

OCS ENVIRONMENTAL ASSESSMENT

LEASE OCS-P 0205

SANTA CLARA UNIT

CHEVRON U.S.A. INC.

JUNE 19, 1986

United States Department of the Interior  
Minerals Management Service  
1340 West Sixth Street  
Los Angeles, California 90017

OCS ENVIRONMENTAL ASSESSMENT

June 19, 1986

Operator Chevron U.S.A. Inc. Plan Type Development/Production

Lease OCS-P 0205

Block 46 N, 61 W

Platform Gail

Date Deemed

Unit Santa Clara

Submitted January 29, 1986

Prepared by the Regional Supervisor  
Office of Leasing and Environment, Pacific OCS Region

RELATED ENVIRONMENTAL DOCUMENTS:

City of Oxnard and USGS. 1980. EIR/EA for Union Oil Company, Platform Gina and Platform Gilda Project. Leases OCS-P 0202 and 0216, 3 volumes.

Santa Barbara County, USGS, California Coastal Commission, and Army Corps of Engineers. 1979. EIR/EA for Chevron U.S.A. Proposed Pipeline Installation, Santa Barbara Channel, 3 vols.

RELATED U.S. DEPARTMENT OF INTERIOR ENVIRONMENTAL DOCUMENTS:

Environmental Analysis, Development for Lease OCS-P 0217  
Environmental Assessment, Exploration for Lease OCS-P 0205  
Environmental Assessment, Exploration for Lease OCS-P 0203  
Environmental Assessment, Exploration for Lease OCS-P 0204, 0208, 0209, and 0215  
Environmental Assessment, Exploration for Lease OCS-P 0216

FEIS, Proposed 1975 OCS Oil and Gas General Lease Sale  
Offshore Southern California (OCS Sale No. 35), 5 Volumes

FEIS, 1976 Oil and Gas Development in the Santa Barbara Channel,  
Outercontinental Shelf Off California, 3 Volumes

FEIS, Proposed 1979 OCS Oil and Gas General Lease Sale  
Offshore Southern California (OCS Sale No. 48), 5 Volumes

FEIS, Proposed 1982 OCS Oil and Gas General Lease Sale  
Offshore Southern California (OCS Sale No. 68), 2 Volumes

FEIS, Proposed Southern California Lease Offering, 1984  
(OCS Sale No. 80), 2 Volumes

\*\*Also, see References Cited\*\*

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## 1 Purpose and Need For Action

### 1.1 Purpose

Federal law and policy encourages the prompt and orderly development of oil and gas resources balanced with protection of the human, marine and coastal environments in the offshore Federal waters known as the Outer Continental Shelf (OCS). The OCS Lands Act, as amended, presents this policy as defined by the United States Congress.

The objective of Chevron U.S.A., Inc. (hereinafter referred to as Chevron) as operator, is to derive economic benefit through the extraction, processing, and selling of the hydrocarbons produced from the Sockeye Field, a part of the OCS Santa Clara Unit. This is proposed to be accomplished by the installation of Platform Gail and the associated subsea pipelines.

### 1.2 Need

The American public and industry have the need for petroleum products that require development of OCS oil and gas resources. Orderly and balanced development of these natural resources is necessary to reduce dependence on foreign energy sources, which has led to an unfavorable balance of payments and a less secure national economy. A secondary benefit is the collection of royalties, bonuses, and rents. This benefit represents a significant source of revenue for the federal government.

The U.S. Minerals Management Service (MMS), as OCS leaseholder and manager of development and production, has prepared this Environmental Assessment (EA) to meet its responsibilities under the National Environmental Policy Act (NEPA) of 1969.

### 1.3 Historical Background and Regional Activity

The prior environmental documentation that is related to this project is listed on the cover sheet and in the reference section of this EA. In particular, the EIS prepared for development in the Santa Barbara Channel in 1976 by the U.S. Geological Survey (USGS) covered possible development on Lease OCS-P 0205. This document (USGS, 1976) is incorporated herein by reference. Environmental documentation has also been prepared for development on nearby Platform Grace (USGS, 1977); the associated pipelines from Platform Grace to Platform Hope (Santa Barbara County et al., 1979); and Platforms Gina and Gilda (City of Oxnard et al., 1980).

Lease OCS-P 0205, the location of the proposed platform, and Leases OCS-P 0209, 0210, and 0217 which will contain the pipelines to Platform Grace, were all obtained by operating oil companies in OCS Lease Sale P4 on February 8, 1968. These leases, along with OCS-P 0204, 0208, 0215, and 0216 were unitized and

combined into the Santa Clara Unit on March 31, 1973.

### 1.3.1 Nearby Existing Platforms

Production platforms previously installed in the Santa Clara Unit and the southeastern part of the Santa Barbara Channel include Grace (Chevron) on OCS-P 0217, Gilda (Union) on OCS-P 0216, and Gina (Union) on OCS-P 0202 which produces from the Hueneme Field to the southeast. A map depicting the geographical location of the Platform Gail project and its relationship to other facilities is given in Figure 1.1 of the Chevron Development and Production Plan (DPP) and is reproduced as Figure 1.3.1-1 in this EA.

### 1.3.2 Proposed Activities

There are no proposed exploratory activities in the general area of the Santa Clara Unit and, as of this writing, there are no drilling rigs operating in the eastern Santa Barbara Channel. In December 1984, MMS approved an ARCO Plan of Exploration for Leases OCS-P 0469 and 0475, approximately 24 km (15 mi) west of the Platform Gail location. Presently, there are no additional, formally proposed platforms in the eastern Santa Barbara Channel.

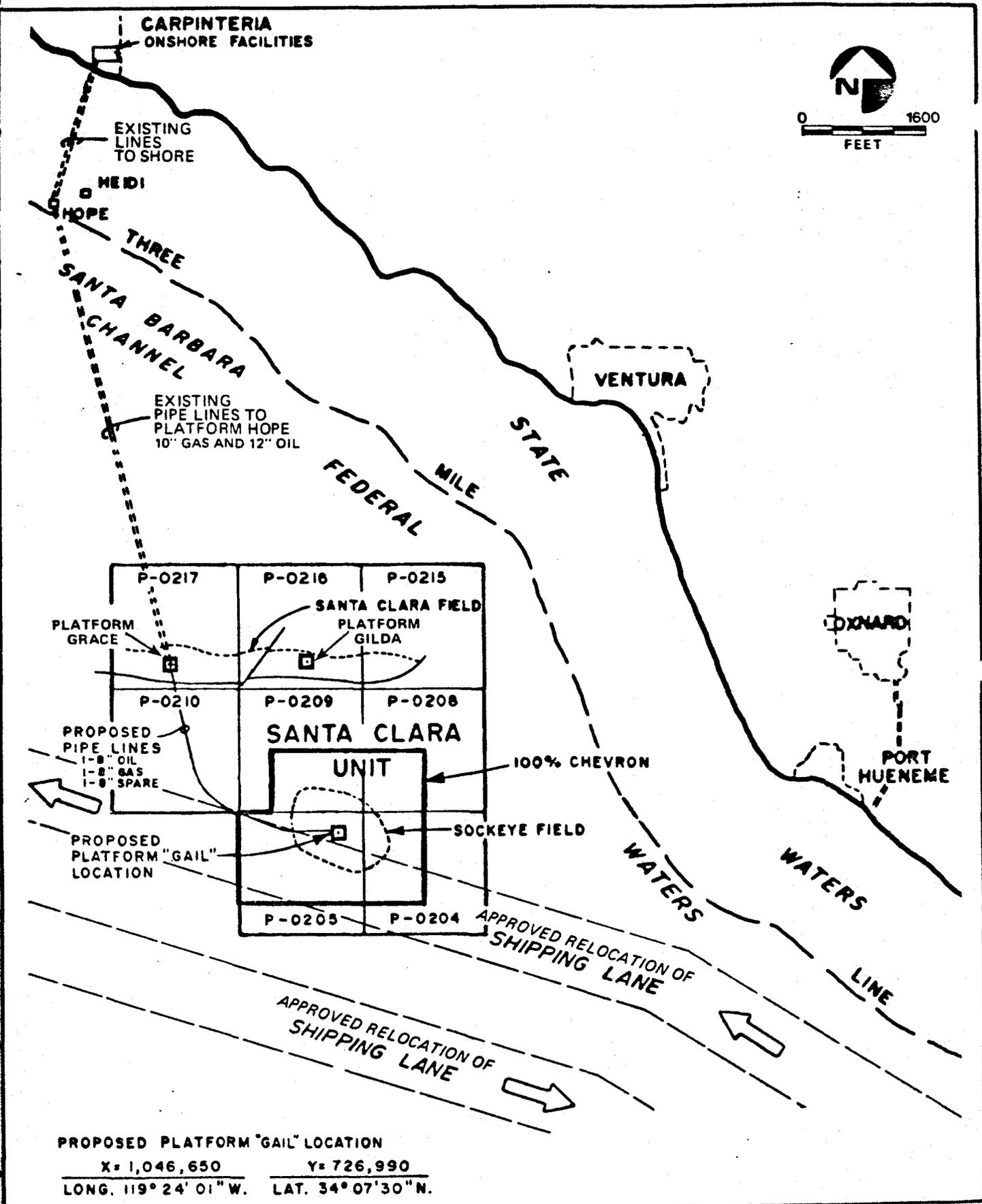


Figure 1.3.1-1-Chevron's Platform "Gail" Sockeye Field, Santa Clara Unit  
 Santa Barbara, California (From Chevron USA, 1986)

## 2.1 Alternative 1 -- Proposed Action

### 2.1.1 Description of the Alternative

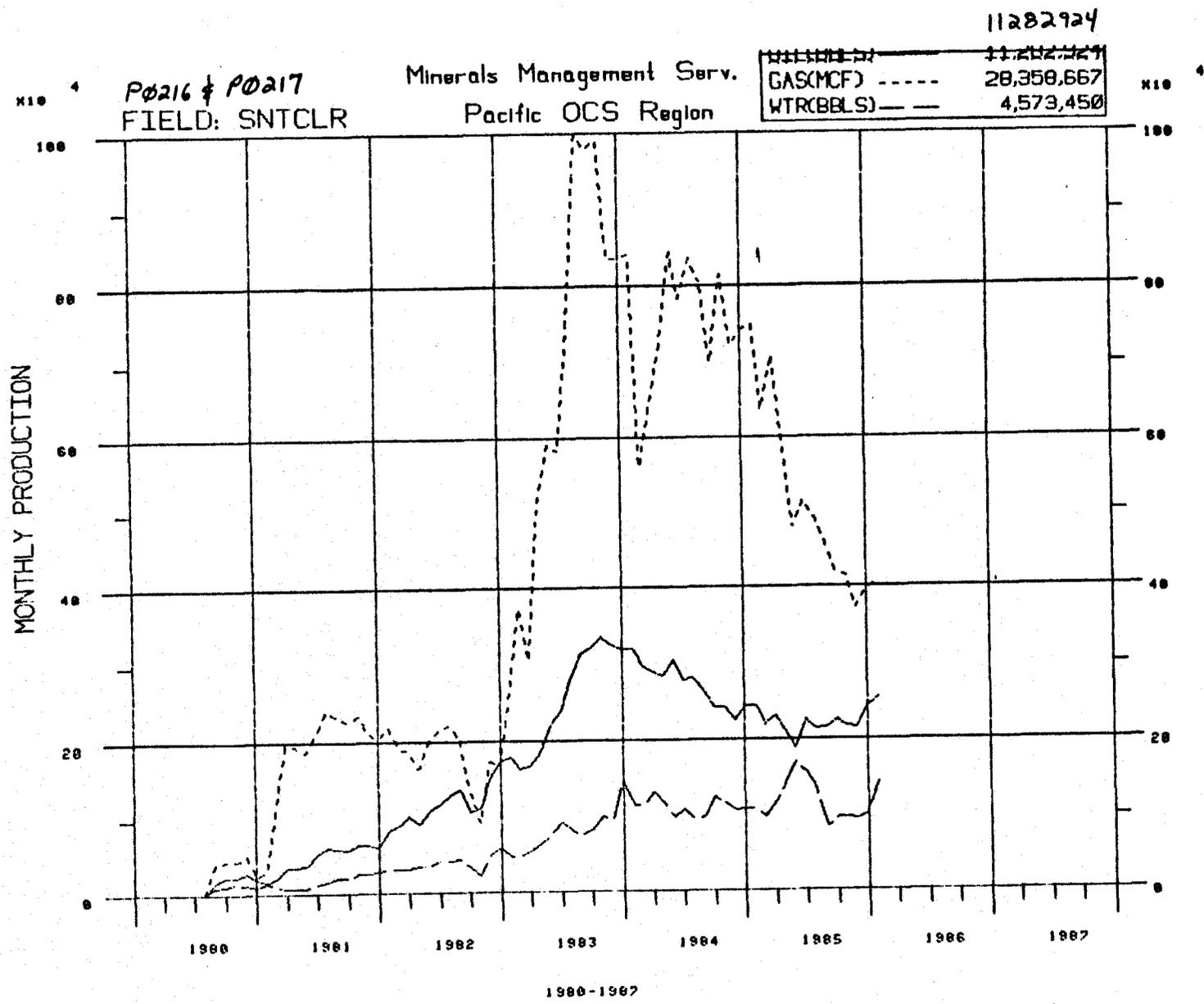
Details of the Chevron Platform Gail project, including the associated Gail to Grace pipeline, were originally submitted for review to the MMS in a Draft Development and Production Plan (DPP) and accompanying Draft Environmental Report (ER) on October 2, 1984. These two documents, as well as the Chevron Oil Spill Contingency Plan (OSCP) for the Santa Clara Unit were thoroughly examined by MMS as to their accuracy and completeness. This was part of the completeness review process as mandated by 30 CFR 250.34. Chevron's DPP was deemed submitted by the MMS on January 29, 1986.

These documents are summarized and referenced within the text of this Environmental Assessment (EA), and are available for review at the MMS Pacific Outer Continental Shelf Office in Los Angeles. Much of the information contained in the project description which follows is taken directly from the Chevron DPP and ER.

Chevron proposes to install a 36-slot drilling and production platform (named Gail) on Lease OCS-P 0205 in 225 m (739 ft) of water during the third quarter of 1986. First oil production is planned for mid 1987. Oil production from Platform Gail is projected to peak in 1990 at 13,300 barrels of oil per day (BOPD). Gas production is projected to peak in 1998 at 20.2 million standard cubic feet per day (MMSCFD). The expected life of the project is 32 years. Separation of gas, oil and free water would occur at the platform utilizing three-phase separators and electrostatic coalescers. Dry oil and gas would be transported by new subsea pipelines to Platform Grace. The oil and gas would then be commingled with Grace production and sent through existing pipelines to shore via Platform Hope. Produced gas would be treated onshore at Chevron's Carpinteria facility. The dehydrated oil from Platform Gail would not require any additional treatment onshore, and it would be transferred to an existing dry-oil line and transported to Chevron's El Segundo Refinery in Los Angeles.

As shown in Figure 2.1.1-1, oil and gas production for the Santa Clara Unit peaked in 1983 at approximately 11,000 BOPD and 33 MMSCFD, respectively and has been declining since then. Processing at the Carpinteria facility (for Platform Grace) and the Mandalay Beach facility (for Platform Gilda) has also been reduced as a result of the Unit's production decline. Thus, Platform Gail would extend the operating life of the Santa Clara Unit and the Carpinteria processing facility.

Figure 2.1.1-1. Historical oil and gas production rates for the Santa Clara Unit.



Chevron has recently shut-in 60 wells onshore. Continued production decline for the current platforms in the Santa Clara Unit might result in additional well shut-ins. Thus, Chevron's overall production decline onshore and in the Santa Clara Unit could free up enough personnel to meet or exceed the 37 person requirement for Gail. In summary, Platform Gail's installation would extend the operating life of the Santa Clara Unit and the Carpinteria facility and may provide jobs for workers recently displaced due to onshore well shut-ins.

#### 2.1.1.1 Description of Project Components

The proposed project would consist of the following components: Platform Gail, pipelines to Platforms Grace and Hope, and processing facilities on Grace and onshore in Carpinteria. The project components are discussed in detail next. The reader is referred to Chevron's DPP (Chevron U.S.A., 1986) for additional information on the project.

##### Platform Gail

Location. The platform would be located approximately 14 km (9 nm) west-southwest of Port Hueneme and approximately 10.5 km (6.5 nm) north of the east end of Anacapa Island. The platform site in relationship to the lease and prominent onshore areas is shown in Figure 1.3.1-1 (see Section 1.3.1).

Design. The platform structure was designed in compliance with the MMS OCS Order No. 8. Platform Gail would be a conventional eight-leg steel jacket supported on the sea floor by pilings driven through the legs of the jacket and then welded and grouted to the jacket. The jacket would support a three-level deck including well conductors and contain drilling/production and utility facilities, crew quarters, a heliport, and provisions for docking of crew and supply boats. The deck structure would provide space and load carrying capacity for one drilling rig.

Installation. Jacket installation is proposed for the end of August, 1986. The decks and modules would be installed from late October to December of 1986. The platform installation procedures are explained in Chevron's DPP and ER (Chevron U.S.A., 1986 and Westec, 1986, respectively).

Drilling Facilities. Chevron presently plans to drill 25 wells during the first development phase. During the second development phase, an additional 9 wells may be drilled. Development drilling is planned to span approximately 6 years (approximately 2 months per well) beginning in March 1987. The full 36 wells are being considered in this EA. The drilling rig would be a land-type rig modified for offshore application. Subsequent to development drilling, a workover rig may be brought on board to service the producing wells.

Production Facilities. Three-phase separators are planned for primary oil/gas/free-water separation followed by electrostatic coalescers for dehydration. The wet-oil stream to the separators would be heated with hot oil to approximately 150 F for free-water removal. The resulting oil emulsion would then flow to the electrostatic coalescers operating at 50 pounds per square inch-gauge (psig) up to 250 F. The oil would then be stabilized in a twelve tray stripping column for removal of hydrogen sulfide (H<sub>2</sub>S) and piped to Platform Grace.

Produced gas from the three-phase production and test separators and the coalescers would be compressed to pipeline shipping pressure by three, 50 percent capacity electric motor-driven reciprocating compressors. Low pressure gas would be recovered from platform equipment and compressed along with casing gas. The recovered gas would be commingled with gas from separation facilities and compressed prior to dehydration and shipment to shore by pipeline.

Produced water resulting from the oil separation process on the platform would be treated and discharged to the ocean through a subsurface disposal caisson. To meet the EPA requirements for discharge (40 CFR 435), the water would be treated by passing it through a corrugated plate interceptor followed by a flotation cell to remove suspended oil from the water. Oil and solids resulting from this treatment process would be recycled into the oil stream. All discharges would be in accordance with an individual National Pollutant Discharge Elimination System (NPDES) permit to be issued by the Environmental Protection Agency (EPA).

Electric power would be generated by three 3,150 kilowatt (kw) turbine generators, one of which would be a standby unit. Gas would be the primary fuel for the turbines with diesel as an alternate fuel. Gas would be sent from Platform Grace to fuel the turbines until Platform Gail produces sufficient gas on its own. Heat would be recovered from the turbine exhaust by waste heat recovery units to satisfy the platform process heating requirements (i.e., cogeneration).

Emergency power for the production facilities would be supplied by an 850 kw diesel powered generator. This unit would provide electric power under emergency conditions for critical services such as blowout prevention (BOP) accumulators, lights, air pressurizing systems, and sump pumps.

Two 1,200 gallon per hour capacity desalinization units (one standby) would produce fresh water from sea water for the potable and demineralized water systems (including drilling). The system would keep the potable water system and mixed bed demineralizer supplied with 5 ppm total dissolved solids (TDS) water, while any

surplus would go to fresh water storage. Water from the vapor desalinization unit would enter a mixed bed cartridge type demineralizer where the total dissolved solids would be reduced from 5 ppm to less than 0.5 ppm. The resulting desalinization brine would be discharged to the ocean just below the surface. The desalination unit will have a capacity to produce 28,000 gallons per day (Chevron, verbal comm., May 29, 1986). Typical fresh water needs for drilling are 15,000 to 40,000 gallons per day (Chevron, verbal comm., May 29, 1986). Chevron would transport fresh water from shore for any needs over the 28,000 gallon capacity (Chevron, verb. comm., May 29, 1986).

All drainage from the decks would be collected. The drain water together with any entrained oil would be fed to a corrugated plate separator where oil would be separated and returned to a hydrocarbon drain tank. This oil is then pumped into the oil processing system or into a holding tank. Clean water from the corrugated plate interceptor would be discharged to the ocean through the subsurface disposal caisson in accordance with the individual NPDES permit. All decks would be of solid steel plate and have a 15 cm (6 in) minimum high curb around the perimeter to prevent any runoff into the ocean. Spray shields would be included where necessary to prevent liquid hydrocarbon spray from reaching the ocean.

General environmental protection measures, which are part of the proposed action, are listed in the ER (Section 2.18, page 2-56). Particular control measures adopted by Chevron to reduce air emissions are listed in Section 2.1.1.7 of this EA.

#### Description of Pipeline System

Three submarine pipelines would be installed between Platforms Gail and Grace. One would take oil to Platform Grace, one would transport gas to or from Grace and one would be a spare or utility line. The crude oil and gas would enter an existing pipeline system at Grace, shipped to Platform Hope thence onshore to Chevron's Carpinteria treating facility where the gas would be processed. The dehydrated oil from Platform Gail would not require any additional treatment onshore. It would be transferred to an existing dry-oil line and transported to Chevron's El Segundo Refinery in Los Angeles. Details on the existing Grace to Hope pipeline are provided in Santa Barbara County et al. (1979) and Chevron U.S.A. (1977). Brown and Root (1984) reviewed for Chevron the performance of the oil and gas pipelines from Platform Gail to shore via Platforms Grace and Hope. The study assumed higher production rates than those currently planned by Chevron and is thus conservative. The study concludes that the pressure requirements for peak and other flowrates are met by the facilities planned for Gail and the facilities currently available on Grace.

Location. The locations of the offshore and onshore pipeline segments are shown in Figure 2.1.1.1-1. It should be noted that only the pipelines connecting Platform Gail and Grace would be installed in the proposed action; all other pipelines segments are in place.

Installation. The pipelines would be installed in October and November of 1986 using the conventional laybarge and stinger method. The pipeline installation procedures are explained in Chevron's DPP and ER (Chevron U.S.A., 1986 and Westec, 1986, respectively). A pre-construction survey of the pipeline route would be conducted by Chevron in order to ascertain any minor bathymetric changes of the sea floor and for fine-scale engineering adjustments. MMS would require Chevron to (1) submit proposed anchoring plans for the pipeline construction activities prior to approval of Chevron's right-of-way application and (2) submit a post-construction anchor map, to show which anchor sites were actually used.

Operation. Platform Gail's volumetric comparison oil leak detection system is comprised of a computer system that would perform a volumetric balance in 1 minute intervals. All pipeline volumes would be both temperature and pressure compensated. The volumetric balance would be checked at seven different leak levels over different time periods spanning 1 minute to monthly. If an excessive imbalance occurred, an alarm would be sounded. The leak detection system is designed in accordance with MMS OCS Order No. 9.

There would be no sophisticated leak detection system for gas lines. Should a gas leak occur, the detection of the leak in the Gail to Grace pipeline would be accomplished by pressure sensors at both platforms.

#### Description of Processing Facilities

Dewatering of the crude would take place on Platform Gail. Free water would be removed from the oil in two parallel/three phase separators; two parallel electrostatic coalescers would reduce the water content to less than 1 percent. Oil from the coalescers is gas stripped to release H<sub>2</sub>S in the crude to 20 ppm or less and pumped via subsea pipeline to Chevron's Platform Grace. There it would be commingled with Grace's oil and pumped to shore via Chevron's existing subsea pipeline. No additional onshore treatment at Carpinteria is required. The reader is referred to MMS (1977) and Chevron U.S.A. (1976) for details regarding the facilities at Platform Grace.

Produced sweet gas on Platform Gail would be dehydrated and compressed before entering the pipeline to Platform Grace. Tie-ins on Grace would be minimal. These connections would not cause a significant increase in fugitive hydrocarbon emissions,

which are calculated based on the number of valves, flanges, and other connections in a facility. Sour gas produced from Platform Gail would be treated at Platform Grace to remove H<sub>2</sub>S by utilizing the existing Stretford unit prior to final treatment at Carpinteria. The Stretford process for sweetening natural gas would not show any increase in fugitive emissions. The process is a direct conversion of H<sub>2</sub>S to elemental sulfur and no SO<sub>2</sub> is formed. Hence, there are no emissions of SO<sub>2</sub>. A Stretford liquid "slurry" is produced that can contain up to a design maximum of 3.2 tons of sulfur per day. This slurry is classified as a hazardous waste during transport. The slurry is first transported in portable tanks by work boat to shore where vacuum trucks then transport the material to a Class II-1 disposal site. Both the hazardous waste carriers and the disposal site would be approved by the California Department of Health Services.

No modifications are proposed for Platform Grace. All operations would remain within the permitted limits and meet all conditions of the existing Santa Barbara APCD permit for the Carpinteria processing facility. The facility currently processes approximately 5 to 10 MMSCFD of gas. At peak Gail production, Carpinteria would process approximately 20 to 23 MMSCFD. In 1986, as part of another Chevron project, this facility will be instituting an inspection and maintenance (I&M) program. Chevron will also be installing pre-stratified charge systems on two compressors and a clean burn conversion kit on another compressor to achieve an 80 percent NO<sub>x</sub> reduction. Increasing throughput in this plant would not increase fugitive hydrocarbon emissions.

#### 2.1.1.2 Support Vessels and Aircraft

During the platform installation phase, the crew and supply boats would travel to the platform from the Carpinteria Pier and Port Hueneme, respectively. During the drilling phase, the crew and supply boats would travel to Gail from Port Hueneme. During the production phase, the crew boat would transport workers and small supplies to the platform from the Carpinteria Pier. Vessel routes are shown in Figure 2.6-1 of the ER (Westec, 1986).

The participation of support vessels and aircraft in the various project development phases are summarized below.

TABLE 2.1.1.2-1. SUMMARY OF DAILY SUPPORT VESSELS AND AIRCRAFT NEEDS.

Operation phase	Crew boats		Supply boats		Helicopter	
	number	trips	number	trips	number	trips
Installation	1	2	1	1	1	2
Drilling	1	1	1	1	1	2
Production	1	2	*	*	1	1

\* Small supplies would be transported on the crew boat.

### 2.1.1.3 Personnel Requirements

Manpower requirements for the various development phases are summarized in Table 2.1.1.3-1. Note that the installation or construction phase of the project is the most labor intensive.

TABLE 2.1.1.3-1. SUMMARY OF PERSONNEL REQUIREMENTS.

Operation phase	Maximum number of workers	Duration
Installation - platform	240	4 - 6 months
- pipeline	100	2 months
Drilling	70	6 years
Production	37	project lifetime

### 2.1.1.4 Project Schedule

Dates for upcoming Platform Gail highlights as proposed by Chevron are summarized next.

TABLE 2.1.1.4-1. UPCOMING PROJECT HIGHLIGHTS AS PROPOSED BY CHEVRON.

Proposed activity	Proposed dates
Installation - jacket	Aug 1986 - Sept 1986
- decks and modules	Oct 1986 - Jan 1987
- pipelines	Oct 1986 - Nov 1986
Drilling begins	Mar 1987
Production - commences	May 1987
- peaks	1990 for oil 1998 for gas

#### 2.1.1.5 Safety Systems

Platform Gail's fire detection and suppression systems, escape equipment, and safety systems are discussed in detail in Chevron's DPP and ER (Chevron U.S.A., 1986 and Westec, 1986, respectively).

Navigation aids for Platform Gail include the following components:

- o four lights, one on each platform corner consisting of 255 mm lenses which are visible for 8 km (5 nm);
- o fog signal with 3 km (2 nm) audible range;
- o aviation warning lights on the drilling derrick.

For safety considerations, the platform would be painted a highly visible white.

#### 2.1.1.6 Discussion of Contingency Plans

In the event that a spill does occur, procedures for reporting and activating spill response measures are described in the Oil Spill and Emergency Contingency Plan (Chevron U.S.A., 1985), submitted in accordance with OCS Order No. 7. The plan describes the following;

- o notification procedures for contacting appropriate government agencies,
- o designation of the spill response teams,
- o specific containment and cleanup procedures,
- o equipment inventories, and
- o locally and regionally available oil spill cooperatives.

The plan also details the procedures for limiting, ceasing, continuing or curtailing critical operations under defined hazardous conditions. A Hydrogen Sulfide ( $H_2S$ ) and Sulfur Dioxide ( $SO_2$ ) Contingency Plan is also included as Appendix 7. The  $H_2S$  and  $SO_2$  Plan discusses the following topics:

- o physiological response to  $H_2S$  exposure,
- o  $H_2S$  alarm system,
- o appropriate operating procedures in the presence of  $H_2S$ ,
- o medical first aid given an exposure to  $H_2S$ .

#### Description of Oil Pollution Prevention Procedures

Prevention of oil spills during drilling and production operations would be through full compliance with OCS Orders No. 2 and 7. Order No. 2 establishes casing and casing-cement requirements; blowout prevention equipment specifications; mud program, testing, and control requirements; and a mandatory program for the supervision and surveillance of activities and

training of personnel. Order No. 7 and the individual NPDES permit establish requirements for liquid and solid waste disposal; personnel training and drills for pollution prevention; and pollution inspections and reports.

The primary system used to prevent oil pollution consists of a properly designed mud and casing program and a diverter/blowout prevention system, both of which are described in the DPP (Chevron U.S.A., 1986). While drilling each well, a pressure integrity test conforming to OCS Order No. 2 would be conducted prior to drilling out the cement plug at the conductor, surface, and intermediate casing shoes. All zones which contain oil, gas, or fresh water would be fully protected by casing and/or cement as specified in Order No. 2. Platform Gail would be equipped with a safety control system designed to shut in all production wells in case of an emergency. Platform equipment, such as pressure relief valves, fire fighting systems, deck drainage collection systems, and well flow control devices, have been designed to minimize and prevent accidental spillage of oil and other pollutants.

#### Involved Personnel

Two related response teams would make up the overall Oil Spill Response Organization. The first level response, initiated by the Immediate Response Team, is organized to make maximum use of the persons and equipment located on Platform Gail, the boat and skimmer at Platform Grace, and the boat and equipment at the Carpinteria Pier. The team is trained to provide immediate containment and control capabilities for minor spills (i.e., less than 10 bbl). The team would also initiate control actions for large or uncontrolled spills regardless of their source.

If it is apparent that the spill cannot be completely controlled by onboard resources, the Major Spill Response Team would be activated. This team would oversee and direct the containment and cleanup operation to ensure that correct procedures are followed and that adequate measures are taken to protect both human health and the environment. The Major Spill Response Team would also coordinate with Clean Seas (CS) and any other oil spill cooperatives or government response teams that might be involved. Containment and cleanup activities are described below.

#### Description of Containment and Cleanup Activities

A discussion of containment and cleanup procedures for various open ocean and shoreline conditions and detailed information concerning dispersants and their use are presented in the OSCP (Chevron U.S.A., 1985).

Once a spill has been detected and the source located, Chevron's onsite foreman would initiate the level of response required and establish contact with Chevron management, CS, and appropriate government agencies such as the U.S. Coast Guard, MMS, and the California Office of Emergency Services. Responses to minor spills and initial responses to major spills would be conducted using equipment at Platform Gail, Platform Grace, and the Carpinteria Pier (under the present plan, crew boats would be stationed at Grace and the Carpinteria Pier). Supplementary response equipment for all spills would be provided by CS and other nearby operators as needed. The approximate response times to Platform Gail of the various cleanup equipment and vessels are as follows:

- o Gail spill containment equipment -- 30 min,
- o Grace crewboat -- 25 min,
- o Carpinteria crewboat (with a stop at Grace to pick up skimmer) -- 1 hr 45 min,
- o CS' Fast Response Boat (from Santa Barbara Harbor) -- 1 hr 45 min, and
- o CS' Mr. Clean I (from Santa Barbara Harbor) -- 3 hrs.

A drill was conducted on a simulated spill at Platform Grace. The recorded response times were better than the estimates given above. The Fast Response Boat arrived at the scene 1 hr 30 min from when the drill was initiated (actual transit time was only 55 min). Mr. Clean II (stationed in Santa Barbara Harbor at the time of the drill) arrived on the scene in 1 hr 50 min.

These response times are considered sufficient in view of the fact that trajectory modeling shows a minimum time to onshore impact of 50 to 55 hours (Chevron U.S.A., 1985). In addition, Mr. Clean II is stationed in Port San Luis and could be deployed if necessary. Mr. Clean III, which will be located offshore near Point Conception, could also be deployed as necessary. Should a spill exceed the capabilities of CS, additional equipment would be acquired from other cooperatives such as Clean Coastal Waters and Clean Bay located in Long Beach and San Francisco, respectively.

CS vessels are certified by the USCG for operations in the open ocean. They are capable of operating safely in all sea conditions found along the California coast (April 5, 1986 letter to Mr. Tim Russ of Chevron U.S.A. from Mr. L. A. Onstad, manager of CS).

The initial containment effort would involve deploying a spill boom to encircle the slick thus providing a physical barrier to prevent further spreading. After the spill has been contained, the oil would be mechanically removed by Grace's skimmer or a skimmer from CS. If weather or high sea conditions prevent the safe deployment of a spill boom and skimmer, or if the slick is

moving towards an environmentally sensitive area, Chevron might initiate the dispersant request process through the Federal On-Scene Coordinator (OSC). A dispersant would be used only after permission is given by the Federal OSC.

#### Relationship to Regional Contingency Plans

In addition to individual oil and gas operator contingency plans and regional cooperatives, the following Federal and State contingency plans are also in effect in the project area, as required by legislative mandate:

- o National Oil and Hazardous Substances Pollution Contingency Plan,
- o Region IX Multi-Agency Oil and Hazardous Materials Pollution Contingency Plan, and
- o California Oil Spill Contingency Plan and State Interagency Oil Spill Committee.

#### 2.1.1.7 Solid, Liquid, and Gaseous Wastes

Discharges of wastes and pollutants into the marine environment fall into two categories: (1) solid and liquid wastes and (2) gaseous pollutants. The U.S. EPA regulates the discharge of liquid and solid wastes into federal waters. Chevron plans to apply to the EPA for two individual National Pollutant Discharge Elimination System (NPDES) permits: one for minor discharges that would occur during platform installation and a second permit that would, in addition, include muds and cuttings and produced waters resulting from the drilling/production phase of the project. Solid and liquid wastes resulting from platform drilling and production operations, and the methods of their treatment and disposal are presented in Table 2.1.1.7-1.

Chevron intends to use EPA-approved generic muds No. 5 or 7. However, variations of these muds may be necessary, depending on downhole conditions. While these conditions are not anticipated, Chevron recognizes that there is a possibility that they may be encountered. If they are, and Chevron must use chrome lignosulfonates, Chevron is proposing to barge all muds containing chromium to shore for onshore disposal. Both the hazardous waste carriers and the disposal site would be approved by the California Department of Health Services.

Air pollutant emissions during platform installation would originate from diesel fuel-burning equipment, including tugboats, work boats, installation barges, cranes, and miscellaneous equipment. The two sources of air emissions associated with the drilling and production operations on Platform Gail would be those produced within the platform itself and mobile emissions from associated marine support vessels and helicopters. Continuous sources of air emissions would include valves, seals,

Table 2.1.1.7-1  
SOLID AND LIQUID WASTE GENERATION DURING  
DRILLING AND PRODUCTION PHASES

Disposable Waste	Treatment	Disposal Method	Disposal Frequency	Disposal Rate
Drill cutting	Wash to remove oil and grease	Discharge to ocean	Continuously (D) Infrequently (P)	1330 gpd (D) 0-300 ft 3/day (P)
Clean drilling mud	None necessary	Discharge to ocean	Daily (D) Infrequent (P)	0-420 gpd (D) 0-400 bb1/day (P)
Completion fluid	None necessary	Discharge to ocean	Once per well (D) As needed for pressure control (P)	0-280 gpd (D) 0-180 bb1/day (P)
Contaminated drilling mud	None necessary	Transport to shore and disposal at an approved site	Variable (D) Infrequent (P)	0-20 bb1/day (D) 0-20 bb1/day (P)
Cooling water	None necessary	Discharge to ocean	Continuous (D&P)	440 gpm maximum (D&P)
Deck drainage	Skim to remove oil and grease	Discharge water into ocean; deliver oil into flotation units (D) or production system (P)	Daily discharge. Shore transport as needed.	2000-3000 gpd (D) 0-250 gpd (P)
Sanitary sewage	Electro-catalytic unit	Discharge to ocean	Daily	7000 gpd (D) 3700-7000 (P)
Desalinization brine	None necessary	Discharge to ocean	Daily	72,000 gpd (D) 0-67,000 gpd (P)
Produced water (P only)	Treat to remove oil and grease	Discharge to ocean	Daily	0-11,200 bb1/day
General refuse	None necessary	Store in appropriate containers and haul to shore	Weekly	4000 lb/wk (D) 1000 lb/wk (P)

D = Drilling  
P = Production  
gpd = Gallons per Day

and connections in the process equipment. In an effort to reduce air emissions, Chevron is proposing the following control measures:

- o water injection for the gas turbines;
- o I&M program in accordance with prudent operating practices;
- o vapor recovery system which recovers several sources of fuel and off-gases, such the as hydrocarbon blanket vapors from tanks and the off-gas from the glycol regenerator;
- o 0.3 weight percent sulfur fuel for diesel-powered equipment; and
- o low NO<sub>x</sub> emitting Caterpillar engines for the cranes.

The air pollutant emissions by development phase are provided in Table 2.1.1.7-2; the totals contained in the table reflect comments made by CARB and Ventura APCD regarding emission calculations and assumptions in the ER.

TABLE 2.1.1.7-2. ANNUAL EMISSIONS FROM THE PROPOSED ACTION.

Development phase	Emissions (tons/yr)				
	SO <sub>2</sub>	TSP	NO <sub>x</sub>	VOC	CO
Construction	48.7	16.3	189.8	8.4	48.9
Drilling/production *	12.8	1.9	45.5	23.5	54.1
Production **	12.7	1.3	39.0	22.6	53.9

\* Peak NO<sub>x</sub> emissions for the drilling and production phase occur in 1993.

\*\* Peak NO<sub>x</sub> emissions for production occur in 1999.

#### 2.1.1.8 Consistency with the California Coastal Zone Management Program

The Coastal Zone Management Act (CZMA) of 1972, as amended, requires offshore oil and gas development to be consistent with a state approved coastal zone management program (Section 307(c)(3)(B)). California's Coastal Management Program was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1978. The California Coastal Commission (CCC) is the authorized agency for implementing the provisions of the Management Program.

The CZMA gives the authorized agency six months in which to agree or disagree with an applicant's certification of consistency with the management program unless written notice is received (15 CFR 930.7). Concurrence is presumed if no objection is made within six months. In a certification, the applicant must demonstrate that the proposed project can be accomplished in a manner

consistent with the policies of the approved management program. Chevron has included in the ER (Westec, 1986) an analysis of their project in terms of California's Coastal Management Program, and Chevron has determined that their project is consistent with the policies of the program.

By letter dated March 31, 1986, the CCC notified the MMS that the Commission could neither concur nor object to Chevron's consistency certification within 90 days of the receipt of the proposal on January 30, 1986. The CCC held a hearing to review Chevron's DPP on June 10, 1986 in San Francisco, California. A second hearing will be held in the Los Angeles area in early July, 1986.

#### 2.1.1.9 Compliance with Federal Regulations and OCS Orders

Chevron's proposed measures to comply with MMS Pacific OCS operating orders and other pertinent regulations such as, 30 CFR 250.34, NTL 80-2, and the EPA NPDES permit, are addressed in their ER (Westec, 1986). In addition, Chevron would obtain the U.S. Army Corps of Engineers' approval (Section 10 permit, River and Harbor Act of 1899) of the platform location. In case of violations, leases are subject to cancellation and lessees are subject to penalties as provided for in the OCS Lands Act.

#### 2.1.2 Summary of Impacts

The expected impacts of the proposed action are summarized in Table 2.1.2-1. The information in this Table is based on the analysis of impacts in Section 4 of this EA. Refer to Section 4 for more detail. The impacts are considered by the MMS to be insignificant.

#### 2.1.3 Potential Mitigation Measure

Although significant impacts on public schools in Santa Barbara and Ventura Counties are not likely as a result of the Platform Gailproject, a potential measure exists which would serve to identify any adverse affects on the schools. This measure would be to require Chevron to include the Platform Gail project in the Tri-County Socioeconomic Monitoring Program. Chevron's participation in this program would help the local jurisdictions to identify the actual contribution of the Gail project to the enrollment in county schools. This measure has been recommended by the California Secretary of Environmental Affairs and the County of Santa Barbara (Department of Regional Programs).

Table 2.1.2-1. Summary of expected environmental impacts and project evaluation - Alternative I.

Resources and NEPA Parameters*	Significant Impacts Beneficial	Significant Impacts Adverse	Insignificant Impacts	No Effect	Mitigation Required
Geohazards 1508.27(b) (2)			X		
Air Quality 1508.27(b) (2)			X		
Water Quality 1508.27(b) (2)			X		
Intertidal Benthos			X		
Subtidal Benthos			X		
Fish Resources			X		
Marine Mammals			X		
Marine and Coastal Birds			X		
Endangered and Threatened Species			X		X
Estuaries and Wetlands 1508.27(b) Areas of Special Concern 1508.27(b) (3)			X		
Channel Islands National Marine Sanctuary and National Park 1508.27(b) (3)			X		
Commercial Fisheries			X		
Marine Vessel Traffic and Routing Systems			X		
Recreation, Tourism, and Visual Resources			X		
Mariculture and Kelp Harvesting			X		
Socioeconomics			X		
Sportfishing			X		
Degree of Effects Highly Controversial 1508.27 (b) (4)		<sup>a</sup> X			
Degree of Effects Unknown 1508.27 (b) (5)				X	
Cumulative Impacts 1508.27 (b) (7)				X	
Sets Precedent for Future Actions 1508.27 (b) (6)				X	
Violates Federal, State, Local Environmental Protection Laws 1508.27 (b) (10)					X

\* NEPA definitions of significance: see Title 40 CFR Part 1508.27

<sup>a</sup>

Although a large number of comments have been received, MMS has analyzed the issues and found no significant impacts (also see Sections 4 and 5 of this EA).

