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Delineation Drilling Activities in Federal Waters Offshore Santa Barbara County, California

Draft Environmental
Impact Statement

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COVER SHEET

Environmental Impact Statement (EIS) for Delineation Drilling Activities in Federal Waters Off-shore Santa Barbara County, California

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ABSTRACT

The Proposed Action discussed in this draft EIS is the sequential drilling of 4 - 5 delineation wells on four separate Federal Outer Continental Shelf (OCS) units using a semi-submersible drilling vessel, commonly referred to as a mobile offshore drilling unit (MODU). Delineation is a type of exploration drilling activity that involves drilling a well to gather additional information about the nature and extent of the hydrocarbon reservoirs in areas where a discovery has already been made. An OCS unit is a number of leases grouped together to prevent waste, conserve natural resources, and protect Federal royalty interests. Each of the four subject units has been previously explored under Exploration Plans (EP's) approved by the Minerals Management Service (MMS) and found consistent with the California Coastal Management Plan by the California Coastal Commission. Operators are expected to submit to the MMS revisions to 4 - 5 existing EP's in September 2001. The operators of these units – Nuevo Energy Company, Aera Energy LLC, and Samedan Oil Corporation – propose to drill delineation wells to complete their data on reservoir configuration and characteristics. It would take 68-92 days to drill and test each well. The drilling of the first and last wells would commence in May 2002 and May 2003, respectively. The data received from these wells would assist the operators in determining how to develop and produce the oil and gas reserves underlying these and possibly adjacent units.

As the operators are expected to submit revisions to 4 - 5 EP's, the MMS will prepare 4 - 5 separate Records of Decision (ROD). The ROD will record the MMS's selection of the Alternative(s) and mitigation measures discussed in this EIS.

After review of the revisions to the EP's, the MMS, pursuant to 30 CFR 250.203(i) will make a decision on each plan to:

- Approve;
- Require the lessee to modify any revision to a plan which is inconsistent with the provisions of the lease, the OCS Lands Act (OCSLA), or the regulations prescribed under the OCSLA including air quality, environmental, safety, and health requirements; or
- Disapprove the revision to the EP if the proposed activity would probably cause serious harm or damage to life (including fish and other aquatic life), property, natural resources offshore including any mineral deposits (in areas leased or not leased), the national security or defense, or the marine, coastal or human environment, and that the proposed activity cannot be modified to avoid the condition(s).

The preparation of an EIS to evaluate the effects of delineation drilling is unprecedented in the MMS. Furthermore, inclusion of two cumulative impact analyses – one associated with the cumulative effects of these drilling projects and the second, longer-range analysis, associated with the full development of the currently 36 undeveloped Federal leases in the Pacific OCS Region – is also unique to the bureau. This approach to the drilling proposals is, however, consistent with commitments made by the Secretary of the Interior and the MMS to the State of California in 1999.

This EIS provides the following information in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations, and it will be used in making decisions on the revisions to the EP's. This EIS includes the purpose and need and background of the proposed action, identification of the alternatives, description of the affected environment, and an analysis of the potential environmental impacts of the proposed action, alternatives, and associated activities, including proposed mitigation measures and their potential effects. Two cumulative effects analyses are included: one associated with the cumulative effects of these drilling projects and the second, longer-range analysis, associated with the full development of the currently 36 undeveloped Federal leases in the Pacific OCS Region. The alternatives to the proposed action are onshore disposal of mud and cuttings, and no action.

DATE BY WHICH COMMENTS MUST BE RECEIVED

All comments related to this draft EIS must be received by the MMS by **Monday, August 6, 2001**. All comments should be addressed to the Camarillo, California office of the MMS, address above. Written comments may also be provided by email to DelineationDrillingEIS@mms.gov. Please provide your name and address when commenting by mail or email.

Summary

S.1 INTRODUCTION

This Summary provides the reader with a general overview of the draft Environmental Impact Statement (EIS) and the proposed projects, their elements, anticipated effects, alternatives, and mitigation measures to reduce potential adverse impacts. The reader should review the entire draft EIS thoroughly and not rely exclusively on the Summary as the sole basis of judgment.

This draft EIS evaluates the potential environmental impacts associated with drilling 4 - 5 separate Federal Outer Continental Shelf (OCS) oil and gas delineation wells on existing OCS leases located offshore southern California. Delineation is a type of exploration drilling activity that involves drilling a well to gather additional information about the nature and extent of the hydrocarbon reservoirs in areas where a discovery has already been made. The purpose of this document is to provide information for Federal, State, and local agencies and the public to evaluate the effects of the proposed delineation projects and the cumulative effects of past, present, and reasonably foreseeable actions. The preparation of an EIS to evaluate the effects of delineation drilling is unprecedented in the Minerals Management Service (MMS). Furthermore, inclusion of two cumulative impact analyses – one associated with the cumulative effects of these drilling projects and the second, longer-range analysis, associated with the full development of the currently undeveloped Federal leases in the Pacific OCS Region – is also unique to the bureau. This approach to the drilling proposals is, however, consistent with commitments made by the Secretary of the Interior and the MMS to the State of California in 1999.

S.2 PROPOSED ACTION

The Proposed Action discussed in this draft EIS is the sequential drilling of 4 - 5 delineation wells on four separate OCS units using a semi-submersible drilling vessel, commonly referred to as a mobile offshore drilling unit (MODU). An OCS unit is a number of leases grouped together to prevent waste, conserve natural resources, and protect Federal royalty interests. Each of the four subject units has been previously explored under Exploration Plans (EP's) approved by the MMS and found consistent with the California Coastal Management Plan by the California Coastal Commission. Operators are expected to submit to the MMS revisions to 4 - 5 existing EP's in September 2001. The operators of these units – Nuevo Energy Company, Aera Energy LLC, and Samedan Oil Corporation – propose to drill delineation wells to obtain additional data on reservoir configuration and characteristics. It would take 68-92 days to drill and test each well. The drilling of the first and last wells would commence in May 2002 and May 2003, respectively. The data received from these wells would assist the operators in determining how to develop and produce the oil and gas reserves underlying these and possibly adjacent units.

Based on preliminary development scenarios, the MMS estimates that these 36 leases could recover 558 million barrels of oil and 208 billion cubic feet of gas. Field production life is expected to be about 15 - 18 years. The impact analyses in Chapters 5 and 6 were prepared using the above case. Section 6.3 provides an assessment of impacts of a much more unlikely high case for the 36 leases.

S.3 PURPOSE AND NEED FOR PROPOSED ACTION

The MMS is required to balance orderly energy resource development on the subject leases with the protection of the human, marine, and coastal environment in accordance with the requirements of the OCS Lands Act (OCSLA). The OCSLA directs the Secretary of the Interior to establish policies and procedures that expedite exploration and development of the OCS, in order to achieve national energy goals, assure national security, reduce dependence on foreign sources, and maintain a favorable balance of payments in world trade. The Secretary's responsibilities under this act have been delegated to the MMS.

PURPOSE

The purpose of the Proposed Action for the operators of four specific undeveloped OCS oil and gas units is to gather detailed information on oil and gas characteristics, reservoir characteristics, and reservoir extent.

NEED

The need of these operators is to determine the future location, size, and type of OCS oil and gas production facilities necessary for the development of these units.

Consistent with its contractual obligations to the Federal Government under the OCS lease instruments, the lessees and operators of the Bonito, Point Sal, Purisima Point, and Gato Canyon Units were required by the MMS to submit project descriptions. Each of the operators submitted a project description to the MMS for the following reasons:

- Leaseholders have a legal right to pursue development of the oil and gas resources;
- Commercial quantities of oil and gas have been discovered;
- Leaseholders are obligated, pursuant to law and via lease terms, to diligently develop the resources; and
- The November 12, 1999, Suspensions of Production on the leases granted by the MMS required the operators to achieve their schedule of events leading to the commencement of production by the submission of project descrip-

tions to the MMS by February 2000, the revisions to the EP's by September 2001, and the drilling of delineation wells. The milestones for the drilling of the wells are shown in table 1.1-1.

S.4 PUBLIC SCOPING

Scoping is a process by which the scope of issues and alternatives to be examined in an EIS are identified and determined. The process is public and generally continuous throughout the development of the EIS. Interagency discussions, public meetings, and written comments provide the bureau with information used to determine the scope of the document: the issues, alternatives, and mitigating measures that will be analyzed in the EIS as well as those that will not be addressed.

Scoping for this EIS formally began with the publication of the Notice of Intent (NOI) to Prepare an EIS published in the Federal Register (Vol. 65, No. 226/November 22, 2000) and mailed to an extensive mailing list. The NOI provided a general description of the Proposed Action and alerted the agencies and interested publics of opportunities to provide comments on the Proposed Action and the scope of environmental analysis to be undertaken by the bureau. Notification of public scoping meetings was included in the NOI as was an invitation to comment in writing through mail and email.

The MMS met with affected agencies and the interested public early in the process to discuss the preliminary plans to develop the EIS and the interest, need, and timing for agency reviews. Two public scoping meetings were held in order for the MMS to hear oral statements concerning the scope of the document. The first public meeting was held in Santa Barbara, California, on December 6, 2000. About 35 people attended the meeting, and 11 provided oral comments. On January 22, 2001, MMS held a second public scoping meeting in Santa Maria, California. About 135 people attended, and 47 provided oral comments. Written comments were also submitted at each meeting. The MMS received numerous comments by mail and electronic mail. Environmental issues raised during the scoping process are addressed within this draft EIS.

S.5 ALTERNATIVES

Alternatives to the Proposed Action include those identified during the public and agency scoping process. All of the alternatives identified were evaluated as to whether they would 1) attain the basic objectives of the project, 2) be technically feasible, 3) be economically feasible, and 4) offer environmental advantages over the Proposed Action. Alternatives car-

ried forward for environmental review are: the Proposed Action, Onshore Disposal of Mud and Cuttings, and No Action. The impacts of the alternatives are discussed in Chapter 5. Alternatives considered but not carried forward in the environmental analysis are discussed in Section 3.4.

S.6 DECISIONS TO BE MADE

The MMS will prepare 4 - 5 separate Records of Decision (ROD), one for each operator's planned activities. Operators are expected to submit revisions to 4 - 5 EP's. The ROD will record the MMS's selection of the alternative(s) and mitigation measures discussed in this EIS for each proposed delineation well.

