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**STAFF REPORT AND RECOMMENDATION
ON CONSISTENCY DETERMINATION****Consistency Determination No.:** CD-050-05**Federal Agency:** U.S. Department of the Interior Minerals
Management Service**Project Location:** Gato Canyon Unit (Leases OCS-P 0460 and OCS-P 0464)
located in federal waters, western Santa Barbara Channel
offshore Santa Barbara County.**Project Description:** Approval of a Suspensions of Production (i.e., lease
extensions) for 37 months to Samedan Oil Corporation for
Gato Canyon Unit leases. Suspension period activities
include a 3-4 day shallow hazard survey. Reasonably
foreseeable post-suspension activities include (a) drilling a
delineation well on Lease OCS-P 0460 using a mobile
offshore drilling unit ("MODU"), and (b) installing,
operating, and decommissioning one oil and gas production
platform, associated pipelines, and power cables.**Substantive File Documents:** See Exhibit 1

Executive Summary

On April 7, 2005, the U.S. Department of the Interior, Minerals Management Service ("MMS") submitted to the Coastal Commission a consistency determination for 37-month Suspensions of Production (i.e., extension of a lease term) for the leases in the Gato Canyon Unit located offshore of the Gaviota coast (Leases OCS-P 0460 and OCS-P 0464). Samedan Oil Company is the operator of the Gato Canyon Unit.

The MMS submitted consistency determinations for suspensions of 36 leases off the coast of San Luis Obispo, Santa Barbara, and Ventura Counties, grouped into 10 consistency determinations. This report provides the Commission's review and findings on one of the 10 consistency determinations and two of 36 lease suspensions.

During the proposed suspension period, Samedan proposes to conduct in-office activities (e.g., prepare revisions to an existing Exploration Plan or prepare a new Exploration Plan) and a 3-4 day shallow hazard survey. After the proposed suspension period ends, the MMS anticipates Samedan will drill one delineation well and install, operate, and eventually decommission one oil and gas production platform and associated pipelines and power cables. Produced oil and gas would be transported to shore via pipeline to the existing Las Flores Canyon oil and gas processing facility.

Based on the 2001 decision of the U.S. District Court in the case of *State of California v. Norton* (affirmed by the U.S. Court of Appeal, Ninth Circuit), these lease suspensions are subject to the consistency review requirements of section 307(c) of the Coastal Zone Management Act ("CZMA"). The court decision clarified that the Commission's review of a lease suspension is similar to its review of a lease sale in the sense that the Commission is to analyze the broad and long-term coastal effects of the activities (i.e., post-suspension exploration, development and production activities) that are reasonably foreseeable results of the MMS's approval of the subject lease suspensions. The court nevertheless acknowledged, and the Commission agrees, that a lease suspension is not identical to a lease sale. The subject lease suspensions have been requested decades after the initial lease sale, after most of these leases have been explored and detailed environmental and technical evaluations have already been performed. Substantially more information and details are available now on these leases than were available at the original lease sale stage.

The Commission has reviewed the April 7, 2005, consistency determinations by the MMS and has determined that additional information is needed to enable it to complete its review. In an April 22, 2005, letter to the MMS, the Commission staff requested additional information regarding the "reasonably foreseeable direct and indirect effects" of the requested suspensions, including information about the likely post-suspension exploration, development, and production activities (see Appendix B – Letter from Coastal Commission to MMS). The Commission staff informed the MMS that additional information is needed for the Commission to determine whether granting the lease suspensions is consistent with the enforceable policies of the California Coastal Management Program ("CCMP"). In a June 23, 2005, response letter, the MMS replied that most of the information the Commission staff requested is more appropriate

for exploration and development review stages, rather than for a review of the lease suspensions themselves (see Appendix C – Letter from MMS to Coastal Commission). The Commission disagrees with this position.

The additional information requested in the April 22, 2005 letter that is necessary for the Commission to complete its review of the Gato Canyon Unit leases suspensions is:

- **Oil Spill Risk Analysis.** To evaluate potential impacts from an oil spill to marine and shoreline resources, the Commission requested detailed information on (a) worst case oil discharge volumes, (b) oil spill probabilities, and (c) oil spill trajectories. See Section 3.1: Oil Spills.
- **Alternatives Analysis.** To evaluate if feasible, less environmentally damaging alternatives are available that would eliminate the placement of fill in coastal waters or avoid or lessen adverse individual and cumulative effects of a new platform and associated infrastructure, the Commission requested an evaluation of using (a) existing Santa Ynez Unit Platform Hondo; (b) an onshore site; and (c) subsea well completions (i.e., wells sitting on the seabed) to extract Gato Canyon Unit oil and gas. See Section 3.3: Placing Fill in Coastal Waters and Section 3.5: Scenic and Visual.

Without this information, the Commission is unable to determine whether the granting of the lease suspensions is consistent with the marine resource (Coastal Act Section 30230), water quality (Coastal Act Section 30231), placing fill in coastal waters (Coastal Act Section 30233(a)), commercial fishing (Coastal Act Sections 30230 and 30234.5), public access and recreation (Coastal Act Sections 30210, 30211, 30220 and 30234.5), visual (Coastal Act Sections 30251 and 30262(a)(3)), environmentally sensitive habitat area (Coastal Act Section 30240), and cultural resources policies (Coastal Act Section 30244) of the CCMP.

In addition, while development at this unit would normally be subject to the provisions of the coastal-dependent industrial “override” policy (Section 30260) of the Coastal Act, the lack of the above-identified information also makes it impossible for the Commission to make the necessary findings under that policy.

The Commission therefore **objects** to the MMS’s consistency determination, based on lack of adequate information to determine the lease suspensions’ consistency with the enforceable policies of the CCMP.

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EXHIBITS (ATTACHED TO THIS REPORT)

- Exhibit 1: Substantive File Documents
- Exhibit 2: Region Map
- Exhibit 3: Gato Canyon Unit Map
- Exhibit 4: Lease Sale 68 Stipulations
- Exhibit 5: Regional Marine Resources
- Exhibit 6: Excerpt from June 27, 2005 Letter from EDC to Coastal Commission Staff
- Exhibit 7: July 15, 2005 Letter from MMS to Coastal Commission Staff
- Exhibit 8: Potential Route of Gato Canyon Unit Pipelines

APPENDICES (IN SEPARATE PACKET)

- Appendix A: Summary of Pacific OCS Development
- Appendix B: April 22, 2005, Letter from Coastal Commission Staff to MMS
- Appendix C: June 23, 2005, Letter from MMS to Coastal Commission Staff

1 STAFF RECOMMENDATION

1.1 Motion and Resolution

Motion:

I move that the Commission concur with consistency determination CD-050-05 that the project described therein is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program.

Staff Recommendation:

Staff recommends a **NO** vote on the motion. Failure of this motion will result in an objection to the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution to Object to Consistency Determination:

The Commission hereby objects to the consistency determination by the Minerals Management Service for the proposed project, finding that the consistency determination lacks information necessary to evaluate the project's consistency with the California Coastal Management Program.

1.2 Applicable Legal Authorities

Section 307 of the Coastal Zone Management Act ("CZMA") (16 USC § 1456) provides in part:

(c)(1)(A) Each Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of the approved State management programs.

1.2.1 Necessary Information

Section 930.43(b) of the federal consistency regulations (15 CFR § 930.43(b)) requires that, if the Commission bases its objection on a lack of information, the Commission must identify the information necessary for it to assess the project's consistency with the California Coastal Management Program ("CCMP"). That section states:

If the State agency's objection is based upon a finding that the Federal agency has failed to supply sufficient information, the State agency's response must describe the nature of the information requested and the necessity of having such information to determine the consistency of the Federal agency activity with the enforceable policies of the management program.

Nature of Information Requested

As described in Section 3: Coastal Act Issues of this report, the Commission finds this consistency determination lacks the information that the Commission has requested from the

Minerals Management Service ("MMS") to enable the Commission to determine whether granting the lease suspensions is consistent with the policies of the CCMP related to: marine resources (Section 30230), water quality (Section 30231), fill (Section 30233(a)), commercial fishing (Sections 30230 and 30234.5), scenic and visual (Sections 30251 and 30262(a)(3)), public access and recreation (Sections 30210, 30211, 30220, and 30234.5), environmentally sensitive habitat areas (Section 30240) and cultural resources (Section 30244). To determine if the lease suspensions are consistent with the CCMP, the Commission has requested the MMS provide it with the following necessary information:

1. **Oil Spill Risk Analysis.** To evaluate potential impacts from an oil spill to marine and shoreline resources, the Commission has requested detailed information on (a) worst case oil discharge volumes, (b) oil spill probabilities, and (c) oil spill trajectories. See Section 3.1: Oil Spills.
2. **Alternatives Analysis.** To evaluate if feasible, less environmentally damaging alternatives are available that would eliminate the placement of fill in coastal waters or avoid or lessen adverse individual and cumulative effects of a new platform and associated infrastructure, the Commission requested an evaluation of using (a) existing Santa Ynez Unit Platform Hondo; (b) an onshore site; and (c) subsea well completions (i.e., wells sitting on the seabed) to extract Gato Canyon oil and gas. See Section 3.3: Placing Fill in Coastal Waters and Section 3.5: Scenic and Visual.

The need for this information is discussed in the findings below, as follows: Oil Spill Risk Analysis, see pages 30-43, and Alternatives Analysis, see pages 56-58 and pages 62-65. In addition, as discussed in Section 10: Coastal-Dependent Industrial "Override" Policy, pages 76-79, this information is also necessary for the Commission's analysis under Coastal Act Section 30260.

1.2.2 Practicability

The federal consistency regulations implementing the CZMA include the following provision:

Section 930.32 Consistent to the maximum extent practicable.

(a)(1) The term "consistent to the maximum extent practicable" means fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.

Since MMS has raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the policies of the California Coastal Management Program.

1.2.3 Federal Agency Response to Commission Objection

Section C(a)(i) of Chapter 11 of the CCMP requires federal agencies to inform the Commission of their response to a Commission objection. This section provides:

If the Coastal Commission finds that the Federal activity or development project ... is not consistent with the management program, and the federal agency disagrees and decides to go forward with the action, it will be expected to (a) advise the Coastal Commission in writing that the action is consistent, to the maximum extent practicable, with the coastal management program, and (b) set forth in detail the reasons for its decision. In the event the Coastal Commission seriously disagrees with the Federal agency's consistency determination, it may request that the Secretary of Commerce seek to mediate the serious disagreement as provided by Section 307(h) of the CZMA, or it may seek judicial review of the dispute.

The federal consistency regulations reflect a similar obligation; 15 CFR §930.43 provides:

State agency objection.

(d) In the event of an objection, Federal and State agencies should use the remaining portion of the 90-day notice period (see §930.36(b)) to attempt to resolve their differences. If resolution has not been reached at the end of the 90-day period, Federal agencies should consider using the dispute resolution mechanisms of this part and postponing final federal action until the problems have been resolved. At the end of the 90-day period the Federal agency shall not proceed with the activity over a State agency's objection unless: (1) the Federal agency has concluded that under the "consistent to the maximum extent practicable" standard described in section 930.32 consistency with the enforceable policies of the management program is prohibited by existing law applicable to the Federal agency and the Federal agency has clearly described, in writing, to the State agency the legal impediments to full consistency (See §§930.32(a) and 930.39(a)), or (2) the Federal agency has concluded that its proposed action is fully consistent with the enforceable policies of the management program, though the State agency objects.

(e) If a Federal agency decides to proceed with a Federal agency activity that is objected to by a State agency, or to follow an alternative suggested by the State agency, the Federal agency shall notify the State agency of its decision to proceed before the project commences.

1.3 Standard of Review

The standard of review for federal consistency determinations is the enforceable policies of the CCMP, of which the substantive policy component is the Chapter 3 policies of the Coastal Act (California PRC §§ 30200-30265.5).

2 FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

2.1 Introduction

Samedan Oil Corporation ("Samedan") has submitted a request to the Minerals Management Service ("MMS") for a 37-month suspension¹ of undeveloped Outer Continental Shelf ("OCS") oil and gas leases (OCS-P 0460, OCS-P 0462² and OCS-P 0464) that comprise the Gato Canyon Unit. The Gato Canyon Unit is located offshore Santa Barbara County. See Exhibit 3.

Pursuant to section 307(c) of the CZMA, 16 USC § 1456(c)(1), the MMS's review and approval of the operator's requested lease suspensions is a federal agency activity subject to consistency review by the California Coastal Commission ("Commission"). Accordingly, on April 7, 2005, the MMS provided the Coastal Commission with a consistency determination (CD-050-05) in response to the operator's request for lease suspensions.

This report is one of four Commission staff reports prepared to review the consistency determinations submitted by the MMS for 36 OCS lease suspensions. Other Commission reports address lease suspension requests for the Cavern Point, Bonito, Rocky Point, Sword, Northern Santa Maria Basin units and OCS-P 0409.

In consistency determination CD-050-05, the MMS is requesting approval of the lease suspensions to allow Samedan time to undertake a shallow hazards survey and prepare a new or revised Exploration Plan.

Before any drilling or development activity can actually occur in the subject units, Exploration and Development and Production Plans must also be separately approved by the MMS (pursuant to 30 CFR §§ 250.203, 250.204). The MMS cannot approve any such further activity unless the Commission concurs with a consistency certification from the operator, or the Secretary of Commerce determines on appeal of a Commission objection that the activity is consistent with the objectives or purposes of the CZMA, or is necessary in the interest of national security (15 CFR §930.120).

The goal of the oil and gas operators, beyond the requested suspension period, is to explore, develop, and produce marketable quantities of oil and gas from reservoirs underlying the Gato Canyon Unit.

¹ A suspension is defined in 30 CFR § 250.105 as: "a granted or directed deferral of the requirement to produce (Suspension of Production) or to conduct leaseholding operations (Suspension of Operations)." A lease suspension is effectively an extension of the life of the lease. (30 CFR § 250.169(a)) See Section 2.2: Background of Federal OCS Leases of this report, below.

² On August 16, 1999, the MMS removed Lease OCS-P 0462 (i.e., it did not approve Samedan's requested suspension of Lease OCS-P 0462) from the Gato Canyon Unit and it expired. Samedan has appealed this decision to the Interior Board of Land Appeals. Although Samedan proposes to conduct a shallow hazards survey on the Gato Canyon Unit (including Lease OCS-P 0462) during its proposed suspension period, the scope of this consistency determination does not include Lease OCS-P 0462. If Samedan were to win its appeal pending before the Interior Board of Land Appeals, the MMS would need to submit to the Coastal Commission a consistency determination for suspending Lease OCS-P 0462.

2.2 Background of Federal OCS Leases

2.2.1 Coastal Commission Review of Lease Suspensions

The MMS has submitted consistency determinations for a total of 36 lease suspensions off the coast of San Luis Obispo, Santa Barbara and Ventura Counties. The leases are organized into nine separate "units," and one lease not within a unit (Lease 409).³

Each lease was issued by the US Department of the Interior before 1984, and had a primary term of five years⁴. After the initial term of a lease lapses, the lease continues in effect so long as oil and gas are produced in paying quantities or drilling operations are underway. If production or approved drilling is not underway at the end of the lease term, the lease expires and the lessee loses the right to exploit the oil and gas resources in the lease area (30 CFR § 250.180).

Alternatively, a lease may be "suspended." A suspension allows a lessee to suspend exploration, development, and/or production activities for a period of time without having the lease expire, thereby extending the life of the lease (OCSLA § 5(a)(1); 43 USC §1334(a)(1)). Suspensions can occur in two ways: first, the federal government can direct suspensions; for example, in order to comply with federal law or with court orders. Second, a lessee can request a suspension in order to keep the lease in effect under certain conditions specified in regulation without the lessee having to engage in exploration, development or production activities (30 CFR §§ 250.168-177). During a directed suspension, no activities can occur. During a granted suspension, the MMS can require that certain specified activities and milestones be met in order to demonstrate that the lessee intends to keep the lease from expiring.

Of the leases issued before 1984, 40 have not begun producing paying quantities of oil or gas. Additionally, a portion of Lease OCS-P 0450 that is assigned to the undeveloped Bonito Unit has not begun producing quantities of oil and gas. These leases would have expired if the MMS had not repeatedly extended the terms of the leases, through both directed and requested suspensions.

Until October 1992, the MMS, at the request of the lessees, had granted suspension of the 40 leases. On October 15, 1992, the MMS directed suspensions of the leases in order to conduct the *California Offshore Oil and Gas Energy Resources Study: Development Scenarios and Onshore Physical Infrastructure in the Tri-County Area of San Luis Obispo, Santa Barbara and Ventura* (known as the "COOGER Study"). In 1999, when the directed suspensions were about to end, the MMS advised the lessees that they would need to request suspensions in order to keep the

³ Consistent with the Outer Continental Shelf Lands Act (as amended) ("OCSLA"), the MMS's regulations define the purpose of unitization to include 1) conserving natural resources; (2) preventing waste; and/or (3) protecting correlative rights (30 CFR § 250.1300).

⁴ The MMS has not conducted a lease sale off the coast of California since 1984. See Appendix A for details on the lease sales conducted since 1963, including those sales relevant to the 36 subject leases. In 1990, former President George H. W. Bush, imposed a leasing moratorium offshore California, among other areas. President Bush imposed the moratorium in response to findings by the National Research Council that environmental information was inadequate to properly inform leasing offshore Florida and California.

leases from expiring. In May 1999, the lessees submitted requests for suspensions. The MMS declined to extend the lease terms of four of the leases⁵, but approved the requested suspensions for the remaining 36 leases.

By letter dated July 27, 1999, the Coastal Commission informed the Department of the Interior and the MMS that, pursuant to the Coastal Zone Management Act ("CZMA"), 16 USC §1456(c)(3), the Commission was asserting its authority to review the lease suspensions for consistency with the California Coastal Management Program ("CCMP"). In an August 5, 1999, follow-up letter to the MMS, the Commission's Executive Director identified a number of concerns related to changed circumstances and new information that needed to be addressed in the MMS review, including the age of the leases, the poor quality of the oil, the proximity of the leases to marine sanctuaries, and potentially changed environmental circumstances. The Coastal Commission also advised the MMS that pursuant to the CZMA the lessees were required to provide the Coastal Commission with a certification of consistency with the CCMP.

The MMS disagreed with the Coastal Commission's position that the lease suspensions were subject to the consistency review requirements of the CZMA, and refused to submit consistency certifications to the Commission. In November 1999, the MMS notified the lessees that it had approved their requests for suspensions. The State of California challenged the MMS's failures to comply with the requirements of the CZMA with respect to the lease suspensions in U.S. District Court in the case of *State of California v. Norton*. On June 15, 2001, the district court held that the approval of the lease suspensions by the MMS is a federal agency activity subject to consistency review by California under the CZMA. The federal defendants appealed. On December 2, 2002, the U.S. Court of Appeals for the Ninth Circuit affirmed the district court judgment (311 F.3d 1162 (9th Cir. 2002)).

On April 7, 2005, pursuant to the court's order, the MMS submitted to the Commission 10 consistency determinations — one consistency determination for each of the nine units, plus one for Lease OCS-P 409. This report reviews the suspensions of leases in the Gato Canyon Unit. The lease suspensions for other units are analyzed in separate Commission reports.

2.2.2 Scope of Coastal Commission Review

At the time of issuance of the 36 subject leases, a lease sale was not a federal agency activity that required federal consistency review by the Commission. See *Secretary of the Interior v. California* (1984) 464 U.S. 312. In 1990, in the Coastal Zone Act Reauthorization Amendments of 1990 ("CZARA"), Congress amended the CZMA specifically to extend the consistency requirements of that statute to the sale of leases on the OCS as a federal agency activity. Congress clarified its intent in enacting the CZARA amendments to the CZMA in the following manner:⁶

⁵ By decision dated August 16, 1999, the MMS removed three leases in the Santa Maria Unit (Leases 420, 424, and 429) and one in the Gato Canyon Unit (Lease 462) and they expired. The lessees appealed the decision to the Interior Board of Land Appeals, and the appeals are currently under review.

⁶ House Conference Report No. 101-964; 1990 U.S. Code Cong. & Adm. News, p. 2017.

The conferees intend the determination of whether a specific federal agency activity may affect any natural resource, land use, or water use in the coastal zone to include ... cumulative and secondary effects. Therefore, the term "affecting" [in CZMA §307(c)] is to be construed broadly, including direct effects which are caused by the activity and occur at the same time and place, and indirect effects which may be caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable. [Emphasis added.]

Because these leases predated the 1990 amendments to the CZMA, the State of California never had the opportunity to review these leases for CZMA consistency at the lease sale stage.

In its decision in *California v. Norton*, the Appeals Court specifically rejected the argument that review of the lease suspensions would duplicate review of activities described in Exploration Plans or Development and Production Plans. The court stated:

In subjecting lease sales to consistency review, Congress has made it clear that the statute does not prohibit consistency review of federal agency activities that are not subsidiary to exploration and development and production plans. The exploration and development and production plan stages are not the only opportunities for review afforded to States under the statutory scheme...

...These lease suspensions represent a significant decision to extend the life of oil exploration and production off California's coast, with all of the far reaching effects and perils that go along with offshore oil production. (State of California v. Norton 311 F.3d 1162, 1173 (9th Cir. 2002))

Furthermore, the court stated that the review of lease suspensions is similar to the review of a lease sale, in that the effects to be analyzed are "very broad" and "long term."

Although a lease suspension is not identical to a lease sale, the very broad and long term effects of these suspensions more closely resembles the effects of a sale than they do the highly specific activities reviewed [in an Exploration Plan or Development and Production Plan] ... [Lease suspension] review is available now for the broader effects implicated in suspending the leases. This phasing of review fits closely the expressed intent of Congress... (ibid. at 1174)

The court made clear that the Commission's review of a lease suspension is similar to its review of a lease sale in the sense that the Commission is to analyze the broad and long-term coastal effects (i.e., post-suspension exploration, development and production activities) that are reasonably foreseeable if a lease suspension is granted. The court nevertheless acknowledged, and the Commission agrees, that a lease suspension is not identical to a lease sale. The subject lease suspensions have been requested decades after the initial lease sale, after most of these leases have been explored and detailed environmental and technical evaluations have already been performed. Substantially more information and details are available now on these leases than were available at the original lease sale stage. In fact, many of the undeveloped leases can

be developed from existing platforms for which Development and Production Plans have been prepared, but would require only revision. In *Secretary of the Interior v. California*, the U.S. Supreme Court noted there are four distinct stages to developing an OCS oil lease: (1) formulation of a 5-year leasing plan by the Department of the Interior; (2) the lease sale; (3) exploration; and (4) development and production. Most of the 36 leases currently fall between stages (3) and (4).

The MMS chose, however, to model its consistency determinations for the lease suspensions on recent Alaska Lease Sale 191. The Commission believes the Alaska model is not adequate for the review of the lease suspensions for several reasons:

- Lease Sale 191 comprised an area over 200 million acres in the Cook Inlet Planning Area as compared to the 184,191 acres encompassing the 36 undeveloped California leases. The difference is an order of magnitude (i.e., a factor of 10).
- Lease Sale 191 occurred in an OCS planning area (Cook Inlet) where no production and development of OCS oil and gas has ever been proposed, examined in detailed in environmental impact statements, or permitted, because no economically recoverable reserves have been discovered. Little environmental information is available. Thus, the available information is very general in scope.
- By contrast, the Commission's consideration of the lease suspensions takes place 2-4 decades following the 10 lease sales the federal government conducted offshore California. Forty-two of the remaining 79 OCS leases offshore California are producing oil and gas or are situated on producing units, and their development was preceded by detailed environmental review. All but one of the 36 leases have been consolidated into 9 units that have identifiable and named oil and gas fields. All but one unit have been granted Exploration Plans and, decades ago, lessees drilled exploratory wells discovering paying quantities of oil and gas. In the early 1990s, the lessees developed hypothetical, but likely, development scenarios for each of the leases so that MMS could prepare the COOGER Study, a 1999 study that evaluated the potential onshore constraints of developing the then-40 undeveloped leases.

Therefore, answers to the questions "if, when, and how exploration, development and production would actually occur" are far better understood for these leases as compared to a lease sale such as Alaska Lease Sale 191. Notwithstanding the level of information available about the potential development of the 36 leases, the MMS chose not to submit for the Commission's review data and environmental analysis that is either readily available or could be developed now. Instead, because the MMS is treating the review of the lease suspensions strictly as a "lease sale" stage, it believes it need provide "general" information only, *even if specific information is available*.

In an April 22, 2005, letter to the MMS, the Coastal Commission staff requested additional information regarding the "reasonably foreseeable direct and indirect effects" of the requested suspensions, namely, the likely post-suspension exploration, development, and production activities. The Commission staff informed the MMS that additional information is needed in order for the Coastal Commission to determine if the proposed lease suspensions are consistent with the enforceable policies of the CCMP. For example, the Coastal Commission staff

requested that the MMS estimate how the future development of Sword, Bonito, Rocky Point, and Cavern Point Units might extend the life of existing Point Arguello Unit platforms and Platform Gail. In its original submittal, the MMS provided no information regarding how the extension of life of existing platforms, pipelines, and other infrastructure could affect coastal resources (e.g., increase risk of an oil spill, lengthen fishery preclusion areas). In its June 23, 2005, response letter, the MMS refused to provide certain requested information, such as an estimate of extension of platform operations, or the results of *already completed* surveys, stating that it would not be "appropriate" for the MMS to provide information during the lease suspension review stage that it believes should be provided by the lessees in the form of an Exploration Plan or a Development and Production Plan (Appendix B). In refusing to comply with the Commission's information request, the MMS states repeatedly that the operator will provide project details and further analysis if and when operators submit new or revised Exploration Plans and/or Development and Production Plans. The MMS's refusal to comply with the Commission's information requests effectively results in deferral until the exploration and development stages of the consistency review that both the District Court and the Ninth Circuit Court of Appeals has directed to occur at the lease suspension stage. There is no basis for the MMS's failure to fully describe now the exploration and production scenarios that the lease suspensions will make possible and conduct full environmental and consistency review.

Further, section 930.39(a) of the federal consistency regulations states that the amount of detail in the evaluation of the enforceable policies, activity description and supporting information of a consistency determination "shall be *commensurate with the expected coastal effects of the activity.*" (Emphasis added). Given the potential magnitude of coastal effects of offshore oil and gas development, section 930.39(a) requires the MMS to provide as much detailed information as is available or that can reasonably be generated at the time of the review. The MMS cannot defer examination of the reasonably foreseeable future effects of the lease suspensions to future reviews of Exploration Plans and Development and Production Plans.⁷

2.2.3 Current OCS Operations in California⁸

Exhibit 2 illustrates leases, platforms and other oil and gas-related infrastructure off the coast of southern California. A total of 79 federal OCS oil and gas leases are currently located offshore southern California, not including the 4 expired leases that are under appeal. Forty-three of these leases are developed (i.e., oil and/or gas is being produced from them). The remaining 36 undeveloped leases are the subjects of the 10 consistency determinations currently before the Commission. These leases are located between 3 and 12 miles offshore San Luis Obispo, Santa Barbara, and Ventura counties. Table 1 presents a summary of the undeveloped leases.

⁷ The Commission acknowledges that there are distinctions between the broader review conducted now for a lease suspension and the detailed review of future exploration, development and production activities. Currently, only general locations for "hypothetical" platforms and pipelines are known, which the Commission believes is appropriate for this stage of review. During review of an Exploration Plan or Development and Production Plan, once the specific locations of platform, pipelines and other infrastructure are specifically defined, the Commission would, for example, require site-specific marine and terrestrial biological, geotechnical and cultural surveys.

⁸ This information is taken from the EID, section 2.2

Table 1: Undeveloped Pacific OCS Units and Leases

| Unit | Operator | Lease Number(s) | Consistency Determination Number |
|-----------------|-------------------------|---|----------------------------------|
| Lion Rock | Aera Energy LLC | 396, 397, 402, 403, 408, 414 | CD-042-05 |
| Point Sal | Aera Energy LLC | 415, 416, 421, 422 | CD-043-05 |
| Santa Maria | Aera Energy LLC | 425, 430, 431, 433, 434 | CD-044-05 |
| Purissima Point | Aera Energy LLC | 426, 427, 432, 435 | CD-045-05 |
| Lease 409 | Aera Energy LLC | 409 | CD-046-05 |
| Bonito | PXP | 443, 445, 446, 449, 450 ⁹ , 499, 500 | CD-047-05 |
| Rocky Point | Arguello | 452, 453 | CD-048-05 |
| Sword | Samedan Oil Corporation | 319, 320, 322, 323A | CD-049-05 |
| Gato Canyon | Samedan Oil Corporation | 460, 464 | CD-050-05 |
| Cavern Point | Venoco, Inc. | 210, 527 | CD-051-05 |

Nineteen platforms support production of the developed leases offshore Santa Barbara and Ventura Counties. No platforms are located offshore San Luis Obispo County. The 19 existing platforms are supported by pipelines, processing and separation facilities, and other associated infrastructure. Onshore facilities supporting Pacific OCS oil and gas development include:

Ventura County

Mandalay Onshore Separation Facility
West Montalvo Operations
Rincon Oil and Gas Processing Facility
La Conchita Oil and Gas Processing Facility

Santa Barbara County

Carpinteria Onshore Gas Facility connected to offshore Platform Habitat
Carpinteria Oil and Gas Processing Terminal connected to offshore Platforms Gail and Grace
Las Flores Canyon Santa Ynez Unit Oil and Gas Processing Facility
Gaviota Oil Heating Facility
Gaviota Storage Terminal (soon to be decommissioned)
Lompoc Oil and Gas Processing Facility
Several pipeline systems

⁹ Most of Lease 450 is located in the Point Arguello Unit; the entire lease is therefore held by production and is not being considered for suspension. The northwestern portion of Lease 450 is located in the Bonito Unit, however; therefore, the lease is included in this report.

In addition to Pacific OCS activities, the region includes oil and gas leases and production in California State waters (State tide and submerged lands). State leases fall under the management and administration of the California State Lands Commission. The State Lands Commission has issued thirty-two leases located in State waters, seventeen of which are producing, and fifteen of which are non-producing. No State platforms are located offshore San Luis Obispo County; however there are onshore support facilities located in San Luis Obispo or northern Santa Barbara County, including pipelines, oil pump stations, and a heavy, high sulfur oil upgrader refinery. Platform Holly, located offshore Goleta (Santa Barbara County), and Rincon Island, located offshore Rincon Beach (Ventura County) are the only two offshore production facilities associated with State leases that are operational in the tri-county region. Platform Holly is supported onshore by the Ellwood Processing Oil and Gas Processing Facility, and Rincon Island is supported onshore by the Rincon Island and State Lease 145/410 Oil and Gas Processing Facility. (See Exhibit 2) Venoco has applied to restart production from one of its two piers that extend from shore into State waters (PRC 421).

Offshore oil and gas production rates peaked in State waters in 1969 and in federal waters in 1995-1996. Federal offshore oil and gas annual production rates for the years 1984 through 2003, for the Santa Maria Basin and Santa Barbara Channel are presented in Table 2.

Table 2. Federal Pacific OCS Oil and Gas Annual Production Rates for 1984 through 2003.

| Year | Total Oil (million bbls) | Total Gas (billion ft ³) | Year | Total Oil (million bbls) | Total Gas (billion ft ³) |
|--------------|-----------------------------|---|------|-----------------------------|---|
| 1984 | 25.3 | 44.1 | 1994 | 54.8 | 52.7 |
| 1985 | 23.2 | 60.8 | 1995 | 69.3 | 61.9 |
| 1986 | 21.7 | 55.5 | 1996 | 61.1 | 66.1 |
| 1987 | 24.4 | 53.0 | 1997 | 51.5 | 76.0 |
| 1988 | 25.5 | 47.7 | 1998 | 43.5 | 75.7 |
| 1989 | 27.4 | 49.4 | 1999 | 37.5 | 79.4 |
| 1990 | 24.5 | 48.2 | 2000 | 34.8 | 75.4 |
| 1991 | 27.0 | 51.0 | 2001 | 32.1 | 70.5 |
| 1992 | 38.3 | 54.0 | 2002 | 31.0 | 67.3 |
| 1993 | 46.8 | 50.8 | 2003 | 28.7 | 58.1 |
| Total | 728.4 | 1197.6 | | | |

Source: MMS, Pacific OCS Region. *Annual Summary of Production for Entire Region*. December 14, 2004

Total projected reserves for the 36 undeveloped leases is listed in Table 3, below:

Table 3: Total Projected Reserves of 36 Undeveloped Leases

| Location | | Oil Reserves (million bbls) | Gas Reserves (billion ft ³) |
|--|----------------------|--------------------------------|--|
| Northern Santa Maria Basin | Northern Platform | 115 | 47 |
| | Central Platform | 118 | 24 |
| | Southern Platform | 90 | 18 |
| Bonito and Electra Fields (Bonito Unit) | | 22 | 11 |
| ROCKY POINT FIELD (Rocky Point Unit and Lease 451) | | 39 | 11.7 |
| Sword | | 29 | 7.3 |
| Gato Canyon | | 77 | 46 |
| Cavern Point | | 22 | 20 |
| Total | | 512 | 185 |

Source: EID Table 5.2-4. pp 5.2-10 and 5.2-11

The United States consumes approximately 20 million barrels of oil per day, or approximately 7,300 million barrels annually.¹⁰ California consumes approximately 615 million barrels of petroleum annually, and 2,000 billion cubic feet of natural gas annually.¹¹ The total projected reserves of the 36 undeveloped oil leases would therefore supply California with petroleum for approximately ten months, and with natural gas for approximately one month. Total reserves represent approximately 25 days of national consumption.