#### 2.1.4 Mitigation Required As A Result of Endangered Species Act, Section 7 Consultation

As part of the Endangered Species Act, Section 7 Consultation, the U.S. Fish and Wildlife Service (FWS) specified the following reasonable and prudent measures to minimize or avoid potential incidental take of listed species. These measures are taken directly from the FWS Biological Opinion. Refer to Appendix A.1 for more details.

1. Consistent with previous Incidental Take Statements issued to your agency, MMS should require that the existing oil spill contingency plan be updated to assure protection of the most sensitive/essential individuals and habitats (e.g. nesting sites, foraging areas, etc.) of listed species vulnerable to the proposed project. At a minimum plans should include:

- a. maps (scale no smaller than 1:48000) of environmentally sensitive areas including endangered species habitat,
- b. development of an endangered species oil spill avoidance plan, in association with FWS and California Department of Fish and Game, to result in listed species avoiding an oil spill. Some techniques are available (such as waterfowl hazing guns) that could potentially be successful. Such a plan would not necessarily require reinitiation of consultation,
- c. use of the oil spill trajectory model, run by NOAA as a part of the oil spill response team, to predict the fate (movement) of spilled oil and help to direct the clean-up efforts,
- d. MMS shall monitor any oil spills that may threaten nearshore environments and notify the USFWS immediately if trajectories indicate a potential problem for any listed species or their habitats. Monitoring must continue until all potential risks to listed species have abated.

2. MMS shall notify our Service, National Park Service, and California Department of Fish and Game of any spills that have the potential for affecting any listed species,

3. Some spills may not be contained and/or recovered in the time necessary to avoid contact with listed species (such as a spill approaching Anacapa Island). This may be due to rough seas or approaching darkness that may preclude containment and cleanup operations even with all the equipment available. In these instances, dispersants should be considered. Rapid approval for dispersant use is imperative. However, it is known that there are some toxic effects to marine organisms with their use (MMS, 1985 - see Appendix A.1). Because of these effects, many agencies have been reluctant to grant approval for the use of dispersants. MMS, as lead federal agency, should work with all agencies involved in the approval process toward identification

and resolution of problems associated with the use of dispersants and identify rapid response techniques for the use of these chemicals. The FWS could be a party to the development of this plan.

We <FWS> believe the following terms and conditions are necessary to implement the foregoing measures: 1) if specified levels of incidental take for any listed species are reached or exceeded, MMS shall require that the causative action of such take cease immediately, and shall reinitiate consultation with our Service to reevaluate the incidental take impacts; 2) MMS shall immediately telephone the Laguna Niguel Field Office if incidental take of any listed species occurs as a result of the project, and prepare a written report which shall include the date, location, and circumstances surrounding the taking and the disposition of the individual(s) taken; 3) MMS will communicate to FWS information on the inspection program and project operations, as they relate to incidental take. Specifically, if information is revealed during inspections that increased potential for incidental take exists, FWS is to be notified for advice on remedial actions; 4) any remains of listed species taken as a result of this action should be deposited with our Law Enforcement Division.

## 2.2 Alternative II -- Use of Subsea Electric Cable

Supplying electric power to the platform via submarine cable connected to the commercial grid onshore is considered as a project alternative. The following issues are considered in the assessment of this alternative:

- o environmental impacts relative to the proposed action
- o cost feasibility of this alternative.

### Environmental Impacts

To assess the air quality impacts of this alternative relative to the proposed action, only NO<sub>x</sub> emissions are considered since (1) NO<sub>x</sub> is an ozone precursor and ozone is the pollutant of most concern to onshore Ventura County and (2) NO<sub>x</sub> is the pollutant emitted in the greatest quantities. A NO<sub>x</sub> emission comparison for the grid power alternative (two options) and the proposed action is given below:

subsea cable + gas heaters	- 841.71 tons of NO <sub>x</sub>
subsea cable + electric heaters	- 553.44 tons of NO <sub>x</sub>
proposed action	- 1154.78 tons of NO <sub>x</sub>

source: letter of April 11, 1984 to Peter Venturini of CARB  
from Douglas Uchikura of Chevron U.S.A. Inc.

The emission totals are in tons over the lifetime of the project (32 years) and include emissions generated by the onshore power plants. The grid power alternative reduces the total NO<sub>x</sub> emissions by 27% for gas heaters and 52% for electric heaters. As shown in Section 4.4, the air quality impacts of the proposed action would be insignificant. Thus, the air quality benefit of the grid power alternative would be a reduction of an already insignificant impact.

Impacts on commercial fishing would increase slightly due to an additional preclusion of fishing space. However, overall impacts would remain insignificant, due to the limited area precluded. Impacts to the soft bottom benthos would increase slightly due to increased turbidity during installation and possible crushing of organisms by the cable itself. Due to the limited area affected, impacts would remain insignificant. Impacts to all other resource categories would remain the same as described for Alternative I.

#### Cost Feasibility

One way of determining the cost feasibility of this alternative in reducing air quality impacts is to estimate the cost per pound of NO<sub>x</sub> reduced. The South Coast Air Quality Management District (SCAQMD) uses a screening criterion of \$4.50/lb NO<sub>x</sub> reduced as the level for determining cost feasibility. SCAQMD's screening criterion is used as a guideline here for estimating cost feasibility. According to Chevron (April 11, 1986 letter to CARB), the NO<sub>x</sub> emission reduction costs are as follows:

subsea cable + gas heaters	- \$38.43/lb NO <sub>x</sub> reduced
subsea cable + electric heaters	- \$46.26/lb NO <sub>x</sub> reduced

Thus in both alternative options, the costs are well in excess of SCAQMD's criteria for estimating cost feasibility of a particular control technology.

#### 2.3 Alternative III -- No Project

The no project alternative would result in avoidance of all beneficial and adverse impacts discussed in this EA. However, needed hydrocarbon resources would not be produced and the full resource potential of the Sockeye Field would not be realized. Additional imported crude would thus be required to meet domestic needs. Importation would result in negative environmental effects due to the increased risk of tanker spills, adverse balance of payments at the federal level, loss of royalties to the U.S. government, and monetary loss to the State of California. Chevron would also suffer significant economic loss should the Sockeye Field not be produced to its full potential. Installed onshore processing facilities and the existing Grace to Hope pipeline would be underutilized, resulting in loss of

capital and operating efficiencies.

Current DOI regulations state that oil and gas leases must be explored and developed within a reasonable time or the lessee faces the possibility of having to relinquish the leases to the government. MMS further specifies that it has authority to disapprove a DPP if, for example, it is determined that serious harm or damage would result to marine, coastal, or human environment. Such possibilities have been thoroughly discussed in Section 4 of this EA and no significant impacts have been identified for this specific project. Consequently, the no project alternative does not appear justified.

#### 2.4 Comparison of Alternatives

As summarized in Section 2.1.2, and detailed in Section 4, all the impacts associated with Platform Gail are classified as insignificant. Although the grid power alternative reduces the air quality impacts, commercial fishing impacts would be increased as a result of increased area precluded from commercial fishing, however, these would also be insignificant. The costs associated with the grid power alternative are well above the cost feasibility limit suggested by the SCAQMD to mitigate air quality impacts. The no project alternative would avoid the insignificant impacts associated with the proposed action; however, needed hydrocarbon resources would not be developed. Thus, additional imported crude would be required to meet domestic needs resulting in negative environmental impacts, increased trade deficits, loss of royalties for the U.S. government, and monetary loss to the state of California. In addition Chevron would incur economic loss since the Sockeye Field would not be fully developed and the in-place pipeline segments and the onshore processing facilities would be underutilized.

### 3 Description of Affected Environmental Resources

The study area for the resources described in this EA is defined as the Santa Barbara Channel, the Northern Channel Islands coastal habitats and waters (San Miguel, Santa Rosa, Santa Cruz, and Anacapa Islands), and mainland coastal habitats and waters from Point Conception to Point Dume. The study area for certain resources (e.g., marine mammals and socioeconomics) in this EA are slightly different in geographical extent. Refer to the specific resources for further information on the definition of the study area. For those resources which have a different study area, a definition of the study area is given at the beginning of the descriptive narrative of this Section.

#### 3.1 Geology

##### 3.1.1 Regional Geologic Setting

The regional geology of the Santa Barbara Channel has been described in considerable detail by Vedder et al. (1969); BLM, 1979, 1981; MMS, 1983; Sylvester and Darrow (1979); Curran et al. (1971); Burdick and Richmond (1982); and the MMS EAs for Leases OCS-P 0203 (Union) and OCS-P 0210 (Chevron). Regional and site specific geology in the Platform Gail vicinity have also been addressed in the Chevron ER (Westec, 1986).

The Santa Barbara Channel is a tectonic depression that forms the western extension of the Neogene Ventura Basin and is the submerged westernmost part of the Transverse Range structural province. The Channel component of the Ventura Basin is approximately 130 km (81 mi) long and 40 km (25 mi) wide, with a maximum water depth of about 625 m (2050 ft).

The characteristic west trending structural grain of the Transverse Range Province formed as a result of regional north-south compression and is reflected in the major structures of the Santa Barbara Channel region. The Channel is structurally bound on the north by the homoclinal Santa Ynez Mountains and the Santa Ynez fault zone. It is bounded on the south by the Channel Islands Platform (including San Miguel, Santa Rosa, Santa Cruz, and Anacapa Islands) and the eastern extension of the Santa Monica/Malibu Coast/Santa Rosa Island fault system.

The Channel floor is comprised of as much as 1,220 m (4,000 ft) of Quaternary sediments that have been gently folded and faulted in many areas (Curran et al., 1971; Vedder et al., 1974). The shelves and upper slopes of the Channel are mantled by a thin veneer of sediment. Underlying the Quaternary basin fill are more than 4,500 m (14,800 ft) of highly folded and faulted Tertiary and Cretaceous strata (Vedder et al., 1969).

### 3.1.2 Stratigraphy and Structure

Stratigraphy in the Santa Barbara Basin and slope area is comprised, from oldest to youngest, of Upper Jurassic metamorphic rocks, Cretaceous siltstones, Eocene through Oligocene marine shales and sandstones, Miocene siliceous marine shales and sandstones intercalated with basaltic flows, Pliocene siliceous mudstones, and Pleistocene sands and gravels.

The Platform Gail project area is on the eastern slope of the Santa Barbara Basin, and shows geologic structure and stratigraphy typical of the Western Transverse Ranges.

Structural trends in the Santa Barbara Basin involve several faults and folds common to the Transverse Range Province. Major regional faults here include the onshore Santa Ynez fault system and its active south branch offshore, the active North Channel Slope fault (possible western extension of the Pitas Point fault), the active Oak Ridge fault, and the Mid Channel Trend (Burdick and Richmond, 1982; Vedder et al., 1969; Greene et al., 1978; Lee et al., 1978). Major regional folds include the onshore homoclinal Santa Ynez Mountains and the offshore Molino Trend (anticlinal).

The Oak Ridge fault is an active reverse fault approximately 13 km (8 mi) north of the Platform Gail location and 3.5 km (2 mi) from the northern terminus of the pipeline. This may be the most influential structural feature in the eastern Santa Barbara Channel exhibiting intense faulting and folding (Greene et al., 1978). Here, Holocene strata show 4 m (13 ft) of separation with gas charged sediments and gas vents present along an upwardly warped sea floor (Richmond et al., 1981).

The Mid-Channel Trend, a series of northwest trending reverse faults and associated folds, extends to within 6.5 km (4 mi) of the proposed platform location. Holocene sediments are undisturbed, however, Yerkes et al. (1979) indicate up to 51 m (164 ft) of Plio-Pleistocene vertical separation along this trend.

### 3.1.3 Bathymetry and Sedimentology

Water depth throughout the project area varies from approximately 100 m (328 ft) at the northern terminus of the Gail to Grace pipeline to 226 m (739 ft) at the Platform Gail location. The seafloor slope is greatest northeast of Gail, along the border of Leases OCS-P 0208 and 0209, ranging from 6 to 14 degrees and exhibiting localized hummocky type relief. In the immediate vicinity of Platform Gail, the seafloor grades gently into the basin terrain at a slope of about 0.5 degrees. No rocky outcrops exist in the project area.

The inconsolidated sediment cover over the Platform Gail project area consists of dark gray colored silts and clays. These Holocene sediments are approximately 3 m (10 ft) thick at the northern terminus of the Gail to Grace pipeline, grading to about 15 m (49 ft) at the Platform Gail location itself. Anomalies include: 1) an elongate region, probably consisting of rubble and stiff sands, representing the shelf/slope demarcation along the northern boundary of Lease OCS-P 0210; 2) a slump area exhibiting hummocky topography, north of Gail, in Leases OCS-P 0208 and 0209. Here, the inconsolidated silts and clays vary in thickness from 3 m (10 ft) to 17 m (56 ft).

#### 3.1.4 Seismicity

Regional seismicity of the Santa Barbara Basin has been described by Yerkes et al. (1980, 1981); Buchanan-Banks et al. (1978); Hamilton et al. (1969); Hileman et al. (1973); and Lee et al. (1978). Earthquakes throughout southern California have been recorded by Caltech since 1982. In 1969 the U.S. Geological Survey installed a seismograph network that included stations on San Miguel and Santa Cruz Islands; in 1973 a third station was installed on Anacapa Island. A detailed history of these seismic networks and epicenter locations in the Santa Barbara Channel area can be found in Yerkes et al. (1980).

#### 3.1.5 Geologic Hazards

A shallow hazards survey was performed for Chevron by Woodward-Clyde Consultants in 1984. This type of survey required by the MMS as per NTL 82-1, is designed to identify all potential geologic hazards which may interfere with proposed activities in the project area. The presence of faults, shallow gas, mass transport zones, and unstable slopes is evaluated. Chevron has submitted results of the survey to the MMS along with the ER and DPP for the Platform Gail project.

Geological and geotechnical investigations of the Platform Gail site and associated Gail to Grace pipeline corridor indicate the principal design considerations in the project area are seismicity, shallow gas, and potential slope instability (Woodward-Clyde Consultants, 1981a, 1981b; John E. Chance Assoc. 1981; Dames and Moore, 1981).

Dames and Moore's probabilistic seismic risk analysis for the proposed platform site resulted in design criteria for peak horizontal ground accelerations of 0.22 gravities (return period 270 years) and 0.35 gravities (return period 4000 years) for operating level and rare intense events, respectively (Dames and Moore, 1981). The magnitudes and procedures used in their derivation are in accord with API recommended practice for the area and mitigation is within the range of routine design practice.

High resolution geophysical studies of the project area identified regions of geologically recent slope instability (Woodward-Clyde Consultants, 1981a). The 3 to 5 degree regional southwesterly slope is characterized by some hummocky topography exhibiting greater local relief. Shallow structures are present, associated with translational movement of the upper-most (less than 50 ft [15 m]) sedimentary unit along dip-slope failure surfaces. Shallow sedimentary units within the project area are commonly characterized by acoustically turbid signatures usually associated with interstitial gas (Woodward-Clyde Consultants, 1981a). These turbid zones are generally observed between 3 and 18 m (10 and 60 ft) sub-bottom, within the slide units. The presence of gasified sediments (petrogenic methane) was verified by geochemical analysis of soil borings from the project area. No relationship between the occurrence of gas signatures and the distribution of hummocky topography was observed. Other potential hazards such as recent, shallow faulting and potential overpressure zones were not identified in areas that would be impacted by the platform and pipeline.

### 3.2 Climate

#### 3.2.1 Meteorology

The meteorology of the Santa Barbara Channel has been adequately described in past environmental documents (USGS, 1976; MMS, 1983a; Westec, 1986). The weather and circulation in the California coastal region is dominated by the North Pacific High pressure system. The seasonal movement of the pressure center creates two distinct weather patterns. During winter, when the high pressure center is furthest south, storm trajectories move through California more frequently than during other seasons. This explains the winter precipitation peak. As the Pacific High drifts northward during spring and summer, storm systems are forced to take a more northerly trajectory and precipitation events occur infrequently.

##### 3.2.1.1 Local Winds

Two NDBO (National Data Buoy Office) meteorological buoys (46023 and 46025) are used to describe the wind conditions in the Santa Barbara Channel. Buoy 46023 is located in the western part of the Channel and buoy 46025 is about 16 km (10 mi) north of Santa Barbara Island. The wind direction distribution for each of the buoys is given in Table 3.2.1.1-1. In the western part of the Channel, northwest and north-northwest winds dominate. Southeast of the Channel the winds are generally more westerly. West-northwest and northwest winds are expected to dominate near Platform Gail.

TABLE 3.2.1.1-1. WIND DIRECTION DISTRIBUTION FOR NDBO BUOYS 46023 AND 46025

Direction	Frequency (%)		Direction	Frequency (%)	
	46023	46025		46023	46025
N	3.7	3.2	S	1.7	3.5
NNE	1.6	1.7	SSW	1.6	3.8
NE	0.5	2.3	SW	1.1	4.4
ENE	0.6	2.1	WSW	1.1	6.9
E	1.3	2.5	W	2.0	18.6
ESE	2.4	2.8	WNW	5.8	25.9
SE	2.8	3.4	NW	33.3	10.8
SSE	2.4	3.3	NNW	38.1	4.8

### 3.2.1.2 Inversions and Stability

Inversions in the Santa Barbara Channel are caused primarily by the combined effects of cool marine air near the surface and subsidence from the Pacific High. Along the coast, the inversion height is often as low as 75 m (250 ft).

Atmospheric stability for two NDBO meteorological buoys (46023 and 46025) was determined according to methods developed by Schacher et al. (1982). The annual distributions of Pasquill-Gifford stability class for the two buoys are provided in Table 3.2.1.2-1. Stability class A is the most unstable; stability class F is the most stable.

TABLE 3.2.1.2-1. ANNUAL STABILITY DISTRIBUTION (%) FOR NDBO METEOROLOGICAL BUOYS 46023 AND 46025

Buoy	Stability class					
	A	B	C	D	E	F
46023	0.0	1.9	5.9	88.7	2.8	0.7
46025	0.0	13.2	22.3	57.1	5.4	2.0

Neutral conditions (i.e., stability class D) dominate at both buoys. According to Schacher's algorithm, stability class A is not possible. Moderately unstable conditions do occur. Onshore the extremes of the distribution (i.e., classes A and F) would occur more frequently due to the ground level heating and radiative cooling that occurs on land.

### 3.2.1.3 Severe Weather

Severe weather conditions most likely to impact the Santa Barbara Channel area include frontal thunderstorms, tornadoes, and tropical cyclones. The Pacific coast has the smallest number of thunderstorms per year in the entire United States. Tornadoes are not common to California's central coastal regions; only one or two are reported throughout California each year. There are no records of tropical cyclones with extreme winds reaching California; however, high tides and heavy precipitation have resulted from the few storms that have approached the coast.

### 3.2.2 Air Quality

A summary of maximum pollutant concentrations measured in Ventura and Santa Barbara Counties is contained in Table 3.2.2-1. Concentrations of NO<sub>2</sub> and SO<sub>2</sub> are within state and federal ambient air quality standards (AAQS). CO concentrations are within state and federal AAQS in Ventura County. Maximum observed 8-hr CO concentrations in Santa Barbara County exceeded the state standard of 9 ppm in 1984; for the years 1981-1983, Santa Barbara County met all the applicable CO standards. Observed ozone concentrations in Ventura and Santa Barbara Counties violated both state and federal standards for the years provided in Table 3.2.2-1. Applicable TSP standards were violated in both counties during the years 1981 through 1984.

TABLE 3.2.2-1. MAXIMUM POLLUTANT CONCENTRATIONS OBSERVED IN VENTURA AND SANTA BARBARA COUNTIES

Pollutant County	Ave. time	Units	Max. concentration by year			
			1981	1982	1983	1984
<b>Ozone (O<sub>3</sub>)</b>						
Ventura	1-hr	ppm	0.23	0.23	0.23	0.19
Santa Barbara	1-hr	ppm	0.24	0.15	0.16	0.16
<b>Carbon Monoxide (CO)</b>						
Ventura	1-hr	ppm	--	13.0	15.0	12.0
	8-hr	ppm	--	6.0	6.0	4.4
Santa Barbara	1-hr	ppm	15.0	14.0	16.0	16.0
	8-hr	ppm	8.7	8.3	8.6	9.6
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>						
Ventura	1-hr	ppm	0.12	0.18	0.16	0.20
	annual	ppm	0.029	0.020	0.017	0.016
Santa Barbara	1-hr	ppm	0.15	0.14	0.13	0.17
	annual	ppm	0.018	0.016	0.017	0.016
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>						
Ventura	1-hr	ppm	--	0.04	0.03	0.03
	24-hr	ppm	--	0.012	0.011	0.011
	annual	ppm	--	0.003	0.001	0.001
Santa Barbara	1-hr	ppm	0.09	0.12	0.08	0.08
	24-hr	ppm	0.018	0.024	0.019	0.018
	annual	ppm	0.001	0.001	0.001	0.002
<b>Total Suspended Particulates (TSP)</b>						
Ventura	24-hr	ug/m <sup>3</sup>	456	257	135	145
	annual	ug/m <sup>3</sup>	125.7	62.8	57.7	65.6
Santa Barbara	24-hr	ug/m <sup>3</sup>	518	263	536	345
	annual	ug/m <sup>3</sup>	97.8	83.5	79.0	88.2

The air quality monitoring station on Anacapa Island was not used to characterize the air quality in the eastern Santa Barbara Channel. The data at that station are incomplete and thus have not appeared in CARB's annual air quality data summaries.

### 3.3 Oceanography

#### 3.3.1 Physical Oceanography

Oceanic surface currents offshore southern California are dominated by the south flowing California current. When the current encounters the southern California boarderland, the general southward-flowing nature of the circulation pattern

becomes very mixed, breaking into eddys and gyres according to the local topographic features. The circulation within the Santa Barbara Channel tends to be episodic and dominated by a westward flow along the northern boundary (mainland coast) with a 'jet-like' feature (jets are currents with velocities  $>30$  cm/sec) exiting the western channel along the mainland coast (Brink and Muench, 1986). There is frequently a cyclonic (counterclockwise) eddy present in the western half of the channel which entrains cooler water from the north and west of Point Conception into the southeast quadrant of the channel. Satellite photographs have shown this feature to wax and wane over periods of about two to three weeks (Brink and Muench, 1986). The episodes in the channel tend to overwhelm any seasonal influences (Gary Lagerhoff, Science Applications International Corp., verbal comm., 3/20/86). Hence, the commonly used seasonal descriptors (Davidson, Oceanic, Upwelling) will not necessarily apply to the circulation within the channel.

Tidal patterns in the Santa Barbara Channel overlay the surface current regime. Eastern Channel tides are mixed with an average range between lower low water and higher high water of 1.6 m (5.4 ft) at both Ventura and Santa Barbara and a mean annual range of 1.2 m (3.8 ft). The tidal wave which causes the ebb and flow of the tidal currents is progressive and approaches the coast from the southeast.

No location in the Santa Barbara Channel is entirely protected from swell coming from any seaward direction. However, the offshore islands generally afford protection such that significant wave action is usually formed only in the local area. The Eastern Channel, which includes the project area, consequently experiences mild to moderate wave heights 75% of the time while waves of 3 m (10 ft) or greater occur approximately 10% of the time.

What may be construed as 'worst case' conditions for the proposed project site can be noted from the Biological Survey Report (McClelland Engineers, 1986). The survey was conducted in March 1985. The survey party experienced winds up to 13 m/sec (25 kts) and short period (5 to 6 seconds) waves up to 2 m (6 ft). As the wind speeds decreased, sea conditions also calmed to short period waves of .6 to 1 m (2 to 3 ft).

### 3.3.2 Chemical Oceanography

Information concerning water quality in the Santa Barbara Channel and Southern California Bight may be found in BLM (1979 and 1981), BLM (1978), MMS (1983) and in SAI (1978). Site-specific information may be found in Santa Barbara County et al. (1979), City of Oxnard (1980) and MMS (1983b). Sources of information regarding marine pollution include various southern California Coastal Water Research Project (SCCWRP) publications such as

SCCWRP (1982 and 1984) as well as the above BLM/MMS documents and research reports.

Water quality parameters in the Southern California Bight may vary seasonally as well as with depth. Temperature, salinity, dissolved oxygen and pH values will remain fairly constant on a daily basis in the well-mixed surface layer, changing slowly with the seasons. Deep water values remain constant within narrow ranges while midwater values (with the exception of pH) may exhibit steep gradients (clines) as well as maxima and minima in the transition between the surface and deep waters (Allan Hancock Foundation (AHF), 1965; Eber, 1977; SCCWRP, 1973; Westec, 1986). Surface to bottom pH values exhibit very little change due to the great buffering capacity of seawater.

The four parameters discussed above were all measured during the biological survey conducted at the proposed site of Platform Gail (McClelland Engineers, 1985). The measurements of these parameters, taken over a period of 4 days, fell within normal ranges indicating no anomalous trends either with depth or for the season. Other commonly measured water quality parameters are discussed below.

Natural sources of increased turbidity are high plankton concentrations, river runoff, particularly during the stormy season, and resuspended bottom sediments due to wave surge or bottom currents. Turbidity was measured near the proposed site of Platform Gail. Values ranged from 2 to 10 mg/l with a very steep turbidity gradient increasing inshore (Drake et al., 1971).

Nutrients are substances necessary for marine life to grow and reproduce. Nitrogen, phosphorus, silica, and trace metals, in the order listed, are the most important nutrients. Information concerning nutrients may be found in BLM (1975), Redfield (1958), Ryther and Dunstan (1971) and SCCWRP (1973). Trace metals may be present in ionic form, absorbed onto particulate matter, organically bound or in chemical complexes (chelated). Normal levels of commonly found metals in the Southern California Bight are presented in Bruland (1983).

Levels of hydrocarbons, other organic pollutants and trace metals have been monitored since 1977 by the California Mussel Watch Program sponsored by the California State Water Resources Control Board (CSWRCB). The data is tabulated and discussed in annual reports published by the CSWRCB (1979-1985).

The primary sources of eutrofying conditions (an overloading of essential nutrients into the ecosystem) are anthropogenic (for example from municipal wastewater dischargers, surface runoff and atmospheric fallout of air pollutants). This results in a great diversity of foreign substances being introduced into the marine environment. Of these sources, wastewater discharges account for

the greatest and most concentrated direct input of toxic and controlled substances. As a whole, California municipal outfalls contribute 9.5 billion bbls/yr in wastewater to the offshore (Bascom, 1982). There are four dischargers in the Santa Barbara Channel ranging in volume from 2 to 16 million gallons per day. These discharges may affect the water quality close to the pipe leading to 1) eutrophication, high bacterial activity and anoxic conditions; 2) the addition of substances which may be biologically accumulated or magnified by primary and secondary consumers; and 3) changes in the natural condition of the environment, favoring the growth of certain biological communities which are better able to adapt to the stressful conditions thus out-competing the 'natural' communities.

### 3.4 Biological Resources

#### 3.4.1 Intertidal Benthos

The intertidal environment in the biogeographic study area is composed of the mainland (primarily sandy beaches) and the offshore islands (primarily rock and cobble intertidal). Baseline studies and surveys of the intertidal environment within the study area were conducted by SAI (1977; 1978; and 1979) and Littler (1979). A detailed discussion of the intertidal communities is presented in Section 3.6.1.1 of Chevron's ER (Westec, 1986). Previous environmental documents of site-specific OCS projects in the eastern Santa Barbara Channel (proposed location of Platform Gail) present descriptions of the intertidal environmental habitats (USGS, 1976; City of Oxnard and USGS, 1980; MMS, 1983a; and Nekton, 1984).

Anacapa Island is the closest offshore island to the proposed Platform Gail site, about 12.2 km (7.6 mi) south of the site. Anacapa Island contains the following substrate types (percent) in the rocky intertidal zone: rock (70.0), boulder beach (14.8), and sand (15.2). The intertidal species surrounding Anacapa Island are primarily representative of the southern warm water fauna due to increased influence of the warm water countercurrent. A description of the intertidal environment of Anacapa Island which utilizes habitat mapping is found in MMS (1983a).

The rocky intertidal communities of the nearby islands are primarily dominated by the rockweed Pelvetia sp. and Hesperphycus sp. (upper middle intertidal habitats). Major coverage in the middle-to-lower rocky intertidal zone is provided by the following macrophytes: blue-green algae, coralline algae, red algae (Gigartina canaliculata), surf grass (Phyllospadix sp.), and brown algae (Egregia sp. and Eisenia sp.). Macroinvertebrate coverage in the rocky intertidal is provided by sandcastle worms (Phragmatopoma sp.), barnacles (Balanus sp.), and mussels (Mytilus sp.).

A variation in the biotic diversity of sandy beach intertidal organisms is primarily due to the dynamic nature of tidal action. Straughan (1977, 1978, 1979) indicated that the sand crab (Emerita sp.) was the dominant species of the steepest, most unstable beaches. The amphipod beach hoppers (Orchestoidea and Orchestia) usually dominated the upper beach. Dominant species in the mid-and low tidal zones include polychaetes (segmented worms) and nematodes (round worms). Euzonus mucronata is the typical polychaete found in a narrow zone of the mid-tidal area. A schematic profile of a typical exposed sandy beach and its associated species can be found in MMS (1983a).

### 3.4.2 Subtidal Benthos

A regional description of the subtidal benthic communities within the study area is discussed in Section 3.6.1.2 of Chevron's ER (Westec, 1986). Additional references on the subtidal communities in the Southern California Bight are found in (MMS, 1983a). Benthic macrofauna within the study area have been surveyed and described (Fauchald and Jones, 1977 and 1978). Site-specific descriptions of subtidal communities in the eastern Santa Barbara Channel (proposed location of Platform Gail) have been characterized in the following environmental documents: (USGS, 1976; City of Oxnard and USGS, 1980; MMS, 1983a; and Nekton, 1984).

The site-specific biological survey conducted on OCS-P 0205 (McClelland Engineers, 1986) included a field characterization of the benthic flora and fauna. The benthic environment at the proposed platform site is characterized by species of demersal fish and invertebrate species. There are no rocky outcrops located at the proposed platform site or within the pipeline corridor. A description of the project's geological environment is found in Section 3.1 of this EA. During the survey, 151 taxa were identified. This represented a total of 2381 individuals. The predominant fish species captured during trawling was the Pacific sand dab (Citharichthys sordidus) which comprised 38.4 percent of the total fish catch. The predominant macroepifaunal invertebrate sampled was the urchin (Allocentrotus fragilis) which was observed as common to abundant.

The site infauna were sampled at 8 stations within a 1000 m (3280 ft) radius of the proposed platform location. The infauna was dominated (diversity and abundance) by the polychaetes. The most abundant single species sampled was the ophiuroid (Amphiodia urtica) which comprised 19.4 percent of the individuals collected during the grab sampling. During the survey, a potential new cumacean species (referred to as Petalosarsia sp. A) was taken at Station 8. Species identification for Petalosarsia sp. A will be delayed until it can be described and documented by the southern California Association of Marine Invertebrate Taxonomists

(SCAMIT) cumacean experts. Potentially new benthic species are typically encountered in such marine biological surveys.

### 3.4.3 Fish Resources

Marine fish resources for the Bight (see Section 3.5.1.1), Santa Barbara Channel, and the vicinity of the proposed Gail project have been discussed in MMS (1983a), MBC (1984) and in Chevron's ER for the Gail Project (Westec, 1986). These literature sources discuss the characteristic species occurring in various habitats and discuss natural history features of these species. Site-specific trawling studies conducted for the Gail Project are presented in Westec (1986). Most species of fish discussed in these reports are widely distributed in both the Bight and Santa Barbara Channel. The northern anchovy, however, is of concern since they are an important consumer of plankton in the California current, and also serve as a critical forage organism for many species of fish and seabirds, including the endangered California brown pelican.

The northern anchovy, a pelagic schooling fish, is one of the most abundant species in the study area. As noted above, their large numbers make them an important consumer of plankton, but more importantly, an important prey species for other fishes and seabirds (MMS, 1983a; MBC, 1984). Northern anchovy are indiscriminate, daytime, filter feeders on primarily zooplankton. Large copepods and euphausiids are the most important food items (Loukashkin, 1970). Anchovies are eaten by most predatory fish, including several that are pelagic (Frey, 1971). Anchovies constitute 76 percent of the Pacific bonito diet, 56 percent of the Pacific albacore diet in southern California waters and 80 percent of the diet of bluefin tuna in Mexico and California (Pinkas et al., 1971). Bird species feeding on anchovies include several gulls, the California least tern, and the California Brown Pelican. Brown Pelicans, in fact, are essentially dependent upon anchovies as a food resource (Anderson & Gress, 1983; Sunada et al.; 1981; Anderson, et al., 1980). According to Anderson et al. (1980) the Brown Pelican breeding effort, and reproductive rate (based on foraging success) at Anacapa Island are heavily dependent on levels of anchovy abundance and availability.

An overview of northern anchovy natural history is presented in MMS (1983a). Additionally, information is presented in MBC (1984). The CDF&G has monitored pelagic fish resources in the California current system since 1966 using hydroacoustic equipment and midwater nets (Mais, 1974). These methods of sampling have demonstrated the northern anchovy is the dominant pelagic species (in biomass) occurring in the California current system (Mais, 1974). Survey data indicated the bulk of the anchovy resource occurs in the Southern California Bight with the highest concentrations found over deep water basins near

escarpments and/or submarine canyons. Although few fish were found in shallow water (< 91 m [50 fms]), the highest shallow water concentrations were located in the eastern Santa Barbara Channel. Squire (1983) reported this high concentration in the eastern Channel based on aerial spotter surveys for 1974-78 (see Figure 4.5.7 in MBC, 1984).

The status of the more important pelagic fishery resources in southern California during the mid 1970's was reviewed by MacCall et al. (1976). In the mid 1970's, northern anchovy stocks were thought to be lightly exploited. In 1984 the anchovy resource was considered fully exploited, particularly in light of increased Mexican harvests (MBC, 1984). At that time (1984), the anchovy stock size had declined from the late 1970's, but was still considered healthy. According to A. MacCall of the NMFS (verbal comm., 1986) commercial anchovy fishing has been virtually nonexistent for the past three years because of low market demand. Mexico still harvests anchovy, but no harvest is expected in the U.S. in the foreseeable future. Despite the absence of a viable fishery, the anchovy resource is still considered healthy since estimated spawning biomass levels remain high (MacCall, NMFS, verbal comm., 1986). Since 1980, spawning biomass estimates have ranged from 309,000 to 870,000 metric tons ( ) (340,000 to 958,000 tons), with the estimate for 1985 at 522,000 mt (575,000 tons). The Pacific Fishery Management Council (PFMC) continues to set harvest quotas for southern California even though the commercial fishing effort is nonexistent (MacCall, NMFS, verbal comm., 1986). According to the present formula, no quota is permitted at biomass levels below 300,000 mt (330,000 tons), with the quota reaching a level of 140,000 mt (154,000 tons) at spawning biomass levels in excess of 500,000 mt (551,000 tons).

#### 3.4.4 Marine Mammals

The waters of the study area contain one of the largest and more diverse marine mammal populations in northern temperate waters. The study area for this resource has been defined as the southern California Bight, due to the broad foraging habits of the animals. Several resident, breeding populations of worldwide or regional significance are known to occur in these waters. Several pinniped species (California sea lion, northern fur seal, northern elephant seal, harbor seal and Stellar sea lion) breed and rear their young on the Channel Islands. Other mammal populations (California gray whale, common dolphin, Pacific white-sided dolphin, and Northern right whale dolphin) use the Channel as important migratory and foraging areas. In an effort to provide information needed to predict and minimize impacts from OCS development the MMS funded studies of the population status, distribution, seasonality and ecology of the marine mammal populations of the entire Southern California Bight. Results of these three-years of studies (1975-78), identified

several areas to be of extraordinary significance to marine mammals. These areas, and their seasonal importance as reproductive areas, feeding grounds or traditional migratory pathways are presented and discussed in detail in the "Summary of Marine Mammal and Seabird Surveys of the Southern California Bight Area" prepared by the Center for Marine Studies at the University of California at Santa Cruz (1980). This report has provided the basis for the regional discussions of marine mammals contained in the Chevron ER (Westec, 1986) and is incorporated herein by reference.

Approximately 75,000 pinnipeds and a similar number of cetaceans utilize the waters of the Southern California Bight (CMCS, 1980), most are concentrated within the Santa Barbara Channel and surrounding areas. Four pinniped species (California sea lion, northern fur seal, northern elephant seal, and harbor seal) breed and rear their young on the Channel Islands. The CMCS reported adult breeding populations of pinnipeds numbering around 32,000 individuals, with approximately 20,000 young born each year. The greatest numbers of seals and sea lions breed and pup on the west end of San Miguel Island; San Nicolas Island ranks second among the islands in importance among pinniped rookeries, followed by San Clemente and Santa Barbara Islands. Several smaller breeding areas occur in closer proximity to the Platform Gail location. These include Scorpion Anchorage, Santa Cruz Island (harbor seals), Anacapa Island (harbor seals and sea lions), and Point Mugu (harbor seals). A harbor seal breeding/hauling area occurs on the mainland at Carpinteria Pier, the site for support vessel departures for Platform Gail. This breeding area has been reported to be used consistently by harbor seals for over 10 years, with little or no adverse affect from nearby crewboat activities (Wildlife Group, verbal comm., 5/19/86). The Point Mugu breeding area is relatively new (4 pups noticed in 1984; 6 pups in 1985) and is the only reported mainland breeding site south of Carpinteria in southern California (Klope, USAF, verbal comm., 12/19/85). Point Mugu has six miles of restricted beach which makes it a particularly attractive haul-out area for both harbor seals and sea lions. Other mainland haul-out areas used by harbor seals which are in proximity to the Platform Gail location include Goleta Beach and Burmah Beach.

Cetaceans are not reported to breed within southern California waters, however, the young of several species are frequently observed. These include common dolphin, Pacific white-sided dolphin, bottlenose dolphin, northern right whale dolphin, Risso's dolphin, and pilot whale. Young of the endangered California gray whale pass through the nearshore waters of the project area each spring on their migration from calving areas in Baja, Mexico. The endangered humpback whale is occasionally observed within the Santa Barbara Channel.

### 3.4.5 Marine and Coastal Birds

The study area contains a variety of foraging, resting and breeding areas for marine and coastal birds. Several breeding sites have worldwide and regional importance. Due to the transient nature of marine and coastal birds, the study area for this resource category is defined as the Southern California Bight. Detailed information on these species may be found in Center for Marine and Coastal Studies (1980), Norris et al. (1976), and California Department of Fish and Game (1973). A more focused discussion of marine and coastal birds in the project area is presented in Chevron's ER (Westec, 1986).

#### Seabirds

Perhaps the most conspicuous and numerous avian group found within the study area is the pelagic (open ocean) seabirds. This group consists of such species as shearwaters, petrels, murrelets, auklets and gulls. These seabirds exhibit a wide array of body forms, life history patterns, and strategies for obtaining food, reproducing, and avoiding predation. Different species utilize the open ocean to different degrees; some stay away from land throughout the year and come ashore only for a few months to nest and rear their young, while others feed briefly at sea but remain on land for most of each day.

Among the diverse strategies employed by seabirds for feeding on fish, squid, and planktonic crustaceans are: seizing prey at surface while flying, dipping just beneath the surface, and actively pursuing prey underwater to depths as great as 80 to 100 m (260 to 330 ft). The diet and foraging areas of some species may be quite restrictive. For example, Cassin's auklet at San Miguel Island and Xantus murrelet at Santa Barbara Island feed within a very small area surrounding their respective breeding colonies. A heavy dependence on northern anchovies has been demonstrated for western gulls at Santa Barbara Island and brown pelicans at Anacapa Island.

Approximately 17 species of seabirds have been reported to nest in the Southern California Bight. Of these, four nest only on the mainland coast (four species of terns), and two (the common murre and tufted puffin) have ceased to nest on the islands since the turn of the century. Several of these breeding sites have worldwide and regional importance. Santa Barbara Island contains the largest Xantus murrelet nesting colony in the world and the only U.S. nesting site for the black storm petrel. Anacapa Island, Anacapa Passage and the waters over the Ventura Shelf (which are nearby the proposed Platform location) contain the second largest seabird breeding aggregation in the Southern California Bight and the northernmost consistent breeding colony of the endangered brown pelican.

## Coastal Birds

A variety of coastal bird populations are also found occupying the sandy beaches, rocky shores, offshore rocks and wetlands (marshes, sloughs and bays) of southern California. Several of these species (light-footed clapper rail, Belding's savannah sparrow) have been listed as endangered or are under consideration for listing by the USFWS.

Heavy recreational usage of sandy beaches, although seasonal, has reduced the value of these areas to coastal birds who forage and nest on southern California beaches. Species utilizing sandy beaches include semi-palmated plover, American golden plover, black-billed plover, whimbrel, marbled godwit, sanderling, western sandpiper, and the least sandpiper. Birds dependent on wetlands for nesting include the endangered least tern (which has had to alter its nesting habits and move to less favorable sites), the long-billed curlew (a candidate for listing), and the western snowy plover (also a candidate species).

Coastal birds which utilize rocky shores and offshore rocks include the black oystercatcher, black turnstone, ruddy turnstone, spotted sandpiper, surfbird, and western gull.

### 3.4.6 Endangered and Threatened Species

Several species which have been listed by the U.S. Fish and Wildlife Service or National Marine Fisheries Service are known to occur within or near the study area. The study area for this resource category has been defined as the Southern California Bight, to provide a broad understanding of the threatened and endangered species. The species include marine mammals, marine and coastal birds, plants and sea turtles, all of which are considered as potentially affected by the proposed project. As required by Section 7(a) of the Endangered Species Act, the MMS has entered into formal consultation on the potential impacts from this project. A listing of those species which are being consulted on is provided in Appendix A.1. Seeman & Associates (1985) prepared an Endangered Species Analysis (ESA) for this project which contains information on the biology, behavior, distribution and abundance of species listed as threatened or endangered. To avoid repetition these discussions have been incorporated into this EA by reference. New and/or additional information on four listed species (California brown pelican, bald eagle, Peregrine falcon and California clapper rail) has been provided in the following pages, where appropriate. Descriptive information regarding species not formally listed, but considered candidates for listing, is provided in detail in Appendix A.4.