After review of the revisions to the EP's, the MMS, pursuant to 30 CFR 250.203(i), will make 4 - 5 separate decisions to:

- Approve;
- Require the lessee to modify any revision to a plan which is inconsistent with the provisions of the lease, the OCSLA, or the regulations prescribed under the OCSLA (including air quality, environmental, safety, and health requirements); or
- Disapprove the revision to the EP if the proposed activity would probably cause serious harm or damage to life including (fish and other aquatic life), property, natural resources offshore including any mineral deposits (in areas leased or not leased), the national security or defense, or the marine, coastal or human environment, and that the proposed activity cannot be modified to avoid the condition(s).

Each of the operators must also apply for permits and approvals under other Federal, State, and local laws and regulations. These other permits and approvals are subject to separate environmental and technical reviews. The other decisions and/or reviews may include, but are not limited to:

- Consistency review by the California Coastal Commission (CCC)
- Permit review by the Santa Barbara County Air Pollution Control District (APCD) (Authority to Construct Permit and Permit to Operate)
- Permit review by the Environmental Protection Agency (National Pollutant Discharge Elimination System (NPDES) permit)
- Endangered Species Act (Section 7) review by the Fish and Wildlife Service and National Marine Fisheries Service

S.7 DOCUMENT ORIENTATION

There are several important concepts for the reader to understand when reading the draft EIS. These are as follows:

- **The Proposed Action analyzed in this EIS is delineation drilling.** Delineation drilling is a form of exploration drilling used to delineate any hydrocarbon reservoir to enable the lessee to decide how to proceed with development and production. Previously announced discoveries of commercially recoverable oil and gas resources have been made on each of the subject units.
- **Most of the impacts that could potentially occur as a result of the delineation drilling would be limited to the general geographic area of the operations.** However, in this draft EIS, the Description of the Affected Environment (chapter 4) covers a much broader geographic scope because we analyze the effects of a hypothetical development scenario on all of the 36 undeveloped leases (chapter 6); as well as the effects of past, present, and reasonably foreseeable activities. Additionally, in chapter 4, each description includes a discussion of the impacts of past OCS activities on the resources. By definition, the impacts of development have the potential to be substantially greater and could have a broader geographic scope of impacts than we have estimated for delineation drilling. The factors that expand the geographic scope include:
 - The hypothetical placement of development platforms;
 - The subsea pipelines to transport oil and gas to existing platforms and/or existing or new onshore facilities; and
 - Potential oil spill effects over a greater area and longer timeframe than the Proposed Action.

There are *two* cumulative analyses in this document: a cumulative analysis for the period 2002-2006, presented in chapter 5; and a cumulative analysis for the period 2002-2030, presented in chapter 6.

1. **The first cumulative analysis (2002-2006), chapter 5,** is based on the temporal and geographical overlap of impacts that could occur as a result of the Proposed Action (delineation drilling). The time period for this

analysis has been determined to be 2002 – 2006. This four-year period exceeds the 14 months of delineation drilling on the four units because the potential for impacts to certain resources (e.g., soft bottom benthos) may last this long. In this cumulative analysis, we analyze the incremental effect of the Proposed Action when it is added to the effects of past, present, and reasonably foreseeable activities in the area of consideration. These activities include existing oil and gas operations on both undeveloped and developed leases plus other actions in the area.

- 2. The second cumulative analysis (2002-2030), chapter 6,** is based on the combination of the delineation drilling and the hypothetical development, production, and decommissioning activities on all 36 undeveloped leases. The time period for these impacts has been determined to be 2002 – 2030, and it covers the time for production of hydrocarbon resources in the development scenario and the decommissioning of the hypothetical platforms and other platforms. In this cumulative analysis, we analyze the incremental effect of a hypothetical development scenario for the 36 undeveloped leases when it is added to the effects of past, present, and reasonably foreseeable activities in the area of consideration. These activities include oil and gas operations on developed leases plus other actions in the area. The actual locations, sizes, and types of activities will not be known until operators submit Development and Production Plans (DPP's) to the MMS. All DPP's will be subject to a thorough review under the OCS Lands Act, National Environmental Policy Act, MMS regulations, and other Federal and State laws, and they will be provided to affected agencies and the interested public for review.

S.8 SUMMARY OF IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

The following discussions summarize the detailed impact analyses found in section 5.2. These are true summaries and do not include all the supporting information upon which the conclusions are based. The reader should review the entire draft EIS, especially all of Section 5.2, *Environmental Impacts of the Proposed Action and Alternatives*, and not rely exclusively on the Summary of Impacts as the sole basis for understanding the conclusions. Cumulative impacts are summarized following this section.

S.8.1 ALTERNATIVE 1: PROPOSED ACTION

The summary of impacts from the Proposed Action is presented below. Since no oil spills are expected to occur from the delineation drilling activities, no resources would be affected by spills from the Proposed Action.

Air Quality: The potential for a drilling equipment permit exemption threshold level to be exceeded (Santa Barbara APCD Rule 202. F.6; 25 tons/yr) has only been determined for the Bonito Unit project, and only if a two-well scenario is realized over the same 12-month period. All the proposed delineation activities are estimated to be above New Source Review (NSR) threshold emission levels. Therefore, Best Available Control Technology (BACT), emission offsets and air quality impact analysis are required. The proposed delineation activities will be required to comply with those provisions in Santa Barbara County Air Pollution Control District (SBCAPCD) Rules and Regulations. Equipment and emissions not related to drilling operations will require a Permit to Operate from SBCAPCD, and emission sources subject to the permit will be in accordance with NSR provisions to ensure a net air quality benefit.

The potential for violations of the ambient air standards are considered negligible due to the short duration of the proposed delineation activities and the implementation of proposed emission control measures by the operator to minimize impacts from the drilling equipment and support vessels. The potential impacts to onshore air quality resulting from the proposed delineation activities are considered low, based on the significance criteria levels utilized in this analysis.

Water Quality: Impacts to water quality will be low because the proposed delineation activities do not cause or contribute to changes in standard, measurable water quality parameters resulting in unreasonable degradation to water quality. This is due to the following reasons:

- Water quality impacts would be limited to the discharge of drilling muds and cuttings;
- Only one well would be drilled at each unit (1-2 for the Bonito Unit);
- While changes to standard, measurable water quality parameters would occur during the discharge of muds and cuttings, they would be transient and temporary and limited to between 100 and 5,000 m from the discharge point;
- Discharges would be in accordance with approved NPDES permit.

The other discharges (see section 5.2.2) will cause negligible impacts to water quality due to the treatment systems required and the small volume of the discharge. The Proposed Action will have low impacts on water quality.

Seafloor Resources: Physical impacts to hard bottom seafloor resources from anchoring activities near potential stable hard bottom communities are moderate for all projects except for the Gato Canyon Unit project. Impacts at Gato Canyon are low since the project as submitted is fully mitigated to avoid hard bottom resources. Impacts from all delineation wells combined are also expected to be moderate. This is because multiple anchoring events in sensitive hard substrate habitat are likely to result in long-term impacts to plants and animals, and alter habitat in several localized areas, a moderate impact.

Drilling discharges could also produce moderate impacts if the wellsites are located in proximity to sensitive hard bottom communities. Generally, however, due to the comparatively low volume of mud and cuttings discharged during the drilling of delineation wells versus that discharged from multi-well production facilities, the impacts from delineation well drilling discharges are expected to be low to seafloor resources. Wellsites located a distance of 1,000 m from identified hard bottom substrate would introduce low impacts to seafloor resources. Discharges from wellsites located within 1,000 m could produce moderate impacts to hard bottom habitat due to smothering, depending on the actual distance from the feature, predominate currents and sensitivity of the habitat on the feature.

Overall impacts on seafloor resources from the proposed delineation wells combined are moderate, due to the potential to impact hard bottom communities. Site-specific mitigation would reduce identified moderate impacts to low.

Fish Resources: Given the short-term nature and limited scope of the proposed drilling and testing program, negligible effects to marine fish resources and Essential Fish Habitat (EFH) are expected from drilling discharges. Physical impacts to seafloor resources from anchoring operations could be moderate due to the potential to impact high relief hard bottom communities. However, five delineation wells with 40 anchoring events (8 anchors per well), are unlikely to cause sufficient disturbance to be felt at a population or regional level for fish resources or EFH. A small number of fish would be expected to be lost if explosives were used to remove the wellhead. However, given the short duration of the project, few fish would be expected to be attracted to the wellhead, and a low mortality is expected. Overall, impacts from this source are expected to be low. Overall, activities associated with the proposed delineation activities are expected to cause negligible to low impacts to fish resources and EFH in the project area.

Marine Mammals: Effects to marine mammals from noise and disturbance resulting from most activities associated with the proposed delineation activities, including drilling, support vessel and barge traffic, helicopter traffic, and delineation well abandonment, are expected to be restricted to temporary (less than 1-hour), localized disturbances. These impacts are considered to be negligible. The possible use of explosives for delineation well abandonment also raises the possibility that a marine mammal could be killed, injured, or suffer hearing damage. Overall, impacts from this source are expected to be low and could be further reduced through mitigation. Overall, activities associated with the proposed delineation activities are expected to cause negligible to low impacts to marine mammals in the project area. These impacts would be common to all units.

Threatened and Endangered Species: Activities associated with the proposed delineation activities are expected to result in temporary (less than 1-hour), localized disturbances to blue, fin, and humpback whales in the project area. These impacts are considered to be negligible to low. No impacts to sei, right, or sperm whales, Steller sea lions, Guadalupe fur seals, or southern sea otters are expected from these activities. No impacts to California brown pelicans, California least terns, bald eagles, snowy plovers, western snowy plovers, and light-footed clapper rails are expected as a result of operations associated with the proposed delineation activities, including helicopter traffic and well abandonment. Because the Proposed Action does not include any onshore activities, no impacts to threatened and endangered plants are expected either for all units combined or any individual unit. Impacts to leatherback and loggerhead sea turtles are expected to be negligible while no impacts are expected for green and Pacific Ridley sea turtles. No adverse impacts to the California red-legged frog would be expected to result from the Proposed Action. No impacts are expected to tidewater gobies or steelhead trout. Tidewater gobies, which are found in shallow coastal lagoons, stream mouths and shallow areas of bays will not be impacted by effluent discharges, anchoring events, or the potential explosive removal of delineation wells. While steelhead trout migrate widely along the Pacific Coast, and may pass through the vicinity of the proposed delineation drilling activities, no impacts from effluent discharges, anchoring, or explosive removal of wellheads would be expected.