2.3 Project Description

The proposed activity analyzed in this report is the granting by the Minerals Management Service ("MMS") of a 37-month suspension of production ("SOP") request filed by Samedan Oil Company ("Samedan"), operator of the Gato Canyon Unit (Lease OCS-P 0460 and OCS-P 0464) under 43 U.S.C. 1334(a)(1) of the Outer Continental Shelf Lands Act ("OCSLA"). Samedan has requested of the MMS a lease suspension to conduct certain in-office activities (e.g., prepare either revisions to a previously-approved Exploration Plan or a new Exploration Plan) and a 3-4 day shallow hazards survey on Lease OCS-P 0460. After it obtains either approval of a new Exploration Plan or a revision to a previously-approved Exploration Plan, Samedan intends to use a mobile offshore drilling unit ("MODU") to drill one "delineation" well. Samedan would

¹⁰ US Energy information Administration. (see eia.doe.gov) http://www.eia.doe.gov/mer/pdf/pages/sec11_7.pdf Accessed July 8, 2005.

¹¹ US Energy information Administration. (see eia.doe.gov) <http://www.eia.doe.gov/emeu/sep/ca/frame.html> Accessed July 8, 2005.

then use the results of delineation drilling to prepare plans to extract oil and gas (called a Development and Production Plan) from the Gato Canyon Unit. The MMS's "hypothetical development scenario" for the Gato Canyon Unit includes one platform on Lease OCS-P 0460 and three new pipelines from the platform to the Las Flores Canyon Processing Facility. The suspension period and post-suspension period activities are more specifically described below.

Shallow Hazards Survey

During the suspension period, Samedan proposes to conduct a 3-4 day shallow hazards survey. A shallow hazards survey is a high-resolution survey conducted to investigate the shallow subsurface for geohazards and soil conditions in relatively small areas. The geotechnical information collected is commonly used at the exploratory stage for initial site evaluation for drilling rig emplacement. Geotechnical information is typically collected from the seafloor to a depth of 980-1,475 feet (as compared to a 3D seismic survey that collects data on geologic formations to a depth of several thousand meters (9,000 feet)).

Samedan's proposed survey will be conducted using a small single 20-inch³ airgun within a 1.5 square mile area of Lease OCS-P 0460, in water depths ranging from 300 to 1,200 feet. The survey site is 4-5 miles from the coast. The survey will be conducted in the fall (likely October 2005 or October 2006) to minimize interactions and interference with commercial fishing seasons and marine mammal migrations. Samedan proposes to conduct survey operations during daylight hours only to facilitate observation and monitoring of marine mammals.

The 20-inch³ air gun produces a sound intensity level of 218 dB re 1 μ Pa [rms]¹² and is deployed about 10 feet below the surface of the water. The hydrophone cables trail about 820 feet behind the vessel. More detail on the proposed shallow hazard survey is provided in the Marine Resources section (Section 3.1) of this report.

Delineation Drilling

Hypothetical post-suspension activities include the use of a mobile offshore drilling unit ("MODU"), such as a floating semi-submersible, to drill a delineation well on Lease OCS-P 0460. The purpose of a delineation well is to gather additional information about the characteristics and configuration of discovered hydrocarbon reservoirs in areas already explored. The MODU has two hulls upon which floats while being towed to the designated location. At the designated site, the hulls are flooded with seawater to submerge them to their drilling position, a depth a little below the water's surface. Typically, eight anchors are deployed in predetermined locations. The MODU is estimated to be onsite for approximately 92 days, during which the rig would be positioned and the delineation well drilled. Drilling of the well will take about 52 days.

¹² Underwater sound is measured in pressure levels. The zero point of the measurement scale is set at 1 micropascal (μ Pa) where 1 pascal (Pa) corresponds to the pressure resulting from a force of 1 newton exerted over an area 1 m². Root mean square [rms] is a measure of the magnitude of a varying quantity of sound. Thus, sound pressure levels are typically given as decibels (dB) relative to 1 μ Pa.

Platform and Pipelines

To extract oil and gas resources of the Gato Canyon Unit, the MMS prepared a hypothetical post-suspension development scenario that includes:

- Installation and operation of one platform at the 560-foot water depth (3-6 miles from shore) on Lease OCS-P 0460;
- Three pipelines (one 14-inch oil/water line, one 8-inch gas line, and 8-inch water return line) running approximately 3.5-6.5 miles in length from the platform to the Las Flores Canyon Onshore Processing Facility; and
- Two power cables from the platform to an existing co-generation facility at Las Flores Canyon.

The MMS estimates the Gato Canyon Unit reserves to contain 77 million barrels of oil ("MMbbl") and 46 billion cubic feet ("Bcf") of gas. The MMS estimates the platform will operate for 14-18 years. Production from the platform would be processed at ExxonMobil's Las Flores Canyon facilities using existing capacity and the oil would then be shipped to refinery destinations via the All American Pipeline. The gas would be processed at the Exxon Gas Plant using existing capacity and sold to The Gas Company. The produced water would be treated at the existing water treatment plant at Las Flores Canyon, transported offshore by pipeline, and discharged at the Gato Canyon Unit platform. It is unclear if the existing water treatment plant has sufficient capacity or would require further expansion.

2.4 Gato Canyon Unit Background

2.4.1 Lease Sale 68

The leases in the Gato Canyon Unit (OCS-P 0460 and 0464) were issued in 1982 in Lease Sale 68. The Lease Sale 68 leases include lease-term "stipulations," which are mitigation measures designed to protect potentially sensitive resources in an affected lease and to reduce multiple-use conflicts. In order to mitigate adverse environmental impacts for actions associated with a specific exploration, development and decommissioning project, the MMS can impose additional mitigation requirements. The list of stipulations for Lease Sale 68 is attached as Exhibit 4.

2.4.2 Exploratory Drilling on Lease OCS-P 0460

In 1984, the Commission concurred in Atlantic Richfield Company's ("ARCO") consistency certification CC-28-84 to use a semi-submersible drilling rig on Lease OCS-P 0460 to drill up to four oil and gas exploration wells. In the report containing its findings for CC-28-84, the Commission found ARCO's proposed exploration activities to be inconsistent with Coastal Act Sections 30230 (Marine Resources), 30231 (Water Quality), 30232 (Oil Spills), 30234 (Commercial Fishing), 30253(3) (Air Quality), and 30250(a) (Cumulative Impacts). Notwithstanding the project's inconsistency with the above-referenced Coastal Act policies, the Commission applied the Coastal Act's coastal-dependent industrial "override" policy (30260) and found (a) other alternative locations were either infeasible or more environmentally damaging, (b) the activities' adverse environmental effects will be mitigated to the maximum extent feasible, and (c) it is in the national public interest to pursue exploring oil and gas resources underlying Lease OCS-P 0460. The Commission thus concurred in CC-28-84.

ARCO drilled two of the four approved exploration wells, one in 1985 and the other in 1989. The Gato Canyon Unit was formed in 1987.

2.4.3 A Series of Suspensions

The Gato Canyon Unit leases remained active, although undeveloped, through November 1999 by virtue of a series of lease suspensions issued for a variety of reasons (e.g., reinterpretation of seismic data, permitting activities). A lengthy suspension directed by the MMS in order to prepare the *California Offshore Oil and Gas Energy Resources Study* ("COOGER Study") ended in November 1999. In May 1999, Samedan submitted to MMS a request for a 37-month Suspension of Production ("SOP") for the Gato Canyon Unit. In August 1999, the MMS determined that the Gato Canyon Unit was not properly unitized and removed Lease OCS-P 0462 from the Unit. As a result, Lease OCS-P 0462 expired on August 16, 1999. Samedan appealed the MMS decision to the Interior Board of Land Appeals, where the appeal is currently pending. In November 1999, the MMS granted a suspension for the Gato Canyon Unit (Lease OCS-P 0460 and 0464). In June 2001, the district court in *California v. Norton* set aside the MMS's November 1999 suspension decision and found that a lease suspension is an activity subject to the federal consistency review requirements of the federal Coastal Zone Management Act. The MMS submitted this consistency certification in response to the court's decision in *California v. Norton*. In the meantime, until the Coastal Commission and the MMS act on Samedan's May 1999 SOP request, the court directed the MMS to direct (i.e., impose) a Suspension of Operations ("SOO") for the Gato Canyon Unit.

2.5 Related Environmental Documents

2.5.1 Environmental Assessments

Under the National Environmental Policy Act ("NEPA"), the MMS prepared six Environmental Assessments ("EAs") discussing the potential impacts of activities that will occur during the suspensions.¹³ The EAs include:

- MMS Proposal to Grant Suspensions of Production for Aera Energy LLC's Lion Rock Unit, Point Sal Unit, Purisima Point Unit, Santa Maria Unit, and Lease 409
- MMS Proposal to Grant Suspension of Production for Plains Exploration & Production Company's Bonito Unit
- MMS Proposal to Grant Suspension of Production for Arguello Inc.'s Rocky Point Unit
- MMS Proposal to Grant Suspension of Production for Samedan Oil Corporation's Sword Unit
- MMS Proposal to Grant Suspension of Production for Samedan Oil Corporation's Gato Canyon Unit

¹³ U. S. Department of the Interior, Minerals Management Service. *Environmental Assessments and Findings of No Significant Impact For Granting Suspensions of Production or Operations*. February 11, 2005. Available at <http://www.mms.gov/omm/pacific/lease/2005-final-eas.htm>

- MMS Proposal to Grant Suspension of Operations for Venoco, Inc.'s Cavern Point Unit

The EAs are far more limited in scope than the subject consistency determinations because they only address potential impacts from activities occurring during the suspension period (i.e., they do not examine potential impacts from hypothetical post-suspension development activities). The EAs conclude that all potential impacts from activities occurring during the suspension period can be mitigated to an insignificant level. The MMS issued findings of no significant impact based on each of the EA's on February 11, 2005. On March 9, 2005, ten conservation groups, led by the Natural Resources Defense Council and the Environmental Defense Center, filed a lawsuit in federal district court against the MMS, challenging the adequacy of the EAs (*League for Coastal Protection, et al. v. Norton, et al.*, No. C 05-00991-CW (N.D. Cal)).

2.5.2 Environmental Information Document

Acknowledging that the Appeals Court envisioned an analysis of post-suspension activities, MMS submitted, along with the consistency determinations, an Environmental Information Document ("EID")¹⁴. The EID evaluates the potential post-suspension activities, presented as hypothetical scenarios in the period following the suspensions. The EID analyzes activities that could potentially take place during the 2006-2030 time period, including: 1) exploration and delineation drilling, 2) platform and pipeline construction, 3) production activities, and 4) decommissioning of facilities.

2.5.3 Draft EIS for Delineation Drilling

In June 2001, the MMS published a Draft EIS for Delineation Drilling ("Draft EIS")¹⁵ addressing the potential environmental effects of proposed delineation drilling from a Mobile Offshore Drilling Unit in Federal waters offshore Santa Barbara County. The DEIS addressed potential impacts from drilling activities, as well as potential cumulative impacts for the periods 2002 through 2006, and 2002 through 2030, including those for developing the leases. The Draft EIS analyzed proposed delineation drilling in the Point Sal Unit, Purisima Point Unit, Bonito Unit, and Gato Canyon Unit. The EID is based substantially on information presented in the Draft EIS.

After publishing the Draft EIS, on July 2, 2001, the MMS directed suspensions on all of the undeveloped leases to provide time to prepare consistency determinations and NEPA documentation, as directed by the District Court in *California v. Norton*. Also, as a result of the Court decision, the MMS postponed work on finalizing the Draft EIS, including the public hearings, and extended the comment period.

¹⁴Minerals Management Service, Pacific OCS Region. *Environmental Information Document for Post-Suspension Activities on the Nine Federal Undeveloped Units and Lease OCS-P 409 Offshore Santa Barbara, Ventura, and San Luis Obispo Counties*. Prepared by Aspen Environmental Group. January 2005.

¹⁵ Minerals Management Service, Pacific OCS Region. *Delineation Drilling Activities in Federal Waters Offshore Santa Barbara County, California*. Draft Environmental Impact Statement. Published by the US Department of the Interior, MMS, Pacific OCS Region. Document 2001-046. June 2001.

2.5.4 COOGER Study

The California Offshore Oil and Gas Energy Resources Study (“COOGER Study”)¹⁶ was designed by a joint government, industry, and public working group to address concerns about the potential demands on onshore infrastructure from expanded oil and gas development in both State and federal waters. The study assessed and compared a suite of potential Pacific OCS development scenarios for Santa Barbara, Ventura, and San Luis Obispo counties over a 20-year timeframe (1995 through 2015). The Final COOGER Study, published in January 2000, focused its constraints analysis for the potential development scenarios on industrial and public infrastructure demand within the study area.

3 COASTAL ACT ISSUES

3.1 Oil Spills

3.1.1 Introduction

Summary

Since the first federal lease sale offshore Santa Barbara in 1966, the potential for oil spills from offshore oil and gas development has been a major environmental concern. Oil spills resulting from such events as well blowouts, pipeline ruptures, operational errors, or vessel-platform collisions can lead to significant adverse effects on the marine and coastal resources of the Santa Barbara Channel, Santa Maria Basin, and southern California region. These resources include endangered or threatened species of seabirds and shorebirds (e.g., California brown pelicans, western snowy plovers), marine mammals (e.g., sea otters, stellar sea lions, humpback whales), and fishes and invertebrates (e.g., steelhead trout, tidewater goby, white abalone).

Since the time of the Commission’s review of the existing platforms and support facilities, the national and even international significance of the value of the coastal and marine resources in the region — including the environmentally sensitive habitats of sandy beaches, rocky intertidal areas, and estuaries — has continued to grow. In addition to the Channel Islands National Park and Marine Sanctuary, the Santa Barbara Oil and Gas Sanctuary, the Santa Barbara Channel Federal Ecological Preserve and the Monterey Bay National Marine Sanctuary, the region now includes the San Luis Obispo State Seashore, Santa Barbara Coast Seashore, Marine Protected Areas, Areas of Special Biological Significance, Marine Preserves, State Reserves, State Refuges, State Wildlife Areas, and numerous state parks and beaches.

The MMS has submitted information to the Commission on oil spill risk in the consistency determinations and the EID. A document previously released by the MMS, the Draft EIS for

¹⁶ Minerals Management Service. *Final California Offshore Oil and Gas Energy Resources Study: Development Scenarios and Onshore Physical Infrastructure in the Tri-County Area of San Luis Obispo, Santa Barbara and Ventura*. Prepared by Dames & Moore. OCS Report MMS 99-0043. January 26, 2000.

Delineation Drilling (“DEIS”)¹⁷ also contains pertinent information on the risk of oil spills from the granting of the lease suspensions. As discussed in more detail in Section 3.1.4: Oil Spill Risk Analysis below, the EID and DEIS do not provide enough information for the Commission to analyze the potential impacts to marine and coastal resources in appropriate detail.

In a letter dated April 22, 2005, Commission staff requested additional information from the MMS regarding oil spill risks. The MMS’s response reiterated the agency’s position that the appropriate time for a detailed analysis is when operators have submitted specific Exploration Plans and Development and Production Plans, not at the lease suspension stage. MMS stated:

Drilling activities, if and when they occur, can only occur after the suspension period ends and must be detailed in EP’s and DPP’s that are approved by the MMS and certified consistent with the CCMP by the State. Pursuant to Federal regulations at 30 CFR 250.203 and 204, and reviewable pursuant to §307(c)(3) of the CZMA, EP’s and DPP’s will provide details regarding oil spill risk, volumes, oil quality, etc. No EP or DPP will be approved by MMS without State concurrence with an operator-provided consistency certification or a determination by the Secretary of Commerce to override the State’s objections.

As discussed in Section 2.2.2: Scope of Coastal Commission Review, above, the Commission disagrees with the MMS’s position that the appropriate time to review details of oil spill risks, environmental consequences, and prevention and response capabilities for each of the hypothetical development scenarios is at the Development and Production Plan and Exploration Plan stage. Granting the lease suspensions could *prima facie* significantly increase the risk of oil spills, and consequent environmental impacts. The Commission must conduct a detailed oil spill risk analysis at the lease suspension stage in order to determine whether it is appropriate to facilitate through approval of the proposed suspensions future development of the undeveloped lease areas.

The Commission requested detailed information specifically regarding: 1) worst-case discharge volumes, 2) oil spill probabilities, and 3) oil spill trajectories. As discussed in relevant sections below, the MMS has failed to provide this information to the Commission, and as a result, the Commission finds it does not have sufficient information to analyze in appropriate detail potential impacts to coastal resources from a reasonably foreseeable oil spill. The Commission’s lack of information in this regard is relevant to its analyses of the consistency of the granting of the lease suspensions with CCMP policies related to: marine resources and water quality (Coastal Act Sections 30230 and 30231), environmentally sensitive habitat areas (Coastal Act Section 30240), commercial fishing (Coastal Act Sections 30230 and 30234.5), access and recreation (Coastal Act Sections 30210, 30211, 30220, and 30234.5), and cultural resources (Coastal Act Section 30244).

¹⁷ See Section 2.5: Related Environmental Documents, above. Minerals Management Service, Pacific OCS Region. *Delineation Drilling Activities in Federal Waters Offshore Santa Barbara County, California*. Draft Environmental Impact Statement. Published by the US Department of the Interior, MMS, Pacific OCS Region. Document 2001-046. June 2001.

Section 30232 of the Coastal Act requires the applicant to provide “protection against the spillage of crude oil, gas, petroleum products, or hazardous substances...” and to provide “effective containment and cleanup facilities and procedures” for accidental spills that do occur. As discussed in more detail below, the Commission finds that current prevention regulations and programs provide measures for maximum feasible protection against the spillage of crude oil and other hydrocarbons, and therefore granting the lease suspensions is consistent with the prevention standard of 30232. The Commission also finds that current state-of-the-art response measures cannot effectively protect California’s shoreline and coastal resources from significant oil spill impacts, and therefore granting the lease suspensions is inconsistent with the response standard of 30232.

The following discussion is organized into the following topics: 1) background information, 2) oil spill risk analysis, and 3) oil spill prevention and response.

Relevant Coastal Act Sections

Section 30232 of the Coastal Act requires protection of coastal resources from oil spills, and requires effective spill containment and clean-up, as follows:

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Potential impacts from an oil spill are relevant to the Commission’s analyses under CCMP policies related to: marine resources and water quality (Coastal Act Sections 30230 and 30231), environmentally sensitive habitat areas (Coastal Act Section 30240), commercial fishing (Coastal Act Sections 30230 and 30234.5), access and recreation (Coastal Act Sections 30210, 30211, 30220, and 30234.5), and cultural resources (Coastal Act Section 30244).

The environmentally sensitive habitat areas policy of the CCMP (Coastal Act Section 30240) states:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Coastal Act policies related to marine resources, water quality, public access, recreation, commercial fishing and cultural resources are cited in the relevant sections of this report, below.

3.1.2 Regional Oil Spill History

Oil spills may occur from such events as well blowouts, pipeline breaks, operational errors, and vessel-platform collisions. The largest spill in the Pacific OCS region occurred in 1969, when a well blowout on Platform A in federal waters offshore Santa Barbara spilled an estimated 80,000 barrels of crude oil into the Santa Barbara Channel. Since 1969, there have been no further spills of this magnitude. Between 1970 and 1999, 843 spills occurred that ranged from 1 barrel to 163 barrels. Most of these were less than 1 barrel. The largest was a 163-barrel spill from the Platform Irene pipeline in State waters in September 1997.¹⁸ This spill had significant adverse impacts on the coastal resources of Santa Barbara County, and the operator was required to pay \$3.25 million in damages and penalties to county, State, and federal agencies.¹⁹

The spill was caused by a failed flange on the subsea wet oil pipeline, exacerbated by the operator's decision to manually restart pipeline flow following an automatic shutdown caused by a pressure drop. Despite favorable weather conditions and rapid response and recovery efforts, which included use of state-of-the-art response equipment, the Platform Irene pipeline oil spill resulted in the oiling of approximately 17 miles of the Santa Barbara coastline. The oil came ashore on sandy beaches and rocky intertidal areas. Some stretches of the shoreline had oil coverage exceeding 50 percent, and the estuaries of San Antonio Creek, Honda Creek, and the Santa Ynez River were affected. Clean-up actions, which required heavy equipment, many personnel, and removal of marine plants and other biota at the wrack line, resulted in physical disturbances to habitat.²⁰

The spill most heavily affected the sandy beach nearest the origin of the spill, with light sheen, tarballs and tar patties found at several other beaches. A 2004 report indicates that Pismo clams and spiny sand crabs, "likely suffered significant mortality from the spill."²¹ This report also states that rocky intertidal species including black abalone and mussels were "injured" by the spill, and reported observations of black abalone and mussel beds coated with oil along or near the shores of Vandenberg Air Force Base. An estimated 635 to 815 seabirds were oiled from the spill. Animal species in the rocky intertidal zone were injured, as were beach-dwelling invertebrates. Shorebird numbers also decreased, including the endangered western snowy plover. The physical oiling of the beaches and subsequent clean-up activities affected beach-related recreational activities including walking, jogging, swimming, surfing, tidal pool viewing, fishing, and picnicking.

¹⁸ EID, pp. 5.3 -11 to 5.3 -12

¹⁹ Consent Decree, *United States and People of the State of California v Torch Energy Services*. 2002. (Settlement for Natural Resources Damage Assessment.)

²⁰ *Torch/Platform Irene Oil Spill, Scoping Document for Restoration Planning*. Prepared by: Platform Irene Trustee Council, US Fish and Wildlife Service, CA Department of Fish and Game, US Air Force: Vandenberg Air Force Base, CA State Lands Commission, with assistance from Santa Barbara County Planning and Development Department, Energy Division. October 20, 2004.

²¹ *Ibid.* pp. 3-7

A loss of well control or “blowout” incident occurred on Platform Gail in November 2004, which did not result in a serious oil spill but necessitated platform shutdown and evacuation.²² The cause was operator error: a contract employee had removed a lockdown pin, circumventing the blow-out preventer system, so that it failed to function as intended when an unbalanced condition developed in the well. The result was an uncontrolled flow of oil, gas, and seawater from the well.

Even small spills can cause significant impacts to sensitive resources. On June 15, 2005, twelve to fifteen barrels of light crude oil washed ashore onto Breton Island, Louisiana, from an offshore platform during a storm. The incident occurred during nesting season for thousands of birds at the Breton National Wildlife Refuge. Hundreds of endangered brown pelicans were killed. Approximately 1,000 oiled pelicans were recovered, including 268 live chicks.²³ Although this incident did not occur in California, it demonstrates that a very small spill from an OCS pipeline could have devastating effects on the coastal resources of the region.

3.1.3 Coastal Resources at Risk from an Oil Spill

The coastal resources at risk from a marine oil spill from OCS oil and gas development include marine biota, water quality, environmentally sensitive habitat areas (e.g., rocky intertidal areas, sandy beaches, wetlands, and estuaries), commercial fishing, access and recreation, and cultural resources. The sections that follow provide a summary of potential impacts from an oil spill to each of these resources.

Marine Biota²⁴

A complete description of marine resources found in the area is included in this report in Section 3.2: Marine Resources and Water Quality and as Exhibit 5. Subsections below focus on the potential effects of an oil spill on marine biota.

Sea Otters

The southern sea otter is extremely sensitive to oil spills. Lacking a layer of fat, these animals are dependent on maintaining an intact layer of air next to their skin. Oil on just a portion of the fur can cause hypothermia and death. Otters can also ingest oil when they attempt to groom their oiled fur, or when they consume filter-feeding prey that has also consumed oil.

The US Fish and Wildlife Service (“USFWS”) and the Southern Sea Otter Recovery Team have specifically identified: “Managing petroleum exploration, extraction, and tankering to reduce the likelihood of a spill along the California coast to insignificant levels,” as critical to southern sea

²² http://www.mms.gov/omm/pacific/lease/Gail_Incident_Final_Draft_Report.pdf Accessed July 7, 2005.

²³ International Bird Rescue Research Center, <http://www.ibrrc.org/louisiana-05.html> Accessed July 7, 2005.

²⁴ EID, Chapter 4.7 pp. 4.7-1 to 69 and Chapter 5.7, pp. 5.7-1 to 104

otter population recovery.²⁵ The USFWS does not believe it is possible to avoid a catastrophic loss to the sea otter population in the event of a major spill in or near the sea otter's current range. The Southern Sea Otter Recovery Plan²⁶ concludes that, 1) an oil spill is likely to occur over the next 30 years (the period during which the 36 leases will be developed), 2) the probability of death in sea otters as a result of contact with oil following an oil spill is likely to be no less than 50 percent, and 3) rehabilitation of oiled sea otters following a major spill is expensive, may be detrimental to some individuals and is of questionable benefit to the population.

Other Marine Mammals

Oil may affect marine mammals through various pathways: surface contact, inhalation, ingestion, and baleen fouling. Since whales and most adult pinnipeds rely on layers of body fat and vascular control rather than a coat of fur to retain body heat, they are generally resistant to the thermal stresses associated with oil contact. However, exposure to oil can cause damage to skin, mucous, and eye tissues. The membranes of the eyes, mouth, and respiratory tract can be irritated and damaged by light oil and the resulting vapors. If oil compounds are absorbed into the circulatory system, they attack the liver, nervous system, and blood-forming tissues. Oil can collect in baleen plates, temporarily obstructing the flow of water between the plates and thereby reducing feeding efficiency. Reduction of food sources from acute or chronic hydrocarbon pollution can be an indirect effect of oil and gas activities.

Since oil can destroy the insulating qualities of hair or fur, resulting in hypothermia, marine mammals that depend on hair or fur for insulation are most likely to suffer mortality from exposure. Most vulnerable to the direct effects of oiling among the pinnipeds are fur seals and newborn pups, which lack a thick insulating layer of fat. More than 300 harbor seals are estimated to have died in Prince William Sound from the *Exxon Valdez* oil spill, and pup production and survival were affected. The majority of the dead harbor seals recovered were pups. Seasonally, the most vulnerable marine mammal resources along the California coast between Point Conception and Ragged Point would be harbor seal haul-out areas and pupping beaches, during early spring.

Marine Birds

Direct contact of birds with oil can cause matting of plumage, resulting in reduced flying or swimming ability; loss of buoyancy, which can lead to exhaustion and death from drowning; loss of insulation, which can lead to death from hypothermia; and increased physiological stresses and reproductive failure due to ingestion of oil. In 1997, the 163 barrel Torhc Platform Irene pipeline spill injured or killed between 635- 815 birds. Oil-related mortality is highly dependent on the life histories of the bird species involved. Birds that spend much of their time feeding or resting on the surface of the water are more vulnerable to oil spills. Cleanup efforts to remove spilled oil may also cause impacts to coastal birds. The presence of human beings during clean-

²⁵ *US Fish and Wildlife Service. Final Revised Recovery Plan for the Southern Sea Otter (Enhydra lutris nereis)*. Portland, Oregon. xi + 165 pp. 2003

²⁶ *Ibid.*

up activities, and attempts to capture oiled wildlife for rehabilitation, may have the effect of flushing birds into oiled water.

Sea Turtles

Oil spills can adversely affect sea turtles by toxic external contact, toxic ingestion or blockage of the digestive tract, disruption of salt gland function, asphyxiation, and displacement of preferred habitats. Sea turtles are known to ingest oil; this may occur during feeding (tar balls may be confused with food) or while attempting to clean oil from flippers. Oil ingestion frequently results in blockage of the respiratory system or digestive tract. Some fractions of ingested oil may also be retained in the animal's tissues, as was detected in turtles collected after the *Ixtoc* spill in the Gulf of Mexico. Breathing toxic fumes from floating oil can also cause harm to sea turtles.

Red-legged frog

Oil may affect amphibians through various pathways including direct contact, ingestion of contaminated prey, and lingering sublethal impacts from oil sequestered in sediments that may linger for years. Adult red-legged frogs move down to the brackish coastal lagoons formed seasonally behind sand berms that close the mouths of rivers and streams along the south central coast. Though no direct oil contact with frogs is expected, some red-legged frogs could return to lagoons in which oil has become sequestered in sediments, before contaminated sediments are flushed into the ocean. In addition, habitat destruction could result from clean-up efforts.

Fish

Fish can be affected directly by oil, either by ingestion of oil or oiled prey. They can also be affected by uptake of dissolved petroleum compounds through the gills, by effects on fish eggs and larval survival, and by changes in the ecosystem that supports fish. Many effects can be sublethal, transient, or slightly debilitating, however any stress requires energy for recovery, which can ultimately lead to increased vulnerability to disease or to decreased growth or reproductive success.

The egg, early embryonic, and larval-to-juvenile stages of fish seem to be the most sensitive to oil. The *Exxon Valdez* oil spill occurred within weeks of Pacific herring spawning along the shores of Prince William Sound, resulting in increased egg mortality and larval deformations, and site-specific occurrences of instantaneous mortality. Studies estimate that over 40 percent of the 1989 year-class was affected by *Exxon Valdez* at toxic levels. Also, fry from pink salmon emerged from their gravel spawning redds and entered the nearshore environment during the spill. Salmon and trout exposed to oil from the *Exxon Valdez* spill all showed reduced growth rates the season following the oil spill. Studies estimate that 1.9 million adult pink salmon failed to return to Prince William Sound in 1990, primarily because of a lack of growth in the critical nearshore life stage. Returns in 1991 and 1992 were most likely reduced by 11 percent.

Abalone

A spill that resulted in substantial coating of subtidal rocky habitats or significant loss of attached algae within an area that supports white abalone poses the greatest risk. White abalone in water depths of less than 33 feet could also be affected by oil treated with chemical dispersants, as the oil disperses through the water column. Recovery of the black abalone could

exceed seven to ten years if a significant portion of the local population was directly contacted and heavily oiled by a spill.

Plants

Plant mortality from oil spills can be caused by smothering and toxic reactions to hydrocarbon exposure. Generally, oiled marsh vegetation dies above the soil interface, but roots and rhizomes survive when oiling is not too severe. The cleanup process could exacerbate the effects of an oil spill on threatened and endangered plants.

Environmentally Sensitive Habitat Areas

Rocky Intertidal and Sandy Beach Habitat

Primary oil spill impacts to rocky intertidal and sandy beach areas include smothering, uptake in tissues, and contamination of animals using rocky habitat and beaches, such as invertebrates, seabirds, and marine mammals. Oil tends to strand high in the intertidal in the barnacle zone. Tarballs in this zone are persistent, lasting several seasons. Oil can also persist in individual tidepools.

Estuaries and Wetlands

If oil from an offshore spill enters a wetland or estuary, impacts to the resource could include irreversible alteration of the habitat, mortality of endangered birds, plants and fish, and loss of plants and animals that may be unable to populate from adjacent areas. In addition to the potential for offshore spills, several hundreds of miles of pipelines onshore carry oil products that, if spilled, could affect estuarine and wetland habitat. A spill originating from an onshore pipeline (supporting offshore OCS oil production), especially from a pipeline break crossing a river or streambed, could send oil directly into a wetland. The cleanup process, which is another source of impacts, would consist of removal and replacement of contaminated soil and revegetation with native species. Although limited in extent, recovery could take several years, depending on the type of vegetation and wildlife affected by the spill.

*Commercial Fishing*²⁷

Impacts to commercial fishing from an oil spill could include fouling of commercial fishing gear and vessels, closure of harbors, and preclusion of access to fishing areas. For example, as a result of the 1997 Torch oil spill, several fishermen filed claims for damages related to the spill and cleanup operations. Steve Dunn, representing the Santa Barbara Trappers, asserts that response, clean up and repair vessels violated Vessel Traffic Corridor restrictions, resulting in lost or destroyed gear. Other fishermen similarly sought damages from loss of nets resulting from the spill and cleanup activities.

