



January 10, 2023

Mr. Richard Yarde, Regional Supervisor
Bureau of Ocean Energy Management
Pacific OCS Region
760 Paseo Camarillo, Suite 102
Camarillo, CA 93010-6002
Submitted to <http://www.regulations.gov>

Re: Draft Programmatic Environmental Impact Statement for Oil and Gas Decommissioning Activities on the Pacific Outer Continental Shelf [EIS No. 20220156]

Dear Mr. Yarde:

The following comments are submitted on behalf of the Environmental Defense Center, Surfrider Foundation, and **XX** regarding the Draft Programmatic Environmental Impact Statement for Oil and Gas Activities on the Pacific Outer Continental Shelf (“DPEIS”). **[Summarize the groups’ interests.]** We appreciate the extension of time for public comment.

Our organizations appreciate the fact that the U.S. Bureau of Safety and Environmental Enforcement (“BSEE”) and Bureau of Ocean Energy Management (“BOEM”) decided to prepare a programmatic evaluation of decommissioning options and environmental consequences on the Pacific Outer Continental Shelf (“POCS”). Such analysis is critical to ensure proper planning and support for platform decommissioning offshore California.

Many of our organizations submitted scoping comments on September 3, 2021.¹ We are pleased that the DPEIS addresses many of our recommendations. For example, the DPEIS addresses a range of alternatives, and distinguishes between temporary and long-term consequences of the various decommissioning alternatives. The DPEIS also considers impacts to biological resources on a population scale and addresses concerns regarding non-native species. Furthermore, the DPEIS explains why some suggested alternatives are not feasible.

¹ See letter from the Environmental Defense Center, *et. al.*, to Richard Yarde regarding Programmatic Environmental Impact Statement for Oil and Gas Decommissioning Activities on the Pacific Outer Continental Shelf – Docket No. BOEM-2021-0043, September 3, 2021, attached hereto as Attachment A.

The DPEIS, however, omits some critical issues. Some examples include the following:

- The DPEIS should be revised to further assess the legal feasibility of some of the Alternatives, in particular Alternatives 2 (partial platform removal) and 4 (no action).
- The DPEIS should consider the impacts of leaving shell mounds, other debris, and pipelines on the seafloor (as allowed in Alternatives 2, 3 (partial platform removal and placement of upper jacket in artificial reef), and 4), including impacts related to safety hazards as well as potential releases of toxic materials into the marine environment.
- The DPEIS should analyze how increased fishing access could affect biological resources under Alternatives 2, 3, and 4.
- The DPEIS must provide a complete analysis of potential impacts to endangered and threatened species, including marine mammals, sea turtles, and marine birds.
- The DPEIS should provide further analysis of the potential effect of flushing the pipelines on the marine environment.
- Although the DPEIS identifies some possible mitigation measures, it fails to analyze their feasibility or effectiveness, so there is no way to know what the residual impacts will be.

The following comments track the sections of the DPEIS and provide our analysis and recommendations for additional review.

I. Introduction

We agree that the DPEIS will “support future federal review of an action on decommissioning applications, and will provide a programmatic analysis to which future, site-specific NEPA analyses may tier.” (DPEIS at 1-7) The DPEIS will also support future *state* review of any proposals to partially decommission platforms, in accordance with 30 CFR 250.1730. It is critical that the DPEIS provide comprehensive, accurate information because both state and federal agencies will rely on this information in future decommissioning decisions.

II. Alternatives

A. Alternative 1 – Complete Platform Removal

Under Alternative 1, the platform and related facilities would be fully removed. This alternative is consistent with the original lease agreement terms. This is also the only alternative that would require complete seafloor clearing and site clearance to remove all obstructions, components, and debris in accordance with federal regulations. (DPEIS at 2-5) *See* 30 CFR 250.1703, 30 CFR 250.1740-1743. Even shell mounds would be “excavated, if appropriate and feasible, loaded onto barges, and transported to shore for landfill disposal.” (DPEIS at 2-17)

Leaving platform components and pipelines creates serious safety hazards. (See discussion below regarding Commercial and Recreational Fisheries.) In addition, when sites are not fully cleaned up and shell mounds are allowed to remain, the marine environment is at risk for contamination of toxic pollutants. (See discussion below regarding Water Quality.) Alternative 1 is the only alternative that avoids these significant effects.

B. Alternative 2 – Partial Platform Removal

Under Alternative 2, the topside and upper jacket would be removed and transported for onshore disposal similar to Alternative 1. The lower portion of the jacket, up to 26 m (85 feet) below the sea surface, would remain in place. The pipelines would be abandoned in place. According to the description in the DPEIS, it appears that the pipelines would not be buried, but rather would be left on the seafloor. (DPEIS at 2-5) Portions of the facilities, including obstructions such as shell mounds, would remain in place. (*Id.*)

Based on this description, we have the following questions and comments:

- What legal basis exists for leaving part of the jacket, pipelines, and associated facilities in place? The general requirements for platform decommissioning direct the operator to remove *all* portions of a platform and related facilities, and to clear the seafloor of all obstructions. 30 CFR 250.1703. The Regional Supervisor may approve partial structure removal or toppling in place for conversion to an artificial reef if the structure becomes part of a State artificial reef program, the State accepts title and liability for the structure and receives a permit from the U.S. Army Corps of Engineers, and the removal complies with U.S. Coast Guard navigational requirements. 30 CFR 250.1730. Alternative 2 does not appear to comply with federal partial removal requirements. Accordingly, is this Alternative legally feasible?
- If this Alternative is legally feasible, who retains responsibility for maintaining the structure and related facilities and obstructions?
- Please evaluate any navigational or safety hazards associated with leaving the lower portion of the jackets in place. For example, could anchors, cables, fishing lines, or other equipment become entangled with the jackets?
- Please analyze any safety hazards associated with leaving pipelines on the seafloor rather than buried. (Please see comments below regarding Commercial and Recreation Fisheries.)
- Can such hazards be avoided or mitigated?
- Could flushing the pipelines result in any leaks of pollutants into the marine environment? (Please see comments below regarding Water Quality.)

