From:
To: pocswellstim@anl.gov
Cc:
Subject: HESI Comments on Draft EA for Southern California OCS
Date: Wednesday, March 23, 2016 10:39:16 AM
Attachments: HESI Comments on Draft EA for Southern California OCS.pdf

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Please see attached comments submitted on behalf of Halliburton Energy Services, Inc. on the Draft Programmatic Environmental Assessment of the Use of Well Stimulation Treatments on the Southern California Outer Continental Shelf.

Best,

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March 23, 2016

VIA EMAIL [pocswellstim@anl.gov]

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Re: Comments of Halliburton Energy Services, Inc. on the Draft Programmatic Environmental Assessment of the Use of Well Stimulation Treatments on the Southern California Outer Continental Shelf

Dear Messrs. Yarde and Fish:

Halliburton Energy Services, Inc. hereby submits the attached comments regarding the Draft Programmatic Environmental Assessment of the Use of Well Stimulation Treatments on the Southern California Outer Continental Shelf.

Sincerely,

Thomas C. Jackson /DC

Thomas C. Jackson

Enclosure

Comments of Halliburton Energy Services, Inc.

On the Draft Programmatic Environmental Assessment of the

Use of Well Stimulation Treatments on the Southern California Outer Continental Shelf

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Halliburton Energy Services, Inc. ("HESI") hereby submits its comments on the Draft Programmatic Environmental Assessment ("EA") on the use of well stimulation treatments ("WSTs") on the Southern California Outer Continental Shelf ("OCS"), issued by the Bureau of Safety and Environmental Enforcement ("BSEE") and the Bureau of Ocean Energy Management ("BOEM") in February 2016. *See* 81 Fed. Reg. 8,743 (Feb. 22, 2016) (announcing the availability of the Draft EA). HESI supports the proposed action—to continue to allow the use of WSTs on the Southern California OCS—and agrees with the conclusion set forth in the Draft EA that the proposed action is not expected to result in more than short-term, localized impacts on the environment. However, HESI has concerns with the characterization of migration pathways and the adoption of California Senate Bill No. 4 definitions.

I. HESI supports the continued use of WSTs on the Southern California OCS.

HESI supports the proposed action to continue to allow the use of WSTs on the Southern California OCS (Alternative 1). As the Draft EA documents, the potential impacts of WST use are small for a variety of reasons:

- ***Infrequent use of WSTs.*** WSTs are infrequently used on the Southern California OCS. For the more than 1,450 wells drilled on the Southern California OCS, there have been only 21 hydraulically fractured completions between 1982 and 2014 conducted on only four of the 23 platforms in federal waters. An even smaller number of matrix acidizing treatments have been conducted during a similar timeframe. Moreover, as the Draft EA notes, "the future use of WSTs is expected to be occasional rather than essential to hydrocarbon production from platforms on the southern California OCS." Draft EA at 4-1 to 4-3.

- ***Limits need for further drilling.*** Where used, WSTs allow for enhanced production from new wells, or continued production out of existing wells where primary recovery has declined as a result of declining reservoir pressures. Many of the wells on the Southern California OCS have been in production from 26 to 48 years, and reservoir pressures have been declining during that time. The use of WSTs supports continued production out of these existing wells and limits the need for drilling of new wells, both on the Southern California OCS and elsewhere. Draft EA at 1-3 to 1-4, 4-66 to 4-67.

- ***Minimal impacts at each step of the WST process.*** The potential impacts of WST use on the Southern California OCS are minimized at each step of the WST process: (1) transportation of WST additives to the platform, (2) pumping of WST fluids down the well, and (3) collection, handling, and disposal of WST-related waste fluids. At the first step, WST additives are transported in shipping

containers designed and certified for marine and offshore transport and in full compliance with applicable shipping and safety requirements. At the second step, WST fluids are mixed and then pumped down the well in accordance with design and safety parameters that take into account the appropriate pressure, volume, and duration needed for the treatment. Much of the WST fluids remains in the subsurface. Finally, at the third step, the portion of WST fluids that does flow back to the surface and is commingled with wet oil is treated to separate it from the oil, with the WST flowback fluids becoming part of the produced water waste stream after separation. As the Draft EA correctly notes, WST flowback fluids are mixed and highly diluted with much greater volumes of produced water. As a result, concentrations of WST flowback fluids at platform discharge points are low, appear infrequently, and have minimal impacts on the environment. Draft EA at 4-3 to 4-6, 4-24 to 4-30.