*Access and Recreation*²⁸

The mainland coast in the project region includes a number of recreational beaches and parks that attract visitors throughout the year. Oil spills have the potential to affect access and

²⁷ EID, p. 5.13-3

²⁸ EID, p. 5.10-3

recreation at the coast by causing beach and harbor closures. Cleanup of a smaller spill (200 barrels or less) can take up to two weeks, whereas a larger spill may take 30 days or more. The wider the area that is oiled, the more locations that could be affected, and as the area of effect increases, the more difficult it becomes to substitute near-by locations in order to enjoy recreational activities. Closing a beach or recreation area could have impacts on the people who enjoy overnight camping, swimming, surfing, walking, jogging, and tidepool-watching at these parks. In addition, the Channel Islands are restricted with regard to the maximum number of visitors at any given time, and the hauling capacity of park concessionaires is limited by boat occupancy restrictions. Anacapa and Santa Cruz Islands are the most vulnerable to losing visitor days due to an oil spill. Region-wide, deployment of containment booms could result in the closure of small craft harbors. Notably, a spill from the Gato Canyon Unit has potential for significantly affecting the sensitive and scenic shoreline resources of the Gaviota Coast, an area that is world-renown for its scenic rural beauty and recreational opportunities.²⁹

Cultural Resources³⁰

Oil-spill related impacts are not expected to affect offshore cultural resources because of the nature of clean-up operations. Onshore, oil spills could alter the chemical composition of archeological materials and render them useless for carbon-14 dating. Oil spill containment and cleanup activities could result in extensive impacts to site deposits from the excavation of containment barriers (e.g., dams, berms, and trenches), and the mechanized removal of oil-soaked earth.

3.1.4 Oil Spill Risk Analysis

Spill Volumes

The EID states that the “most likely maximum size of a major oil spill” for all 36 undeveloped leases is 2,000 barrels,³¹ and uses this quantity to characterize the worst-case spill scenario for all anticipated post-suspension hypothetical development scenarios. The Commission finds this characterization is overly simple, because expected worst-case spills may vary greatly from scenario to scenario due to large differences in anticipated production and other factors. (Volumes of oil transported by offshore pipelines range from a current 6,000 barrels per day from Platform Irene to a projected 92,000 barrels per day from hypothetical SMB “B” platform in Northern Santa Marina Basin.

²⁹ National Park System, U.S. Department of the Interior, *Gaviota Coast Feasibility Study*, 2003, p. 36. State park and beach attendance in vicinity of the proposed Gato Canyon Unit averaged approximately 578,860 during the last six years (*Ibid*, p. 57). This attendance includes local County residents and tourists.

³⁰ EID, p. 5.8-3

³¹ “The most likely maximum size of a major oil spill from potential future development — the maximum most probable discharge — 2,000 bbl, is based on the volumes of oil in various pipelines and vessels (i.e., tanks and other containers on platforms) as described in the U.S. Coast Guard Area Contingency Plans for oil spill response (e.g., USCG, 1999) (see MMS, 2001). This is the maximum volume of oil calculated to be spilled from a break in the longest Point Arguello Unit pipeline, the Hermosa to shore pipeline (A. D. Little, 2001 as cited in MMS, 2001).” EID, p. 5.3-14.

The Commission requested that the MMS characterize the worst-case spill scenario using the “worst-case discharge volume,” rather than the most likely maximum spill size. The MMS replied to the Commission’s request as follows:³²

The maximum spill volumes described in the EID and previously in the [DEIS] are conservative in that they were applied to the largest observed or possible spills that MMS has observed in the Pacific Region subsequent to the 1969 spill in the Santa Barbara Channel. Thus, the hypothetical 2000 barrel spill from the Arguello pipeline described in the EID is based on the size and length of that pipeline, which is anticipated to be the largest of any in the region. Analyses of project specific development and associated pipelines would indicate hypothetical spills of smaller volume...

The MMS states in the EID that: “the most likely maximum size of a major oil spill from potential future development — the maximum most probable discharge — [is] 2,000 barrels.” According to the MMS, this number is based on the volumes of oil in various pipelines and vessels (i.e. tanks and other containers on platforms), and is applicable to all post-suspension hypothetical development scenarios given the spill record for the Pacific Region since 1970.³³

The Commission disagrees with the MMS’s position that 2,000 barrels represents the maximum reasonably foreseeable spill size. The term “maximum most probable discharge” is ill-defined in the EID,³⁴ and appears to be an arbitrary volume without substantive basis. The “worst-case discharge volume” is a well-defined quantity that is systematically calculated in each operator’s oil spill response plan, following procedures given in 30 CFR 254.47, for offshore facilities, and in 49 CFR 194.105 for onshore pipelines. The estimated worst-case discharge volume varies among existing OCS facilities and can greatly exceed 2,000 barrels. For example, the estimated worst-case discharge volumes for platforms Hermosa, Hidalgo, and Harvest are 5,796, 2,809, and 8,200 barrels, respectively, assuming prompt leak detection and pipeline shutdown.³⁵ These worst-case discharges are based, in part, on the Point Arguello Unit’s current (2005) maximum production of 11,000 barrels per day. The EID estimates that peak production at the Gato Canyon Unit will be 22,500 barrels per day,³⁶ indicating that the worst-case discharge volumes will most likely be above the 8,500 worst-case discharge from the Point Arguello Unit development, and significantly above the 2,000 barrel maximum most probable spill size

³² June 23, 2005, MMS letter, page 47.

³³ EID, p.5.3-14

³⁴ *Ibid.*

³⁵ MMS. *Oil Spill Response Plan, Point Arguello and Point Pedernales Fields*. Vol. 2, p. 10-9. November 2004.

³⁶ EID, Table 5.2-4 p. 5.2-11

provided in the EID. The 2,000-barrel maximum spill volume is also an inadequate measure of possible worst case spills from onshore pipelines,³⁷ or vessel-platform collisions.

The worst-case discharge volume is the accepted standard for evaluating the maximum potential volume of oil spills. Information on the worst-case discharge volume for each development scenario is necessary for an assessment of the full range and extent of potential oil spill impacts to coastal resources.

Spill Probabilities

The oil spill risk discussion in the EID focuses on the probability of “one or more spills,” and offers no information on multiple spills.³⁸ This is an oversight that minimizes the apparent risk of spills. In its information request letter of April 22, 2005, the Commission requested that the MMS provide an analysis of oil spill risk probabilities for multiple oil spills. The MMS responded as follows:³⁹

Because the EID tables indicate the probability of one or more (emphasis added), it does not minimize the risk of multiple spills. As indicated in the table in the comments provided to MMS (without verifying the accuracy of the calculations), the risk of two or more spills, etc. keeps decreasing as the number of spills increases. You are correct in that there is a relatively high probability of multiple spills from existing operations combined with the hypothetical development in the spill size range 50 – 999 barrels. Unfortunately, such statistics contribute very little to assessing hypothetical environmental impacts because the statistics do not give any insight into the risk of coincident spills either in time or space.

This response does not address the Commission’s request that the MMS analyze the probability of multiple oil spills individually – that is, analyze the probability of two independent spills, three independent spills, four independent spills, etc., rather than merely analyzing the probability of “one or more spills”. A preliminary analysis by Commission staff, using the MMS data and methodology,⁴⁰ shows that the estimated risk of multiple spills is significant, and that post-suspension development could substantially increase the probability of multiple spills over

³⁷ For example, the worst-case spill planning volume for the Platform Irene onshore pipeline (beginning at the beach) is 4,424 barrels. (*California Office of Spill Prevention and Response Supplement for the Oil Spill Response Plan for the Point Pedernales 20-inch Wet Oil Pipeline*. April 2003. p. 4-2)

³⁸ EID, p. 5.3-13 to 5.3-14

³⁹ June 23, 2005. MMS letter, pages 47 and 48.

⁴⁰ Spill probability is estimated from historic oil spill data, specifically, the number of spills that have occurred for each billion barrels of crude oil handled. Once the historic spill rate is determined, an estimate of the expected mean number of spills over the expected life of a proposed project can be obtained by multiplying the estimated volume of recoverable reserves (in billions of barrels) times the spill rate (in spills per billion barrels). The probability that N spills will occur for the estimated mean number of spills is given by the Poisson distribution. The same model produces estimates of the probability of one or more spills, or multiple spills.

the life of the projects. Anticipated post-suspension development of the 36 leases will increase the estimated probability of *one or more spills* in the 50-999 barrel size range only slightly (from 96.8 percent to 99.9 percent). However, the estimated probability of six independent spills will rise from a current 13.6 percent to 82.5 percent, and the probability of ten independent spills will rise from 0.3 percent to 30.6 percent. Similarly, for spills of 1,000 barrels or more, the estimated probability of one or more spills will rise from 46 percent to 76.8 percent, whereas the probability of two or more spills will rise from 12.8 percent to 42.9 percent.

The Commission provides this information to indicate the importance of a multiple-spill probability analysis. It is accurate to the degree that the Commission uses available the MMS data and methodology. The MMS has data relating to historic spills, recoverable reserves, and other characteristics of the hypothetical post suspension development scenarios that will allow a full analysis of the probability of multiple oil spills from development of these leases. A multiple-spill probability analysis is information that should be provided by the MMS in the consistency determination. Without this information, the Commission cannot assess the full range, extent, and likelihood of oil spill impacts that may be caused by granting the lease suspensions.

Additionally, the EID and DEIS do not include information on the cumulative spill risk probabilities for individual development scenarios — for example, there is no risk probability information specific to the cumulative risk of the Gato Unit development plus the existing OCS development. In its letter of April 22, 2005, Commission staff requested that MMS provide estimates of cumulative spill probabilities for each hypothetical development scenario plus existing operations. MMS did not address this request in its response letter. As a result, the Commission is unable to analyze how granting the lease suspensions may individually increase the probability of an oil spill, or the contribution that granting the lease suspensions will make to a cumulatively increased oil spill risk probability.

Probability of Spills from Delineation Drilling

Drilling of delineation wells is a post-suspension activity anticipated in the EID and consistency determinations for the NSMB and Gato Canyon Units. The EID discusses the “minimal” risk of an oil spill from delineation drilling on pages 5.3-12 and 5.3-13:

Proposed delineation drilling during post-suspension phase activities involves minimal risks of an oil spill. Oil spills during exploration or delineation drilling of wells from mobile drilling platforms are very rare events according to the MMS and US Coast Guard database... The probability of one or more spills from delineation drilling has been calculated to be less than .05 percent (the lowest value calculated by MMS spill data.) Therefore, the risk of a spill is considered to be minimal and poses almost no risk to the marine environment. Spills during delineation drilling for these proposed projects are not considered further in the spill risk assessment.

The Commission believes that the MMS’s statistical model, which is based on production statistics, is misapplied to delineation drilling, and that it is more appropriate to use the MMS’s data from 1992-2000 for exploration-related spills to determine the risk probability of a spill

from delineation drilling.⁴¹ The MMS's data on exploration-related spills shows that three spills of over 50 barrels occurred in the drilling of 3031 wells. Based on this data, the mean expected number of spills is about 0.0015. This mean number of spills is too small to estimate spill probability with much confidence. However, the data strongly suggest that the estimate of less than 0.05% is unrealistically low, and that the true probability of a spill might be in the range of 0.1% to 0.2% (i.e., between one-in-500 and one-in-1000, versus one-in-2000).

The need for disclosure is underscored by the occurrence of a loss of well control ("blow-out") on Platform Gail as recently as November 18, 2004, due to operator error. Though oil spillage was minor, the incident did result in a significant gas release, platform shutdown, and evacuation. Under different conditions, it could have led to a significant oil spill.

In its April 22, 2005 letter to the MMS, the Commission requested that the MMS revise the discussion in Section 5.3.3 of the EID to include a probability estimate derived from the MMS's delineation drilling spill data. The MMS responded as follows:⁴²

The methodology used to estimate spill risks (based upon the amount of oil "handled" via production, pipeline, etc.) is a valid metric to calculate risk. There is a rigorous database on which to base statistics of risk using this metric, and it has the advantage of being comparable to risks of spills from tankering. This latter is significant in being able to estimate hypothetical effects of spills on coastal resources. The reference to "blow-out" only enters into the spill statistics if oil is put into the ocean because this is an analysis of spill risk. The three spills over 50 barrels... are in the MMS spill database and were part of calculating the probability of one or more spills during delineation drilling of 0.05%. Even if one doubles this probability to 0.1%, it is still extremely low, and MMS stands by its conclusion that it "poses almost no risk to the marine environment."

The Commission agrees that spills from drilling are infrequent; however, it disagrees with the MMS's chosen statistical method and its conclusion that there is "almost no risk" to the environment from a spill from drilling activities. The MMS's spill probability model, based on production statistics, is misapplied to delineation wells, and the probability estimates appear to be statistically invalid. Because such spills are infrequent the probability cannot be estimated with confidence, but historic data suggest the probability of a spill could be two- to four-times as high as the MMS states in the EID. In view of the statistical uncertainty and possible significant

⁴¹ Specifically, the exposure variable (volume of oil handled) is not logically related to the risk of spills from exploratory drilling, because exploration wells produce only small test quantities of oil, unlike production wells. Although the MMS includes exploratory drilling accidents in its database for developing oil spill occurrence rates, this does not mean that spill probability for exploratory drilling can properly be estimated based on the volume of oil samples extracted from an exploration well. See Smith, R.A., J.R. Slack, T. Wyant, K.J. Lanfear. *The Oil Spill Risk Analysis Model of the U.S. Geological Survey*. USGS Professional Paper 1227, U.S. Geological Survey. Reston, VA. 1982. p. 22.

⁴² June 23, 2005 MMS letter, page 49.

environmental impacts if a spill were to occur, the possibility of spills during delineation drilling should not be dismissed without further analysis.

Absent an analysis of spill risk probabilities for delineation drilling based on an appropriate statistical method, and a discussion of the potential impacts to coastal resources from an oil spill that may result from drilling activities, the Commission cannot determine if granting the lease suspensions is consistent with the resource policies of the CCMP (Coastal Act Sections 30210, 30211, 30220, 30230, 30231, 30234.5, 30240, and 30244).

Spill Trajectories

Three separate oil spill trajectory analyses are presented in the DEIS and EID: 1) the MMS's Oil Spill Risk Assessment ("OSRA") model, 2) the National Oceanic and Atmospheric Administration's "General NOAA Oil Modeling Environment" ("GNOME") oil spill model, and 3) an analysis of Scripps Institution of Oceanography ("Scripps") free-floating drifter trajectories. The results of the analyses are summarized in the EID as a composite analysis, which covers the general geographic region of anticipated post-suspension development. Upon initial review of the EID, Commission staff determined that the analyses are overly general, and do not provide enough detailed information for the Commission to analyze the risk of oil spill impacts to specific coastal resources. Commission staff requested more specific trajectory information, to include:

1. Detailed trajectory analyses for each existing development project and hypothetical post-suspension scenario, using scenario-specific, maximum reasonably foreseeable spill sizes (i.e., worst-case discharge volumes); and
2. A summary of the analyses that clearly communicates the risk exposure borne by different coastal areas due to potential spills from each hypothetical development scenario, including discussions of variability and uncertainty in the estimates.

The MMS responded to the Commission's request as follows:⁴³

MMS believes it is appropriate to present generalized spill risk at this stage in the possible hypothetical future development of these undeveloped leases. MMS includes overall risk from a spill from possible future development because a spill could potentially affect geographically diverse resources in the overall area no matter the origin of the spill given the complex and varying circulation in the region...

Project specific modeling would not add substantial resolution to the modeling of spill trajectories performed in the DEIS (1999) because the launch points for those trajectories cover the geographic domain of the projects described in the EID. Appendix Figure 5.2-1 in the DEIS indicates the launch points used in modeling. These are very near or within the units for which projects are described.

⁴³ June 23, 2005 MMS letter, page 46-47.

The Commission does not agree that the generalized information provided in these analyses is appropriate at this stage of development. As discussed in Section 2.2.2: Scope of Coastal Commission Review, above, unlike a lease sale, the location and anticipated character of the post-suspension development scenarios are fairly well defined, and the available information would support a more specific analysis. Nor does the Commission agree that scenario-specific spill trajectory analyses would not “add substantial resolution.” Rather, the modeling studies are overly generalized by design, and overlook factors important for evaluating oil movement and shoreline contact locations. Some major inadequacies in the analyses are summarized below.

Small scale current features

Neither the OSRA nor GNOME modeling studies appear to account for relatively fine-scale current features or changes in current patterns.⁴⁴ The importance of small scale variations is stressed in a National Research Council report,⁴⁵ which states: “In the absence of most of the temporally and spatially varying part of the spectrum, the predicted trajectories may miss many aspects contributing to drift, especially at the shorter time scales. This problem plagues all modeling efforts to some extent, but is of particular concern for southern California where the variable flows are so strong.”

A recent study demonstrates the importance of fine-scale current dynamics.⁴⁶ The study, which involved intensive deployment of drifters offshore Santa Barbara’s southern coast between Ellwood and Naples, indicates that cross-shelf currents intermittently dominate the pattern of circulation within a few kilometers of the shore. Cross-shelf currents could drive spilled oil directly toward shore in some areas. These currents have major importance for understanding the risk of potential spills from Santa Ynez Unit and Gato Canyon Unit, particularly if the spill were from a pipeline rupture within State waters.

Temporal variability in current patterns

Both the OSRA and GNOME modeling studies appear to oversimplify the current patterns. The OSRA studies are based on seasonally averaged and modeled ocean current fields, combined with averaged surface drifter data. As a result of the averaging, the range of variability of current patterns is greatly reduced. This is a serious error, because different current “regimes” occur during each season, and the dominant current pattern may change on time scales of days to weeks.⁴⁷

⁴⁴ Although the model physics seem to incorporate some fine scale processes (OCS Report MMS 2000-057, p. 3-4), there is no indication that the model was empirically verified at such scales in southern California waters. In any case, much of the fine-scale information would be lost in the seasonal averaging.

⁴⁵ National Research Council. *The Adequacy of Environmental Information For Outer Continental Shelf Oil and Gas Decisions: Florida and California*. 1989. p. 23 (see also: NRC. *Assessment of the U.S. Outer Continental Shelf Environmental Studies Program – I. Physical Oceanography*. 1990.)

⁴⁶ Ohlmann, Carter, *Transport over the Inner-Shelf of the Santa Barbara Channel, Draft Final Report to MMS*, March 28, 2005.

⁴⁷ DEIS, Table 5.1.3.2-2, p. 5-24.

Additionally, the GNOME studies are based on the three major characteristic flow regimes that have been identified in Scripps-MMS collaborative studies (i.e., upwelling, convergent, and relaxation regimes). These three flow patterns can clearly be identified about 60% of the time.⁴⁸ With this approach, only the conceptually idealized flow patterns are modeled. Trajectories associated with hybrid flow patterns, changing patterns, and less common patterns are not modeled. Neither the OSRA nor the GNOME study analyzes storms or other conditions that could produce unusual trajectories.

Pipeline spills

Although subsea pipeline ruptures are the most likely type of oil spill from the anticipated post-suspension activities, GNOME and OSRA model only surface spills from platforms.⁴⁹ Because pipelines are closer to shore than platforms, a higher proportion of the spilled oil is likely to affect shoreline and near-shore resources. Also, subsea releases behave differently than surface spills, and require a very different modeling approach.⁵⁰ In addition, the modeling fails to consider onshore pipeline spills, which may enter marine waters and affect coastal resources.

Other weaknesses of the analysis

- **Effect of spill volume on modeled shoreline contact locations.** Because the maximum spill volume modeled was only 2,000 barrels, the GNOME model results don't provide complete information concerning the volume of oil that will contact the shore in the event of a maximum worst-case discharge.
- **Oil characteristics.** The OSRA modeling and drifter studies do not consider properties of the spilled oil, which varies considerably among reservoirs. Oil properties affect subsea plume formation and the behavior of oil on the surface, such as spreading, sinking, and expansion of volume due to mousse formation.⁵¹ It is unclear how realistically the GNOME modeling studies account for such characteristics, if they are considered at all.

⁴⁸ DEIS, p. 4-48.

⁴⁹ See DEIS, p. 5-20. OSRA modeling of spills from several currently existing pipelines is included in the *Oil-Spill Risk Analysis* [MMS 2000-057] cited above. However, the surface spill model is used, and the modeling is not tied into the spill analysis in the DEIS or EID. The modeled spill locations are approximately 2.5 to 6.3 miles offshore and fail to consider possible spills closer to shore, where environmental impacts would be greater.

⁵⁰ Subsea spill models are under development by MMS, and other models may be available. See: *Technical Documentation for the Pipeline Oil Spill Volume Computer Model, SINTEF Report to MMS*. January 20, 2003. Available at: http://www.mms.gov/tarprojects/390/WCD%20Technical%20Description_Final-170203.pdf Accessed July 8, 2005.

⁵¹ Mousse formation is the tendency of some oils to form emulsion, which can expand the spill volume by a factor of two to three, as apparently was the case for the 1997 Irene pipeline spill. Sinking may be a very important consideration for the heavier local oils.

- **Shoreline contact.** The OSRA model generates estimates of conditional probabilities of shoreline contact. However, these estimates are of dubious value, given that the model uses seasonal current averages, fails to include important small-scale currents, and does not account for oil characteristics or volume. The spill trajectory analysis does not adequately connect probable shoreline contact locations with presence of sensitive resources, as necessary for evaluation of impacts.
- **Uncertainty.** The trajectory modeling does not include an error analysis or discussion of model sensitivity analysis, as recommended in the National Resource Council assessments.⁵²

The oil spill modeling in the EID and DEIS is over-generalized and lacks crucial information. Hence, it does not provide the information needed for a realistic appraisal of potential impacts to specific resources in the Santa Barbara Channel and Santa Maria Basin. The modeling lacks an appraisal of what resources are likely to be affected by an oil spill incident. Without this information, the Commission cannot evaluate in appropriate detail the full range and extent of potential oil spill impacts to marine and shoreline resources.

Conclusion

The oil spill risk analysis in the EID is overly general, and lacks specific information crucial to the Commission's analysis of potential oil spill impacts on coastal resources. The Commission requested additional information from the MMS regarding: 1) the worst-case discharge volumes; 2) spill probability analyses for multiple spills; and 3) detailed spill trajectory analyses for each hypothetical post-suspension development scenario. Without this information, the Commission cannot evaluate in appropriate detail the full range and extent of potential oil spill impacts to coastal resources. The Commission therefore finds it does not have sufficient information to determine if granting the lease suspensions is consistent with CCMP policies related to: marine resources and water quality (Coastal Act Sections 30230 and 30231), environmentally sensitive habitat areas (Coastal Act Section 30240), commercial fishing (Coastal Act Sections 30230 and 30234.5), access and recreation (Coastal Act Sections 30210, 30211, 30212, and 30220), and cultural resources (Coastal Act Section 30244).

3.1.5 Prevention and Response Capability

Section 30232 of the Coastal Act requires an operator to provide "protection against the spillage of crude oil, gas, petroleum products, or hazardous substances..." and to provide "effective containment and cleanup facilities and procedures" for accidental spills that do occur.

After the 1989 *Exxon Valdez* oil spill, the federal and California State governments imposed tough new statutory and regulatory standards for oil spill prevention and response. Under the Oil Pollution Act of 1990, the federal government agency with the primary regulatory authority over marine waters is the US Coast Guard ("USCG"). The USCG also serves as the Federal On-Scene Coordinator ("FOSC") during an oil spill response. Under California's Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Cal. Gov't Code §8670 *et seq.*), the California State government agency with the primary regulatory authority over oil spills in state marine

⁵² *Ibid.*, NRC, 1989, p. 24.

waters is the California Department of Fish and Game's Office of Spill Prevention and Response ("OSPR"). OSPR is the State On-Scene Coordinator during an oil spill response.

A Regional Response Team ("RRT") composed of representatives from the USCG, the US EPA, the MMS, the California Office of Emergency Services, and OSPR oversees the development and implementation of three Area Contingency Plans for all waters offshore California. The Plans present procedures for joint response efforts, including procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife.⁵³

Oil spill prevention and response for the hypothetical post-suspension development scenarios are discussed in detail below.

Prevention

To reduce the likelihood of spills, OCS operators must comply with a multitude of oil spill prevention, environmental management, and worker safety regulations from federal, State, and local agencies. These include the MMS, US Office of Pipeline Safety regulations; US Coast Guard Facility Response Plan regulations (33 CFR Part 154 and 155); the California Office of Spill Prevention and Response regulations (14 CCR §§790 –886) for oil spill contingency plans, inspections, and drills for pipelines in state waters and onshore facilities; State Lands Commission regulations (14 CCR §§2000 – 2017, §§2300–2407) for onshore marine terminals; Coastal Commission consistency certification and permit requirements; and Santa Barbara County permit conditions for onshore facilities.

According to the EID and DEIS Appendix 5,⁵⁴ the MMS's prevention strategy includes regulations that require the use of best available technologies, training standards for operator personnel, and a rigorous inspection program. This strategy encourages industry to operate well-engineered facilities with good housekeeping practices, adequate equipment maintenance, and proper and safe operational procedures to reduce the likelihood of a spill. The MMS has established inspection protocols and reporting requirements designed to effect timely detection of any spills, notification of proper authorities, and initiation of cleanup. Operators are required to conduct frequent periodic inspections to determine if pollution is occurring and to report sources of pollution to the MMS.

To ensure that a facility is prepared in the event that oil is spilled, the MMS has a comprehensive oil spill response program.⁵⁵ In addition, the MMS tests a facility operator's response, as well as its knowledge and understanding of the Oil Spill Response Plan through oil spill exercise programs that incorporate announced and unannounced drills each quarter. For planning

⁵³ US Coast Guard, California Office of Oil Spill Prevention and Response. *2000 Area Contingency Plan, Los Angeles and Long Beach*. 2000. Available at <http://www.uscg.mil/d11/m/rrt9web/>

⁵⁴ EID p. 5.3-7, DEIS Appendix 5 p. A5-69

⁵⁵ In accordance with MMS regulations 30 CFR §250.204 (b)(3) and Part 254, each of the OCS operators must have an approved oil spill response plan.

purposes, the MMS adheres to the requirements of the USCG's National Preparedness for Response Exercises Program.⁵⁶ Facility operators must exercise their entire response plan at least once every three years. To satisfy this triennial exercise requirement, an owner or operator must conduct the following elements of the response plan: annual spill management tabletop exercise; annual deployment exercise of spill response equipment staged at an onshore location; annual notification exercise; and semiannual deployment exercise of any response equipment which the owner or operator must maintain at the facility.⁵⁷

The Commission notes that even with these regulations and programs in place, oil spills do still occur due to human error. For example, the size of the 163-barrel Torch Platform Irene pipeline spill in 1997 was exacerbated by the operator manually restarting the pipeline flow after the SCADA system had automatically shutdown the pipeline due to a drop in pipeline pressure. To reduce operator accidents, the MMS and other federal, State, and local regulations provide feedback mechanisms for the continual improvement of operator training programs and leak detection systems.

The new platform and pipelines proposed for the Gato Canyon Unit would be designed in accordance with the MMS and other applicable federal, State, and local regulations for the prevention of hazardous spills (as discussed above on the previous page). The platform and pipelines would also be required to operate in compliance with the most recent versions of the MMS, federal, State, and local oil spill prevention, safety, environmental management, and operator training regulations and programs discussed above. The Commission finds that the MMS's and other applicable prevention regulations and programs provide measures for maximum feasible "protection against the spillage of crude oil, gas, petroleum products, and hazardous substance." The Commission therefore finds that granting the lease suspensions is consistent with the prevention requirements of the CCMP (Coastal Act Section 30232).

Response Technologies and Capability

Oil spill prevention measures, such as blowout protection devices and regular platform inspections, have reduced the frequency of oil spills from OCS platforms since the 1980's. However, offshore oil development in the Pacific OCS continues to pose a significant risk to the environment from oil spills.⁵⁸ Oil spill response strategies generally include: mechanical containment and recovery equipment, chemical dispersants, and in-situ burning. Each is discussed in more detail below.

Mechanical Containment and Recovery Equipment

According to the EID and DEIS Appendix 5,⁵⁹ operators in the Pacific OCS are required to keep sufficient equipment on or near the platforms to enable the immediate initiation of containment

⁵⁶ USCG. *National Preparedness for Response Exercise Program (PREP)*. August 1994. Available at <http://www.uscg.mil/hq/g-m/nmc/response/msprep.pdf>

⁵⁷ EID p. 5.3-7; DEIS Appendix 5, p. A5-69.

⁵⁸ The term "risk" encompasses both the likelihood and environmental impacts of oil spills.

⁵⁹ EID, p. 5.3-7. DEIS, p. A5-70.

activities. Primary response equipment at the platforms is supplemented by onshore equipment operated by oil spill cooperatives formed by the lessees and operators.

Platform operators are required to have MMS-approved Oil Spill Response Plans ("OSRP"), which are updated on a biennial basis. The Commission reviews each OSRP update to ensure that any changes in the equipment and procedures at the platforms continue to provide equal or better protection of the marine resources than that reviewed during the original consistency certifications for the platforms. The Commission notes that as part of the consistency review process for the Development and Production Plan for the Gato Canyon Unit, Samedan will be required to provide detailed information pertaining to the placement of oil spill response equipment at or near the platforms. The Commission agrees with the MMS that the Development and Production Plan stage is the more appropriate time for the review of the detailed information pertaining to primary response capability at the platform.

For regional response capability, Clean Seas provides two dedicated oil spill response vessels — Mr. Clean III at Platform Harvest and Mr. Clean at Santa Barbara harbor — in addition to pre-staged equipment located at Morro Bay, Avila Bay, Santa Barbara Harbor, the Carpinteria Yard, in the Ventura/Port Hueneme area, and at Point Mugu Navy Base. As the MMS notes,⁶⁰ the additional resources of the Marine Services Response Corporation, National Response Corporation and the USCG Oil Spill Response Team are also available to assist Clean Seas in the event of catastrophic spill.

In the 25-30 years since installation of the existing OCS platforms, Clean Seas has continued to upgrade and improve the containment and recovery capability of their state-of-the art response equipment to best match the characteristics of the oil produced in the offshore fields. Notwithstanding these improvements, the Commission does not agree with the MMS's assessment that an "effective" oil spill response can be conducted for an oil spill incident.

The Commission interprets the "effective containment and clean up" standard in the CCMP (Section 30232 of the Coastal Act) as the ability to keep an offshore oil spill from adversely affecting the shoreline resources of California. In the consistency certifications pertaining to OCS oil and gas development projects the Commission reviewed in the 1980's,⁶¹ the Commission found that although the on-water oil spill containment and clean-up equipment available for response to offshore oil spills was state-of-the art, research and oil spill experience showed that its effectiveness in keeping a marine oil spill from causing significant impacts to sensitive shoreline resources was severely limited by weather, currents, and wave conditions.

Although oil spill response equipment and cleanup methods have significantly improved in the past 20 years, research and experience shows that the response capability of current state-of-the art containment and clean-up equipment continue to be very limited during conditions of rough

⁶⁰ EID, page 5.3-7

⁶¹ CC-7-83 (Platforms Harmony and Heritage), CC-12-83 (Platform Hermosa), CC-27-83 (Platform Harvest), CC-24-84 (Platform Hidalgo), and CC-36-86 (Platform Gail).

weather and sea conditions. EPA tests have demonstrated that oil skimmers can generally only recover about 50 percent of spilled oil in calm water conditions, with decreasing effectiveness if sea conditions are rougher.⁶² Booms and skimmers are also limited in their effectiveness by wave height and wind speed. According to the National Oceanic and Oceanographic Administration's ("NOAA") Office of Response and Restoration, historical data indicates that only 10-30 percent of spilled oil can be recovered by mechanical means.⁶³

The lack of real-time current information can also affect the accuracy of on-water response operations. A system of buoys was deployed during the 1990s in the Santa Barbara Channel and Santa Maria Basin by Scripps Institution of Oceanography, to provide wind and current data for circulation studies. Through a cooperative agreement between MMS and Scripps, and an interagency agreement with NOAA, a monitoring array was deployed in 1999, providing real-time wind and current data. The data was made available on the internet for use in trajectory analysis during oil spill response.^{64, 65} The buoys were removed in October/November, 2004, and real-time current data is no longer available. Some up-to-date oil spill response plans cite the Scripps website for access to real-time current data;⁶⁶ however no plans to resume the real-time current monitoring have been announced.

Recent ocean oil spills, even those as small as the 163-barrel Torch Platform Irene pipeline spill in 1997, have demonstrated that state-of-the-art response equipment, even under the best weather and calm-sea conditions, are not effective in keeping oil off the shoreline. Current state-of-the-art mechanical response equipment cannot effectively protect California's shoreline and marine resources from significant oil spill impacts. The Commission therefore finds that the CCMP standard of "effective containment and clean up" (Coastal Act Section 30232) cannot be met using the on-water containment and clean-up equipment currently available to respond to marine oil spills from oil and gas exploration development offshore California.

Chemical Dispersants

The effectiveness of chemical dispersants can be limited by the characteristics of the oil found in the Pacific OCS oil reserves (especially the heavier oil found in the Sword Unit), as well as rough weather and sea conditions.

⁶² Environmental Protection Agency. *Summary of U.S. EPA OHMSETT Testing 1974-1979*.

⁶³ Michel, Christopherson, & Whipple. *Mechanical Protection Guidelines*. NOAA, USCG, Research Planning, Inc. 1994.

⁶⁴ <http://ccs.ucsd.edu/research/sbcsmb/>; <http://ccs.ucsd.edu/research/sbcsmb/moorings/> Accessed July 15, 2005.

