

1 INTRODUCTION

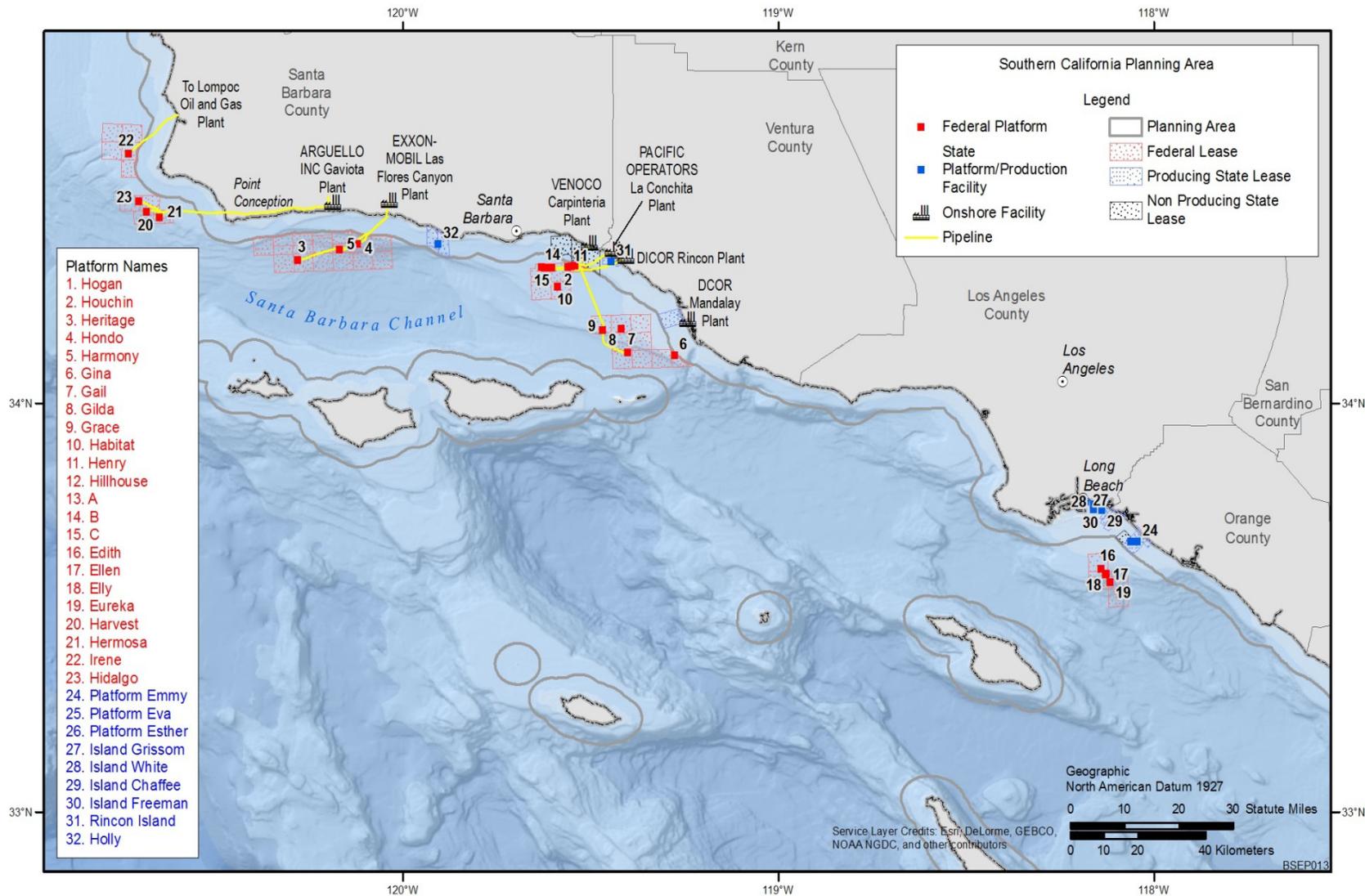
1.1 BACKGROUND

The Submerged Lands Act of 1953, as amended (43 U.S.C. §§ 1301 et seq. [67 Stat. 29]) established Federal jurisdiction over submerged lands seaward of State boundaries. The Outer Continental Shelf Lands Act (OCSLA) of 1953, as amended (43 U.S.C. §§1331 et seq.), directs the Secretary of the Interior to establish policies and procedures that expedite exploration and development of the Outer Continental Shelf (OCS) for the production of resources (e.g., oil and natural gas) in a safe and environmentally sound manner. The Secretary of the Interior oversees the OCS oil and gas program, and under the OCSLA is required to balance orderly resource development with protection of the human, marine, and coastal environments while simultaneously ensuring that the public receives an equitable return for these resources. Section 5 of OCSLA grants the Secretary the right to provide for the “prevention of waste and conservation of natural resources” of the OCS.