- Please evaluate the potential for leaking and leaching of pollutants when pipelines are not removed. (Please see comments below regarding Water Quality.)
- If the debris and shell mounds are not removed, the potential exists for toxic pollutants to be dislodged or otherwise released into the marine environment. (Please see discussion below regarding Water Quality.)
- Please evaluate the impacts related to corrosion of the platform components, how such corrosion is treated or prevented, and impacts from such treatments and activities.

C. Alternative 3 – Partial Platform Removal and Placement of Upper Jacket in Artificial Reef

Under Alternative 3, the topside would be removed and transported onshore for disposal similar to Alternative 1. The upper jacket would be severed and used for artificial reef formation by either (1) being placed on the seafloor adjacent to the remaining jacket structure, (2) being toppled in place adjacent to the remaining jacket structure, or (3) being towed to an existing reef site or reef planning area offshore southern California. (DPEIS at 2-5 – 2-6)

Please respond to the following questions and comments:

- Are there any existing reef sites or reef planning areas offshore southern California? If so, where are they located, and what is their current status?
- The DPEIS should point out that in this Alternative, the obstructions (including shell and debris mounds) would remain in place, similar to Alternative 2.
- Federal regulations allow for partial structure removal or toppling in place. 30 CFR 250.1730. As noted in Section 2.3.7.2, such options require that the structure becomes part of a State artificial reef program. (DPEIS at 2-18 – 20) California’s Rigs-to-Reefs program was enacted by passage of the California Marine Resources Legacy Act (AB 2503, 2010).
 - The PEIS should clearly state whether participation in the State program is the only option for partial decommissioning under Alternative 3.
 - The DPEIS describes three Rigs-to-Reefs options: Tow-and-Place, Topple-in-Place, and Partial Removal. (DPEIS at 2-19) The California Marine Resources Legacy Act does not appear to contemplate all three options; instead, the Act describes the program as allowing partial removal of a platform structure if the State determines that “partial removal of the structure would provide a net benefit to the marine environment compared to full removal of the structure.” CA Pub. Res. Code § 6613(c). If such a determination can be made, and the removal

complies with navigational safety requirements, the “partially removed structure” would be managed by the State. *Id.* at § 6613(c)(5); see also § 6615(a). With this in mind, is Tow-and-Place a viable option? Would this option comply with applicable federal regulations and state law?

- Please analyze the consistency between Alternative 3 and California’s artificial reef guidelines.² The guidelines state that the best materials for ensuring a productive artificial reef are concrete boxes and quarry rock because they mimic natural reef structure.³ The guidelines warn about the potential release of harmful chemicals into the marine environment if inappropriate materials are used.⁴ The guidelines also note that artificial reefs are more productive if they “consist of numerous low relief rock piles placed at various water depths,” because such variety increases availability of food and shelter.⁵ Finally, the guidelines emphasize the importance of siting to reef success.⁶ How would Alternative 3 conform to these guidelines?
- Please evaluate the navigational or safety hazards associated with leaving the lower portion of the jackets in place. For example, could anchors, cables, fishing lines, or other equipment become entangled with the jackets?
- Please analyze any safety hazards associated with leaving pipelines on the seafloor rather than buried. (Please see comments below regarding Commercial and Recreational Fisheries.)
- Can such hazards be avoided or mitigated?
- Could flushing the pipelines result in any leaks of pollutants into the marine environment? (Please see comments below regarding Water Quality.)
- Please evaluate the potential for leaking and leaching of pollutants when pipelines are not removed. (Please see comments below regarding Water Quality.)
- If the debris and shell mounds are not removed, the potential exists for toxic pollutants to be dislodged or otherwise released into the marine environment. (Please see discussion below regarding Water Quality.)
- Please evaluate the impacts related to corrosion of the platform components, how such corrosion is treated or prevented, and impacts from such treatments and activities.

² Lewis, Robin D. and McKee, Kimberly K., *A Guide to the Artificial Reefs of Southern California* (California Department of Fish and Game, 1989) (Attachment B)

³ *Id.* at 2-3.

⁴ *Id.* at 3. Although the focus in the Guide is on tires, the threat is the same from incomplete cleanup of platform sites.

⁵ *Id.* at 5.

⁶ *Id.*

D. Alternative 4 – No Action

Alternative 4 is described as taking no action on decommissioning. The DPEIS states, “While this alternative would not meet the purpose and need of the Proposed Action, or the legal obligations of the lessees or other liable parties and BSEE, it helps in understanding the potential impacts of the Proposed Action and the other action alternatives.” (DPEIS at 2-6) While this statement implies that Alternative 4 is not feasible, the DPEIS should more clearly state that there is no option to simply take no action and leave platforms at sea. As the DPEIS acknowledges, “existing law would not permit the platforms to persist in the environment indefinitely.” (*Id.*) In fact, federal regulations require decommissioning after a platform is no longer operational. 30 CFR 250.1703. All platforms and facilities must be removed within one year after a lease terminates, unless the operator receives approval to maintain the structure for other purposes. 30 CFR 250.1725 - 1730. If approval is not sought or granted, the platform and all related facilities must be removed.

Please revise the PEIS to address the following:

- The PEIS must clearly explain that there is no option to simply take no action and leave platforms at sea.
- The PEIS should describe the requirements for obtaining permission to leave a platform in the ocean, including remaining obligations for decommissioning. *See* 30 CFR 250.1725-1730.