⁶⁵ DEIS, p. 4-46 to 4-48; EID, pp. 4.5-14 and -15.

⁶⁶ PXP Arguello, Inc. *Core Oil Spill Response Plan*. Vol. 1, p. E-1. February, 2004.

The Regional Response Team recently updated its policy for the use of chemical dispersants in federal offshore waters through an updated California Dispersant Plan.⁶⁷ This Plan will become part of the three California Area Contingency Plans. The California Dispersant Plan includes the results of a net environmental benefit analysis conducted for all habitats and species from the California shoreline to 200 miles offshore, and lists the oils commonly tankered into California or produced from its offshore fields. An evaluation of the “dispersibility” of these oils was included. Most oils transported into California by tanker ship have a chemical composition that might, under favorable conditions, make them candidates for chemical dispersion. However, most oils produced from California offshore fields are too heavy, persistent, and non-volatile to be suitable candidates for effective chemical dispersion with the products and resources currently available. Clean Seas has 18,000 gallons of Corexit 9527 – which is marginally effective for some of the lighter OCS crude oil – stored at its Carpinteria yard. However, Corexit 9500, which is the dispersant most appropriate for use on the heavy-grade oil that is produced from the OCS leases, is not stored in California. The closest available supply is in Texas, which could arrive in about six hours by plane. As noted in the EID,⁶⁸ the effectiveness of dispersants decreases the longer the oil is weathered due to emulsification. To be most effective, dispersants must be applied in the first 24 hours of a spill.

The California Dispersant Plan also includes: 1) a description of federal offshore waters “pre-approved” by the RRT for dispersant use, with an accompanying decision-making flowchart and resources to be used by the FOSC to assist her decision, and 2) a description of federal offshore waters for which case-by-case RRT approval must be received before the FOSC can deploy dispersants. Areas pre-approved for dispersant use include all federal waters (more than 3 miles from shore) except those areas within National Marine Sanctuaries (e.g., Channel Islands and Monterey Bay National Marine Sanctuaries). RRT approval on a case-by-case basis is required for State waters, sanctuary waters, and within 3 miles of California-Oregon or California-Mexico borders. Even in areas where the use of dispersants is approved, dispersants cannot be applied directly over marine mammals. The presence of marine mammals may therefore further limit the potential use of dispersants.

In conclusion, factors such as the heavy viscosity of the oil in the OCS reserves, weather and sea conditions at the time of the spill, proximity of marine mammals, and the RRT approval process may severely limit the effectiveness of dispersants as a spill response measure.

*In Situ Burning*⁶⁹

The three California Area Contingency Plans include policies for the *in situ* burning of oil on the water’s surface. RRT “pre-approval” for *in situ* burns exists for waters 35 nautical miles and further from shore. An FOSC decision to conduct an *in situ* burn in waters closer to shore

⁶⁷ Region IX Regional Response Team. *Draft Final California Dispersant Plan and Federal On-Scene Coordinator (FOSC) Checklist for California Federal Offshore Waters*. 2005. 49 pp. + Appendix.

⁶⁸ EID, p. 5.3 -8

⁶⁹ July 11, 2005. Pers. Comm. Addassi, CDFG-OSPR, and Faurot-Daniels, CCC.

requires case-by-case approval from the RRT, in consultation with the regional air board and health department.

The heavy oils produced by California offshore oil fields may, if contained properly, be burnable. The physical and chemical characteristics of this oil may require the addition of accelerants to facilitate combustion, and de-emulsifiers. There is no fire boom stored in California; however, a regular boom could be used sacrificially for *in situ* burning. The presence of marine mammals in the area would preclude *in situ* burning.

As is the case with the use of chemical dispersants, factors such as the heavy viscosity of the oil in Pacific OCS reserves, weather and sea conditions at the time of the spill, proximity to sensitive marine resources, and the RRT approval process may severely limit the effectiveness of *in situ* burning as a spill response measure.

Conclusion

Current state-of-the-art mechanical response equipment, chemical dispersants, and *in situ* burning cannot effectively protect California's coastal resources from significant oil spill impacts. The Commission therefore finds that the CCMP standard of "effective containment and clean up" (Coastal Act Section 30232) cannot be met using the oil spill response strategies currently available. The Commission finds that granting the lease suspensions is inconsistent with the oil spill response requirement of the CCMP (Coastal Act Section 30232). Because the Gato Canyon Unit platform and pipelines would be "coastal-dependent industrial facilities," granting the lease suspensions would presumptively be subject to analysis under Coastal Act Section 30260. See Section 3.10: Coastal Dependent Industrial "Override" Policy of this report, below.

3.2 Marine Resources and Water Quality

The marine resource protection policy of the CCMP (Coastal Act § 30230) states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

The water quality protection policy of the CCMP (Coastal Act § 30231) states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation,

maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

The Gato Canyon Unit leases are 3-5 miles offshore of the Gaviota coast within the Santa Barbara Channel. The extensive marine resources of the Santa Barbara Channel are well documented. The Channel is recognized for its nationally significant natural and cultural resources. The area includes incredible biodiversity due to its location at the confluence of two major ocean currents, the ecological transition zone between cool northern waters and warm southern waters. The Channel contains a convergence of species from both ecosystems and provides habitat for a rich and diverse community of marine life. The area supports large kelp beds and complex intertidal and subtidal communities. The Channel also supports many endangered and threatened species, and Species of Concern, including white abalone, California brown pelicans, gray whales, and northern elephant seals. The Channel is an important migration route for marine mammals such as blue, gray, and humpback whales. For these reasons, in 1980, the federal government established the Channel Islands National Marine Sanctuary. In addition, in 2003, the California Fish and Game Commission created the largest network of marine reserves off the West Coast by setting aside 175 square miles (in 12 separate Marine Protected Areas) within the Sanctuary in which fishing is prohibited. Exhibit 5 of this report documents the array of the Channel's sensitive marine species.

Samedan's proposed shallow hazard survey (to be conducted during the lease suspension period) and hypothetical post-suspension exploration, development, and production activities could significantly harm the Channel's sensitive marine resources and water quality. The following analysis focuses on the potential effects of conducting a shallow hazard survey and the construction, operation, and decommissioning phases of post-suspension activities. The probability of and potential effects from an oil spill are addressed in Section 3.1: Oil Spill of this report.

In this section, the Commission focuses its analysis on six key issues of concern: (1) marine mammals, (2) hard bottom habitat, (3) surfgrass, kelp and other sensitive nearshore resources; (4) marine and coastal birds, (5) ocean discharges, and (6) fish.

Shallow Hazard Survey

Samedan proposes to conduct, during the suspension period, a 3-4 day shallow hazard survey on Lease OCS-P 0460 to obtain information on geohazards associated with a potential delineation (exploration) well. A shallow hazard survey is a high-resolution site survey conducted to investigate the shallow subsurface for geohazards and soil conditions in relatively small areas. A shallow hazard survey is commonly used at the exploratory stage for initial site evaluation for drilling rig emplacement. Geotechnical information is typically collected from the seafloor to a depth of 980-1,475 feet. By contrast, a "3D" seismic survey is conducted to obtain data on geological formations from the seafloor to a depth of several thousand meters. The geotechnical information obtained by a 3D seismic survey is used by the oil and gas industry to assess potential hydrocarbon reservoirs and optimally locate exploration and development wells. The areas covered by 3D seismic surveys are typically much larger than those areas covered by shallow hazard surveys.

The duration of Samedan's proposed shallow hazard survey is 3-4 days on a 1.5 square-mile area of Lease OCS-P 0460 located 4-5 miles from the coast. The depth of the survey below the seafloor ranges from 300-1,200 feet. A single, small 20-in³ air gun would be used as the acoustic source to acquire seismic data. An air gun is designed to project sound downward toward the seafloor, although some sound is also propagated horizontally. Sound intensity is usually expressed in decibels (dB), units for expressing the relative intensity of sounds on a logarithmic scale. Since sound pressure is easier to measure than intensity, sound pressure level (SPL) is usually reported in units of decibels relative to a standard reference pressure. In this report, "dB" is used as shorthand for "dB re 1 μ Pa @ 1 m_[rms] (decibels referenced to 1 micropascal at 1 meter_[rms]). Peak sound pressure for the proposed 20-in³ air gun would be 218 dB. The frequency range of the single air gun is 0-128 Hz, although the generated signal would be roughly constant in amplitude over a frequency range of 8-80 Hz. The air gun would be deployed about 10 feet below the surface, and the hydrophone cables would trail about 820 feet behind the vessel.

Loud seismic pulses can disturb and harm marine resources, particularly marine mammals. Marine mammals are protected under the Marine Mammal Protection Act of 1972. Some marine mammals and all sea turtle species are currently federally listed as endangered or threatened with extinction, and are protected under the Endangered Species Act of 1973. At least 34 species of marine mammals inhabit or visit California waters, including 6 species of pinnipeds (seals and sea lions), 27 species of cetaceans (whales, porpoises, and dolphins) and the sea otter. Of the marine mammals possibly occurring in the Santa Barbara Channel, 6 species of large whales (blue, fin, sei, humpback, northern right, and sperm) are listed as endangered, and two species of pinnipeds (Guadalupe fur seal and Stellar sea lion) and the southern sea otter are threatened under the Endangered Species Act.

Blues and humpbacks feed on krill in the western Santa Barbara Channel during summer and fall. Fin whales, also present during the summer, are found far offshore. Sei and northern right whales are rare in California waters. Sperm whales are present year-round, but tend to inhabit waters with depths greater than 1,000 meters. According to MMS, aerial and shipboard surveys have not documented any sperm whales between 1991 and 2001 within the Santa Barbara Channel. Migrating gray whales and their calves generally travel within 3 kilometers of the shoreline, and are generally absent from Southern California waters from August through November. Beaked whales, rarely sighted, normally inhabit deep ocean waters (>2000 meters) or continental slopes and only rarely stray over the continental shelf. Aerial and shipboard surveys conducted between 1991 and 2001 reported one sighting of a beaked whale approximately 25 nautical miles west of Purisima Point. It's unlikely that beaked whales would be found in the Santa Barbara Channel or the Southern California Bight, except in deep water regions.

Southern sea otters now range in coastal waters from near Half Moon Bay south past Point Conception. Most individuals occur between shore and the 65-foot isobath. Stellar sea lions and Guadalupe fur seals do not breed in the area and are uncommon. Although they exist in California waters, sea turtles are rarely observed or encountered.

Commonly found in the project area are dolphins, California sea lions and harbor seals.

Anthropogenic sound in the sea may have several direct, negative effects on marine mammals, including:

- Physical injury to marine mammals' auditory systems, resulting in temporary or permanent reductions in hearing sensitivity;
- Interfering with marine mammals' abilities to detect calls, pulses, or other important natural sounds (such as the calls of predators);
- Disturbing or altering the behavior of marine mammals; and
- Causing stranding and mortality. Information from recent stranding events suggest that acoustic noise from military sonar, and possibly seismic air gun sources, have potential to cause non-auditory physical trauma to several species of cetaceans, most notably the beaked whales. Intense but intermittent sound pulses produced by air guns might, at a received level of 195-215 dB, cause immediate hearing damage.

In determining acceptable levels of impulsive underwater sound under the Marine Mammal Protection Act, NOAA Fisheries has typically relied on a two-part harassment definition – Level A harassment (injury), occurring at a received level (RL) threshold of 180 dB, and Level B harassment (not causing direct injury, but potentially affecting important biological functions), occurring at 160 dB (and at 120 dB for continuous sound). NOAA Fisheries currently defines these two levels as follows:

1. Level A Harassment – has the potential to injure a marine mammal or marine mammal stock in the wild; or
2. Level B Harassment – has the potential to disturb a marine mammal or marine animal stock in the wild by causing disruption or behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding, or sheltering.

Ample evidence exists that sound levels of 140 dB can cause behavioral responses, and the issue of noise thresholds remains highly controversial. NOAA Fisheries itself is sufficiently aware of the uncertainties and data gaps to the degree it is in the process of developing a matrix, which would reflect species diversity in hearing sensitivities, as well as the different types and durations of impulse sounds. In addition, the Marine Mammal Commission has convened an Advisory Committee on Acoustic Impacts on Marine Mammals, which includes a representative from the Coastal Commission and which will advise Congress on suggested revisions to the Marine Mammal Protection Act, including the following tasks:

- Review and evaluate available information on the impacts of human generated sound on marine mammals, marine mammal populations, and other components of the marine environment,
- Identify areas of general scientific agreement and areas of uncertainty or disagreement related to such impacts,

- Identify research needs and make recommendations concerning priorities for research in critical areas to resolve uncertainties or disagreements, and
- Recommend management actions and strategies to help avoid and mitigate possible adverse effects of anthropogenic sounds on marine mammals and other components of the marine environment.

While these efforts are pending, based on available scientific evidence, NOAA Fisheries presumes that acoustic harassment of marine mammals will not occur below the current Level A and B harassment levels. NOAA Fisheries has adopted 180 dB for all cetaceans, and 190 dB for pinnipeds as the maximum impulse sound pressure level to which these marine mammals should be exposed. The Commission has questioned this difference and generally sought 180 dB as an upper limit for both cetaceans and pinnipeds. As noted below, the MMS is requiring Samedan to use a more precautionary 160 dB threshold for this survey.

The estimated distance to expected received sound levels depends on form of propagation and inclusion of attenuating modifiers. Using an attenuation ($A \log_{10} R$) model (where A = attenuation factor of propagation type, and R = the distance in meters from a sound source to a specific attenuated sound level) recommended by NOAA Fisheries, the MMS concluded the resulting distances to be:

- 190 dB – 80 feet
- 180 dB – 261 feet
- 160 dB – 2,607 feet or 0.50 miles

In calculating these distances, the MMS used a spherical attenuation factor of $A=20$, which it asserts has been verified by existing field data. The MMS is requiring a 160 dB impact (or “safety”) zone (i.e., the air gun is to be turned off if a marine protected species enters this zone). Therefore, the MMS estimates the 160 dB impact zone to be a 0.50-mile radius.

On June 27, 2005, the Environmental Defense Center (“EDC”), on behalf of a group of environmental organizations, submitted a comment letter to the Coastal Commission regarding the Coastal Commission’s consideration of the lease suspension requests. (The EDC’s letter is provided in the attached Correspondence Packet). In that letter, the EDC, in part, asserts that the MMS knowingly used an improper or invalid model for determining underwater sound propagation in its analysis of the effects of the proposed shallow hazard survey, thereby greatly understating the marine mammal “impact zone.” The EDC argues that a cylindrical model, instead of a spherical spread model, is the correct model to use in this case to calculate the impact zone. By applying the cylindrical model, the EDC believes that the “160 dB impact zone” could extend much farther than a half-mile radius. (An excerpt of the EDC’s letter is attached as Exhibit 6).

In a letter dated July 15, 2005, to Commission staff, the MMS stands by its use of the spherical spread model (Exhibit 7). The MMS believes that the spherical spread model, using $20 \log R$, is the appropriate model for use in the Santa Barbara Channel and Santa Maria Basin because it is

based on empirical data available from *in situ* sound verification studies (an Exxon 1995 Santa Ynez Unit sound propagation study and an Exxon 1998 Platform Harmony sound propagation study). The MMS's letter states the following:

Sound transmission loss in water is affected by many physical variables. Consequently, there are a number of simple and complex models available to predict that loss. Over the last 10 years, MMS applicants and the U.S. Geological Survey, have used the spherical spreading model in their environmental documentation for seismic surveys conducted offshore southern California. While there are other sound transmission loss models available, MMS determined that results from sound transmission loss verification studies conducted on previous seismic surveys in southern California support the use of the theoretical spherical spreading model in the project area. This is stated in both the Samedan (Gato Canyon) and the Aera (Santa Maria Basin) EA's.

*In January 2005, after attending a presentation about cylindrical spreading models, MMS consulted with several underwater acoustic experts to better understand cylindrical spreading loss and to ensure that we used the appropriate model in assessing sound transmission loss. In our discussions, it was suggested that the cylindrical spreading modeling may be appropriate when empirical data are not available. However, given all the physical variables, it was confirmed that the best estimate for determining sound transmission loss is modeling that is based on empirical data. This was also a recommendation from the High Energy Seismic Survey (HESS) Team. Based on the empirical data available from *in situ* sound verification studies, MMS determined that the spherical spreading model, using 20 log R, would be appropriate and conservative (protective) for use in the Santa Barbara Channel and Santa Maria Basin.*

We conducted our discussions with scientists from NOAA Fisheries Service; Dr. Charles Greene, Greeneridge Sciences, Inc.; and Dr. Aaron Thode, UCSD. Empirical data are available from two field verification studies that were conducted in the Santa Barbara Channel: (1) BBN Acoustic Technologies, 1995. Exxon SYU sound propagation study. BBN Report No: 8120; and, (2) Greeneridge Sciences, Inc. 1998. Sound levels of an airgun array operating at Platform Harmony on 17 March 1998. Report 2006-2. Dr. Roger Gentry, NOAA Fisheries Service, and Dr. Greene confirmed that empirical data was considered to be superior to theoretical model results whenever such data are available.

Use of the spherical spread model in the open ocean is consistent with past Commission practice – for example, the Commission concurred with the use of this model in several recent consistency determinations, including CD-14-02, CD-16-00, and CD-32-99, all for seismic surveys to be conducted by the U.S. Geological Survey in waters off of Southern California from the nearshore out to about 20 miles. However, according to Dr. Greene, the question of which model to apply is complicated and dependent on site-specific factors; thus, there is a high degree of uncertainty about which model works better in different environmental conditions.⁷⁰ When

⁷⁰ Pers. Comm. between Alison Dettmer, Coastal Commission staff, and Dr. Charles Greene, Greeneridge Sciences, Inc., July 22, 2005.

there is a question about the appropriateness of a model used and therefore the size of the marine mammal safety zone, an operator can use during the first day of the survey an array of hydrophones placed at different depths and distances to verify the model's results. This field verification of the model would allow Samedan and the MMS to calibrate predicted results with actual field conditions and then adjust accordingly the 160 dB impact zone. On July 21, 2005, the Commission staff requested that the MMS require field verification during the first day of the survey.⁷¹ As of the issuance date of this report, the MMS has not agreed to provide field verification. The Commission believes that without field verification, there remains a serious question as to whether the proposed 0.50-mile 160 dB impact zone is sufficient to protect marine mammals.

Nonetheless, Samedan is proposing, and the MMS is requiring, a number of other mitigation measures, many selected from the guidelines developed by the High Energy Seismic Survey (HESS) Team. The HESS Team, convened in 1999 and composed of federal, state and local agencies, industry, and environmental interest groups, has prepared interim operational guidelines for high-energy seismic surveys. The guidelines were prepared for 2D and 3D seismic surveys that employ multiple air guns. For this survey, the MMS used selected HESS guidelines to develop mitigating measures for impacts associated with a single air gun for the shallow hazards survey. These measures include:

- The survey would be conducted *during daylight hours only* within the mid-October to mid-December window to minimize impacts to large whales (gray, blue, fin, and humpback), as this period lies outside of, or is on the cusp of, their predictable periods of occurrences within the survey area.
- Samedan shall establish a 160 dB impact zone (estimated to be 0.50 miles) around the air gun.
- Samedan shall use two NOAA Fisheries-approved observers during all air gun operations. Samedan shall ensure that observer watches last longer than 4 hours (and 2-3 hour watches are recommended). Monitoring will begin at least 30 minutes before the air gun is turned on. The air gun will be ramped up (at a rate not to exceed 6 dB per minute to operating level) to allow marine protected species that may have been missed by the observers to move away. The air gun shall be shut down if marine protected species are observed within or appear likely to enter the 160 dB impact zone.
- If the impact zone or survey area cannot be adequately monitored due to weather conditions (e.g., fog) or sea state (greater than Beaufort 4), all operations will be delayed until conditions improve.
- Samedan shall log all sightings of marine protected species. Data to be recorded includes the species, numbers, and behavior observed, the estimated number of animals that may have entered the 160 dB impact zone, any air gun shutdowns due to marine protected species migrations, and any behavioral responses to vessel or survey activities. Samedan is to notify the MMS on a daily basis of any sightings data made that day, and the steps that Samedan has taken /is taking to avoid affecting adversely protected species.

⁷¹ Pers. Comm. between Alison Dettmer, Coastal Commission staff, and Maurice Hill, MMS staff.

- Samedan shall submit to the MMS and NOAA Fisheries, no later than 60 days after completion of survey operations, a report of all sightings and data collected. An analysis of the effectiveness of the mitigation measures and recommendations for improving mitigation measures required to protect marine protected species shall also be included in the report. Within two weeks of submitting the report to the MMS and NOAA Fisheries, Samedan shall submit the report to the Coastal Commission.

For this short survey, the MMS is not requiring Samedan to conduct aerial surveys. The 1999 HESS guidelines recommend that aerial surveys be conducted for seismic surveys lasting 7 days or longer in duration *and* when marine mammals that have been identified as first or second priority species of concern are known to be present in substantial numbers in or near the survey area. First priority species include gray, blue, humpback, and fin whales. Second priority species include the sperm whale (absent from the survey area) and baleen whale species. Aerial surveys would be required if a survey is undertaken during the gray whale migration period (approximately mid-December through mid-May) and when blue and humpback whales are present and foraging in the Santa Barbara Channel and Santa Maria Basin (roughly June to October). Since the MMS is limiting the survey to the mid-October through mid-December window, it determined that aerial surveys are not needed. The Commission agrees that due to the short duration of this survey, its timing, and implementation of onboard marine protected species observer requirements, aerial surveys need not be required.

The MMS also is not requiring the use of passive acoustic monitoring for this survey. Passive acoustic monitoring uses hydrophones, which can be towed or stationary, to record animal sounds and determine where they come from. For animals that regularly vocalize, a hydrophone system can track the animals from a distance, and measure both their patterns of movement and patterns of sound production. It can also be used to determine whether a sound source is affecting the behavior of marine mammals, as well as to detect animals underwater and not visible to surface observers. Passive acoustic monitoring technology is therefore only functional for vocalizing animals, such as some baleen and toothed whales, dolphins and porpoises, and pinnipeds. It does not appear to be useful for detecting sea otters or sea turtles. Multiple hydrophones are needed to triangulate and determine an animal's location.

A 2004 MMS report, *Geological and Geophysical Exploration for Mineral Resources on the Gulf of Mexico Outer Continental Shelf*, notes, "Although the hardware and software for passive acoustic monitoring are available and technologically advanced, compete integrated systems specifically designed and validated for use with marine mammals during seismic surveys are not. Systems for detecting and recording sounds from marine mammals and determining their bearing and distance relative to the receiver are readily available. However, systems that can provide real-time information to allow operational decisions to be made during a seismic survey are limited."

Due to its substantial cost, and its limitations during seismic surveys, the HESS guidelines do not recommend passive acoustic monitoring as a standard mitigation protocol. It does, however, suggest that passive acoustic monitoring be considered if there is evidence that sperm whales may be present in a survey area. A 1997 study indicates that sperm whales may be detected

more effectively by a towed passive acoustic array than by shipboard observers. However, given that (1) sperm whales and beaked whales are not known to occur at Samedan's proposed survey area and that (2) passive acoustic monitoring systems capable of providing real-time information to adjust operation decisions are limited, the MMS is not requiring its use for this survey. Given the relatively short duration of the survey, and relatively low maximum intensity for seismic surveys, the Commission believes this approach is warranted in this situation.

Fish or shellfish eggs and larvae could also be damaged or killed if exposed to intense acoustic energy at very close range. The MMS states that 2003 investigations found that acoustic energy/sound from an air gun at or above 180 dB may temporarily or irreversibly damage hearing in fish, which could lead to sub-lethal behavioral changes and potential death. These studies were based on *caged* fish, however, and researchers note that both juvenile and adult fish in the open ocean would move beyond the potentially lethal and sub-lethal range of an air gun. The required ramp up period will alert fish and should provide sufficient time for fish to move beyond the potentially sub-lethal range (at or above 180 dB) of an air gun where hearing may be impaired. The acoustic pulse from air guns appears to have relatively little effect on marine invertebrates (sea stars, sea urchin, abalone, sea cucumber, etc.) and shellfish (shrimp, prawn, lobster, crab, etc.) presumably due to their lack of a swim bladder.

Post-Suspension Exploration, Development and Production Activities

Marine Mammals

Four groups of marine mammals are found in the Santa Maria Basin and Santa Barbara Channel: (1) mysticetes, or large baleen whales; (2) odontocetes, or toothed whales (which include sperm whales, dolphins, porpoises, and beaked whales); (3) pinnipeds (which include true seals, eared seals, sea lions, and fur seals); and (4) muselids (sea otters). The marine mammal population includes eight baleen whale species; more than 20 species of porpoises, dolphins and other toothed whales; six species of pinnipeds; and the sea otter. Some species are migrants that pass through southern and central California on their way to calving or feeding grounds elsewhere, some are seasonal visitors that remain for a few weeks or months, and others are resident for much or all of the year. At certain times of the year, hundreds of thousands of marine mammals may be present.

Construction activities associated with platform, pipeline, and power cable installation may affect resident and migrating marine mammals. In general, marine mammal reactions of offshore construction activities involve making temporary course changes around construction activities; impacts therefore tend to be temporary and localized. Typically, the MMS and other permitting agencies prohibit offshore and nearshore construction activities during the winter gray whale migration period. Also, it has been the Commission's practice to require ongoing marine mammal monitoring and the observance of marine mammal "safety" zones (including shipboard observers and aerial surveys) to minimize any harm to marine mammals and other sensitive species during offshore construction projects (e.g., fiber optic cable installation, pipeline repairs).

Any adverse effects to marine mammals due to ongoing platform operations would be noise generated by drilling activities. Although the sound levels produced by conventional drilling rigs are relatively low (about 154 dB in the 10 to 500 Hz band), underwater noise is a concern. The

platform removal phase also raises marine mammal concerns due to the potential use of explosives to remove platform jackets. Although explosives are typically placed below mudline (below the seafloor) removing these massive structures could require large amounts of explosives. Marine mammals in the area could be killed or significantly harmed by blast effects.

Hard Bottom Habitat

Hard substrate (also commonly referred to as "hard bottom") areas are exposed rocky substrates that provide habitat for a diverse assemblage of plants and animals. Hard substrate, as compared to "soft," sandy bottom areas, is rare along the southern California coast. Hard substrates, including rocky bottoms, rock outcrops, and rock crevices, provide a nursery ground, food, and shelter for numerous sessile organisms, demersal fish, and mobile invertebrates such as lobsters and crabs. In shallow waters (less than 200 meters), algae and anemones are present. In deeper waters (greater than 600 meters), hard substrate supports amphipods, polychaetes, gorgonians, large sponges, shrimp, brittle stars, and seastars. Epibota residing on rocky substrates are sensitive to disturbance and increased sediment loads. Significant impacts to rocky substrate (e.g., crushing of rock, burial of epibota, and other disturbances) can occur due to anchoring activities, placement of platforms, installation of pipelines and power cables, platform discharges, and eventual removal of the structures.

The EID states that the northern half of lease OCS-P 0460 is hard substrate. Lease OCS-P 0460 is the proposed location for the temporary Mobile Offshore Drilling Unit ("MODU") (to drill the one delineation well), the platform, and pipelines. Neither the EID nor the MMS's consistency determination provides any information on whether hard substrate is found within the State lease through which the three pipelines and two power cables would pass to their onshore landing sites. The Commission staff, in its April 22, 2005 letter to the MMS, requested that the MMS provide additional information on the location of hard substrate within the project area, and an assessment of whether it can be avoided. In its June 23, 2005, response letter to Coastal Commission staff, the MMS states that there may be patchy hard bottom close to shore and concludes that post-suspension activities will likely cause unavoidable hard substrate impacts due to anchoring associated with the pipelaying barge (unless a method is available that would not require anchors).

Although the MMS does not address the potential specific effects of the MODU or platform on hard bottom, it implies that the MODU and platform can be sited on sandy bottom and therefore avoid hard bottom. If feasible, the MMS requires that platforms be sited at least 3,280 feet from identified hard bottom habitat. If a platform is sited within 1,000 feet of hard bottom, discharges associated with the platform (such as muds and cuttings) will result in smothering of organisms and a significant adverse impact. If a platform sits within 1,000-3,280 feet of hard bottom, the severity of the impact would depend on factors such as water depth and current direction. The MMS states that if Samedan proposes in the future activities that could affect hard bottom habitat, it would require a "full biological survey" along with mitigation of any potential impacts. Other than siting structures away from hard bottom, the MMS does not describe what other mitigation it may require.

Although the Commission does not have benefit of a site-specific hard bottom survey, there is enough information available at this time to conclude that future post-suspension activities, particularly due to pipeline construction, will cause unavoidable and adverse impacts to hard bottom habitat.

Surfgrass, Kelp, and Other Nearshore Sensitive Resources

As described above, the MMS's post-suspension development scenario for the Gato Canyon Unit contemplates three new pipelines connecting a new platform with the existing onshore Santa Ynez Unit oil and gas processing facility. The pipelines would come onshore at the same landing as the existing Santa Ynez Unit pipelines (which connect Santa Ynez Unit's three platforms with the onshore processing facility). Construction of the Santa Ynez Unit pipelines and power cables resulted in loss of surfgrass (*Phyllospadix spp.*) through the pipeline/power cable corridor.

Surfgrass is a long-lived, slow-growing marine angiosperm (i.e., flowering plant) that forms dense beds in the inter-tidal and sub-tidal zones on rocky substrates. Surfgrass is also known to provide important nursery and rearing habitat for a number of commercial and recreational species of fish and invertebrates such as the spiny lobster, rock crab, kelp bass, and permit. Because of its important role in the early life stages of these and other species, the Coastal Commission, State Lands Commission, and County of Santa Barbara required the Santa Ynez Unit operator to implement a surfgrass restoration program at the mouth of Las Flores Canyon/Corral Creek. After implementing the restoration program, the agencies required the operator to monitor the restoration area for four years. The restoration program was not successful; many of the transplants did not survive. Surfgrass is difficult to restore. If the rhizome (root) systems remain viable, then recovery following disturbance can be rapid; recovery is long, however, if the entire bed is lost because recruitment is irregular. Installing additional pipelines along this nearshore stretch of coast could result in a long-term of permanent loss of surfgrass.

Kelp beds are also found in the shallow water area where the pipelines and power cables to be installed. Kelp beds are important because they provide vertical water column habitat for many types of adult and juvenile fish, marine mammals such as the sea otter, and other marine animals. Kelp beds are located in the photic zone (20-30 foot water depth), that is, where the sunlight penetrates the water. Kelp beds were also damaged during installation of the Santa Ynez Unit pipelines and power cables. A new nearshore pipeline and power cable crossing would cause further damage to kelp. Similar to surfgrass, if the rhizome systems remain intact, kelp recovers quickly. If the rhizomes are destroyed, kelp recovery, while generally more successful than surfgrass, can also be difficult.

Trenching the beach and laying pipelines and cables through the surf zone and out to a new platform will therefore likely cause unavoidable significant impacts to surfgrass, kelp and other marine plants found in the nearshore project area. If damaged or destroyed, their recovery through implementation of post-construction restoration programs is questionable.

The MMS notes that Samedan may be able to use horizontal directional drilling (commonly referred to as "HDD") to bore pipelines and power cables *under* the beach and surf zone. In recent years, fiber optic cable companies have used HDD to install cable from an onshore site to offshore waters (surfacing a half-mile or more offshore). If feasible, use of this technology can result in avoiding, or greatly minimizing, nearshore affects to sensitive marine resources like kelp, surfgrass, and rocky intertidal areas. It's questionable, however, if HDD technology can successfully be used for large diameter pipelines. If Samedan were to come forward in the future with a Development and Production Plan for a new platform and pipelines, the Commission would require an evaluation of the feasibility of using HDD to install the pipelines in lieu of a traditional beach crossing.

Marine and Coastal Birds

The marine and coastal bird populations of southern California are diverse and complex, and include about 195 species. Many of these birds are protected under the Migratory Bird Treaty Act of 1918, which is enforced by the U.S. Fish and Wildlife Service. Threatened and endangered birds are protected under the Endangered Species Act. Of the many types of birds that occur in the project area, MMS concludes that two groups are generally the most sensitive to the potential impacts of oil and gas development: seabirds (e.g., loons, grebes, shearwaters, sea ducks, and gulls) and shorebirds (e.g., sandpipers and plovers). Other types of birds, such as waterfowl and marshbirds (e.g., herons and egrets) may be vulnerable when they occupy coastal wetlands and estuaries. While some breed in the area, others spend their non-breeding or "wintering" period there or pass through during migration.

The most danger to birds is an oil spill (which is addressed in the Oil Spill section (Section 3.1) of this report). In addition, helicopter flights associated with offshore platforms can disturb birds. According to the MMS, 8-10 offshore oil and gas-related helicopter trips occur now daily. Helicopter traffic will increase if undeveloped OCS leases are developed. The most sensitive to helicopter traffic are likely nesting birds, especially those that nest on cliffs and offshore rocks. Low-flying aircraft, especially helicopters, can disturb nesting birds, causing them to leave their nests unattended. Although the adult(s) may be absent from the nest for only a short period of time, eggs and nestlings may be lost either due to exposure or predators, such as western gulls.