Refuges, Preserves and Marine Sanctuaries: Although activities associated with the Proposed Action will not occur within sanctuary or park boundaries, there are some resources that can be highly mobile and may move in and out of these areas. Impacts to these resources are expected to range from none to low. Impacts to these resources may be found in Sec-

tion 5.2.1 through Section 5.2.24. The impacts to the biological resources of the Channel Islands and Monterey Bay National Marine Sanctuaries and the Channel Islands National Park are summarized in Table 5.2.11-1.

Cultural Resources: No known or suspected cultural resources are within the area that could be affected by the proposed delineation activities, including anchoring and drilling. No vessels have been reported as lost within these units. However, as a result of prior remote sensing surveys or gear loss claims from fishermen, additional data analysis, and surveys have been ordered for the area of operation to identify any sites that would need to be avoided.

Visual Resources: The effect of the Proposed Action on visual resources is negligible on each of the four units. The visual resource impact area (VRIA) does not cross the shoreline for three of the four units (Pt. Sal, Purisima Point, and Bonito). Furthermore, on these units, meteorological conditions will generally obscure the MODU visibility from a shoreline that offers little public access. The VRIA from the Gato Canyon Unit drill site does cross the shoreline for a short distance in the vicinity of El Capitan State Beach, but does not encompass public viewing areas. Although present during a portion of the peak tourism and recreation season (the time of most intense viewing), no direct project impact results since the public viewing area is outside the VRIA.

Community and Tourism Resources: Community characteristics and tourism resources impacts from operations are negligible because of the short duration, remote location near areas already experiencing energy development, and low intensity of the action.

Infrastructure: Crew and supply vessel trips are anticipated to increase as a result from the proposal. The maximum change from the proposal results in a short-term increase in supply vessel trips of 9.09%. The maximum increase in truck traffic as a result of the Proposed Action is a short-term increase of 72 trucks at the Port of Hueneme. The increase in truck traffic at the Port of Hueneme would be for less than 3 days. Because of the extremely short-term nature of the increase in truck traffic, the impact is low. The maximum change at the Port of Long Beach is less than one percent of daily truck traffic for any unit. The level of change is low. The proposal has no long-term impacts.

Commercial Fishing and Kelp Harvest: The measures the operators have proposed to reduce conflicts and encourage communication with the commercial fishing industry during the proposed project have been shown to be effective during past OCS activities. If the measures are incorporated, the impacts to the commercial fishing industry should be addressed and minimized to the maximum extent feasible. The impacts would be expected to be low.

The proposed well sites are all located within established commercial fishing grounds for all the major gear types of the region. Fishermen of all gear types will be precluded from fishing in the vicinity of the MODU for up to 90 days at each well site. This represents over half the open season for some target species and will likely impact the peak-fishing season of one or more species regardless of the timing of the proposed project. The trawl fishery may also experience long-term impacts due to artificial obstructions, such as drill muds and cuttings, anchor scars, and lost debris. Because of these conflicts, fishermen will lose valuable fishing time and space during the project, and in the case of trawlers, perhaps even after the completion of the project. Furthermore, fishermen who are precluded from the MODU site will likely fish alternate areas during the proposed project. This may result in overcrowding of alternate fishing grounds and could impact the income of the primary fishers of those grounds.

Marine Recreational Fishing: The proposed well sites are all located outside the major marine recreational fishing areas of the region. Depending on oceanographic conditions and seasons, trolling for pelagic species can occur throughout the Santa Maria Basin and the Santa Barbara Channel. Trolling vessels would be expected to avoid an area up to 1,525 m (5,000 ft) around the proposed well sites while the MODU is on site. An increase in navigational hazards to marine recreational fishermen would be expected due to increased vessel traffic associated with the proposed project. Since the total area lost to recreational fishing is small and of short duration, low impacts would be expected to marine recreational fishermen in the project area.

Military Activities: The following conclusion applies to all units where MODU drilling is proposed. The potential impact of routine MODU drilling operations on military operations is considered low based upon the significance criteria used in the analysis. The analysis shows there will be a modest increase in supply boat traffic and a small increase in helicopter traffic in Military Warning Area W-532 during the 2002-2003 MODU drilling period. The analysis also demonstrates that the existing military lease stipulations have been very effective in avoiding conflicts between oil and gas and military operations. The only possible effect the proposed MODU drilling project could have on military operations in the area would be the inability of operations personnel to comply with the lease stipulations during a launch countdown. The likelihood of such a situation over the short duration of the project is considered extraordinary.

Environmental Justice: The Proposed Action is not expected to result in onshore impacts in the study area and therefore is not anticipated to have a disproportionate effect on low income and minority communities.

There are no impacts from the Proposed Action on the following resource categories: *Rocky and Sandy Beach Habitats, Kelp Beds, Marine and Coastal Birds, Estuaries and Wetlands, Onshore Biological Resources, Recreation, Housing, Public Finance and Service, Employment and Population, and Non-residential Land Use*. However, these resources were assessed for cumulative impacts from the hypothetical development of the 36 leases. Refer to the summary of cumulative impacts, below.

S.8.2 ALTERNATIVE 2: ONSHORE DISPOSAL OF MUDS AND CUTTINGS

This alternative remains the same as the Proposed Action, except that it requires that all mud and cuttings be barged to shore for onshore disposal at an approved disposal site, instead of onsite discharge into the water column (under an EPA NPDES permit). The mud and cuttings would be stored in bins, transported to shore via workboat, and trucked to an approved disposal site. Appendix 3.1 provides a description of Alternative 2. Detailed analysis of the estimated impacts of Alternative 2 is located in Section 5.4. Please reference these sections for detailed information.

Impacts from Alternative 2 are expected to be the same as those estimated under Alternative 1, the Proposed Action (Section 5.2) for the following resources:

Rocky and Sandy Beach Resources; Kelp Beds; Fish Resources; Marine and Coastal Birds; Marine Mammals; Threatened and Endangered Species; Estuaries and Wetlands; Refuges, Preserves, and Marine Sanctuaries; Onshore Biological Resources; Cultural Resources; Visual Resources; Recreation; Community and Tourism Resources; Employment and Population; Housing; Public Finance and Service; Non Residential Land Use; Commercial Fishing and Kelp Harvest; Marine Recreational Fishing; and Military Activities.

The sources of impacts associated with Alternative 2 are the same as those related activities discussed for Alternative 1, the Proposed Action. However, the impacts to some resources would be different from the impacts of Alternative 1. These impacts are described below.

Air Quality: Alternative 2 is expected to increase total emissions ranging between 8-36 percent greater than those predicted for the Proposed Action due to the projected increase in vessel and truck trips in Ventura County. However, the increase in total emissions is not expected to increase the peak hour emissions projected and modeled for the site preparation stage of the Proposed Action. Therefore, based on

peak hour emissions, no increases to onshore predicted concentrations affecting the ambient air standards are expected with this alternative as the emissions do not overlap with the modeled emissions during the site preparation stage. Emission increases projected from the vessel emissions will be subject to permit and emission offset requirements per SBCAPCD Rules and Regulations. Impacts to Santa Barbara County air quality from the proposed alternative are considered to be low. Onshore impacts from additional tanker truck trips will occur in Ventura County. Increases in onshore mobile source emissions will add approximately 1.6 tons of NO_x over 14 months to the Ventura County mobile-source emission budget. The proposed increase in on-road emissions is considered to have low impacts to Ventura County air quality. Therefore, overall impacts to regional air quality from Alternative 2 are expected to be low.

Water Quality: Impacts to water quality from Alternative 2 remains the same as for the Proposed Action, except that no impacts to water quality will occur due to the discharge of drilling muds and cuttings. The initial phase of drilling each well under both Alternative 1 and Alternative 2 involve disposition of drilling fluid (composed of seawater and gel) and cuttings on the sea floor (see section 5.2.2.1 for description of effects) until casing is set. For Alternative 2, at this point all subsequent drilling muds and cuttings will be returned to the drilling rig, cleaned, and barged to shore. As noted in Section 5.2.2.1, drilling muds and cuttings discharges from the drilling of the five proposed wells, will cause a low impact to water quality. The other discharges (produced water, well treatment completion and workover fluids, deck drainage and domestic and sanitary wastes) that could occur from the drilling activities, also described in Section 5.2.2.1, will cause a negligible impact to water quality. Thus, under this alternative, negligible impacts to water quality will occur from the non-muds and cuttings discharges. However, if during the lifting the bins of drilling muds and cuttings onto the supply boat by crane, a bin is dropped into the sea and the muds are spilled, a negligible impact to water quality will occur. This is because a maximum of 35 bbl of muds and cuttings will be exposed to being spilled at any one time. If there is measurable amounts of hydrocarbon, or other contamination in the muds, water quality will be impacted no worse than at a negligible level. Impacts to water quality from Alternative 2 would be reduced from low to negligible.

Seafloor Resources: Alternative 2 would all but eliminate the introduction of turbidity at the wellsite locations (a small amount of cuttings with seawater would be discharged until the first casing string is drilled) and would avoid smothering impacts to potentially sensitive hard substrate communities at all

wellsites. Therefore, impacts from drilling discharges would go from moderate to low for seafloor resources. However, anchoring impacts still would exist.

Infrastructure: Onshore disposal of drilling of muds and cuttings will have a short-term impact on the number of truck trips from the Port of Hueneme. The impact of the truck trips from the Port of Hueneme will result in a 36% percent increase in truck traffic for up to 6 days. Due to the extremely short time periods, this impact is low.