The PEIS should also consider the impacts of leaving structures in the ocean, including the following:

- What are the navigational and safety hazards of leaving platforms in place following abandonment? For example, could anchors, cables, fishing lines, or other equipment become entangled with the jackets? (Please see comments below regarding Commercial and Recreational Fisheries.)
- Would the pipelines be buried or left on the seafloor? If the pipelines are not buried, or become exposed, what safety hazards will result?
- Can such hazards be avoided or mitigated?
- Could flushing the pipelines result in any leaks of pollutants into the marine environment? (Please see comments below regarding Water Quality.)
- Please evaluate the potential for leaking and leaching of pollutants when pipelines are not removed. (Please see comments below regarding Water Quality.)

- If the debris and shell mounds are not removed, the potential exists for toxic pollutants to be dislodged or otherwise released into the marine environment. (Please see discussion below regarding Water Quality.)
- Please evaluate the impacts related to corrosion of the platform components, how such corrosion is treated or prevented, and impacts from such treatments and activities.

E. Alternatives Considered but Eliminated from Further Evaluation

We agree with the determination in the DPEIS that conversion of platforms to renewable energy production is not likely. (DPEIS at 2-20 – 22) As the DPEIS explains, in addition to concerns about the age of the platforms and limitations on wind energy resources, it would not be economical to modify a platform to construct and operate a single wind turbine.

In addition to the analysis in the DPEIS, it should be noted that an Alternative Use right-of-use and easement (“RUE”) still imposes decommissioning obligations, which would increase the costs and render such operations even more economically questionable. *See* 30 CFR 250.1731.

As the DPEIS notes, similar concerns arise with respect to conversion of platforms to offshore research centers. Again, the DPEIS should note that future decommissioning liability will render such conversion even more costly.

III. Environmental Consequences

The PEIS should be revised to ensure a comprehensive analysis of impacts related to air quality, water quality, biological resources, commercial and recreational fisheries, and safety, as discussed herein.

Similarly, mitigation measures should be fully analyzed within each impact section. Such analysis must explain how effective each measure would be in avoiding or reducing potential environmental consequences, and whether residual effects would remain significant. Instead, potential mitigation measures are included in a separate section (Section 4.1.2, Table 4.1-3), without any analysis. The PEIS should also note that additional consideration and analysis of mitigation measures will need to be provided when individual decommissioning projects are proposed.

A. Air Quality

Four Southern California counties will experience air quality impacts from decommissioning activities, with Santa Barbara County experiencing the most emissions. (DPEIS at 4-21) The primary source of air emissions will be internal combustion engines with cargo, barge and tug combinations producing the most. (DPEIS at 4-18 - 19) While Alternative 1 activities would create more emissions than other alternatives, overall impacts would be “minor

and temporary,” even in Santa Barbara County. (DPEIS at 4-21) However, despite the temporary nature of impacts, the DPEIS acknowledges that diesel particulate matter could have impacts on human health in downwind coastal communities and along roads. (DPEIS at 4-19) The transportation of materials from platforms to disposal sites will have short to medium term impacts on coastal and inland communities through increased air pollution and truck traffic.

The DPEIS states that each of the four southern counties is in nonattainment for one or more criteria pollutants, and the DPEIS provides data quantifying emissions for several pollutants from decommissioning activities for each alternative. However, the DPEIS does not specify the amount by which emissions can or will be reduced through the use of mitigation measures. (DPEIS at 4-21) One potential mitigation measure mentioned in the DPEIS is the availability of ultra-low sulfur fuel vessels which could reduce impacts from emissions otherwise associated with the existing fleet of vessels. (DPEIS at 4-21, 4-22) Specifically, the DPEIS states that an increased availability of cleaner engine tugboats may substantially reduce emissions and “[t]he availability and use of clean engine technology on existing boats in operation aids these mitigation strategies.” (DPEIS at 4-22) In addition, as the ports in California move towards zero emissions, the future development of alternative engine types, including both electric-powered vessels and equipment, may aid in reducing overall air quality impacts. While the DPEIS mentions the potential for the increased availability of cleaner engine tugboats to mitigate impacts, we request the Final PEIS examine the actual effectiveness and feasibility of this and other emission-reducing mitigation measures in the foreseeable future, i.e., during the projected timeline for decommissioning.

In addition, the DPEIS should examine and disclose the following:

- The specific impacts to communities that are already impacted by air pollution, truck traffic, and other environmental justice concerns.
- Efficacy of mitigation measures and what residual impacts would remain. Please discuss the amount of emission reductions achievable through specific mitigation measures that can and will be used as decommissioning commences in the near future to reduce emissions, especially in vulnerable downwind communities that are already impacted by air pollution in the four counties. Please provide any available information about the current status of cleaner engine fleets, and the likelihood/feasibility of such cleaner fleets coming online during the projected timeline for decommissioning activities.
- Please specify in the Final PEIS the amount of air pollutant emissions that the agency predicts may be reduced by cleaner engine and equipment technology in the future, in order to mitigate the air pollution effects of decommissioning on communities and public health (if known).
- The DPEIS states that the California Air Resources Board (“CARB”) will regulate mobile sources, while individual county air pollution control districts will

regulate stationary sources, however, local air pollution control districts also regulate portable engines. Please specify in the Final PEIS which types of equipment and vessels will require new permits under either permitting authority.

- For Alternatives 2-4, please specify the additional air pollution impacts that could result from cleanup efforts if a natural disaster (e.g., tsunami, earthquake) disturbs pipelines or debris mounds, or if a human-caused event (e.g., anchor snag, equipment entanglement) damages or breaks apart pipelines, jackets, or debris mounds left behind in the ocean, especially if it results in a release of chemicals from debris mounds specifically.