Well abandonment and platform removal could also harm seabirds. The delineation well proposed at Gato Canyon will need to be permanently plugged and abandoned. As part of the abandonment process, the casings for this well would be cut mechanically or with explosives. To remove a fixed platform structure, such as that contemplated for the Gato Canyon Unit, explosives are typically used to remove the platform's legs. Explosive charges for well abandonment would be set off 15 feet below the seafloor, which dampens the effect of the blast and reduces the area in which birds could be injured or killed. For platform removal, discharges are also typically used below mudline (below the seafloor). A bird would likely need to be directly below the mobile offshore drilling unit ("MODU") or platform to be affected by explosives use.

Fish

Fish are likely to be adversely affected by post-suspension exploration, development, and production activities mainly due to habitat disturbance (e.g., rocky substrate, kelp, surfgrass), discharges, and platform decommissioning (i.e., removal).

Construction-related habitat impacts, and the potential effects to fish that may result from operational discharges, are discussed in other subsections above and below. The decommissioning of a platform typically involves use of explosives to remove the fixed platform "jacket" (i.e., the large subsea structure that sits on the seafloor). Use of explosives can kill many fish. The extent of fish kills depends on the type, amount, and location of explosives. Typically, before detonation of the charges, a bubble curtain is placed around the area to create a continuous stream of bubbles around the perimeter of the project area thereby reducing the effects of the explosion on fish. The bubble curtain will also produce enough underwater noise and visual activity to reduce the number of fish within the area before detonation. While use of bubble curtains may lessen fish kills, they do not eliminate them.

Ocean Discharges

Discharges associated with future exploration, development, and production of the Gato Canyon Unit could adversely affect water quality and marine resources (e.g., fish, marine mammals). A variety of discharges are associated with offshore oil and gas activities, including muds and cuttings, produced water, well treatment, completion and workover fluids, deck drainage, and sanitary/domestic wastes. Drilling muds and cuttings and produced water contain heavy metals and several toxic chemicals, including arsenic, PCBs, benzene, mercury, and hexavalent chromium.

The MMS estimates that over the life of the Gato Canyon project, Samedan would discharge 193,000 barrels of muds, 68,000 barrels of cuttings, and 39 million barrels of produced water. Cumulatively, if all undeveloped leases are fully developed, the MMS estimates 199 total wells drilled over a period of 13 years, discharging up to 2.8 million barrels of drilling muds, 627,000 barrels of cuttings, and 896 million barrels of produced water. These figures do not take into account discharges from existing platforms.

The Environmental Protection Agency ("EPA") regulates OCS oil and gas-related effluents through issuance of a National Pollutant Discharge Elimination System ("NPDES") permit. EPA NPDES permits, including those for OCS oil and gas platform discharges, are "listed" federal permits in the CCMP and subject to the federal consistency review requirements of the Coastal Zone Management Act ("CZMA").

Discharges associated with exploration wells (such as the delineation well contemplated at the Gato Canyon Unit) would fall under the effluent requirements of new General NPDES Permit CAG280000, which EPA submitted and the Commission concurred with on January 9, 2001, and which has been in effect since December 2004.⁷² This new 5-year General NPDES permit

⁷² Although platform operators are currently discharging under the requirements of General NPDES Permit CAG280000, the Western States Petroleum Association has challenged this permit in court. (*Western States Petroleum Association v. Nastri*, No. 04-75605 (9th Cir.))

covers discharges from *existing* OCS oil and gas platforms and oil and gas exploration activities. It imposes more stringent discharge requirements than the former NPDES permits that were in effect for platforms.

Notwithstanding stricter effluent discharge requirements contained in the new General NPDES permit, platform operators continue to discharge toxic pollutants into the ocean from muds and cuttings, produced water and other wastes. In its concurrence with the new General NPDES permit (Consistency Certification CC-126-00), the Commission made clear its concern that scientific research on the effects of oil and gas wastes on marine resources and water quality is inconclusive, and that the mass of, and toxic concentrations in, projected discharges, both individually and cumulatively may still damage the biological productivity of coastal waters. It found that the discharges (1) may reduce the long-term productivity of certain marine species to a level below that necessary to sustain healthy populations; (2) potentially contaminate or cause changes in fish species that dwell near the platforms; and (3) cause cumulatively significant adverse impacts, such as chronic sublethal effects.

The Commission therefore found that the discharges that occur under the new NPDES permit are inconsistent with the marine resource, water quality, and cumulative impact policies of the CCMP. The Commission nevertheless applied the "override" provision of the CCMP (Coastal Act Section 30260) for coastal-dependent industrial development activities and concurred with the new General NPDES permit, finding that it met the tests of 30260, because (1) alternative locations were infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects would be mitigated to the maximum extent feasible.

As stated above, discharges associated with Samedan's proposed delineation well are covered under existing NPDES Permit CAG280000. However, the EPA would require Samedan to apply for a separate NPDES permit for a new platform. That new NPDES permit would require separate review and concurrence by the Coastal Commission under the federal consistency requirements of the CZMA. Through that review, the Commission will have the ability to assure that future discharges will be performed in a manner consistent with applicable Coastal Act requirements.

Conclusion

As discussed above, the proposed shallow hazard survey and reasonably foreseeable post-suspension activities could result in significant adverse effects that may not be able to be mitigated in a manner that results in protection of the Santa Barbara Channel's sensitive marine resources and water quality. The Commission therefore finds that granting the lease suspensions is inconsistent with the marine resource and water quality policies of the CCMP (Coastal Act Sections 30230 and 30231). Because such suspensions, if granted, would lead to or result in the construction of new "industrial facilities" that are "coastal-dependent," the proposed project is presumptively subject to analysis under Section 30260 of the Coastal Act. See Section 3.10: Coastal-Dependent Industrial "Override" Policy of this report, below.

3.3 Placing Fill in Coastal Waters

The “fill and dredging” policy of the CCMP (Coastal Act § 30233(a)) states in part:

The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- (1) *New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*

CCMP Section 30108.2 defines “fill” as “earth or any other substance or material ... placed in a submerged area.” Reasonably foreseeable post-suspension period activities, including anchors used for a mobile offshore drilling unit (“MODU”) and placement of a platform, pipelines, and power cables on the seafloor, constitute fill under this definition. CCMP Section 30233(a) allows the placement of fill in open coastal waters if three tests can be met. The first test requires the proposed activity to fit into one of eight categories of uses enumerated in CCMP Section 30233(a)(1)-(8). The second test requires that there be no feasible less environmentally damaging alternative. The third and last test mandates that feasible mitigation measures be provided to minimize the project’s adverse environmental effects.

Allowable Use Test

The subject fill is proposed for a new energy project, which is an allowable use under the CCMP’s fill policy. The Commission thus finds that the first test of Section 30233(a) is satisfied.

No Feasible Less Environmentally Damaging Alternative

After qualifying as an allowable use, the Commission must find that there is no feasible and less environmentally damaging alternative to the fill. Coastal Act Section 30201 defines “feasible” as “...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” This test generally requires consideration of alternatives to fill or, if fill is unavoidable, consideration of alternative locations, configurations, or materials that would reduce its damaging effects.

During exploration, Samedan needs to use a MODU to drill the one delineation well. The fill associated with this activity is the use of anchors to hold the MODU in place (for an estimated 92 days). The anchors would be temporary and any alternatives would likely require greater amounts of fill. The Commission thus finds that the “fill” proposed for exploration activities is the least environmentally damaging feasible alternative.

However, Commission staff has identified some possible alternatives to platform and pipeline construction that, if feasible, could eliminate fill altogether or at least minimize the amount of it. Given advances in extended reach drilling technology, is it feasible now, or might it be in the near future, for Samedan to access Gato Canyon oil and gas using existing Platform Hondo? In

such an alternative, Gato Canyon Unit oil and gas would be commingled with ExxonMobil's Santa Ynez Unit production and brought onshore via existing pipelines for delivery to the Santa Ynez Unit's onshore processing facility. Additionally, since the Gato Canyon Unit is relatively close to shore (4-5 miles from the coast), could Samedan produce the oil and gas from an onshore site? Either of these alternatives, if feasible, would eliminate the need for a new platform, pipelines, and power cables. If a new platform structure is determined to be necessary to develop the Gato Canyon Unit, another potential alternative to is to use a semi-submersible or floating ship instead of a fixed platform. Using a semi-submersible or floating ship, which are tethered to the seafloor using cables and anchors, would require less ocean "fill" than a traditional fixed platform. In its letter of April 22, 2005, to the MMS, the Commission staff requested that the MMS evaluate the feasibility of these alternates. In its June 23, 2005, response letter to the Coastal Commission, the MMS declined to do so, stating,

It is conceivable, that with advancing extended-reach technology, the Gato Canyon Unit could be produced from an alternative location, including an existing platform, or, from shore, if geologic and economic conditions are right; however, for the EID, the hypothetical scenario analyzed production from a new platform. Specific details regarding development of the Gato Canyon Unit will be provided by the operator of the Gato Canyon Unit pursuant to §307(c)(3) of the CZMA if and when they submit their consistency certification with their DPP [Development and Production Plan] for the Gato Canyon Unit.⁷³

The MMS acknowledges that it is "conceivable" that Gato Canyon oil and gas could be developed by means other than installing a new platform and associated infrastructure. It nevertheless argues that such an analysis be provided by the lessee at the future Development and Production Plan stage. The Commission believes strongly that an evaluation of alternatives to a new platform is warranted now as part of the lease suspension review stage. In other sections of this report, the Commission examines the potentially significant short- and long-term individual and cumulative adverse marine resource, water quality, commercial fishing, visual, public access and recreation, terrestrial biology, and oil spill effects caused by new platform and pipeline construction, operation, and decommissioning. If the Gato Canyon Unit can be developed by a means other than a new platform, many significant adverse coastal impacts are either eliminated or greatly reduced. Therefore, the potential for feasible alternatives to the "hypothetical" future new fixed platform scenario is a critical question that must be addressed by the MMS now.

Without a thorough analysis of potential alternatives to "fill," the Commission cannot find that there is no feasible, environmentally preferable alternative to fill. Therefore, the Commission finds that it lacks information to evaluate the lease suspensions for consistency with the second test of the fill policy of the CCMP.

⁷³ June 23, 2005 Letter from MMS to Coastal Commission, p.93.

Fill Impacts Mitigated to the Maximum Extent Feasible

The final requirement of CCMP Section 30233(a) is that filling of open coastal waters may be permitted if feasible mitigation measures have been provided to minimize any adverse effects of fill. As discussed above, the Commission has identified potential alternatives that, if feasible, could eliminate the need for the placement of fill in coastal waters. The Commission does not need to reach a conclusion as to whether the effects of fill are mitigated to the maximum extent feasible since it lacks at this time information necessary to make a determination if fill is even necessary.

Conclusion

Without the information required by the second test, the Commission finds it does not have enough information to evaluate if the granting of the lease suspensions is consistent with the CCMP's fill policy, Coastal Act Section 30233(a).

3.4 Commercial Fishing

The marine resource protection policy of the CCMP (Coastal Act § 30230) states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

The commercial fishing policy of the CCMP (Coastal Act § 30234.5) states:

The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

The Gato Canyon Unit is located within two California Department of Fish and Game ("CDFG") Fish Blocks, 654 and 655, encompassing a 164 square mile area. Historically the area has been fished using several gear types targeting multiple species: (1) purse seine for coastal pelagics such as sardines, northern anchovy, mackerel, and market squid; (2) trawl for Pacific ocean shrimp, sole, flounder, and halibut; (3) hook and line/longline for rockfish and other rocky outcrop fish; (4) trap for crab and lobster; (5) drift/set gillnet for shark and swordfish; and (6) troll for albacore and tuna. Fishing occurs on a seasonal, quota and trip limit basis, and in response to market forces. Drift and set netting and trawling are the most common gear types within the project area. Occasional purse seining operations for wetfish, and large salmon and albacore in the troll fishery occur in the area. Hook and line fishing occurs along the hard bottom areas inshore of the Gato Canyon Unit area. According to the EID, the following fisheries are active every year in the Gato Canyon Unit area out to Point Conception:

- From August through January the drift gillnet shark fishery occurs outside the 3-mile limit from shore.

- From October 1 through May 30, ridgeback shrimp are fished in water depths of 540 feet and shallower.
- From February 1 through November 1, spot prawns are trawled between 510 and 840 feet.
- During the winter, sea cucumbers are trawled between 360 and 540 feet.
- During the summer, sea cucumbers are trawled from the 1-mile line out to 240 feet.

Shallow Hazard Survey

Vessel traffic, survey-associated obstructions, and space-use conflicts could cause lost fishing time or damage to fishing gear due to Samedan's proposed 3-4 day shallow hazards survey. Acoustic energy/sound from air gun could cause behavioral changes in target species that could make them more difficult to catch after the survey's completion. Overall, these effects have the potential for cause a financial hardship on commercial fishers.

Preclusion

The survey is expected to result in a temporary, minor increase in area vessel traffic. Samedan has committed to comply with traffic corridors established by the Joint Oil/Fisheries Liaison Office ("JOFLO") when going to and from the project area. The 3-4 day survey will restrict other vessel activity, including all commercial fishing, within the 1.5 square-mile survey area. Preclusion from the survey area will cause a short-term impact on commercial fishing. Samedan has proposed to work closely with JOFLO and implement a number of measures to minimize commercial fishing impacts, including:

- Consulting with JOFLO to identify and then meet with commercial fishing fleets that may want to fish in the area at the time of the survey. Samedan will provide affected fishers and JOFLO with information describing the timing and location of the survey in writing at least 30 days prior to the survey and verbally three days prior to the survey;
- Contacting JOFLO prior to vessel arrival at the project area to confirm that fishing fleets are not present or expected at the survey area; and
- Scouting the survey area to ensure fishing (like the salmon fleet) is not being conducted.

In addition, the MMS will require Samedan to:

- File an advisory with the Coast Guard for publication in the Local Notice to Mariners at least 14 days before commencement of survey operations;
- Notify MMS on a daily basis of any conflict or contact with commercial fishermen and the steps Samedan has taken/is taking to resolve any conflicts during and after the survey;
- Use a scout boat captained by a local, knowledgeable fisherman to avoid conflicts including fixed gear trapping and other OCS users; and
- Attend the Western States Petroleum Association's Fisheries' Training Program.

Acoustic Energy/Sound

As discussed in the Marine Resources section of this report (Section 3.2), the shallow hazards survey will emit a sound intensity level of 218 dB. Fishermen are concerned that behavioral

changes may cause fish to be less vulnerable to capture. A decrease in catchability of target species would cause a short-term impact on commercial fishing.

There is well-established evidence to demonstrate that fish distribution and feeding behavior can be affected by sound emitted from air gun arrays. This can potentially drive fish away from fishing grounds or reduce their inclination to bite on a baited hook. The Environmental Assessment for the shallow hazard survey summarizes the results of studies that assess effects of high-level sounds on fish. The MMS reports, for example, no changes were observed in the catch rate of prawns before and after a 1991 seismic survey conducted off the southwest coast of Australia. It appears that the acoustic impulse from air guns has relatively little effect on marine invertebrates and shellfish, presumably due to their lack of a swim bladder. Based on these findings, a single air gun would not have an effect on the catchability of prawn/shrimp, lobster, crab, sea urchin, or sea cucumber.

For those species that have swim bladders, there may be effects on catch-rates due to fleeing the sound source, dispersion, etc. The catchability of rockfish, coastal palgics, albacore, and salmon could be temporarily affected for a short period. The MMS concludes that the true areal extent of decreased catchability is difficult to quantify, but indications are that it extends about 6 miles from the center of a seismic survey sound source. Considering the size of the proposed survey, a possible decrease in catchability would extend over most of the CDFG Fish Blocks 654 and 655. The time of decreased catchability is difficult to quantify, but the MMS estimates it could last at least 5 days from a 3D seismic survey with multiple air guns that lasts several weeks. The MMS states, "Without any supporting studies to the contrary, a reasonable conservative estimate may be that catchability would return to normal from the Samedan 6-hour, shallow hazards survey, using a single air gun within one day." A 1-day decrease in catchability within Fish Block 654 and 655 would constitute less than 10 percent of the annual landings/catch value. The MMS therefore concludes that this impact is temporary and not significant, and the Commission agrees.

Nevertheless, the Environmental Assessment details a number of Samedan-proposed measures to avoid or minimize conflicts with commercial fishing during survey operations. Amongst other measures, Samedan proposes to work with JOFLO and representatives of potentially affected fishing fleets to schedule the survey at a time that minimizes impacts to commercial fishing (e.g., scheduling the survey when the salmon fishing fleet is *not* in the area). It will also require that contractors use a scout boat captained by a local, knowledgeable fisherman to avoid conflicts with commercial fishermen including fixed gear (trap) fishing. At least 90 days before survey commencement, Samedan will submit for the MMS's approval a Fisheries Contingency Plan to include details of Samedan's coordination with JOFLO and the affected fishing fleets. No later than 60 days following survey completion, Samedan will submit to the MMS a final report on its success or failure of its plan to avoid or minimize conflicts with commercial fishing.

The Commission believes that with implementation of the above-described measures, commercial fishing will be protected during survey operations.

Post-Suspension Exploration, Development and Production Activities

The trawl fishery and drift gill net fishery would likely suffer the most impacts from future exploration and development activities on the Gato Canyon Unit. Also, the hook and line fishery would be precluded from within the MODU anchor spread (moored with 8 anchors). The MMS concludes that it is not possible to predict whether the troll and purse seine fisheries would be active in the area due to the widespread movement of the fish involved in these fisheries.

The area encompassed by the Gato Canyon Unit represents prime thresher shark drift net grounds. Activity on the Unit between August and January would adversely affect this fishery, especially if the MODU were on site for 45-90 days of this season. The hook and line rock cod fishery possibly occurs within the anchoring area of the MODU and would therefore be displaced from this area as long as the MODU is on location.

Constructing a platform, associated pipelines and power cables within Lease OCS-P 0460 would have similar, but longer period, commercial fishing effects as the delineation drilling. Impacts would include preclusion of trawling, set netting, and trap fisheries during the time needed to complete the construction activities. Once in place, the platform would permanently reduce available fishing grounds within a 0.25-mile radius area around the platform.

If these leases are explored and developed, space-use conflicts and preclusion will increase over present levels. Within the Santa Maria Basin and Santa Barbara Channel combined, the total area for fishing preclusion for drift gillnetting due to the presence of platforms located in federal waters is currently 17.6 square miles. If several offshore projects were to overlap in time and space during the peak fishing seasons, cumulative impacts to commercial fishing could be significant. If, for example, 4 additional platforms are placed in the Santa Maria Basin and Santa Barbara Channel along with associated pipelines and power cables, fishermen could be greatly affected over the next 15-20 years. If 4 new platforms are installed, *and* the operating life of the Point Arguello and Cavern Point platforms are extended to develop the 36 OCS leases, the adverse cumulative impacts become more significant (i.e., greater preclusion over a longer period of time). The MMS estimates that the total area of fishing preclusion for drift gill netting due to 4 new platforms would be an additional 6.3 square miles. The MMS acknowledges that mitigation could temper adverse impacts to the commercial fishing industry, but it does not describe nor commit to imposing any mitigation measures (such as those mitigation measures required by the MMS for the shallow hazard survey) to eliminate or minimize identified impacts.

For these reasons, the Commission finds that the reasonably foreseeable post-suspension activities that would result from granting of the lease suspensions will adversely affect commercial fishing and therefore the granting of the lease suspensions is inconsistent with the commercial fishing policies of the CCMP. Because such suspensions, if granted, would lead to or result in the construction of new "industrial facilities" that are "coastal-dependent," the proposed project is presumptively subject to analysis under Section 30260 of the Coastal Act. See Section 3.10: Coastal-Dependent Industrial "Override" Policy of this staff report, below.

3.5 Scenic and Visual

The scenic and visual resource protection policies of the CCMP (Coastal Act §§ 30251 and 30262(a)(3)) state:

30251.

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of the surrounding areas, and where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of the setting.

30262.

(a) Oil and gas development shall be permitted ... if the following conditions are met:

...

(3) Environmentally safe and feasible subsea completions are used when drilling platforms or islands would substantially degrade coastal visual qualities unless the use of those structures will result in substantially less environmental risk.

The Gato Canyon Unit is located offshore Santa Barbara County's Gaviota Coast. The scenic and visual resources of the Gaviota Coast are frequently described as unique, representing the largest continuous stretch of rural coastal land in southern California. A recent study by the National Parks Service used the following descriptions:

Scenery on the Santa Barbara Coast is world-renowned. The 76-mile rural coastline [between Coal Oil Point at UC Santa Barbara and Point Sal to the north] is a unique combination of striking beauty and rich biological and cultural resources providing exceptional opportunities for coastal enjoyment.⁷⁴

⁷⁴ National Park System, U.S. Department of the Interior, *Gaviota Coast Feasibility Study*, 2003, p. 36. State park and beach attendance in vicinity of the proposed Gato Canyon Unit averaged approximately 578,860 during the last six years (*ibid*, p. 57). This attendance includes local County residents and tourists.

The east west trending of the Transverse Range creates the longest south facing shoreline on the Pacific with the exception of Alaska. The shoreline in the study is also sheltered by the offshore Channel Islands, creating a warmer, milder environment for coastal species and recreation. The continuous stretch of south-facing seashore from Ellwood to Point Conception cannot be found in any other comparably managed area along the west coast. Agricultural land, including ranchland, row crops and orchards add to the unique character of the coastal landscape.

The scenic vistas, sandy beaches, rugged and rocky shoreline, and warmer climate provide outstanding opportunities for public use and enjoyment. Recreational activities along the study area coast include world-class surfing, hiking, diving, swimming, sunbathing, beach combing, exceptional marine mammal watching, birding, boating, sport fishing, picnicking, camping, bicycling, horseback riding, nature study, photography and painting. State and county parks and beaches and private preserves provide for visitor enjoyment.⁷⁵

The segment of U.S. Highway 101 where the scenic viewshed is affected adversely by the platforms is eligible for designation as a California Scenic Highway. Moreover, the County has established a View Corridor Overlay in its Local Coastal Program and has applied this overlay to coastal lands between U.S. Highway 101 and the ocean along the Gaviota coast. The County, with assistance of several grants from the State of California, has expended millions of dollars to purchase land and conservation easements along the Gaviota coast in order to preserve its scenic and rural character, among other things.

Use of a mobile offshore drilling unit ("MODU") and installation of a new platform offshore the Gaviota coast will add industrial facilities to the Gaviota viewshed. A MODU is essentially a semi-submersible vessel capable of drilling into the ocean floor, and a typical MODU measures 295 feet in length, 249 feet in breadth, and 130 feet in depth with an 83-foot operating draft. The MMS characterizes its visual profile from onshore as somewhat lower than a fixed platform. The MODU would be situated between approximately 3-to-5 miles offshore for an estimated 92 days. A 2001 Draft Environmental Impact Statement prepared and published by the MMS found that the MODU would constitute a moderate to high cumulative impact to visual resources.⁷⁶ This conclusion led the agency in 2001 to examine potential mitigation, finding that placement of the MODU offshore State beaches at a time of non-peak usage would reduce the level of impact.

The development/production phase of post-suspension activities includes installation of a new platform between 3-5 miles offshore the Gaviota Coast. The MMS estimates that a new Platform Gato would operate for 14-18 years; however, based on the lives of other Pacific OCS platforms, it could have a lifecycle of 40 years.⁷⁷ This phase would also include temporary location of

⁷⁵ *Ibid*, p. 57.

⁷⁶ DEIS, p. 5-147.

⁷⁷ No Pacific OCS platforms have been removed to date and the oldest ones were installed in 1968, suggesting a minimum economic life of 40 years.

workboats to install the platform and pipelines, routine visits by crew and supply boats, and another assortment of ships and boats onsite to remove the platform at the end of its economic life.

Three Santa Ynez Unit platforms (Platforms Hondo, Harmony and Heritage) currently sit in federal waters west of the Gato Canyon Unit leases. (Exhibit 8) Placement of an additional platform offshore Gaviota would result in a further industrialization of this unique stretch of rural, scenic Santa Barbara County coastline. It will impair the full panoramic view, east-to-west, of the ocean view from Amtrak, U.S. 101, and from the otherwise pristine beaches and beachfront parks of this coast.

Notwithstanding the foregoing, the MMS finds the post-suspension activities to be consistent with the CCMP's visual protection policy, Coastal Act Section 30251. The MMS reasons that since the area already has 3 Santa Ynez Unit platforms, the effects of adding a fourth platform is negligible because the fourth platform simply adds to an existing cluster of platforms. The Coastal Commission disagrees with this conclusion for the following reasons:

- The Commission found the existing Santa Ynez Unit platforms to have significant and unavoidable impacts on scenic and visual resources of this stretch of coast.
- The existing Santa Ynez Unit platforms are not clustered, as is the case with groups of platforms situated in the eastern Santa Barbara Channel, but rather are separated by distances of 6.8 miles (Heritage to Harmony) and 2.5 miles (Harmony to Hondo), for a total spread of 9.3 miles in a direction nearly parallel to the coastline. In contrast, 7 platforms in the eastern Santa Barbara Channel are situated into two closer groupings of 3 and 4 with a separation of approximately 0.7 miles between platforms.
- A new Platform Gato would be situated approximately 6-8 miles east of the current Santa Ynez Unit platforms, which would increase total spread of these 4 platforms to about 17 miles, parallel with the coastline.
- The MMS acknowledges that the new platform expands the existing impact geographically (i.e., eastward); this acknowledgement conflicts with the MMS's characterization of the platforms as a "cluster."

The Commission thus believes that adding an additional industrial oil and gas platform to the Gaviota Coast will result in degradation of the exceptional visual qualities of this section of coast.

Section 30262(a)(3) of the Coastal Act requires "environmentally safe and feasible subsea completions" to be used "when drilling platforms or islands would substantially degrade coastal visual qualities unless the use of those structures will result in substantially less environmental risk." Subsea well completions are wells (including the wellhead and production control equipment) located on the seabed. Subsea well completions, if feasible for a particular development, eliminate visible structures above the ocean surface.

In its consistency determination for the Gato Canyon Unit, the MMS state that Section 30262 is "not applicable" because "activities conducted during the suspension would not involve actual

development and production of oil and gas resources...⁷⁸ The MMS therefore provided no analysis of the feasibility of using subsea well completions instead of a fixed platform. In its April 22, 2005, letter to the MMS, the Commission staff requested that the MMS evaluate the feasibility of alternatives to fixed platform structures, such as semi-submersibles and subsea well completions. The MMS declined to do so, stating that an evaluation of alternatives "will be provided by the operator of the Gato Canyon Unit pursuant to §307(c)(3) of the CZMA if and when they submit their consistency certification with their DPP [Development and Production Plan] for the Gato Canyon Unit."⁷⁹ As discussed in the Fill section of this report (Section 3.3), the potential for feasible alternatives to platform structures, like subsea well completions, is a critical question that must be addressed by the MMS as part of the lease suspension review stage. A feasible alternative to a fixed platform could eliminate the significant adverse coastal resource effects identified in this and other sections of this report, including the visual degradation of the scenic Gaviota coast.

Because the MMS has refused to provide an evaluation of the feasibility of using subsea well completions for development of the Gato Canyon Unit, the Commission lacks the information necessary to determine the lease suspensions' conformity with Sections 30262(a)(3) and 30251 of the Coastal Act.

3.6 Recreation and Public Access

The recreation and public access policies of the CCMP (Coastal Act §§ 30210, 30220 and 30234.5) state:

30210.

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse

30211.

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

30220.

⁷⁸ Gato Canyon Consistency Determination, 2005, p. 42.

⁷⁹ June 23, 2005, Letter from MMS to Coastal Commission, p. 93.

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

30234.5.

The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Shallow Hazard Survey

The proposed shallow hazards survey is located in an area that may be used for recreational fishing. Most recreational fishers go to the Channel Islands, coastal kelp beds, or Naples reef, but some types of recreational fishing (e.g., private boat trolling) could be affected by the proposed 3-4 day survey. In addition, sound from the survey could be heard underwater by recreational and research divers at Naples Reef and the nearest coastal kelp beds, and could potentially annoy, interrupt or end diving for the duration of the survey.

Samedan has committed to notify all commercial and recreational fishermen in writing 30 days before the survey and verbally three days before the survey. It will notify the Coast Guard, the Joint Oil Fisheries Liaison Office ("JOFFLO"), and the Marine Advisory Newsletter in Goleta, and distribute and post notices at area fuel docks, ice supply house, wholesale fish buyers, and in the Harbor Master's offices of Santa Barbara, Ventura, Oxnard, and Port Hueneme harbors. Samedan will not fire the air gun within 0.5 miles of a dive boat or vessel or unknown function (i.e., it will treat boats of unknown function as a dive boat). The two marine mammal observers aboard the survey vessel (discussed more in Section 3.2 of this report) will also look for divers and dive boats. If a diver or dive boat is observed in the survey area or safety zone, Samedan shall contact them and advise them to leave the area for the duration of the survey. Many of the commercial fishing mitigation measures either proposed by Samedan or required by the MMS, such as advance notification requirements, will apply to recreational fishing as well. Given the short duration of the survey, and implementation of the above-described measures, the Commission finds that recreational fishing activities will be protected.

Post-Suspension Exploration, Development, and Production Activities

The MMS's proposed hypothetical development scenario for the Gato Canyon Unit envisions drilling of a delineation well from a mobile offshore drilling unit ("MODU") and installing a new fixed platform approximately 4 miles offshore Capitan, with 3 new pipelines connecting that platform to the existing onshore oil and gas processing facilities in Las Flores Canyon. If feasible, the pipelines would make an underground beach crossing using horizontal directional drilling ("HDD") between Refugio and El Capitan State Beaches within the existing pipeline corridor currently used for 3 similar pipelines that connect existing Platform Hondo to shore. The delineation drilling activities are expected to take 92 days;⁸⁰ platform and pipeline

⁸⁰ DEIS, p. 5-147.

installation would take approximately 6 months.⁸¹ Production is projected to occur during the subsequent 14-18 years. The MMS projects platform and pipeline decommissioning and abandonment to take place between 2026 and 2030.⁸²

Impacts to recreation during delineation drilling would be principally degradation of the coastal recreational experience due to the visual presence of the MODU and support vessels, including crew boats, supply boats, and barges.⁸³ Impacts to recreational fishing would be limited to preclusion of fishing in the vicinity of the MODU.

Pipeline construction would result in significant impacts to recreation, as follows:

*... [C]onstruction activities would temporarily preclude certain water contact uses in the near-shore area and certain beach activities (i.e., scuba diving, kayaking, swimming, use of bike path) between Refugio State Park and El Capitan State Park (MMS, 2005b). In addition, campground use by project construction workers could affect campground availability during pipeline construction. This use would incrementally contribute to cumulative effects from existing offshore oil and gas projects that have been found moderate to high, especially during construction.*⁸⁴

The pipelines would cross the beach in a recreationally important, scenic stretch of the Gaviota coastline, between two popular State parks and campgrounds. Pipeline construction would affect onshore and near-shore recreational activities, as noted above, and others such as surfing, jogging, etc. Although construction impacts would be temporary, onshore and nearshore pipeline construction activities could affect also the availability of public beach parking depending on the onshore site selected for staging and construction. Pipeline installation would cause significant aesthetic impacts (visual, noise, odors, dust, construction vehicle and offshore vessel traffic, etc.), resulting in disruption and degradation of the recreational experience for campers and beach users. Installation of the Gato platform and pipelines would interfere with recreational fishing by precluding it in and near construction areas, particularly during pipelaying in nearshore waters.

The new platform would be located directly offshore Capitan and in plain view from the coastline, day and night. It would be visible from the coastal bike path and trail and the adjacent State beaches and campgrounds. During the production life of the platform, the major impacts to

⁸¹ Estimated timeframes are: 93 days for pipeline installation; 153 days to drive platform piles and set topsides; and 214 days until platform commissioning. (EID, 2005, p. 5.2-13)

⁸² EID, p. 5.2-5.

⁸³ In addition to the MODU and one barge, the following vessels would be used in connection with delineation drilling: One 180-foot workboat, one 110-foot crew boat, one 110-foot standby vessel, one 180-foot supply boat, and one anchor handling boat. Support activities would entail an estimated 350 miles of crew boat travel, 2,500 miles of supply boat travel, 21 hours of helicopter flight time, and one barge trip. (DEIS, 2001, pp. 2-13 to 2-15)

⁸⁴ Gato Canyon Consistency Determination, 2005, p. 16.

recreation would be degradation of the recreational experience of thousands of visitors, due to the platform and associated industrial activities,⁸⁵ which would detract from the natural surroundings. As is acknowledged in the Gato Canyon consistency determination:

The hypothetical new platform would degrade the visual character of the area, which in turn would degrade the quality of the coastal recreational experience (MMS, 2005b).⁸⁶

During the production phase, the major impacts to recreational fishing would be limited to "short-term preclusion and space-use conflicts due to vessel traffic and routine maintenance and repairs of platforms and pipeline facilities."⁸⁷ Impacts to recreation and recreational fishing due to platform and pipeline decommissioning are expected to be comparable to those from construction activities.