California brown pelican - Pelecanus occidentalis californicus

Anacapa Island (12.2 km [7.6 mi] south of the Platform Gail site) contains the only consistent breeding habitat of the California brown pelican in the U.S. Prior to its decline, historic breeding sites for the brown pelican included Anacapa Island, Scorpion Rock (Santa Cruz Island), and Santa Barbara Island in the U. S.; and Los Coronados, Todos Santos Island and Isla San Martin in Baja California, Mexico. The history of the brown pelican's decline due to DDE and scarcity of food (i.e., anchovies) is well documented in the literature and is summarized in the Endangered Species Analysis prepared for this project, Chevron's ER (Westec, 1986), and numerous other documents including the Brown Pelican Recovery Plan (USFWS, 1983).

Within the study area, December/January is generally the low point of pelican abundance. The population builds in April and May, with 15,000 pelicans present by July. In good years, 30,000 pelicans may be present in the Bight from September to October. Historic nesting levels are thought to approximate 2500 breeding pairs on Anacapa Island and 1500 pairs on Los Coronados (USFWS, 1983). During the 1984-85 breeding season over 6,200 nests were counted on Anacapa and Santa Barbara Islands (Gress, UCD, verbal comm., 12/3/85). The Anacapa Island site hosted over 5,150 nests, the highest on record since the 1890's and much greater than previous years. Santa Barbara Island recorded over 1,046 nests during 1984. This is truly remarkable since only two nestings have ever been recorded for this site (USFWS, 1985). Preliminary estimates of the combined breeding effort of the two islands during the 1984-85 season was 6,200 nests producing 7,954 young (Gress, UCD, verbal comm., 12/3/85). This phenomenal effort during 1984-85, and possibly again in 1985-86 is extremely encouraging. Large losses of nestlings early in 1986, possibly due to lack of available prey (tentatively estimated at 70% loss at Anacapa Island, Gress, verbal comm., 4/24/86), will hopefully be offset by a successful relay by these birds.

Breeding occurs in the Southern California Bight almost year-round (USFWS, 1985). Generally, late December marks the beginning of the first breeding attempts. Peak activity occurs January through May. During the 1984 season, eggs were still found in nests as late as early July which effectively extended the breeding season as late as mid-October (USFWS, 1985). A large mortality of young which occurred early this spring (1985-86 season) has inspired another late breeding (Gress, UCD, verbal comm., 4/24/86). The causes of this mortality are not yet determined, but may be related to food shortages (Gress, UCD, verbal comm., 4/24/86).

**Bald eagle - Haliaeetus leucocephalus**

For the last five years, the Institute for Wildlife Studies, Santa Catalina Conservancy, and the Department of Fish and Game have sponsored an effort to re-establish bald eagle habitat on Catalina Island (some 60 mi southeast of the proposed platform site). The current Catalina Island flock of 12 birds are survivors of 25 which were translocated to the island from northern California and Washington. In June, nine baby bald eagles will be taken from their nests on Vancouver Island, British Columbia and transported to man-made nests on Catalina Island. Baby bald eagles have been selected for this translocation in hopes that they will imprint on the nests at Catalina Island.

**Peregrine falcon - Falco peregrinus anatum**

In 1985 a joint effort by the National Park Service and Peregrine Fund successfully hatched three birds on San Miguel Island (NPS, Written Comm., 4/9/86). In addition, several Peregrine sightings have occurred on Anacapa and other Park Islands or the last few years, particularly during the winter (Whelan, NPS, verbal comm., 4\24\86).

**Light-footed clapper rail - Rallus longirostris levipes**

The light-footed clapper rail has suffered a severe decline in population during the last century. Loss of habitat has been the major cause of the decline (Wilbur, 1974). Carpinteria Marsh and Point Mugu lagoon are the only locations supporting rail populations that are near the project area. Carpinteria Marsh does not offer optimum habitat for clapper rails due the lack of Spartina, but is considered adequate by researchers (Massey et al., 1984). Population estimates for Carpinteria Marsh and Point Mugu lagoon through 1983 are provided in Seeman (1985). Census figures for 1984 (26 pairs) and 1985 (7 pairs) at Carpinteria Marsh are representative of the statewide decline of clapper rails this past year. Statewide population estimates for clapper rails declined from 277 pairs in 1984 to 142 breeding pairs in 1985 (Zemba, USFWS, verbal comm., 3/24/85). In addition, the second largest California colony (Tijuana Marsh) was lost (38 pairs in 1984, 0 in 1985) when the river mouth closed and dredging permits were not obtained in time to avoid flooding of the marsh area (Zemba, USFWS, verbal comm., 3/24/86). Point Mugu contains the only clapper rail population not in decline in the entire state. Estimates have gone from 0 pairs in 1981, 1 pair in 1983, 3 pairs in 1984 and 7 pairs in 1985 (Klope, USAF, verbal comm., December 19, 1985). The success of this colony has been attributed to the elimination of predation by red foxes. Overall, the light-footed clapper rail is probably one of California's more endangered species.

### 3.4.7 Estuaries and Wetlands

The estuaries and wetlands in the study area have been described in Section 3.6.7 of Chevron's ER (Westec, 1986), BLM (1979, 1981); MMS (1983a); and USGS (1976).

The estuarine and wetland areas that are located in the study area include Devereux Slough and Lagoon (wetland), University Lagoon (wetland), Goleta Slough (marsh/estuarine), Carpinteria or El Estero Slough (marsh/estuarine), Ventura River mouth (estuarine), Santa Clara River mouth (estuarine/marsh), and Mugu Lagoon (wetland). These areas are depicted in Figure 3.6-4 of Chevron's ER (Westec, 1986). Refer to Section III.B.7 of MMS, 1983a and Section II.E.2.b of USGS (1976) for the approximate areal extent of these resources. Estimations of entrance widths of these areas are given in Table III.B.7-3 of MMS (1983a). Refer to MMS (1983a) for a discussion of the diversity of organisms in these productive areas. Section 3.4.6 of this EA discusses the endangered and threatened species of the areas.

### 3.4.8 Areas of Special Concern

Areas of Special Concern include refuges, preserves, and Areas of Special Biological Significance (ASBS). These areas have been described in Section 3.6.2 of Chevron's ER (Westec, 1986), BLM (1979, 1981), and MMS (1983a).

Ecological reserves, marine life refuges, reserves, and ASBSs are legally defined and controlled by the State of California. The purpose of designating these areas is to reduce the abuse and waste of the State's intertidal and shallow subtidal resources. The areas include: Anacapa Island Ecological Reserve, San Miguel Island Ecological Reserve, Santa Barbara Island Ecological Reserve, Mugu Lagoon to Latigo Point, and Santa Cruz Island. All these areas are ASBSs and they include the surrounding waters to a distance of 1830 m (1 nm) offshore or to the 91 m (300 ft) isobath, whichever is the greater distance. An exception to this is the Mugu Lagoon to Latigo Point ASBS which extends to the 30 m (100 ft) isobath or 305 m (1000 ft) from shore, whichever is the greater distance.

The biological resources of these areas are described in the appropriate sections of this EA (Sections 3.4.1 - 6) and the previously described references.

### 3.4.9 Channel Islands National Marine Sanctuary and National Park

The Channel Islands National Marine Sanctuary has been described in Section 3.6.2 of Chevron's ER (Westec, 1986), BLM (1981) and MMS (1983a). Considerable detail on the Sanctuary and its natural resources is provided in the EIS for the Sanctuary (NOAA,

1980). The federal regulations pertaining to the Sanctuary are found at 15 CFR 935.

The area adjacent to the northern Channel Islands and Santa Barbara Island, seaward to a distance of 11 km (6 nm) (see Figure 2.5-1 in Chevron's ER) was designated as a marine sanctuary by Presidential approval in September 1980. This represents an area of about 4200 sq km (1252 sq nm). The Marine Protection Research and Sanctuaries Act of 1972 authorized the Department of Commerce, through the Office of Coastal Zone Management within NOAA, to designate the Sanctuary.

Platform Gail is proposed to be located about 1.1 km (0.6 nm) outside the Sanctuary boundary. Hydrocarbon development and production operations are allowed within the Sanctuary (15 CFR 935) on any lease obtained prior to 1980. Chevron's lease OCS-P 0205 was obtained in the Oil and Gas Lease Sale of 1968. Such operations are subject to all prohibitions, restrictions, and conditions imposed by applicable regulations, permits, licenses, or other authorizations and consistency reviews of State and Federal agencies. Hydrocarbon operations within the Sanctuary on leases that were executed after 1980 are prohibited.

The waters and substrate immediately around the islands support a large and diverse assemblage of marine mammals, numerous seabirds including the endangered brown pelican, and important fishery resources, including kelp and shellfish (NOAA, 1980). These assemblages occur in the Sanctuary partially because it is located in a biogeographic transition zone between northern and southern waters and partially because it is one of very few areas off the southern California coast that has been relatively unaltered by human use. Refer to the appropriate sections within this EA for discussions of the resources of the Sanctuary.

The Channel Islands National Park was established in 1980. The Park includes San Miguel, Santa Rosa, Santa Cruz, Santa Barbara, and Anacapa Islands to 1852 m (1 nm) offshore. Proposed Platform Gail is located about 9260 m (5 nm) from the seaward boundary of the Anacapa Island portion of the Park. The Park is a Class II PSD (Prevention of Significant Deterioration) for air quality. The Park has been nominated for Class I PSD status. Refer to NPS (1985) for additional information and references. Refer to the appropriate sections within this EA for discussions of the resources of the Park.

### 3.5 Socioeconomic Resources

#### 3.5.1 Commercial Fisheries

##### 3.5.1.1 Region

Recent landings and ex-vessel landing values for Ports in the Southern California Bight, are presented in MMS (1983a). In addition, MMS (1983a) describes the key commercial fisheries and the gear types used for their capture in the Santa Barbara Channel and Inner Basins. Additional information on commercial fishing in the Region is presented in USGS (1976) and BLM (1979).

##### 3.5.1.2 Santa Barbara Channel

The commercial fishing user-group for the Santa Barbara Channel area consists primarily of fishermen originating from ports between Morro Bay and the San Pedro area (Thompson, 1984). The majority of fishermen that utilize the Santa Barbara Channel, however, originate from Ports within the Channel proper including Santa Barbara, Ventura, Channel Islands Marina, and Port Hueneme. Vessels fishing the Channel that originate from Morro Bay (or Port San Luis) and the San Pedro Area are principally trollers and purse seiners, respectively. A port-by-port summary of the commercial fishing fleet in the Santa Barbara Channel is presented by Thompson (1984) and ADL (1985).

The commercial fishing industry in the Santa Barbara Channel is characterized by a wide diversity of both commercial fishery resources and fishing gear technologies. Over 75 species of fish and shellfish are harvested in the Santa Barbara Channel area; however, less than a third of these species represent the bulk of the catch (Thompson, 1984). Sea urchins, mackerel (Pacific & jack), northern anchovy, rockfish, squid, and albacore constitute the largest volume species in terms of landings. Other lesser volume but important species include bonito, various sharks, halibut, various flatfishes, shrimp, lobster, crabs, abalone, and swordfish. Harvest data (for ports in the Santa Barbara Channel, including Morro Bay, for the 10 year period from 1973-82 are presented by Thompson (1984). Updated information for 1983 is presented by ADL (1985). These data show the development of the urchin, mackerel, shrimp, and shark fisheries, and decline in the abalone and anchovy fisheries. The principal gear types used by fishermen in the Channel include purse seines and lampara nets, harpoons, hookah (surface air supplied diving gear), otter trawl nets, set gill and trammel nets, drift gill nets, and various hook and line methods. A description of the primary species sought with each gear type, as well as the areas, depths, and seasons fished is presented by Thompson (1984).

### 3.5.1.3 Assessment Area

Commercial fishing harvest data are compiled by the California Department of Fish and Game (CDF&G) for a grid system of offshore Fish Blocks. Each block is approximately 11 by 9 statute miles in size. Figure 3.5.1 in the Chevron ER (Westec, 1986) illustrates the location of these Blocks in the Santa Barbara Channel and in the vicinity of the Gail project area. These data are compiled from copies of receipts (i.e., "pink" tickets) submitted by dealers to CDF&G (Thompson, 1984). Data on location of catch, species captured, and aggregate weights by species are recorded separately for otter trawl and non-otter trawl gear. According to M.S. Oliphant (CDF&G, verbal comm., 1986), the trawl data has not been allocated by individual Fish Block since 1977. As discussed by Thompson (1984) and ADL (1985) Fish Block data are not particularly accurate; however, in most instances they represent the best available information.

The proposed Platform Gail site and a portion of the proposed pipeline corridor to Platform Grace lie within CDF&G Fish Block 684 (see Fig. 3.5-1 in Westec, 1986). A portion of the proposed pipeline corridor (and Platform Grace) lie within the adjacent Block 665 to the north. The commercial harvest data for Fish Blocks 684 and 685, as well as Block 683, are presented in Table 3.5-1 of Chevron's ER (Westec, 1986) for the years 1977 and 1981. For the purposes of this EA the assessment area for commercial fishing is defined as the area encompassed by Fish Blocks 683, 684, and 685. The data indicate that total catches fluctuated greatly between years and Blocks, but that the dominant species (by weight) were those taken by the purse seine fishery including northern anchovy, bonito, and (jack and Pacific) mackerel. Other important species harvested in these Blocks were California halibut (otter trawl, set net), English sole (otter trawl), various shark species (set and drift gill nets), rockfish (otter trawl, hook and line), lobster (trap), shrimp (otter trawl) and sea urchin (diver).

More recent unpublished data for 1982 and 1983 (not including otter trawl catches) were obtained (M.S. Oliphant, CDF&G, written comm., 1986) for these same Blocks. According to these data, the principal commercial fishing activities (excluding otter trawling) in Block 684 (containing most of the proposed project) were purse seining for anchovy, mackerel, and bonito, drift gill netting for thresher shark, bonito shark, and swordfish, set gill netting and/or hook and lining for halibut, angel shark, and rockfish, diving for sea urchin, and trapping for crab and lobster. With the exception of a white croaker fishery located in Blocks 665 and 683, the harvest from these Blocks was generally comparable to that from Block 684.

According to Chevron's ER (Westec, 1986), purse seining for northern anchovy in the project area occurs primarily in mid-channel over deep water in an area between Ventura and Anacapa Island. In contrast, purse seining for mackerel takes place in shallower water, generally less than 300 feet. Aerial surveys of pelagic species over the period 1962-78 indicated mackerel and bonito tended to be most abundant near Santa Cruz and Anacapa Islands and along the north side of the Channel, whereas anchovy occurred predominantly in the eastern Santa Barbara Channel (Squire, 1983). Although anchovy and mackerel may generally be fished in these areas, the size and location of catches is not highly predictable for these species because of their pelagic habitat and coastal migratory behavior (Klingbeil, CDF&G, verbal comm., 1986). In addition to variability in location, seasonal variations in abundance, market demand and quotas (established by the Pacific Fishery Management Council) affect the quantities of these species harvested (Thompson, 1984; Klingbeil, CDF&G, verbal comm., 1986). For example, market conditions for anchovy have been poor over the past three years since the reduction fishery is virtually nonexistent (Klingbeil, CDF&G, verbal comm., 1986, and MacCall, NMFS, verbal comm., 1986). Due to the absence of a market for anchovy, purse seine fishermen have redirected their effort primarily to mackerel. The current open season for anchovy is from September 13 to June 30, but is subject to quota restrictions. The mackerel fishery is presently open year round. The spawning biomass and present quota for anchovy is discussed in Section 3.4.3 of this EA.

The drift gill net fishery in the eastern Santa Barbara Channel, and in the vicinity of Fish Blocks 684, 665, and 683 focuses primarily on thresher and bonito shark, and only secondarily on swordfish. In the last season (1983-84) for which individual Block data were available from CDFG for species taken by drift gill net, peak thresher shark catches were between May and July in Blocks 684 and 665 (unpublished CDFG data; Bedford, CDF&G, verbal comm., 1986). Catches were comparable or higher in Blocks 667, 666, and 668, which are further west, with peak catches in the months of June through August. In the fall of the 1983-84 season, drift gill netters switched from shark fishing and began to focus on swordfish. Although swordfish catches have been reported from Blocks 684 and 683 (unpublished CDFG Block data), relatively few were taken in this area in the 1983-84 season. Most swordfish effort was focused south of the Channel Islands and offshore (Bedford, CDF&G, verbal comm., 1986). According to Bedford the traditional pattern of drift gill netting for shark from May through late summer, followed by a fall shift to swordfish in offshore areas occurred in both 1984 and 1985. Prior to 1986, the drift gill net season was open from May through January, however, due to severe fishing pressure on the thresher shark resource, a new seasonal closure has been imposed for the 1986 season (Bedford, CDF&G, verbal comm., 1986). According to Bedford, the drift gill net season in 1986 will open

on May 1st and close on June 1st. The closure will end by mid-August when drift gill net vessels have traditionally shifted to fishing swordfish offshore and south of the Channel Islands. This closure will effectively allow only one month for thresher shark fishing. This closure is expected to be in force at least until 1989, and it will probably be expanded in the future (Bedford, CDF&G, verbal comm., 1986). Beginning in 1985-86, there will also be a December 1 - January 31 closure of drift gill net fishing within 25 miles of shore along the entire California coastline to protect gray whales during their annual migration.

Although CDFG Fish Block-specific otter trawl data are not available for years after 1977, maps have been developed that illustrate known commercial trawling grounds in the eastern Santa Barbara Channel, including the vicinity of the Gail Project. Figures 3.5-2 and 3.5-3 (taken from MMS, 1983a) in Chevron's ER (Westec, 1986) are based on interviews with CDF&G personnel and commercial fishermen. Comparable maps were independently developed by Centaur Associates (1984b) based on natural history information and fishermen interviews. These maps indicate that commercial trawling occurs in the vicinity of the Gail Project for several species including: English sole, Petrale sole, various rockfish, and spot prawn. Based on these maps, ridgeback prawn appear to be fished in shallower water northwest of the Gail assessment area, whereas halibut are taken in shallower water inshore of Platforms Grace and Gilda. According to John Sunada of CDF&G (verbal comm., 1986), these maps accurately depict existing trawl grounds in the eastern Channel, and thus the Petrale sole, English sole, spot prawn, and possibly, ridgeback prawn fisheries would be those most likely to occur in the vicinity of the proposed Gail Project. At a April 15, 1986, meeting at the Fisheries Liaison Office in Santa Barbara, commercial trawl fishermen indicated that all of these species, including ridgeback prawns, are taken in the immediate vicinity of the Platform Gail site.

Based on the foregoing discussion, English sole, Petrale sole, rockfish, spot prawn, and ridgeback prawn are expected to represent the key species targeted by trawl fishermen near the proposed Gail Project. English and Petrale sole are fished all year at depths ranging from 90-350 m (300-1,140 ft); however, the principal months of fishing are January through May (Centaur Associates, 1984b; MMS, 1983a; Sunada, CDF&G, verbal comm., 1986). At present there is no closed season. The landings of these species increased in 1985 following a period of reduced catch (1981-83) that may have been due to El Nino (Sunada, CDF&G, verbal comm., 1986). Rockfish (several species) are taken by commercial trawlers all year (i.e. no seasonal closure) at depths of 110-370 m (360-1,200 ft) (Centaur Associates, 1984b). Although there is no clearly recognized seasonal peak fishing period, many trawlers evidently switch from halibut in the spring

and summer to rockfish in the fall and winter when the halibut catch begins to decline (Sunada, CDF&G, verbal comm., 1986). Shrimp are trawled over a wide depth range, with ridgeback prawns taken from 120-165 m (390-540 ft) and spot prawns taken at depths of 200-240 m (660-780 ft) (Sunada, CDF&G, verbal comm., 1986). Both fisheries are subject to seasonal closures with the ridgeback prawn fishery closed between June 1 and September 30, and the spot prawn fishery closed from November 1 through January 31 (Centaur Associates, 1984b; Sunada, CDF&G, verbal comm., 1986). A summary of the principal trawl fishing seasons and depths in the Santa Barbara Channel is presented in Centaur Associates (1984b).

### 3.5.2 Marine Vessel Traffic and Routing Systems

The Santa Barbara Channel is an area of major shipping activities for inbound and outbound vessel traffic to and from the ports of Los Angeles, Long Beach, and Port Hueneme. The Vessel Traffic Separation Scheme (VTSS), recommended by the U.S. Coast Guard and approved by the International Maritime Organization (IMO), passes through the center of the Santa Barbara Channel. Currently, more than 90% of all commercial shipping traffic in this area utilizes the VTSS (USCG, 1981). This does not apply to noncommercial pleasure craft or fishing boats. In order to reduce vessel routing conflicts, the former position of the VTSS has been moved 0.9 km (0.5 mi) southward in the eastern part of the Channel as per Coast Guard recommendation. This change became effective in February 1985.

The configuration of the existing VTSS is depicted in Section 4 of the Chevron DPP (Chevron, 1986). Platform Gail would be situated approximately 858 m (2814 ft) north of the VTSS northbound lane buffer zone and 1348 m (4421 ft) north of the lane itself. Measurements of this distance cited in the DPP and ER differ slightly because of inaccuracies inherent when transferring between coordinate systems. The Coast Guard uses latitude and longitude, while MMS and the oil companies use UTM or the Lambert System. Upon re-measurement, the above figure was arrived at (Cmdr. Allen, USCG, verbal comm., 4/7/86).

The nearest safety fairway in the project vicinity, Port Hueneme, lies approximately 14.5 km (9 mi) away. Vessel movements there include supply boats, commercial fishing vessels, and tankers. All support vessels will use a traffic lane to Platform Gail set up by the Santa Barbara Channel Oil Service Vessel Corridor Traffic Program. The program is intended to reduce potential conflicts between the oil and gas industry and commercial fishermen. Figure 2.6.1 in the ER depicts the various traffic lanes.

### 3.5.3 Recreation, Tourism, and Visual Resources

#### 3.5.3.1 Recreation

Recreation in the vicinity of Lease OCS-P 0205 and the Platform Gail site is restricted to boating and sportfishing (see Section 3.5.7). The lease and the platform site are located about 16 kilometers (10 miles) from Channel Islands Harbor, and from Ventura Harbor, both of which are small boat ports, on the mainland, with a combined capacity of over 2000 boats. Many of these boats traverse the area of the platform enroute to Anacapa Island, and in addition to these, there are regular trips made to Anacapa Island by "Island Packers", a commercial tour service running boats out of Ventura Harbor to Anacapa.

Onshore recreation in the vicinity of the Platform Gail project region occurs mainly at the State-run and County-run beaches and parks between Point Mugu and Gaviota. These are listed in Chevron's ER, Section 3.5.4 (Westec, 1986). Further descriptions of these areas are provided in MMS (1983a), BLM (1975), BLM (1979), BLM, (1981), The Granville Corporation (1981) and CCC (1981a).

The recreational activities are primarily water oriented both from an active participation as well as from a passive aesthetic aspect. About 4.7 million recreationists in Ventura County and one million recreationists in Santa Barbara County use the coastal recreation areas each year (MMS, 1983a). These recreationists are not only local residents of the two counties, but are also day visitors and tourists.

#### 3.5.3.2 Tourism

Tourism is one of the major industries in the Santa Barbara Channel area with an economic value in excess of \$170 million (MMS, 1983a). Both counties rely heavily on tourism with the main emphasis being placed on the Santa Barbara Channel beaches and coastal areas as opposed to the inland and north coast areas. Santa Barbara County is the more tourist dependent of the two counties, with most of the tourism occurring around the City of Santa Barbara. This is shown in Section 3.5.4 of Chevron's ER (Westec, 1986), where the value of tourism is broken down by county and city. Additional descriptions are to be found in BLM (1979, 1981), MMS (1983a) and in The Granville Corporation (1981).

The prime attributes of the area for tourism are the beaches with the offshore vistas of the Channel Islands, the Historic Missions and the associated Spanish influence on the local communities, the backdrop of the Santa Ynez Mountains, and the relatively pristine coastal area with the mix of farming, ranching, commercial and industrial areas. A complete description of this

coastal section can be found in The Granville Corporation (1981) and in MMS (1983).

### 3.5.3.3 Visual Resources

The visual resources of the California coast were systematically analyzed by The Granville Corporation in 1981 and the results given in POCS Technical Paper 81-5. These results showed the study area to be extremely diverse in its type of visual resources as it varies from the pristine Channel Islands to the onshore power plant and oil development at Mandalay. Overall the area has a very pleasing effect with barren hills acting as a backdrop to harmonious beachfront communities which vary in size from cities such as Ventura to small clusters of houses such as at Mussel Shoals. A general overview of the visual resources of the Ventura County coastline is presented in Section 3.8 of Chevron's ER (Westec, 1986). In addition, an overview of the entire Santa Barbara Channel area is given in MMS (1983a).

Due to their distance from the mainland, the Channel Islands have remained relatively pristine with ranching being the principle cultural modification. Anacapa Island is almost entirely free of cultural modifications, with the exception being a lighthouse and a group of small buildings on the easternmost island of the chain. These buildings fit the landscape and do not detract from what is considered to be one of the few remaining pristine environments in southern California. Additional information on the Channel Islands can be found in NPS (1984).

### 3.5.4 Mariculture and Kelp Harvesting

No mariculture activities occur within or near Chevron's lease (OCS-P 0205). However, kelp harvesting does occur within the study area. Kelp beds are ecological complexes of large brown algae (generally, Macrocystis) occurring throughout the Santa Barbara Channel area as well as north of Point Conception in shallow waters (less than 31 m [100 ft]). Generally, kelp beds are found over hard substrate areas (rocks), but can be found in area of sedimentary bottoms. Depth ranges for kelp beds are 5 to 30 m (16 to 98 ft) and will be highly variable depending upon local conditions. Turbidity is considered to be of major significance when determining onshore and offshore productivity limits (BLM, 1975).

Kelp stands and adjacent outcrops provide a heterogeneous environment which serve as a source of food, shelter, and attraction for fishes (Quast, 1968a).

Significant kelp bed resources in California are under the jurisdiction of the California Department of Fish and Game (CDFG). The proposed platform and pipeline alignment are in a water depth of approximately 225 m (739 ft) and no kelp resources

are within the project footprint. The nearest designated beds are Bed 109 around Anacapa Island (not harvested) and Bed 17 (harvested) which runs from Pt. Mugu to Pt. Dume (see Figures 3.5-6 and 3.5-7 in Westec, 1986). Bed 109 is protected by the ecological reserve regulations and is located approximately 10.6 km (6.6 mi) from the proposed platform. Bed 17 is located approximately 43 km (27 mi) from the proposed platform.

### 3.5.5 Socioeconomics

The study area for this resource is defined as Ventura County and Santa Barbara County. Both of these Counties have been historically involved in onshore and offshore oil and gas development.

The total population of the study area is 916,700 (January 1985). Between 1960 and 1983 the population of Santa Barbara County grew by 86% and Ventura County grew by 184% (Centaur Assoc., 1984a). Population in Santa Barbara and Ventura counties is expected to grow through the year 2000 at annual rates of 0.7 percent and 2.2 percent, respectively (URS, 1985). The majority of onshore activity is expected to occur in the Oxnard/Port Hueneme area. The combined population of Oxnard and Port Hueneme is 141,650 (January, 1985) and has historically grown at about the same rate as Ventura County (Centaur Assoc., 1984a).

The total civilian labor force of both Santa Barbara and Ventura Counties is 446,300 (November 1985, State of California). Total mineral extraction employment, which includes the oil and gas industry is 4,600 people. Unemployment in Ventura County is 7.4% and 5.0% in Santa Barbara County. Total unemployment equals 29,100 persons (State of California, 1985).

Centaur Associates (1984a) indicate that Santa Barbara County employment would be 1.9% less in the absence of an oil and gas industry. Four industries accounted for 80% of wage and salary employment: government, services, retail trade and manufacturing. In Ventura County the absence of the oil and gas industry would result in an employment loss of 4.8% (Centaur Assoc., 1984). Four industries accounted for 73-76% of the wage and salary employment: government, retail trade, services and manufacturing.

Total enrollment in the Ventura and Santa Barbara school systems is 152,000 students. Enrollment is trending upward. The Oxnard school system is currently at overcapacity and is operating on a year round schedule (Ron Weinert, verbal comm., March 18, 1986). The Port Hueneme school system has about a 5 percent excess capacity.

The Oxnard airport is a Level II airport with an FAA tower. It currently has 136,000 aircraft operations per year. At its peak the airport had 280,000 aircraft operations per year. The FAA has a Memorandum of Understanding with the helicopter operators concerning the conduct of helicopter operations (Norine Harwood, Federal Aviation Administration, verbal comm., 3/19/86).

Port Hueneme is located in the Los Angeles Hydrologic Study Area (Department of Water Resources, State of California). In 1980 energy production accounted for 0.4% of water usage. Urban usage accounted for 80% followed by agriculture at 14% (Department of Water Resources, State of California; 1983). Four percent of the water needs are met through overdrafting groundwater supplies. In the Oxnard Plain area of Ventura County, ground water pumping for both urban and agricultural uses has created seawater intrusion problems (Department of Water Resources, State of California; 1983). Port Hueneme is using its maximum water allocation (Jack Duffy, Public Works Department, Port Hueneme, verbal comm., 4/17/86).

Four ports and harbors are located in the vicinity of Platform Gail. They are Port Hueneme, Channel Islands Harbor, Ventura Marina, and Santa Barbara Harbor. Of these four facilities, Port Hueneme is the major port serving the needs of the offshore oil and gas industry. Santa Barbara Harbor, Ventura Marina, and Channel Islands Harbor are principally recreational facilities with some support for the commercial fishing industry. Port Hueneme is also the only natural deepwater port between Los Angeles and San Francisco. From 1982 through 1985, one third to one half of the Port's revenues were derived from supporting offshore oil and gas activities. Oil companies and their suppliers lease land and facilities throughout the harbor area. Other major activities included offloading or onloading citrus, fruit, cotton, chemicals, canned goods, bananas, fertilizers, wood pulp, lumber, wheat seed, and automobiles (Bob Harnuth, Oxnard Harbor District, verbal comm., 3/04/86; MMS, 1985a).

Port Hueneme harbor has a mean low-water depth of 11 m (36 ft) and is relatively maintenance free with respect to dredging. The entrance channel is 700 m (2,300 ft) long and has a width of 100 m (330 ft). The Port has 550 m (1,800 ft) of wharfage. In December of 1984 the Port of Hueneme purchased surplus wharf space from the U.S. Navy thereby adding eighteen acres and 200 m (650 ft) of existing wharfage. This acquisition plus the the construction of an additional 210 m (700 ft) of wharfage will allow for an 80% increase in the harbor's capacity. The wharfage expansion project is currently undergoing environmental review. Construction is expected to begin in mid 1986 and to be completed within twelve months (Bob Harnuth, Oxnard Harbor District, verbal comm., 3/04/86; MMS, 1985a; Rogers et al., 1984).

Periodic overcrowding at Port Hueneme and the increase in offshore activities in northern Santa Barbara County have resulted in proposals for a second supply base in either Santa Barbara County or San Luis Obispo County (Rogers et al., 1984, 1986). A new supply base would lessen congestion at Port Hueneme. Oil and gas industry boat activity peaked in FY 1984. In November of 1983, 75 offshore oil vessels were serviced at Port Hueneme or otherwise used its facilities. In January of 1986, 32 offshore oil vessels were serviced at Port Hueneme, a decline of just over 50% from the November 1983 figure (Bob Harnuth, Oxnard Harbor District, verbal comm., 3/04/86).

Ventura Harbor has been used on occasion by crew and supply vessels. However frequent dredging, limited dock space, and its design as a recreational small boat harbor have discourage this harbor's use for supporting offshore oil and gas activities (MMS, 1985a).

### 3.5.6 Sportfishing

Sportfishing is an important recreational activity throughout southern California. Five types of recreational fishing predominate: shoreline, pier and jetty, commercial passenger fishing vessel (party-boat), private boat, and skin/scuba diving (MMS, 1983a; Berwick & Thomson, 1984). In general, more productive fishing is achieved from boats of one type or another. Over the period of 1963-66, pier and jetty fishing was the most popular in southern California, but party boat fishing resulted in the highest total catches of fish and highest catch-per-man hour (Pinkas et al., 1968). According to MMS (1983a), approximately 11 percent of the sport fishing conducted from boats in southern California occurred in Santa Barbara/Ventura Counties, while a somewhat higher percentage (20 percent) of dive boat trips originated from those counties. Although over 150 species have been recorded in the southern California sport catch, a relatively few number of species tend to predominate. The angler catch generally is dominated by bonito, mackerel, bass, croaker, and rockfish, whereas the diver catch is characterized by abalone, scallop, and lobster (MMS, 1983a).

All types of recreational fishing occur in the Santa Barbara Channel (from Point Mugu to Point Arguello including the Channel Islands). In 1980, pier/jetty and shoreline fishing represented slightly over half (54 percent) of the sportfishing participation (i.e. effort) in the Santa Barbara Channel (The Granville Corp., 1981). Party/charter boats and private and/or rental boats accounted for the remaining 46 percent of the total participation. Although estimated sportfishing effort for all types of fishing along the mainland coast of the Santa Barbara Channel (excluding the Islands) has decreased by approximately 24 percent in the past fifteen years (1970-85), a relatively constant proportion of the total effort (57-59 percent) has been

concentrated in the area between Summerland and Port Hueneme (The Granville Corp., 1981, in Berwick & Thomson, 1984).

In general, pier/jetty and shoreline fishing is limited to the mainland coast since access to the Islands is restricted. Private boat fishing occurs along both the mainland and in the Islands, but activity focuses on kelp beds and reefs (Berwick & Thomson, 1984). Diving occurs in kelp beds or near reefs generally at depths less than 18 m (60 ft). Party boats are available from Goleta, Santa Barbara, Venture Marina and Channel Islands Harbor, Port Hueneme, and Oxnard (total of 27-30 boats) for fishing in coastal areas from Point Mugu to Point Arguello and in the Channel Islands. The majority of fishing is within three miles of shore and focuses on kelp beds and rocky areas at depths of up to 91 m (300 ft). In the vicinity of Santa Barbara/Carpinteria, considerable effort is expended fishing near existing oil platforms (see Figure 2.2 in Berwick & Thomson, 1984).

The dominant species taken in the sport catch from the Santa Barbara Channel area include rockfish, kelp/sand bass, bonito and mackerel (Berwick & Thomson, 1984). Although these species predominate, considerable changes in species composition have occurred in the past twenty years. Table 3.5-3 in Chevron's ER (Westec, 1986) shows the species taken by party boats in Santa Barbara and Port Hueneme in 1981. The most numerically abundant species included rockfish, kelp bass, mackerel, and bonito. The vast majority of these species are taken in shallow water near reefs or in the vicinity of kelp beds. Figure 3.5-5 in Chevron's ER (Westec, 1986) illustrates the more important areas for sport fishing between Santa Barbara and Point Mugu, including Anacapa Island.

Love et al. (1985) reported on sport catches taken from party boats in the Channel Islands over the period from 1975-1978. This study indicated that several rockfish species and kelp bass dominated the sport fish catch from this area, and that most fishing was conducted at depths less than 73 m (220 ft). Based on their survey, the majority of angler-hour effort was expended in the eastern Channel Islands, principally around Anacapa and eastern Santa Cruz Islands.

## 4 Environmental Consequences of the Proposed Action

Section 4 describes the environmental consequences of the proposed action. For the purposes of this EA, impacts are determined to be either insignificant or significant. Refer to each resource category for a definition of the significance criteria that are used in the impact analysis. Refer to the beginning of Section 3 for a description of the study area used for impact analysis.

### 4.1 Oil Spill Models and Mud Discharge Model

#### 4.1.1 Discussion of the MMS Oil Spill Risk Analysis Model and the Dames and Moore Oil Spill Risk and Trajectory Analysis

The oil spill risk analysis for the Platform Gail project was developed by using both the MMS Oil Spill Risk Analysis Model (OSRAM) and the Dames and Moore Oil Spill Trajectory Model (Dames and Moore, 1985). The results from these models are used in the impact analysis for this EA. A description of both models and a comparison of methods and results is contained in Appendix B.

In brief, both models examine oil spill risk by calculating conditional and final probabilities and applying these to simulated trajectories generated by computer. Conditional probabilities are those which are conditioned (i.e., depend on) by the fact that an oil spill occurs. Given that a spill occurs, trajectory analysis can predict with some degree of accuracy which targets or land segments could be contacted by the spill. Taking this process a step further by accounting for the probability of an oil spill actually occurring results in a final or joint probability. These final or joint probabilities are presented in Tables 8 and 9 in Appendix B.1. (MMS results) and Tables 3-9 through 3-20, 3-25 through 3-28, 3-33 through 3-44, 3-49 through 3-54 in Appendix B.2 (Dames and Moore results). Thus, joint probabilities account for the statistical occurrence of an oil spill as well as the probability of the spill contacting a particular land segment or target; whereas conditional probabilities account only for the probability of contact and not the statistical occurrence of a spill. The probabilities are derived from historical accident rates, physical parameters (winds, currents and tides) and exposure variables (physical aspects of the project that are linked to the probability of a spill actually occurring). The trajectories provide graphic and numerical estimations of where a spill could drift over 3, 10 and 30 days. From this information, risk may be assigned to any biologically sensitive areas which may provide habitat for endangered, commercially valuable or vulnerable species as well as to socioeconomic issues.

Throughout the following discussions of impacts on the various resources, likelihood descriptors were used to describe the probability of oil spill contacts to the resources. These descriptors, unlikely, moderately likely and likely, correspond to numerical ranges which cover roughly the same values as those in the Endangered Species Analysis conducted for Platform Gail (Larry Seeman Associates, 1986). The numerical ranges and their associated descriptors are: 0-25% = unlikely; 26-50% = moderately likely; and >50% = likely.

The estimated probability of one or more oil spills ( $\geq$  1,000 bbls) occurring from Platform Gail during the life of the project is 13 percent according to the MMS Oil Spill Risk Analysis Model (OSRAM); the Dames and Moore Oil Spill Risk and Trajectory Model states a 7 percent chance of one spill occurring from the platform and pipeline. These values represent final or joint probabilities. MMS considers these probabilities to represent an unlikely event.

#### 4.1.2 Discussion of Offshore Operators Mud Discharge Model

The Offshore Operators Mud Discharge Model was used to simulate the fate of a drilling fluid discharge disposed of from the proposed site of Platform Gail (see Westec, 1986, Section 10). Oceanographic parameters (current speed and direction and water depth) were varied based on known values for the area and combined with several mechanical variables (mud weight, pipe diameter, discharge rate) to produce simulated trajectories and areas of predicted deposition. The modellers considered six different current speed and direction scenarios and ran the model for as long as 16.7 hours. Both an upper plume (the soluble fraction) and a lower plume (the particulate fraction) were modelled.

#### 4.2 Projects Considered in the Cumulative Impact Analysis

The projects that were considered in the analysis of cumulative impacts in this EA are presented in Table J-1 (Appendix J). This information was based on projects identified in URS (1985) and reviewed by the MMS for completeness. The Table lists projects that could potentially affect resources in the Platform Gail study area.

The cumulative risk of oil spills from platforms, pipelines and tankers (local, Alaskan and foreign) in the Southern California Planning Area (which includes the Santa Maria Basin and Santa Barbara Channel as well as the area between the Monterey/San Luis Obispo County line to the Mexican boarder and out to sea approximately 31 km (50 miles) is shown in Table B.4-1 (Appendix B.4)). The cumulative risk with and without Platform Gail is calculated by including and excluding the produced oil from

Platform Gail over the 32 year life of the project. Since volume of oil from all sources is the common variable in the cumulative analysis, adding and subtracting Gail's contribution results in a calculable representation of the probability of oil spill occurrence both with and without Platform Gail. The table shows that the incremental risk attributable to the Gail project is very small compared to the overall probability of spill occurrence.

#### 4.3 Geologic Hazards

##### 4.3.1 Impact of Geologic Environment on project

The significance criteria used in this analysis are based on those adopted by URS, 1985. Impacts that geohazards would have on the proposed project would be considered significant if:

- o Earthquake induced ground motion capable of causing damage to the facility or pipeline could occur, or
- o Near surface geologic conditions are sufficiently unstable or otherwise susceptible to failure such that they would require extensive foundation engineering, implementation of special slope stabilization measures, or avoidance of areas of unstable ground.

As discussed previously in Section 3.1.5 of this EA, the principal design considerations and potential hazards are seismicity, shallow gas, and slope instability. The platform has been designed to withstand seismic shaking from a maximum credible earthquake of Richter 7.5 magnitude. The Gail to Grace pipeline will be constructed of pipe having a wall thickness corresponding to API specifications for the particular soil type and seismic regime in the area.

The proposed platform site is located away from the areas characterized by the two foundation zone considerations identified (potential slope instability and shallow gas). Although located downslope from the hummocky area, geotechnical analyses of the shallow soils and probabilistic determination of peak mudline accelerations indicate that only very minor seafloor displacements would occur from a rare, intense earthquake. Similarly, the pipeline corridor avoids the hummocky slide terrain for a major portion of its length. The segment of the pipeline that will cross the slope is located on the lowest gradient and least disturbed portion of the slope between Platforms Gail and Grace.

#### 4.3.2 Impact of project on Geologic Environment

The impact to the geologic environment from the proposed project would be considered significant if:

- o known mineral resources could be destroyed or rendered inaccessible,
- o geologic processes, such as landsliding or erosion, could be triggered or accelerated, and
- o substantial alteration of topography could occur.

The nature of the proposed drilling and production operations, regional stress regime and reservoir characteristics indicate that no induced seismicity or subsidence would result.

An adequately placed and set anchor of proper capacity would disturb approximately 200-300 square meters per anchoring event of the type of seafloor (silts and clays) prevalent in the eastern Santa Barbara Channel. This estimate is based on the anchor size and on the amount of attached chain in contact with the bottom. However, adherence to proper anchoring techniques, laying the pipeline in benign weather and possibly working from north to south along the Gail to Grace route would minimize disturbance of the seafloor. More detail concerning anchoring contingencies in this part of the Channel can be found in Centaur (1984b) and Section 4.6.1 of this EA.

#### 4.3.3 Conclusions

The potential geologic impacts, or project impacts on the geologic environment will be either avoided or taken care of by project design. Impacts on geology are considered to be insignificant.

#### 4.3.4 Cumulative Impacts

No impacts by this project on the regional geologic environment are anticipated ; hence, there would be no incremental increase to any cumulative impact baseline. Only a small, local area of the seafloor will be disturbed on a short term basis by setting of the Gail to Grace pipeline.