B. Water Quality

The DPEIS, in general, relays information about the current condition of water quality in the action area along the California coast, as well as disclosing some possible harms, whether short- or long- term, which may result from decommissioning activities. Three of the proposed alternatives would allow some oil drilling infrastructure, including pipelines and debris mounds, to be left in place on the sea floor. However, in a report from 2021, the Government Accountability Office (“GAO”) found that BSEE does not have a “robust” system in place to ensure that decommissioned infrastructure, including pipelines, left on the seafloor do not cause environmental and safety risks, nor does it ensure that operators meet decommissioning standards during activities such as cleaning or burying pipelines.⁷

We are concerned that without this necessary oversight, any alternative that allows for pipelines and other infrastructure to be left in place on the sea floor will pose serious risks to water quality in the ocean off the southern California coast. BSEE should, therefore, develop the necessary stronger regulatory framework to address these shortcomings before approving any alternative that allows infrastructure to be left in place on the sea floor. The agency should also provide additional analysis in its Final PEIS of the potential for releases of petroleum residuals, other chemicals, or toxic wastes where infrastructure will remain in the environment long-term under Alternatives 2-4, and the agency should develop additional mitigation measures for operators as it pertains to cleaning and decommissioning of pipelines to avoid spills of oil or chemical products.

In addition, the analysis of the potential environmental effects of leaving debris mounds in place falls short by underplaying the risks of release and contamination from heavy metals and PCBs known to be present within the mounds. A more robust analysis of the studies regarding presence of toxic chemical compounds in debris mounds, and the potential risks associated with leaving them in place under Alternatives 2-4, is needed in the Final PEIS.

1. Pipeline and Platform Decommissioning

⁷ U.S. Government Accountability Office, GAO-21-293, Offshore Oil and Gas: Updated Regulations Needed to Improve Pipeline Oversight and Decommissioning (2021) (hereinafter “GAO Report”) at 12. See Attachment C.

In reviewing potential effects on water quality, the DPEIS discusses the “possible” release of metals and organic chemicals during decommissioning activities, stating that releases of petroleum residuals might occur during pipeline cleaning and removal. (DPEIS at 3-24, 4-34) The DPEIS then states that these releases would be a “small fraction” of pipeline volume and are not expected to degrade water quality. (DPEIS at 4-34) However, the GAO Report referenced above found that “[u]nder BSEE’s regulations, operators may be allowed to forgo certain cleaning procedures when decommissioning pipelines in place.”⁸ The Report found fault with a BSEE-sponsored study that concluded that the environmental risks of decommissioning in place were lower than full removal, pointing out that “...this study assumed that pipelines would be properly cleaned, buried, and not subject to movement, but some BSEE and BOEM officials suggested that these steps might not be taken.”⁹ These agency officials told the GAO that pipelines left on the ocean floor may “eventually corrode and, if not properly cleaned, could release hazardous materials, such as hydrocarbons and chemicals that are toxic to a wide range of organisms.”¹⁰

The GAO found that BSEE does not actually “observe any pipeline decommissioning activities, inspect pipelines after their decommissioning, or verify most of the pipeline decommissioning evidence submitted.”¹¹ Furthermore, the GAO found that if BSEE allows pipelines to be left in place, and those pipelines are later found to pose risks, there is no funding source for their removal.¹²

Accordingly, the PEIS must fully assess the impacts associated with leaving pipelines on the seafloor, as well as an alternative that requires their removal.

In reviewing the list of typical mitigation measures that will be employed to contain wastewater, trash, and debris, no specific measure addresses how pipelines are to be flushed and cleaned so as to avoid releases. (DPEIS at 4-10) Instead, this list of mitigation measures is confined to general mitigation such as complying with Coast Guard sanitary waste discharge requirements and pollution prevention measures on vessels and platforms. (*Id.*)

Therefore, we request that BSEE revise the PEIS to address the following:

- Under what conditions will the agency allow operators to leave pipelines in place?
- Do the agencies currently have oversight authority to ensure operators are complying with standards for protection of water quality during decommissioning? If not, what additional regulations or resources are needed to ensure such protection?

⁸ *Id.* at 17.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.* at 18-19.

¹² *Id.* at 12.

- Has BSEE addressed the issue of allowing operators to forgo certain cleaning measures during decommissioning since the release of the GAO Report? If not, how will BSEE ensure that the cleaning procedures outlined in the DPEIS actually take place during decommissioning procedures offshore California?
- The Final PEIS should disclose specific volume information for petrochemical compounds, chemicals, and cleaning fluids, including the volume ratios for any toxic or potentially harmful components of cleaning fluids, that could be released during flushing and cleaning of pipelines during decommissioning.
- The PEIS should also analyze the risk of release of chemicals as a result of corrosion if pipelines are left long-term on the ocean floor.
- What mitigation measures can be taken to avoid the risk of a potential release of chemicals into the environment during pipeline cleaning and decommissioning? The table of typical mitigation measures at 4-10 should include specific provisions related to this issue, and elucidate the techniques that operators will employ to reduce the releases of residuals during decommissioning.
- In reference to the sanitary wastewater being produced, what is defined as minor? Would the cumulative amount of sanitary wastewater produced by all platform decommissioning projects still be considered minor?
- Where does the wastewater go to be processed after pipelines are flushed and how is that wastewater treated and disposed on land or elsewhere?

For Alternatives 2-4, where pipelines may remain on the ocean floor indefinitely after the platforms are removed, there may be potential for both leakage of petroleum residuals from the pipelines as well as leaching of heavy metals from the pipeline material itself over time. Please address the following in the final PEIS:

- Is there a way to collect/mitigate the release of naturally occurring radioactive material (“NORM”) and other metal contaminants when cutting the pipeline?
- What is the potential risk of petroleum residuals leaking from old pipelines after the cleaning and decommissioning process once they are abandoned on the seafloor over the long-term?
- What is the potential risk of heavy metals leaching from the pipelines into the environment, and what is the likely impact on water quality from such leaching?
- Are there mitigation measures, aside from complete removal of pipelines, to ensure neither leaking nor leaching occurs from pipelines left on the ocean floor long-term?