- ***Temporary, localized impacts of an accidental release.*** Even in the unlikely event of an accidental release of WST-related fluids, the potential impacts on the environment would be temporary and localized. For example, the potential impact on water quality of a surface spill of WST-related fluids would be temporary and localized degradation of water quality near the point of release. This is because the volume and concentration of WST fluids released in such accidents would be low—limited by the size of shipment or storage containers for WST additives and dilution of WST flowback fluids by produced water. A small volume seafloor spill of WST-related fluids similarly would have temporary, localized effects on water quality, comparable to the effects of natural oil seeps in the area. While a large volume seafloor spill could have larger impacts, the probability of such accidents is very low. Draft EA at 4-37 to 4-41.

The Draft EA further concludes that potential impacts of WST use would be "similar in nature and magnitude among the action alternatives," thus rendering Alternatives 2, 3, and 4 unnecessary. At the same time, the restrictions on WSTs contemplated by these alternatives—or in the case of Alternative 4, the prohibition—would limit oil production from individual wells, potentially increasing the need for additional wells. For these reasons, BSEE and BOEM should continue to allow the use of WSTs on the Southern California OCS in accordance with Alternative 1.

II. Activities and potential impacts directly related to offshore WSTs are appropriately considered.

HESI believes that the Draft EA appropriately considers only those activities and potential impacts directly related to offshore WSTs, rather than activities and potential impacts related to offshore operations generally. For example, in its consideration of WST-related accident scenarios, the Draft EA limits consideration to scenarios directly related to WST activities on the Southern California OCS: (1) the transport of WST additives to platforms, (2) the pumping of WST fluid down the well, and (3) the handling, transport, treatment, and disposal of WST-related waste fluids. Draft EA at 4-9. Moreover, the Draft EA identifies the primary concern associated with a WST-related accident as the release of WST-related fluids into the environment. Draft EA at 4-9.

As the Draft EA notes, the purpose of the proposed action is to allow the use of WSTs in support of oil production on the Southern California OCS. Draft EA at 1-3. Consideration of factors other than those directly related to the use of WSTs on the Southern California OCS would be inappropriate to the task at hand.

III. The probability of fracturing WSTs resulting in surface expression is very low.

HESI agrees with the conclusion that surface expression resulting from fracturing WSTs has a very low probability of occurrence and is not reasonably foreseeable. An accidental release of well fluids via surface expression could occur only if, during a fracturing WST, a new fracture contacts an existing pathway to the seafloor, such as a fracture, fault, or well. However, pumping pressures are continuously monitored during fracturing WSTs. Any indication that a fracture has contacted an existing pathway (*e.g.*, a lack of pressure buildup before fracturing begins or a pressure drop during fracturing) would halt the pumping of fracturing fluids and allow formation pressure to return to pre-fracturing levels, thus preventing surface expression. Moreover, under the existing permitting system, BSEE will not approve a proposed WST with the potential to contact a known fracture, fault, and well. For these reasons, the probability of fracturing WSTs resulting in surface expression is very low.

IV. Upward migration of HF fluids through a cement pathway is extremely unlikely.

The Draft EA analyzes the possibility of an accidental release of HF fluids resulting from the creation of a pathway through compromised cement. HESI agrees that the probability of such an event is very low at best. As the Draft EA notes, steps are taken to ensure the integrity of the casing and cement prior to any HF operations, and pressures maintained during the HF operation itself must be within limits specified by BSEE. If at any point there is evidence that the cement bond has been compromised, remedial steps are taken. Moreover, as the EA also notes, given the limited use of WSTs on the Southern California OCS, it is highly unlikely that any well would undergo repeated HF operations to the extent that well integrity is lost.

However, the EA should also note that even if a migration pathway were created in the cement in a well, it is unlikely that the HF fluids would migrate upward. EPA has acknowledged that "density driven fluid buoyancy" is a factor in fluid migration.[1] Fracturing fluids are comparable in density to, if not more dense than, formation waters, and therefore the upward migration of fracturing fluids would require a "driving" force in order to overcome the natural effects of stratification. Such a driving force would normally be absent once the HF operation is complete and the pressure is relieved. As a result, fracturing fluids are unlikely to migrate upward even if there is a preferential pathway that would allow the fluids to pass through multiple low permeability layers. As a result, the potential for upward migration of HF fluids through compromised cement is extremely low. In fact, there is no confirmed evidence that this has ever happened in onshore environments. There is no reason to think it is any more likely to occur in the Southern California OCS environment.

[1] See U.S. Environmental Protection Agency, *Draft Assessment of Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources* (June 2015) at 6-27.

V. SB-4 definitions should be used with caution.

HESI has concerns about the adoption of definitions contained in California Senate Bill No. 4 ("SB-4") for purposes of the EA. These definitions were drafted primarily to address onshore wells, and HESI believes that some of them are problematic. For example, the definition of "acid well stimulation treatment"—and therefore the definition of "well stimulation treatment"—could be read to cover routine uses of acid to clean up the well. As a result, HESI urges BSEE and BOEM to use these definitions with caution for purposes of analysis and not to extend their use to permits or regulations.