S.8.3 ALTERNATIVE 3: NO ACTION ALTERNATIVE

Alternative 3 would result in no delineation drilling on the four units. The opportunity for development of the oil and gas reserves may be precluded. As discussed in section 5.5, the No Action Alternative could occur under three different scenarios. First, MMS reviews the revisions to the EP's and disapproves the plans based on the OCSLA and MMS regulatory requirements, no further activity will occur unless MMS changes its determination that probable serious harm will occur. For example, unanticipated advances in technology may allow some activities to continue without probable serious harm. This would constitute a new Proposed Action and would receive full NEPA, safety, and operational analysis. Second, MMS approves the plan but the operator decides not to drill. Third, MMS reviews the revisions to the EP's and requires modifications. The applicant may decide not to pursue the Proposed Action. As a result of the No Action Alternative, the 4 - 5 delineation wells do not get drilled. The applicant could legally submit development plans proposing activities to recover the resources; however, this would be more difficult without the information from delineation wells. A new development plan would undergo full NEPA, safety, and operational analysis prior to a decision being made to allow the activity to proceed.

If Alternative 3 were selected, all impacts associated with the Proposed Action would be eliminated. This alternative would therefore result in no effect on the sensitive resources and activities discussed in Chapter 5. The incremental contribution of the Proposed Action to cumulative effects would also be foregone, but effects from other activities, including existing OCS activities and potential development of the 36 undeveloped leases, would remain.

The potential oil and natural gas resources from the Proposed Action could remain undeveloped. Strategies that could provide replacement resources for lost domestic OCS oil and gas production include a combination of energy conservation; onshore domestic oil and gas supplies; alternative energy sources; and imports of oil, natural gas, and liquefied natural gas. These alternatives, except conservation, have envi-

ronmental impacts of their own. Increased imports of foreign oil are assumed to be the largest replacement source. This is thoroughly analyzed in the Final EIS prepared by the Minerals Management Service for the Department of Interior's 5 year *Outer Continental Shelf Oil and Gas Leasing Program: 1997-2002*. In the event import tankers are substituted, the probability of a large spill associated with import tankering could increase.

S.9 CUMULATIVE IMPACTS SUMMARY

INTRODUCTION

The analytical methods used in this EIS have been formulated over a period of years. The first step of the analysis is the identification of significant environmental and socioeconomic resources through the scoping process. The offshore activities and disturbances are then described in the context of the proposed action scenario and a near-term and long-term development scenario in the cumulative activity area.

Impacts that could potentially occur as a result of delineation drilling are highly localized (Figure 1.0-3). However, the study area includes a considerably larger geographic area to facilitate the cumulative analysis of both near-term and long-term effects (Figure 4.0-1). The first cumulative analysis for the near-term is the timeframe projected through the time when no further residual effects associated from the Proposed Action (delineation drilling) are expected to occur (2002-2006). The second cumulative analysis for the long-term continues through potential development and decommissioning of all 36 currently undeveloped OCS leases (2002-2030). The inclusion of this cumulative impact analysis of the undeveloped leases in chapter 6 is consistent with commitments made in 1999 to the Governor of California and the California Coastal Commission by the MMS and the Department of the Interior.

This approach to analyzing the effects of the Proposed Action as it influences other activities and conditions that exist within these timeframes provides the readers and decisionmakers an understanding of the incremental effects of the Proposed Action. In both cases, assumptions were made concerning the foreseeable future activities in and influencing the study area (section 5.1.2.2 and 6.1.2). A limited amount of information is currently known of how and when the reasonably foreseeable activities (both those associated with OCS development and with other influences on the environment) may occur.

An analysis of the potential impacts expected on the environmental and socioeconomic resources from the projected activities is presented in Chapters 5 and 6.

CUMULATIVE IMPACTS SUMMARY FOR THE PROPOSED ACTION 2002-2006

The near-term (2002-2006) cumulative effect analyses in Chapter 5 considers the aggregate of all the effects of all activities and the contribution of the Proposed Action. The effects of the other activities in the study area (past, present, and within the foreseeable future) are evaluated, and the likely effects of the Proposed Action are overlaid to provide a clear understanding of the contribution of the Proposed Action to the whole.

No oil spills are expected to result from the Proposed Action. However, accidental oil spills do present an ongoing source of potential impacts to various resources. The cumulative risk of oil spills arises from multiple sources, including offshore oil and gas activities in Federal and State waters and both Alaskan and foreign-import tankering. The greatest oil spill risk to resources in the project area results from tankering operations. This risk is tempered by recently implemented or proposed mitigation (such as the rerouting of tankers farther offshore along the central California coast) and, as discussed in section 5.1.3, by modern oil spill response capabilities. If an oil spill were to occur in the project area during the period 2002-2006, impacts to various resources could range from negligible to high, depending on spill size, location, season, and a number of other factors.

No analysis of cumulative impacts is included for the following resources for the 2002-2006 timeframe since there are no impacts from the Proposed Action to *rocky and sandy beach habitats, kelp beds, marine and coastal birds, estuarine and wetland habitats, onshore biological resources, threatened and endangered birds, threatened and endangered amphibians, threatened and endangered fish, and threatened and endangered plants.*

The following are summaries of the Proposed Action and cumulative effects for the near-term (2002-2006).

Air Quality: All proposed projects will be subject to Santa Barbara County APCD permit and New Source Review (NSR) requirements to ensure individual projects do not result in regional air quality impacts. Emissions modeling of the proposed projects demonstrate a negligible short-term impact to overall regional air quality and are not expected to result in any violation of Federal or State ambient air quality standards. The total emissions for each Proposed Action are compared to the most recently published 1996 OCS emission inventory for Santa Barbara County and result in less than 1.5% of that emission budget. A smaller percentage contribution is expected to the onshore emission budget. Therefore, no impacts to cumulative air quality are expected from the incremental project contributions.

Water Quality: For the 5-year period from 2002 through 2006, only drilling muds and cuttings could overlap in time and space with other existing and reasonably foreseeable projects and activities. Oil spills might affect water quality depending on the amount and type of oil spilled and the source. Nevertheless, oil spills by themselves could only constitute, at most, a moderate impact to water quality for the short-term (the first week or two) and low for the long-term (beyond the first week or two).

Non-oil and gas projects and activities are dominated by onshore sewage discharges and by episodic river runoff. These two items might overlap in time and space with the drilling activities at the four units. However, their contribution to the pollutant loading of the study area greatly exceeds any discharges from the proposed individual or combined wells. Thus, incremental impacts from the Proposed Action are low.

Seafloor Resources: Soft and hard bottom seafloor resources have and continue to be impacted physically by commercial fishing activities. Overall impacts to soft bottom habitats are low due to the ability of the resource to recover from disturbances. Impacts to hard bottom resources are moderate to high from commercial fishing due to alteration of the habitat and the effect reducing the complexity of the habitat has on the ecosystem. Past oil and gas activities in the area, while having the potential to impact hard bottom areas, have contributed little to the overall cumulative impact due to effective mitigation, as demonstrated in field studies. Other activities such as fiber cable projects, while affecting resources adjacent to the proposed projects including some hard bottom resources, contribute little to the cumulative impacts due to the small area physically affected.

The proposed delineation projects contain multiple wellsite locations, several of which could impact hard bottom resources. If these identified wellsites are chosen and left unmitigated and sensitive hard bottom communities are found in the vicinity, the drilling could cause moderate impacts. Moderate impacts would be caused primarily by anchors irreversibly altering the habitat in several localized areas. If these identified wellsite locations are properly mitigated the increment added by the proposed projects would be low for both soft and hard bottom habitats.

Fish Resources: The proposed delineation project will add incrementally to the overall impacts on fish resources in the Bight. The primary impacts would be to hardbottom habitat in the immediate vicinity of the well site and MODU anchoring system. Due to the short duration of the proposed projects, the distances between the projects, and the mitigation measures placed on the projects, the environmental effects of the proposed project on the fish resources and EFH of the SCB are expected to add a negligible increment to the overall cumulative effects on fish resources in the SCB.

Marine Mammals: Currently, the primary source of human-related impacts to marine mammals in the project area is incidental take in commercial fishing operations. For non-threatened and endangered species, the incidental take of harbor porpoises is of greatest concern at present.

The effects of noise and disturbance generated by the Proposed Action will add to the cumulative noise and disturbance levels that marine mammals are subject to in the Santa Barbara Channel and Santa Maria Basin. However, there is no evidence that the noise and disturbance created by offshore oil and gas activities in both Federal and State waters and by increasing vessel traffic have resulted in adverse impacts on marine mammal populations. These impacts are considered to be low and are not expected to add measurably to cumulative impacts to marine mammals in the area.

If an oil spill were to occur in the project area during the period 2002-2006, impacts to marine mammals could range from negligible to high, depending on spill size, location, season, and a number of other factors. Most at risk are pinniped pups. Seasonally, the most sensitive areas are rookeries on the northern Channel Islands (particularly San Miguel Island) and along the mainland coast north of Point Conception.

Threatened and Endangered Species: Currently, the eastern North Pacific populations of three endangered whale species the blue, fin, and humpback whales appear to be increasing while the status of the remaining species is uncertain. Although incidental take in commercial fisheries and ship strikes do occur, these and other identified anthropogenic and non-anthropogenic factors do not appear to have significant impacts on endangered cetacean populations in the project area.

The eastern U.S. stock of Steller sea lions is stable or increasing in the northern portion of the range (particularly in British Columbia), but continues to decline at the southern end in central California. The Guadalupe fur seal population, in contrast, is growing, although the species remains rare in project area waters.

The status of the southern sea otter population is also somewhat uncertain at present. Following a number of years of uninterrupted growth, the population apparently declined in the late 1990's and increased again in 2000. Major impacts to this population currently result from incidental take in commercial fisheries, shooting, and disease, with possible contribution from environmental contaminants.

The effects of noise and disturbance generated by the proposed project are not expected to be significant in themselves, but will add to the cumulative noise and disturbance levels that threatened and endangered marine mammals are exposed to in the

Santa Barbara Channel and Santa Maria Basin. These impacts are considered to be low and are not expected to add measurably to cumulative impacts to threatened and endangered marine mammals in the area.

If an oil spill were to occur in the project area during the period 2002-2006, impacts to threatened and endangered cetaceans and pinnipeds could range from negligible to low. Oil spills associated with on-going and projected production from existing federal OCS facilities in the project area would be expected to result in no more than low impacts to the southern sea otter during this period. Non-OCS tankers represent the greatest oil spill risk to sea otters.