- In addition to problems with pipelines left behind after decommissioning, the GAO Report also pointed out that umbilical lines that provide power to subsea infrastructure may be “of great concern because they often contain hazardous chemicals, and it is not feasible to properly clean them.”¹³ The Final PEIS should disclose and analyze whether umbilical lines are proposed to be left in place under Alternatives 2-4, and if so, how the agency plans to address remediation of hazardous materials contained therein.
- If the agency allows pipelines or other infrastructure to remain in the ocean under Alternatives 2-4 that are later dislodged or otherwise leaching or leaking chemicals into the environment, where will funding come from for remediation and removal?

For Alternatives 1-3, the PEIS should address the following question related to platform decommissioning:

- What is the approximate volume of metal cuttings produced during non-explosive severance of 254 total jacket sections and 818 conductors for the 23 platforms?
- The DPEIS states that “the effects of this turbidity on water quality will be localized and temporary.” (DPEIS at 4-34) What is considered localized and temporary (distance and time)?

2. Debris Mounds

In previous comments, some of our organizations requested that the DPEIS carefully evaluate impacts from any alternatives that would leave debris mounds in place on the sea floor indefinitely, due to the known presence of toxic chemicals in other debris mounds, such as within unremediated mounds on the site of the 4-H platforms offshore Summerland, California. Unfortunately, the DPEIS’s analysis of the potential environmental effects of leaving debris mounds in place falls short. For example, the DPEIS refers to shell mound contamination as “minor overall,” but the agency acknowledges that platforms may be releasing contaminants such as nickel and PCBs (which presumably then deposit onto debris mounds below). (DPEIS 4-39) The DPEIS also acknowledges that these chemicals may cause significant toxic exposures and adverse impacts to benthic organisms on debris mounds and that therefore removing shell mounds may remove a source of contamination. (*Id.*)

What is needed is a more robust analysis of the science regarding the presence of toxic compounds in debris mounds, and the potential risks associated with leaving them in place under Alternatives 2-4. This analysis should analyze the scientific studies that show the potential and actual presence of toxic chemicals within debris mounds, as well as the potential risks of seismic activity or large tsunami-level storms moving or breaking mounds open in the future, which could lead to a large release of toxic contamination.

¹³ *Id.* at 18.

In previous comments, EDC and others referred to the 2001 study prepared by the California State Lands Commission entitled “Shell Mounds Environmental Review,” which assessed the environmental characteristics of the Chevron 4-H mounds.¹⁴ That review revealed the following:

- Concentrations of Effects Range Median (“ERM”) concentrations for many metals, including nickel and PCBs within debris mounds.¹⁵
- Effects Range Low (“ERL”) were exceeded for other metals within debris mounds, including antimony, arsenic, cadmium, chromium, copper, lead, nickel, and zinc, and for organics including PAH and PCBs.¹⁶ Heavy metals, total recoverable petroleum hydrocarbons, and polynuclear aromatic hydrocarbons exceeded the reference site sediments.¹⁷
- Bioassay tests showed that shell mound sediments at the Platform Hazel site were toxic.¹⁸
- Leaving mounds in place could lead to exposure of sediments and leaching of contaminants into the surrounding water column.¹⁹

Other studies regarding the Chevron debris mounds indicate that:

- “Some cores contained material with a strong petroleum odor and had the appearance of free petroleum product,” and that “[m]aterials from all four mounds were significantly toxic to the primary test organisms (amphipods).”²⁰ “[O]f greatest interest were the unusually high concentrations...of a number of volatile aromatic hydrocarbons, especially benzene...and naphthalene, in the middle strata samples.”²¹
- Test results also showed contamination in organisms living in or on the mounds, including from PCBs and metals including nickel, cadmium, copper, and zinc. For example, PCBs in sea cucumbers “demonstrated that some human-derived contaminants are present in the vicinity of the 4H shell mounds and biologically available.”²²

¹⁴ Shell Mounds Environmental Review, prepared for the California State Lands Commission and the California Coastal Commission by L.A. de Wit, Consultant (March 2001) (“de Wit”), attached hereto as Attachment D. Of particular relevance, one of the primary objectives of the study was to “collect and analyze data on the physical, chemical, and biological characteristics of the shell mounds.” (de Wit at 3)

¹⁵ *Id.* at 3, 12.

¹⁶ *Id.*

¹⁷ *Id.* at 3, 13.

¹⁸ *Id.*

¹⁹ *Id.* at 34.

²⁰ Chevron 4H Platform Shell Mounds Disposition Draft Program Environmental Impact Report / Environmental Assessment (“EIR/EA”) (December 2003) at 3.2-10 to 3.2-13.

²¹ *Id.*

²² *Id.* at 3.2-22.

- The outermost, roughly 1-5-foot-thick layer of the mounds, are varying permeable, and allow seepage of PAHs, VOCs, and heavy metals from the middle layer of discarded drilling wastes into the surrounding area.²³
- Elevated, and at times, toxic levels of heavy metals and PAHs are bioaccumulating in surrounding organisms.²⁴

Because of the known concentrations of toxic chemicals within debris mounds, the long-term presence of these mounds in the environment presents a risk to water quality, not only due to leaching, but also due to the risk of disruptive natural or man-made events that could cause those mounds to become dislodged or break apart. The Santa Barbara Channel has several faults and a history of earthquakes and evidence of tsunamis contributing to submarine slope failure.^{25,26,27} The Chevron 4H Platform Shell Mounds Disposition environmental review found that the long-term stability of the mounds was “unpredictable,” and the mounds posed “a continuing risk of contaminant release, and the attendant potential for toxicity and bioaccumulation in marine biota.”²⁸ In addition to natural events such as earthquakes, tsunamis, and storm events, human activities may disturb the mounds, thereby causing release of toxic chemicals into the marine environment. For example, anchors and other equipment can potentially dislodge or disturb mounds.