#### 4.4 Impact on Air Quality

The air quality impacts in this section are based on the guidelines set forth in the DOI regulations (30 CFR 250.57) since Platform Gail and the associated pipelines are proposed for installation on the OCS and therefore under MMS jurisdiction. These guidelines establish a procedure whereby air quality impacts from OCS sources can be determined. Air quality impacts are considered significant under the following conditions:

- o for inert pollutants, emission exemption levels and the concentration significant levels are exceeded, and
- o for VOC, emission exemption levels are exceeded.

#### 4.4.1 Impact from Normal Activities

Construction. Highest annual emissions associated with constructing the facility are given in Table 4.4.1-1, along with the DOI emission exemption level for each pollutant of interest. These levels are strictly a function of distance of the facility from the closest onshore area of the state. The north shore of Anacapa Island (Class II area) is the closest onshore area and is 12.2 km (7.6 mi) from the proposed Platform Gail site. Note from the table that the peak annual emissions of SO<sub>2</sub>, TSP, NO<sub>x</sub>, VOC, and CO are estimated to be 19, 6, 75, 3, and < 1 percent of the DOI exemption levels, respectively. Since the construction emissions are below the exemption levels, no significant onshore air quality impacts are expected to occur and no further review of air quality impacts due to platform construction and pipeline installation is required.

TABLE 4.4.1-1. COMPARISON OF CONSTRUCTION IMPACTS TO THE APPLICABLE EMISSION EXEMPTION LEVELS.

	Peak annual emission rate (tons/yr)				
	SO <sub>2</sub>	TSP	NO <sub>x</sub>	VOC	CO
Construction	48.7	16.3	189.8	8.4	49
Exemption level	253.1	253.1	253.1	253.1	13142

Normal Operations. The highest total annual emissions from the facility during the operation phase of the proposed action are given in Table 4.4.1-2, along with the appropriate DOI emission exemption level. As with the construction phase of the project, the emissions are well within the emission exemption levels; thus no significant impacts to onshore areas would be expected as a result of the proposed action.

TABLE 4.4.1-2. COMPARISON OF OPERATION EMISSIONS TO THE APPLICABLE EMISSION EXEMPTION LEVELS.

	Peak annual emission rate (tons/yr)				
	SO <sub>2</sub>	TSP	NO <sub>x</sub>	VOC	CO
Operation phase	12.8	1.9	45.5	23.5	54
Exemption level	253.1	253.1	253.1	253.1	13143

An air quality analysis was prepared by SAI (1984) for Chevron to determine impacts to Ventura and Santa Barbara Counties. In this analysis, worst-case maximum hourly emission rates for the production phase were assumed and the models COMPLEX II/OCS and RPM-IISS were used for the inert and photochemical pollutant Modeling, respectively. The meteorology and background air quality data used in the photochemical analysis was that collected during the September/October Santa Barbara Channel Oxidant Study (Smith et al., 1983). The maximum NO<sub>x</sub>, SO<sub>2</sub>, and CO impacts to Ventura and Santa Barbara Counties are summarized in Tables 4.4.1-3 and 4.4.1-4, respectively. The maximum predicted impacts are within the DOI significance levels and the pertinent PSD increments. The total impacts (increment + background) are less than the National Ambient Air Quality Standards (NAAQS).

TABLE 4.4.1-3. COMPARISON OF WORST-CASE PLATFORM GAIL IMPACTS TO PERTINENT FEDERAL STANDARDS, FOR VENTURA COUNTY (PPM).

Pollutant	Averaging periods				
	1-hour	3-hour	8-hour	24-hour	annual
<b>NO<sub>2</sub></b>					
increment	--	--	--	--	0.0001
background*	--	--	--	--	0.023
total	--	--	--	--	0.023
DOI	--	--	--	--	0.0005
PSD (Class II)	--	--	--	--	--
NAAQS	--	--	--	--	0.05
<b>SO<sub>2</sub></b>					
increment	--	0.0017	--	0.0004	0.00002
background*	--	0.07	--	0.022	0.003
total	--	0.07	--	0.022	0.003
DOI	--	0.0096	--	0.0019	0.0004
PSD (Class II)	--	0.197	--	0.0035	0.0077
NAAQS	--	0.50	--	0.14	0.03
<b>CO</b>					
increment	0.026	--	0.015	--	--
background**	15.0	--	8.7	--	--
total	15.0	--	8.7	--	--
DOI	1.75	--	0.44	--	--
PSD (Class II)	--	--	--	--	--
NAAQS	35	--	9	--	--

increment = project increment

\* Highest observed value in 1980-83 at any location in the county.

\*\* Highest observed value in 1981-83 at any location in the county.

TABLE 4.4.1-4. COMPARISON OF WORST-CASE PLATFORM GAIL IMPACTS TO PERTINENT FEDERAL STANDARDS, FOR SANTA BARBARA COUNTY (PPM).

Pollutant	Averaging periods				
	1-hour	3-hour	8-hour	24-hour	annual
<b>NO<sub>2</sub></b>					
increment	--	--	--	--	0.00002
background*	--	--	--	--	0.024
total	--	--	--	--	0.024
DOI	--	--	--	--	0.0005
PSD	--	--	--	--	--
NAAQS	--	--	--	--	0.05
<b>SO<sub>2</sub></b>					
increment	--	0.001	--	0.0002	0.000002
background*	--	0.12	--	0.024	0.002
total	--	0.12	--	0.024	0.002
DOI	--	0.0096	--	0.0019	0.0004
PSD (Class II)	--	0.197	--	0.0035	0.0077
NAAQS	--	0.50	--	0.14	0.03
<b>CO</b>					
increment	0.015	--	0.008	--	--
background**	16	--	8.7	--	--
total	16	--	8.7	--	--
DOI	1.75	--	0.44	--	--
PSD (Class II)	--	--	--	--	--
NAAQS	35	--	9	--	--

increment = project increment

\* Highest observed value in 1980-83 at any location in the county.

\*\* Highest observed value in 1981-83 at any location in the county.

SAI's (1984) ozone analysis looked at peak incremental increases and maximum impacts (increment + background) due to Gail along each of the twelve trajectories analyzed. Peak incremental increases of 0.004 to 0.018 ppm would occur either in the Santa Barbara Channel or at landfall. The results also indicate that Gail could increase an existing observed maximum (0.11 ppm on 10/01/80 and 10/08/80) by as much 0.005 ppm, to a combined impact of 0.115 ppm. The federal ozone standard is 0.12 ppm. On days when the NAAQS is exceeded (i.e., a reported maximum of 0.13 ppm or greater), Gail would, at the most, increase the maximum predicted impacts by 0.001 ppm. Thus, under conditions of worst-case platform emissions and worst-case dispersion/photochemical conditions, the proposed action would not increase the highest observed ozone values in Ventura and

## Santa Barbara Counties.

Abandonment. The impacts associated with abandonment depend upon the methods used. It can be assumed that these impacts would be very similar in nature to those that would occur during the construction phase of the project. As shown earlier, construction impacts would be insignificant.

### 4.4.2 Overall Conclusions

The emissions associated with all phases of the project development are within the emission exemption levels set forth in the DOI regulations (30 CFR 250.57) and thus the impacts are determined to be insignificant. The Platform Gail air quality impact assessment performed by SAI for Chevron confirms this. Maximum predicted impacts are within the DOI significance levels and the pertinent PSD increments; total impacts (increment + background) are less than the NAAQS.

### 4.4.3 Cumulative Impacts

Platform Gail would not contribute to inert cumulative impacts for the following reasons:

- o very small incremental impacts are expected from Gail
- o inert pollutants generally cause localized impacts, and
- o there is an extremely small chance of plume overlap from remote sources which might result in cumulative impact concerns.

The most convincing reason is the negligible contribution from Gail. SAI (1984) has shown that the estimated impacts in Ventura County range from about 1/50th to 1/500th of the measured peak background concentration. In Santa Barbara County, the estimated impacts are substantially less. These small increments are more than an order of magnitude less than the reporting precision of the local APCDs and CARB. In addition, due to the conservative model used in the analysis (COMPLEX II/OCS), the actual impacts are probably much less. Complex terrain model evaluation studies indicate that COMPLEX II overestimates maximum 1-hour concentrations by factors of 10 to 20, 3-hour concentrations by factors of 8 to 15, and 24-hour concentrations by 5 to 20 (Wackter and Londergan, 1984 and Gutfreund et al., 1983).

To assess cumulative ozone impacts, the Joint Interagency Modeling Study (JIMS) (SAI, 1986) is used. The purpose of JIMS was to determine the impact that proposed OCS exploration and development activities would have on air quality in the South Central Coast Air Basin (SCCAB). The offshore sources in the study consisted of 12 existing platforms, 9 proposed platforms (Gail was one of these), and 4 hypothetical platforms. Subsequent to the JIMS analysis, proposed OCS development has

been reduced in scope. Modeling scenarios with and without proposed OCS development at two future years, 1990 and 1995, were considered.

Results of JIMS show that full OCS development would have minor impacts to onshore Ventura County (including Anacapa Island). Onshore ozone concentrations in Ventura County (including Anacapa Island) would increase from 0.000 to 0.002 ppm -- an increase of less than 2 percent of the federal standard.

#### 4.5 Impact on Water Quality

##### 4.5.1 Impact from Normal Operations

Impacts to water quality could arise from project-generated turbidity and from the following liquid discharges: hydrostatic test water, sanitary and domestic wastes, desalinization brine, excess cement slurry, completion fluids, deck drainage, non-contact cooling water, produced waters and drilling muds and cuttings. Accidental oil spills are discussed in Section 4.5.2. These discharges, all occurring to greater or lesser extent during life of the project, may produce varying levels of impact on nearby water quality ranging from turbidity to changes in the levels of temperature, salinity, pH or trace metals. See Chevron's ER (Westec, 1986) and DPP (Chevron, 1986) for further details concerning the disposal methods of these discharges.

Significance criteria for water quality impacts are founded on EPA water quality criteria which are in turn based on definitions of release zones, initial mixing and limiting permissible concentrations (40 CFR 125 Subpart M and 40 CFR 227). A release zone (also referred to as a Zone of Initial Dilution--ZID) is a circle described by a radius of 100 m (330 ft). Initial mixing of any discharges takes place within the ZID and are assumed to be fully mixed within four hours. Limiting Permissible Concentrations (LPC) are those which do not exceed 0.01 of a concentration shown to be acutely toxic to appropriate sensitive marine species. No LPC's may be exceeded beyond the ZID.

A significant impact to water quality occurs if any of the above conditions are violated. Water quality criteria for waters within the Channel Islands National Marine Sanctuary boundaries are identical to those described above. In addition, any NPDES permit issued will follow the same EPA water quality criteria which, by definition, also delineates insignificant impacts to water quality (i.e., the violation of EPA water quality criteria would result in a significant impact to water quality).

Construction. Increases in turbidity will occur during the construction phase due to equipment barge anchor movement and platform jacket placement on the seafloor. Due to the depth of water, no turbidity should rise to the surface, although some portion of the water column will be clouded. Any turbidity will be diluted and dispersed by the prevailing currents.

Discharged hydrostatic test water, sanitary and domestic wastes and brine from desalinization operations will conform to the standards of the individual NPDES permit which will be issued for the construction phase. All impacts to the water quality from these discharges will be temporary and minor and thus, insignificant. See Chevron's ER (Westec, 1986) for further details.

Normal Operations. The operational phase of the proposed project includes both the drilling and production programs (see Section 2.4.1). The amount and type of the effluents produced during these programs will be different because of the changing levels of drilling activity, numbers of producing wells, numbers of personnel involved, and the volume of oil produced during the life of the project. For example, once the drilling program is complete (six years), only intermittent discharges of muds and cuttings will occur (due to well workover operations, if any) and concurrently, the volume of produced waters will peak. With the exception of drilling muds and cuttings, the discharge point of all the effluents discussed below will be located just below the surface of the receiving waters.

Discharges of sanitary and domestic wastes, seawater distillation brine, excess cement and non-contact cooling water will conform to the standards of the individual NPDES permit which will be issued for the operations phase of the project. These discharges will result in an insignificant impact to the water quality. Volumes of these effluents (Section 2.1.7; Westec, 1986; Chevron, 1986) will vary over the life of the project.

Completion fluids consist mostly of seawater with weighting agents in the form of salts (EPA, 1985). No discharge of excess completion fluids will exceed NPDES permit standards resulting in an insignificant impact to the receiving waters.

Engine and pump room deck drainage consists of oil and water that is washed off the decks of the platform, collected, cleaned and discharged in accordance with the NPDES permit limitations (Section 2.1.7). Since the effluent will be cleaned of hydrocarbons to the extent required by EPA, an insignificant impact to the water quality is expected. A discussion detailing the procedures used in the oil/water separation process is contained below in the section addressing formation waters.

Formation waters will be separated from the crude oil stream, cleaned of oil and discharged through a disposal caisson. Monitoring requirements of hydrocarbons contained in produced waters will be addressed in the individual NPDES permit to be issued by the EPA for the development/production phase of the project. Formation water is essentially a brine with trace levels of heavy metals, oil-related hydrocarbons and other organics (e.g. phenols, nitrogen and sulfur heterocyclids), cyanide, ammonia, sulfide and other chemicals and solid (mineral) matter (ADL, 1985). Pre-discharge treatment procedures of produced water are described in Chevron's ER, Section II (Westec, 1986). Following discharge, initial dilution should be adequate to reduce the concentration of these constituents to below federal and state water quality standards within the zone of initial dilution. This conclusion is generally supported by the review conducted by Middleditch (1984). However, if emulsion breaking and reverse emulsion breaking chemicals are to be utilized during the dehydration process, some impacts to the local water quality may occur. The results of toxicity tests conducted with some of the chemicals used in the oil/water separation process indicated short-term toxicities (96 hours) of toxic to moderately toxic (ADL, 1985). These toxicity tests, however, were not conducted on standard marine species or, in some cases, even on aquatic species. Therefore, while some level of toxicity may be applied to these chemicals, no precise definition may be determined at this time. In addition, because of the lack of specific testing, only an estimation of impact due to chronic toxic effects may be determined. In any case, no NPDES standards will be exceeded by the discharge of formation waters. Thus, impacts to the water quality by the discharge of formation waters will be insignificant due to the dilution and mixing which will take place within the ZID.

Drilling is expected to be carried out over a six year period and it is estimated that a total of 102,672 bbls of cuttings and 30,600 bbls of drilling muds will be discharged during that time (Westec, 1986). Chevron plans to use either EPA-approved Generic Mud Numbers 5 or 7. If Chevron must use chrome lignosulfonates at anytime, the used drilling fluids will be barged to shore and disposed. Chevron modelled the dispersion of muds and cuttings from Platform Gail utilizing the Offshore Operators Mud Discharge Model. A typical EPA-approved generic mud (No. 7) and six different sets of oceanographic conditions were used in the simulation. The model and its results are presented in Section 10 of the ER (Westec, 1986). Based on that discussion and other technical documents (ADL, 1985; Continental Shelf Assoc., 1984; EPA, 1985; NRC, 1983; URS, 1985; and Westec, 1986), impacts to water quality from the discharge of muds and cuttings during drilling operations on Platform Gail will be short-term and minor in nature. The only model scenario that results in the degradation of the water quality within state or sanctuary

boundaries is number 6. The discharge point is approximately 1,111 m (0.6 nm) from the Channel Islands National Marine Sanctuary boundary. The results of the model state that the plume would be carried to a point 3.3 nm from Anacapa Island. This point is well within the sanctuary boundary or 6,240 m (20,470 ft) from the discharge source. The particulate concentration was calculated to be 0.29 mg/l (1 mg/l = 1 ppm). The state of the water quality under these concentrations would be essentially nondegraded (NRC, 1983). In terms of toxicity, the worst LC-50 calculated for the eight EPA-approved generic muds was 30,000 ppm (Generic Mud #1). The modelled scenarios indicate that a discharged mud plume will reach 100 m (the boundary of the ZID) in approximately 12 to 15 minutes. At that point, the concentration would be < 0.1 ppm for the fluid component and approximately 100 ppm for the mud solids component of the drilling fluid plume. These concentrations do not violate the Limiting Permissible Concentration criteria established by EPA. Thus, there will be an insignificant impact to the water quality from the discharge of drilling fluids to the marine sanctuary waters as well as to marine waters in general.

Of all the additives contained in drilling fluids, barium has proven to be the most useful as a tracer in determining the physical fate of fluid discharges (Boothe and Presley, 1983). Chemically, barium is very inert being relatively insoluble in seawater (Chow, 1976; Church and Wolgemuth, 1972). Barium concentrations found in seawater may be due to suspended particulates rather than dissolved barium (Brannon and Rao, 1979). Barite toxicity has been found to be low to most organisms (Daugherty, 1951; Grantham and Sloan, 1975; Dames and Moore, 1978) except for copepods and algae (EGandG Bionomics, 1976) where mortality was probably due to physical abrasion. Generally, both lethal and sublethal effects of barite can be traced to its physical action including changes in sediment grain size composition, rather than toxicity (Brannon and Rao, 1979; Cantelmo, et al., 1979; Conklin, et al., 1980; Tagatz and Tobia, 1978; Tagatz, et al., 1980). While barium is known to be bioaccumulated (Brannon and Rao, 1979; Conklin, et al., 1980), the chemical form and physiological significance of elevated barium concentrations in barium-exposed animals is unknown. Two general reviews of the studies conducted on barium and barite in drilling fluids may be found in EPA (1985) and NRC (1983).

Abandonment. Effluents discharged during abandonment will be identical in type to those described in the construction section. While the volumes of the effluents are unknown at this time, no significant impacts to the water quality are anticipated. Levels of turbidity may increase when the platform is removed depending on the method of removal and the final disposition of the structure. The increased turbidity will be dissipated by currents resulting in insignificant impacts to water quality.

#### 4.5.2 Impact from Accidents

Accidents occurring during drilling and production activities that may affect water quality are generally associated with the discharge of hydrocarbons. Other possible types of accidents (e.g., explosion and fire due to  $H_2S$ ) may deposit debris such as soot or equipment into the sea. These items will not significantly degrade water quality.

Spilled oil may have several effects on the water quality, both locally around the discharge point and areally as the slick disperses and spreads. These effects, which will exhibit varying levels of impact depending on the circumstances of the spill (e.g., the depth of the point of initial discharge, rate of discharge, volume of discharge, etc.) are: toxicity, odor and biochemical oxygen demand and dissolved oxygen (Westec, 1986).

The toxicity of oil spilled into seawater is primarily determined by the weathering processes the slick undergoes over time. The most toxic components of crude oil are also the most volatile. These low molecular weight compounds evaporate into the atmosphere during the first few days after initial exposure leaving the longer-chained carbon molecules on or just under the sea surface. The resulting tarry mass is much less degrading to water quality insofar as toxicity to plankton and nekton is concerned. The tar balls, ropes or 'mousse' may adsorb to particulate matter in the water column and sink to the bottom, or they may be washed ashore.

Odor may be considered a function of toxicity because the compounds that contribute to the odor are the most highly volatile and hence, are the first to evaporate. Under certain conditions, a concentration as small as five parts per thousand of oil in water may be olfactorally detectable (Alyakrinsekaya, 1965). This concentration may be toxic depending on the type of hydrocarbons spilled.

Dissolved oxygen levels may be affected because the slick may prevent  $O_2$  exchange at the air/sea interface. Under these conditions, respiratory activity and increased biochemical oxygen demand from the presence of the oil itself may cause slightly decreased levels of dissolved oxygen (Kolpack, et al., 1971). In general, oxygen levels would be maintained by photosynthesis and mixing by waves except under certain relatively rare circumstances (e.g., extremely calm conditions where large concentrations of planktonic organisms are in evidence).

Several processes occur when oil is spilled on water that greatly affect the water quality parameters addressed above. Among these are spreading, evaporation, dissolution, dispersion, emulsion formation, sedimentation, auto- and photo-oxidation, biological processes and tar residue formation. Several researchers, Mackay

et al. (1983), Boehm and Fiest (1980), Jordan and Payne (1980), Walter and Proni (1980) and University of Rhode Island (1981) have documented these processes. A study conducted during the Ixtoc I spill in 1980 found oil concentrations of > 20 ug/l at 20 m (62 ft) depth, 25 km (15.5 mi) from the well. However, the total concentration of waterborne, low molecular weight aromatics (alky benzenes and naphthalenes) in water near the well fell in the 0.5-500 ppb range, and concentrations of total waterborne dispersions were in the 100-10,000 ppb range. The researchers (Boehm and Fiest, 1980) reported that these values fell well within the range of observable effects on marine organisms.

Probability estimates of one or more oil spills ( $\geq 1,000$  bbls) occurring from Platform Gail during the life of the project were calculated using the MMS Oil Spill Risk Analysis Model (OSRAM). The model results indicate that the probability of an event of this type occurring is unlikely (the results of the risk analysis conducted by Dames & Moore similarly indicated an unlikely probability of an oil spill occurring from Platform Gail). See Section 4.1 for further information.

#### 4.5.3 Overall Conclusions

Impacts to marine water quality from turbidity due to construction and abandonment procedures are expected to be insignificant due to the local (within 1,000 m (3,280 ft)) nature of the perturbation, the limited timeframe of the operations, and the issuance of NPDES permits by the EPA. Impacts from the minor discharges (sanitary and domestic wastes, desalinization brines, non-contact cooling water, deck drainage, completion fluids and excess cement) during normal operations are also expected to be insignificant for identical reasons.

The overall impact to the water quality from effluents discharged during normal operations is expected to be insignificant. Impacts to the water quality within the marine sanctuary boundaries will also be insignificant. No impact is expected to occur within the 1,000 m (3,280 ft) buffer zone outside state waters, within state waters, or along the mainland coast between Pitas Pt. and Anacapa Island. Similarly, impacts to the water quality from discharged drilling muds will be reduced to zero upon cessation of discharge (approximately 6 years). Water quality impacts from the discharge of formation waters are expected to be insignificant locally, although detectable changes to water quality parameters (pH, temperature, turbidity) will occur within the zone of initial dilution.

The estimated probability of one or more oil spills ( $\geq 1,000$  bbls) occurring from Platform Gail during the life of the project is considered by MMS to be an unlikely event; thus, no significant impact to the water quality by an oil spill from the Gail project is estimated.

#### 4.5.4 Cumulative Impacts

Potential sources of cumulative impacts with Platform Gail are listed in Section 4.2. Onshore projects are unlikely to contribute to any cumulative impacts due to 1) their distance from the Gail site and/or 2) the volume of their discharges which are generally small. Other OCS project effluents are also unlikely to combine with any of Platform Gail's discharges because of the distance between the facilities, the dilution of the discharges (see above discussions of muds and cuttings, formation waters, etc.) and because any discharges from Platform Gail will result in a very small incremental increase in the total volume of all effluents currently being discharged into the Santa Barbara Channel.

Platform Gail will be the only OCS facility within three miles of Marine Sanctuary waters that will be discharging a produced waters effluent. Produced waters from Platforms Gina and Gilda are piped ashore, treated, piped back to the platforms and reinjected into the strata. In addition, no development drilling is occurring on either platform. Therefore, no cumulative impacts are likely to occur to the waters of the Marine Sanctuary.

Since none of the discharge plumes from other OCS development activities will interact or combine with any of Platform Gail's discharges, it is unlikely that regional, and thus cumulative, impacts will occur due to the addition of Platform Gail to the OCS.

The cumulative probability of oil spill occurrence from all sources is shown in Table B.4-1 in Appendix B.4. The calculations indicate that the Platform Gail project will result in a very low incremental addition to the cumulative expected number of spills or the probability of one or more spills of  $\geq 1,000$  or  $\geq 10,000$  bbls occurring in the southern California OCS. The cumulative analysis conducted by Dames & Moore for Chevron, while using a different approach, indicated a similar conclusion.

#### 4.6 Impact on Biological Resources

The significance criteria used in the impact analysis of biological resources are presented below. Additional or different criteria apply to some resources. Refer to the specific resource for further information on these criteria.

An impact is considered to be locally significant if it is likely to directly or indirectly cause measurable change in a) species composition or abundance beyond that of normal variability or b) ecological function within a localized area for 5 to 10 years or longer (long-term). Measurable changes for less than 5 to 10

years would be short-term impacts. For an impact to be locally significant, the size of the localized area would be relatively small compared to that of ecologically equivalent area in the immediate region. The threshold for significance is determined by scientific judgement and considers the relative importance of the habitat and/or species affected.

An impact is considered to be regionally significant if it is likely to directly or indirectly cause a measurable change in a) species composition or abundance beyond that of normal variability or b) ecological function within several localized areas or a single large area for 5 to 10 years or longer (long-term). Measurable changes for less than 5 to 10 years would be short-term impacts. The amount of affected area, relative to that available in the region, is determined as for locally significant impacts. This determination considers the importance of the species and/or habitat affected and its sensitivity to impact.

Impacts which do not meet these criteria are considered to be insignificant. The criteria are based on significance criteria that were adopted by URS (1985).

#### 4.6.1 Impact on Intertidal Benthos

A potential oil spill is the only impacting agent from the proposed project which could affect the intertidal environment.

##### 4.6.1.1 Impact from Accidents

Oil Spills. The MMS Oil Spill Risk Analysis Model (OSRAM) utilized spills  $\geq 1,000$  bbls to estimate joint (final) probabilities. The MMS joint probabilities indicate that an oil spill  $\geq 1,000$  bbls occurring at Platform Gail and contacting the Northern Channel Islands, National Park, and Channel Islands is unlikely for 3, 10, and 30 day trajectories (Dames and Moore joint probabilities are relatively smaller). Coastal mainland intertidal environments (McGrath State Beach to Carpinteria State Beach) are not expected to be impacted by an oil spill  $\geq 1,000$  bbls from Platform Gail since the final probabilities of the MMS oil spill risk analysis indicate an unlikely probability of spill occurrence and contact with land segment 30 for 3, 10, and 30 day trajectories. Similarly, the MMS final probabilities indicate the unlikely occurrence of a spill  $\geq 1,000$  bbls contacting Santa Cruz Island and Anacapa Island for 3, 10, and 30 day simulated trajectories (Dames and Moore final probabilities are smaller than the MMS values in the last two cases). Based on the estimated probabilities which are considered unlikely, no significant impacts to the intertidal environments are expected from accidental oil spills. Chevron's Oil Spill Contingency Plan would be implemented to reduce potential impacts to the intertidal environments (islands and coastal mainland) for small

(< 1,000 bbls) and large ( $\geq$  1,000 bbls).

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to the intertidal environment.

In the unlikely event of an oil spill (well blowout, pipeline break, etc.), potential impacts to intertidal habitats could occur near the mainland coastal areas. In addition, Anacapa Island and other islands within the National Marine Sanctuary and National Park could be impacted due to such a spill. Impacts due to oil spills have been characterized as lethal (toxicity), sublethal (physical and mutagenic effects), and habitat alteration (change in size and function) (Westec, 1986).

Briefly, oil that reaches intertidal shores would cause mortality to both sandy and rocky intertidal organisms. During the 1969 Santa Barbara oil spill, certain species incurred mortality of up to 100 percent, while other species incurred noticeable mortalities, were harmed only slightly, or were apparently unharmed (Straughan, 1977; Foster, 1974; Foster et al., 1971). The extent of damage from spills depends largely on the residence time of the oil on the impacted intertidal area (Gundlach and Hayes, 1979). Recovery of damaged rocky intertidal areas to a pre-disturbance structure will depend upon the vertical level of the intertidal zone impacted (Murray and Littler, 1979; 1980). Recovery of rocky intertidal species can range from several months to over ten years (Vesco and Gillard, 1980). In most cases, the extent of damage to a sandy beach intertidal community from a large oil spill will be less than that to a rocky community. The extent of the damage is largely unknown, but is generally not expected to result in the complete destruction of a community. Refer to URS, 1985; ADL, 1985; BLM, 1979; 1981; and MMS, 1983; City of Oxnard and USGS, 1980; and USGS, 1976 for further discussions on the effect of oil spills on intertidal resources.

Conditional oil spill model probabilities by MMS indicate a likely chance of a hypothetical spill ( $\geq$  1,000 bbls) from Platform Gail contacting the Northern Channel Islands, including the National Park, and Channel Islands after 3, 10, and 30 days during spring, summer, autumn, and winter (Dames and Moore conditional probabilities are similar, although slightly less). Simulations from the MMS oil spill model indicate a range (unlikely to likely) of conditional probabilities that an oil spill originating from Platform Gail and along the transportation route segments (L1, L2, L3 and L4) could contact McGrath State Beach to Carpinteria State Beach within 3 days. Likewise, for 10 and 30 days, conditional probabilities for spill contact with land segment 30 range from unlikely to likely (Dames and Moore

conditional probabilities are similar, although slightly larger for the 3 day (Winter) and 10 day (Autumn) trajectories). Based on MMS seasonal conditional probabilities, the hypothetical spills would primarily move to the coastal mainland during spring and summer, and to both the coastal mainland and Channel Islands during fall and winter.

Based on the foregoing analysis, MMS does not estimate oil spill related impacts to occur to the intertidal environment as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.1.3 Overall Conclusions

Impacts on the intertidal environment are expected to be insignificant from construction, normal operation, and abandonment associated with the proposed action. MMS does not estimate oil spill related impacts to occur due to low estimated probability of spill occurrence.

#### 4.6.1.4 Cumulative Impacts

Potential impacts from the proposed Platform Gail project could cause small incremental effects with other oil and gas development scenarios in the Santa Barbara Channel and Santa Maria Basin. The intertidal environment could be potentially impacted by accidental oil spills. Previous environmental documents have described cumulative impacts on the marine environmental resources (includes intertidal habitats) in the Santa Barbara Channel and Santa Maria Basin (City of Oxnard and USGS, 1980; A.D. Little, 1984; SAI, 1984; URS, 1985). In the unlikely event of an oil spill, potential cumulative effects on intertidal resources could result in a range of insignificant to significant impacts (local to regional) to the coastal mainland and major intertidal areas such as Anacapa Island depending upon the spill's physical and chemical characteristics, spill size and oceanographic and seasonal conditions (URS, 1985).

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect the intertidal environment in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from existing and future petroleum activities (platforms, pipelines and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

In conclusion, Platform Gail is not anticipated to result in a significant incremental addition to cumulative effects on the intertidal environment.

#### 4.6.2 Impact on Subtidal Benthos

The potential impacts on the subtidal environment would be caused primarily by habitat displacement, platform discharges, and oil spills.

##### 4.6.2.1 Impact from Normal Activities

Construction. Impacts to the subtidal benthos due to construction activities from the proposed project are as follows: installation of the platform legs and pipelines would cause increased turbidity, alteration and displacement of the soft bottom benthic habitat at the platform site and along the pipeline corridor. Anchor placement would cause local and temporary insignificant impacts due to disturbance and displacement (URS, 1985). Soft bottom displacement would be approximately 200-300 square meters (2100-3200 square feet) per anchoring event (includes anchor and chains). However, rapid recolonization of the affected benthic area is anticipated. The nearest hard bottom areas are present on Anacapa Island and the northern half of Lease OCS-P 0524, both approximately 20 km (12 mi) from the proposed platform site. These areas would not be impacted by the proposed action. Therefore, construction activities would have insignificant (local) impacts on the subtidal benthic environment.

Normal Operations. Potential impacts from normal operations on the subtidal benthic communities include increased turbidity, fauna burial, alteration of sediment, and potential for bioaccumulation due to discharges (drill muds and cuttings) within the immediate vicinity of the platform site. The potential impacts on the subtidal benthic organisms from discharges would be localized and limited to a 1,000 m (3,280 ft) radius of the platform site for muds and 100-200 m (328-656 ft) for cuttings (Westec, 1986). Hence, insignificant (local) impacts are expected due to rapid dilution of the discharges as indicated from results of the Offshore Operators Mud Model (Westec, 1986). Also refer to Section 4.5.

Abandonment. Platform and pipeline removal would impact the subtidal benthic habitats similar to that described in Section 4.6.1.1 for the intertidal environment. Therefore, insignificant (local) impacts on the subtidal communities are expected.

##### 4.6.2.2 Impact from Accidents

Oil Spills. Results of the conditional and joint (final) probabilities from the MMS Oil Spill Risk Analysis Model (OSRAM) are discussed in Section 4.6.1.2. Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this

mathematical prediction of spill contacts, the following impacts could occur to the subtidal environment.

The principal effect of an oil spill on subtidal benthic communities would be smothering by weathered oil that has been deposited to the ocean bottom (SAI, 1983; A.D. Little, 1984; URS, 1985). Potential impacts could include depletion of food sources, alteration of species abundance, lowered recruitment, and lethal or sublethal toxic effects. These potential impacts would remain until substantial weathering, chemical, or microbial activity (degradation) occurred.

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to the subtidal environment as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.2.3 Overall Conclusions

Impacts on the subtidal environment are expected to be insignificant from construction, normal operation, and abandonment associated with the proposed action. MMS does not estimate oil spill related impacts to occur due to low estimated probability of spill occurrence.

#### 4.6.2.4 Cumulative Impacts

Potential impacts from the proposed Platform Gail project could cause small incremental effects with other oil and gas development scenarios in the Santa Barbara Channel and Santa Maria Basin. The subtidal environment could be potentially impacted due to platform discharges and accidental oil spills.

Previous environmental documents have described cumulative impacts to subtidal habitats in the Santa Barbara Channel and Santa Maria Basin (City of Oxnard and USGS, 1980; A.D. Little, 1984; SAI, 1984; and URS, 1985). In the unlikely event of an oil spill, potential cumulative effects on subtidal resources could result in a range of impacts (insignificant to significant) on a local or regional basis depending upon the spill's physical and chemical characteristics, spill size, and oceanographic and seasonal conditions (URS, 1985).

The proposed action represents only a very low contribution to the overall cumulative oil spill risk that could affect the subtidal environment in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from existing and future petroleum activities (platforms, pipelines and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

In conclusion, no significant incremental addition to cumulative effects on the subtidal environment is anticipated as a result of the Platform Gail project.

#### 4.6.3 Impact on Fish Resources

Potential impacts to marine fish resources from the proposed Platform Gail project would most likely result from: (1) discharges (e.g., drill muds, cuttings, produced water, etc.) from the platform, and (2) oil spills which may directly or indirectly impact marine fish resources. As discussed in Section 3.4.3, most marine fishes are widely distributed and abundant throughout the Santa Barbara Channel and, therefore, they are not expected to be impacted by discharges or oil spills from the proposed Gail project. The northern anchovy, however, is of greater concern since it is both an important consumer of plankton, as well as a critical forage species for both fishes and seabirds. In particular, the endangered brown pelican relies almost exclusively on the anchovy as a prey organism. For this reason, the following discussion is restricted to an analysis of impacts to the northern anchovy.

##### 4.6.3.1 Impact from Normal Activities

Impacts to northern anchovy (and other marine fishes) associated with construction, operation, or abandonment of the Platform Gail project are not expected to be significant. The reasons for this conclusion are presented in Section 5.0.

##### 4.6.3.2 Impact from Accidents

Oil Spills. Based on the MMS Oil Spill Risk Analysis Model (OSRAM), and the estimated joint probabilities of oil spills ( $\geq 1,000$  bbls) originating from Platform Gail or its associated pipeline, it is considered unlikely such spills will occur, move towards, and contact the eastern Santa Barbara Channel mainland or eastern Channel Island areas (Santa Cruz and Anacapa). Although these estimated spill probabilities are considered unlikely, they are somewhat higher for the mainland (segments 30 and 31), than for the Channel Islands. Since these estimated probabilities are considered to be unlikely, no significant impact to marine fishes, including northern anchovy, are expected from accidental oil spills. If small spills (which are more likely) occur, or even a larger ( $\geq 1,000$  bbls) spill occurs, Chevron's Oil Spill Contingency Plan should serve to reduce the potential for impacts to northern anchovy occurring in the project area and eastern Santa Barbara Channel.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the

following impacts could occur to fish resources (northern anchovy).

As discussed in Section 4.7.1.2 of this EA, MMS OSRAM results (i.e., conditional probabilities) indicate the Santa Barbara Channel Mainland and the eastern Channel Islands (Santa Cruz and Anacapa) are at the greatest risk from oil spills originating at Platform Gail or along the associated subsea pipelines. Since northern anchovy are pelagic, schooling fishes, their distribution in time and space is not as predictable as that of demersal or nearshore species. Despite the fact we cannot predictably determine their location and abundance, it is not unreasonable to assume that they occur throughout much of the eastern Santa Barbara Channel since (1) commercial anchovy fishing (i.e., purse seining) has historically occurred there, and (2) California brown pelicans on Anacapa Island rely almost exclusively on anchovy as a prey resource.

A considerable number of laboratory exposure studies have been conducted on adult and early life history stages of northern anchovy using various petroleum hydrocarbon components or whole oil (MBC/SAI, 1983). The laboratory study most useful for assessing oil spill impacts to northern anchovy (and other species) in the Santa Barbara Channel was conducted by MBC/SAI (1983). This study clearly demonstrated that both early and adult life stages of northern anchovy experienced lethal and sublethal effects following exposure to the water soluble fraction of Santa Barbara crude oil at concentrations of 10-600 parts per billion. Although the results of these experiments supported much of what has been previously reported, they also indicated that all three life history stages of anchovy (and halibut) were more sensitive to petroleum hydrocarbon exposure than a review of previous literature suggested. In large part, these different experimental results were due to the flow-through (i.e., constant concentration) exposure regime, and continuous monitoring of exposure levels that MBC/SAI (1983) employed.

Although previously cited laboratory studies, including the recent MBC/SAI (1983) experiments, have shown that the embryos, larvae, and adults of fishes can be adversely impacted by petroleum hydrocarbon exposure, most oil spill case history studies in open water and sandy or rocky, nearshore subtidal habitats have failed to demonstrate significant impacts on fish populations (Tetra Tech 1982). In particular, Ebeling et al. (1971) were unable to show any short-term effects on the species composition or abundance of fishes in a variety of habitats due to the 1969 Santa Barbara oil spill.

Adult pelagic fishes, such as northern anchovy, can be expected to avoid the area of an oil spill and migrating slick. Such species are active, schooling fishes and are not restricted to a limited area or habitat. Although studies by MBC/SAI (1983)

suggest that northern anchovy may suffer direct mortality, gill damage, and modified behavior if exposed to water soluble crude oil components for extended periods (30 days) in a relatively low concentration (200 ppb), such a scenario is highly unlikely to actually occur due to the active nature and broad habitat requirements of northern anchovy, and natural dispersion. For these reasons, oil spill impacts to pelagic species are considered to be potentially adverse, but not significant. Since anchovy are oviparous (i.e., produce large numbers of eggs) and have a broad geographic distribution and spawning area, it is not clear what effect localized mortality of early life history stages could have on adult populations. However, species having more restricted distributions and relatively low population sizes are probably at greater risk than species such as northern anchovy that are more broadly distributed and have larger populations.

#### 4.6.3.3 Overall Conclusions

Based on the foregoing analysis, MMS does not estimate oil spill related impacts to occur to northern anchovy as a result of the proposed action due to the low estimated probability of spill occurrence. Impacts on fish resources are expected to be insignificant from construction, normal operation, and abandonment associated with the proposed action.

#### 4.6.3.4 Cumulative Impacts

Normal activities (construction and operation) associated with cumulative development in the Santa Barbara Channel are not expected to significantly affect northern anchovy. This is because construction activities occur over a small area and are short-term in nature, while operational activities (e.g., discharges) occur over small areas and are regulated by NPDES discharge permits issued by the EPA.

The proposed action represents only a very low contribution to the overall cumulative oil spill risk that would affect northern anchovy in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

In conclusion, no significant incremental addition to cumulative effects on the northern anchovy is anticipated as a result of the Platform Gail project.

#### 4.6.4 Impact on Marine Mammals

##### 4.6.4.1 Impact from Normal Activities

Construction. Installation of Platform Gail would generate noise and create some disturbances at the platform site and along vessel and helicopter traffic corridors. The duration of these disturbances is expected to be six months. Impacts to offshore marine mammals from this noise and disturbance are expected to be insignificant. Most likely, the only offshore mammals which may be aware of the project construction will be individual foraging pinnipeds and groups of small cetaceans. Although there are no studies of the effects of OCS noise on pinnipeds, results of studies on the effects of various acoustic devices developed for the purpose of harassing pinnipeds (Mate and Miller, 1983; Awbry and Thomas, 1984) indicate that individual pinnipeds may have to be closer than 100 m to the activity before measuring any response. Most likely, pinnipeds and both large and small cetaceans occurring offshore will avoid the area of activity, an insignificant impact. Endangered whales are discussed in detail in Section 4.6.6.1.

During construction, a crewboat will travel to the platform site from the Carpinteria Pier an average of twice per day (2 round trips). The pinniped breeding and hauling area located near the Carpinteria pier has existed in close proximity to similar and ongoing crewboat activities for several years. Breeding activities at this rookery are not expected to be adversely affected by the addition of more support boat trips associated with Platform Gail (Wildlife Group, verbal comm., 5/19/86). Potential impacts of support activities are expected to continue to be insignificant.

Normal Operations. Normal platform operations will generate noise, vessel and helicopter traffic, and discharges of drill muds and cuttings, formation waters, sanitary and domestic wastes, and desalinization brines. As discussed for construction activities, the noises generated by the platform are not expected to disturb marine mammals. Marine mammals will be able to detect the platform noise at variable distances from the platform. The detection of these noises may cause avoidance of the immediate area surrounding the site by most marine mammals. Exceptions are harbor seals which have frequently been observed hauling out on mooring cans surrounding several existing platforms in the project area.

During normal operations, crewboats will be required to make approximately two roundtrips per day from Carpinteria Pier to the platform. During the production phase, crewboats and supply vessels will originate from the Carpinteria Pier. As discussed for construction activities, the additional trips are not expected to adversely affect breeding or hauling harbor seals located

nearby the Pier.

Discharges from the platform are not likely to contact marine mammals unless individuals are located within a very localized area (i.e., within 1000 m) surrounding the platform. Water quality criteria within this zone are not expected to exceed EPA's standards to be set forth in the individual NPDES permits for Platform Gail (see Section 4.5.1). Impacts to marine mammals from platform discharges are not well understood, however, in the unlikely event that individuals were exposed to a discharge plume it is likely that the encounter would be short term and insignificant to the future health of the individual.