For these reasons, the Commission finds that granting the lease suspensions would adversely affect coastal recreational opportunities and therefore is inconsistent with the public access and recreation policies of the CCMP (Sections 30210 and 30220). Because such suspensions, if granted, would lead to or result in the construction of new "industrial facilities" that are "coastal-dependent," the proposed project is presumptively subject to analysis under Section 30260 of the Coastal Act. See Section 3.10: Coastal-Dependent Industrial "Override" Policy of this staff report, below.

3.7 Geologic Hazards

The hazards policies of the CCMP (Coastal Act §§ 30253(2) and 30262(a)(1)) state that:

30253. New development shall:

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs

30262.

(b) Oil and gas development shall be permitted ... if the following conditions are met:

⁸⁵ Routine platform activities would include 156 helicopter trips and 364 crew boat trips annually. (EID, 2005, Table 5.2-5.)

⁸⁶ Gato Canyon Consistency Determination, 2005, p. 12.

⁸⁷ DEIS, p. 6-88.

(1) The development is performed safely and consistently with the geologic conditions of the well site.

The subsidence policies of the CCMP (Coastal Act §§ 30262(a)(5) and (b)) state:

(a) Oil and gas development shall be permitted ... if the following conditions are met: ...

(5) The development will not cause or contribute to subsidence hazards unless it is determined that adequate measures will be undertaken to prevent damage from such subsidence.

...

(b) Where appropriate, monitoring programs to record land surface and near-shore ocean floor movements shall be initiated in locations of new large-scale fluid extraction on land or near shore before operations begin and shall continue until surface conditions have stabilized. Costs of monitoring and mitigation programs shall be borne by liquid and gas extraction operators.

The Gato Canyon Unit leases are located within the Santa Barbara Channel, which is part of the Santa Barbara-Ventura Basin. Three principal geologic hazards in the Southern California region are seismic events, tsunamis, and subsidence. If the lease suspensions are granted, it could result in the construction or placement of new facilities for oil and gas exploration, development, and production. This infrastructure must be sited and designed in a manner that assures stability and structural integrity and will not cause or contribute to subsidence hazards.

Seismic Events

Southern California is located along a seismically active plate margin. The major transform fault in the region is the San Andreas Fault. The last significant earthquake along the segment of the fault that borders the Santa Barbara and Ventura county areas happened in 1857 and is known as the "Fort Tejon" earthquake (an estimated 8.3 magnitude earthquake). Since then, the area has experienced several significant (Richter magnitude 6 or greater) earthquakes. The MMS's consistency determination does not provide any analysis of the probabilistic or deterministic hazard associated with the project area or any particular fault, nor does it address the potential specific effects of seismic activity (in addition to ground shaking) such as surface rupture and liquefaction. At the Development and Production Plan review stage, the MMS would require final seismic design parameters for the platform and pipelines to ensure the ability of those structures to withstand the maximum credible seismic or seismic-related hazard predicted for the area.

If Samedan were to come forward in the future with a Development and Production Plan for a new platform and pipelines, the Commission would have to be able to make a finding that the development would be reasonably safe from geologic hazards. Detailed geologic studies will

need to identify all potential hazards (e.g., ground shaking, surface rupture, liquefaction, submarine landslides), provide at least a quantitative probabilistic assessment of the likelihood hazard occurrence, and provide measures to avoid the hazard or mitigate its effects (e.g., special engineering if pipelines cross active faults).

In 1983, the Commission concurred in a consistency certification (CC-7-83) to expand development of the Santa Ynez Unit by adding additional platforms (as many as 3-4) and associated infrastructure. The SYU development currently consists of 3 platforms and pipelines to shore, and is located directly west of the Gato Canyon Unit. In the Santa Ynez Unit matter, since the MMS required the operator to (a) meet current "state-of-the-art" seismic design standards for the platform and pipelines that take into account a maximum credible seismic force; (b) site the platform and route the pipelines to avoid any identified site specific hazards (e.g., gas seeps, known hazardous faults, etc.); and (c) specially engineer pipelines (to increase strength) if all site-specific hazards cannot be avoided, the Commission found the design of the platforms and pipelines to be consistent with Coastal Act Section 30253(2)). The Commission at this time sees no reason to believe that Samedan cannot meet these same requirements during development of the Gato Canyon Unit. Accordingly, the proposed lease suspensions for the Gato Canyon Unit satisfies the requirements of Coastal Act Section 30253(2) with respect to hazards associated with seismic events.

Tsunamis

Tsunamis are potentially destructive ocean waves formerly called "tidal waves." Large-scale, underwater block movements, slumps, or slides are the mechanisms for generating these "seismic sea" waves, and are generally associated with large earthquakes. Tsunamis are usually apparent only at the coastline. Due to their long wavelength and low amplitude, they are rarely noted in deep water. As a tsunami approaches and strikes the coast, the wavelength becomes attenuated and the amplitude grows. The first sign of an impending tsunami is sometimes a sudden recession of the ocean away from the coast. Most tsunamis are generated on the margins of the Pacific Ocean basin and, consequently, small, trans-Pacific tsunamis strike the California coast with regularity. Large tsunamis striking the California coast area are rare.

Although rare along the Southern California coast, tsunamis do pose a potential hazard to coastal communities and facilities. Tsunamis are unlikely to affect offshore facilities constructed in deep water, such as a new platform at the Gato Canyon Unit, but pipe landings and onshore facilities may be impacted. If Samedan were to develop a Development and Production Plan for the Gato Canyon Unit, it would need to provide the MMS and the Commission with a detailed assessment of the magnitude or likelihood of tsunami hazards, such as modeling tsunami runup and deriving probabilistic hazard assessments. Gato Canyon Unit infrastructure located nearshore or along the shoreline may need to be specially engineered to withstand a tsunami striking this area of coast. The evidence before the Commission today contains no suggestion that Samedan, as operator of the Gato Canyon Unit, cannot design the infrastructure to withstand any identified tsunami hazard. Accordingly, the Commission finds that the proposed lease suspension for the Gato Canyon Unit satisfies the requirements of Coastal Act Section 30253(2) with respect to hazards associated with tsunami events.

Subsidence

Coastal Act Section 30262(a)(5) and (b) provides that oil and gas development may be permitted if the activities do not cause or contribute to subsidence and if appropriate monitoring programs are carried out. Subsidence is the dropping or lowering of the earth's surface, and has long been a concern with oil and gas extraction projects although it is also linked to earthquake events. Subsidence can be extremely hazardous to shoreline areas, and has been a particular problem in the Long Beach area of California. The Wilmington oil field, for example, documented over 29 feet of subsidence over a 53-year period (which was eventually controlled by re-pressurizing the oil field). Subsidence of the nearshore area will allow larger waves to come closer to the dry beach, increasing wave energy and sand movement. A gradual increase in beach erosion can occur. Re-pressurizing the oil field, such as re-injecting a fluid like produced water in volumes somewhat comparable to the total amount of fluid being withdrawn, can control subsidence.

According to the Commission's geologist, subsidence historically has not been a problem in the Santa Barbara-Ventura Basin, and is less likely in over pressurized reservoirs such as those in the Basin. Although the problem is unlikely, a closer examination of whether continued extraction of oil and gas in this area could lead to subsidence in the nearshore area would need to be conducted during review of a Development and Production Plan. If subsidence could occur, the operator would be required to monitor and undertake well-established measures to re-pressurize the reservoir. Any occurrence of subsidence should therefore be readily addressed by appropriate remedial action.

For the above-described reasons, the Commission believes that the reasonably foreseeable post-suspension activities that result from granting the lease suspensions would be carried out in a manner that assures stability and structural integrity of the development and will not cause or contribute to subsidence hazards. The Commission therefore finds the proposed lease suspensions to be consistent with the geologic hazard policies of the CCMP (Coastal Act Sections 30253(2) and 30262(a)(1) and (5) and (b)).

3.8 Cultural Resources

The cultural resources policy of the CCMP (Coastal Act § 30244) states:

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Archaeological resources are any material remains (sites) of human life or activities that are at least 50 years of age and are of archaeological interest. Historic archaeological sites can be subsurface remains that contain buried foundations or other structures such as pier footings and depositional sites like refuse dumps. The sites may include surface remains of walkways, roads, or other structural elements. These sites may also include historic and prehistoric (spanning the time between 13,000 years ago until the time of European contact in 1542) surface and subsurface artifacts (e.g., stone tools and art).

The MMS's proposed hypothetical development scenario envisions temporary use of a mobile offshore drilling unit ("MODU") for the delineation well and then installation of a new fixed platform offshore on lease OCS-P 0460 with three new pipelines connecting the platform to the existing onshore oil and gas processing facilities in Las Flores Canyon. At landfall, these new pipelines would be placed in or near the existing pipeline corridor dedicated to three similar pipelines that connect existing Platform Hondo to the processing facility.

Physical disturbance of the seafloor is the primary cause of direct impacts to offshore archaeological resources. The MMS requires operators to avoid known sites. The greatest potential for impact comes from seafloor disturbance of previously undetected sites due to platform and pipeline installation. Drilling operations can directly affect prehistoric cultural resources by drilling through buried archaeological deposits.

Based on current information, the MMS does not anticipate impacts to offshore archaeological resources if exploration, development, and production activities are undertaken. As part of its review of an Exploration Plan and Development and Production Plan, the MMS would require a pre-construction survey and analysis to detect any seafloor anomalies. The platform and pipelines would need to be sited and routed to avoid any target sites. Based on existing information, it appears that a platform and pipeline could be sited to avoid any offshore cultural (e.g, shipwrecks) and archaeological sites.

Construction of the onshore pipeline segments may affect known archaeological sites. Installation of the existing Santa Ynez Unit pipelines in the early 1990s significantly affected specific onshore archaeological sites, including prehistoric Site SBa-1733, the surrounding zones of secondary and low sensitivity, and the Ortega Adobe site in the Lower Corral Canyon.⁸⁸ The Office of Public Archaeology found that the Ortega Adobe site may be a scientific and ethnically significant cultural resource because (1) it has vertical and horizontal integrity, (2) it is ethnically significant to local Native Americans, and (3) it can yield information important to the study of prehistory.⁸⁹ The mitigation included preparation of a Cultural Resources Management Plan that was approved by the County and the State Office of Historic preservation. Mitigation also entailed capping of these sites with approximately 10 feet of fill, affecting a substantial portion of the lower Corral Canyon. This mitigation, in itself, posed a potential significant impact. First, the weight of the fill could damage fragile archaeological deposits. Second, the fill soil may not be sufficiently sterile to avoid diminishing the site's integrity. Third, the fill renders future archaeological investigation less feasible.

Based on this previous experience with construction of the Santa Ynez Unit pipelines, the Commission believes that additional pipelines in this area may affect these same archaeological sites. Compaction and erosion through the years may have reduced fill that was placed over the

⁸⁸ *Ibid*, p. 3.5-9.

⁸⁹ Santa Barbara County Planning and Development Department, Energy Division and U.S. Department of the Interior, Minerals Management Service, *ExxonMobil Offshore Power System Repair Project, Mitigated Negative Declaration/Environmental Assessment*, December 2002, p. 96.

site to cover and protect it. Additionally, presence of heavy equipment over top may further harm fragile artifacts of the site.

For these reasons, the Commission finds that the post-suspension activities likely to result from granting the lease suspensions may affect a significant onshore archaeological resource, and therefore the lease suspensions are inconsistent with the cultural resource policy of the CCMP. Because such suspensions, if granted, would lead to or result in the construction of new "industrial facilities" that are "coastal-dependent," the proposed project is presumptively subject to analysis under Section 30260 of the Coastal Act. See Section 3.10: Coastal-Dependent Industrial "Override" Policy of this staff report, below.

3.9 Air Quality

The air quality policy of the CCMP (Coastal Act § 30253(3)) states:

New development shall:

(3) Be consistent with the requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.

Coastal Act § 30414 further provides:

(a) The State Air Resources Board and air pollution control districts established pursuant to state law and consistent with requirements of federal law are the principal public agencies responsible for the establishment of ambient air quality and emission standards and air pollution control programs. The provisions of this division do not authorize the commission or any local government to establish any ambient air quality standard or emission standard, air pollution control program or facility, or to modify any ambient air quality standard, emission standard, or air pollution control program or facility which has been established by the state board or by an air pollution control district.

(b) Any provision of any certified local coastal program which establishes or modifies any ambient air quality standard, any emission standard, any air pollution control program or facility shall be inoperative.

(c) The State Air Resources Board and any air pollution control district may recommend ways in which actions of the commission or any local government can complement or assist in the implementation of established air quality programs.

In addition, Section 307(f) of the federal CZMA specifically incorporates the Clean Air Act into the CCMP. Under the Clean Air Act, the federal government has established ambient air quality standards to protect public health (primary standards) and secondary standards to protect public welfare. The State of California has established separate, more stringent ambient air quality standards to protect human health and welfare. National and California standards have been

established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter 10 microns (PM₁₀), suspended particulate matter (PM_{2.5}) and lead. In addition, California has adopted standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Santa Barbara County is in attainment of all the National Ambient Air Quality Standards, including the 1-hour and 8-hour ozone standards. The County is also in attainment for all the state standards except the state's 1-hour and 8-hour ozone standards and the 24-hour PM₁₀ standard. There is not yet enough data to determine whether the County is in attainment for the federal or state PM_{2.5} standards.

The 1990 Clean Air Act Amendments (Section 328) transferred to the Environmental Protection Agency ("EPA") authority for air quality on the OCS. Federal regulations contained in 30 CFR 250.204(b)(14), 250.303, and 250.304 specifically apply to air emissions from OCS oil and gas facilities. Regulations at 30 CFR 250.204(b)(14) require an operator to supply detailed information to the MMS when the operator applies for a new or amended Development and Production Plan, including:

- Projected emissions for each proposed or modified facility for each year of operation;
- The model(s) used to determine the effect on the onshore air quality of emissions from each facility and the result obtained through the use of the model(s);
- The air quality status of any onshore area where the air quality is significantly affected by projected emissions from each facility proposed in the plan;
- The emission-reduction controls available to reduce emissions, including the source, emission-reduction control technology, reductions to be achieved, and monitoring system.

Federal regulations at 30 CFR 250.303 set significance standards for carbon monoxide, total suspended particles, sulfur dioxide, nitrogen oxides and volatile organic compounds for OCS facilities. Facilities that significantly affect air quality in a nonattainment area are required to fully reduce emissions (through Best Available Control Technology ("BACT"), additional emissions controls, or offsets), while facilities causing significant impacts in attainment or unclassifiable areas are required to reduce emissions through BACT. These regulations also prohibit any air pollutant to exceed the concentration permitted under the national secondary ambient air quality standard or the national primary air quality standard, whichever is lowest.

Federal (EPA) regulations enacted in 1992 require OCS sources to comply with applicable onshore air quality rules in the corresponding onshore area. In 1993, the EPA delegated authority to the Santa Barbara County Air Pollution Control District ("SBCAPCD") to implement and enforce the federal air requirements of 40 CFR Part 55.

Shallow Hazard Survey

Emissions resulting from the shallow hazard survey may increase concentrations of pollutants onshore. The primary pollutants of concern are nitrogen oxides ("NO_x"), and reactive organic compounds ("ROC"). Both NO_x and ROC are precursors to ozone formation. The major pollutant of concern is NO_x emissions due to the use of stationary and propulsion equipment used by the survey vessel.

The MMS studied the impacts of Samedan's projected offshore emissions from the survey vessels' engines using the Offshore and Coastal Dispersion ("OCD") model. The OCD model computes both short-term (1-hour, 3-hour, 8-hour, and 24-hour average) and annual averaged pollutant concentrations. The MMS used the model to predict the concentrations of nitrogen dioxide ("NO₂"), sulfur dioxide ("SO₂"), and fine particulates ("PM₁₀") that could affect onshore areas due to survey activities. It concludes in the Environmental Assessment prepared for the shallow hazard survey that increases in the onshore average concentrations of NO₂, SO₂ and PM₁₀ will be well below the maximum increases allowed under federal, state and SBCAPCD ambient standards.

To reduce adverse air quality impacts, the MMS will require Samedan to:

- Prepare and submit to MMS an Emissions Reporting Plan that details actual vessels and internal combustion engines to be used, duration of use, fuel consumed and calculated emissions; and
- Use fuel with less than 0.2% sulfur by weight when operating within waters adjacent to Santa Barbara County.

No air district permits from the SBCAPCD are required for the shallow hazard survey. A permit would be required if the survey vessel is either (a) permanently or temporarily attached to the seabed and erected thereon, and used for the purpose of exploring, developing or producing resources; or (b) physically attached to an OCS facility, in which case only the stationary aspects of the vessels are regulated. Since there are no existing "OCS sources" attached to the Gato Canyon Unit, and the vessel is not attached to the seabed, no air permits are required for the survey.

Post-Suspension Exploration, Development, and Production Activities

Air emissions expected from developing the Gato Canyon Unit would come from a variety of sources including the Mobile Offshore Drilling Unit ("MODU") for the delineation well, well drilling, platform, pipeline and power cable construction, oil production, and support activities (e.g., crew and supply boats). The CCMP's air quality policy requires any future exploration, development, and production activities to be carried out consistent with the rules and requirements of SBCAPCD.

MODU delineation well drilling may require air permits from the SBCAPCD if the annual emissions are greater than 25 tons/year. SBCAPCD Rule 202 F.6 (Drill Rig Engine Exemption) provides a permit exemption for drilling equipment if emissions from the equipment are less than 25 tons/year. Equipment that is not part of the drilling phase (marine vessel emissions; drilling mud systems handling ROC compounds; all tanks, vessels, sumps and oil/water separators handling ROC compounds; and flares and emission control equipment) would require a Permit to Operate, and emission sources subject to the permit must meet Best Available Control Technology ("BACT") and emission offset requirements to ensure a net air quality benefit. MMS estimates that exploratory drilling operations will result in emission levels that require BACT and emission offsets.

Air permits will also be required from the SBCAPCD for any new platforms, pipelines, power cables, and associated onshore activities. Short- and long-term emissions from these sources will be above New Source Review threshold emission levels and therefore future development projects will need to comply with SBCAPCD's rules and regulations for BACT and emission offsets. The SBCAPCD will determine the BACT and emission offset requirements once an applicant has developed the specific details of an exploration or development project (e.g., specific equipment and engines to be used, duration of activities). If a project requires offsets, but the applicant cannot procure them, the SBCAPCD cannot issue a permit.

The CCMP's air quality policy requires the Commission to rely on the applicable rules of the SBAPCD for air quality measures. Because some activities will not require permits from the SBCAPCD, and others will be subject to the SBCAPCD's future review and permitting requirements, the Commission finds that the reasonably foreseeable activities likely to result from the granting of the lease suspensions will be carried out consistent with the rules and requirements of the SBCAPCD and are therefore consistent with the air quality policy of the CCMP (Coastal Act Section 30253(3)).

3.10 Coastal-Dependent Industrial "Override" Policy

Coastal Act Section 30101 defines a coastal-dependent development or use as that which "requires a site on or adjacent to the sea to be able to function at all." Ports, commercial fishing facilities, and offshore oil and gas platforms are coastal-dependent development types that the Coastal Act gives priority over other types of development on or near the shoreline. Coastal Act Section 30001.2 finds that notwithstanding the environmental effects of offshore petroleum and gas development, the location of such developments in the coastal zone may be necessary. Consequently, Coastal Act Section 30260 provides for special consideration of coastal-dependent industrial facilities that may otherwise be found inconsistent with the Coastal Act's Chapter 3 policies. Section 30260 is relevant to the Commission's review of suspensions of OCS oil and gas leases because such suspensions, if granted, would lead to or result in the construction of new, or new use of existing, "industrial facilities" that are "coastal-dependent." The hypothetical post-suspension exploration, development, and production scenarios reviewed in this report involve the use of "coastal-dependent industrial facilities," including a new platform.

Coastal-dependent industrial facilities must be evaluated under all applicable policies and standards contained in Chapter 3. If the proposed project is inconsistent with any Chapter 3 policy, Section 30260 provides for approval of the coastal-dependent industrial development under certain conditions, notwithstanding such inconsistencies of the development. Coastal Act Section 30260 specifically states:

Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262

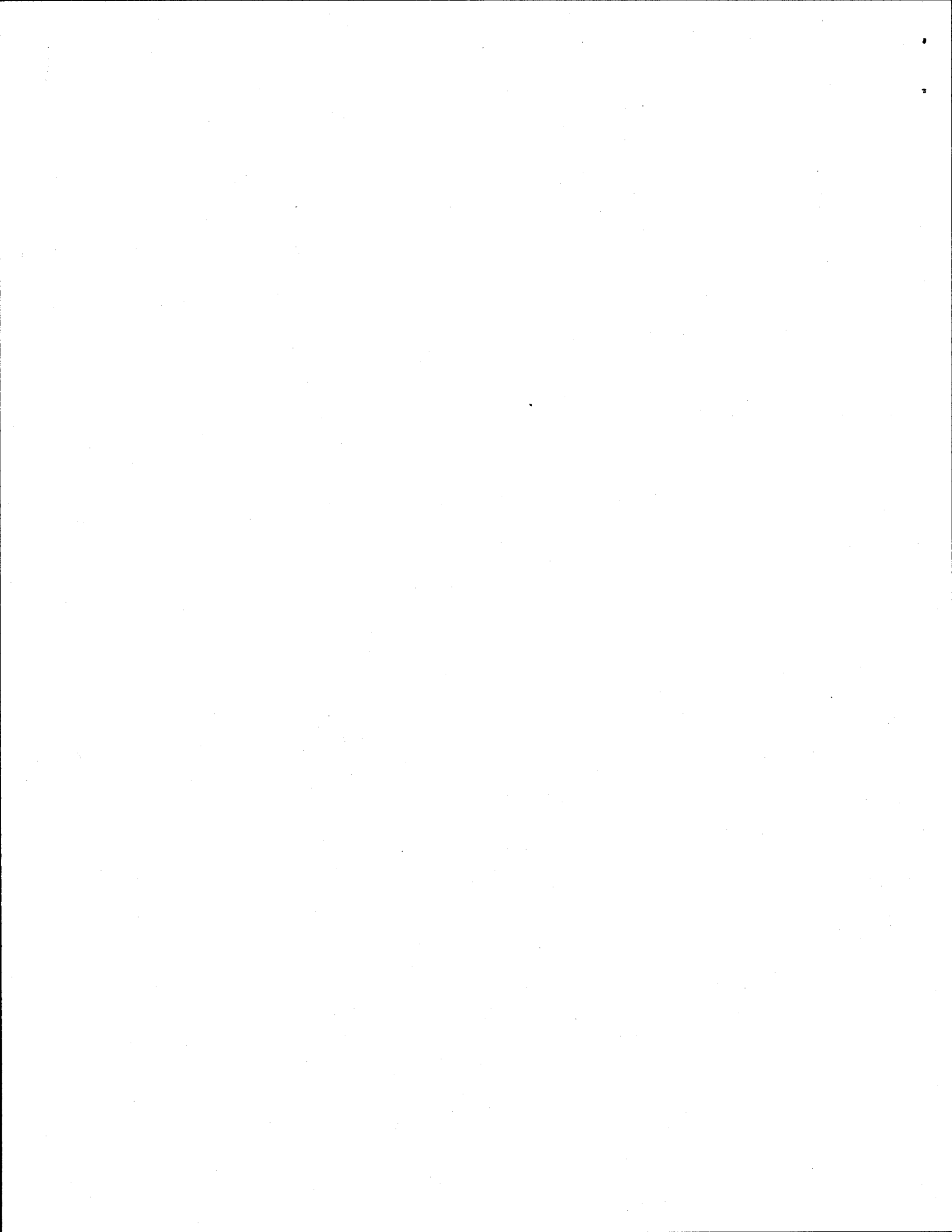
if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.

As described in Sections 3.1, 3.2, 3.4, 3.6 and 3.8 of this report, granting the lease suspensions does not meet the standards of Coastal Act Sections 30230, 30231, 30232, 30234.5, 30210, 30212, 30220, and 30244 due to the potential for significant adverse individual and cumulative marine resource, water quality, oil spill, commercial fishing, recreation, public access, and cultural resource impacts caused by reasonably foreseeable post-suspension exploration, production and/or decommissioning activities. Since the project qualifies as a "coastal-dependent industrial facility" the Commission may nevertheless approve the project if the three requirements of Section 30260 can be met: 1) alternative locations are infeasible or more environmentally damaging; 2) to do otherwise would adversely affect the public welfare; and 3) adverse environmental effects are mitigated to the maximum extent feasible.

The second test of 30260 states that coastal-dependent industrial development may be permitted if to do otherwise would adversely affect the public welfare. In previous sections of this report, the Commission has found that it is unable to determine whether the granting of the lease suspensions is consistent with the resource protection policies of the CCMP, because it lacks the information necessary to make that determination. Specifically, the Commission lacks adequate information to determine the following:

- Impacts to marine resources, water quality, commercial fishing, public access, recreation, environmentally sensitive habitat areas, and cultural resources due to potential oil spills; and
- If a feasible, less environmentally damaging alternative to installing a new platform and associated infrastructure is available to develop the Gato Canyon Unit that would eliminate the placement of fill in coastal waters or avoid or lessen significant adverse individual and cumulative impacts (e.g., marine resource, water quality, commercial fishing, visual, public access, recreation, and cultural resources).

Without a detailed assessment of the potential environmental impacts that may be caused by granting the lease suspensions and subsequent post-suspension development, the Commission cannot make a determination about whether or not the public welfare will be adversely affected if the lease suspensions are not granted. The Commission is therefore unable to determine if the lease suspensions should be granted because to do otherwise would adversely affect the public welfare. Because the Commission is unable to determine if granting the lease suspensions and subsequent post-suspension development meet, at least, the second test of 30260, it is unable to analyse the lease suspensions for consistency with Section 30260.



EXHIBITS

CD-050-05

- Exhibit 1: Substantive File Documents
- Exhibit 2: Region Map
- Exhibit 3: Gato Canyon Unit Map
- Exhibit 4: Lease Sale 68 Stipulations
- Exhibit 5: Regional Marine Resources
- Exhibit 6: Excerpt from June 27, 2005 Letter from EDC to Coastal Commission Staff
- Exhibit 7: July 15, 2005 Letter from MMS to Coastal Commission Staff
- Exhibit 8: Potential Route of Gato Canyon Unit Pipelines

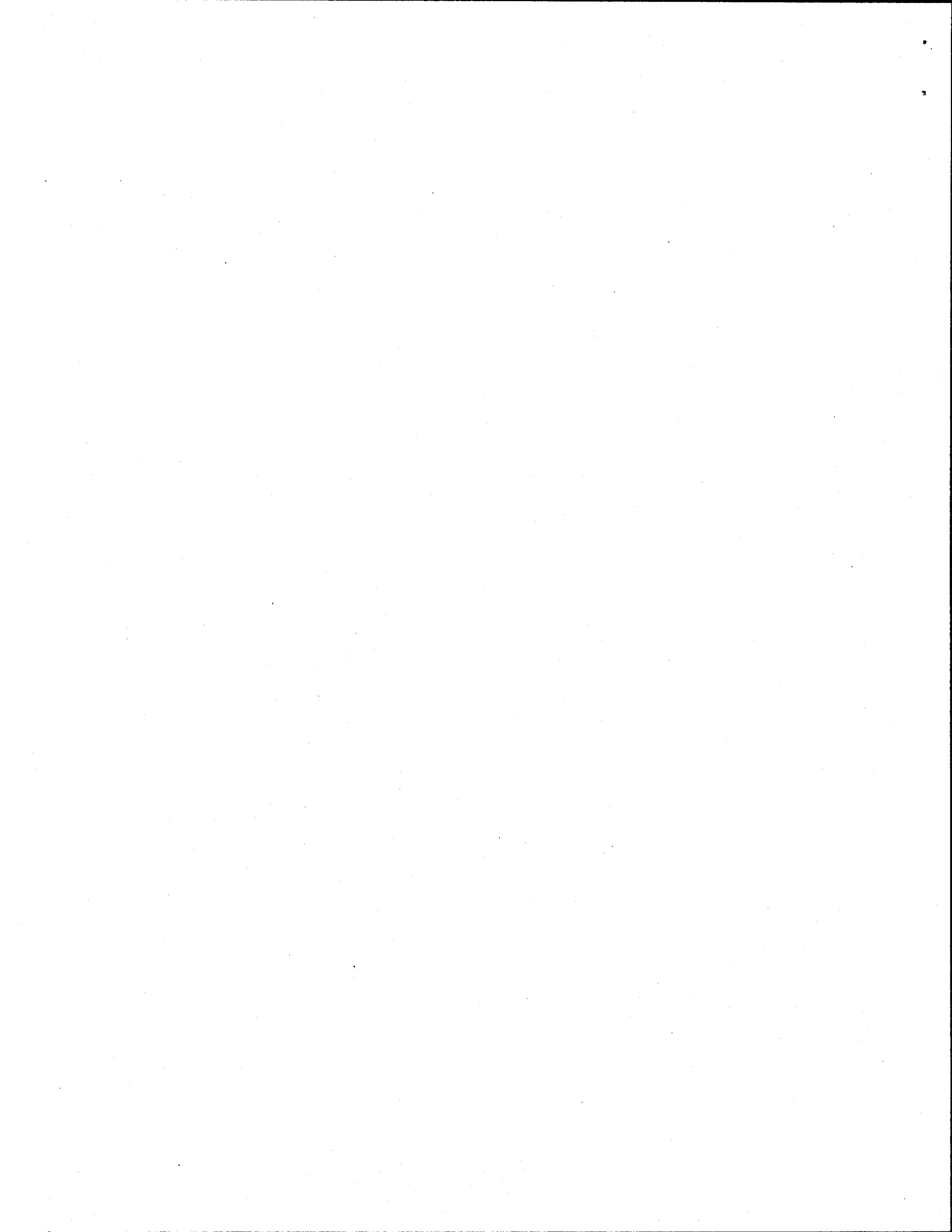


EXHIBIT 1
Substantive File Documents

DOCUMENTS & REFERENCES

California Coastal Commission. Consistency Certifications CC-07-83 and CC-07-83R for Santa Ynez Unit Project; and CC-126-00 for General NPDES Permit CAG280000.

Environmental Protection Agency. Draft Final California Dispersant Plan and Federal On-Scene Coordinator (FOSC) Checklist for California Federal Offshore Waters. 2005.

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House Conference Report No. 101-964; 1990 U.S. Code Cong. & Adm. News.

Michel, Christopherson & Whipple. Mechanical Protection Guidelines. NOAA, USCG, Research Planning, Inc. 1994.

Minerals Management Service. Consistency Determinations for 36 OCS Lease Suspensions: CD-42-05, CD-43-05, CD-44-05, CD-45-05, CD-46-05, CD-47-05, CD-48-05, CD-49-05, CD-50-05, and CD-51-05, submitted April 7, 2005.

_____. Environmental Assessments and Findings of No Significant Impact For Granting Suspensions of Production or Operations. February 11, 2005.

_____. Environmental Information Document for Post-Suspension Activities on the Nine Federal Undeveloped Units and Lease OCS-P 409 Offshore Santa Barbara, Ventura, and San Luis Obispo Counties. Prepared by Aspen Environmental Group. January 2005.

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Smith, R.A., J.R. Slack, T. Wyant, K.J. Lanfear. The Oil Spill Risk Analysis Model of the U.S. Geological Survey. USGS Professional Paper 1227, U.S. Geological Survey, Reston, VA. 1982.

State of California v. Norton 311 F.3d 1162, 1173 (9th Cir. 2002)

Torch/Platform Irene Oil Spill, Scoping Document for Restoration Planning. Prepared by: Platform Irene Trustee Council, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Air Force, Vandenberg Air Force Base, California State Lands Commission, with assistance from Santa Barbara County Planning and Development Department, Energy Division, October 20, 2004.

United States and People of the State of California v Torch Energy Services. 2002

U.S. Fish and Wildlife Service. 2003. Final Revised Recovery Plan for the Southern Sea Otter.

U.S. Coast Guard and California Office of Oil Spill Prevention and Response. 2000 Area Contingency Plan, Los Angeles and Long Beach. 2000.

U.S. Coast Guard. National Preparedness for Response Exercise Program (PREP). August 1994.

U.S. Department of the Interior. National Park System. Gaviota Coast Feasibility Study. 2003.

LETTER CORRESPONDENCE

July 15, 2005, from Ellen Aronson, MMS staff to Alison Dettmer, Commission staff. Subject: Consistency Determinations, Minerals Management Service, OCS Lease Suspensions, Lion Rock Unit (CD-042-05), Point Sal Unit (CD-043-05), Santa Maria Unit (CD-044-05), Purisima Point Unit (CD-045-05), Lease 0409 (CD-46-05), Bonito Unit (CD-047-05), Rocky Point Unit (CD-048-05), Sword Unit (CD-049-05), Gato Canyon Unit (CD-050-05), and Cavern Point Unit (CD-051-05).