Sea turtle populations in the North Pacific are under continued threat from human activities, both on their nesting beaches and at sea. Harvest of adults and eggs on the beaches, destruction of nesting habitat, and both directed and incidental take of turtles at sea appear to be the major sources of mortality.

Sea turtles densities are very low in project area waters. There is no evidence that the noise and disturbance created by offshore oil and gas activities in both Federal and State waters and by increasing vessel traffic have resulted in adverse impacts on sea turtle populations, and these impacts are considered to be negligible.

If an oil spill were to occur in the project area during the period 2002-2006, impacts to sea turtles would be negligible.

Refuges, Preserves and Marine Sanctuaries: Impacts to refuges, preserves, and marine sanctuaries occur when their resources are affected. Impacts to these resources may be found in section 5.2.1 through section 5.2.23, where appropriate. The impacts to the biological resources of the Channel Islands and Monterey Bay National Marine Sanctuaries and the Channel Islands National Park are summarized in table 5.2.11-1. Although activities associated with the proposed action will not occur within sanctuary or park boundaries, some of the resources (fish and marine mammals) can be highly mobile and may move in and out of these areas. Overall, impacts range from none to low.

Cultural Resources: Federal regulations require certain actions on the part of operators to protect archaeological resources. Prior to start of operations, the preferred mitigation is to move or modify operations so there is no effect to known significant archaeological resources or to anomalies or geomorphic features that may represent areas containing archaeological resources. Alternatively, the operator may conduct additional investigations and submit a report to establish to the satisfaction of the MMS, the State Historic Preservation Office (SHPO), and others that an archaeological resource is or is not present or will not be adversely affected by operations. The investi-

gation is conducted by an archeologist and geophysicist using survey equipment and techniques identified by the MMS. MMS will inform the operator of any mitigating measures necessary to alleviate or minimize the potential effects on significant archaeological resources, such as data recovery and artifact curation. After start up, if any archeological resource is discovered, the operator must immediately halt operations in the area of the discovery and inform the MMS POCS Regional Director. If further investigation determines that the resource is significant, MMS will inform the operator on how to protect the resource.

Without the proposal, physical disturbance caused by non-OCS development activities will be the source of cumulative impacts to submerged sites and upland sites. These sources include installation of seafloor cables, construction of sewage treatment infrastructure, commercial trawl fishing, anchoring, dredging, and unauthorized removal of artifacts by recreational scuba divers. Onshore, cumulative impacts may occur from a full range of construction activities and pilferage. Natural processes, such as shoreline erosion, also contribute to the destruction of cultural resources. Because of stringent monitoring and mitigation of local, State, and Federal agencies for actions that may affect cultural resources, permitted actions are likely to cause little cumulative impact with or without the proposal.

Because of the nature of clean-up operations, oil spill related impacts are not expected offshore. Onshore, archaeological sites could be affected by oil spills from OCS production or non-OCS tankering and associated containment and cleanup activities. Oil spills could alter the chemical composition of archaeological materials and render them useless for carbon-14 dating. Oil-soaked soils would also be difficult to excavate and process. Oil spill containment and cleanup activities could result in extensive impacts to site deposits from the excavation of containment barriers (dams, berms, and trenches) and the mechanized removal of oil-soaked earth.

Without the proposal, impacts to Native American concerns will come from further non-OCS related development in the Point Conception area. Expanded commercial space launch activity has been cited as an activity of concern. The impact of an OCS production oil spill or non-OCS tanker spill would be site specific. However, if traditional use resources were affected by the oil spill, the impact could be of moderate to high significance if the resources are present and become locally unavailable for a period of time. The effect of a spill on the values ascribed by the Chumash to Point Conception have not been evaluated at this time, but will be addressed in on-going consultation. These impacts are in addition to those described above for archaeological resources, which are also of great concern to Native Americans. Na-

tive American monitoring of clean up activities is also an issue of concern. These issues were apparent during the Avila Beach spill in 1992 when access to areas by clean-up crews could have impacted sensitive archaeological areas including burials (MMS 1993).

Visual Resources: The MODU on the Gato Canyon Unit results in a moderate to high cumulative impact to visual resources. This impact will last as long as the MODU is on the unit. The MODU on the Bonito, Purisima Point, or Point Sal Unit will not result in a cumulative impact to visual resources.

Since the 1980's, operators of the Santa Ynez Unit, the Point Arguello Unit, and the Point Pedernales Unit have made payments to the Coastal Resources Enhancement Fund (CREF), which provides enhancement projects that will compensate for residual impacts to coastal resources that are not otherwise mitigated. Santa Barbara County Findings of Approval for past offshore oil and gas projects in Santa Barbara County have found adverse project and cumulative impacts to recreation, tourism, and aesthetics from construction and operation of the projects. To mitigate general, diffused, project and cumulative impacts in these and other areas, Santa Barbara County created a Coastal Resources Enhancement Fund which receives annual payments over the life of the project to be used for projects that enhance coastal recreation, aesthetic, tourism, or other environmentally sensitive resources (SBC, 1993).

Recreation: Several factors singly or in combination may have a significant cumulative effect on recreation resources depending on the duration of restricted or degraded use. Most of these impacts will be local, but an oil spill of 2,000 or 22,000 barrels could have regionally significant impacts. However, MODU operations will not contribute to the cumulative impacts. CREF payments to mitigate cumulative effects of OCS development continue over the life of the project.

Community Characteristics and Tourism Resources: Since project impacts of the Proposed Action are negligible and of short duration, the Proposed Action is not expected to contribute to a change in community characteristics or tourism resources through 2006.

Employment and Population: Depending on economic conditions, general employment is expected to stay steady or slightly increase during the period. However, for some time oil and gas sector employment has declined in the study area, a trend that is expected to continue. Therefore, population impacts related to offshore oil and gas development are expected to remain less than 0.32% of the total population. Given the level of proposed activity, no expansion of existing services is anticipated. The proposed activity is not expected to have an incremental increase on population or employment.

Housing: Population growth is expected to increase over the period due to demographic and other factors not related to offshore oil and gas or other identifiable projects. No cumulative impact in the demand for housing is expected from the Proposed Action.

Infrastructure: Crew and supply boats will continue to service the offshore oil and gas industry and existing onshore development will continue at the present levels of activity. No other activities that would impact infrastructure other than expected variation in port operations have been identified.

A greater number of trips from the supply and crew bases will result from the Proposed Action but this will not significantly impact infrastructure requirements. A short-term increase in truck trips from the Ports of Hueneme and Long Beach will likely occur but this change will not significantly impact infrastructure requirements.

Public Finance and Services: Demand for public and private services will continue during the period in variation with demographic and other factors not related to offshore oil and gas or other identifiable projects. No cumulative impact on the demand for public and private services is expected from the Proposed Action.

No potential mitigation measures are identified because of lack of impacts. Past practice by Santa Barbara County required participation by offshore oil and gas operators in the Socioeconomic Monitoring and Mitigation Program. The lack of impacts from the delineation projects does not appear to warrant re-establishing this or a similar program.

Non-Residential Land Use: Existing onshore facilities are expected to continue substantially as they are. No changes in the onshore support facilities are expected. Land uses supporting offshore oil and gas will continue as long as oil production is possible. The Proposed Action will not generate new land use impacts.

Commercial Fishing and Kelp Harvest: Due to established communication and mitigation programs between the two industries, space-use conflicts due to the proposed project are expected to cause low impacts to commercial fishermen in the project area.

No oil spills are expected to result from the proposed activity. However, accidental oil spills do present an on-going source of potential impacts to commercial fishermen. If an oil spill were to occur in the project area during the period 2002-2006, impacts to the commercial fishing industry could range from low to moderate, depending on spill size, location, season, and a number of other factors.

Marine Recreational Fishing: The very minor effects in space and time projected to occur as a result of the proposed delineation activities are not expected to add measurably to cumulative impacts to recreational fishermen in the area.

Military Operations: Commercial fishing, shipping, and other non-oil and gas related activities occurring within the Point Mugu Sea Range were addressed in the draft EIS/OEIS for the Point Mugu Sea Range (U.S. Navy, 2000). The EIS/OEIS concluded that no cumulative impacts would occur from military operations and these activities.

The potential cumulative impact of oil and gas development and production activities on military operations is considered low based upon the significance criteria used in this analysis. The analysis shows there will be a modest but temporary increase in supply boat traffic and a small increase in helicopter traffic in Military Warning Area W-532 during the 2002-2003 MODU drilling period. The analysis also demonstrates that the existing military lease stipulations have been very effective in avoiding conflicts between oil and gas and military operations. The only possible effect oil and gas activities could have on military operations in the area would be the inability of operations personnel to comply with the lease stipulations during a launch countdown. The likelihood of such a situation is considered extraordinary and is therefore classified as insignificant.

Oil spills present an ongoing source of potential impacts to military operations. The cumulative risk of oil spills arises from multiple sources, including offshore oil and gas activities in Federal and State waters, and tankers carrying both Alaskan and foreign oil. If an oil spill were to occur in the project area during the period 2002-2006, oil spill clean-up activities could disrupt military operations. As described in section 5.2.24.2.1, small spills of 200 barrels or less are expected to have a low impact on military operations. Moderate spills (2,000 bbl), depending on their location and timing, would have a low to moderate impact on military operations. Large tanker spills (22,800 bbl), particularly if they were to occur in Point Mugu Sea Range, would have a moderate impact on military operations. Overall, the cumulative impact on military operations from all of these sources is expected to be moderate.

S.10 CUMULATIVE IMPACTS SUMMARY FOR THE 36 UNDEVELOPED LEASES 2002-2030

The cumulative analysis in Chapter 6 presents the effects of potential hypothetical development of the 36 undeveloped OCS leases over the near- and long-term future (2002-2030). This Chapter also analyzes the cumulative effects of all existing offshore oil and gas activities and other related activities in the study area. To provide a long-term analysis, the MMS developed a hypothetical development scenario for the 36 undeveloped OCS leases. This is described in detail in section 6.1.3.