Abandonment. Potential impacts to marine mammals from platform abandonment would be similar to those discussed for the construction phase. An exception would be the likely use of explosives during platform abandonment. Exposure to blasting could cause physical injury, hearing loss, abortion of young, and even death to some marine mammals. If abandonment activities occurred during the gray whale migration, several animals would be exposed to this potential impact. The NMFS and CDFG have recommended procedures to mitigate by avoidance the potential for adverse impacts to whales from exposure to explosive charges (NMFS, 1985). Specific details of platform abandonment procedures, including the use of explosives, will be evaluated in Chevron's Platform Abandonment Plan and reviewed by the MMS at that time. Agencies responsible for the protection of marine life will be contacted for guidance and review.

#### 4.6.4.2 Impact from Accidents

Vessel Collisions. Collisions between marine mammals and crew and supply boats are not considered to be likely events. Marine mammals are capable of both detecting and avoiding oncoming vessels and most likely would avoid collisions. All boat operators are required to participate in the Fisheries and Wildlife Training Program (Westec, 1986) and are well aware that marine mammals occur in the study area. Existing oil and gas support vessel traffic in the Santa Barbara Channel has not resulted in any incidents with marine mammals (Dana Seagers, NMFS, verbal comm., 3/28/86).

Oil Spills. Both MMS and Dames and Moore models estimate the joint probability of one or more oil spills  $\geq 1,000$  barrels occurring and contacting breeding marine mammal populations on San Miguel Island within 3, 10 or 30 days as unlikely for all seasons. Based on the very low expected incident of an oil spill occurring and contacting one of these areas, the distance of major breeding areas from the project area, impacts to most marine mammals from an accidental oil spill are expected to be insignificant. If small spills (which are more likely) occur, or even a larger ( $\geq 1,000$  bbls) spill occurs, Chevron's Oil Spill

Contingency Plan should serve to reduce the potential for impacts to marine mammals.

Through the use of mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to marine mammals.

A review of the potential impacts to marine mammals may be found in numerous documents (Westec, 1985; URS, 1986; ADL, 1985; MMS, 1983; City of Oxnard & USGS, 1980; Santa Barbara County et al., 1979; USGS, 1976; BLM, 1975, 1979, 1981). The vulnerability of marine mammals to oil has been the subject of several studies (Geraci and St. Aubin, 1985; Williams, 1978; Siniff et al., 1982; Baker et al., 1981; Geraci et al., 1983; Kent et al. 1983). These studies have shown that mammals which rely on hair or fur for insulation are potentially the most severely impacted. Conductance of heat through sea otter and northern fur seal pelts can double after oiling (Kooyman et al., 1977; Kooyman, Gentry and McAllister, 1976). To compensate for heat loss, these animals must increase their metabolic rate (Costa and Kooyman, 1982) and consequently their consumption of food. The stress of greatly increasing metabolic rates, may place the health of oiled individuals in serious condition generally leading to death by disease or starvation. In addition to being a poor insulator, attempts to groom oiled fur may lead to ingestion of oil. In contrast, cetaceans, phocid seals, and some sea lions would be resistant to the thermal effects of oil since their skin or pelts have little intrinsic insulative value (Geraci and St. Aubin, 1985). Pelts from phocid seals and California seal lions show little or no change in heat conductance after oiling (Oritsland, 1975; Kooyman et al., 1977). All marine mammals would undoubtedly experience irritation and inflammation of eyes and sensitive mucous membranes following contact with oil (Geraci and St. Aubin, 1985).

Marine mammals may or may not be able to detect oil. Studies have shown that dolphins can detect oil and, under certain circumstances, will avoid it (Geraci et al., 1983). Whales observed swimming through naturally occurring oil seeps in the Santa Barbara Channel (Kent et al., 1983), spent less time at the surface and breathed at a faster rate.

Although individual marine mammals may be found foraging throughout the study area, those areas described in Section 3 which function as breeding and hauling areas are considered the most sensitive to marine mammals. Most are located within the boundaries of the Channel Islands National Marine Sanctuary. Although it is unlikely that an oil spill will occur, conditional oil spill model probabilities estimated by the MMS indicate that a spill from Platform Gail is likely to contact some area within

the northern Channel Islands and Channel Islands Marine Sanctuary within 3, 10, and 30 days during all seasons (Dames and Moore conditional probabilities are slightly less). Of greatest concern are potential contacts to marine mammal breeding and hauling areas on San Miguel Island. Both Dames & Moore and MMS conditional probabilities predict an unlikely chance of a spill originating at Platform Gail and contacting San Miguel Island within 3, 10 or 30 days for all seasons. MMS conditional probabilities for pipeline spills to contact San Miguel are also estimated as unlikely for the 3, 10 and 30 day scenarios, for spring and summer seasons. Winter and autumn conditionals are slightly higher depending on the location of the spill along the pipeline.

Overall, impacts to most marine mammals are expected to be insignificant. In the unlikely event an oil spill occurs and contacts marine mammals, Pinnipeds, especially the fur seals, and sea otters could experience impacts ranging from locally to regionally significant depending on the number of animals contacted. Based on the foregoing analysis, MMS does not oil anticipate spill related impacts to occur to marine mammals as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.4.3 Overall Conclusions

Impacts to marine mammals from normal activities associated with Platform Gail are expected to be insignificant. The most likely impact is that marine mammals will generally avoid the immediate area of the platform, especially during construction and abandonment. MMS does not estimate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.6.4.4 Cumulative Impacts

Marine mammal populations are not expected to experience any significantly adverse impacts during the life of the project. Population sizes of pinnipeds within the study area have been increasing for the last decade (Bonnell and LeBeouf, 1980; Stewart and Yokum, 1985), and are likely to continue. Other than those species listed as threatened or endangered, most of the cetacean populations which occur in the area are healthy. Northern fur seals appear to be declining but are no longer under consideration for listing as threatened. Harbor porpoise populations have also shown declines, presumably due to entanglement in commercial fishing gear. The addition of Platform Gail is not expected to significantly increase the potential for adverse impacts to the health of marine mammal populations. At present, entanglements in fishing nets are exerting the heaviest impacts on marine mammals in the study area. Recent legislation passed by the State of California appears to be reducing these incidents significantly (Marine

Mammal Commission, 1985). Launches of the space shuttle may also contribute to impacts to marine mammal populations breeding on San Miguel Island in future years.

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect marine mammals in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail. Given that these estimates do not predict the location of a spill or if contact with a marine mammal will occur, expected impacts are difficult to assess. The recent addition of Mr. Clean III to the Point Conception/Pedernales area should provide increased protection for the large marine mammal populations at San Miguel Island.

#### 4.6.5 Impact on Marine and Coastal Birds

Marine and coastal birds may be vulnerable to several potentially adverse impacts from activities associated with Platform Gail. Noise and disturbances due to the operation of crew and supply vessels could interrupt feeding and nesting activities, discharges from platform operations could affect prey availability, and accidental oil spills could cause mortalities. An evaluation of oil spill risk from Platform Gail has been performed by MMS (1986) and Dames and Moore (1985). Details of the model inputs and results are provided in Section 4.1.1.

##### 4.6.5.1 Impact from Normal Activities

The construction, installation, and normal platform operation of Platform Gail is not expected to expose marine and coastal birds to any significantly adverse impacts. Disturbances of seabirds resting or feeding offshore will be minor and short-term. Potential impacts to seabird prey (i.e., plankton, forage fish) from platform discharges are not well understood. Due to the patchy nature of these prey and the very small area of discharge, it is doubtful that if impacts were adverse they would have a measurable impact on seabird prey availability. Discharges are not expected to exceed EPA's NPDES standards for water quality (see Section 4.5.1). Potential impacts to fish resources are discussed in Section 4.6.3. Platform abandonment activities have the potential for adversely impacting individual birds which may be present during blasting activities. The CDFG has recommended procedures for reducing adverse impacts associated with the use of explosives in the marine environment and monitors all such activities. Specific details of platform abandonment procedures, including the use of explosives, will be evaluated in Chevron's Platform Abandonment Plan and reviewed by the MMS at that time. Agencies responsible for the protection of marine life will be contacted for guidance and review.

#### 4.6.5.2 Impact from Accidents

Oil Spills. Both the MMS and Dames and Moore models estimate the joint probabilities of one or more oil spills  $\geq 1,000$  bbls occurring and contacting breeding colonies at San Miguel, Santa Barbara or Anacapa Islands within 3, 10 or 30 days as unlikely for all seasons. Based on the very low expected incident of an oil spill occurring and contacting these areas, the wide and seasonal distribution of most species within the study area and elsewhere, impacts to marine and coastal birds from an accidental oil spill are expected to be insignificant.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to marine and coastal birds.

The most potentially detrimental impact to marine and coastal birds would occur if contact was made with an accidental oil spill. Different species vary in their vulnerability to contacting a spill due mainly to differences in behaviors. A description of seabirds, their vulnerability and potential impacts is contained in the ER for Platform Gail (Westec, 1986). Direct contact with oil could result in the matting of plumage which can reduce flying and swimming abilities, loss of buoyancy which can inhibit the ability to rest or sleep on the water, loss of insulation which can cause death from exhaustion, and increased physiological stresses and reproductive failures due to oil ingestion or accumulation of toxic petroleum hydrocarbons (Hunt, 1985; Nero and Associates, 1983; Clark, 1984). Acute toxicity may result. Birds that do not die from ingested oil would likely suffer reduced health, and generally animals in poor condition do not survive very long in the natural environment. The level of mortality due to the toxicity of oil cleaned from feathers or ingested with food is uncertain. However, these impacts could add to the direct contact effects and delay recovery time. These effects may be compounded during the nesting season if adult birds transfer oil from their plumage to unhatched eggs or chicks causing mortality. Longer term or sublethal effects of oil include delayed and depressed egg laying, reduced hatching and reduced growth rate due to poor nutrient uptake (Hunt, 1985).

Marine and coastal seabirds are widely distributed throughout the project area. The most sensitive areas and highest concentrations of birds occur in nearshore waters surrounding Anacapa Island (MMS land segment 45), San Miguel Island (MMS land segment 39, 40), Goleta Slough, Carpinteria Marsh, Santa Clara River, Mugu Lagoon, and sandy beaches and offshore rocks along the mainland coast, and Channel Islands. MMS conditional

probabilities indicate the chance of a spill occurring and contacting some portion of the Channel Islands National Marine Sanctuary and National Park within 3, 10 or 30 days as likely during all seasons (Dames and Moore estimates are slightly lower). While it is difficult to predict the numbers of seabirds which may be contacted in different areas, some estimates can be made based on their seasonal occurrence in the area. Losses of individual birds would not be significant. Seabirds who concentrate for breeding purposes, such as Cassin's auklets at San Miguel Island from March through July, Xantus' murrelet at Santa Barbara Island from March through July, and western gulls at Anacapa Island from April through August are potentially the most vulnerable to sustaining regionally significant impacts from an oil spill. Individuals of other species which are widely distributed throughout the study area are not likely to incur impacts exceeding local significance from contact with an oil spill.

MMS and Dames and Moore conditional probabilities for a spill originating at Platform Gail and contacting San Miguel Island within 3, 10 or 30 days are considered unlikely for most of the year. The highest MMS conditional probabilities predicted are for pipeline spills in the winter season contacting within 10 or 30 days, but are still estimated as unlikely. MMS conditional probabilities for a spill originating at Platform Gail and contacting Santa Barbara Island are also estimated to be unlikely during all seasons. (Dames and Moore estimates are similar). Oil spill response capabilities for containing, diverting and protecting sensitive areas, including the protocol for dispersant use are addressed in Westec (1986) and Chevron's Oil Spill Contingency Plan (1985).

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to marine and coastal birds as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.5.3 Overall Conclusions

Impacts to marine and coastal birds from construction, abandonment and normal activities associated with Platform Gail are expected to be insignificant. MMS does not anticipate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.6.5.4 Cumulative Impacts

Marine and coastal birds are not expected to experience any significantly adverse impacts during the life of the project. With the exception of those species listed as threatened or endangered, most populations occurring within the study area are healthy. Diving birds, such as murres and grebes, have recently

suffered large mortalities outside the project area from accidental (non-OCS) oil spills (i.e., Puerto Rican incident, Apex Houston spill), and/or reproductive failures due to the effects of El Nino. Similar reproductive failures may occur this year due to a local "California" El Nino (K. Briggs, verbal comm., 4/25/86). The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect marine and coastal birds in the study area. Refer to Section 4.2 and Appendix B.4 for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

Space shuttle launches over nesting colonies at San Miguel Island could adversely impact nesting species within the project area (Cassin's auklet and pelagic coromoran). The National Park Service is currently monitoring seabird populations throughout the Bight to assess these impacts if they occur.

In conclusion, no significant incremental addition to cumulative effects on marine and coastal birds is anticipated as a result of the Platform Gail project.

#### 4.6.6 Impact on Endangered and Threatened Species

Potential impacts to endangered and threatened species have been addressed in a separate report (Seeman and Assoc., 1986) prepared for the purposes of consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act. This report "Endangered Species Analysis - Platform Gail" (ESA) is included in this EA as Appendix A.3. The MMS concurs with the discussions and conclusions regarding the potential and expected impact of activities associated with Platform Gail and incorporates them herein by reference. The following discussions are provided to briefly summarize the conclusions stated in the ESA and to present new information (i.e., results of MMS oil spill risk modeling). The Biological Opinions issued by the NMFS and USFWS are presented and addressed in Appendices A.1 and A.2, respectively. Reasonable and prudent measures to minimize or avoid incidental take identified from these consultations have been incorporated in Section 2.1.4. The significance criteria used for this resource correspond to those listed at the beginning of Section 4.6 and in Seeman and Assoc. (1986).

##### 4.6.6.1 Impact from Normal Activities

Construction. Noise and disturbance associated with the construction and installation of Platform Gail is likely to be detected by endangered whales which may be present in the area. Other than the gray whale, the few individuals of each species which may occur would only be present for a short period while

migrating to feeding or breeding areas outside of the study area. The most likely reaction of these whales is that they will avoid the activity sites.

As currently planned, pipelaying operations are scheduled to begin in October and be completed by the end of November. Gray whales migrate through the project area December through May. It is possible that individual gray whales could begin arriving in the project area during construction, especially if the construction is delayed and extends into December. Although gray whales would likely be aware of the project activities, detection is unlikely to cause adverse impacts. It is also possible that the installation date of Platform Gail could be delayed for unforeseen reasons. If the installation of the Platform overlapped the gray whale migration period potential impacts are still expected to be insignificant. Based on the results of MMS funded studies of the response of gray whales to industrial noise, observations of gray whales in the vicinity of platforms, and the history of growth in the gray whale population, the National Marine Fisheries Service has concluded that gray whales are not likely to be affected adversely by the construction activities for several previous OCS platforms (NMFS, 1984b; 1985a; 1985b). The typical response of a gray whale as they approach a source of noise appears to be a minor adjustment in their course so that they pass by the source at a distance of about 180 m (200 yards) (Bolt, Bernack, and Newman, 1983). In previous consultations for OCS platforms NMFS has determined these minor course changes to avoid noises do not have an adverse effect on migrating gray whales. Most of the whales will pass inshore of the project site, and outside and in-between the Channel Islands. Potential impacts to other listed species due to construction activities are considered negligible and insignificant.

Normal Operations. The response of endangered whales to normal activities associated with the operation of Platform Gail will be similar to those discussed for the construction phase. The most likely impact would be a minor course change to avoid the platform. The majority of gray whales migrating through the vicinity of the project are likely to pass inshore of the platform site, particularly during the northbound migration. Vessel and helicopter traffic to and from the platform should not disturb or annoy the whales provided restrictions on approaching endangered whales are observed.

Responses of threatened and endangered species to platform discharges have not been studied, however, it is very unlikely that any listed species will encounter plumes of discharge exceeding NPDES standards. Plumes of drilling muds and formation waters are noted to travel variable distances from platforms, usually at subsurface depths. Most listed species occur on or above surface waters. Since gray whales are reported

to avoid turbid waters, are constantly moving, and spend most of their time on the surface, they are not likely to encounter a formation plume. There is no evidence to suggest that contact with a plume would cause any adverse impacts to listed species.

Other listed species are unlikely to be affected by normal platform activities. A possible exception could be indirect effects to brown pelicans if a disruption in the food chain of their major prey, northern anchovy, was impacted by discharges. This is not considered a likely event. Potential impacts to the northern anchovy are discussed in Section 4.6.3.

Abandonment. The abandonment of Platform Gail would have similar impacts to listed species as those discussed for the construction/ installation phase. Depending on the season, several thousand or only a few endangered whales will be in the range of detection of the project activity. Adverse impacts are not expected under either scenario. An exception might be the likely use of explosives during platform abandonment. Exposure to blasting could cause physical injury, hearing loss, loss of calves, or death to listed species. Several marine turtles are suspected to have died as the result of explosives use during platform abandonment in the Gulf of Mexico (Lehman, MMS, verbal comm., 4/28/86). The NMFS has recommended procedures to mitigate the potential for adverse impacts to listed species from exposure to explosives (NMFS, 1985). The CDFG also has recommended procedures for protection of marine life and requires onsite monitoring of all marine activities involving the use of explosives. Specific details of platform abandonment procedures, including the use of explosives, will be evaluated in Chevron's Platform Abandonment Plan and reviewed by the MMS at that time. Agencies responsible for the protection of marine life will be contacted for guidance and review.

#### 4.6.6.2 Impact from Accidents

Vessel collisions. Collisions between endangered whales and oil and gas support vessels are not considered to be likely events. As mentioned previously, there have been no reported incidents of this nature in the Santa Barbara Channel which is currently heavily used by both marine mammals and crew and supply boats (Dana Seagers, NMFS, verbal comm., 3/28/86).

Oil Spills. Based on the low joint probability of one or more spills  $\geq$  1,000 bbls occurring and contacting areas of special importance to threatened and endangered species, the expected impact of an oil spill from Platform Gail is considered insignificant. MMS estimates of the total annual probability of a spill occurring at the platform and contacting threatened or endangered species at Goleta Slough, Carpinteria Marsh, Santa Clara River, or Mugu Lagoon within 3 days are predicted to be unlikely. Dames and Moore estimates are lower except for

contacts to the area between Ventura and Pt. Mugu during spring and summer, but are still predicted to be unlikely. Total probabilities for contacts to Anacapa and Santa Barbara Islands (nesting areas for the brown pelican) are also unlikely using both MMS and Dames and Moore Modeling results. If small spills (which are more likely) occur, or even a larger ( $\geq 1,000$  bbls) spill occurs, Chevron's Oil Spill Contingency Plan should serve to reduce the potential for impacts to threatened and endangered species in the study area. Expected impacts to threatened and endangered species from Platform Gail activities are expected to be insignificant.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to threatened and endangered species:

Reptiles - As discussed in the ESA the four listed reptiles which may be present in the project areas occur infrequently, and as individuals. The effects of oiling on marine turtles is not well understood. Young marine turtles have been reported to eat tar balls which may seal their mouths and interfere with normal breathing (Geraci and Aubin, 1985; Hall et al., 1983). There are no nesting areas within the project area and most individuals are distributed south of the project area. Since the occurrence of marine turtles in the project area is infrequent and not predictable, conditional probabilities are of little use in predicting potential impacts. Given the very low expectation of any oil spill occurring, and the low numbers of individuals which may be present in the project area, potential impacts to listed turtles are considered to be insignificant.

Birds - Potential impacts from contact with an accidental oil spill vary with each species. Bald eagles and Peregrine falcons are the least vulnerable to contacting oil since they do not normally contact water. The primary mechanism for their contacting oil would be indirect, by the consumption of oiled prey. An oiled Peregrine was found following the ARCO Anchorage spill in Port Angeles last December (Michael Fry, U.C. Davis, verbal comm., 7 January 1986). This bird was successfully rehabilitated and released. Due to the low numbers of these species which may be in the project area, the low MMS conditional probability of a spill reaching an area where these species are found (i.e., Point Conception\Gaviota\Anacapa for Peregrines and Catalina Island for bald eagles), it is unlikely that either species would experience impacts exceeding local significance. However, the loss of even one bald eagle, or Peregrine would be locally significant due to their low numbers in the southern California area.

Light-footed clapper rails would be directly vulnerable to oil if oil entered occupied habitat at either Carpinteria or Mugu lagoon. Goleta marsh is currently unoccupied and clapper rail habitat to the south is not considered vulnerable based on conditional probabilities from the MMS and Dames and Moore models. The highest MMS conditional probabilities predicted for a spill occurring at Platform Gail and contacting to Carpinteria Marsh or Pt. Mugu within 3 days occur during the winter and spring, but are estimated to be unlikely (Dames and Moore estimates the highest contact probabilities in spring, but these are also unlikely). Higher contact probabilities are predicted to occur for spills originating along existing pipelines (i.e., contacts to Carpinteria Marsh within 3 days from a nearshore pipeline spill are estimated to be likely). Due to recent losses of clapper rails in the southern part of their range, loss of additional pairs of clapper rails would have regionally significant impacts.

California least tern populations are most vulnerable to impacts from an oil spill while foraging at sea. Terns are only present in the project area late spring through summer, for pre-and post-breeding purposes. Oil spills which contact areas offshore of breeding areas (Mugu Lagoon, Ormond Beach, Santa Clara River) and major post-breeding areas (Mugu Lagoon) have the potential for causing the highest impacts. The highest MMS conditional probabilities for a spill originating at Platform Gail contacting these areas within 3 days are estimated as unlikely (Mugu Lagoon - summer and spring; Santa Clara River - summer); Ormond Beach was not a target. The highest conditional probabilities estimated by Dames and Moore are also unlikely (Mugu Lagoon - spring; Ormond Beach - spring; and Santa Clara River - summer). MMS conditional probabilities for contact to these areas from a pipeline spill are significantly higher, and are estimated to be likely. The highest risk is from a spill between Gail and Grace contacting Santa Clara River within 3 days during the summer. Loss of individual terns foraging offshore would have locally significant impacts. If oil impacted colonies at Point Mugu, which is the largest colony in the project area, several birds, including fledglings, could potentially be impacted. Losses could attain regionally significant levels.

California brown pelicans forage widely throughout the project area most of the year. An large oil spill occurring during any season would have a likely potential of contacting several individuals of this species. Potential impacts to the pelican could be insignificant to regionally significant depending on the season and number of birds impacted. For example, a large uncontained oil spill contacting a mainland concentration area or breeding area near Anacapa and Santa Barbara Islands has the potential to cause regionally significant impacts. If the colony at Anacapa was impacted during a time when nesting or fledging activities were underway potential impacts could be regionally

significant. Recently, this period has been protracted due to early reproductive failures and relaying by pelicans at Anacapa. In 1985 and again this year, nesting and fledging activities have occurred almost year round (peaking early winter through summer). Impacts to fledglings would be most noticeable since young up to one year of age are most vulnerable to starvation and predation, they congregate in large numbers on rocks at the waters edge, and spend a great deal of time in the water while learning to dive (Gress, UCD, verbal comm., 4/24/86). Adult nesting birds could contaminate eggs if oiled resulting in mortality to the egg (Grau et al., 1977), or abandonment of the nesting attempt (Fry, UCD, verbal comm., 12/8/86). Juvenile, non-breeding birds may be more dispersed throughout the project area, but are reported to contact oil with a greater frequency than adults (Nero and Associates, 1983). Studies conducted near natural oil seeps in the Santa Barbara Channel suggest that adult pelicans may avoid oil (Nero and Associates, 1983). However, it is doubtful that behaviors noticed in response to the light-oil slicks and mild fumes at Coal Oil Point are directly applicable to the kind of slick which may occur in a major oil spill.

MMS conditional probabilities for an oil spill originating at Platform Gail and contacting Anacapa Island within 3 days are estimated to be unlikely for winter, spring, summer, and fall (Dames and Moore estimates are slightly lower). The highest conditional probabilities for contact of a spill from Platform Gail within 3 days to Santa Barbara Island are estimated to be unlikely for winter, spring, and fall (Dames and Moore estimates are zero). Pipeline spills are less likely to impact pelican populations. The highest MMS conditional probabilities for a pipeline spill to contact Anacapa Island within 3 days occur in winter and autumn for the pipeline segment between Platforms Gail and Grace. Brown pelicans have been present on Anacapa almost year-round, but peak in late winter through summer.

It is important to recognize that a spill  $\geq$  1000 bbls at any location within the project area is likely to contact individual brown pelicans, any time of the year (Gress, UCD, verbal comm., 4/24/86). Trajectories from both the MMS and Dames and Moore models estimate the highest conditional probabilities for spills contacting somewhere along the mainland coast between Ventura and Pt. Mugu within 3 days during the spring. While it is likely that most brown pelicans will be concentrated near colonies on Anacapa and Santa Barbara Island at this time, all pelicans will be foraging throughout the project area looking for food (Gress, UCD, verbal comm., 5/6/86). Concentrations of pelicans will occur wherever their food appears. Historically, the major brown pelican feeding has occurred over the waters between Anacapa Island and Ventura/Pt. Mugu, however, brown pelicans will feed where they find food. Over the past several years, peak abundance of northern anchovy, their major food item, has occurred in shallow waters near the mainland, south of Anacapa,

and north of Point Conception. In other words, other than impacts to the colony itself at Anacapa, oil spill trajectories are of limited use in predicting potential impacts to this species. Pelicans do not normally remain at sea overnight but instead return to specific roosts, usually by late afternoon but occasionally several hours after sundown (Briggs, unpub. MS). This behavior could serve to either reduce the chance of a bird contacting a spill at night, or increase the chance of several birds being contacted in one of the concentration areas. Potential impacts could range from locally insignificant to regionally significant depending on the number of individuals impacted. Because of the heavy usage of the project area by brown pelicans, smaller spills (less than 1,000 bbls) also have the potential to impact several individuals. Most small spills reported in Pacific OCS waters are less than 1 barrel (MMS file data). These small spills are less likely to contact large numbers of birds, causing significant impacts, and are also easier to contain and divert with on-scene oil spill response equipment. Losses from these small spills are not likely to exceed the incidental take identified by USFWS for this project.

In the event a major spill occurred, oil spill response efforts would be directed to divert (or disperse if approval was obtained) oil from areas of brown pelican abundance. Specifics of oil spill response capabilities, including the onsite response boat for handling small spills are presented in Chevron's Oil Spill Contingency Plan. Effective diversion or dispersion of oil from brown pelicans is critical since the potential for capture and rehabilitation of this species is almost nonexistent (Gress, UCD, verbal comm., 4/24/86; Hoefler, Monterey SPCA, verbal comm. 4/15/86).

Mammals - Potential impacts to endangered cetaceans are similar to those discussed in Section 4.6.4. Oil has not been demonstrated to cause significant impacts to cetaceans (Geraci and St. Aubin, 1985). Gray whales have been observed swimming through oil slicks in the Santa Barbara Channel without apparent harm and have been doing so for several decades (NMFS, 1985a). This species may be capable of detecting oil since observers have noted minor behavioral changes (i.e., gray whales spent less time on the surface and breathed at a faster rate). Potential impacts to other endangered whales may be similar and are considered to be insignificant.

The southern sea otter and Guadalupe fur seal are extremely sensitive to oil and may easily die from exposure if the insulatory function of their hair or fur is lost due to oiling. Loss of individuals would have an insignificant impact at the population level, but would be locally significant due to the very low numbers of each species which may be present in the project area. Loss of individuals could preclude the natural expansion into the area by each species, a goal of NMFS and USFWS

## Recovery plans.

Plants - The only endangered plant, salt marsh bird's beak is most vulnerable to an oil spill during high tides (particularly in winter). Individuals of this species occur primarily in upper marsh elevations that are inundated by tides on a regular basis (but above areas which receive daily salt water flooding) and occasionally outside areas of tidal influence. Location of the plants, combined with existing capabilities for booming off small lagoons suggest that large numbers of the species are not likely to be vulnerable to contacting oil most of the year. Large populations at Carpinteria Marsh and Mugu Lagoon are not likely to sustain significant impacts from an oil spill.

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to threatened and endangered species as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

### 4.6.6.3 Overall Conclusions

Normal project activities, including installation and abandonment, are expected to have insignificant impacts on listed species. MMS does not estimate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

### 4.6.6.4 Cumulative Impacts

Threatened and endangered species in the study area have suffered population declines primarily due to loss of suitable habitat, weather, pesticide pollution and/or commercial whaling activities. Most recently, weather has had a major impact to several of these species resulting in reproductive failures of clapper rails and brown pelicans. Clapper rail population numbers are alarmingly low. Brown pelicans may again be suffering from a lack of available food (Gress, UCD, verbal comm., 4/24/86), but have been attempting second nesting efforts following losses. The addition of Platform Gail will not result in additional loss of wetlands habitat required by the light-footed clapper rail or salt marsh birds's beak, or sandy beaches required by nesting least terns. Platform discharges, most of which are diluted quickly or settle to the bottom, are not expected to cumulatively affect listed species (see Section 4.5). Potential effects of these discharges are not completely understood. However, all discharges will be subject to the requirement of NPDES permits issued by the EPA. Platform Gail will result in an incremental increase in the background noise in the project area, detectable by endangered cetaceans. Existing noise levels appear to be within acceptable limits to these species. The addition of Platform Gail is not likely to increase noise levels above "threshold", and thus will not cause significant impacts to listed species.

The proposed action represents only a very low contribution of the overall, cumulative oil spill risk that would affect threatened and endangered species in the study area. Refer to Section 4.2 and Appendix B.4 for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail, both which estimate a spill to be likely. Total oil spill response capability within the study area has increased measurably within the last several years, due primarily to conditions imposed on OCS activities. The recent addition of Mr. Clean III to the Point Conception/Pedernales area provides additional contingency for oil spill response for the entire California coast.

In conclusion, no significant incremental addition to cumulative effects on threatened and endangered species is anticipated as a result of the Platform Gail project.

#### 4.6.7 Impact on Estuaries and Wetlands

Estuaries and wetlands are not anticipated to be impacted by construction, normal operations, or abandonment that is associated with the proposed action. Impacts are not anticipated from these activities due to the distances from the resources. Estuaries and wetlands may be impacted as a result of accidental oil spills.

##### 4.6.7.1 Impacts from Accidents

Oil Spills. Based on joint probabilities estimated by both the MMS and Dames and Moore oil spill models, it is unlikely that spills will occur and contact estuaries and wetlands in the project area. If small spills (which are more likely to occur), or even a larger ( $\geq 1000$  bbls) spill occurs, Chevron's Oil Spill Contingency Plan should serve to reduce the potential for impacts to estuaries and wetlands in the study area. Therefore, estuaries are likely to incur only insignificant impacts from the proposed action.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to estuaries and wetlands.

Potential impacts on estuaries and wetlands in the project area from oil spills  $\geq 1000$  bbls have been discussed in Chevron's ER (Westec, 1986) and elsewhere (URS, 1985; ADL, 1985; BLM, 1975; 1979; 1981; MMS, 1983a; City of Oxnard and USGS, 1980; Santa Barbara County et al., 1979; USGS, 1976).

Oil spill containment and diversion techniques are generally favorable for estuaries having openings less than 100 m (330 ft). In the Santa Barbara Channel, estuarine habitats have normal openings ranging from 0 to 30 m (0 to 100 ft). During wet winter months, maximum opening size can range from 400 m (1300 ft) (Goleta Slough) to 800 m (2600 ft) (Mugu Lagoon). Thus, during winter months, it would be very difficult to divert spills from the areas with openings > 100 m (330 ft). Based on MMS conditional oil spill results, Carpinteria Marsh is vulnerable to contact from a spill within three days during all seasons of the year (conditional probabilities estimate that contact is likely). The Santa Clara River area is less vulnerable with probabilities of contact within three days estimated to be moderately likely in the summer and spring. It is unlikely that this area would be contacted within three days during winter or autumn. It is unlikely that a spill would contact Mugu Lagoon within three days, during all seasons. Within ten days, conditional probabilities of contact are estimated to be moderately likely for summer and spring. It is very unlikely that Goleta Slough would be contacted during any season.

Based on the foregoing analysis, MMS does not estimate oil spill related impacts to occur to estuaries and wetlands as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.7.2 Overall Conclusions

Impacts on estuaries and wetlands in the project area are considered to be insignificant as a result of the proposed action. MMS does not estimate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.6.7.3 Cumulative Impact

Based on the discussions above, the proposed action (i.e., construction, normal operations, or abandonment) is not anticipated to result in an incremental addition to cumulative effects on estuaries and wetlands. The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that could affect estuaries and wetlands in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk both with and without the addition of Platform Gail.

In conclusion, no significant incremental addition to cumulative effects on estuaries and wetlands is anticipated as a result of the Platform Gail project.

#### 4.6.8 Impact on Areas of Special Concern

Areas of special concern, as described in Section 3.4.8 above, are not anticipated to be impacted by construction, normal operations, or abandonment that is associated with the proposed action. Impacts are not anticipated from these activities due to the distances from the resources. Areas of special concern may be impacted as a result of accidental oil spills.

##### 4.6.8.1 Impact from Accidents

Expected impacts on the areas of special concern in the study area from oil spills  $\geq 1000$  bbls are discussed in the appropriate sections of this EA (Sections 4.6.1 - 6). Based on joint probabilities estimated by both the MMS and Dames and Moore oil spill models, it is unlikely that spills will occur and contact areas of special concern. If small spills (which are more likely) occur, or even a larger ( $\geq 1000$  bbls) spill occurs, Chevron's Oil Spill Contingency Plan should serve to reduce the potential for impacts to areas of special concern. Therefore, areas of special concern are likely to incur only insignificant impacts from the proposed action.

Through the use of the mathematical techniques of oil spill modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to areas of special concern.

Potential impacts on the areas of special concern in the study area from oil spills  $\geq 1000$  bbls have been discussed in Chevron's ER (Westec, 1986; URS, 1985; ADL, 1985; BLM, 1979; 1981; MMS, 1983a; City of Oxnard and USGS, 1980; Santa Barbara County, et al. 1979; and USGS, 1976).

The potential impacts on the areas of special concern are discussed in the appropriate sections of this EA (Sections 4.5, 4.6.1 - 6). These discussions are based on conditional oil spill probabilities (as presented in the previously referenced sections), significant impacts could occur along the mainland coast from McGrath State Beach to Carpinteria State Beach and Mugu Lagoon to Latigo Point. Island areas of special concern that could incur significant impacts are the Northern Channel Islands. Impacts could occur to intertidal, subtidal, and pelagic habitats.

Based on the foregoing analysis, MMS does not estimate oil spill related impacts to occur to areas of special concern as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.8.2 Overall Conclusions

Impacts on the areas of special concern are considered to be insignificant as a result of the proposed action. MMS does not anticipate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.6.8.3 Cumulative Impact

Based on the discussions above, the proposed action (i.e., construction, normal operations, or abandonment) is not anticipated to result in an incremental addition to cumulative effects on the areas of special concern. The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that could affect areas of special concern in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk both with and without the addition of Platform Gail.

In conclusion, no significant incremental addition to cumulative effects on areas of special concern is anticipated as a result of the Platform Gail project.

#### 4.6.9 Impact on Channel Islands National Marine Sanctuary and National Park

The Channel Islands National Marine Sanctuary and National Park may be impacted as a result of construction, normal operations, and abandonment. The potential impacting agents include anchor placement, drill mud, cuttings, and formation water discharge (for the Sanctuary) and platform presence (for both the Sanctuary and Park). Potential impacts may also occur as a result of an accidental oil spill. In addition to the significance criteria that are listed in Section 4.6, impacts are also considered to be significant if the project violates any Federal law (e.g., Clean Water Act, Channel Islands National Marine Sanctuary Regulations, National Park Regulations, etc.).

##### 4.6.9.1 Impact from Normal Activities

Construction. Impacts to the Sanctuary may occur as a result of anchor placement. During installation of the platform, anchors may be placed within the Sanctuary boundary. This is based on the assumption that the scope of the anchor radius would be about six-times water depth. At the Platform site, water depth is 225 m (739 ft). Anchors could be placed about 245 m (800 ft) into the Sanctuary boundary. Anchors and anchor chain would crush soft bottom organisms. This is considered to be an insignificant impact due to the small area affected (about 200 - 300 m<sup>2</sup> (2150 - 3200 ft<sup>2</sup>) per anchor event, including anchor and chain) and since

the impacted area will be rapidly recolonized.

Normal Operations. Impacts to the Sanctuary may also occur as a result of drill mud, cuttings, and formation water discharge. These impacts are discussed in Sections 4.5 and 4.6 of this EA. Impacts from cuttings discharge are expected to be short-term and insignificant for the Sanctuary, since the platform would be located over 1110 m (0.6 nm) away. Results from Chevron's mud model (Westec, 1986, Section 10) suggest that impacts from mud discharge could have an insignificant impact on a small portion of the Sanctuary during three (winter) months of the year. All discharges would be subject to individual NPDES discharge permits to be issued by the EPA. This impact would cease when drilling is completed (about six years).

Visual impacts to the Sanctuary and Park may occur as a result of the presence of the platform. These impacts are discussed in Section 4.7.3 of this EA. The platform would likely be obscured from view by fog about 40 percent of the time during summer months. This is a period of heaviest visitor use. This is combined with the fact that the platform would be located about seven miles from Anacapa Island and will appear to be a small object on the horizon. Therefore, impacts are considered to be insignificant. The platform would be painted white so as to be highly visible to approaching vessels. This safety measure is necessary to help avoid any potential vessel collisions with the platform. This measure also represents a mitigation measure, which is part of the proposal, to help minimize visual impacts: the most highly visible color is day-glow orange. The white color would offset, somewhat, the orange color.

Abandonment. Impacts to the Sanctuary would occur as a result of abandonment of the platform. These impacts are similar to those discussed for construction, above. Abandonment of the platform would eliminate visual impacts to the Sanctuary and Park.

#### 4.6.9.2 Impact from Accidents

Oil Spills. Estimated impacts on the resources of the Sanctuary and Park from oil spills  $\geq$  1000 bbls are discussed in the appropriate sections of this EA (Sections 4.5, 4.6.1 - 6). Based on joint probabilities estimated by both the MMS and the Dames and Moore oil spill models, it is unlikely that spills will occur and contact the Sanctuary and Park. Therefore, the Sanctuary and Park are likely to incur only insignificant impacts from the proposed action.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to the Sanctuary and Park.

Potential impacts on the Sanctuary and Park from oil spills  $\geq$  1000 bbls have been discussed in Chevron's ER (Westec, 1986; URS, 1985; ADL, 1985; BLM, 1979; 1981; and MMS, 1983a).

The potential impacts on the Sanctuary and Park are discussed in the appropriate sections of this EA (Sections 4.5, 4.6.1 - 6, 4.7.3, and 4.7.5). These discussions are based on conditional oil spill probabilities (i.e., impacts are discussed should a spill occur). Briefly, based on conditional oil spill probabilities (as presented in the previously referenced sections), significant impacts could occur to physical, biological, and socioeconomic resources in the Sanctuary and Park. As discussed in Chevron's Oil Spill Contingency Plan, a major effort would be enacted to minimize the potential for a spill to contact the Sanctuary and Park. Both the MMS and U.S. Coast Guard have approved this plan and believe it represents a reliable and feasible method for oil spill response. Additionally, the platform will be painted white for high visibility for approaching vessels. This safety factor will help to reduce the potential for catastrophic oil spills.

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to the Sanctuary or Park as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.6.9.3 Overall Conclusions

Impact on the National Park is estimated to be insignificant. Insignificant impacts to a small portion of the Sanctuary could occur as a result of mud discharges during three (winter) months of the year and as a result of anchoring activity during construction. MMS does not anticipate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.6.9.4 Cumulative Impact

Based on the discussions above, the proposed action (i.e., construction, normal operations, or abandonment) is not anticipated to result in a significant incremental addition to cumulative effects on the Park. Mud discharges over the six year drilling period are predicted to have an insignificant effect on the water quality of a small, local portion of the Sanctuary. This represents the only oil and gas-related discharges to the Sanctuary. However, all discharges will be subject to individual NPDES permits to be issued by EPA. Also refer to Section 4.5. The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that could affect the Sanctuary and Park. Refer to Section 4.2 and Appendix B.4 for an analysis of the estimated spill risk from all existing

and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk both with and without the addition of Platform Gail.

In conclusion, Platform Gail is not anticipated to result in a significant incremental addition to cumulative effects on the Sanctuary and Park.

#### 4.7 Impact on Socioeconomic Resources

##### 4.7.1 Impact on Commercial Fisheries

The proposed Platform Gail project could potentially impact commercial fishing activities through: (1) preclusion (i.e., exclude from access) from traditional fishing grounds due to platform/pipeline construction activities, the physical presence of the platform and pipeline following installation, and debris, bottom alteration, and/or anchor scars; (2) damage to fishing gear from debris, the physical presence of the pipeline, and/or anchor scars; and (3) oil spills resulting in exclusion of vessels from fishing areas and/or direct effects on fishery resources. Additional impacting agents not considered to be potentially significant are discussed in Section 5.0 of this EA. A discussion of conflicts between the oil/gas and fishing industries, potential impacting agents on commercial fishing, and their relative significance is presented by Thompson (1984).

For the purposes of analysis for this resource category, impacts are analyzed for an area defined by the CDFG fish blocks 664, 665, 683. This area is referred to as the assessment area. As discussed in Section 3.5.1, the predominant types of commercial fishing thought to occur in the Platform Gail assessment area include purse seining for mackerel, drift gill netting for shark and swordfish, and otter trawling for rockfish, flatfish, and shrimp.

Impacts to commercial fishing are considered to be significant if one or more of the following criteria are met:

- 1) A 10 percent or greater loss of or exclusion from currently productive fishing grounds in the assessment area (local impact) or study area (regional impact) for all or most (as determined by professional opinion of the consultant) of a fishing season;
- 2) Affecting (through preclusion from fishing grounds) 10 percent or more of the fishermen using the assessment area (local impact) or study area (regional impact) for all or most of a fishing season; and

3) A one percent long-term (more than 5 years) or 5 percent short-term (1 year) or greater reduction in the productive area available for kelp harvest or mariculture in the assessment area (local impact) or study area (regional impact).

These criteria are based on the significance criteria that were adopted by URS (1985).