July 7, 2005, from Alison Dettmer, Commission staff, to Ellen Aronson, MMS staff. Subject: Consistency Determinations, Minerals Management Service, OCS Lease Suspensions, Lion Rock Unit (CD-042-05), Point Sal Unit (CD-043-05), Santa Maria Unit (CD-044-05), Purisima Point Unit (CD-045-05), Lease 0409 (CD-46-05), Bonito Unit (CD-047-05), Rocky Point Unit (CD-048-05), Sword Unit (CD-049-05), Gato Canyon Unit (CD-050-05), and Cavern Point Unit (CD-051-05).

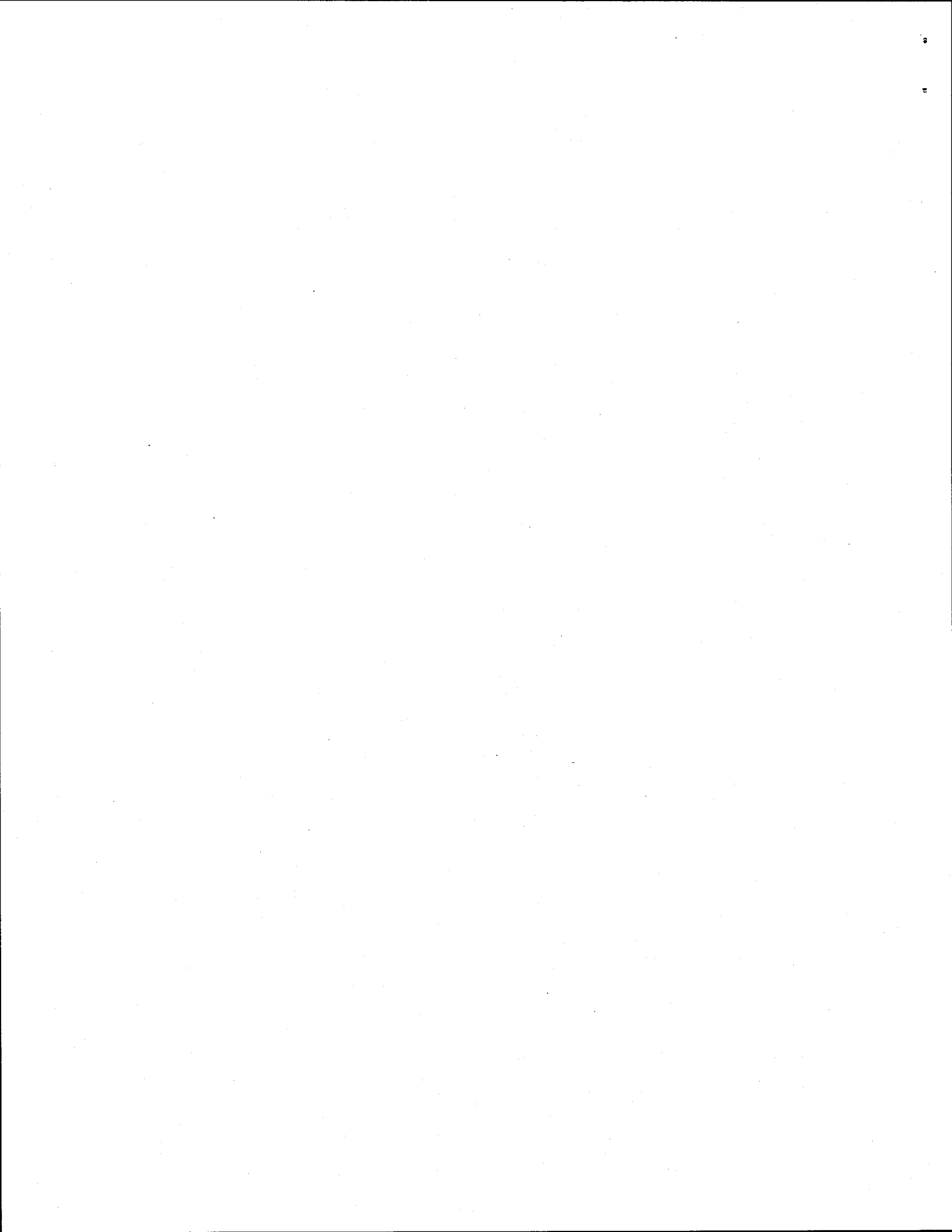
June 23, 2005, from Ellen Aronson, MMS staff to Alison Dettmer, Commission staff. Subject: Consistency Determinations, Minerals Management Service, OCS Lease Suspensions,

Lion Rock Unit (CD-042-05), Point Sal Unit (CD-043-05), Santa Maria Unit (CD-044-05), Purisima Point Unit (CD-045-05), Lease 0409 (CD-46-05), Bonito Unit (CD-047-05), Rocky Point Unit (CD-048-05), Sword Unit (CD-049-05), Gato Canyon Unit (CD-050-05), and Cavern Point Unit (CD-051-05).

April 22, 2005, from Alison Dettmer, Commission staff, to Ellen Aronson, MMS staff. Subject: Consistency Determinations, Minerals Management Service, OCS Lease Suspensions, Lion Rock Unit (CD-042-05), Point Sal Unit (CD-043-05), Santa Maria Unit (CD-044-05), Purisima Point Unit (CD-045-05), Lease 0409 (CD-46-05), Bonito Unit (CD-047-05), Rocky Point Unit (CD-048-05), Sword Unit (CD-049-05), Gato Canyon Unit (CD-050-05), and Cavern Point Unit (CD-051-05).

August 5, 1999, from Peter Douglas, Executive Director of the Coastal Commission, to Walt Rosenbusch, Director of MMS, et al. Subject: Submittal of New Exploration and Development and Production Plans in Lieu of Revised Plans.

July 27, 1999, from Sara Wan, Chair of the Coastal Commission, to Bruce Babbitt, Secretary of the Interior, et al. Subject: 40 Undeveloped OCS Leases Offshore Central California.



Proposed Oil and Facilities

Onshore Areas

Lion Rock Unit

PLATFORM "A"

FACILITIES

Processing Facility

FACILITIES

PLATFORM "B"

Refinery
Production (Lompoc) - Separation and

Santa Maria Unit

PLATFORM "C"

Treating Facility
Gas Processing facility
(Lompoc) - Separation and Treatment/

Separation and Treatment facility
Separation and Treatment/Gas

P
A
C
I
F
I
C

Bonito Unit

(La Conchita) - Separation and

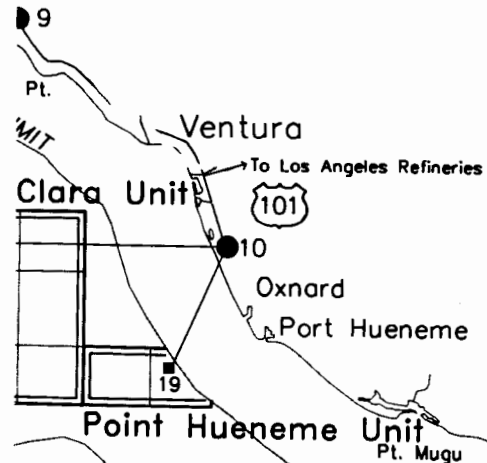
Facilities (Rincon) - Separation and
Facility

Facilities (Mandalay) - Separation and
Facility

Point Arguello Unit

Ventura Co.

Sword Unit



Location Map

Santa Maria Basin and Santa Barbara Channel Areas

California Coastal Commission
Technical Services Division

Exhibit 2

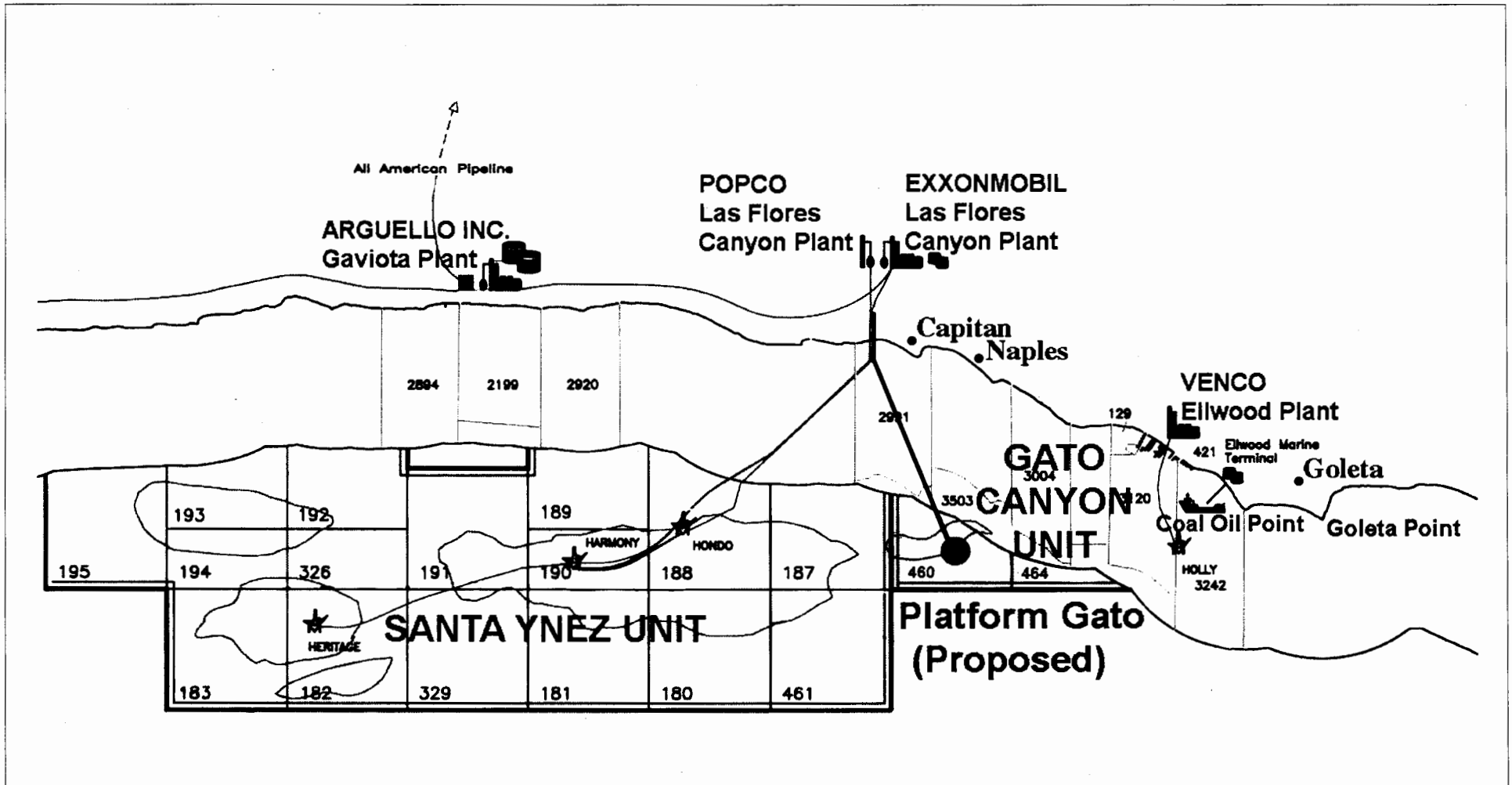
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JVC, June 2005

Map of California, Scale 1:500,000, USGS, 1970



Gato Canyon Unit



CALIFORNIA
COASTAL
COMMISSION

Technical Services Division

Note: Locations Approximate. For Illustrative Purposes Only.
Legend On Following Page. Source: MMS, May 2004.

















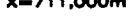


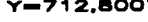


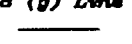







Exhibit 3

CD-50-05

DSM, July 2005



LEGEND

| | | | | | |
|---|---|---|--|---|--|
|  | REFINERY |  | STORAGE TANKS < 500,000 BBLs |  | PIPELINE |
|  | SEPARATION, TREATMENT AND GAS PROCESSING PLANT |  | STORAGE TANKS 500,000 TO 1,000,000 BBL |  | PROPOSED PIPELINE |
|  | SEPARATION AND TREATMENT PLANT |  | STORAGE TANKS > 1,000,000 BBLs |  | UNIT BOUNDARY |
|  | GAS PROCESSING PLANT |  | NUMBER OF STORAGE TANKS CLUSTERED IN ONE AREA |  | MAN MADE GRAVEL ISLANDS |
|  | HEAVY SUPPLY BASE |  | |  | EXISTING PLATFORM |
|  | OIL SPILL RESPONSE VESSEL | | CLEAN COASTAL WATERS |  | PROPOSED PLATFORM |
|  | OSRV |  | CLEAN SEAS |  | X=711,000m UTM COORDINATE SYSTEM (METERS) |
|  | NUMBER OF MARINE TERMINALS |  | PIPELINE FACILITIES |  | Y=712,800' LAMBERT STATE PLANE SYSTEM (FEET) |
|  | MERC |  | ADVANCED CLEANUP TECHNOLOGIES |  | 8 (g) Line REFERENCE SECTION 8(g) OF THE OCS LANDS ACT |
|  | MARINE SPILL RESPONSE CORPORATION |  | DEVELOPED FEDERAL LEASE | | VANDENBERG AIR FORCE BASE BOUNDARY |
|  | OIL/GAS FIELD OUTLINE |  | UNDEVELOPED FEDERAL LEASE | | COUNTY BOUNDARY |
| | |  | ACTIVE STATE LEASE |  | CHANNEL ISLANDS NATIONAL PARK AND CHANNEL ISLANDS NATIONAL MARINE SANCTUARY (PARK BOUNDARY EXTENDS 1 NAUTICAL MILE FROM THE SHORE OF EACH ISLAND) |
| | |  | | | TRAFFIC SEPARATION SCHEME (SHIPPING LANES) |

1

Leases OCS-P 0420, 0424 and 0429 in the Santa Maria Unit and Lease OCS-P 0462 in the Gato Canyon Unit expired on August 16, 1999. The unit boundaries have not yet been revised to reflect these lease expirations, since the decisions are under appeal.

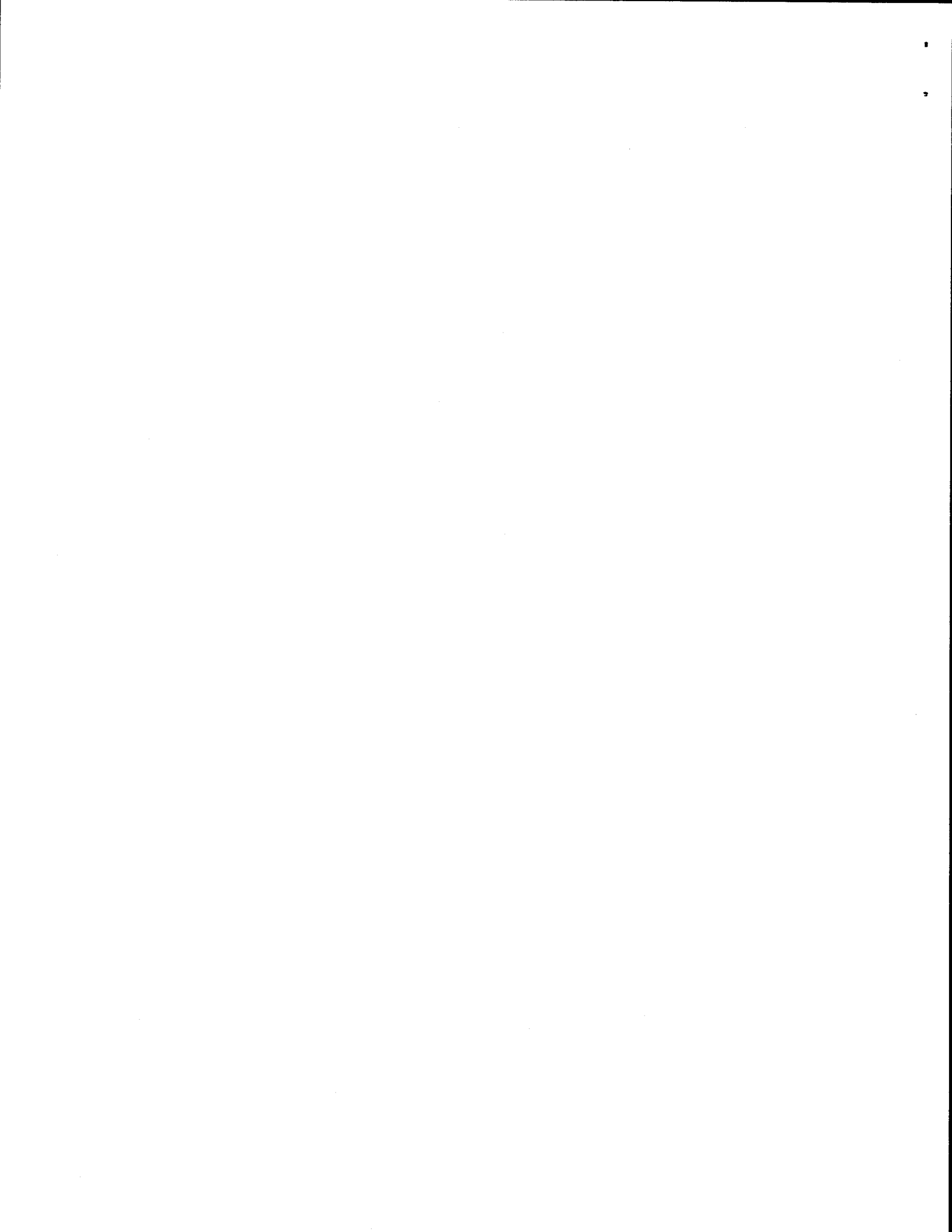


EXHIBIT 4

Sale 68 Stipulation No. 1

(a) If the DMMOFO has reason to believe that biological populations or habitats exist and require protection, he shall give the lessee notice that the lessor is invoking the provisions of this stipulation and the lessee shall comply with the following requirements. Prior to any drilling activity or the construction or placement of any structure for exploration or development on lease areas including, but not limited to, well drilling and pipeline and platform placement, hereinafter referred to as "operation," the lessee shall conduct site-specific surveys as approved by the DMMOFO and in accordance with prescribed biological survey requirements to determine the existence of any special biological resource including, but not limited to:

- Very unusual, rare, or uncommon ecosystems or ecotones.
- A species of limited regional distribution that may be adversely affected by any lease operations

If the results of such surveys suggest the existence of a special biological resource that may be adversely affected by any lease operation, the lessee shall: (1) relocate the site of such operation so as not to adversely affect the resources identified; (2) establish to the satisfaction of the DMMOFO on the basis of the site-specific survey, either that such operation will not have a significant adverse effect upon the resource identified or that a special biological resource does not exist. The DMMOFO will review all data submitted and determine, in writing, whether a special biological resource exists and whether it may be significantly affected by lessee's operations. The lessee may take no action until the DMMOFO has given the lessee written directions on how to proceed.

(b) The lessee agrees that if any area of biological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the DMMOFO, and make every reasonable effort to preserve and protect the biological resource from damage until the DMMOFO has given the lessee directions with respect to its protection.

Sale 68 Stipulation No. 2

If the DMMOFO has reason to believe that a site, structure, or object of historical or archaeological significance, hereinafter referred to as a "cultural resource," may exist in the lease area, and gives the lessee written notice that the lessor is invoking the provisions of this stipulation, the lessee shall upon receipt of such notice comply with the following requirements:

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall conduct remote sensing surveys to determine the potential existence of any cultural resource that may be affected by such operations. All data produced by such remote sensing surveys as well as other pertinent natural and cultural environmental data shall be examined by a qualified marine survey archaeologist to determine if indications are present suggesting the existence of a cultural resource that may be adversely affected by any lease operation. A report of this survey and assessment prepared by the marine survey archaeologist shall be submitted by the lessee to the DMMOFO and the Manager for review.

If such cultural resource indicators are present the lessee shall: (1) locate the site of such operation so as not to adversely affect the identified location; or (2) establish, to the satisfaction of the DMMOFO, on the basis of further archaeological investigation conducted by a qualified marine survey archaeologist or underwater archaeologist using such survey equipment and techniques as deemed necessary by the DMMOFO, either that such operation shall not adversely affect the location identified or that the potential cultural resource suggested by the occurrence of the indicators does not exist.

A report of this investigation prepared by the marine survey archaeologist or underwater archaeologist shall be submitted to the DMMOFO and the Manager for their review. Should the DMMOFO determine that the existence of a cultural resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in an adverse effect on such cultural resource until the DMMOFO has given directions as to its preservation.

The lessee agrees that if any site, structure, or object of historical or archaeological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the DMMOFO and make every reasonable effort to preserve and protect the cultural resource from damage until the DMMOFO has given directions as, to its preservation.

Sale 68 Stipulation No. 3

All or portion of this tract may contain mass transport deposits, steep slopes, or active faulting. Exploratory drilling operations, emplacement of structures (platforms) or seafloor wellheads for production or storage of oil or gas, and the emplacement of pipelines will not be allowed within the potentially unstable portions of the lease block unless or until the lessee has demonstrated to the DMMOFO's satisfaction that mass transport of sediments is unlikely or faulting is unlikely, or that exploratory drilling operations, structures (platforms), casing, wellheads, and pipelines can be safely designed to protect the environment in case such mass transport or faulting occurs at the proposed location. This may necessitate that all exploration for and development of oil and gas be performed from locations outside of the area of instability, either within or outside of this lease block.

If exploratory drilling operations are allowed, site-specific surveys shall be conducted to determine the potential for faulting and mass transport of sediments. If emplacement of structures (platforms) or seafloor wellheads for production or storage of oil or gas is allowed, all active faults or mass transport deposits in the lease must be mapped. The DMMOFO may also require soil testing before exploration and production operations are allowed.

Sale 68 Stipulation No. 4

(a) The lessee agrees that prior to operating or causing to be operated on its behalf boat or aircraft traffic into individual, designated warning areas, the lessee shall coordinate and comply with instructions from the Commander, Western Space and Missile Center (WSMC), and the Commander, Pacific Missile Test Center (PMTTC), and the Commander, Fleet Area Control and Surveillance Facility (FACSFAC), or other appropriate military agency. Such coordination and instruction will provide for positive control of boats and aircraft operating into the warning areas at all times.

(b) The lessee, recognizing that mineral exploration and exploitation and recovery operations of the leased areas of submerged lands can impede tactical military operations, hereby recognizes and agrees that the United States reserves and has the right to temporarily suspend operations of the lessee under this lease in the interests of national security requirements. Such temporary suspension of operations, including the evacuation of personnel, and appropriate sheltering of personnel not evacuated (an appropriate shelter shall mean the protection of all lessee personnel for the entire duration of any Department of Defense activity from flying or falling objects or substances), will come into effect upon the order of the DMMOFO, after consultation with the Commander, Space and Missile Test Center (WSMC), and the Commander, Pacific Missile Test Center (PMTTC), and the Commander, Fleet Area Control and Surveillance Facility (FACSFAC), or higher authority, when national security interests necessitate such action. It is understood that any temporary suspension of operations for national security may not exceed seventy-two hours; however, any such suspension may be extended by order of the DMMOFO. During such periods equipment may remain in place.

(c) The lessee agrees to control his own electromagnetic emissions and those of his agents, employees, invitees, independent contractors or subcontractors emanating from individual, designated defense warning areas in accordance with requirements specified by the Commander, Space and Missile Center (WSMC), and the Commander, Pacific Missile Test Center (PMTTC), and the Commander, Fleet Area Control and Surveillance Facility (FACSFAC), or other appropriate military agency, to the degree necessary to prevent damage to, or unacceptable interference with, Department of Defense flight, testing or operational activities conducted within individual, designated warning areas. Necessary monitoring, control, and coordination with the lessee, his agents, employees, invitees, independent contractors or subcontractors, will be effected by the Commander of the appropriate onshore military installation conducting operations in the particular warning area: provided, however, that control of such electromagnetic emissions shall permit at least one continuous channel of communication between a lessee, its agents, employees, invitees, independent contractors or subcontractors and onshore facilities.

Sale 68 Stipulation No. 5

Whether or not compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the lessee assumes all risks of damage or injury to persons or property, which occurs in, on, or above the Outer Continental Shelf, to any person or persons or to any property of any person or persons who are agents, employees or invitees of the lessee, its agents, independent contractors or subcontractors doing business with the lessee in connection with any activities being performed by the lessee in, on, or above the Outer Continental Shelf, if such injury or damage to such person or property occurs by reason of the activities of any agency of the U.S. Government, its contractors, or subcontractors, or any of their officers, agents or employees, being conducted as a part of, or in connection with, the programs and activities of the Western Space and Missile Center (WSMC), the Pacific Missile Test Center (PMTTC), or other appropriate military agency.

Notwithstanding any limitations of the lessee's liability in section 14 of the lease, the lessee assumes the risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of their officers, agents, or employees. The lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury sustained by the lessee, and to indemnify and save harmless the United States against all claims for loss, damage, or injury sustained by the agents, employees, or invitees of the lessee, its agents or any independent contractors or subcontractors doing business with the lessee in connection with the programs and

activities of the aforementioned military installations and agencies, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of their officers, agents, or employees and whether such claims might be sustained under theories of strict or absolute liability or otherwise.

Sale 68 Stipulation No. 6

No structures or drilling rigs will be allowed within portions of the tracts described below because of Department of Defense activities.

| <u>Tract No.</u> | <u>Restricted Portion</u> |
|-----------------------|---|
| 68-101 | S ½ NE ¼ SE ¼ |
| 68-105 | E ½ N ¼ |
| 68-112 | South and East of a Diagonal line from NE corner to SW corner |
| 68-125 | South and East of a Diagonal line from NE corner to SW corner |
| 68-164 (34N3 6W only) | W ½ E ½ E ½, W ½ E ½, E ½, E ½ W ½ (Federal portions only) |
| 68-169 | W ½ E ½ NE ¼, W ½ NE ¼ |
| 68-204 | NE ¼ |
| 68-207 | E ½ |
| 68-212 | N ½ |
| 68-213 | N ½ |

Sale 68 Stipulation No. 7

(a) Pipelines will be required: (1) if pipeline rights-of-way can be determined and obtained; (2) if laying of such pipelines is technologically feasible and environmentally preferable; and (3) if, in the opinion of the lessor, pipelines can be laid without net social loss, taking into account any incremental costs of pipelines over alternative methods of transportation and any incremental benefits in the form of increased environmental protection or reduced multiple use conflicts. The lessor specifically reserves the right to require that any pipeline used for transporting production to shore be placed in certain designated management areas. In selecting the means of transportation, consideration will be given to any recommendation of the intergovernmental planning program for assessment and management of transportation of Outer Continental Shelf oil and gas with the participation of Federal, State, and local government and the industry.

(b) Following the development of sufficient pipeline capacity no crude oil production will be transported by surface vessel from offshore production sites, except in the case of emergency. Determinations as to emergency conditions and appropriate responses to these conditions will be made by the DMMOFO.

(c) Where the three criteria set forth in the first sentence of this stipulation are not met and surface transportation must be employed, all vessels used for carrying hydrocarbons to shore from the leased area will conform with all standards established for such vessels, pursuant to the Ports and Waterways Safety Act of 1978 (46 U.S.C., 1221 et seq.), as amended.

Sale 68 Stipulation No. 8

(a) Wells. Subsea wellheads and temporary abandonments, or suspended operations that leave protrusions above the seafloor, shall be protected, if feasible and as appropriate, in such a manner as to allow commercial fisheries trawling gear to pass over the structure without snagging or otherwise damaging the structure or the fishing gear. Latitude and longitude coordinates of these structures, along with water depths, shall be submitted to the DMMOFO. The coordinates of such

structures will be determined by the lessee utilizing state-of-the-art navigation systems with accuracy of at least 50 feet (15.25 meters) at 200 miles (322 kilometers).

(b) Pipelines. All pipelines, unless buried, including gathering lines, shall have a smooth-surface design. In the event that an irregular pipe surface is unavoidable due to the need for valves, anodes or other structures, it shall, be protected in such a manner as to allow trawling gear to pass over the object without snagging or otherwise damaging the structure or the fishing gear.

Sale 68 Stipulation No. 9

(1) No producing well may be drilled where the well bore in the producing intervals is closer to the seaward boundary of the State of California based on analysis of pertinent site-specific data, except that in no event shall the agreed distance be further than 750 feet from the seaward boundary of the State. In the absence of an agreed distance, no well shall be drilled closer than 500 feet from the seaward boundary of the State.

(2) The constraint in paragraph (1) shall not apply:

(a) If oil or gas pools or fields underlying both the outer Continental Shelf and lands subject to the jurisdiction of California are included in a production unit entered into by the relevant lessees and approved by the lessors, or in a production unit entered into by the Federal lessee and the State of California when it is carried, nonoperating owner.

(b) If, in the absence of a production unit as described in (a) above, the State of California permits production from State lands from a point closer than 750 feet from the Federal-State boundary. In the event that such production from State lands does occur, the Federal lessee shall be allowed to produce from offset wells equally close to the boundary in the area of Federal jurisdiction.

EXHIBIT 5

Marine Resources in the Santa Barbara Channel and Santa Maria Basin

1 REFUGES, PRESERVES AND MARINE SANCTUARIES¹

Refuges, preserves, and marine sanctuaries are areas that are managed by the State or federal government with the primary intent of protecting marine resources for their inherent biological or ecological value. Since the time of the Commission's review of the existing OCS platforms and support facilities (in the 1980's), the significance of the ecological and economic value of the marine resources in the region has continued to grow.

The Channel Islands encompassed within the Channel Islands National Marine Sanctuary and Channel Islands National Park are noted for their nearly pristine marine environment and clear waters. The four northern Channel Islands have been comparatively less visited and affected by humans than the adjacent mainland. The wide range of water temperatures, shoreline exposures and substrate types of the islands create a variety of different habitats.

The Monterey Bay National Marine Sanctuary contains among the most diverse and species-rich invertebrate fauna in the world, with the widest array of invertebrate species occurring in the rocky intertidal habitat of the area. Characteristic species include periwinkles, isopods, barnacles, limpets, sea snails, crabs, chitons, mussels, sea starts, and anemones. Marine algae are also diverse and abundant, with over 450 species occurring in the area, including several endemic species.

In addition to the Channel Islands National Park/Marine Sanctuary and Monterey Bay National Marine Sanctuary, the region also includes: Morro Bay National Estuary, Santa Barbara Oil and Gas Sanctuary, Santa Barbara Channel Federal Ecological Preserve, the San Luis Obispo State Seashore (from Cayocos to Lions Head), the Santa Barbara Coast State Seashore (from Gaviota to Los Liagos Canyon); six Ecological Reserves, four Areas of Special Biological Significance, ten State Beaches, three State Parks, seven State Refuges, and three State Reserves.

2 HABITAT AREAS

Point Conception is a significant environmental boundary along the California coast, serving as a divide between areas with different marine biology, ocean currents and temperatures, climatic influences, and other environmental characteristics. The ocean waters off Point Conception serve as one of only two major transition zones along the entire west coast of North America for coastal fishes, one of three transition areas for benthic algae, and one of five for marine invertebrates. The convergence of biogeographical areas also provides the nearshore and upland areas with a wide variety of habitat types supporting a number of endangered, threatened, sensitive, or endemic species.

¹ EID, pp. 4.7- 57

2.1 Rocky Intertidal and Sandy Beach Habitats²

Rocky beach habitat includes rocky tidepool habitat and its resident algal and invertebrate communities. Sandy beach habitat include the habitat and communities found on the surface and inhabiting the sand. Approximately half of the shoreline from Point Conception north along the coastline of California is rocky, forming either broad benches or cliffs. North of Point Conception, where strong and constant wave action prevails, sandy beaches are found in the lee of each point due to depositional patterns. Boulder and cobble beaches are patchily distributed within this same area. South of Point Conception, over three-fourths of the shoreline is sandy. Within sandy beach areas between Point Conception and the Santa Ynez River, dune-backed and bluff-backed beaches are evenly represented. Bluff-backed beaches are often ephemeral and lose their sand seasonally, exposing rocky platforms. A wide variety of marine and coastal fauna forage and nest in the rocky intertidal and on sandy beaches.

2.2 Estuaries and Wetlands³

Estuarine habitats contain a greater diversity of both plant and animal life forms, per unit surface area, than any other habitat in the marine environment. Estuarine habitats are highly productive because they constitute an area where freshwater, marine and terrestrial habitats meet and intermingle. Estuarine habitats often serve as spawning and nursery grounds for marine fish and invertebrates. Although the size and relative importance varies, estuaries are found along most of the Pacific Coast.