Without development of the 36 undeveloped leases, the probabilities that one or more oil spills will occur during the period 2002-2030 from existing OCS oil and gas activities are 73.9 percent for a spill of 200 bbl or less and 59.1 percent for a spill of 2,000 bbl. The probability of a 22,800-bbl tanker spill occurring during this period is 90.5 percent. Under the most likely scenario for development of the 36 undeveloped leases, these probabilities are 98.8 percent and 53.9 percent, respectively. Thus, the potential for an oil spill occurring from development of the 36 undeveloped leases represents a measurable incremental increase to the overall cumulative oil spill risk. Expected impacts levels due to these spills are presented for each affected resource.

The following are summaries of the cumulative effects of the hypothetical development of the 36 undeveloped OCS leases over the long-term (2002-2030).

Air Quality: Regional air impacts during the period 2002-2030 are assumed to result from ongoing oil and gas activities, marine shipping and tankering operations and the eventual decommissioning of the existing offshore facilities. The largest contributor to offshore air quality will continue to be marine shipping operations with incremental contributions from facility decommissioning exhibited in the later years. OCS emissions attributable to existing oil and gas operations are projected to decline over the 2002-2030 time period.

The largest contributor to short-term air quality impacts result from platform and pipeline installation activities during the years 2007-2009. The worst-case scenario emissions are predicted during the near-shore pipeline installation activities and are expected to be limited in duration to a very short time frame. Emissions associated with the proposed projects do not overlap temporally or spatially with the cumulative peak year emissions projected for 2008 and therefore do not contribute any increment to peak year emissions.

All of the projected development projects are expected to be above NSR threshold emission levels for BACT; emission offsets, and air quality impact analyses (modeling) and will be required to comply with those provisions in SBCAPCD Rules and Regulations. Any project and emission sources eventually determined to be subject to SBCAPCD permit requirements will be subject to BACT and be fully offset at a greater than a 1:1 ratio and will result in a net air quality benefit to Santa Barbara County.

Anticipated air quality impacts from the three oil spill scenarios are expected to be rare, of short duration, and very localized. Ambient air concentrations resulting from oil spills are expected to result in low to moderate, short-term impacts to regional air quality dependent upon the location and duration of

the spill, and meteorological conditions exhibited at the time affecting the evaporation rate of the hydrocarbons.

Water Quality: For the period 2002 to 2030, effects on water quality without development of the 36 undeveloped leases, including land-based sources of pollution (rivers and Publicly-Owned Treatment Works), will be low for the following reasons:

- River-based inputs are very episodic, either seasonally or longer, and can bring some unknown amount of land-based (mainly agricultural with some urban) pollutants. While this potential pollutant input would overlap in time and space with any future development activity, their contribution to the pollutant loading of the study area would greatly exceed those of the discharges from this future activity.
- Publicly-Owned Treatment Works-based pollution causes only a limited amount water quality impacts due to the relatively small volume of the discharges and the inspections and monitoring conducted by the Regional Water Quality Control Board's.

For the period 2002 to 2030, effects on water quality with development of the 36 undeveloped leases, including the installation of five platforms, the associated discharges, eventual decommissioning, and oil spills, will cause only a low impact to water quality for the following reasons:

- Installation procedures are limited to sewage discharges from the construction vessels and suspension of sediment from the sea floor. Neither of these will cause impacts to water quality.
- Drilling discharges (muds and cuttings) will either, in the case of cuttings, fall relatively quickly to the sea floor; or, for drilling muds, largely remain in the water column, in which case they will spread and disperse with the predominant currents.
- Produced water, starting early in the development phase, will be discharged for the life of the platforms. The rate of discharge of the effluent will gradually increase, reaching a peak discharge rate some 10 to 15 years after beginning. While there is some evidence that water quality parameters may be changed by this effluent, judging by results from biologically-based studies, there is no firm evidence that this effect is very wide-spread nor ecologically damaging. However, further information is needed.

- Decommissioning of existing platforms will cause the cessation of existing discharges, as well. Thus, there will be a gradual net benefit to water quality (even though the overall impact is low), as existing platforms are removed.
- Oil spills are likely to occur over the next 28 years from both non-OCS and OCS sources, according to historical statistics. Effects on water quality will vary with the size of the spill, the type of oil, the sea state, and other factors. Spills will generally have a minimal impact on water quality over the long-term (MMS, 1996).

Rocky and Sandy Beach Habitats: Rocky and sandy beach habitats are impacted in central and southern California by many natural and anthropogenic sources including natural disease, extreme storms, natural tar seeps, population pressure and collecting, surface runoff, leaky onshore tank farms, and chronic sewage discharges and spills. These cause low to high impacts on rocky and sandy beach habitats due to sedimentation, physical alteration of the habitat, and toxicity resulting in mortality, reduced productivity, recruitment, and displacement. Existing oil and gas facilities pose a potential risk of an oil spill that could cause impacts ranging from low to moderate from smothering and toxicity, unless black abalone habitat are directly contacted, resulting in moderate to high potential impacts, depending on the size of the spill. The most serious oil spill risk to shoreline resources is from tankering activities offshore California from non-OCS activities, estimated to produce high impacts on rocky and sandy beaches due to heavy smothering and toxicity impacts over a large area.

Potential future development of the 36 undeveloped leases could result in low to high impacts due to construction and oil spill impacts. The potential development that could occur if the proposed delineation wells are successful could lead to up to an additional five platforms offshore Santa Barbara County. Pipeline construction activities for the addition of two pipeline corridors through the shore to onshore facilities could impact beach resources during trenching activities producing low impacts in sandy areas, or moderate impacts if dune habitat is altered. The potential risk of an oil spill from OCS activities is increased with the addition of potential production from the 36 undeveloped leases. Oil spill impacts could be high if the black abalone habitat is heavily oiled in several locations.

Seafloor Resources: Seafloor resources are impacted by several cumulative sources. Bottom trawling by commercial fishermen has the highest potential to directly impact hard bottom habitat by removing marine plants, corals, and sessile organisms, up-

ending rocks, leveling rock formations and resuspending sediments. These impacts are moderate to high. Natural turbidity flows, which are especially pronounced during extreme flooding events, produce large volumes of sedimentation and turbidity over a large area.

Overall impacts from the proposed delineation wells are low to soft and hard bottom habitat, but moderate impacts to hard bottom habitat could occur if activities are unmitigated and hard bottom habitat in several locations is altered by anchoring activities. The hypothetical development activities and reasonably foreseeable activities from the 36 undeveloped leases could contribute low to moderate impacts to seafloor resources through anchoring, discharges during installation and drilling, and removal of habitat during abandonment.

Based on studies of anchoring during development activities, properly mitigated anchoring activity offshore during pipeline and platform construction should not produce significant impacts on the offshore biota (Hardin et al., 1993). These impacts can be reduced if platforms and pipelines avoid hard bottom and if anchoring activities during installation include vertical handling procedures, anchor handling boats, shut down plans during inclement weather, precautions against dragging individual anchors and post-installation monitoring.

Kelp Beds: Kelp resources are the most heavily impacted by the synergistic effect El Nino warm water conditions play in the role between kelp, sea urchins, and commercial fishing. Fishing practices reducing urchin predators and resulting in high increases in urchin predation on kelp, along with the dieback conditions caused by warm water, have a high impact on the kelp bed health. Other activities such as harvesting, discharges and boat traffic provide ongoing low levels of impact. Nearshore construction activities create localized disturbances. The incremental impact of offshore OCS development including potential development of the 36 undeveloped leases is low and results primarily from localized disturbances in the surf zone during pipeline construction activities.

Fish Resources: Overall, the impacts (including potentially habitat-altering activities) to fish resources in the project area from offshore oil and gas activities, primarily construction and decommissioning, will increase over present levels. However, the areas covered by these activities will be small relative to the available marine fish habitat, and the disturbance will be localized. Cumulative impacts to fish resources and Essential Fish Habitat (EFH) from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be moderate.

Accidental oil spills present an ongoing source of potential impacts to fish resources. The cumulative risk of oil spills arises from multiple sources, including offshore oil and gas activities in Federal and State waters and both Alaskan and foreign-import tankering. The greatest oil spill risk to fish resources and EFH in the project area results from tankering operations. Impacts to fish resources and EFH from the oil spills assumed to occur in the project area during the period 2002-2030 could range from low to moderate, depending on location, season, volume, and a number of other factors.

Marine and Coastal Birds: The cumulative impacts to marine and coastal birds in the project area from all sources for the period from 2002-2030, including any activities that may occur in the 36 undeveloped leases, range from moderate to high, depending on the species involved and the timing, location, and movement of a 22,800-bbl, non-OCS tanker spill. The likelihood of one or more OCS-related oil spills is greater with the development of the 36 leases, but the cumulative impacts remain moderate to high.

Marine Mammals: Given current trends, it is likely that the populations of most marine mammal species will continue to grow, although the future status of individual populations is difficult to predict. Impacts to marine mammals from incidental take in commercial fishing operations are likely to decrease. Impacts from other anthropogenic sources, such as ship strikes, marine pollutants, and noise from shipping and military activities, may increase as the human population and related activities continue to grow in the region.

Overall, the impacts to marine mammals in the project area from routine offshore oil and gas activities, primarily noise and disturbance, will increase over present levels. However, the areas covered by these activities will be small relative to the available marine mammal habitat, and the periods of disturbance will be localized. Cumulative impacts to marine mammals from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be low.

Impacts to marine mammals from the oil spills assumed to occur in the project area during the period 2002-2030 could range from negligible to high, depending on spill size, location, season, and a number of other factors. Most at risk are pinniped pups. Seasonally, the most sensitive areas are rookeries on the northern Channel Islands (particularly San Miguel Island) and along the mainland coast north of Point Conception. The potential for an oil spill occurring from development of the 36 undeveloped leases represents a small incremental increase to the overall cumulative oil spill risk for marine mammals.

THREATENED AND ENDANGERED SPECIES:

- The impacts to threatened and endangered marine mammals in the project area from routine offshore oil and gas activities, primarily noise and disturbance, will increase over present levels. However, the areas covered by these activities will be small relative to the available marine mammal habitat, and the periods of disturbance will be localized. Cumulative impacts to threatened and endangered marine mammals from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be low.

The potential for an oil spill occurring from development of the 36 undeveloped leases represents a small incremental increase to the overall cumulative oil spill risk for threatened and endangered marine mammals. Expected impacts to threatened and endangered cetaceans and pinnipeds remain negligible to low depending on the species. Oil spills would be expected to result in low to moderate impacts to the southern sea otter during this period. Non-OCS tankers remain by far the greatest source of oil spill risk to sea otters.