There are currently 43 active leases in Federal waters on the Pacific OCS (POCS) (Figure 1-1). We are using the term POCS throughout this PEA to refer to that portion of the Southern California OCS Planning Area with the 43 leases and associated oil and gas platforms in Federal waters. Among these 43 leases, 14 oil and gas fields¹ are currently being produced by 23 platforms (22 producing platforms and one platform used for processing only; see Section 2). The first of these platforms was installed in 1967, and the last two platforms were both installed in 1989. By comparison, there are nine active offshore drilling and production locations in State waters off southern California; these include four platforms and five artificial islands (Figure 1-1).

The Secretary’s responsibilities under the OCSLA have been delegated to the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE; together with BOEM, the Bureaus), and together they are responsible for ensuring that resource exploration, development, and production activities carried out on the POCS are done in compliance with the requirements of OCSLA. BOEM is responsible for managing environmentally and economically responsible development of the nation’s offshore resources. BOEM functions include offshore leasing, resource evaluation, review and administration of oil and gas exploration and development plans, renewable energy development, National Environmental Policy Act (NEPA) analysis, and environmental studies. BSEE is responsible for safety and environmental oversight of offshore oil and gas operations including permitting and inspections of offshore oil and gas operations. BSEE functions include the development and enforcement of safety and environmental regulations, permitting certain offshore exploration, development and production activities (e.g., drilling, pipelines), inspections, offshore regulatory programs, and oil spill preparedness plan review.

¹ An oil or gas field is a region where multiple oil or gas wells are extracting hydrocarbons from subsurface formations. An oil and gas reservoir is a subsurface pool of hydrocarbons (i.e., crude oil and natural gas) contained in porous or fractured rock formations and trapped by overlying rock formations with lower permeability.



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FIGURE 1-1 Locations of Current Lease Areas and Platforms Operating on the POCS (Also shown are platforms and production facilities in offshore State waters adjacent to the Federal OCS. Platforms in Federal waters are shown and listed in red; those in State waters are indicated in blue.)

1 BSEE and BOEM propose to allow the use of selected well stimulation treatments
2 (WSTs) on the current active leases and operating platforms on the POCS, which may allow
3 lessees to recover hydrocarbon resources (i.e., oil) that would otherwise not be recovered from
4 the reservoirs in the 43 lease areas that have been and continue to be accessed by existing wells
5 and any new wells in the foreseeable future.
6

7 In accordance with the National Environmental Policy Act (NEPA) of 1969, BSEE and
8 BOEM prepared this programmatic environmental assessment (PEA) to evaluate the potential
9 environmental impacts of the proposed approval of the use of WSTs on the 23 platforms
10 currently in operation on the POCS. The BSEE and BOEM are joint lead agencies in the
11 preparation of this PEA.
12

13 This PEA presents the purpose and need for the proposed action, describes the proposed
14 action and reasonable alternatives to the proposed action, and identifies and evaluates the
15 reasonably foreseeable environmental impacts of the proposed action and alternatives in order to
16 determine whether there is potential for significant environmental impact and therefore whether
17 an environmental impact statement (EIS) should be prepared. This PEA was prepared in
18 accordance with the Council of Environmental Quality (CEQ) regulations (40 CFR 1500–1508)
19 implementing NEPA.
20

21 22 **1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION** 23

24 The purpose of the proposed action (use of certain WSTs, such as hydraulic fracturing) is
25 to enhance the recovery of petroleum and gas from new and existing wells on the POCS, beyond
26 that which could be recovered with conventional methods (i.e., without the use of WSTs). The
27 use of WSTs may improve resource extraction from some existing wells, and in some future new
28 wells, on the POCS.
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30 The need for the proposed action is the efficient recovery of oil and gas reserves from the
31 POCS. Oil serves as the feedstock for a variety of liquid hydrocarbon products, among them
32 32 transportation fuels and various petrochemicals. Natural gas is generally considered an
33 environmentally preferable alternative to other fossil fuels to generate electricity or for
34 residential and industrial heating, and is an important feedstock for manufacturing fertilizers,
35 pharmaceuticals, plastics, and packaging. In 2014, the United States consumed approximately
36 19.0 million barrels (bbl) of oil per day, of which about 74% percent was produced domestically
37 and 26% originated from foreign sources (EIA 2015). In 2014, the United States also consumed
38 about 26.8 trillion cubic feet (Tcf) of natural gas, about 90% of which was produced
39 domestically (EIA 2015).
40