Therefore, the Final PEIS should thoroughly examine the chemical composition of debris mounds when discussing the potential environmental impact of leaving debris mounds in place on the sea floor for Alternatives 2-4. The PEIS should also assess the following:

- The DPEIS states that the debris mounds would first be characterized and then removed if feasible and appropriate. (DPEIS 2-17) What factors will the agency use to determine whether it is feasible and appropriate to remove debris mounds?
- What is the comparison of a seismic event releasing contaminants, versus an organized and intentional removal of shell mounds at the time of decommissioning the platform?
- How long would toxic chemicals persist in the water column?

²³ SAIC Dredged Material Testing for Ocean Disposal: Chevron 4H Shell Mound Project (“DMT”) (2002) at 1-4.

²⁴ AMEC 2014 study of Tissue Concentrations in Resident Organisms at the 4H Shell Mounds (“AMEC 2014”) at 17-25.

²⁵ USGS. 2015. UCERF3: A new earthquake forecast for California’s complex fault system. Series number: 2015-3009. DOI: 10.3133/fs20153009. Available at: <https://pubs.er.usgs.gov/publication/fs20153009>

²⁶ Du, X., I. Hendy, and A. Schimmelmann. 2018. A 9000-year flood history for Southern California: A revised stratigraphy of varved sediments in Santa Barbara Basin. *Marine Geology* 397 (2018) 29-42. <https://doi.org/10.1016/j.margeo.2017.11.014>

²⁷ Rockwell, T.K., K. Clark, L. Gamble, M.E., Oskin, E.C. Haaker, and G.L. Kennedy. 2016. Large transverse range earthquakes cause coastal upheaval near Ventura, Southern California. *Bulletin of the Seismological Society of America*, Vol. 106, No. 6. doi: 10.1785/0120150378

²⁸ EIR/EA at ES-8.

- For Alternatives 2-4, what is the potential risk of a seismic event, storm, or human-generated accident dislodging or breaking apart debris mounds?
- If debris mounds do become dislodged, what are the potential water quality impacts if chemicals are no longer contained within the mounds?
- For Alternatives 2-4, are there other mitigation measures that may be required to ensure debris mounds do not release chemicals, such as stabilizing the mounds in place?
- What long-term monitoring of debris mounds will be required to ensure they remain stable over the long-term?
- For Alternative 1, the Final PEIS should discuss which mitigation or prevention methods will be utilized to ensure that toxic chemicals do not escape during removal.

C. Biological Resources

We appreciate that the DPEIS considers short- and long-term impacts, local and population scale impacts, and impacts of invasive species. However, the DPEIS limits long-term impacts to a relatively short time frame; the PEIS should reflect the length of time it is estimated that any remaining platform jacket, pipelines, shell mounds, and other materials will persist in the marine environment. In addition, the DPEIS fails to analyze several impacts to biological resources that we mentioned in our scoping comments, including the impacts of fishing to biological communities under the various alternatives, secondary entanglement, and impacts to threatened and endangered marine mammals, sea turtles, and birds.

In this section, we combine marine habitats, invertebrates and lower tropic-level communities, marine fish and essential fish habitat, sea turtles, marine and coastal birds, and marine mammals under a general “biological resources” heading. Many of our recommendations and questions about the various biological resources apply to multiple subsections, as described by topic area below.

1. The PEIS Should Consider Long-term Impacts over an Appropriate Time Scale.

As mentioned above, we are pleased that the DPEIS addresses many of our scoping recommendations. One such recommendation was to distinguish between short-term and long-term impacts of the various decommissioning alternatives. However, we do not feel that the long-term consequences were adequately analyzed. For example, the long-term impacts of Alternatives 2, 3, and 4 were limited to 30-50 years, even though the DPEIS states that pipeline degradation may occur over 100-500 years. (DPEIS at 4-71) The PEIS should provide an estimate of how long the upper jacket, shell mounds, pipelines, and other material would remain intact under Alternatives 2, 3, and 4, and describe what the long-term impacts would be throughout that time frame. The PEIS should also address the following questions:

- Would the biological communities on the lower jacket change as the shell mounds become buried in mud (in part due to lack of the upper jacket producing shell-forming invertebrates)?²⁹ If so, in what ways would biological communities be impacted by long-term changes to the jacket and shell mound structure?
- The DPEIS states that “[t]he potential for contaminant release would be greatest under Alternative 1 because it would remove shell mounds and the jacket structure below the seafloor.” (DPEIS at 4-46) However, the DPEIS does not consider the potential for long term release of contaminated shell mounds under Alternatives 2, 3, and 4. For example, the PEIS should analyze the long-term potential for contaminated shell mounds to be disturbed by seismic events. What is the risk of release of contaminants in the case of a seismic event or tsunami-level storms?
- What are the long-term population level impacts if the lower jacket and artificial reef structures are fished versus protected as part of California’s Marine Protected Areas Networks (Under Alternatives 2, 3, and 4)?