#### 4.7.1.1 Impact from Normal Activities

Construction. During construction of Platform Gail and the installation of pipelines to Platform Grace, commercial fishing activity is expected to be precluded from the immediate area occupied by structures, work vessels, anchors and lines, and buoys, as well as adjacent buffer zones that are avoided by fishermen to protect their gear from damages. The actual area precluded during construction will differ depending on the type of fishing gear considered. Installation and construction activities associated with Platform Gail are expected to occur for a four to six month period beginning in August 1986 (Westec, 1986). Installation and construction associated with Platform Gail itself would likely preclude all types of commercial fishing from a minimum area of 29.3 sq km (11.3 sq mi) assuming (1) construction zone (including anchor spread and support vessel buoys) around the platform site is a circle with a 2.1 km (1.3 mi) radius (Chevron, personal comm., 1986), and (2) fishermen observe a 1 km (0.6 mi) buffer zone around the construction site to avoid gear loss (Thompson, 1984; URS, 1985). Trawling, in particular, is likely to be precluded from a somewhat larger, spindle-shaped area, if it is assumed trawlers begin to avoid an obstruction at twice the distance they wish to circumvent the obstruction (URS, 1985). For Platform Gail, the area precluded from trawling is estimated to be 36 sq km (14.0 sq mi) for the duration of construction (i.e., 4-6 months). Purse seining and drift gill netting could potentially be precluded from a much larger area since fishing vessels employing these methods may drift considerable distances once their gear is deployed. As discussed in Westec (1986), the preclusion area for purse seining could range up to ten square miles. URS (1985) estimated that up to 189 sq km (73 sq mi) could be precluded from drift gill net fishing by a single platform in the northern Santa Maria Basin. Comparable estimates are not available for the Santa Barbara Channel.

Installation of the pipeline from Gail to Grace is expected to occur over a two month period from October through November 1986 (Westec, 1986). Assuming (1) a pipeline construction corridor that is seven times (i.e., 7:1 anchor spread) the water depth (Chevron, personal comm., 1986), (2) a 1 km (0.6 mi) buffer zone around the corridor, and (3) a pipeline corridor length of approximately 10 km (6.2 mi) (Westec, 1986), a minimum total area

of 28.5 sq km (11.0 sq mi) could be precluded from all types of fishing including otter trawling. As with the platform construction, it is likely that a larger area may be precluded from purse seining and drift gill netting. Unlike platform construction, however, the amount of area actually precluded at any given time during pipeline installation will be a much smaller area than that estimated for entire pipeline construction corridor, and this area will be constantly changing during the construction period as the pipelines are laid.

As discussed in Section 3.5.1, mackerel (jack and Pacific) are fished by purse seiners in the Platform Gail assessment area (Fish Blocks 684, 665, and 683), as well as other areas in the Santa Barbara Channel. Although mackerel are generally fished in water shallower than 91 m (300 ft) (Westec, 1986) and near the eastern Channel Islands (Squire, 1983), the size and location of catches is not highly predictable. Within the Platform Gail assessment area, harvests have varied considerably between years and Blocks, due in part to the behavior of the species, but also due to factors such as changing quotas and market demand. For these reasons, mackerel are considered available throughout the Platform Gail assessment area (approximately 800 sq km [300 sq mi] for the three Block area). During the platform and pipeline construction period from August through January (maximum), purse seine fishing could be precluded from an area of approximately 28.5 sq km (11.0 sq mi) (3.5% of assessment area). Because of the relatively small area likely to be precluded from purse seining, the availability of mackerel elsewhere, and the relatively short duration of construction (4-6 months), purse seining for mackerel is not expected to be significantly impacted from either platform or pipeline construction activities.

Drift gill netting for shark (thresher and bonito) and swordfish has historically occurred in the Santa Barbara Channel between May and January (see Section 3.5.1). As discussed in Section 3.5.1, however, most shark fishing has occurred further west of the Platform Gail assessment area, with peak catches between May and July. Similarly, the vast majority of drift gill netting for swordfish occurs well outside of the assessment area; typically, offshore and south of the Channel Islands. In 1986, and in the foreseeable future, drift gill netting will be closed from June through August and from February through April to protect the thresher shark resource, and from December through January (within 40 km [25 mi] from shore) to protect gray whales (see Section 3.5.1). Because of these closures for resource protection, and historical gill net fishing patterns that result in most of the fleet fishing for swordfish in offshore waters, little temporal overlap is expected between drift gill net fishermen and the proposed platform and pipeline construction areas. Since little seasonal overlap in space use is anticipated, and the area potentially precluded is small relative to the assessment area, no significant impacts to drift gill net

fishermen are expected from the proposed construction activities.

As discussed in Section 3.5.1, English sole, Petrale sole, rockfish, ridgeback prawn, and spot prawn are expected to be the principal species harvested by trawl-fishermen in the vicinity of the Platform Gail site and associated pipeline corridor. The available trawling area in the assessment area (Fish Blocks 665, 684, and 683) was estimated from a review of maps presented in Chevron's ER (Westec, 1986) and Centaur Associates (1984b). The percentage of available trawling grounds potentially precluded from use by the proposed construction activities was estimated using the assumed preclusion areas discussed previously.

For English and Petrale sole, approximately 12% of the available fishing grounds in the assessment area could be precluded from use for up to six months. However, only one of these months (January 1987) is included in the peak fishing season for these species. The entire pipeline construction corridor could preclude access from up to 12% of the available English and Petrale sole grounds; however, none of the proposed construction would occur during the peak winter months. Somewhat larger areas may be precluded from rockfish trawling areas (16% for the platform and 16% for the pipeline) due to construction activities, but as with the two species of sole, preclusion would only occur for a maximum period of three to six months (less than full season).

Trawling for spot prawn could be precluded by Platform or pipeline construction from up to 40-45% of the available grounds in the assessment area. However, the spot prawn grounds in this area are not well defined and it is uncertain how much area actually occurs in the immediate vicinity of the Gail project. Based on season closures, preclusion from platform and pipeline construction would occur for only three months (only one-third of the season) and one month (10% of season), respectively. The estimated preclusion area for pipeline construction is considered an overestimated worst-case since a much smaller area will actually be used for pipeline laying operations at any given time during construction.

Trawling for ridgeback prawns also occurs in the Platform Gail assessment area and could be precluded from trawling. As with spot prawn, the ridgeback trawl grounds are not well defined, and it is uncertain how much area actually occurs in the immediate vicinity of the project. Trawling for ridgeback prawn could be precluded from up to 40-45% of the available grounds in the assessment area. The length of this preclusion could range from three to four months for pipeline and platform construction, respectively. In the worst case, this could represent up to half the available season. As for spot prawn, the preclusion area for pipeline construction is considered a worst-case overestimate.

For each of these trawl fisheries, preclusion from construction is expected to be short-term (i.e., less than a full season), and to represent a relatively small area compared with that available for fishing in either the immediate assessment area (Fish Blocks 684, 665, and 683) or in the Santa Barbara Channel proper. Traditional trawl grounds for all of these species are available in areas adjacent to the assessment area or in other portions of the Channel and should not be affected by the proposed construction activities (see figures 3.5-2 and 3 in Westec, 1986; and visuals in Centaur Associates, 1984). For the reasons stated above, and since trawlers fish throughout the Channel, construction impacts on trawl fisheries are not expected to be significant.

To minimize any potential conflicts with commercial fishermen, Chevron proposes to notify fishermen of project construction schedules in the Coast Guard's Notice to Mariners. The proposed project has already appeared in the Santa Barbara Marine Advisory Newsletter. Thirty days prior to commencement of construction, Chevron will republish a construction schedule notice in the Oil and Gas project newsletter.

Normal Operations. During operation of the proposed Platform Gail, commercial fishing activity will be precluded from both the immediate area and that which is occupied by the platform itself. Assuming that fishermen observe a 1 km (0.6 mi) buffer zone around the platform, then a minimum area of 2.8 sq km (1.1 sq mi) would be precluded from direct use by all types of fishermen. Based on assumptions similar to those used for the construction analysis, a slightly larger area of 3.9 sq km (1.5 sq mi) is expected to be precluded from trawl fishing. For the purposes of this analysis, the operational platform is expected to preclude purse seining and drift gill netting from areas comparable to, or less than, those estimated for construction phase. Since the available fishing area precluded by platform operation is substantially less than that estimated for construction activities, impacts to trawl fishermen are not expected to be significant. Impacts to purse seiners and drift gill net fishermen are not expected to be significant for reasons discussed under construction impacts.

Normal operation of the proposed pipelines from Platforms Gail to Grace are not expected to significantly impact commercial fishing in the assessment area. Purse seining and drift gill netting will not be affected since net deployment for these gear types occur only in the water column. Trawling operations are not expected to be affected since: (1) Chevron has indicated that pipelines (and possibly pipeline connections) will be designed to eliminate the possibility for snagging or otherwise interfering with fishing gear operations (Westec, 1986) and (2) MMS requires (in accordance with OCS Order No. 9) that pipelines be compatible with fishing gear operations. If the pipeline did represent an

obstruction, or fishermen chose to avoid it, they would observe a buffer of approximately 0.40 km (0.25 mi) (Fisheries Liaison Office Meeting, personal comm., 1986). This would represent a preclusion area of only 3.9-7.8 sq km (1.5-3.0 sq mi) around the pipeline, and would not be considered significant.

Although the physical presence of pipelines is not expected to interfere with trawling operations, anchor scars resulting from pipeline installation could interfere with or preclude effective trawling operations (Centaur Associates, 1984). Such bottom disturbances could represent a long-term, local impact if they occurred over a large enough area, and are not mitigated. The proposed pipelines will be laid in an area that could be subject to anchor scarring. In the worst case, substantial portions of the pipeline construction corridor could be rendered unusable by trawling gear. MMS will require Chevron to minimize impacts to commercial fisheries, including trawling activities, through compliance with MMS OCS Order 9. These regulations address pipeline design and installation procedures.

Debris lost during construction activities may interfere with otter trawling during platform and pipeline operations. It is assumed that most debris would be lost within the construction areas previously estimated. Chevron will be required to conduct post-construction surveys of the platform and pipeline areas and all retrievable debris will be removed (Westec, 1986). If equipment is lost overboard, Chevron will be required to attempt to retrieve the object if it is likely to be retrievable (in other words, large enough to be located and pulled back aboard). If a piece of equipment is lost that proves to be irretrievable and which creates a sea floor obstacle, Chevron will be required to notify the Coast Guard of the situation, and to provide coordinates of the location. These requirements are specified in Pacific OCS Order No. 1. If the situation arises whereby fishermen are experiencing damage to their equipment, the proper procedures for the filing and processing of damage claims through the Fishermen's Contingency Fund or the Fishing Vessel and Gear Damage Compensation Fund will be followed. In addition, MMS requires as a policy that when substantiated reports of gear hand-ups are received by the Pacific OCS Region office, the incident is investigated and, if the investigation warrants, the operator must re-clear the site. Both of the compensation funds have been and are being extensively used to assist in mitigation of losses due to conflict between fishermen and oil and gas activities. The Pacific OCS Region assists the NMFS in processing such claims on a regular and continuing basis.

Abandonment. Abandonment of the proposed Platform Gail and all pipelines will be conducted in accordance with MMS OCS orders and regulations operating at that time. If all structures are removed as part of the abandonment procedures, impacts to commercial fishermen are expected to be insignificant as

discussed for construction activities previously.

#### 4.7.1.2 Impacts from Accidents

Oil Spills. Based on the MMS Oil Spill Risk Analysis Model, estimated joint probability of oil spills ( $\geq 1,000$  bbls) originating from Platform Gail or its associated pipeline, it is unlikely such spills will occur and contact the eastern Santa Barbara Channel mainland or eastern Channel Islands (Santa Cruz and Anacapa). Although these estimated spill probabilities are unlikely, they are somewhat higher for the mainland (segments 30 and 31) than for the Channel Islands. Since these estimated probabilities are considered to be unlikely, no significant impacts to commercial fishing are expected from accidental oil spills. If small spills (which are more likely) occur or even a larger ( $\geq 1,000$  bbls) spill occurs, Chevron's Oil Spill Contingency Plan should serve to reduce the potential for impacts to commercial fishing operations in the eastern Santa Barbara Channel. If a spill occurred and damages were incurred by commercial fishermen, the Federal Oil Spill Contingency Fund would serve to reduce impacts to fishermen.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to commercial fishing.

An oil spill from Platform Gail or its associated pipeline could affect all types of commercial fishing. Effects may be direct through exclusion from fishing grounds as fishermen avoid the spill area to protect their vessels and gear from fouling with oil or indirectly through lethal or sublethal toxic effects of petroleum hydrocarbons on all life stages of commercial species or their prey. Exclusion from fishing grounds would last until surface slicks have either been cleaned up or have dispersed through natural weathering mechanisms; a time period that could range from several days for small spills to several months for larger spills. Large quantities of oil remaining in the water column or along the bottom could extend the period of exclusion for fisheries that use nets or traps.

Conditional probability results (based on the condition that a spill occurs) from the MMS Oil Spill Risk Analysis Model (OSRAM) trajectory simulations indicate that large spills ( $\geq 1,000$  bbls) from either Platform Gail or its associated pipeline could contact the eastern Santa Barbara Channel mainland (between Santa Barbara and Port Hueneme) and both Santa Cruz and Anacapa Islands within three days of a spill. Conditional probabilities for ten and thirty days following a hypothetical oil spill indicate that the same geographic areas (i.e., eastern Channel Mainland, Santa Cruz, and Anacapa Islands) would be contacted. Conditional

probabilities were generally highest for the mainland, followed by Santa Cruz and Anacapa Islands, respectively. Maximum conditional probability values after thirty days indicated it is likely that a spill would contact the mainland (segment 30). In contrast, Anacapa and Santa Cruz Islands are unlikely to be contacted by a spill. Seasonal conditional probabilities suggest spills would move principally to the mainland in Spring and Summer, and to both the mainland and the Channel Islands in the Winter and Fall.

In the unlikely event that a spill did occur, oil spills following these trajectories could impact the principal commercial fishing activities in the study region (otter trawl, drift gill net, and purse seine), as well as those other types of fishing located along the mainland coastline and Santa Cruz and Anacapa Islands. Along the mainland, trawling, diving, trapping, and set gill netting are most likely to be affected, as well as possibly purse seining. Spills moving to the eastern Channel Islands are most likely to affect set gill netting, some trawling, diving, and trapping, as well as purse seining. Spills moving onshore, if large enough, could even force the temporary closure of harbors such as Ventura, Channel Islands Marina, and Port Hueneme.

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to commercial fishing as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.7.1.3 Overall Conclusions

Impacts on commercial fishing are expected to be insignificant from construction, normal operation, and abandonment associated with the proposed action. MMS does not anticipate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.7.1.4 Cumulative Impacts

Oil and gas related activities in the Santa Barbara Channel all have the potential to affect commercial fishing to some extent. Potential effects on the commercial fishing industry are, to a large extent, segregated geographically since most fishermen using the Santa Barbara Channel come from ports within the Channel. Exceptions were discussed in Section 3.5.1.2. Since both fishing activities and potential impacts are segregated geographically, the cumulative analysis which follows will focus on the Santa Barbara Channel area. Projects considered as part of the cumulative scenario for the Platform Gail project are presented in Section 4.2.

Cumulative impacts from oil and gas projects in the Santa Barbara Channel are most likely to occur for trawl, drift gill net, and possibly purse seine fishing. Some effects also could be felt by fishermen who use several gear types (e.g., those equipped for both set gear and drift fishing). Increased support vessel and tanker traffic associated with these projects will increase the potential for interference with all types of fishing and damage to fishing gear, particularly set gear and drift gill nets. In particular, boat traffic through nearshore waters could increase substantially in the vicinity of Ellwood and/or Gaviota due to developments that may occur there. Effects of increased vessel traffic would most likely be insignificant for all but set gear fishing.

Trawl fishing by the Santa Barbara Channel fleet could be affected by the Exxon Santa Ynez development, the ARCO Coal Oil Point Arguello state lease and possibly exploratory activities (depending on specific location). For example, concurrent construction of the proposed Chevron and Texaco Point Arguello Field project platforms and Platforms Sacate and Pescado A/B2 for the Exxon Santa Ynez Unit development could exclude dragging from a substantial portion of the rockfish grounds available in the western Santa Barbara Channel (Thompson, 1984). Exclusion from halibut dragging grounds was estimated in that document to range from 7 to 22 percent. Such impacts on trawling could be regionally significant but would be short term. The Platform Gail project is not expected to result in significant impacts as discussed in Section 4.7.1.1. Due to the timing of projects in the cumulative scenario, it is not expected that incremental impacts from the Gail project will result in significant short-term cumulative impacts from construction activities.

Long-term cumulative effects on trawl fishing could range from insignificant to significant depending on the total area excluded by operational structures, debris, and/or the presence and size of any anchor scars, (which will be mitigated as noted previously). If long-lasting, problematic bottom alterations (e.g., anchor scars or pipeline snags) are left in several productive tow areas if platforms are placed in clusters that preclude dragging in between, then significant long-term preemptions could result. As discussed in Section 4.7.1.1, long-term (operational) impacts from the Platform Gail project are not expected to result in significant impacts to trawl fishermen. Based on the large amount of trawling area available in the channel and the relatively small areas expected to be precluded from fishing, the incremental impact of the Gail project is not expected to result in significant cumulative impacts.

Concurrent construction of platforms for several projects along with exploratory activities (drilling plus seismic testing) could have significant impacts on purse seining and drift gill netting

in the short-term but only if these activities were to make fish unavailable for harvest through exclusion of fishing areas. The Santa Ynez Unit Development, in particular, is most likely to result in significant impacts to drift gill net fishing in the mid to western Channel (SAI, 1984). However, for the reasons discussed in Section 4.7.1.1, the Platform Gail project is not expected to result in either significant project impacts, or significant cumulative impacts. Clusters of operational platforms, such as those proposed in the Santa Ynez and Arguello fields, or eastern Channel, could have significant long-term preemption impacts on drift gill net fishing. Due to fishing pressure on the shark resources, historical fishing patterns associated with swordfish and more restrictive resource management practices by the CDFG, however, neither the Platform Gail project itself nor the cumulative development scenario are anticipated to result in significant drift gill net fishing impacts.

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that could affect commercial fishing in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

In conclusion, Platform Gail is not anticipated to result in a significant incremental addition to cumulative effects on the commercial fishing.

#### 4.7.2 Impact on Marine Vessel Traffic and Routing Systems

##### 4.7.2.1 Impact From Normal Activities

Significant impacts to vessel traffic would result if the proposed action jeopardizes vessel safety. The significance criterion is:

- o Platform presence or operations interfere with marine vessel traffic within the VTSS. This interference results in re-routing of future vessel traffic.

There is no anticipated interference with commercial shipping due to the Platform Gail project including the installation period when workboat activity would be high. A standard Notice To Mariners will be posted (Cmdr. Varanko, USCG, verbal comm., 2/27/86).

Aids to navigation will consist of four quick-flashing, Coast Guard approved, five-mile white lights at each corner of the platform and a Coast Guard approved two-mile foghorn. All aids to navigation will meet USCG regulation 33 CFR 67.20. The platform

will be painted a bright, highly visible white. Although discussions between Chevron and the Coast Guard have addressed the feasibility of installing a radar warning system known as ARPA (automatic radar plotting aid) on Platform Gail, the company ultimately decided against taking this action for the following reasons: 1) the Coast Guard holds the opinion that ARPA is not an effective means of regulating vessel traffic, 2) the existence of distinct shipping lanes greatly reduces the chance of a ship colliding with the platform, 3) historically, ship/platform collisions have not occurred near designated shipping lanes, and 4) reliance on such detection systems could lead to reduced vigilance and attention paid to vessel maneuvers, thereby increasing the risk of mishap.

#### 4.7.2.2 Impact From Accidents

Significant impacts from accidents would result if:

- o A reasonable probability exists of an oil spill contacting the area subtended by the VTSS such that cleanup vessels and equipment could interfere with marine vessel traffic.

Oil Spills. Based on the MMS OSRA Model, the estimated joint probability of oil spills ( $\geq 1000$  barrels) originating from Platform Gail or the associated pipeline and contacting the VTSS or the Port Hueneme Fairway is considered unlikely. Hence, no significant impacts to marine traffic are expected from oil spills.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur.

Based on this prediction of spill contacts, the impact that could occur to marine vessel traffic is that oil spill cleanup activities involving the Clean Seas Cooperative and U.S. Coast Guard vessels could interfere with commercial marine traffic within the VTSS and the Port Hueneme Fairway. A large enough spill could even force the closure of harbors such as Ventura, Channel Islands Marina and Port Hueneme.

Conditional probability results (based on the condition that a spill actually occurs) from OSRAM trajectory simulations indicate that large spills of 1000 barrels or more from the Platform Gail project could contact the area between Port Hueneme and Mugu Lagoon and the Northern Channel Islands (crossing through the VTSS) within three days of the event. The probability of contact declines in magnitude as more northerly spill points along the pipeline are used. Probabilities for 10 and 30 days duration indicate contact of the same geographic areas.

Based on the foregoing analysis, MMS does not anticipate that oil spill related impacts will occur to marine vessel traffic as a result of the proposed action due to the low estimated probability of spill occurrences (see Section 4.1).

#### 4.7.2.3 Conclusions

Impacts on marine vessel traffic are expected to be insignificant from the construction, normal operation, and abandonment associated with the proposed action. MMS does not estimate oil spill related impacts to occur due to the estimated low probability of spill occurrence.

#### 4.7.2.4 Cumulative Impacts

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect marine vessel traffic in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with, and without, the addition of Platform Gail.

Since there are no discernible impacts on marine traffic in the VTSS or in the Port Hueneme Fairway, there would be no incremental increase to a cumulative total.

#### 4.7.3 Impact on Recreation, Tourism, and Visual Resources

Oil spills, offshore structures, pipelines, and vessel traffic have the potential to impact recreational resources. The overall significance of these impacts will depend upon the resource impacted, and the magnitude of the impact. Impacts on recreational resources are considered to be significant if they threaten the viability of a resource or if the increased demand exceeds the resource's design capacity. A five percent increase in demand on a resource that is currently overcrowded or that would be overcrowded as a result of the increase would be significant. A five percent permanent or ten percent temporary (one season) reduction in recreational opportunities would also be significant. An action that prohibits access to coastal areas for recreation would have a significant impact. The significance criteria for tourism are based on the impacts to the resource viability as described in the significance criteria for recreation. These criteria are based on the significance criteria that were adopted by URS (1985).

The definition of significance criteria for visual resources is based on the change in recreational use of the area, with a significant impact occurring if there is a noticeable reduction in visitor attendance, or if the visual quality is changed to an

extent that affects most people in the area. An impact is considered insignificant if there is no noticeable reduction in attendance, or if the visual quality is changed to an extent that does not affect most people in the area.

It is important to note that the use of recreational areas fluctuate dramatically with weather conditions. However the trend is for a growth in use over time due mainly to population increases, and increases in discretionary time and money. It is also important to note that an impact on any of the recreational resources would affect the local economic conditions and could affect the other recreational resources in the area by both translocation of the recreationists, and by making the resources less desirable.

#### 4.7.3.1 Impact from Normal Activities

Construction. Construction of Platform Gail and the associated pipeline would impact recreational boating and sportfishing (see Section 4.7.7) in the immediate area of the construction activities and vessels. This impact would be insignificant as the area removed would be minor in relation to the total area of boating. The noise resulting from the construction activities would also tend to affect the recreationists in the immediate area, but would not be noticeable to most of the boaters unless they approach the actual construction sites. Noise would not be continual throughout the entire construction process, but would mainly be limited to the period of initial platform installation while piledriving is occurring. These impacts would be localized (in the area of construction), short term, and insignificant.

Normal Operations. Normal operations of Platform Gail would impact recreational boaters by removing a small area of the ocean from the total area available for boaters. This impact occurs because of the physical presence of the platform; and although it is a long term impact (the life of the project), it is extremely localized, and should therefore be considered insignificant. Additionally, the structure may be a minor hazard to navigation in adverse weather, but it also serves as an excellent aid to navigation, and a location where emergency help can be obtained.

There would be no significant impacts to onshore recreationists from normal operations of the platform. Normal operations of the pipeline would have no impact on recreationists. There would be no significant impacts to tourists as a result of normal operations of the platform or the pipeline.

The MMS believes that the Gail project will not result in significant visual impacts. Because of navigational safety concerns, the platform will be painted white. The platform is proposed to be installed in a location which is at a minimum 16 km (10 mi) off the mainland coast. At this distance the platform

would be obscured by fog and haze from 40 to 90 percent of the time according to the historic records of the US Weather Bureau, with the heaviest occurrence of poor visibility occurring during the summer when beach attendance is the heaviest. When the platform is visible from the shoreline, the impact would be minimal as the platform would occupy 0.006% of the horizon (2.16 degrees) as seen from the closest mainland beach.

A viewer, approximately two m (six ft) tall, standing at the waters edge, would only be able to see the top 21 m (70 ft) of the actual main structure, and this would extend less than one degree above the horizon. The drilling rig would extend higher, but due to the relative size of the drilling structure it would not be easily discernible from this distance except at night when the lights on the drill rig would be visible. At night these lights would be visible for about 39 km (21 nm) to viewers at the waters edge, if atmospheric conditions permitted. However, at distances far less than this, the lights would be almost indistinguishable from ship navigation lights.

Platform Gail, when visible from Anacapa Island, would occupy 0.042% of the horizon (15.12 degrees) to the north of the islands. However as the islands have elevations ranging from 76 to 283 m (250 to 930 ft), the entire platform would be seen from the islands, and would appear to be below the horizon in relation to the mainland. Since visitors to Anacapa would be viewing the platform from an elevated vantage point, the potential silhouette of the platform which would be visible at this distance would be greatly reduced, and would tend to merge with the vessel traffic in the shipping lanes. In addition the atmospheric conditions would tend to obscure the platform from Anacapa Island approximately 40 percent of the time during the summer months, which is the period of heaviest visitor use.

Abandonment. Abandonment of Platform Gail and the associated pipeline would impact recreational boaters in a manner similar to those which occurred with construction. These impacts would also be localized, short term, and insignificant. However when this phase is complete, all impacts, to recreationists, associated with the project would have been removed, and the area would revert back to its pre-project character.

#### 4.7.3.2 Impact from Accidents

Oil Spills. Based on the MMS Oil Spill Risk Analysis Model, it is unlikely that an oil spill will occur as a result of the Gail project. The estimated (i.e., joint) probabilities of oil spills ( $\geq 1000$  bbls) resulting from the proposed action and contacting the Ventura County coastline, within 10 days, is considered unlikely. As these probabilities are considered to be unlikely, no significant impacts to recreation are expected from accidental oil spills. Similarly, no significant impacts to tourism and

visual resources are expected as a result of the proposal.

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to recreation, tourism, and visual resources.

Oil spills are the most noticeable impacting agent to recreation, as they tend to preclude most recreation in the areas of contact.

While still at sea, oil spills in this region could adversely affect all water borne recreational activities including offshore boating, diving and fishing. Where oil spills contact the coast, they could close the local ports due to the installation of booms. The most noticeable impact to recreation would occur where oil spills contact the shoreline, as this would adversely affect seashore related recreational activities.

The contacting of the beaches by an oil spill would also greatly reduce the desire of tourists to go to the area, and due to the adverse publicity that is associated with oil spills would tend to stay away from the impacted area even after clean up operations had been completed.

The visual impact of an oil spill depends upon the size of the spill, the type of coastline that is contacted, the weather conditions at the time of contact, and the aesthetic quality of the stretch of coastline that is contacted.

The MMS oil spill model conditional probabilities indicate that it is moderately likely that the Ventura County coast may be potentially contacted by oil spills within 10 days during the summer (Dames and Moore conditional probabilities are considerably different). It is also moderately likely that the Channel Islands may potentially be contacted by oil spills within 10 days during the winter (Dames and Moore conditional probabilities are considerable less).

The MMS oil spill model also indicates that it is unlikely that an oil spill originating at platform Gail will contact the Santa Barbara county beaches. Contact of the Santa Barbara beaches by a spill originating from the portion of the pipeline closest to the shoreline is also indicated as being unlikely within 10 days of occurrence.

In the event that a spill does occur and contact the coastline, a closure of the affected beaches would occur for the duration of the spill (MMS, 1983a).

If a spill contacts the Ventura area with a 30 day closure of the beaches during the summer period, the impact could mean a reduction of more than 700,000 recreationists, which could mean an equivalent loss in human welfare to recreationists in Ventura County of between \$13.6 and \$20.4 million. In addition there could be a reduction of between \$18 to \$30 million in tourist expenditures, with the region economy suffering a loss of between \$48 and \$80 million.

If a spill contacted the Channel Islands, the recreational impact would be minimal, however the actual impact would be far greater as the Channel Islands are part of the National Park System, and as such are an important national natural resource.

Based on the foregoing analysis, MMS does not estimate oil spill related impacts to occur to recreation, tourism, or visual resources as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.7.3.3 Overall Conclusions

Overall an insignificant impact is expected to occur to recreation, tourism, and visual resources as a result of the project. MMS does not estimate oil spill related impacts to occur due to the low estimated probability of spill occurrence.

#### 4.7.3.4 Cumulative Impacts

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect recreation, tourism, and visual resources in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

The proposed project would not add significantly to the cumulative impacts from the other projects which are occurring, or are expected to occur in the project region.

In conclusion, Platform Gail is not anticipated to result in a significant incremental addition to cumulative effects on recreation, tourism, or visual resources.

#### 4.7.4 Impact on Mariculture and Kelp Harvesting

The major potential impact to mariculture and kelp harvesting activities that could be caused by the proposed project activities would be an oil spill. Potential impacts from accidental oil spills on marine biological resources are discussed in Section 4.6.1. The significance criteria used in

the impact analysis are presented below.

Impacts to mariculture and kelp harvesting are considered significant if a one percent long-term (more than five years) or five percent short-term (one year) or greater reduction in the productive area available for kelp harvest or mariculture in the study area.

Impacts which do not meet these criteria are considered to be insignificant. The criteria are based on significance criteria that were adopted by URS (1985).

#### 4.7.4.1 Impact from Accidents

Oil Spills. The MMS Oil Spill Risk Analysis Model (OSRAM) utilized spills  $\geq$  than 1,000 bbls to estimate joint (final) probabilities. The MMS joint probabilities indicate that an oil spill  $\geq$  1,000 bbls occurring at Platform Gail and contacting the Northern Channel Islands, including the National Park, and Channel Islands is unlikely for 3, 10, and 30 days trajectories (Dames and Moore joint probabilities are relatively smaller). The coastal mainland environment near Point Mugu containing Kelp Bed 17 is not expected to be impacted by an oil spill  $\geq$  1,000 bbls from Platform Gail along the pipeline transportation route segments since the final probability of the MMS oil spill risk analysis indicates an unlikely probability of spill occurrence and contact with Mugu Lagoon for 3, 10, and 30 day trajectories. Similarly, the MMS final probability indicate the unlikely occurrence of a spill  $\geq$  1,000 bbls contacting Anacapa Island (site of Kelp Bed 109) for 3, 10, and 30 day simulated trajectories (Dames and Moore final probabilities are smaller than the MMS values). Based on the estimated probabilities which are considered unlikely, no significant impacts to kelp harvesting and mariculture activities are expected from accidental oil spills. Chevron's Oil Spill Contingency Plan would be implemented to reduce potential impacts to kelp harvesting and mariculture activities for small ( $<$  1,000 bbls) and larger ( $\geq$  1,000 bbls).

Through the use of the mathematical techniques of oil spill Modeling (see Section 4.1), it has been estimated which areas could be contacted in the event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to mariculture and kelp harvesting activities.

No mariculture activities are currently underway near the proposed project. The primary effect of an oil spill on kelp harvesting would be hydrocarbon coverage. Potential impacts could include lethal and sublethal toxicity, depletion of food sources and shelter for fish, and disturbance of the ecological complexes and associated organisms.

Conditional oil spill model probabilities by MMS indicate a likely chance of a hypothetical spill ( $\geq 1,000$  bbls) from Platform Gail contacting the Northern Channel Islands, National Park, and Channel Islands after 3, 10, and 30 days during spring, summer, autumn, and winter (Dames and Moore conditional probabilities are similar, although slightly less). Simulations from the MMS oil spill model indicate an unlikely occurrence that an oil spill originating from Platform Gail along the transportation route segments could contact the coastal mainland environment of Mugu Lagoon within 3 days. For 10 and 30 days, the conditional probabilities for spill contact with Mugu Lagoon range from unlikely to moderately likely (Dames and Moore conditional probabilities are similar, although slightly larger for the 3 and 10 day trajectories). Based on MMS seasonal conditional probabilities, the hypothetical spills would primarily move to the coastal mainland during spring and summer, and to both the coastal mainland and Channel Islands during fall and winter.

Should an oil spill occur (an unlikely event), potential impacts could effect Kelp Bed 109 at Anacapa Island and the coastal mainland Kelp Bed 17 near Point Mugu. Both areas could be impacted through oil coverage. In addition, since Kelp Bed 17 is harvested commercially, oil spill impacts could result in the restricting of kelp harvesting vessel activities.

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to mariculture and kelp harvesting activities as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.7.4.3 Overall Conclusions

Impacts to mariculture and kelp harvesting activities are expected to be insignificant from construction, normal operation, and abandonment associated with the proposed action. MMS does not anticipate oil spill related impacts to occur due to low estimated probability of spill occurrence.

#### 4.7.4.4 Cumulative Impacts

Potential impacts from the proposed Platform Gail project could cause small incremental effects with other oil and gas development scenarios in the Santa Barbara Channel and Santa Maria Basin. Mariculture and kelp harvesting activities could be potentially impacted due to accidental oil spills.

Previous environmental documents have described cumulative impacts to mariculture and kelp harvesting activities in the Santa Barbara Channel and Santa Maria Basin (City of Oxnard and USGS, 1980; ADL, 1984; SAI, 1983, and URS, 1985). In the

unlikely event of an oil spill, potential cumulative effects on mariculture and kelp harvesting activities could result in a range of impacts (insignificant to significant) on a local or regional basis depending upon the spill's physical and chemical characteristics, spill, its size, and oceanographic and seasonal conditions at the time (URS, 1985).

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect mariculture and kelp harvesting activities in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

In conclusion, Platform Gail is not anticipated to result in a significant incremental addition to cumulative effects on mariculture and kelp harvesting activities.

#### 4.7.5 Impact on Socioeconomics

Changes to the socioeconomic environment are driven by changes in employment and population. Changes in these two activities affect other socioeconomic components such as the capacity of the existing community infrastructure to service its population base, the need for additional land, and impact on the quality of life. Impacts to the fresh water supply are considered separately.

Impact analysis will therefore be based evaluating changes to population and employment caused by the construction and operation of Platform Gail. For the purposes of analysis in this EA employment and population impacts of less than one percent are considered to be insignificant. Project-related impact to the fresh water supply of less than one percent are considered to be insignificant.

##### 4.7.5.1 Impact From Normal Activities

Construction. About 240 persons are proposed to be employed during the four to six month installation of Platform Gail. The installation of the subsea pipelines will require about 100 persons for about two months. Total project personnel could reach a maximum of 340 persons if all project components are constructed concurrently (Westec, 1986).

Temporary employment is assumed not to have an impact on the socioeconomic environment because: the majority of construction force has been working on other in-region projects (Cynthia Norris, Chevron, verbal comm., April 17, 1986), employment generated through this activity will be of short duration (four to six months), construction activity has a very limited

impact on the local economy (Centaur Associates, 1984a), and employees who are hired locally would already be part of the socioeconomic system.

Normal Operations. For the first eight years of operation, the maximum crew size for Platform Gail is expected to be 70 persons (Westec 1986). This figure represents a combination of both permanent employees and contract employees. Due to the downturn in offshore oil activity in the area, it is stated that the contract employees will be drawn from the local labor pool (Cynthia Norris, Chevron, verbal comm., April 17, 1986). Once drilling operations have been completed, the staffing on Platform Gail is expected to drop to 37 people (around 1995) for the remainder of the platform's life expectancy (Westec, 1986).

Chevron anticipates hiring some, if not most, workers from the local labor pool. Indeed, the shut-down of some oil fields in the area, and the decrease in oil production in the eastern Santa Barbara Channel could make available enough personnel to meet Gail's staffing requirements (Chevron, written comm., April 17, 1986). In the event all personnel are hired from the local labor-pool, the proposed action would represent no net population increase, and, thus, no significant impacts.

In the unlikely event that the permanent work force (70 persons) is entirely composed of in-migrants to the region, it is possible to estimate the potential maximum impact. Given the assumption that an average family size is 2.85 persons (Centaur Assoc., 1984a), then the anticipated direct population increase would amount to 200 persons. Further, the Gail proposal would impact the regional economy by creating an additional 161 jobs. Twenty percent of created jobs would be filled by an additional in-migration of 33 employees. These numbers are derived from formulae found in POCs Technical Paper No. 83-10. Adding the direct and indirect employment impacts will result in a total population increase of 294 persons (or 103 households). This represents a 0.2 percent population increase for the Port Hueneme/Oxnard area. In reality, employees could locate anywhere within commuting distance of either Port Hueneme or Chevron's Carpinteria Pier. On a region-wide basis (i.e., Ventura and Santa Barbara Counties) this represents a population increase of 0.03 percent. Thus, on a local and regional level, this represents an insignificant impact.

As previously discussed, the impact of the proposed action is estimated by the MMS to be less than the potential maximum impact discussed above. Employment in the minerals extraction industry is expected to decline by six percent, or a loss of 200 jobs (Connie Lau, Research Analyst, State of California, verbal comm., April 10, 1986). Further evidence of the decline in employment includes: oil and gas support boat activity has fallen about 50 percent since it peaked in 1984, average California offshore

rotary rig activity peaked in 1982 at 22.6, in 1985 average rotary rig activity declined to 12.0 (Oil and Gas Journal, January 27, 1986); 60 onshore wells in the Santa Barbara area have been shut-in (Chevron, written comm., April 17, 1986); since the beginning of 1985, the work force of at least one offshore firm (Measurement Control Engineering) has been reduced by 60 percent as a direct result of the decline in west coast offshore exploration (Bill Hewston, Measurement Control Engineering, oral testimony, public hearing on the Draft EIS, Proposed 5-Year Outer Continental Shelf Oil and Gas Leasing Program, 1986). Based on this information, the proposed action is not expected to significantly impact onshore employment, transportation, and boat traffic operations.

Most land based operations concerning Platform Gail will take place out of Port Hueneme. The port itself and the road system should be able to handle the anticipated traffic (Bob Harnuth, Operations Manager, verbal comm., February 26, 1986) based on port expansion plans and the decline in offshore oil and gas activity. The port is in the process of increasing its wharfage by an additional 213 m (700 ft) and developing a plan to improve traffic circulation.

The public school systems in the area are unlikely to be impacted by the Gail project. Region-wide, school enrollment is about 152,000 students. Natural student enrollment growth for Santa Barbara County is estimated at 0.5 percent; for Ventura County it is estimated at 2.9 percent. Average annual enrollment growth rate for the Oxnard School System is 3.3 percent which would equal 731 students (General Research Corp., 1985).

As discussed above, MMS estimates that it is unlikely that the proposed action will result in hiring 70 persons who are in-migrants. However, in this unlikely event, the project could increase total school enrollment region-wide (Ventura and Santa Barbara Counties) by 62 students or 0.04% (based on a multiplier of 0.6 for the Oxnard/Port Hueneme area - this number is also used for other, nearby locales; see Technical Appendix K, ADL, 1985). In the unlikely event that 62 students were added to the student population, and only the local school systems listed in the Table below were impacted, the additional students in this system would be less than one percent (0.14 percent) of total enrollment. Therefore, impacts of the proposed action are estimated by the MMS to be insignificant.

### Selected School System Capacity and Enrollment

<u>System</u>	<u>Design Capacity</u>	<u>Enrollment</u>
Carpinteria	2,126	2,378
Ventura (City)	15,885	14,272
Oxnard High School	10,634	11,046
Oxnard Elementary	10,707	11,099
Port Hueneme	7,290	6,974
Total	<u>46,642</u>	<u>45,769</u>

Water resources in the Oxnard/Port Hueneme area are not expected to be significantly impacted. Energy production only accounts for 0.4 percent (California Department of Water Resources, 1980) of all water use in the Los Angeles Hydrologic Study Area which covers the Oxnard/Port Hueneme area. In the Central Coast Hydrologic Study Area, which covers Santa Barbara County, energy production accounts for 0.6 percent of water use. Typical fresh water needs during the drilling phase are 56,775 to 151,400 l (15,000 to 40,000 gal) per day (Chevron, verbal comm., May 29, 1986). A large portion of this requirement will be provided by two vapor compression desalinization units on the platform. The two 4,542 l (1,200 gal) per hour desalination units (one standby) will be utilized to produce fresh water from sea water for the potable, demineralized, and drilling water systems. The desalinization unit on Gail will have a capacity to produce 195,980 l (28,000 gal) per day. Chevron will transport fresh water from shore for any needs over the 195,980 l (28,000 gal) capacity. At this time, Chevron has not selected a drilling contractor, therefore, the exact source of the fresh water cannot be determined. As needed, fresh water will be transported by boat from shore. For the purpose of analysis in this EA, it is assumed that water will be drawn from the city water supply. This water is delivered by Port Hueneme by the United Water Conservation District (UWCD) and originates from the Santa Clara River and wells tapping the Fox Canyon aquifer.

The city uses approximately 3.25 million gallons of water per day. The maximum possible shortfall in the Platform Gail water supply is 12,000 gallons per day which represents 0.0037% of the volume available from UWCD. Port Hueneme draws near the capacity of its allotment from the UWCD; however, this small incremental increase will represent an insignificant impact to the available supply (Jack Duffy, Public Works Department, Port Hueneme, verbal comm., 6/6/86). Considering this statement, the decline in production and drilling activity in the Santa Clara Unit and onshore (see Section 2.1), and the concomitant reduction in oil and gas-related water usage, the MMS considers Chevron's proposal to represent an insignificant impact to the water supply. In the unlikely event that sufficient water supplies are not available, Chevron would need to establish a water source from Ventura and

Oxnard, or elsewhere, where the gap between allotment and actual use is greater.

Abandonment. Platform Gail is proposed to be in operation for about 30 years. The removal of the platform will result in a temporary short-term increase of construction activity to dismantle the platform, and the processing facilities, plug the wells and remove the pipelines. There will also be a permanent loss of 37 jobs. The loss of these jobs will result in a negligible increase in unemployment and out-migration.

#### 4.7.5.2 Impact from Accidents

The local economy is not based on oil and gas activities which implies that regional population, employment, and land use patterns would not be altered should an accident (i.e., large oil spill) occur. It can be expected that short term insignificant impacts would consist of: increased temporary employment (related to either platform repairs and/or oil spill cleanup), increased harbor activity, increased aircraft activity, and a possible reduction in tourism. Refer to Section 4.7.3 for a discussion of impacts from oil spills on recreation, tourism, and visual resources.