41 During initial recovery (primary recovery) of an oil and gas reservoir, production is a
42 function of the naturally occurring pressure of the reservoir, as well as the porosity of the
43 formation. During primary recovery, existing reservoir pressure drives the oil through naturally
44 occurring pores, channels, and fractures in the formation and to the production well. As reservoir
45 pressure decreases over time with production, the movement of oil to the production well also
46 declines. Typically, about 30–35% of the oil present in the reservoir at the start of production is

1 recovered during primary recovery (Hyne 2012). Advances in WSTs and the availability of
2 enhanced oil recovery (EOR) techniques² have allowed for continued production from onshore
3 and offshore reservoirs where primary recovery has begun to decline as a result of declining
4 reservoir pressures.

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6 The reservoirs associated with the 43 active leases on the POCS have been in production
7 from 26 to 48 years, and reservoir pressures have been gradually declining with this production.
8 The use of WSTs may support the continued recovery of oil and natural gas as primary recovery
9 declines within the active lease area. While production is declining on the POCS even with past
10 use of WSTs. For example, the average daily production of oil from the POCS has steadily
11 declined from a peak in 1995 of about 200,000 bbl per day to about 39,000 bbl per day in 2015.
12 This downward trend in production is expected to continue and may be more precipitous without
13 the future use of WSTs. Declining oil and gas prices, coupled with a decline in production, over
14 the long term may make continued oil and gas operations on the POCS economically unviable.

15 16 17 **1.2.1 Management of OCS Oil and Gas Resources**

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19 The Secretary of the Interior oversees the OCS oil and gas program under OCSLA, and
20 BOEM and BSEE are the agencies charged with this oversight and regulated management of the
21 permitted or otherwise authorized oil and gas activities. BSEE is responsible for enforcing safety
22 and environmental regulations regarding the exploration, development, and production of
23 resources (e.g., oil and natural gas) on the OCS. BSEE carries out this responsibility by
24 conducting an offshore regulatory program that develops standards and regulations for enhancing
25 safety and environmental protection during the exploration, development, and production of
26 offshore oil and natural gas. BOEM is responsible for managing the development of offshore
27 resources on the OCS, with functions that include leasing, plan administration, environmental
28 studies, resource evaluation, and economic analysis. BOEM develops the Five Year OCS Oil and
29 Natural Gas Leasing Program; oversees assessments of oil, natural gas, and other mineral
30 resource potentials of the OCS; inventories hydrocarbon reserves; develops production
31 projections; and conducts economic evaluations to ensure fair market value is received by
32 U.S. taxpayers for OCS leases. Together, these agencies are responsible for effectively and
33 safely managing resources on the OCS in accordance with the Secretary's obligations and
34 responsibilities under OCSLA. These responsibilities include the conservation of OCS resources,
35 as well as balancing orderly resource development with protection of the human, marine, and
36 coastal environments while ensuring that royalties are received from existing OCS leases, as the
37 result of oil and gas production, by the U.S. Treasury (43 U.S.C. 1332(3)).

38
39 Following the approval of a development and production plan (DPP) for proposed
40 drilling at a platform, the platform operator is required to submit an Application for Permit to
41 Drill (APD) to BSEE before commencing drilling activities. BSEE's permitting authority for the
42 proposed drilling activities is pursuant to the OCSLA Subpart D regulations. In response to the

² Enhanced recovery techniques are used to further increase the amount of crude oil that can be extracted from a reservoir. These techniques fall into three major categories—thermal recovery, gas injection, and chemical injection.

1 proposed action in the operator's APD, BSEE has regulatory responsibility to approve, approve
2 with modifications or mitigation, or deny the permit. BSEE regulations provide criteria that the
3 agency will apply in reaching a decision and in providing for any applicable mitigation or
4 conditions of approval (see 30 CFR 250). Additional permitting may also be submitted
5 subsequent to the APD, if relatively minor modifications are needed. If an operator with an
6 approved APD wishes to revise some aspects of the APD, they must submit an Application for
7 Permit to Modify (APM)³ to BSEE for review and approval.
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9 When the BSEE POCS Regional Office receives an APD or APM containing WST
10 operations, the APD/APM is reviewed by California District Office Well Operations Section
11 engineers. The required APM/APM District Production Engineering, Blowout Preventer (BOP)
12 Control System Drawing, and Hydraulic Fracturing Engineering Data reviews are conducted and
13 documented in the eWell Permitting and Reporting System (eWell).⁴ Concurrently, BSEE staff
14 in the Regional Office of Production and Development (OPD) review the APD/APM for
15 conservation of oil and gas resources as well as for potential geohazards. If the APD or APM is
16 for a hydraulic fracturing operation, OPD will also look at the proposed fracturing operation in
17 relation to active faults and the location of other wellbores. OPD will check and confirm that the
18 fracturing operation is not near active faults or other wellbores, using an internal guideline of
19 1000 ft separation as a trigger for closer review. The OPD then documents the geologic review in
20 eWell. Environmental Compliance personnel from the California District Office review the
21 existing NEPA analysis, tiering from the relevant production plan and drilling permit, to
22 determine if it is adequate for the APD or APM, or if additional NEPA analyses or findings are
23 needed. Once completed, the review and resulting information are also documented in eWell.
24 Upon completion of all of these reviews, provided the information is compliant with all
25 applicable standards and regulations, the California District Office approves the permit in eWell.
26