- The cumulative impacts to threatened and endangered birds in the project area from all sources for the period from 2002-2030, including any activities and accidental events that may be associated with the development of the 36 undeveloped leases, range from moderate to high, depending on the species involved and the timing, location and movement of the assumed 22,800-bbl tanker spill.
- Population trends over the next quarter of a century for all four species of sea turtles found on the U.S. west coast are uncertain. The primary threats to sea turtles along the west coast are incidental take in commercial fisheries and, to a lesser extent, entanglement in and ingestion of marine debris.

Overall, impacts to sea turtles in the project area from routine offshore oil and gas activities, primarily noise and disturbance, will increase over present levels. However, the areas covered by these activities will be small relative to the available habitat, and the periods of disturbance will be localized. Cumulative impacts to sea turtles from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development

of the 36 undeveloped leases, are expected to be negligible.

Impacts to sea turtles from oil spills assumed to occur in the project area during the period 2002-2030 are also expected to be negligible.

- Overall, the impacts to California red-legged frogs in the project area from routine offshore oil and gas activities, primarily onshore construction, will increase over present levels only if the 36 undeveloped leases are developed. However, the areas that would be impacted by onshore activities will be small relative to the available frog habitat, and critical areas would likely be avoided. Cumulative impacts to California red-legged frogs from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be low.
- The principal threats to the recovery of southern steelhead is habitat degradation due to several sources including dams, agricultural and forest management practices, and urbanization. The species also faces potential genetic interaction with hatchery rainbow. The northern population of tidewater gobies has lost habitat over the past 150 years due to farming and development, but has recently rebounded sharply.

Overall, the impacts to tidewater gobies and southern steelhead in the project area from routine offshore oil and gas activities, primarily onshore construction, will increase over present levels only if the 36 undeveloped leases are developed. However, the areas that would be impacted by onshore activities will be small relative to the available habitat, and critical areas would likely be avoided. Cumulative impacts to threatened and endangered fish from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be low.

The potential for an oil spill occurring from development of the 36 undeveloped leases represents a small incremental increase to the overall cumulative oil spill risk for threatened and endangered fish.

- The cumulative impacts to threatened and endangered plants in the project area from all sources for the period from 2002-2030, including any activities and accidental events that may be associated with the development of the 36 undeveloped leases, range from moderate to high, depending on the species involved, the size, timing, location and movement of potential oil spills, and continued habitat loss.

Estuarine and Wetland Habitats: Most wetland and estuary habitat in Southern California has been severely altered through commercial and residential development, resulting in less than 9% available habitat. This makes any impact resulting in loss of this rare habitat a high impact. Past, present and possible future cumulative impacts to wetland resources range from low to high due to irreversible alteration or elimination of the habitat, sedimentation, contamination and toxicity. Sources of impact include: surface runoff, agricultural practices, commercial and residential development, and pollution events such as sewage discharges, tanker spills, oil spills from existing oil and gas activities, and an oil spill from all future OCS development. Overall impact from the proposed delineation drilling is low; overall impact from the 36 undeveloped leases ranges from low to high due to the risk of an oil spill. The severity of the impacts depend on whether a spill occurs in proximity to a wetland and on the number of wetlands affected by any one spill event.

Refuges, Preserves and Marine Sanctuaries: Cumulative impacts to these resources for the 2002-2030 time period, including those associated with the proposed and potential development of the 36 currently undeveloped OCS leases, may be found in section 6.2.1 through section 6.2.23, where appropriate. The cumulative impacts to the biological resources of the Channel Islands and Monterey Bay National Marine Sanctuaries and the Channel Islands National Park are summarized in table 6.2.11-1 and range from negligible to high depending on the species or resources involved.

Onshore Biological Resources: The cumulative impacts to onshore biological resources in the project area from all sources for the period from 2002-2030, including any activities and accidental events that may be associated with the development of the 36 undeveloped leases, range from low to moderate, depending on the habitat and species involved, the occurrence of an extensive onshore oil spill, and the level of future urban development.

Cultural Resources: Archaeological resources are present in the area. Impacts are not anticipated as a result of the anchoring or exploration drilling from the proposed projects since these operations will avoid potential resource sites. Significant cumulative impacts to archaeological resources from potential construction of offshore and onshore production facilities are not likely. Oil spill related impacts, should they occur, could be cumulatively significant.

Physical disturbance caused by non-OCS development activities include installation of seafloor cables, construction of sewage treatment infrastructure, commercial trawl fishing, anchoring, dredging, and unauthorized removal of artifacts by recreational scuba divers. Onshore, cumulative impacts may occur

cur from a full range of construction activities and pilferage. Natural processes, such as shoreline erosion, also contribute to the destruction of cultural resources. Because of stringent monitoring and mitigation of local, state, and Federal agencies for actions that may affect cultural resources, permitted actions are likely to cause little cumulative impact.

The impact from existing offshore oil and gas platforms of the traditional cultural property at Point Conception remains as long as the platforms are in the viewshed.

A low level of impact is expected from the placement of Platform Bonito in the Point Conception area. Routine operations are not expected to affect the traditional cultural resource qualities of Point Conception that make it eligible for the National Register. Moderate to high cumulative impacts to archaeological resources from potential construction of offshore and onshore production facilities and offshore spills are possible. Participation by Native Americans in the Santa Barbara County monitoring and mitigation activities have proven very effective in addressing Native American concerns regarding construction impacts, although some disagreements were noted in the past. Potential impacts to traditional resources in Shuman Canyon, if present, could be moderate to high. In past projects, moderate to high impacts have been successfully mitigated by local, State, and Federal regulations and mitigation measures.

Visual Resources: No other projects have been identified which will result in the permanent emplacement of above-water structures in the seascape for areas already under development. The contribution of existing clusters of platforms, such as those in the Santa Barbara Channel, to cumulative visual impacts will cease when the last platform in the cluster is decommissioned and at least the visible above-water structure is removed. Onshore facilities, when decommissioned, are restored to their pre-development condition.

Development from existing facilities does not contribute to the magnitude of cumulative impacts on visual resources. Visual impacts from these platforms occurred with original development. To the extent that activity extends the use of the facility beyond that originally anticipated, the duration of the cumulative impact will be longer.

The three new platforms in the Northern Santa Maria Basin will be visible, to varying degrees, from adjacent public recreation areas such as the Nipomo Dunes Preserve, Point Sal State Beach, VAFB Fishing Access and Ocean Beach County Park as well as the coastal areas of southern San Luis Obispo County. In addition, at least two of the platforms will be visible from the Southern Pacific Rail Line as it joins the coastal area south of Point Sal. While the existing Platform Irene may be viewed from portions of

this area, the proposed platforms introduce more prominent offshore structures not previously experienced by viewers in this area. Also, the scarcity of public access to this area may tend to concentrate the visual effects.

Though much of the time the visual impact of the offshore platforms more than three nautical miles offshore would be reduced by restricted visibility, the potential impacts at other times, will be intense, be highly controversial, and therefore, be considered significant. The effects, moreover, would be long term, lasting until decommissioning.

The impact of pipeline construction is local and short-term. As such, it is not expected to contribute significantly to cumulative impacts that would be associated with construction activities on Vandenberg AFB.

The cumulative impact to visual resources from the placement of the processing plant near Casmalia, or at another location, is discussed in the North County Facility Siting Study (SBC 2000). Contribution of the project to cumulative impacts will be dependent on several factors including: the visual character of the location selected for the facility; how well the facility can be shielded from public view through terrain or other methods; the effectiveness of the screening methods, and the character of other development in the area.

Recreation: The greatest demand for recreational facility use is the projected increase in California's population. By 2040, population is projected to grow 145 percent for San Luis Obispo County, 110 percent for Santa Barbara County, and 90 percent for Ventura County.

The greatest potential for effects to recreation is realized primarily through the use of campground by personnel engaged in onshore construction of onshore facilities, and temporary closures of or reduced access to coastal recreation facilities and activities because of construction activity. Depending on the length of the action and the time of the year, low to high impact could result.

From 1985 through 1995, a socioeconomic monitoring and mitigation program evaluated impacts from offshore oil, gas, and pipeline projects to Santa Barbara and Ventura County. While impacts varied from project to project, the impacts from construction worker use of campgrounds were of sufficient magnitude to trigger mitigation payments to Santa Barbara County. Campground use accounted for approximately \$99,000 or 1 percent of the total socioeconomic impact mitigation payment. No mitigation payment for campground impacts was made to Ventura County (MMS 2000).

Development from existing facilities does not appear to contribute to the magnitude of cumulative impacts on recreational resources. Impacts from these

platforms occurred with original development. To the extent that activity extends the use of the facility beyond that originally anticipated, the duration of the cumulative impact will be longer. In the case of the cumulative recreational impacts from Platforms Irene, Hildago, Hermosa, and Harvest, these are currently being mitigated by Coastal Resources Enhancement Fund (CREF) payments to Santa Barbara County.

Once production has commenced, routine operations do not appear to interfere with any location specific recreational activities. However, the projects may contribute to the general, diffused cumulative impact on coastal-dependent and coastal enhanced recreation, aesthetics, and tourism associated with previous offshore oil and gas projects in the area. Previous impacts of this type have been mitigated by CREF payments, which continue over the life of the project.

Cumulative impacts could result from oil spills. These impacts are very location and seasonally specific for small spills of 200 barrels, less so for spills of 2,000 barrels or larger. Impacts could be low to high, local to regional.

Community Characteristics and Tourism Resources: The greatest potential for effects to tourism and community resources comes from introduction of offshore activities in areas that currently are not proximate to development. In this case, proposed operations are far enough removed not to induce effects to community characteristics or tourism resources. Effects would be negligible to low.

In areas with development, effects will not be of sufficient magnitude to affect community resources or it occurs in areas not proximate to tourism. Effects would be negligible to low.

Cumulative impacts could result from oil spills. These impacts are very location and seasonally specific and would have the most effect for areas that have experienced recent, well-publicized incidents of environmental degradation. Effects in this case could be low to high.