#### 4.7.5.3 Overall Conclusions

Impacts from activities generated by the Gail proposal are estimated to be insignificant on the socioeconomic environment (population, employment, transportation, school systems, and housing).

#### 4.7.5.4 Cumulative Impacts

Based on the discussion above, the proposed action (i.e., construction, normal operations, or abandonment) is not anticipated to result in a significant increment to cumulative effects on socioeconomics. This is based on the downturn in offshore oil activity (i.e., production reduction in the eastern Santa Barbara Channel, reductions in onshore oil and gas activity, and the general decline in exploration) in the area and the statement by Chevron that contract employees will be drawn from the local labor pool.

Cumulative air traffic impacts will only occur if this project and future proposals will cause increased use of this airport. Significant impacts will only occur if the airport is unable to meet demand. Current trends indicate that Platform Gail support activities will not have an incremental cumulative impact on the airport.

The Manager of Aspen Helicopter Services (Rick Throckmorton, verbal comm., February 27, 1986) indicated that traffic out to the platforms had fallen by about 40 percent since it peaked in 1984 and that several other operators had gone out of business. Aspen Helicopters operates about ten trips per day to the channel platforms. The Platform Gail proposal anticipates one round trip helicopter operation per day (during the production phase) out of Oxnard airport. Some air operations have been shifted to other airports to be closer to proposed development in northern Santa Barbara County; this trend is likely to continue. It appears that helicopter operations are not increasing and would therefore not generate a cumulative impact.

The Airport Control Officer at the airport indicated that the additional helicopter traffic brought about by Platform Gail would not be a problem. Existing helicopter operations are controlled by a Memorandum of Understanding between the FAA and the various operators to minimize impacts on any other airport operations. Current helicopter operations are not stressing the capability of the air traffic system which is operating at less than 50 percent of its peak (Norine Harwood, Federal Aviation Administration, verbal comm., March 20, 1986).

The proposed action is not anticipated to have a significant incremental effect on schools, housing, and traffic based on the discussions in Section 4.7.5.1. and below.

Cumulative impacts, historically, have been marginally significant (Centaur Assoc., 1984). This trend may not continue based on the following facts and assumptions. Because of the oil surplus and the resulting decline in the price of oil, employment in the minerals extraction industry is expected to decline by 6 percent in Ventura County which would be a decline of 200 persons (Connie Lau, Research Analyst, State of California, verbal comm., April 10, 1986). The Ventura Star Free Press (March 25, 1986) reported that Vetco-Gray an oil field equipment firm laid off 53 people (Connie Lau, Research Analyst, verbal comm., April 11, 1986). Bill Hewston of Measurement Control Engineering stated (oral testimony, public hearing on the Draft Environmental Impact Statement, Proposed 5-Year Outer Continental Shelf Oil and Gas Leasing Program, January 1987 - December 1991, 1986) that since the beginning of 1985 his work force has been reduced by 60 percent as a direct result of the decline in west coast offshore exploration. Some of these people may leave the area to find work. Those who stay would be available for future projects which would reduce the need to obtain employees through in-migration. The net effect would be a lack of increased oil and gas related population to generate cumulative impacts affecting housing, school enrollment, onshore vehicle traffic, sewage treatment, police protection, and other community infrastructure. Also, approval of a new crew and supply base in Santa Barbara County would reduce impacts in the vicinity

of Port Huememe, Ventura County.

Further evidence of this decline is discussed in Section 4.7.5.1.

Based on the discussion in Section 4.7.5.1 of this EA, the insignificant impact to onshore water resources of the proposed action is not anticipated to represent a significant increment to any cumulative impact total already in place. This is due to there being only a very small, insignificant impact on the water supply of Port Hueneme due to the maximum possible shortfall from the onboard desalinization unit.

Oil and gas development has had a cumulative impact. However it should be noted that the degree of impact on the socioeconomic environment is decreasing and becoming less significant. For example the impact of oil and gas activities on local retail trade and wholesale establishments peaked in 1971 and has been declining ever since (Centaur Assoc., 1984a).

#### 4.7.6 Impact on Sportfishing

Potential impacts to sportfishing from the Platform Gail project are most likely to involve: (1) preclusion of and/or interference with fishing activities due to the presence of vessels and strictures associated with construction and operation, and (2) oil spills which either directly affect marine resources or preclude sportfishing vessels from utilizing traditional fishing areas. The significance criteria used for this resource are the same as those described in Section 4.7.1 for Commercial Fishing.

##### 4.7.6.1 Impact from Normal Activities

Impacts to sportfishing associated with the construction, operation, and abandonment of the Platform Gail are not expected to be significant. The reasons for this conclusion are discussed in Section 5.0.

##### 4.7.6.2 Impact from Accidents

Oil Spills. Based on the MMS Oil Spill Risk Analysis Model, and the estimated joint probabilities of oil spills ( $\geq 1,000$  bbls) originating from Platform Gail or its associated pipelines, it is considered unlikely such spills will occur and contact the eastern Santa Barbara Channel mainland or eastern Channel Islands (Santa Cruz and Anacapa). Although these estimated spill probabilities are considered unlikely, they are somewhat higher for the mainland (segments 30 and 31), than for the Channel islands. Since these estimated probabilities are considered to be unlikely, no significant impacts to sportfishing activities are expected from accidental oil spills. If small spills (which are more likely) occur, Chevron's Oil Spill Contingency Plan

should serve to reduce the potential for impacts to sportfishing in the project area and eastern Santa Barbara Channel.

Potential impacts to sportfishing would be related to (1) the probability of a spill occurring, (2) the size and location of the spill, (3) the trajectory taken by the spilled oil, and (4) the fate of the spilled oil while it is transported by wind and currents. General impacts to sportfishing are discussed in Berwick and Thomson (1984) and ADL (1984) for proposed developments in the western Santa Barbara Channel. Generalized impacts to sportfishing from an oil spill are similar to those described for commercial fishing (see Section 4.7.1.2 of this EA). As described in Section 4.7.1.2 of this EA, results (i.e., conditional probabilities) from the MMS OSRAM trajectory simulations (for spills  $\geq 1,000$  bbls) indicate the Santa Barbara Channel mainland (principally from Santa Barbara to Port Hueneme) and the eastern Channel Islands (Santa Cruz and Anacapa) are at greatest risk from oil spills. Seasonally, oil spills are predicted to move onshore (i.e., towards mainland) in spring and summer, and both to the mainland and offshore islands during the remainder of the year.

Although limited sportfishing occurs in the immediate vicinity of the Platform Gail project, oil spills transported to either the eastern Channel mainland or eastern Channel Islands could impact sportfishing which occurs there. All types of sportfishing could be affected by oil spills, but party and private boats that are precluded from fishing are likely to be most affected. According to The Granville Corporation (1981) and Berwick and Thomson (1984), the estimated economic value of recreational fishing in the Ventura-Port Hueneme area is highest in summer and winter, with spring and fall values less than half those of summer and winter. For all seasons considered in their analysis, private/party boats typically represented the largest proportion of estimated economic value. Many of these boats fish both the mainland and Channel Islands. For a large spill that precludes fishing in both areas and for several months (particularly in summer and/or winter), impacts to sportfishing could be significant.

Based on the foregoing analysis, MMS does not anticipate oil spill related impacts to occur to sport fishing as a result of the proposed action due to the low estimated probability of spill occurrence (see Section 4.1).

#### 4.7.6.3 Overall Conclusions

Impacts on sportfishing are expected to be insignificant from construction, normal operation, and abandonment activities associated with the proposed action.

#### 4.7.6.4 Cumulative Impacts

Oil and gas activities in the Santa Barbara Channel are not generally expected to significantly affect sportfishing activities. Those developments or activities most likely to have at least a local affect would be those located near shore, near rocky reefs (shallow or deep water) used by party and/or private boats, or near kelp beds. Construction impacts could have a locally significant impact, but they would be short-term. Long-term impacts are not expected to be significant for development projects, and, in fact, the presence of artificial structures may well improve sportfishing. As noted previously, considerable sportfishing effort is targeted at existing platform structures near Santa Barbara and Carpinteria.

The proposed action represents only a very low contribution to the overall, cumulative oil spill risk that would affect sportfishing in the study area. Refer to Section 4.2 and Appendix B for an analysis of the estimated spill risk from all existing and future petroleum activities (platforms, pipelines, and tankering). The analysis compares the spill risk with and without the addition of Platform Gail.

As discussed in Sections 4.7.6.1 and 4.7.6.2, impacts to sportfishing from the Platform Gail project alone are not expected to be significant. Since few projects in the cumulative development scenario are expected to cause even localized significant impacts, Platform Gail is not anticipated to result in a significant incremental addition to cumulative effects on sportfishing.

## 5 Consultation and Coordination

This section describes the consultation and coordination that was conducted by the MMS in the preparation of this EA. As part of this process, and in accordance with 30 CFR 250.34-2, the MMS sent copies of Chevron's DPP package to 23 state, federal, local agencies, and/or interest groups (refer to Appendix G for a list of the agencies that were sent copies, and those agencies that provided review comments). Additionally, the MMS published a "Notice of of a Proposed DPP" in the Federal Register (Vol. 51, No. 25, February 6, 1986). Several of the agencies provided the MMS with written comments on Chevron's proposal.

In order to further determine the scope (in accordance with 40 CFR 1501.7) of issues to be addressed for this EA, and for the further identification of the significant issues related to the proposed action, and potential mitigation, the MMS contacted, through meetings or other communications, agencies and groups. The entities that were contacted are listed in Appendix H. By letter dated March 31, 1986, the California Coastal Commission presented numerous questions concerning information that the Commission staff felt was needed to evaluate consistency of the DPP with the California Coastal Management Program. The Commission's letter and the MMS responses are provided in Appendix F.

The MMS, through the above processes and analysis by an interdisciplinary team, identified the following resources or issues of concern which were to be further analyzed in the EA: geological hazards, air quality, water quality, threatened and endangered species, benthic habitats, Channel Islands National Marine Sanctuary, Channel Islands National Park, Areas of Particular Biological (refuges, preserves and Areas of Special Biological Significance), estuaries and wetlands, commercial and sport fishing, marine vessel safety, military activities, recreation, tourism, viewshed, archaeological resources, socioeconomics (including schools), and cumulative effects. Refer to Section 3 of this EA for a description of the affected environmental resources and to Section 4 for a discussion of the impacting agents and the potential and expected impacts on these resources.

The MMS has reviewed and considered all comments received on the proposed action. Based on this review and consideration, the MMS has responded within the text of this EA to most of the comments received from agencies and private concerns. Refer to Sections 2,3,4, and the Appendices for these responses. ~~Also refer to the environmental documents listed on the title page of this EA for information concerning these issues.~~ Certain issues were raised by local, state, or federal agencies or public interest groups. Following detailed analysis, these issues were determined by the

MMS to not be significant in the sense of NEPA. Although the MMS gave consideration to these issues, they are not analyzed in detail in this EA, and may have been covered by prior environmental review. Refer to the cover page and reference section of this EA for related environmental documents. MMS has summarized its reasons (see below) for not analyzing these issues.

The following are issues or resources which were identified through the scoping or comment process or by MMS analysis. For the purposes of this EA, these items are either not considered to be significant, or they are not considered to be significantly impacted by the proposed action for the reasons stated. Further discussions on potential impacts related to certain of these issues or resources may be found in the environmental documents listed on the cover page of this EA.

**Preparation of an Environmental Impact Statement for the Proposed Action:** As required by NEPA (40 CFR 1501.3), the MMS has prepared this EA to determine whether an EIS will be required for the proposed action. Based on this EA, the MMS Regional Director, Pacific OCS Region, will make a determination of whether or not to prepare an EIS. The notice of this determination will be made public through its publication in the Federal Register. Further, the determination will be available in the Public Information Room in the MMS Pacific OCS Region Office in Los Angeles, California.

**Ocean Dumping:** There are no ocean dumping sites within the immediate vicinity of Lease OCS-P 0205 and the Platform Gail location. Ocean dumping in the Santa Barbara Channel consists of two dredge spoil sites located off Port Hueneme. One dump site is about 0.8 km (0.5 mi) offshore in 20 m (66 ft) of water, and the other is 6 km (4 mi) from shore in 400 m (1300 ft) of water in Hueneme Canyon.

**Non-petroleum Resources:** There are no known commercially extractable mineral resources in the vicinity of Lease OCS - P 0205 and the Platform Gail location. Small quantities of sand, gravel, and phosphorite exist.

**State Oil and Gas Sanctuary:** This sanctuary was designated to preclude state offshore drilling within close proximity 19 km (3 mi) of portions of the mainland and the Channel Islands. The proposed action will not affect this designation.

**Federal Ecological Reserve and Buffer:** The reserve and buffer were designated to prevent drainage from the State Oil and Gas Sanctuary offshore Santa Barbara. The proposed action will not affect this designation.

Existing pipelines and cables: There are no known pipelines or cables traversing or lying adjacent to Lease OCS-P 0205. However, a 12-inch oil pipeline and a 10-inch gas pipeline run northward from Lease OCS-P 0217, connecting Platforms Grace and Hope. The southern terminus of the Grace to Hope pipeline is 11 km (7 mi) from the Platform Gail location. Barge operators are aware of these pipelines and will avoid them.

Archaeological Resources: There are no known archaeological or cultural resources in the vicinity of the Platform Gail location. The MMS initiated a consultation process with the SHPO on April 7, 1987. By postcard dated May 4, 1986, the SHPO notified the MMS that the proposed action "does not involve National Register or eligible properties". The correspondence from the SHPO is included in Appendix C.

Military Operations: There are two military installations in the vicinity of Lease OCS - P 0205 and the Platform Gail location: the Pacific Missile Test Center at Point Mugu and the Naval Construction Battalion Center at Port Hueneme. The location for Platform Gail lies about 29 km (14 mi) west of Port Hueneme and 10 km (6 mi) north of the nearest boundary of the Pacific Missile Test Range. Surface transit by naval vessels of the Platform Gail area is not expected, as said vessels will use the Port Hueneme Fairway and the Vessel Traffic Separation Scheme.

Surface Aquifers: No extensions of onshore fresh water aquifers exist in the immediate vicinity of the Platform Gail location. The Oxnard Plain groundwater basin extends offshore from Ventura County and has been identified out to 7 km (4 mi) east of the project site (Greene et al., 1978).

Effects of Discharges on Commercial and Sport Interest Species of Fish: Discharges from the proposed action are not expected to significantly impact commercial fishing or the resources themselves, since: All discharges will be in accordance with individual permits issued by EPA and with MMS Order No. 7; all oil-contaminated muds will be transported to shore for approved disposal, as will be muds contaminated with non-approved additives; in the event that Chevron must use chrome lignosulfonates because of unique downhole conditions, Chevron proposes to barge all muds containing chromium to shore for onshore disposal; effects on bottom habitat and organisms from discharged muds and cuttings is expected to be restricted to an area about 1000 m (3048 ft), or less, from the platform.

Interference with Commercial Fishing from Vessel Traffic: Support vessel traffic to the Gail project site is not expected to significantly impact commercial fishing activities in the area since Chevron has committed to utilize crew/supply boat corridors established by the Santa Barbara Channel Oil Service Vessel Traffic Corridor Program. This program was created through joint

negotiations between the oil/gas and commercial fishing industries in order to reduce potential conflicts.

Preemption and/or interference between construction/operation activities and sportfishing: Most sportfishing activity takes place in shallower water than the project (see Westec, 1986). Once the platform is installed, however, fishes of sport interest are likely to be attracted. Therefore sportfishing may increase at the platform site. No significant impacts are anticipated.

Plankton: Impacts on plankton are likely to be localized and short-term. Recent data on abalone larvae generated by Drs. Daniel Morse and Alice Aldridge at UCSB suggest that settling behavior may be affected by substances used in drilling fluids. Discharges from Gail are not expected (Westec, 1986) to approach any known abalone habitat in sufficient concentration to either affect settling behavior or produce other lethal or sublethal effects. Since no plumes from other nearby OCS activities (present or future) or from municipal discharges will mix with plumes from Gail, significant cumulative effects are not likely. (Refer to MMS, 1983; BLM 1980, 1981; and to above discussion on effects of discharges on fish).

Formal consultation as required by Section 7 of the Endangered Species Act, as amended, was initiated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service on February 20, 1986 and February 21, 1986, respectively. Refer to Appendix A for related correspondence and the biological opinions which were rendered by these agencies.

Coordination with the State Historic Preservation Officer (SHPO) as required by the National Historic Preservation Act of 1966, as amended, was initiated on April 7, 1986. Related correspondence and the response from the SHPO are presented in Appendix C.

Although no stipulations were placed on Lease OCS-P 0205 since Chevron acquired the lease in 1968, both biological and archaeological surveys were required by the MMS. The biological survey report is included in Appendix A and the archaeological and cultural resource review is presented in Appendix C.

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Appendix A: Biological Information

Appendix A.1: Biological Opinion from U.S. Fish and Wildlife Service

Appendix A.2: Biological Opinion from National Marine Fisheries Service

Appendix A.3: Endangered Species Analysis - Platform Gail (Larry Seeman Associates)\*

Appendix A.4: MMS Biological Information for Candidate Species

Appendix A.5: Site Specific Marine Biological Survey - Platform Gail (McClelland Engineers)\*

\*Copies available for review in Public Information Room, MMS, Los Angeles

Preface to Biological Opinion  
from U.S. Fish and Wildlife Service by MMS

On February 18, 1986, the Minerals Management Service (MMS) requested that the U.S. Fish and Wildlife Service (FWS) initiate formal consultation under Section 7 of the Endangered Species Act, as amended, for Chevron's proposed Development and Production Plan (Platform Gail) in the eastern Santa Barbara Channel. By memorandum dated February 27, 1986, the FWS Laguna Niguel (California) Field Office, acknowledged receipt of the request, with initiation of the formal consultation process commencing on February 20, 1986. Listed species identified by the FWS as being potentially affected by the proposed project, and for which formal consultation was requested include: California brown pelican, California least tern, light-footed clapper rail, bald eagle, American peregrine falcon, southern sea otter, and salt marsh bird's-beak. To assist the FWS in evaluating the potential impacts of Platform Gail, an Endangered Species Analysis (ESA) was prepared by Larry Seaman & Associates (1985). A copy of this analysis is included in Appendix A.1. Additional information was supplied to FWS on request throughout the formal consultation process.

On June 16, 1986 the FWS issued their Biological Opinion for Platform Gail, concluding that "implementation of the subject project as proposed is not likely to jeopardize the continued existence of the California brown pelican, California least tern, light-footed clapper rail, American peregrine falcon or salt-marsh bird's beak." The FWS also found "no discernible effects to the bald eagle or southern sea otter." The complete text of the FWS Opinion follows this preface.

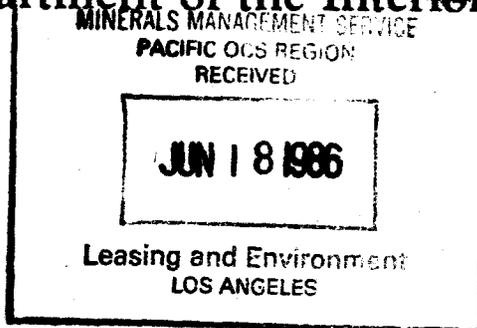
Normal operations associated with the construction and operation of Platform Gail were considered by the FWS to have "only minor impacts to listed species". This is in general agreement with conclusions stated in this Environmental Assessment (EA). The greatest project-related impact to listed species determined by the FWS (and the MMS) is the potential for contact with an oil spill. In their review of Chevron's oil spill modeling results (Dames and Moore, 1985) and MMS's independently generated oil spill modeling results (both of which considered the probability of a large spill >1,000 bbls), the FWS concluded that "the probability of an impact is small, and the probability of no impact is much larger." With respect to small spills the FWS states "small spills are significantly more likely to occur, but are less likely to affect the species under consideration". Their conclusion was based on differences in behavior of small and large spills (including evaporation, dispersion, dissolution, etc.) and the increased capability to control and recover a small spill.

The FWS observed that the potential for a spill of major concern is "extremely low", however, they have identified incidental take in the unlikely case of an oil spill occurring. As discussed by the FWS, mortality levels (i.e. low, moderate, high) are often difficult to assess, particularly for species such as the brown pelican and salt-marsh bird's beak. Population estimates of brown pelicans within the project area may fluctuate widely due to seasonal immigration of nonresident birds from Mexico and widespread dispersal to roosts located throughout the State. Unless a spill occurred between November and June, when generally only resident/breeding birds are present, it would be difficult to assess the impacts to the endangered southern California population. Even then it would be nearly impossible to identify a bird as local (endangered) or nonresident unless it was one of a few banded pelicans. It might be reasonably assumed that the majority of birds in the vicinity of Anacapa during most of the year are local birds. But this would only be a "best guess" based on preliminary information (Lewis, NPS, Verbal Comm., 6/16/86). Mortality to other species, such as the salt-marsh bird's beak may also be difficult because they are not visible (i.e., seeds may be present within appropriate habitat, even though no plants are observed).

As specified in Section 9 of the Endangered Species Act the FWS has specified incidental take levels for those species which they feel have the potential to be impacted by Platform Gail's activities. Accordingly, the FWS has specified measures to minimize or avoid such incidental taking. These measures have been adopted by the MMS (see Chapter 2) and will be imposed as mitigating measures in the operating plans for Platform Gail.



United States  
Department of the Interior



Fish and Wildlife Service

Lloyd 500 Building, Suite 1692  
500 N.E. Multnomah Street  
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

June 16, 1986

MEMORANDUM

To: Director, Minerals Management Service,  
Washington, D.C.

From: Assistant Regional Director - Federal Assistance  
Region 1, Portland, OR (AFA-SE)

Subject: Formal Endangered Species Consultation - Platform Gail  
and Associated Pipelines, Ventura County, California  
(1-6-86-F-39)

Consultation under Section 7 of the Endangered Species Act of 1973 (ESA), was requested by the Minerals Management Service (MMS) on February 18, 1986 and received and initiated by the Fish and Wildlife Service (FWS) on February 20, 1986.

This Biological Opinion addresses impacts of the subject oil production project on the endangered California brown pelican (Pelecanus occidentalis californicus) (CBP), California least tern (Sterna antillarum browni) (CLT), light-footed clapper rail (Rallus longirostris levipes) (LFCR), bald eagle (Haliaeetus leucocephalus) (BE), American peregrine falcon (Falco peregrinus) (APF), southern sea otter (Enhydra lutris nereis) (SSO), and salt marsh bird's-beak (Cordylanthus maritimus maritimus) (SMBB). Our Conservation Recommendations are appended to this Opinion.

During the course of this consultation, the following individuals were contacted because of their expertise on endangered species or their particular knowledge of the project area: Dr. Franklin Gress, University of California, Davis; Mr. Alec McCall, National Marine Fisheries Service, La Jolla; and Mr. Peter Sorensen, FWS. In addition, numerous meetings and technical conversations were conducted with members of your agency as late as May 5, 1986 to discuss aspects of the project, impact analysis and compensatory measures. Numerous technical documents were utilized in developing this Opinion. Those supplied by your agency (including the applicant, Chevron, Inc.) included: Oil Spill Emergency Contingency Plan Platform Gail and Platform Grace, Santa Clara Unit; Environmental Report: Platform Gail and Associated Pipelines (Supplement to Santa Clara Unit); Development and Production Plan: Platform Gail and Associated Pipelines; MMS Oil Spill Risk Analysis for Platform Gail; Endangered Species Analysis Platform Gail; Site Specific Survey Platform Gail; and Oil Spill Risk and Trajectory Analysis

Biological Information Document Supporting Technical Study for Proposed Platform Gail. A variety of other published reports and data maintained in our files was also used.

We believe there are no discernible effects to the bald eagle or southern sea otter with this project. Therefore, they will not be included in the remainder of this Biological Opinion.

### Biological Opinion

It is our Biological Opinion that implementation of the subject project as proposed is not likely to jeopardize the continued existence of the California brown pelican, California least tern, light-footed clapper rail, American peregrine falcon or salt marsh bird's beak.

### Description of the Proposed Action

The permit applicant, Chevron USA, Inc., proposes to install drilling/production facilities on OCS Lease P 0205 to develop oil and gas reserves in the Sockeye Field, Santa Clara Unit, offshore California. The platform would be located about 6 to 7 miles north of Anacapa Island and about 9 miles from the mainland of Ventura County. The platform will be placed in 739 feet of water and will contain 36 well slots.

The topside facilities are designed to produce dehydrated, pipeline quality crude which will require no further treatment prior to processing at Chevron's El Segundo Refinery.

The facility will also produce dehydrated gas. Any hydrogen sulfide present in the gas will be removed in existing facilities on Platform Grace. The gas will then be fractionated in existing facilities onshore at Carpinteria to produce salable products.

The platform facilities will include systems for recovering vapors, acid gases, oil drains, water and sands. These systems will minimize releases to the atmosphere and provide for required clean-up before discharges to the sea.

Power for the facilities will be provided by gas turbine electric generators. The turbines are fitted with water injection to reduce nitrogen oxide emissions. Ample heat is recovered from the turbine exhaust to satisfy all platform heating requirements.

The platform will be supplied by boats from Port Hueneme. Mooring buoys will be provided on the north and south sides of the platform.

Three nominal 8-inch diameter pipelines will be installed between Platform Gail and existing Platform Grace. One line will

transport oil to Grace. One line will transport gas to/from Gail and one is a spare designed to handle either oil or gas.

The pipelines are approximately 6 miles long and are routed to avoid sea-bottom features that might impact the lines. The lines will not impact sensitive biological areas or cultural resources.

At Platform Grace, the Gail products are co-mingled with Grace production and transported to shore through existing pipelines via Platform Hope to Carpinteria. The new and existing oil lines will be equipped with leak detection systems.

The existing facilities at Carpinteria are adequate to handle the peak production from Gail. No additions to Carpinteria are proposed. Peak production rates are expected to be 13,300 barrels of oil per day in 1990, and 20.2 million standard cubic feet per day of gas in 1998. First production is scheduled for the second quarter of 1987.

In accordance with various Federal regulations, an oil spill contingency plan has been prepared for this project. As part of this plan, the applicant is required to have oil spill containment equipment on hand at the platform, at the shore facilities and on crew and service boats. In addition, two containment cleanup vessels, Clean Seas I and Clean Seas II are moored within 3 and 8 hours running time, respectively, of the project facilities. Sensitive monitoring equipment has been installed to allow early detection of leaks and breaks while shutdown features have been designed into the project. Even with these facilities, (the Oil Spill Contingency Plan should be referenced for a complete description), spilled oil can reach sensitive areas because of increased response time due to weather and sea conditions, human error, equipment limitations and movement of birds. MMS response projections are based on ideal weather conditions and model assumptions.

### Species Accounts

The biological and ecological life requirements and site specific occurrences of the species addressed in this consultation have been summarized in previous Biological Opinions issued to you and in documents prepared by or for your agency for this project. Most recently, Biological Opinions 1-6-86-F-24 (Santa Maria Basin - Cities Service Co.), 1-6-85-F-34 (Pt. Pedernales - Union Oil Co.) and 1-1-84-F-7 (Santa Ynez Unit) have addressed these species. We refer you to these past opinions and agency documents for general background information.

New information, pertinent to the analysis of impacts associated with this project, is summarized below.

### California Brown Pelican

Although there are breeding peaks (usually spring months), nesting and breeding activities can and do occur throughout the year. There appears to be a very direct relationship between productivity and availability of prey, primarily the northern anchovy. Region-wide prey availability will keep pelicans in the area the entire year. However, once nesting has begun, they are dependent on a local prey base. Feeding forays commonly occur up to about 30 miles from the nest sites (Franklin Gress, personal communication). Further distances often result in abandonment of nests and subsequent mortality of eggs or chicks remaining in the nest.

As stated above and in the numerous documents utilized to develop this Biological Opinion, pelicans may be in the project vicinity the entire year. Their numbers fluctuate in relation to the availability of prey. The principal prey--anchovies--are most numerous from the Santa Barbara Channel to the San Pedro Channel, an area encompassing the entire project vicinity (Alec McCall, personal communication).

Pelican populations have increased dramatically since about 1974 with an apparent leveling the past few years due to decreased productivity. The majority of the birds found seasonally in the project vicinity may be dispersing birds from the Mexican population. Productivity has declined during the past few years apparently as a result of human disturbance and other factors (Gress, personal communication). The Anacapa Island (and to a lesser extent, Santa Barbara Island) breeding birds have experienced similar low productivity the past few seasons, probably as a result of food availability. This year to date, 3000-4000 nests were constructed on Anacapa Island, but very high mortality (up to 70%) has been experienced thus far (Gress, personal communication).

### Light-footed Clapper Rail

The survey dates presented by MMS did not extend beyond the 1983 breeding season. More recent MMS data (USFWS 1986) indicate a relative stable population in 1984 (compared to 1983) but a precipitous decline in 1985. Between 1984 and 1985, the pairs of LFCR in California declined by about 49 percent. In Santa Barbara and Ventura Counties (project area) a 52 percent decline was observed during the same time period. Reasons for this decline are presently unknown.

### California Least Tern

The previous Biological Opinions on your projects and documents submitted by your agency adequately addressed the biological/ecological requirements of CLT. Additional

information indicates that CLT utilizing the three nesting colonies most likely to be affected by your activities (Santa Clara River mouth, Ormond Beach, Mugu Lagoon) represent about five percent of the California population and are responsible for about seven percent of the annual recruitment. These figures are for the years 1984 and 1985, years not presented in your assessment. Non-breeding and post-breeding birds from these nesting colonies may forage throughout the project area. However, the feeding ecology is poorly understood.

#### American Peregrine Falcon and Salt Marsh Bird's Beak

The ecological relationships and biological requirements of these species are adequately addressed in the referenced project documents and previous Biological Opinions with one major exception. Peregrine falcons were introduced in 1985 on San Miguel Island, about 50 miles from the proposed platform site.

#### Effects of the Proposed Action

Construction of the platform and pipelines between Platforms Gail and Grace, drilling activities, and production will have only minor impacts to listed species. These impacts are primarily associated with noise and disturbance to CBP. Discharge of drilling muds may prove toxic to some marine organisms that are an element in the food chain utilized by CBP and CLT (Chambers 1984). These impacts notably are minor with this project except on a very local level. However, this is a facet of the biology of these two endangered species that deserve more investigation.

The greatest project-related impact to all listed species is oil spills. Spills can occur at the platforms through blowout, leakage at the well or collision by large vessels. Pipeline ruptures or leaks could occur at any point along the new pipeline between Platform Gail and Grace as well as the existing pipelines from Grace and terminating on shore near Carpinteria. The probabilities of spills, both large and small, were developed by the project proponent and your agency. Your figures consider seasonal variances due to currents and wind actions. They have not taken into account containment and cleanup activities designed to reduce the magnitude and area of a spill as well as the duration that oil would be present or the effect of wave action and evaporation on surface oil.

The information supplied in your oil spill risk analysis predicts that there is up to 13% chance of a spill greater than 1,000 barrels from Platform Gail or from the connecting pipeline. Data presented by your agency including consultant-generated probabilities were voluminous. However, this singular figure is central in determining and interpreting the impact levels. Also important in this analysis is the probability of oil making contact with sensitive habitats once a spill has occurred. These

are conditioned probabilities. Again they do not take into consideration containment, cleanup or diversion activities or effects of weathering on the oil.

The Dames and Moore, (1985) spill risk analysis considered three types of oil spills: blowouts, non-blowout platform spills, and pipeline spills. The probability of occurrence was calculated for each spill type and for all types combined. The analysis found that small spills (larger than 10 barrels) are most likely, with the probability of one or more spills of this size given as 0.69 (69% chance of occurrence). Spills larger than 100 barrels and spills larger than 1,000 barrels in size are less likely, the probability of one or more spills of these sizes is 0.16 (16%) and 0.07 (7%), respectively. Large spills (over 10,000 barrels) are the least likely, with the probability of one or more occurrences calculated as 0.03 (3%).

The total probabilities reflect most likely impacts in the sense that the probabilities of both spill occurrence and contact are considered. These figures show that the probability of an impact is small, and that the probability of no impact is much larger. Conditional probabilities represent potential impact probabilities, as they consider only the probability of contact and not the probability of spill occurrence.

The analysis of potential oil spill impacts is focused on larger spills (greater than 1,000 bbl). Smaller spills are significantly more likely to occur, but are less likely to affect the species under consideration. The lower likelihood of impact from smaller oil spills is due to lower likelihood of contact, resulting from differences in behavior between large and small spills. Smaller spills are more easily controlled and recovered than larger spills. Many factors affecting spilled oil are influenced by surface to volume ratios, which are generally larger for small spills than large spills. The affecting factors include evaporation, dissolution, dispersion, emulsification, and photo- and autooxidation, and sedimentation. Evaporation can remove up to two thirds of an oil spill mass in hours or a day, the other factors account for lesser spill volume losses.

Conditional probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain target within three days were given as follows:

Spill Location

<u>Target</u>	<u>Platform</u>	<u>Pipeline*</u>
Channel Island	> 99.5	93
Goleta Slough	< 0.5	< 0.5
Carpinteria Marsh	< 0.5	89
Santa Clara River	10	18
Mugu Lagoon	12	8

\*Pipeline was separated into four segments. These figures represent the highest percent for only one of the four segments.

Source: MMS, 1986; spill size is irrelevant

The assumption has been made that contact with any listed species will result in mortality. The probability of contact increases with time as oil remains in the environment without containment. This is counterbalanced somewhat in that the volume of oil will decrease over time due to the processes of evaporation, sinking, and weathering. Seasonal variations can be added to this but interpretation and application of the results become considerably less reliable when determining the biological significances of the various tables. The point, as stated above, is that the potential for a spill of major concern is extremely low. However, once a spill has occurred we consider any contact, resulting in mortality, as highly significant. Consideration of the biological impacts of oil making contact with a listed species have been presented in the previous Opinions referenced above and your project documents. However, we must take exception with your analysis of significance for some of the listed species for the following reasons.

#### California Brown Pelican

Any contact with oil would cause either mortality to the individual pelican or to any developing eggs in the nest should oil from the plumage or feet of the bird contact eggs (Bideman and Drury 1980). Contact could occur while either feeding or loafing. It is unclear what impact an oil slick would have on anchovies. Individuals may directly or indirectly be killed, schools may avoid an oil slick altogether or be obscured from the pelican's view. However, pelicans, especially young ones, may land on the water within a slick.

Your analysis of impacts indicated that you believe between 8-10 individuals would have to be killed by contact with oil in winter and spring and 110-150 in summer or fall to rate a low level of impact. For a moderate level, the mortality would have to exceed 40-50 individuals in winter and spring and exceed 550-750 individuals if the spill occurred in summer or fall. We do not concur. With the present high level of mortality associated with nesting birds at Anacapa Island and the recent nesting failure of the Los Coronados Islands colony in Mexico, recruitment has been very low. These nesting mortalities are in addition to that caused by other natural or man-induced conditions. With these existing impacts, any new measurable mortality is significant.

#### Light-footed Clapper Rail

The recent drastic population decline renders the remaining rails important contributors to the survival and recovery of this

species. Therefore, any mortality of this critically endangered species is highly significant. Should oil enter any slough the species presently occurs in, mortality is assumed to result. This will occur either directly through oiling of feathers or eggs or indirectly through loss of prey items and/or ingestion of oil and oiled prey. However, oil contamination of these sloughs is not expected because of restricted entrances and the ease with which they can be boomed off in the event of a spill.

#### California Least Tern

The analysis of impacts appears appropriate. However, because numbers of each colony fluctuate annually, it may be inappropriate to assign mortality significance levels based on 1983 population statistics. A breeding population much larger than you reported at any one of the existing colony sites could occur in any given year. Furthermore, overall population declines, like that exhibited by the LFCR could occur, rendering even small local populations as important as large colonies to the overall survival and recovery of the species.

#### Salt Marsh Bird's Beak

The analysis in your documents appears to be incomplete for this species and the statement that if the species is not present then no impacts would occur may be erroneous. Seeds may be present within appropriate SMBB habitat, even though no plants are observed. Their viability may persist for some time. The effect of oil on seeds or on various stages of plant growth has not been identified. In addition, no recent survey data relevant to this project were presented and apparently no data have been gathered by you or the project proponent. Therefore, it is difficult to offer more than conjecture as to actual project impacts other than to say that oil would have to contact the species through a restricted channel (except at high storm tides) and, therefore, has a high probability of being excluded from these habitats.

#### Cumulative Effects

Cumulative effects are those effects of future State or private actions which are reasonably certain to occur. An action is reasonably certain to occur if it requires the approval of local resource or land use agencies and such agencies have essentially approved the action. Those activities not requiring approval of local agencies or governments must be essentially ready to proceed.

Future oil and gas exploration and development in State waters is slated. However, these activities are subject to the Army Corps of Engineers' permitting process and, therefore, will be reviewed under the Section 7 (ESA) process. Other oil and gas exploration

and production activities including refining and tankering where they are interrelated and interdependent activities of exploration and production will also be subject to Section 7 review.

Your letter of April 4, 1986 addressed this issue and concluded that there are no known cumulative impacts. We concur.

### Biological Opinion

In accordance with the foregoing impact analysis, it is our biological opinion that the subject project is not likely to jeopardize the continued existence of the California brown pelican, California least tern, light-footed clapper rail, American peregrine falcon or salt marsh bird's beak.

### Incidental Take

Section 9 of the Endangered Species Act prohibits any taking, killing, harassment, or harming of listed animal species without special exemption. Endangered plant species (SMBB) are subject to less restrictive provisions regarding take that do not apply in this instance. Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to, and not a purpose of, the agency action is not considered a taking within the terms of the Act, provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Your letter of April 4, 1986 indicated that information supplied in your assessment should be sufficient for this agency to establish incidental take and, therefore, you were not providing any additional information. Based on your assessment and our analysis of impacts to listed species, we anticipate the following levels of incidental take:

Incidental take levels for CBP have been set at five in previous Biological Opinions for OCS activities. This take was based on birds potentially lost by errant contact with oil slicks either near platforms or in nearshore environs. Platform Gail will be constructed near the largest breeding colony within the United States. Incidental take can be expected to increase over previous levels. We believe that ten CBP may be taken. This level is incidental to the proposed action and could occur without violating Section 7(a)(2) of the ESA. It is also the level at which you determine a low impact to the species.

CLT forage in nearshore areas and may be exposed to oil slicks. We establish the expected level of incidental take outside the breeding season specified below for this species at two. Should a spill occur and approach the nearshore area within the vicinity of nesting colonies during the breeding season (April 1 to September 1) the level of take for CLT is anticipated to be five.

This is premised on the belief that an oiled adult may contaminate either an egg(s) or nestling(s) resulting in mortality. The death of the adult bird would result in death of eggs or young in the nest, all of which constitutes take of CLT. These incidental take limits will not be additive, nor are they anticipated to occur annually. The total level of anticipated incidental take during the breeding season is five (5), of which no more than one (1) will be an adult.

LFCR are imperiously endangered yet their nesting and foraging areas can be easily isolated from oil spills. Therefore, no incidental take is expected nor is any acceptable.

Consistent with your findings and previous Biological Opinions, no incidental take of APF is expected nor would any be acceptable.

To minimize or avoid such incidental take, we specify the following reasonable and prudent measures:

1. Consistent with previous Incidental Take statements issued to your agency, MMS should require that the existing oil spill contingency plan be updated to assure protection of the most sensitive/essential individuals and habitats (e.g. nesting sites, foraging areas, etc.) of listed species vulnerable to the proposed project. At a minimum plans should include:

a. maps (scale no smaller than 1:48,000) of environmentally sensitive areas including endangered species habitat,

b. development of an endangered species oil spill avoidance plan, in association with FWS and California Department of Fish and Game, to result in listed species avoiding an oil spill. Some techniques are available (such as waterfowl hazing guns) that could potentially be successful. Such a plan would not necessarily require reinitiation of consultation,

c. use of the oil spill trajectory model, run by NOAA as a part of the oil spill response team, to predict the fate (movement) of spilled oil and help to direct the clean-up efforts.

d. MMS shall monitor any oil spills that may threaten nearshore environments and notify the USFWS immediately if trajectories indicate a potential problem for any listed species or their habitats. Monitoring must continue until all potential risks to listed species have abated.

2. MMS shall notify our Service, National Park Service, and California Department of Fish and Game of any spills that have the potential for affecting any listed species,

3. Some spills may not be contained and/or recovered in the time necessary to avoid contact with listed species (such as a spill approaching Anacapa Island). This may be due to rough seas or approaching darkness that may preclude containment and cleanup operations even with all the equipment available. In these instances, dispersants should be considered. Rapid approval for dispersant use is imperative. However, it is known that there are some toxic effects to marine organisms with their use (MMS 1985). Because of these effects, many agencies have been reluctant to grant approval for the use of dispersants. MMS, as lead federal agency, should work with all agencies involved in the approval process toward identification and resolution of problems associated with the use of dispersants and identify rapid response techniques for the use of these chemicals. The FWS could be a party to the development of this plan.

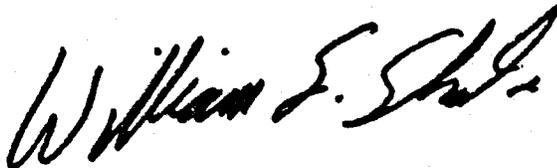
We believe the following terms and conditions are necessary to implement the foregoing measures: (1) if specified levels of incidental take for any listed species are reached or exceeded, MMS shall require that the causative action of such take cease immediately, and shall reinitiate consultation with our Service to reevaluate the incidental take impacts; (2) MMS shall immediately telephone the Laguna Niguel Field Office if incidental take of any listed species occurs as a result of the project, and prepare a written report which shall include the date, location, and circumstances surrounding the taking and the disposition of the individual(s) taken. Written and telephone reports should be directed to Project Leader, U.S. Fish and Wildlife Service, 24000 Avila Road, Laguna Niguel, California 92656; (3) MMS will communicate to FWS information on the inspection program and project operations, as they relate to incidental take. Specifically, if information is revealed during inspections that increased potential for incidental take exists, FWS is to be notified for advice on remedial actions; (4) any remains of listed species taken as a result of this action should be deposited with our Law Enforcement Division (213) 436-1183.