27 This individual review and analysis of APDs and APMs helps implement the adaptive
28 management principles of NEPA (see 43 CFR 46.145). In future reviews of APDs or APMs
29 proposing the use of WSTs, BSEE will evaluate on a case-by-case basis the need for additional
30 mitigations of potential environmental effects beyond the programmatic level covered in this
31 PEA. For example, BSEE may consider additional testing requirements to be conducted prior to
32 or during proposed WST operations. Although not in and of itself a mitigation, the data from

³ Per 30 CFR 250.465, an APM (form BSEE-0124) must be submitted when an operator intends to (1) revise the drilling plan, change major drilling equipment, or plugback; (2) determine a well's final surface location, water depth, and the rotary kelly bushing elevation; or (3) move a drilling unit from a wellbore before completing a well. Plugback refers to the placement of cement or other material in a well to seal off a completion interval, to exclude bottom water, or to perform another operation such as side-tracking or producing from another depth. The term also refers to the setting of a mechanical plug in the casing.

⁴ BSEE's eWell is a comprehensive Internet permitting and reporting system for collecting information concerning well operations for each wellbore and well completion. It includes permits that are needed before drilling and other well operations can take place, as well as reports containing data and information provided at certain times during and after operations on a wellbore. The data collected are in the interest of resource evaluation, waste prevention, conservation of natural resources, and protection of correlative rights, safety, and the environment. Once the data are collected, the eWell System has a built-in review process that allows BSEE to approve or disapprove the submitted information. The eWell database is publically available at http://www.data.bsee.gov/homepg/data_center/plans/apdform/master.asp.

1 such prospective testing could be used as a part of the adaptive management process in future
2 decision making. Such testing could include toxicity testing on flowback fluids produced during
3 WST operations if such flowback could be expected to have marine toxicities greater than those
4 analyzed in this PEA based on the composition and quantity of injection fluids to be used. Such
5 testing could confirm that significant impacts are not expected or help identify mitigations to
6 ensure any potential for such impacts is reduced or avoided. In addition, BSEE may require
7 pressure testing prior to the implementation of a WST if such testing has not been recently
8 performed routinely or if individual circumstances so warrant. BSEE retains the discretion to
9 potentially impose these and other additional conditions of approval on APDs or APMs should
10 conditions so warrant.

11
12 Evaluation in this PEA of relevant environmental and other data will aid in the
13 identification of the potential nature and magnitude of environmental impacts that may be
14 associated with the use of WSTs on the 43 active lease areas on the POCS. Information gathered
15 here will also help ensure that DOI achieves its mission of efficient production and conservation
16 of OCS energy resources and the receipt of fair market value from the leasing of public lands.
17 The development of this PEA will facilitate DOI meeting other environmental requirements
18 related to future authorizations, such as Endangered Species Act, Marine Mammal Protection
19 Act, and Coastal Zone Management Act requirements.

20 21 22 **1.3 PUBLIC INVOLVEMENT**

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24 As discussed earlier, BSEE and BOEM prepared this PEA in accordance with the
25 requirements of NEPA. Although a public comment period is not specifically required by NEPA
26 for an EA, the Bureaus published a Notice of Availability (NOA) in the *Federal Register* on
27 February 22, 2016, for the public release of the draft PEA. The NOA announced a 30-day public
28 comment period from February 22 to March 23, 2016.

29
30 All public comments received on the draft PEA were fully considered by BSEE and
31 BOEM in the preparation of the final PEA. Details regarding the public participation process are
32 presented in Appendix A of this PEA. Information included in Appendix A provides details on
33 the public comment process, including avenues for submittal of comments, the stakeholders who
34 provided comments, summaries of the major issues raised by the stakeholders, and responses
35 prepared by BSEE and BOEM to the stakeholder issues. Where appropriate, the PEA itself was
36 modified to address comments and suggestions provided by the stakeholders.

37 38 39 **1.4 REFERENCES**

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