2. The PEIS Should Consider Impacts of Fishing Near the Remaining Platform Jacket Structure.

The PEIS should consider impacts of fishing near the remaining platform jacket structure under Alternatives 2, 3, and 4. The DPEIS goes into significant detail about the potential effects to biological communities under each Alternative and considers impacts to biological resources on both localized and population scales. However, the DPEIS does not describe the impacts of commercial and recreational fishing on or around the lower jacket in Alternatives 2, 3, and 4, or the reefed portion of the upper jacket in Alternative 3. Yet, the DPEIS assumes that all areas will be open to fishing post-decommissioning, though some areas “would remain unsuitable to most commercial fishing methods.” (DPEIS at 4-80)

In our scoping comments, we questioned whether the future habitat value of a partially decommissioned platform will differ if the jacket/artificial reef is off limits to all or select fishing activity, or if it is fished. The PEIS should consider the long-term habitat value of both scenarios. The PEIS should address the following:

- If the platform is partially decommissioned and included in California’s artificial reef program, how will its future habitat value differ if the area is off limits to all or select fishing activity, or if it is fished? What are the long-term habitat impacts under each scenario? How will the community of species currently inhabiting the platform be impacted under each decommissioning scenario? Will productivity at platforms maintain

²⁹ Only a few years after the 4H platforms were removed, a study of the remaining shell mounds revealed that “[t]he value of the shell mounds has decreased since the 1998 survey and has been substantially reduced from that found when the platforms were in-place.” (de Wit at 4) In fact, “the biological value of the shell mound habitat is relatively low” (*id.*) and was expected to decrease over time (*id.* at 5).

“highest secondary production per unit of seafloor of any marine habitat” if the top 85 feet are removed, and/or if the remaining platform structures have increased fishing pressure? (DPEIS at 4-48)

- The DPEIS notes that fishing pressure is greater at natural reefs under current conditions. (DPEIS at 4-47) The PEIS should include a discussion of how fishing pressure may change under Alternatives 2, 3, and 4, assuming fishing pressure increases when restrictions for fishing around active platforms are no longer in place, and/or if the upper jacket is reefed in a location that is accessible to fishers.

3. The PEIS Should Evaluate the Risk of Entanglement.

As mentioned in our scoping comments, the PEIS should consider the risk that derelict fishing gear, anchor chains, and other marine debris will get caught on partially decommissioned platform structures and could lead to secondary entanglement of marine life. This could occur from “ghost” fishing gear entangling on the structure, or fishing activity near the structure. Entanglements can impact a variety of species, including sharks, whales, diving birds, fishes, and more. Johnson et al. (2005) found that “any line rising into the water column poses a significant entanglement risk.”³⁰

Marine debris could also become caught on shell mounds, resulting in similar entanglement risk. For example, a study of the 4H Shell Mounds found “significant accumulations of foreign debris, including anchor chains, pipelines, smaller pipes, steel beams, and other assorted metallic objects,” as well as abandoned lobster traps.³¹ Should they get caught on the jacket or shell mounds, lines from lobster traps and other fishing related debris (e.g., nets) can cause secondary entanglement of marine species. Considering the prevalence for marine debris associated with shell mounds, the PEIS should analyze the impacts of secondary entanglement on marine mammals, sea turtles, marine birds, and marine fishes. Under Alternatives 2, 3, and 4, at least a portion of the jacket and shell mounds would remain in place. The PEIS should describe how the shell mounds would be monitored to ensure they are not causing secondary entanglement, and mitigation strategies should be identified and evaluated.^{32,33}

4. The PEIS must Consider Impacts to Threatened and Endangered Marine Mammals, Sea Turtles, and Birds.

³⁰ Johnson, A.J., G. Salvador, J. Kenney, J. Robbins, S. Kraus, S. Landry, and P. Clapham. (2005). Fishing gear involved in entanglements of right and humpback whales. *Marine Mammal Science*. 21(4):635-645.

³¹ California State Lands Commission, prepared by AMEC Environmental & Infrastructure, Inc. 2014. Tissue concentrations in resident organisms at the 4H Shell Mounds.

³² Environmental groups’ entanglement monitoring recommendations for offshore wind can be found: <https://www.nrdc.org/sites/default/files/floating-offshore-wind-entanglement-risk-20220929.pdf>

³³ See National Marine Fisheries Service Large Whale Entanglement Response Program for whale entanglement reporting protocol: <https://www.fisheries.noaa.gov/west-coast/marine-mammalprotection/west-coast-large-whale-entanglement-response-program#reports>); Sea Turtle Disentanglement Network for sea turtle reporting protocol: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/sea-turtledisentanglement-network>).

The DPEIS only specifies impacts to threatened and endangered fishes and invertebrates, and omits consideration of threatened and endangered marine mammals, sea turtles, and birds. The DPEIS also minimizes the potential for population level impacts, even though several whale species that use this area are endangered and have low levels of Potential Biological Removal (“PBR”). The PEIS should address the following:

- The DPEIS states that “there is evidence of resident turtles at platforms.” (DPEIS at 4-57) Is this statement referring to California platforms? The PEIS should provide evidence, including location information, to substantiate this statement.
- The DPEIS states that foraging habitat for some marine mammal species “may develop at the RTR sites regardless of which RTR method is used, thus resulting in a very localized positive benefit,” yet it does not provide support for this claim. (DPEIS at 4-74) The PEIS should specify which species of marine mammals may benefit from an artificial reef and support this claim with scientific evidence.
- Which species of marine mammals would use portions of jackets, shell mounds, and pipelines for foraging habitat? Is there evidence of this at the Chevron 4H Shell Mounds site?
- The PEIS should consider cumulative impacts when analyzing population impacts. The DPEIS states that explosives “would not be expected to result in population-level effects,” even though it acknowledges that explosives may result in death, “even with the implementation of mitigation measures.” (DPEIS at 4-72) The Santa Barbara Channel and surrounding waters have multiple industrial uses, both current and proposed. These include oil and gas activities (including decommissioning), offshore floating wind, aquaculture, commercial shipping, fishing, and others. While it may be challenging to accurately predict joint outcomes of these combined stressors, the DPEIS should consider the cumulative impacts of multiple stressors.^{34,35,36} Considering some whale species are estimated to exceed PBR levels from ship strikes alone—as noted under cumulative impacts at 4-76—actions should be taken to avoid potential take from the use of explosives or other decommissioning activities.³⁷

³⁴ Pirotta, E., L. Thomas, D. P. Costa, A.J. Hall, C.M. Harris, J. Harwood, S.D. Kraus, P.J.O. Miller, M.J. Moore, T. Photopoulou, R. M., Rolland, L. Schwacke, S.E. Simmons, B.L. Southall, P.L. Tyack. 2022. Understanding the combined effects of multiple stressors: A perspective on a longstanding challenge. *Science of the Total Environment*. 821 (2022) 153322. <http://dx.doi.org/10.1016/j.scitotenv.2022.153322>

³⁵ Tyack PL et al. 2022. Managing the effects of multiple stressors on wildlife populations in their ecosystems: developing a cumulative risk approach. *Proc. R. Soc. B* 289: 20222058. <https://doi.org/10.1098/rspb.2022.2058>

³⁶ Pirotta, e. et. al. 2021. Context-dependent variability in the predicted daily energetic costs of disturbance for blue whales. *Conservation Physiology*. Volume 00 (2021) 10.1093.