The largest of the relatively unaltered bays remaining in Southern California is Morro Bay. Morro Bay contains an extensive salt marsh, tidal mudflats, and a rich assemblage of estuarine and terrestrial animals. In 1994, the Governor named Morro Bay California's first State Estuary. The designation recognized the importance of "preserving and enhancing Morro Bay and its watershed as one of the state's rare natural treasures." In 1995, Morro Bay was designated one of only 28 National Estuaries. Congress established the National Estuary Program as part of the Clean Water Act to restore and protect these important coastal resources (Morro Bay National Marine Estuary Program, 2004).

One of the largest remaining wetlands in southern California is Mugu Lagoon in Ventura County. It has a permanently open mouth that assures good water quality, but also makes it more vulnerable to an oil spill. Important habitats include open water, mudflats, tidal creeks and a salt marsh. The salt marsh is the most extensive in southern California and supports many endangered and sensitive species including salt marsh bird's beak, clapper rail, Belding's savannah sparrow, least tern, snowy plover and brown pelican. Mugu Lagoon is also an important stop on the Pacific flyway, serving many thousands of migrating shorebirds each year.

Important estuarine habitats in Santa Barbara County include the Santa Ynez River, Goleta Slough and Carpinteria Marsh. The Santa Ynez River and the Goleta Slough contain by far the largest areas of salt marsh in the Santa Barbara County area.

² EID, Biological Resources, Chapters 4.7 and 5.7: pp. 4.7-1 to 4; pp. 5.7-1 to 7.

³ EID, Biological Resources, Chapters 4.7 and 5.7: pp. 4.7-54 to 57; pp. 5.7-94 to 97.

2.3 Kelp Beds⁴

Kelp beds are an important and distinct community found nearshore in shallow waters. Kelp beds are important because they provide vertical water column habitat for many types of adult and juvenile fish, marine mammals such as the sea otter, and other marine animals. Kelp beds are located in the photic zone, where sunlight penetrates the water. Large kelp beds have been identified in waters up to one mile offshore in the area from Point Conception and Gaviota, and at San Miguel, Santa Rosa and Anacapa Islands. Kelp usually attaches to rocky outcrops or cobbles, but in the Santa Barbara Channel, waters are so calm that kelp plants can become established in sandy subtidal regions, by attaching themselves to worm tubes. Many species normally associated with rocky substrate are found in this habitat due to the unusual presence of kelp.

Kelp is very sensitive to water temperature, dying back substantially during El Niño warm water events and reestablishing during cooler water periods. As natural predators, the red and purple sea urchins also have an effect on the health of a kelp forest. December 2004 diving and remotely operated vehicle ("ROV") surveys found that urchins and brittle stars offshore Santa Barbara and Anacapa Islands had reduced the surface and subsurface kelp beds in those locations. In response to cooler waters from 1998 to 2001, kelp is making a comeback on the southern and western shores of San Miguel Island, on the south side of Santa Rosa Island, and at several locations along the mainland.

3 MARINE FLORA AND FAUNA

3.1 Marine Mammals⁵

According to the Marine Conservation Biology Institute, the region including the Santa Maria Basin and the Santa Barbara Channel is a hotspot of marine mammal diversity and abundance.⁶ The marine mammal population in this region includes eight baleen whale species (including the California gray whale); more than 20 species of porpoises, dolphins, and other toothed whales; six species of pinnipeds (i.e., true seals, eared seals, sea lions, and fur seals); and the sea otter. The waters of Santa Barbara Channel and Santa Maria Basin provide important breeding and feeding grounds for species of baleen whales, toothed whales, pinnipeds, and the sea otter. San Miguel and San Nicolas Islands are the largest pinniped rookeries on the west coast south of Alaska.

3.1.1 Special-Status Species

Threatened and endangered marine mammal species found in the Santa Barbara Channel and Santa Maria Basin include the southern sea otter (see below) and the following six whales and two pinnipeds: 1) blue whale (*Balaenoptera musculus*); 2) fin whale (*Balaenoptera physalus*);

⁴ EID, Biological Resources, Chapters 4.7 and 5.7: pp. 4.7-11 to 12; pp. 5.7-14 to 17

⁵ EID, Biological Resources, Chap. 4.7 and 5.7: pp. 4.7-24 to 34, 36-42 and pp. 5.7-39 to 58, 73-76

⁶ Morgan, Lance, Sara Maxwell, Fan Tsao, Tara A.C. Wilkinson, and Peter Etnoyer. *Marine Priority Conservation Areas: Baja California to the Bering Sea*. Commission for Environmental Cooperation of North America and the Marine Conservation Biology Institute. Montreal, February 2005.

3) sei whale (*Balaenoptera borealis*); 4) humpback whale, (*Megaptera novaeangliae*); 5) northern right whale (*Eubalaena glacialis*); 6) sperm whale (*Physeter macrocephalus*); 7) steller, or northern, sea lion (*Eumetopias jubatus*); and 8) Guadalupe fur seal (*Arctocephalus townsendi*). In addition, the recently delisted gray whale (*Eschrichtius robustus*) is found in the project area.⁷

San Nicolas Island and San Clemente Island are key habitats for the Guadalupe fur seal. This area is also a major breeding and haulout region for California sea lions and northern fur seals (*Callorhinus ursinus*), following feeding farther north off British Columbia. Major California sea lion rookeries occur at San Miguel and Santa Barbara Islands. Other abundant pinnipeds include the northern elephant seal and Pacific harbor seal.⁸

The Santa Barbara Channel is a key feeding habitat during the summer and fall for humpback whales and blue whales, and serves as a migratory corridor. Fin whales, also present during the summer, are found far offshore. Sei and northern right whales are rare in California waters. Migrating gray whales and their calves generally travel within about one mile of the shoreline, though they have been sighted much farther offshore, and are generally present in local waters from December through May. Beaked whales, rarely sighted, normally inhabit deep ocean waters and continental slopes, and only rarely stray over the continental shelf. Aerial and shipboard surveys conducted between 1991 and 2001 reported only one sighting of a beaked whale approximately 25 miles west of Purisma Point. Stellar sea lions and Guadalupe fur seals are present in the area, but uncommon.⁹

3.1.2 Southern Sea Otter¹⁰

The southern sea otter (*Enhydra lutris nereis*) was listed as a threatened species by the federal government in 1977. The main reasons for listing the southern sea otter are: 1) its small size and limited distribution, and 2) the threat of oil spills, pollution, and competition with humans.

The southern sea otter population is currently about 2,700 animals,¹¹ and ranges along the coast of central and southern California between Half Moon Bay and Point Conception (Santa Maria Basin).¹² The US Fish and Wildlife Service ("USFWS") Recovery Plan ("Recovery Plan") for the southern sea otter identifies all waters south of Point Conception and around the Channel Islands as a potentially necessary recovery area for full southern sea otter population recovery

⁷ California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. *California Natural Diversity Database: SPECIAL ANIMALS (817 taxa)*. July 2005

⁸ *Ibid.* Morgan, 2005.

⁹ EID, pp. 4.7-36 to 4.7-42

¹⁰ U.S. Fish and Wildlife Service. 2003. *Final Revised Recovery Plan for the Southern Sea Otter (Enhydra lutris nereis)*. Portland, Oregon. xi + 165 pp.

¹¹ Sea otter data are from U.S. Geological Service/Biological Services Divisions: southern sea otter mainland population 2005 spring survey data and San Nicolas Island 2004 survey data.

¹² Range delineation is somewhat arbitrary because individuals frequently wander well beyond the distributional limits of most of the rest of the population.

under the Endangered Species Act.¹³ Proposed development in the Northern Santa Maria Basin and at Point Arguello is located within the otter's current range. Development at the Gato Canyon Unit and the Cavern Point Unit is outside the otter's current range, but within the potential recovery area specified in the Recovery Plan.

3.2 Marine and Coastal Birds^{14,15}

The marine and coastal bird populations off southern California are both diverse and complex, being composed of as many as 195 species. Of the many different types of birds that occur in the project area, two groups tend to be the most sensitive to potential impacts from OCS activities: seabirds (e.g., loons, grebes, shearwaters, sea ducks, and gulls), and shorebirds (e.g., sandpipers and plovers.) Waterfowl and marshbirds (herons and egrets) may be vulnerable when they occupy coastal wetlands and estuaries.

The California brown pelican (*Pelecanus occidentalis*) and the California least tern (*Sterna antillarum browni*) are listed with both the State and federal governments as endangered, and are State fully-protected species. Anacapa Island is the only permanent nesting site for brown pelicans in California, while the least tern breeds on the mainland coast. The western snowy plover (*Charadrius alexandrinus nivosus*) is a federally threatened species that breeds on dune-backed beaches and salt flats in Morro Bay, the Callendar-Mussel Rock Dunes area, the Point Sal to Point Conception area, the Oxnard Lowland, and Santa Rosa and San Nicolas Islands. Other threatened and endangered bird species found in the Santa Barbara Channel and Santa Maria Basin include the bald eagle (*Haliaeetus leucocephalus*), and the light-footed clapper rail (*Rallus longirostris levipes*). Bald eagles have recently been reintroduced at Santa Catalina Island; that population currently consists of four breeding pairs and one group of three nesting birds. Light-footed clapper rails occupy two marshes in the project area: Carpinteria Marsh in Santa Barbara County and Mugu Lagoon in Ventura County.

The common loon (*Gavia immer*), double-crested cormorant (*Phalacrocorax auritus*), and tufted puffin (*Fratercula cirrhata*), which breeds on San Miguel Island, are California species of special concern. Sensitive species (as defined by the USDA Forestry Service) include black-crowned night heron (*Nycticorax nycticorax*), snowy egret (*Egretta thula*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*). The black oystercatcher (*Haematopus bachmani*) breeds in the area, and is on the US Bird Conservation watch list. The Northern Channel Islands and Santa Barbara Island are key breeding habitat for Xantus' murrelet (*Synthliboramphus hypoleucus*), listed as threatened with the State, and are the only nesting site for black storm petrels (*Oceanodroma melania*) in the United States. Cassin's auklet (*Ptychoramphus aleuticus*) breeds on San Miguel Island, and is listed as a bird of conservation concern with the US Fish and Wildlife Service. Northern fulmars (*Fulmarus glacialis*) breed in the Bering Sea region, but the

¹³ Recovery Plan and Pers. Comm. Tinker, M.T.(U.C. Santa Cruz and Faurot-Daniels, E.R. (Coastal Commission staff), Feb. 2005.

¹⁴ EID, Biological Resources, Chap. 4.7, pp.4.7-20 to 23, 42-48 and Chap. 5.7, pp. 5.7-31 to 38, 76-81

¹⁵ California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. *California Natural Diversity Database: SPECIAL ANIMALS (817 taxa)*. July 2005

Channel Islands are the southern extent of their non-breeding range. Other species that breed in the area include: Leach's, ashy, and black storm-petrels; Brandt's and pelagic cormorants; western gull; least tern; pigeon guillemot; and rhinoceros auklet.

3.3 Sea Turtles¹⁶

Sea turtles typically inhabit tropical and subtropical seas, and are uncommon in eastern North Pacific waters north of Mexico. Four species of endangered or threatened sea turtles have been recorded in the waters of the Santa Barbara Channel and Santa Maria Basin: 1) leatherback sea turtle (*Dermochelys coriacea*), 2) green sea turtle (*Chelonia mydas*), 3) Pacific (or olive) ridley sea turtle (*Lepidochelys olivacea*), and 4) loggerhead sea turtle (*Caretta caretta*).

3.4 Fish¹⁷

The marine environment offshore Point Conception is especially rich in fish species because this area constitutes a transition zone between southern warm, temperate, subtropical waters and northern cold-temperate waters. The area also provides a wide variety of habitats created by many banks, ridges, and deep-sea basins. Estuaries and wetlands, natural and artificial hardbottom features, and kelp beds all represent important habitat. The area is designated Essential Fish Habitat pursuant to the requirements of the federal Sustainable Fisheries Act (PL 104-297), and much of the area is within federal and State-designated Rockfish Conservation Areas. Species common to the area include: northern anchovy, albacore tuna, jack mackerel, Pacific mackerel, Pacific bonito, Pacific sardines, Pacific whiting, Pacific herring, salmon, steelhead trout, swordfish, thresher shark, Pacific saury, bluefin tuna, yellowtail tuna, flatfishes, lingcod, some rockfishes, cods, and sablefish, kelp bass, seniorita, blacksmith, rockfishes, and surfperches.

Threatened and endangered fish species that inhabit and breed in the streams, estuaries and coastal waters of the project area include steelhead trout (*Oncorhynchus mykiss*) and tidewater goby (*Eucyclogobius newberry*). Critical habitat for steelhead include all river reaches and estuarine areas accessible to steelhead in coastal river basins from the Santa Maria Basin to Malibu Creek. In the Point Arguello Area, this includes the Santa Ynez River, San Antonio Creek, and the Santa Maria River, and perhaps Jalama and Cañada Honda Creeks. The tidewater goby is found in shallow coastal lagoons, stream mouths and shallow areas of bays in low salinity waters.

3.5 Abalone¹⁸

In 2001, white abalone (*Haliotis sorenseni*) became the first marine invertebrate to receive federal protection as an endangered species. This species usually lives in deep waters from 80 to 200 feet, from Point Conception southward, however near the northern end of their range the species can occur in shallower water. Specifically, localized mainland areas in the Coal Oil

¹⁶ EID, Biological Resources, Chapters 4.7 and 5.7: pp.4.7-48 to 51; pp. 5.7-81 to 86

¹⁷ EID, Biological Resources, Chapters 4.7 and 5.7: pp. 4.7-13 to 18, 35; pp. 5.7 – 17 to 31, 59-62

¹⁸ EID, Biological Resources, Chapters 4.7 and 5.7: pp.4.7-2, pp. 5.7-5, 62

Point region west of Santa Barbara have supported white abalone in water depths of less than 30 feet. Black abalone (*Haliotis cracherodii*) was included on the Species of Concern list established by the National Marine Fisheries Service effective April 15, 2004.¹⁹ Research conducted on rocky and intertidal habitat has demonstrated a drastic decline in the number of black abalone, once commonly found in large numbers. This decline is the result of a “withering foot syndrome”, a fatal bacterial infection that causes the foot of the abalone to shrink. Since 1992, steady declines have crept up the coast from Government Point to Purisima Point.

3.6 Other Special-Status Species²⁰

The project area includes one amphibian and two plants that are listed on the federally threatened and endangered species list: California red-legged frog (*Rana aurora draytonii*), salt marsh bird's beak (*Cordylanthus maritimus ssp. maritimus*), and California sea-blite (*Suaeda californica*). The salt marsh bird's beak is an annual semiparasitic herb that occurs in salt marshes from Carpinteria Marsh in Santa Barbara County south to San Diego County. The primary habitat for this plant is the upper salt marsh that is inundated by tides on a regular basis, but above areas that receive daily salt flooding. The California sea-blite is a succulent-leaved perennial plant that only occurs in a very narrow band of the upper intertidal zone of Morro Bay.

The California red-legged frog has been extirpated from 70 percent of its former range and is threatened in its remaining range by a wide variety of human impacts, including urban encroachment, the introduction of exotic invasive species, and habitat fragmentation. The central coast recovery unit from San Mateo and Santa Clara Counties south to Ventura and Los Angeles Counties is one of five units considered essential to the survival of the species.

¹⁹ California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. *California Natural Diversity Database: SPECIAL ANIMALS (817 taxa)*. July 2005

²⁰ EID, Biological Resources, Chapters 4.7 and 5.7: pp.4.7-51,52; pp. 5.7-87 to 92.

EXHIBIT 6

Excerpt from Environmental Defense Center's June 27, 2005 Letter to Coastal Commission Staff (Pages 25-28)

Air gun firing: shallow hazard surveys, 2-D surveys, 3-D surveys

The EID fails to clearly identify the types of surveys that may occur on the leases in question.¹ Although seismic surveys may not be proposed at this time, in the past they have been proposed for the Cavern Point leases. At a minimum, air gun surveys have been proposed that would significantly impact marine mammals and other species. (See Environmental Assessments ("EAs") for Gato Canyon, Purisima Point and Point Sal Units.)

Use of *air guns* is documented to have significant impacts to individuals and populations of both fish and marine mammal species. McCauley et al. (2003) exposed marine fishes to air gun sound at various levels and then analyzed damage to their inner ear tissues, particularly the sensory hair cells. Among the most impacted individuals of the study group, "the damage was regionally severe with no evidence of repair or replacement of damaged sensory cells up to 58 days after air gun exposure."² The authors further noted that fishes with impaired hearing from such tissue damage "would have reduced fitness, potentially leaving them vulnerable to predators, possibly unable to locate prey, sense their acoustic environment, or, in the case of vocal fishes, unable to communicate acoustically."³

Strangely, MMS fails to consider this information, instead citing 11-year-old data (from 1994) to claim: "direct damage to adult fishes is mainly to the swim bladder and at fairly close ranges to the air gun."⁴ In direct contrast to this opinion, the National Research Council (2003), in a recent comprehensive survey of biological impacts from anthropogenic sound, discussed McCauley's studies and concluded:

The results show exposure to air-guns with a maximum received level of 180 dB re 1 μ Pa over 20-100 Hz causes major damage to sensory cells of the ear of at

¹ / The EAs, which are incorporated by reference, do describe the acoustic surveys being planned for the short term; however, this information should be included in the EID to ensure clear and comprehensive information to the public and decision-makers. The fact that the EID also includes a section, albeit shorter and less complete, on acoustic surveys only adds to the confusion, especially since the EID relies on different studies and information than those discussed in the EAs.

² / McCauley, et al., 2003. "High intensity anthropogenic sound damages fish ears." *Journal of the Acoustical Society of America* 113(1): 638-642.

³ / *Id.*

⁴ / EID at p. 5.7-26. Again, although the EAs mention other studies, they are not discussed in the EID and they are not adequately considered in the EAs.

least one species... they suggest air-guns damage sensory hair cells in fishes. While similar studies have not been done with marine mammals, one must question whether these results could also have implications for marine mammals exposed to air-guns, particularly since the hair cells in fishes and marine mammals are so similar to one another.⁵

A temporary or permanent impact to the hearing of sound-dependant animals, such as marine mammals and many species of marine fishes, impinges on their ability to find food, find mates, and avoid predators, and thus survive. Echoing McCauley, the NRC report continues: "during a recovery period of several weeks [from air gun exposure], fish are without a full set of sensory cells and so they may not be able to detect predators and prey, and thus have a substantially decreased chance for survival."⁶ For MMS to ignore newer data on physiological impacts to fish from airgun noise exposure, and state conclusions based on outdated science, is both negligent and misleading.

Air gun firing is also documented to have significant impact on the behavior of fish *populations*, which must be considered for future Central and Southern California OCS exploration. For example, Engås et al. (1996) showed that air gun noise significantly impacts fish distribution and catching rates for cod and haddock well beyond the immediate area around the seismic survey activity:

Seismic shooting severely affected fish distribution, local abundance, and catch rates in the entire investigation area of 40x40 nautical miles. Trawl catches of cod and haddock and longline catches of haddock declined on average by about 50% (by mass) after shooting started, which agreed with the acoustic abundance estimates; longline catches of cod were reduced by 21%. Reductions in catch rates were observed 18 nautical miles from the seismic shooting area (3x10 nautical miles), but the most pronounced reduction occurred within the shooting area, where trawl catches of both species and longline catches of haddock were reduced by about 70% and the longline catches of cod by 45%; a relatively greater reduction was found (in catches and acoustic estimates) for large (>60 cm) than for small fish. Abundance and catch rates did not return to pre-shooting levels during the 5-day period after seismic shooting ended.⁷

Air gun firing has also been documented to cause significant behavioral impacts to marine mammals. Migrating gray whales were documented showing obvious and dramatic avoidance responses when exposed to noise from seismic air gun arrays.⁸

⁵/ National Research Council (NRC). 2003. *Ocean Noise and Marine Mammals*. National Academy Press, Washington, D.C.

⁶/ *Id.*

⁷/ Engås, A., et al, 1996. *Effects of seismic shooting on local abundance and catch rates of cod (Gadus morhua) and haddock (Melanogrammus aeglefinus)*. Canadian Journal of Fisheries and Aquatic Sciences. 53: 2238-2249.

⁸/ Malme, C., et al., *Investigations of the potential effects of underwater noise from petroleum industry activities on migrating gray whale behavior*. BBN Rep. 5366. Rep. from Bolt Beranek and Newman Inc., Cambridge, MA for U.S. DOI, Minerals Management Service, Anchorage,

Mothers and calves moved rapidly into the breaking surf close to the coastline, adults hid in acoustic shadows behind large rocks, and groups of animals split apart and appeared disoriented. From more recent research off Alaska, bowhead whales almost totally avoided coming within 20 km (12 miles) of seismic airgun activity.⁹

In 2002, episodes of increased humpback whale strandings in coastal Brazil were documented as coinciding with commercial seismic surveying in the area.¹⁰ Also in 2002, two Cuvier's beaked whales (*Ziphius cavirostris*) that appeared to be in good physical condition and disease-free, stranded and died on Isla San Jose in the Gulf of California, in proximity to air gun firing for geology research. NOAA Fisheries scientists coincidentally in the area contemporaneous with the surveying testified that they believed the airgun sound caused the beaked whales to strand and die.¹¹ These incidents reveal that both odontocete (toothed) and mysticete (baleen) whale species can suffer significant impacts from air gun noise.

MMS omitted discussion or reference to any of this data on impacts to fish and cetaceans despite its direct relevance, instead relying on conclusions from a 17-year-old study (Van Horn et al. 1988). To conclude that seismic surveys result in only "temporary and localized effects"¹² misleadingly downplays both the severity and potential scope of impacts that air gun shooting can have on biological communities in the Santa Maria Basin and the Santa Barbara Channel.

MMS was aware that it was using an invalid model that downplayed impacts from the proposed air gun surveys when it prepared its EAs for Gato Canyon, Purisima Point and Point Sal Units. In these EAs, MMS used an improper model for determining sound propagation in shallow waters where the acoustic surveys would operate. Notably, the acoustic scientists that were consulted by MMS during preparation of the final EAs informed MMS that the spherical spreading model relied on by MMS to calculate the half-mile-radius "impact zone" was "not correct for Santa Barbara Channel, because [the] water is too shallow."¹³ The MMS biologist who wrote the EAs specifically notified his superiors in an internal e-mail that the "spherical spreading model" on which the EAs rely "is violated" because the distance the air guns sound would travel horizontally is

AK. OCS Office. Contract No. AA851-CT2-39, BBN Job Nos. 07431-33, 07532. AND: Malme, C., et al., 1984. *Investigations of the potential effects of underwater noise from petroleum industry activities on migrating gray whale behavior/Phase II: January 1984 migration*. BBN Rep. 5586. Rep. from Bolt Beranek and Newman Inc., Cambridge, MA for U.S. DOI, Minerals Management Service, Anchorage, AK. OCS Office. OCS Office.

⁹/ Richardson, W.J., et al., 1995. *Marine Mammals and Noise*. Academic Press, Inc. San Diego, CA.

¹⁰/ International Whaling Commission (IWC). 2004. *Report of the Scientific Committee, Annex K: Report of the Standing Working Group on Environmental Concerns*. Committee meeting June 29 – July 10, 2004, Sorrento, Italy.

¹¹/ Whale and Dolphin Conservation Society (WDCS). 2003. *Oceans of Noise: a WDCS Science Report*. Dolman, S., et al. Chippenham, UK.

¹² / EID at p. 4.7-53.

¹³/ Email from Aaron Thode to Jeff Childs, MMS, January 25, 2005, and related documents; email notes from Jeff Childs, attached hereto as Exhibit G.

“greater than the water depth where the surveys are to be conducted.” As noted in the email, in shallower waters the underwater sound waves will spread spherically before they reach the sea floor but then “cylindrical[ly]” after that, “as opposed to simple spherical spreading as assumed for the assessment.” The consequences of this invalid noise modeling are severe, the EA’s author notified his superiors: “[t]he assessment and mitigations would not be accurate or sufficient if cylindrical spreading occurs in the shallow waters and results in larger impact zones.”

MMS’s internal documents show just how badly the EAs understated the “impact zones” by using an inaccurate underwater-noise model. The EAs claim the “impact zone” extends no further than half a mile from the air gun. However, MMS’s internal documents show that the 160-decibel “impact zone” could extend as far as 10 kilometers (or 6.2 miles) from the air gun under the correct underwater-noise model. The MMS documents also present an alternative model intermediate to the one used in the EAs and the one that generates a 10-kilometer-radius “impact zone.” But even this intermediate model results in an “impact zone” that extends a full mile from the air gun – or twice as far as MMS represented in its EAs.¹⁴

The effect of the erroneous noise model is even more significant if the “impact zone” is considered in terms of area. The “impact zone” under the erroneous, half-mile-radius model presented in the EAs is 0.785 square miles in size. If the correct radius is actually one mile, which is the shortest radius that can be generated from the underwater-noise models presented in MMS’s internal documents, the “impact zone” is actually 3.14 square miles in size – or four times the area of the “impact zone” MMS represented in its EAs. If the correct radius is actually ten kilometers, as MMS’s internal documents suggest it is, then the “impact zone” is actually 121 square miles – or more than 154 times the area represented by MMS in its EAs.

Clearly, MMS must re-evaluate the true impacts that will be caused by air gun and other surveys in the project area.

¹⁴ *Id.*



United States Department of the Interior

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JUL 15 2005

Alison Dettmer
Manager, Energy and Ocean Resources Unit
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105-5200

Re: Minerals Management Service Consistency Determinations for Granting a Suspension of Production (SOP) for Samedan Oil Corporation's Gato Canyon Unit and SOP's for Aera's Point Sal and Purisima Point Units

Dear Ms. Dettmer:

Thank you for this opportunity to respond to your July 7, 2005, information request concerning the shallow hazards surveys discussed in the MMS Consistency Determinations (CD's) for the proposed suspensions on the undeveloped units/lease. We provide the following response. Please also refer to the three referenced CD's provided to you on April 7, 2005, and the accompanying Environmental Assessments (EA's).

Sound transmission loss in water is affected by many physical variables. Consequently, there are a number of simple and complex models available to predict that loss. Over the last 10 years, MMS applicants and the U.S. Geological Survey, have used the spherical spreading model in their environmental documentation for seismic surveys conducted offshore southern California. While there are other sound transmission loss models available, MMS determined that results from sound transmission loss verification studies conducted on previous seismic surveys in southern California support the use of the theoretical spherical spreading model in the project area. This is stated in both the Samedan (Gato Canyon) and the Aera (Santa Maria Basin) EA's.

In January 2005, after attending a presentation about cylindrical spreading models, MMS consulted with several underwater acoustic experts to better understand cylindrical spreading loss and to ensure that we used the appropriate model in assessing sound transmission loss. In our discussions it was suggested that the cylindrical spreading modeling may be appropriate when empirical data are not available. However, given all the physical variables, it was confirmed that the best estimate for determining sound transmission loss is modeling that is based on empirical data. This was also a recommendation from the High Energy Seismic Survey (HESS) Team. Based on the empirical data available from *in situ* sound verification studies, MMS determined that the spherical spreading model, using 20 log R, would be appropriate and conservative (protective) for use in the Santa Barbara Channel and Santa Maria Basin.



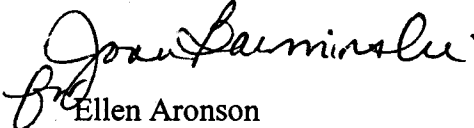
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| EXHIBIT NO. 7 |
| APPLICATION NO. |
| CD-050-05 |
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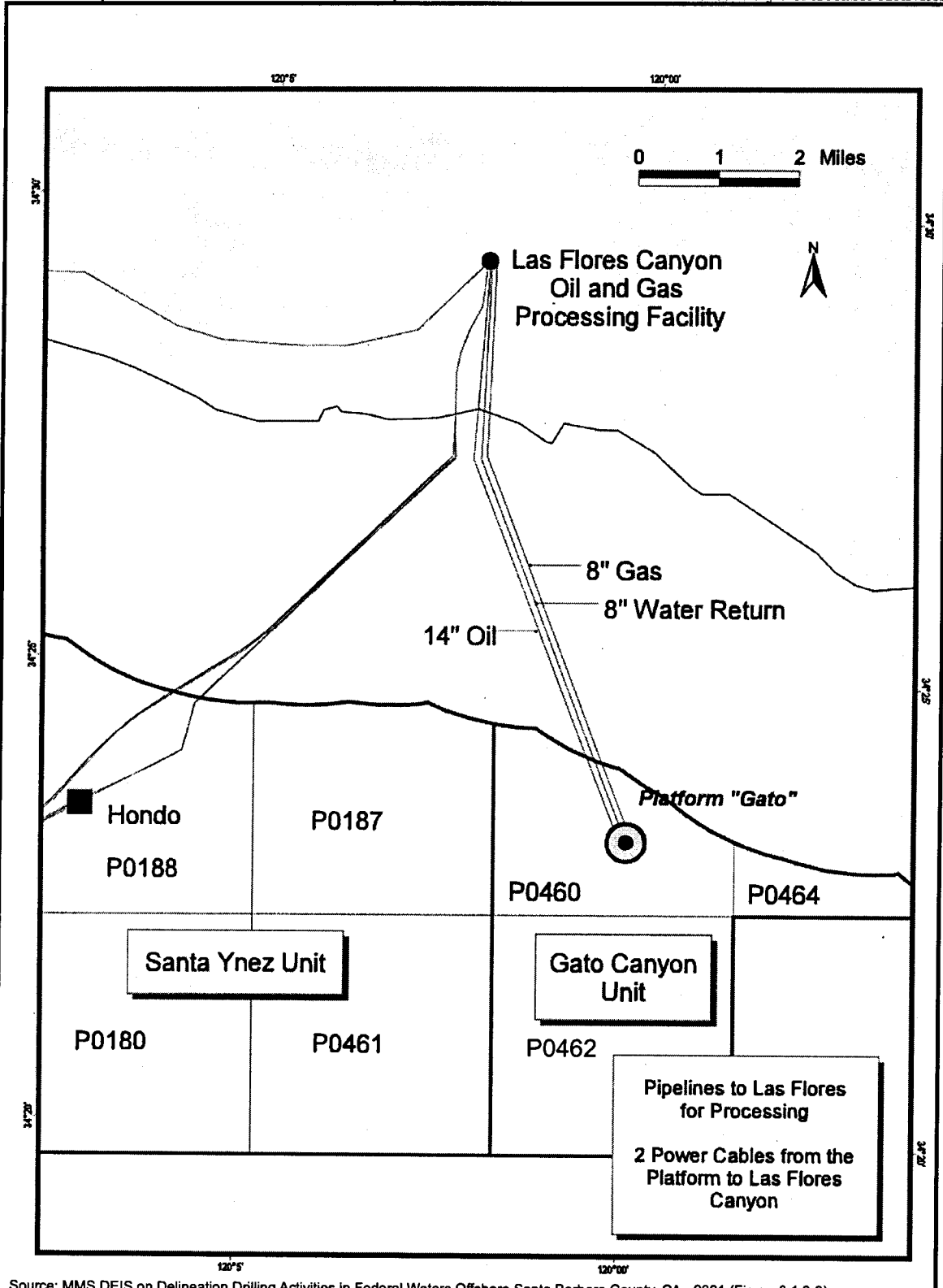
We conducted our discussions with scientists from NOAA Fisheries Service; Dr. Charles Greene, Greeneridge Sciences, Inc.; and Dr. Aaron Thode, UCSD. Empirical data are available from two field verification studies that were conducted in the Santa Barbara Channel: (1) BBN Acoustic Technologies, 1995. Exxon SYU sound propagation study. BBN Report No: 8120; and, (2) Greeneridge Sciences, Inc. 1998. Sound levels of an airgun array operating at Platform Harmony on 17 March 1998. Report 2006-2. Dr. Roger Gentry, NOAA Fisheries Service, and Dr. Greene confirmed that empirical data was considered to be superior to theoretical model results whenever such data are available.

As discussed in the EA's, MMS also conducted informal Section 7 Endangered Species Act consultations with NOAA Fisheries Service on the shallow hazards surveys planned for these units during the suspensions. The MMS received a response dated December 16, 2004, from NOAA Fisheries Service that concurred with the MMS findings that Samedan's and Aera's shallow hazards surveys may affect, but are not likely to adversely affect, marine mammals and sea turtle species listed under the Endangered Species Act. The NOAA Fisheries Service also provided in their letters specific recommendations for marine mammals and sea turtles. All the recommendations (mitigation measures) from NOAA Fisheries Service were accepted and the necessary changes and/or clarifications were included in the Final EA's. If the suspensions are granted, the operators would be bound to all mitigation measures identified in the EA's as conditions of the suspensions.

Please contact me at (805) 389-7502 or Drew Mayerson at (805) 389-7750 if you have any questions regarding this information.

Sincerely,


Ellen Aronson
Regional Manager



Source: MMS DEIS on Delineation Drilling Activities in Federal Waters Offshore Santa Barbara County, CA., 2001 (Figure 6.1.3-2)

Figure 5.2-2. Potential platform, pipeline, and power cable locations, Gato Canyon

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| EXHIBIT NO. 8 |
| APPLICATION NO. |
| CD-050-05 |
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