing WSTs, the well cement casing could fail after repeated pressurization and depressurization events. In such a scenario, well fluids could pass along the outside of the well casing, migrate upward, and be released from the seafloor. According to the Draft PEA, such an accident scenario, while possible, is considered to have a very low probability of occurrence and is not reasonably foreseeable. The document notes that all downhole wellbore operations must use pressure-tested lines and tubing, and casing that is rated to handle the planned pressures of the operation and

² Houseworth, J. and W. Stringfellow, 2015, "A Case Study of California Offshore Petroleum Production, Well Stimulation and Associated Environmental Impacts," Chapter 2 in *An Independent Scientific Assessment of Well Stimulation in California, Volume III*, California Council on Science and Technology.

³ Ibid p. 102

comply with BSEE regulations. It also references BSEE regulations regarding injection pressures that apply to all wellbore operations, not just those unique to fracturing operations. It is unclear whether these requirements are sufficient to support the conclusion that wellbore casing failures are not reasonably foreseeable.

Recommendations:

Clarify, in the Final PEA, whether existing wells in the active leases, which have been in production up to 48 years, would be more susceptible to casing failure during WST operations due to their age, and provide data to demonstrate that casing failures are not reasonably foreseeable. Additionally, if not already required, we recommend including a provision to ensure tubing-casing annuli are actively monitored for leak detection during operations.

In the Final PEA, discuss quantitatively how the data relied upon are representative of the age of the wells on the OCS.

Clarify whether or not the assessment of the potential for wellbore casing failure is based solely on WST for the existing wells.

Air Quality

The Draft PEA states that potential impacts of WST use on ambient air quality and climate change under Alternative 1 would result from air emissions associated with all equipment and support activities related to implementing WSTs (p. 4-22). Emission sources identified include engine exhaust from diesel injection pumps, venting or flaring of gases or vapors produced during WST use, engine exhausts from platform service vessels, and emissions from on-land facility operations and material transport; however, the only emissions evaluated quantitatively in the analysis were those from diesel pumps used to perform WSTs. Additionally, the Draft PEA states that, because evaporative emissions from WST liquids would represent a tiny portion of all regional reactive organic emissions of oil and gas production, they would not adversely impact ozone air quality (p. 4-22).

Recommendation:

Quantify, in the Final PEA, the emissions associated with the increase in platform service vessel trips necessary to transport the equipment, chemicals, materials and personnel required to perform the WST operation.

Quantify, in the Final PEA, emissions associated with venting or flaring of gases as well as evaporative emissions from WST liquids and discuss their contribution to cumulative air quality impacts from oil and gas activities on the OCS.

Provide support for the conclusions that incremental emissions from on-land facility operations would be negligible.

Climate Change

To remain consistent with NEPA, federal agencies should consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through GHG emissions and take into account the ways in which a changing climate over the life of the proposed project may alter the overall environmental impacts for the proposed action. The Draft PEA concludes that, based on the expected very low frequency of WST use anticipated for the reasonably foreseeable future, together with the relatively short duration of any single WST application, the use of the WSTs is not expected to result in

any noticeable impacts on ambient air quality of the southern California OCS and adjacent coastal counties, or to contribute to climate change (p. 4-24). It further states that CO₂ emissions from diesel equipment during a 250,000-gal WST would be “negligible” compared to CO₂-equivalent greenhouse gas emissions from both offshore crude production activities and all activities in California (p. 4-22). According to the Draft PEA, methane emissions accounted for less than 10% of total GHG emissions, on a CO₂ equivalent basis, from all oil and gas production.

The statement that emissions from the use of WSTs represents only a small fraction of California or offshore oil and gas industry emissions is more a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether to consider climate impacts under NEPA. Moreover, these comparisons are not an appropriate method for characterizing the potential impacts associated with the proposed action and its alternatives and mitigations. This approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make relatively small additions to global atmospheric GHG concentrations that collectively have huge impact.

Recommendations:

Estimate, in the Final PEA, the GHG emissions associated with the project, including the downstream emissions that would occur when the WST-produced oil and gas is consumed.

Estimate, in the Final PEA, the incremental contribution of fugitive methane emissions under each alternative.

Discuss, in the Final PEA, practicable measures to reduce emissions, including fugitive methane emissions.

Purpose and Need

The statement of Purpose and Need for a project should specify the underlying purpose and need to which the agency is responding (40 CFR 1502.12) and be broad enough to cover the full breadth of a reasonable range of alternatives, regardless of what the future findings of an alternatives analysis may be. It is critical that the Purpose and Need not prescribe or imply a predetermined solution. The Draft PEA states, on page 1-3, that the Purpose and Need for the proposed action is “to allow the use of certain WSTs (e.g., hydraulic fracturing) in support of oil production at platforms on the Pacific OCS”.⁴ Such a narrow and prescriptive statement identifies a solution, rather than the underlying need, and may unduly constrain the range of alternatives that would be responsive to the underlying need.

Recommendations:

Revise the Purpose and Need chapter and the Executive Summary of the Final PEA to clearly identify the underlying purpose and need to which BSEE and BOEM are responding. Ensure that the revised statement allows for evaluation of the full range of reasonable alternatives and does not, itself, propose a solution.

⁴ The Purpose and Need are stated more broadly in the Executive Summary (page ES-1), although the specific proposed action is embedded in that statement.

Proposed Action

The Draft PEA notes that the proposed action would allow the continued use of WSTs subject to the performance standards at 30 CFR 250 Subject D (p. 2-3). No description or summary of those standards is provided.

Recommendation:

Clarify, in the Final PEA, the nature of the performance standards referenced and include any provisions that would ensure environmental impacts are avoided or mitigated.