<https://academic.oup.com/conphys/article/9/1/coaa137/6102278>

³⁷ Pacific marine mammal stock assessments: 2021. 2022. Carretta, James V., E.M. Oleson, K.A. Forney, M.M. Muto, D.W. Weller, A.R. Lang, J. Baker, B. Hanson, A.J. Orr, J. Barlow, J.E. Moore, Jeffrey E.; Brownell, Robert L.

- Regarding mitigation measures for noise impacts, is it possible to use the acoustic arrays³⁸ in the area to identify when whales are present, in addition to visual monitoring?
- Under cumulative impacts, the PEIS should include vessel noise as a reasonably foreseeable impact of commercial shipping on marine mammals and sea turtles.

D. Commercial and Recreational Fisheries

The DPEIS states that under Alternatives 2, 3, and 4, “snagging hazards for commercial fishing in areas with pipelines would be slightly greater than under Alternative 1.” (DPEIS at 4-80) How was the risk of snagging hazard deemed to be “slightly greater”? The PEIS should define “slightly” and explain how the risk is only slightly greater where pipelines are left in place, versus where they are removed.

The DPEIS does not adequately analyze the risk to commercial and recreational fisheries, as well as other ocean users. As mentioned above, shell mounds and infrastructure left on the seafloor create hazard risks. Evidence shows that marine debris on the ocean floor increases the risk of hazards, even when required to be marked with buoys or on nautical charts. The attached letters from local commercial fishers demonstrate that the presence of debris mounds following platform decommissioning can lead to damage such as torn nets, damaged propellers and shafts, and snagged gear and vessels.³⁹ This risk is noted in the GAO Report regarding oil and gas pipeline oversight and decommissioning as well. That report disclosed that trawlers suffer damage to their ships or equipment as a result of snagging on pipelines.⁴⁰

Though unrelated to oil and gas infrastructure, another example of the risk from offshore structures is the devastating accident at the Catalina Sea Ranch aquaculture facility. A broken line wrapped around a boater’s propellor, which led to the capsizing of the boat and the drowning of one of the boat’s occupants.⁴¹ Anchor chains and lines, fishing lines, and other debris could become entangled on materials left behind under Alternative 2 and 3 (including shell mounds) and become hazardous to boaters.

E. Archaeological and Cultural Resources

The DPEIS notes that mitigation efforts “can take many forms and [are] developed during consultation amongst...tribal nations.” (DPEIS at 4-87). The PEIS should clearly lay out a strategy to expand Government-to-Government consultation with non-federally recognized tribes, who have a wealth of knowledge on biological and cultural resources of the area, and

Jr.; Southwest Fisheries Science Center (U.S.), NOAA-TM-NMFS-SWFSC ; 663, <https://doi.org/10.25923/246k-7589>

³⁸ <https://whalesafe.com/about-us/>

³⁹ See letters from Southern California Trawlers Association and Jon Durrah; Attachment E.

⁴⁰ GAO Report at 15.

⁴¹ <https://www.latimes.com/socal/daily-pilot/news/story/2019-12-11/underwater-mussel-farm-reason-fishing-boat-capsized>

likely great interest in ensuring decommissioning activities limit negative impacts to the marine environmental and cultural resources.

F. Socioeconomics

The DPEIS limits socioeconomic impact to short-term, temporary decommissioning activities and does not adequately analyze how impacts to wildlife and habitats may impact non-consumptive uses, such as wildlife viewing and surfing. The PEIS for example, should consider how impacts to marine mammals (as described above) may impact whale watching, and how placement of artificial reefs (under Alternative 3) may impact beach recreation.

IV. Conclusion

Thank you for preparing this programmatic evaluation of platform decommissioning offshore California. With the additional information and analysis discussed above, the PEIS can provide valuable information for applicants, decision-making agencies, and the public to consider when individual projects are proposed.

[Signatories]

cc: U.S. Sen. Feinstein
U.S. Sen. Padilla
U.S. Rep. Carbajal
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U.S. Rep. Lowenthal
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U.S. Rep. Brownley
U.S. Rep. Porter
U.S. Rep. Levin
U.S. Rep. Matsui
U.S. Rep. Lieu
U.S. Rep. Huffman
U.S. Rep. Thompson

Attachments:

- A: Letter from the Environmental Defense Center, et. al., to Richard Yarde regarding Programmatic Environmental Impact Statement for Oil and Gas Decommissioning Activities on the Pacific Outer Continental Shelf – Docket No. BOEM-2021-0043 (September 3, 2021)
- B: A Guide to the Artificial Reefs of Southern California (California Department of Fish and Game, 1989)

- C: U.S. Government Accountability Office, GAO-21-293, Offshore Oil and Gas: Updated Regulations Needed to Improve Pipeline Oversight and Decommissioning (2021)
- D: Shell Mounds Environmental Review, prepared for the California State Lands Commission and the California Coastal Commission by L.A. de Wit, Consultant (March 2001)
- E: Letters from Southern California Trawlers Association and Jon Durrah (1997-98)