Employment and Population: It is anticipated that overall employment and population will continue to grow in the study area ameliorating any job loss in offshore oil and gas related activities. Assuming labor participation rates remain constant employment and populations are expected to increase by more than 58% between 2000 and 2030.

Employment and population are expected to increase as result of development of the 36 undeveloped leases. The impact on employment and population are anticipated to be similar to the levels of population and employment increases experienced during the construction of Exxon's Santa Ynez Unit project. At its peak level the Santa Ynez Unit project directly employed approximately 1,200 workers (MMS 2000). Peak employment effects from the Santa Ynez Unit project were estimated to be approximately 3,000 jobs

accompanied by a peak population impact of approximately 5,000 people. Tables 6.2.17-1 and 6.2.17-2 show the short term and long term impact for development of the 36 undeveloped leases on employment and population. The most significant distinction between the Santa Ynez Unit and a likely northern Santa Barbara County facility is the location. Since the most likely location for a new facility is removed from the south coast of Santa Barbara and Ventura County the likely areas to be impacted by a new facility are southern San Luis Obispo and northern Santa Barbara Counties. Because of the concentration of the impacts to a less densely and urbanized area, the impacts from the development of the 36 undeveloped lease is moderate in the short term and low in the long term.

Housing: Housing impacts from existing offshore oil and gas development will continue at the present level of 1,561 housing units occupied. This level is approximately 0.32% of the total housing in the tri-county area. Since population in the study area is forecast to increase by more than 58 percent between 2000 and 2030, the share of housing demand associated with offshore oil and gas development will likely decline.

Housing impacts are not expected from the development of the Cavern Point and Rocky Point Units. The construction of new platforms, pipelines, and a new onshore facility in northern Santa Barbara County will create both short term and long term impacts on housing. The short term impacts on housing are anticipated to be similar to those that occurred with the construction of the Santa Ynez Unit projects the peak impact on housing from the Santa Ynez project was 721 total housing units. Because of the proposed location a new facility in northern Santa Barbara County, it is likely that housing impacts will be distributed in northern Santa Barbara County and southern San Luis Obispo County. A short-term change in housing requirement in San Luis Obispo and Santa Barbara County is anticipated to be 61 percent and 83 percent of the annual variation in housing respectively. The short-term impact on housing demand is high. The long-term impact on housing is low from development of the undeveloped 36 leases.

Infrastructure: Crew and supply boats will continue to service the offshore oil and gas industry and existing onshore development will continue at the present levels of activity. No other activities that would impact infrastructure other than expected variation in port operations have been identified.

Development of the Cavern Point and Rocky Point Units is anticipated to cause an increase in the level of crew and supply boat trips during drilling activities. The levels of crew and supply boat trips are expected to increase by less than 3% of the total trips. Depending on the quality of crude discovered in the northern Santa Maria Basin trucks could be required to ship product most likely in the form of asphalt from

a proposed northern Santa Barbara County processing facility. Depending on the location of a new northern Santa Barbara County facility, roads, highways, and rail lines could be significantly impacted by the new facility. There are forty-one weekly truck trips related to offshore oil and gas activities in the northern Santa Barbara County. In addition to offshore oil and gas related traffic, there are approximately 442 additional weekly truck trips at the junction of Highway 1 and Casmalia Road. The junctions of Highway 1 and Casmalia Road would be impacted by a new facility if the new facility is located at the preferred site identified in the Final North County Siting Study by Santa Barbara County. If truck transport of asphalt is required from the construction of a northern Santa Barbara County processing facility there could be an increase in truck trips related to offshore oil and gas development of more than 1,500 trips or 4,000 percent, the impacts from this change will be high.

Rail transport of asphalt could replace all or part of the transportation from the new processing facility. If rail transport replaced all truck transport of asphalt, truck traffic would be reduced by 1,500 weekly trips. Rail transport would increase by approximately one 70-car unit train a day. Since there are no unit trains transporting asphalt from northern Santa Barbara County the impact from the addition of one train a day would be high. The COOGER Study (MMS 1999) discusses transportation of Asphalt from a Northern Santa Barbara County Facility.

Public Finance and Services: The existing demand for public and private services will continue to change in variation with demographic and other factors not related to offshore oil and gas or other identifiable projects. Property taxes in Santa Barbara and Ventura will continue to be enhanced by revenue generated by offshore-related onshore development. As oil and gas projects move from production to decommissioning, valuation of the facilities for property taxes will decline. The fee-for-service arrangement for local agency land use permitting and regulatory activities for offshore oil and gas projects is expected to continue.

Development of the Cavern Point and Rocky Point Units are anticipated to have little if any effect on onshore property taxes and demand on services. The construction of new onshore processing facility in northern Santa Barbara County and its related support facilities will likely increase the amount paid into the property tax fund. Additional demand for housing will increase the price of housing and also result in additional property tax revenue. The short-term increase in population and employment will also result in an increase in demand for schools, hospitals and other services. It is likely that the construction of a new onshore facility in northern Santa Barbara County will have impacts on public services similar to those experienced during the construction phase

of Exxon's Santa Ynez Unit project including the Las Flores Canyon onshore component. Past practice by Santa Barbara County required participation by offshore oil and gas operators in the Socioeconomic Monitoring and Mitigation Program (SEMP). The impacts from the development of the 36 undeveloped leases may warrant establishing a similar program. Table 6.2.20-1. Shows the percentage distribution of SEMP impact mitigation payments for Santa Barbara and Ventura Counties. Santa Barbara County and entities within Santa Barbara County received payments in excess of \$7 million from 1985 to 1995. Ventura county entities received more than \$3 million during the same period. Short-term impacts on public finance and services from population increases from the development of the 36 leases could be high if a new northern Santa Barbara County processing facility is constructed.

Non-Residential Land Use: Existing onshore facilities are expected to continue substantially as they are. No changes in the onshore support facilities are expected. Land uses supporting offshore oil and gas will continue as long as oil production is possible. As part of decommissioning, the land use designation of former on-shore processing facilities may change in accordance with local land use plans and practices.

The Cavern Point and Rocky Point Unit developments are not expected to have an impact on non-residential land uses. The development of a new processing facility in northern Santa Barbara County and new pipeline and power cable landfalls and rights-of-ways will have a varying impact depending on the routes selected and the location of the new facility. If new pipelines and power cables can be routed in existing rights-of ways the impact will be low. Since a new processing facility is required in the northern Santa Barbara County the location of the facility will determine if the impacts are moderate or high. If the facility is situated on land already used for oil and gas related activities the impacts on non-residential land use will be moderate. In the final North County Facility Siting Study, Santa Barbara County identifies the sites described as Casmalia East or Casmalia West as strongly preferred locations for any new onshore facility in support of offshore oil and gas development. The location of a new facility at either location is likely to result in a moderate impact on non-residential land use.

Commercial Fishing and Kelp Harvest: Overall, the impacts to commercial fishing in the project area from routine offshore oil and gas activities, primarily space-use and preclusion, will increase over present levels. However, the areas covered by these activities will be small relative to the available commercial fishing grounds, and the periods of disturbance will be localized. Unless several such projects were to overlap in time and space during peak fishing seasons, cumulative impacts to commercial fishing would be

unlikely. However, if 4-5 platforms are placed in the SMB and SBC along with associated pipelines, fishermen, especially trawlers, would experience moderate impacts due to loss of fishing grounds. Increased vessel traffic would lead to conflicts with the trap fishermen of the area. Cumulative impacts to commercial fishing from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be moderate.

Accidental oil spills present an ongoing source of potential impacts to commercial fishing. Impacts to commercial fishing from the oil spills assumed to occur in the project area during the period 2002-2030 could range from low to medium, depending on location, season, and a number of other factors. The most sensitive areas, from a commercial fishing perspective, would be near a harbor, resulting in closure.

Marine Recreational Fishing: Overall, the impacts to the recreational fishing industry in the project area from routine offshore oil and gas activities, primarily space-use and preclusion, will amount to a negligible increase over present levels. The areas covered by these activities will be small relative to the available fishing grounds, and the periods of disturbance will be localized. Cumulative impacts to marine recreational fishing from all the routine oil and gas activities assumed to take place between 2002 and 2030, including those associated with the development of the 36 undeveloped leases, are expected to be low.

Impacts to recreational fishing from the oil spills assumed to occur in the project area during the period 2002-2030 could range from low to medium, depending on location, season, and a number of other factors. The most sensitive areas, from a fishing perspective, would be near a harbor, resulting in closure.

Military Operations: Offshore oil and gas activities have the potential to impact military activities because of space-use conflicts resulting from additional aircraft and vessel traffic, the placement of permanent or semi-permanent drilling and production structures and activities resulting from them, and activities stemming from cleanup efforts of oil spills. As oil and gas activities are expanded in southern California, the potential for additional space use conflicts is created with the military as operations increase in the Point Mugu Sea Range. As a result of the MODU drilling activity, it is estimated that as many as five new platforms would be installed on the Pacific OCS. Four of the platforms would be located in Military Warning Area W-532.

During the more than 15-year operational history of oil and gas platforms in Military Warning Area W-532, no military operations have been delayed, canceled, or relocated due to routine offshore oil and gas

activity. In addition, there have been no accidents (vessel/aircraft collisions, deaths, or serious injuries) involving oil and gas activities and military operations in the Point Mugu Sea Use Range since the initiation of exploration and development activities more than 30 years ago. As described in section 5.2.24.1, the existing military lease stipulations have been very effective in avoiding conflicts between oil and gas and military operations. The potential cumulative impact of routine oil and gas activities on military operations is therefore considered low based upon the significance criteria used in this analysis.

For non-routine operations, such as oil spill clean-up activities, oil and gas activities have the potential to disrupt military operations, particularly if spills occur in a Military Warning Area or drift into a Military Warning Area due to wind and current movements. As described in Section 5.2.24.2.1, small spills of 200 barrels or less would have a low impact on military operations. Moderate spills (2,000 bbl), depending on their location and timing, would have a low to moderate impact on military operations. Large tanker spills (22,800 bbl), particularly if they were to occur in the Point Mugu Sea Range, would have a moderate impact on military operations. Overall, the cumulative impact on military operations from all activities is expected to be moderate.

Delineation Drilling Activities Offshore Santa Barbara County

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