#### Summary

In summary, this project has the potential to result in the taking of several listed endangered species through the accidental spill of oil from the platform or connecting pipelines. Spills have the potential to cause mortality at any time of the year for several species and in any location at least where the CBP is concerned. However, spills at certain times (spring, summer, early fall) near listed species concentration areas could be disastrous. However, the probability of spills occurring and making contact is extremely low. Furthermore, containment and cleanup equipment and techniques will further reduce the potential for contact with oil. In addition, several

requirements were listed to further reduce the potential for established levels of incidental take. Measures to further the conservation for all listed species in the project area were given.

This concludes formal consultation on this project. If the proposal is significantly modified in a manner that would change the impacts discussed in this opinion; if new information becomes available on listed species that could change the conclusion of this Opinion; or if a species occurring in the area is added to the list of endangered species, formal consultation should be reinitiated. We request that MMS incorporate into its Environmental Assessment acceptance of our reasonable and prudent measures to reduce incidental take. Further, we request MMS to respond with a statement as to which Conservation Recommendations, appended to this Opinion, are to be included in the project. Please send us a copy of the EA and your Conservation Recommendations response within 30 days after the EA is rendered.



Attachment  
Appendix - Conservation Recommendations

cc:  
OES, Washington, D.C.  
LNFO  
AHR, Portland, OR

JABottorff:gr/an/GAIL/Sec 7 Telecom AT(2)

### Literature Cited

Biderman, J.O. and W.H. Drury. 1980. The effects of oil on Aquatic Birds. Fish and Wildlife Service Contract FWS/OBS-80/16. 5 p.

Dames and Moore, 1985. Oil Spill Risk and Trajectory Analysis, Biological Information Document, Supporting Tech. Study Proposed Platform Gail for Chevron USA, Inc.

Chambers Consultants and Planners. 1984. Analysis of the benthic infauna near oil platform Eva before and after an experimental drilling mud discharge. For Exxon Production Research. CCP Project #3019.

Minerals Management Service. 1985. Fate and effects of oil dispersants and chemically dispersed oil in the marine environment. Sea Otter Oil Spill Mitigation Study. Contract No. 14-12-0001-30157. 114 p.

USFWS. 1986. Management and restoration of habitat for light-footed clapper rails on Camp Pendleton.

## APPENDIX

### Conservation Recommendations

In furtherance of the purposes of the ESA, Sections 2(c) and 7(a)(1) which directs Federal agencies to use their authorities to carry out programs for the protection, conservation, and recovery of listed species, we recommend that MMS implement several actions. These recommendations may, if implemented, significantly reduce the risks that this project and future oil development and production pose to endangered species.

1. A complete analysis of the fate and effects of drilling muds on marine organisms and endangered species should be addressed. The current MMS "drilling muds study" (Monitoring: Assessment of Long-Term changes in Biological Communities.) evaluating "near field" distribution and effects of mud constitutes should be evaluated for its utility in determining acute and chronic toxicity effects on indigenous species including prey species of the SSO, CLT, APF and CBP. If early phase results indicate the potential for toxic effects in "far field" environs frequented by listed species, then the study should be expanded to determine levels of significance for lethal dosage and sublethal dosage effecting species growth, development, reproduction, behavior, etc. for appropriate target species.

2. A cumulative analysis of all existing and approved energy development projects in the Santa Barbara Channel and Santa Maria Basin was presented. This analysis indicated that we are rapidly approaching (over 90%) the probability of a spill from either a pipeline or platform occurring. With addition of future OCS developments an oil spill appears inevitable. The survival and recovery of listed species in the planning area needs to be considered in the planning and development of future projects including oil spill contingency plans. Recovery needs as identified in completed Recovery Plans for the CBP, LFCR, CLT, APF, SMBB should be reviewed and considered for inclusion in your FY88 studies plan. Specific items that could be included are:

- a) Telemetry studies of CLT feeding ecology,
- b) Hacking of APF,
- c) Reintroduction of BE, LFCR and SMBB,
- d) Assistance and expansion of ongoing studies of CBP feeding ecology.

The value of implementing these measures is twofold. First, they would satisfy requirements to conserve species. Second recovery

of these species could ease certain restrictions imposed on your agency and subsequently the applicant or OCS operators pertaining to exploration, production, and development of energy resources.

Preface to Biological Opinion  
from National Marine Fisheries Service by MMS

On February 19, 1986, the Minerals Management Service (MMS) requested that the National Marine Fisheries Service (NMFS) initiate formal consultation under Section 7 of the Endangered Species Act, as amended, for Chevron's proposed development and production plan (Platform Gail) in the eastern Santa Barbara Channel. Receipt of the request and initiation of formal consultation occurred on the same date. Listed species identified by the NMFS as potentially affected by the proposed project, and for which consultation was requested include: Gray whale, Right whale, Blue whale, Fin whale, Sei whale, Humpback whale, Sperm whale, Guadalupe fur seal, Green sea turtle, Leatherback sea turtle, Pacific Ridley sea turtle, and Loggerhead sea turtle. To assist the NMFS in evaluating the potential impacts of Platform Gail, an endangered species analysis (ESA) was prepared by Larry Seamans & Associates (1985). A copy of this analysis is included in Appendix A.2.

On June 9, 1986 the NMFS issued their Biological Opinion for Platform Gail and concluded that "...the proposed activities are not likely to jeopardize the continued existence of any threatened or endangered species." While stating that "...sufficient information is available to conclude that current levels of exploration, development, and production are below critical threshold" NMFS urged MMS to continue discussions to explore methods of utilizing MMS Studies Program to detect and monitor any cumulative adverse environmental effects of the expanding OCS activities on the west coast. The NMFS Opinion did not identify any new sources of potential adverse impact and was in general agreement with the analysis of impacts as stated herein in the ESA.

With the exception of the gray whale, NMFS has concluded that normal project operations are not likely to affect any listed cetaceans due to the few individuals and relatively short periods that they may be present in the project area. NMFS expects that the gray whale population is likely to experience impacts from noise and any major oil spills which might occur as a consequence of the operation of Platform Gail. However, these impacts are not expected to jeopardize the population. Impacts will most likely be confined to "short term changes in swimming speed, altered surface behavior, and small deflections in course, resuming normal course and speed after passing the source." Also, NMFS determined that the possibility that sea turtles or Guadalupe fur seals could be contacted by spilled oil is negligible. If gray whales were present during a spill NMFS concludes " that whales may avoid contact with spilled oil, are likely to suffer minor impacts if they contact oil spills, and are likely to recover from those effects." NMFS has based their conclusions on results of MMS-funded studies and other oil/effects studies in the literature, the presence of numerous

natural oil seeps in the Channel, the low probability of a spill occurring, and the lack of reported mortality of large cetaceans during the 1969 Santa Barbara spill and 1979 Ixtoc spill in the Gulf of Mexico.

NMFS found that no incidental taking of either endangered whales or the threatened Guadalupe fur seal could be permitted. Although no sea turtle mortality has been reported and NMFS does not anticipate any, incidental take of sea turtles was set at one take by mortality and five takes by harassment.



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Washington, D.C. 20235

Appendix A.2: Biological Opinion  
from National Marine Fisheries Service

JUN 9 1986

F/M412:SK  
F/SWR33:DJS

Mr. William D. Bettenberg  
Director, Minerals Management Service  
Department of the Interior  
Washington, D.C. 20240

Dear Mr. Bettenberg: :

Enclosed are a Biological Opinion and Statement Regarding Incidental Taking prepared by the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act of 1973 (ESA). The opinion and statement concern the potential impacts on endangered whales and threatened and endangered sea turtles due to the proposed Outer Continental Shelf (OCS) oil and gas development and production activities at Platform Gail in the Santa Barbara Channel, offshore California.

Please note that the Guadalupe fur seal (Arctocephalus townsendi) recently was added to the List of Endangered and Threatened Species and, therefore, has been included in the consultation.

Based on our review of the available information on the proposed activities and on the biology and ecology of endangered and threatened species in the area, we have determined that the proposed activities are not likely to jeopardize the continued existence of any endangered or threatened species. We are concerned about the cumulative effects of offshore oil and gas development and production on endangered and threatened species along central and southern California. The NMFS recognizes that an impending Minerals Management Service funded study is designed to begin addressing aspects of the cumulative effects issue. We recommend that the Minerals Management Service continue discussion with the NMFS to explore methods of utilizing its studies program to detect and monitor any cumulative effects of expanding development and production along the West Coast.

New information on the timing, location, and nature of activities associated with OCS oil and gas development and production plans and permit applications should be reviewed by the Department of the Interior on a case-by-case basis to determine if additional consultation pursuant to Section 7 is required.

Consultation must be reinitiated if (1) the amount or extent of taking specified in the incidental take statement is exceeded (incidental take of marine mammals is not authorized by this



g/m412 S.J. Kraly w/encl.

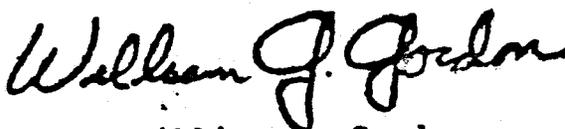
biological opinion); (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

The enclosed biological opinion in no way permits the taking of endangered whales or the threatened Guadalupe fur seal. Such taking, unless properly permitted, is prohibited under Section 9 of the ESA and under Section 102 of the Marine Mammal Protection Act (MMPA). Section 17 of the ESA states that unless otherwise provided, no provision of the ESA shall take precedence over any more restrictive provision of the MMPA. Under Section 101(a)(3)(B) of the MMPA, the taking of depleted species of marine mammals can be permitted only for scientific purposes. Therefore, the appended statement concerning incidental taking of endangered or threatened species pursuant to Section 7(b)(4) of the ESA does not include endangered whales or the threatened Guadalupe fur seal.

No sea turtle mortality has been reported incidental to OCS activities off California, and we do not anticipate any. However, we have provided an incidental take statement for sea turtles pursuant to Section 7(b)(4) specifying one take by mortality and five takes by harassment. Our statement concerning incidental taking is appended to the biological opinion and contains the following conditions: any mortality or harassment of sea turtles due to activities associated with this project must be reported to the NMFS Southwest Regional Office as soon as practical, and that your Pacific OCS Office staff cooperate with the Southwest Region staff in reviewing the circumstances to determine if measures need to be developed to prevent or mitigate additional mortality.

I look forward to continued cooperation during future consultations.

Sincerely,



William G. Gordon  
Assistant Administrator  
for Fisheries

Enclosures

cc: F(2), F/M,  
cc w/enclosure: GCF, F/M412-SJKiraly, F/SWR33-DJSeagars  
F/M411:SKiraly:634-7529:5/23/86:by disk #36 bettenberg/blm  
Corrections:F/M41:634-7529:blm:05/30/86

Endangered Species Act

Section 7 Consultation - Biological Opinion

AGENCY: Minerals Management Service

ACTIVITY: Operations pertaining to the development and production of oil and gas from Platform Gail in the Santa Barbara Channel, offshore California.

CONSULTATION CONDUCTED BY: National Marine Fisheries Service

DATE OF ISSUANCE: JUN 9 1986

BACKGROUND: On February 19, 1986, the Minerals Management Service (MMS) requested initiation of formal consultation on a plan for proposed oil and gas development and production activities from Platform Gail in the Santa Barbara Channel, offshore California. The purpose of this consultation is to consider impacts of the proposed activities on endangered whales, the threatened Guadalupe fur seal, and threatened and endangered sea turtles.

The National Marine Fisheries Service (NMFS) considered impacts to threatened and endangered species due to oil and gas leasing and exploration and some development and production activities within the Santa Barbara Channel in biological opinions issued September 25, 1979, to the United States Geological Survey (USGS) for the southern California Bight (NMFS, 1979) and May 8, 1981, to the Bureau of Land Management and USGS (NMFS, 1981). A complete, updated review of the biology and potential impacts on

listed species due to development and production activities was included in the biological opinions issued for the Santa Ynez Unit (SYU) on March 7, 1984, the Point Arguello Field on May 31, 1984, the central Santa-Maria Basin on June 21, 1985, and the northern Santa Maria Basin issued May 12, 1986. This opinion incorporates the information discussed in those opinions by reference and also includes information not available during previous consultations.

This opinion is based on information acquired through consultation with MMS, Pacific OCS Region Office, information contained in the Development and Production Plan (Chevron, 1986a), the Oil Spill Emergency Contingency Plan (Chevron, 1985) the Environmental Report (Chevron, 1986b), the Oil Spill Risk and Trajectory Analysis (Dames and Moore, 1985), the MMS Oil Spill Risk Analysis for Platform Gail (MMS, 1986), and the Endangered Species Analysis (Seeman Associates, 1986) prepared for this project, a review of published and unpublished literature, and discussions with NMFS staff and marine mammal biologists affiliated with other organizations.

**PROPOSED ACTIVITY:** Chevron U.S.A., Inc. (Chevron) has proposed to initiate development and production activities associated with a single platform ("Gail") on lease OCS P0205 in the Santa Clara Unit in the Santa Barbara Channel, offshore southern California. Two other platforms, "Grace" and "Gilda", are

already present on the Santa Clara Field of the Unit (these were addressed by NMFS (1979). Platform Gail will be located to develop the Sockeye field of the Santa Clara Unit. It will be a three deck, eight leg drilling/production facility installed by conventional methods in 739 feet (225 m) of water. The platform will contain 36 well slots; 25 of these slots will be used for production wells during the first development phase. During the second development phase an additional nine wells may be drilled. To minimize disturbance to the marine environment, any drilling mud or cuttings that have become contaminated with oil from a subsurface formation will be transported ashore and disposed of in a government-approved disposal site. Non-oily cuttings will be disposed of at the drill site. Three submarine pipelines, each nominally 8.6 inches (22 cm) in diameter, will be installed between Platforms Gail and Grace. One will transport oil to Platform Grace, one will transport gas to or from Grace and one will be a spare designed to transport oil or gas. The length of each of these lines from Platform Gail to Platform Grace is approximately six miles. At Platform Grace the oil and gas will enter the pipelines that currently transport the Grace production via Platform Hope to onshore facilities at Carpinteria. Chevron (1986a) states that the pipeline route from Gail to Grace has been chosen to avoid subsurface features that might affect the line.

Platform Gail is expected to be installed in the late summer/fall of 1986. Pipelines will be installed during the fall and winter of 1986/87. Drilling operations are expected to commence in the spring of 1987 and continue for approximately six years. Chevron (1986a) expects that the first oil will be produced in the second quarter of 1987. Chevron (1986a) predicts that production from the platform will peak in 1990 at 13,300 barrels per day (BOPD) and gas production will peak in 1998 at 20.2 million standard cubic feet per day (MMSCFD).

The facility will be abandoned according to appropriate MMS regulations in place when production has ended (Chevron, 1986a) in 30-35 years.

#### STATUS OF SPECIES CONSIDERED IN THIS OPINION

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Gray whale	<u>Eschrichtius robustus</u>	Endangered
Right whale	<u>Eubalaena glacialis</u>	Endangered
Blue whale	<u>Balaenoptera musculus</u>	Endangered
Fin whale	<u>B. physalus</u>	Endangered
Sei whale	<u>B. borealis</u>	Endangered
Humpback whale	<u>Megaptera novaeangliae</u>	Endangered
Sperm whale	<u>Physeter catodon</u>	Endangered
Guadalupe fur seal	<u>Arctocephalus townsendi</u>	Threatened
Green sea turtle	<u>Chelonia mydas</u>	Endangered
Leatherback sea turtle	<u>Dermochelys coriacea</u>	Endangered
Pacific Ridley sea turtle	<u>Lepidochelys olivacea</u>	Endangered
Loggerhead sea turtle	<u>Caretta caretta</u>	Threatened

**BIOLOGICAL INFORMATION:** Information pertaining to the population levels and trends, migration patterns, and behavior of the seven cetacean and four sea turtle species listed as endangered or threatened is contained in the biological opinions issued for the

development and production activities of the Santa Ynez Unit (NMFS, 1984a) of the Point Arguello Field (NMFS, 1984b) and of the central Santa Maria Basin (NMFS, 1985), and has been reviewed by Seeman and Associates (1986) for this project. That information is incorporated herein by reference.

Additional information concerning the status, distribution, and behavior of the endangered cetaceans considered by this opinion is contained in recent NMFS Status Reviews. The information contained in the NMFS (1984 c-h) Status Reviews for gray, right, blue, fin, sei and humpback whales, respectively, is incorporated in this opinion by reference.

Biological information concerning the threatened Guadalupe fur seal was reviewed and summarized in the NMFS Biological Opinion issued May 12, 1986 for the northern Santa Maria Basin. That opinion incorporated information included in the NMFS Status Review (Seagars, 1984), the various published and unpublished reports referenced within the Status Review, the notices of the proposed and final rule to list the species published in the Federal Register (40[2]:294-296 and 50[241]:51251-51258), and new information made available since the species was listed on December 16, 1985. Additional information was discussed in the Endangered Species Analysis (Seeman and Associates, 1986) prepared for this project. These documents are incorporated into this opinion by reference.

ASSESSMENT OF IMPACTS: Potential impacts to endangered whales, the threatened Guadalupe fur seal, and threatened and endangered sea turtles from the proposed development and production at Platform Gail include (1) noise associated with platform construction and placement, drilling and production, crew boats and helicopters; (2) contact with spilled oil; (3) haulout disturbance associated with oil spill clean-up operations; (4) collisions with associated vessels; and (5) noise and vessel traffic associated with facility abandonment. Many of these potential impacts were discussed in the biological opinion issued for the exploration phase of OCS Lease Sale 53. The potential impacts to listed species due specifically to development and production were discussed in detail within the referenced biological opinions for the SYU, the Point Arguello Field, and the central and northern Santa Maria Basins. Those discussions remain valid and are incorporated herein by reference. Additional discussion relevant to the proposed project is included below.

Impacts from noise: Based on the information presented in the previous consultations (NMFS, 1984a, b, 1985 and 1986), we have determined that many of the sounds produced by development and production related activities are within the frequency range of sounds produced by and, therefore, assumed to be heard by those endangered mysticetes likely to occur in the region. Impacts due to noise from this project are expected to be similar to those

for the Point Arguello and central and northern Santa Maria Basin fields because oil will be piped ashore for transport and treatment. Due to its nearshore migratory pathway and considerable use of the Santa Barbara Channel, the gray whale is the species most likely to be affected by noises related to placement of pipelines and platforms associated with drilling and extraction. Platform construction and pipeline placement for this project are scheduled to occur during the late summer but could extend into the fall. Thus, impacts may occur to gray whales as they pass near enough to the platform to be exposed to construction and production related sounds. The evidence collected to date indicates that gray whales may respond to the most intense of the sounds associated with construction and production by short term changes in swimming speed, altered surface behavior, and small deflections in course, resuming normal course and speed after passing the source (Malme et al., 1983; Miles, In litt.).

As indicated in the previously referenced opinions, we expect that the populations of the other listed whale species are not likely to be affected by sounds associated with production and development activities. This is because most individuals are found farther offshore, and those few individuals within the project area would be present only for short periods as they migrate to feeding or breeding areas elsewhere.

No information is available concerning the effects of noise associated with OCS development and production activities on the Guadalupe fur seal or other pinnipeds. However, based on studies conducted on the effects of various acoustic harassment devices on harbor seals (Mate and Miller, 1983) and sea lions (Awbry and Thomas, 1984), we believe that a Guadalupe fur seal would have to be within 100 m of the construction activities before showing any measurable response. We conclude that the Guadalupe fur seal is not likely to be affected by sounds associated with this project because few, if any, seals are likely to occur in the immediate vicinity of the project and, if present, they are not expected to respond to these sounds in an adverse manner.

Impacts from oil spills: Oil spills could occur as a result of accidents on platforms, pipeline leakage or breaks, or well blowouts resulting from this project. Chronic small spills of diesel fuel or lubricating oil are expected to occur as a result of accidents on platforms. Such spills dissipate quickly and are not likely to result in a substantial increase over the amount of oil leaking into the water from natural oil seeps. These types of spills are not likely to present a threat to the survival of any of the listed cetacean or sea turtle species considered in this opinion.

The oil spill risk analysis developed for the Platform Gail project (Dames and Moore, 1986) calculated the probability of one

more oil spills larger than 10 barrels (bbl) to be 0.69, larger than 100 bbl to be 0.16, larger 1,000 bbl to be 0.07, and over 10,000 bbl to be 0.03. The MMS oil spill risk analysis for Platform Gail estimated the probability of one or more spills greater than 1,000 bbl occurring over the expected production life of the platform to be 0.13 (MMS, 1986). These estimates represent spills due to blowouts, non-blowout platform spills, and pipeline spills, and are based solely on oil spill accident rates and oil resource volume estimates. Oil spill trajectory simulations prepared by Dames and Moore (1986) for the project area show that if a spill occurs, conditional probabilities of contacting land segments range from negligible to 76.23 percent for nearby coastal sections, and 0 percent for San Nicolas, San Miguel and Santa Barbara Islands (locations where Guadalupe fur seals have been observed on land [Stewart et al., In press]), depending on the location and season of the spill. The MMS oil spill risk analysis for Platform Gail estimates these same probabilities to range from greater than 99.5 percent for nearby coastal sections and the northeastern Channel Islands to less than 0.5 percent for the three offshore islands noted above (MMS, 1986). It is likely that most of any spilled oil would either remain in the immediate offshore area or move toward the Ventura-Point Mugu stretch of coastline. Therefore, (1) a large portion of the gray whale population could come into contact with a spill should one occur during the migratory seasons and (2) the

possibility that sea turtles or Guadalupe fur seals could be contacted by spilled oil is negligible.

In general, the conclusions of previous biological opinions (NMFS, 1984a,b and 1985) for similar development and production projects and the results of research completed to date (St. Aubin et al., 1984; St. Aubin et al., 1985) indicate that whales may avoid contact with spilled oil, are likely to suffer minor impacts if they contact oil spills, and are likely to recover from those effects.

Kooyman, Gentry, and McAllister (1976) reported that a light oiling of about 30 percent of a northern fur seal's pelt resulted in a 1.5 fold increase in the metabolic rate of fur seals in water. Although the study could not verify that death would inevitably follow such contact, it did predict that the health of oiled individuals was in serious jeopardy because the stress of greatly increased metabolic rates generally leads to death by disease or starvation. These results are applicable to the Guadalupe fur seal as the thick pelage of all fur seals constitutes the principal element of their thermoregulatory mechanism.

There is virtually no information available concerning the at-sea distribution of Guadalupe fur seals. We believe that the few individuals present offshore Southern California are most likely to occur well to the west and south of the project area, such as

around haulouts on the far western Channel Islands and over the more southwestern offshore ridges and continental slope. Because Guadalupe fur seals are believed to be offshore, deep water feeders, it is unlikely that their number in the eastern Santa Barbara Channel will increase notably during the life of the project -- even if a breeding colony becomes established on one or more of the Channel Islands. Because there is only a low probability of a spill from this Platform reaching southern California pelagic regions or haulout sites where Guadalupe fur seals may be present, and there are only a few individuals present in these areas, it is unlikely that the Guadalupe fur seal population will be affected adversely due to an oil spill.

The fact that no marine mammal mortalities were reported during the Ixtoc spill (Hooper, 1981) or the 1969 Santa Barbara spill (Brownell, 1971) supports our conclusions concerning potential impacts on listed marine mammals. In some cases, these conclusions have been based on calculations and theories that are presently unverified, and we believe that they should be interpreted conservatively.

Impacts due to haulout disturbance: In the remote event that an oil spill approaches or contacts island areas where Guadalupe fur seals may be present, clean-up efforts may be directed to both nearshore and onshore regions. Pinnipeds respond to human presence on haulout sites by immediate departure from the

vicinity. Prolonged or intensive disturbance can result in abandonment of the site. Disturbance during the period when Guadalupe fur seals would likely be present (May-August) could result in disturbance to the few individuals present and perhaps their abandonment of the site.

Oil spill trajectory analyses conducted for Chevron by Dames and Moore (1986) indicate that there is virtually no chance that a spill from this project will contact haul out sites at San Miguel, San Nicolas and Santa Barbara Islands or pelagic areas where Guadalupe fur seals have been observed. Therefore, it is unlikely that there will be significant clean-up related disturbance at sites where Guadalupe fur seals have been observed to haul out.

Impacts due to collisions with project associated vessels and impacts due to facility abandonment: The discussions and conclusions concerning these potential impacts to listed cetaceans and sea turtles were discussed in the previously referenced opinions issued for the SYU, the Point Arguello, and the central and northern Santa Maria Basins. These conclusions remain valid and are incorporated herein by reference. Guadalupe fur seals are not likely to be present within the project area, are highly mobile when at sea, and are able to avoid approaching vessels. Therefore, we conclude that the Guadalupe fur seal is not likely to be affected adversely by vessels or by dismantling activities associated with facility abandonment.

CUMULATIVE EFFECTS: We are concerned that the cumulative effects of the expanding development and production related activities along the California coast and, in particular, those within and adjacent to the Santa Barbara Channel, may eventually exceed those threshold levels which could lead to abandonment of important habitat or interfere with the recovery of populations of endangered and threatened species. Continued OCS expansion could eventually result in alteration of migratory routes, with an unknown effect on gray whale physiology or reproductive behavior. At present, we are unable to predict what those threshold levels might be. However, the current MMS funded study offshore Point Sal, California may help to detect and monitor cumulative effects on listed species. The continued recovery of gray whale populations and the movement of humpback whales into the Gulf of Farallons (an area having high levels of vessel traffic) suggest that current levels of development and vessel traffic are below existing thresholds.

The NMFS will monitor OCS activities and review new information concerning listed species for indications of cumulative impacts. The MMS's studies program should provide information that may help to identify any such long term impacts.

**CONCLUSION:****Cetaceans other than gray whales:**

Based on the above information, our prior assessments of impacts (NMFS 1984a,b, 1985 and 1986), the wide distributions and broad migration corridors of the North Pacific populations of blue, fin, sei, humpback, and sperm whales, and the fact that only a small portion of any population is likely to be in the project area, the NMFS concludes that the proposed activities associated with oil and gas development and production at the Platform Gail site in the Santa Barbara Channel are not likely to jeopardize the continued existence of these species.

The North Pacific right whale population is so small that adverse impacts on even a few individuals or modification of important habitat could jeopardize the continued existence of the population. These facts led to the conclusion that oil leasing and exploration of historical feeding grounds in Alaska could interfere with the recovery of the population and ultimately jeopardize its continued existence. In contrast to Alaska, no historically important habitat exists off California and right whales were never abundant off the West Coast. Only two sightings of right whales have been made in southern California in the last 30 years (Gilmore, 1956; Woodhouse and Strickley, 1982). The probability is extremely low that a right whale will be affected by noise or spilled oil resulting from development

and production in this project area. Therefore, we conclude that proposed activities are not likely to jeopardize the continued existence of the right whale. As discussed above, we think the MMS must expand consideration of the cumulative effects of all OCS activities to ensure that collectively they are not likely to jeopardize the continued existence of the right whale.

Gray whales:

The gray whale population is likely to experience impacts from noise and spilled oil due to development and production related activities. Although we are unable to predict the thresholds at which the population may be influenced, we conclude that the potential impacts from this project are not likely to jeopardize the gray whale population as it migrates along the California coast.

Noise: Our conclusion regarding the impacts of project related noise (associated with pipeline and platform placement and with development) on gray whales is based on the recovery of the gray whale population concurrent with increased OCS activities, increasing vessel traffic off the California coast, the results of MMS funded studies on the effects of noise on marine mammals, and a review of the best scientific information available concerning gray whale acoustics, normal behavior, and response to test sounds associated with development and production. We emphasize that this conclusion is limited to the effects of OCS

development and production in the Platform Gail region of the Santa Barbara Channel and may not be applicable to other regions with different geographic features and gray whale distribution and abundance indices..

Oil spills: Our conclusions regarding the effects of spilled oil on gray whales is based on the results of MMS-funded and other studies concerning the effects of oil on marine mammals, the presence of numerous natural oil seeps in the Santa Barbara Channel and elsewhere offshore California, the low probability of a spill from a production well, and the fact that no mortality of large cetaceans was attributed to the production related 1969 Santa Barbara spill and the Ixtoc spill in the Gulf of Mexico.

Cumulative effects: In view of the relatively restricted migration patterns of gray whales and the extensive OCS development that is scheduled to take place within the range of the gray whale in the next five years, we are concerned that the cumulative effects of these activities may have adverse effects on the gray whale population. We believe that MMS must continue to expand ongoing programs, which are designed to detect and monitor the cumulative effects of proposed actions on listed species, in order to make determinations required by Section 7 of the ESA.

Since information on the cumulative effects of OCS activities on the gray whale throughout its range is sparse, we are unable to

identify a threshold of OCS activities that would result in significant impacts on the gray whale population. We believe that sufficient information is available to conclude that current levels of exploration, development, and production are below these critical thresholds. We expect that impacts associated with the proposed activities also will be below these thresholds, but this does not release involved agencies from their responsibility to continue investigating cumulative effects from all OCS activities, including those offshore Canada and Mexico, to ensure that, collectively, they are not likely to jeopardize the continued existence of the gray whale population.

Guadalupe fur seal:

The NMFS concludes that the proposed activities are not likely to jeopardize the continued existence of the Guadalupe fur seal because the majority of the population is located on or near Guadalupe Island, Mexico. Only a few non-breeding individuals occur in the Southern California Bight and the chance that they would be contacted or otherwise disturbed by an oil spill is negligible.

Sea turtles:

The NMFS concludes that these activities are not likely to jeopardize the continued existence of any listed sea turtle population because most individuals generally are distributed in

warm tropical or subtropical waters far to the south of the project area. Only a few individuals have been encountered in the colder temperate waters off California; these are probably vagrants at the extreme northern limits of their ranges.

REINITIATION OF CONSULTATION: Reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal involvement or control over the action has been retained or is authorized by law, (1) if the amount or extent of taking specified in the incidental take statement is exceeded (incidental take of marine mammals is not authorized by this biological opinion: see appended Statement Regarding Incidental Taking Pursuant to Section 7(b)(4) of the Endangered Species Act of 1973, as Amended); (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered critical habitat that was not considered in the biological opinion; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

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## CONSERVATION RECOMMENDATIONS

The advisory recommendations made in the biological opinions for the SYU (NMFS, 1984a) and the Point-Arguello field (NMFS, 1984b) relating to listed species are incorporated herein by reference. Three recommendations that warrant particular attention are discussed further below.

The NMFS recommends that the MMS urge the oil industry to promote research and development of improved oil spill containment equipment. Development and deployment of more effective equipment may reduce the risk of an oil spill contacting endangered or threatened species and their habitats.

The NMFS recommends that the MMS instruct Chevron and other companies associated with the project that in the event that it becomes necessary to conduct blasting operations for platform or offshore pipeline placement, these operations should be limited to periods when listed species are not observed to be in the project vicinity. We consider the term "vicinity" to include the area within two nautical miles of the blast site. Large numbers of gray whales migrate through the project area twice annually. In this area, the southern migration occurs from early December through mid-February and the return migration occurs from early February through early May. Limiting blasting to periods when gray whales are not in the vicinity will reduce the potential for

adverse effects associated with startle responses or direct physical injury that could occur due to the detonation of an explosive charge. An observer should be present during platform and pipeline placement in order to determine if listed species are in the "vicinity".

We also recommend that the MMS Studies Program continue discussion with the NMFS to explore methods of monitoring and detecting any cumulative impacts associated with oil and gas development and production activities proposed for the central and southern California region on endangered and threatened species. Such discussions may provide a more accurate understanding of potential impacts on endangered species as they move through the region than does the evaluation of small scale, site specific plans.

STATEMENT REGARDING INCIDENTAL TAKING PURSUANT TO  
SECTION 7(b)(4) OF THE  
ENDANGERED SPECIES ACT OF 1973, AS AMENDED

Section 7(b)(4) of the ESA requires that when an agency action is found to be consistent with Section 7(a)(2) the NMFS will issue a statement specifying the impact of incidental taking of endangered and threatened species, providing reasonable and prudent measures that are necessary to minimize impacts, and setting forth the terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

No sea turtle mortality has been reported incidental to OCS activities off California, and we do not anticipate any mortalities incidental to the proposed activity. The NMFS, however, establishes an incidental take by mortality level of one sea turtle and an incidental take by harassment level of five sea turtles. As a condition of this statement, if a sea turtle is killed or harassed as a result of an interaction with activities associated with development and production, the incident must be reported to the Director, Southwest Region, NMFS as soon after the taking as possible, and the Southwest Region will cooperate with the Pacific OCS Region MMS in the review of the incident to determine the need for developing mitigation measures and assess any need for reinitiating consultation.

Any marine mammal population listed pursuant to the ESA is considered depleted under the Marine Mammal Protection Act of 1972 (MMPA). According to Section 17 of the ESA, no provision of the ESA is to take precedence over a more restrictive, conflicting provision of the MMPA. The MMPA is more restrictive than the ESA because the MMPA prohibits taking from depleted stocks except for scientific research. Therefore, Section 7(b)(4) of the ESA is not applicable to endangered whale and threatened Guadalupe fur seal populations and no Section 7(b)(4) statement is provided for these species.

#### Appendix A.4: MMS Biological Information for Candidate Species

Candidate species have no protection under the Endangered Species Act. For this reason, potential impacts to candidate species are being considered informally along with, but separate from, formally listed species. This informal treatment is intended to alert resource agencies to potential future activities which may affect these species. It is possible that these species may become formal proposals for listing at some time during the life of Platform Gail.

##### 1. Description of Candidate Species

###### Long-billed curlew - Numenius americanus

The long-billed curlew is a federal candidate (Category 2) for listing by the U.S. Fish and Wildlife Service (USFW, 1985). The species once nested over a large portion of central North America, including all of the prairie regions as far east as Michigan, Illinois, and Ohio (Bent, 1962). Urban and agricultural development has resulted in the loss of prairie land, subsequently driving these birds (and several other birds which cannot adapt to encroaching developments) farther west into an even more restricted range. The preferred nesting habitat of the long-billed curlew are damp, grassy hollows in the prairie, or long slopes near lakes or watercourses (Johnsgard, 1981). Nesting activities have been observed to be very gregarious. With many miles of suitable habitat the birds will tend to be concentrated in a small area, sometimes even sharing nests with other long-billed curlews or willets (Soothill, 1982).

The long-billed curlew is not only suffering from loss of suitable nesting habitat. The preferred wintering areas of this species are also rapidly vanishing (Johnsgard, 1981). Wintering areas include marsh areas of California to Louisiana to Mexico. In California, Long-billed curlews prefer to spend daytime hours feeding in coastal salt marshes, returning at night to sandy beaches where they rest until dawn (Bent, 1962). These nightly retreats to sandy beaches are usually group activities, concentrating the number of curlews in a small area. Long-billed curlews feeding activity is not restricted to the marsh areas. They are frequently observed feeding in the surf line along with marbled godwits (Bent, 1962).

Important areas for long-billed curlews along the southern California coast include Morro Bay, Santa Maria River, Point Mugu, Seal Beach, and the Tijuana River estuary (Garret and Dunn, 1984). Elsewhere along the coast, it is an uncommon transient (mostly fall) and rare to uncommon winter visitor, even where habitat may be suitable.

Snowy plover - Charadrius alexandrinus nivosus

The Snowy Plover is a federal candidate (Category 2) for listing by the U.S. Fish and Wildlife Service (USFW, 1985). The species is also in the second priority category of the State of California, Department of Fish and Game's "Bird Species of Special Concern in California" (Remsen, 1978) and National Audubon Society's "Blue List" (Tate and Tate, 1982).

The snowy sandplover is considered a fairly common, but somewhat local and declining resident on sandy coastal beaches in southern California. Major remaining nesting areas occur in San Diego County and on Vandenberg Air Force Base, Santa Barbara County. Some of the offshore Channel Islands (especially San Miguel, Santa Rosa, and San Nicolas Islands) are considered included in the breeding range for this species (Garrett and Dunn, 1984).

During the breeding season (April through late July) this species is essentially limited to sparsely vegetated and sandy areas, including sandy shores, sand dunes, salty steppes with scattered grasses, sand deserts, pebbly or muddy shorelines or plains, and sometimes tropical coasts of coral limestone (Johnsgard, 1981, Soothill, 1982). Nests consist of a simple scrape in the sand, often lined with fragments of shell and small pieces of rock or tiny pebbles; usually close to the water. Plovers reportedly do not stray far from their nesting areas any time of the year. Snowy plovers feed mainly on sandy beaches, foraging on wet sand and at the surf line. Foraging activity frequently occurs in small groups (Bent, 1962).

Numbers of birds along the coast are somewhat augmented in winter, probably by the arrival of birds which nested in interior areas (Garrett and Dunn, 1984). The breeding population of snowy plovers in southern California has significantly declined during this century, largely due to the loss of much of its undisturbed beach habitat (Lehman, 1982 as cited in ADL, 1985). It has been extirpated as a breeder along the coast east of Gaviota, and continues to decline there as a winter visitant. North of Point Conception, it continues to breed and winter between the Santa Maria and Santa Ynez River mouths (ADL, 1985). The largest populations occur in Santa Barbara County at Purisima Point, on Vandenberg AFB, where it is beginning to receive protection from additional habitat losses (Naydol, USAF, Verbal comm., 6/3/86). The preference of snowy plovers for sandy beaches has led to its decline as a nesting bird along the coast (Garrett and Dunn, 1984); such areas suffer from much human disturbance during the nesting season. The observed adaptability of populations nesting in the interior has caused some researchers to give hope for the survival of this species as a breeder in the region (Garrett and Dunn, 1984).

**Belding's Savannah Sparrow - Passerculus sandwichensis beldingi**

Belding's Savannah Sparrow is a candidate (category 2) for listing by the U.S. Fish and Wildlife Service (USFW, 1985). This species has suffered a severe decline in numbers in recent years, chiefly as a result of destruction of coastal saltmarshes (Massey, 1979). Belding's Savannah Sparrow is an uncommon and local resident along the mainland coast in coastal, tidal, Salicornia marshes. In fact, the birds are confined almost exclusively to coastal saltmarsh habitat (Massey, 1977). Belding's Savannah Sparrow range from Goleta, Santa Barbara County to El Rosario, Baja California, Mexico (Bradley, 1973). They are reported to be local breeders and year-round residents in both Goleta Slough and Carpinteria Marsh (Sandyland Slough) (Garrett and Dunn, 1984). Belding's Savannah Sparrow nest in Salicornia, forage on mudflats, beaches, rocks and vegetation within the area of the marsh subject to tidal influence, and seldom venture far from their salt-marsh habitat (Massey, 1977).

Population estimates for this species were made in 1973 at 1,059 pairs (Bradley, 1973), and in 1977 at 1,610 pairs (Massey, 1977). Of the 28 locations visited by Massey (1979) where Belding's Savannah Sparrow were identified, three Salicornia marshes (Anaheim Bay, Mugu Lagoon, and Bosla Chica) were reported to contain approximately 45% of the entire population. Mugu lagoon was reported to host 250 breeding pairs in 1977 (Massey, 1977). Although there appeared to be suitable habitat (i.e. Salicornia) at Goleta and Carpinteria Sloughs in 1977, Massey (1977) found the species to be scarce (28 and 34 pairs, respectively). She also found nesting activity at two other locations within the project area, McGrath Beach State Park (12 pairs), and Ormond Beach (17 pairs) (Massey, 1977). More recently, a survey at Point Mugu found 460 pairs (Klope, USAF, pers. comm. December 19, 1985). No statewide surveys are planned in the near future for this species.

Nesting activity generally begins in late December or early January (Massey, 1977). Nests of this species are constructed out of twigs of Salicornia on the ground or in low branches of fairly dense Salicornia, usually above the level penetrated by high spring tides (Massey, 1979). Similar to problems experienced by the light-footed clapper rail, the nests are subject to damage and destruction if inundated.

**Black-flowered figwort - Scrophularia atrata Penn.**

The Black-flowered Figwort is a federal candidate species (Category 2) and is also considered by the California Native Plant Society (Smith and York, 1984) as a plant for which more information is needed (List 3; RED Code 2-2-3) on its status and distribution.

The Black-flowered Figwort is a herbaceous perennial in the Figwort Family (Scrophulariaceae). The geographical range of Black-flowered Figwort has been in question for some time. Early reports by C. Smith (1976) place the range from Point Conception to Burton Mesa and Bishop Pine forests around Lompoc, north to Corralillos Canyon near Point Sal and the Avila area in San Luis Obispo County, and south to Coal Oil Point in Santa Barbara County. It is the southernmost (Coal Oil Point) site that has been the subject of debate. Other investigators (Ferren et al., 1983; Fletcher, 1983; Science Applications, Inc., 1983) have reported the presence of a similar, more widespread species, California Figwort (*Scrophularia californica*) in the Santa Barbara Channel. To complicate matters further, Whitmore (1983) cites material from Coal Oil Point on the West Campus of UC Santa Barbara as an intermediate form, having possible Black-flowered and California affinities. This hybridized or intermediate form has been found to be quite common in northern Santa Barbara County where both species occur commonly. Having investigated this problem extensively, Smith (1983a,b) concluded that the two plants deserve distinction only at the subspecies level. In his review Smith (1983a) considers the greatest threat to the Black-flowered Figwort to be hybridization between it and the California Figwort. He suggests that "...these [Figworts] were previously separated by different pollinator species. With the advent of the honeybee, which visits and pollinates the two species indiscriminately, extensive hybridization has resulted, creating a mongrelized population in which the original phenotype are distinguishable only in their most extreme expressions."

Black-flowered Figworts have been reported to have preferences for substrates of diatomaceous shale in dry, hard, rocky areas well above the high-tide mark (Ferren, UCSB, as cited in ADL, 1985). They have also been found in a variety of other substrates including calcareous hills, and sandy soils of both uplands and margins of seasonal wetlands in such varied areas as dune swales with coastal scrub, willow thickets, riparian corridors, Bishop Pine forest, canyons, mesas and roadsides (Coulombs & Cooper, 1976; Westec, 1981; HDR, 1980; Smith, 1983a,b).

#### Tidewater Goby (*Eucyclogobius newberryi*) -

The tidewater goby is a candidate (Category 2) for listing by the U.S. Fish and Wildlife Service. This species is characteristic of shallow beach lagoons at the mouths of small coastal drainages (Irwin and Stoltz, 1984). At one time the tidewater goby was commonly found in coastal lagoons from San Diego County north to Del Norte County (Miller and Lea, 1972). Preferred coastal lagoons were typified by beach barriers which separated the lagoons from the ocean for much of the year. Due the magnitude of recreational and housing developments along the

southern California coast, most of the habitat of the tidewater goby has either been totally lost or degraded. Swift (cited in Irwin and Stolz, 1984) estimated that gobies have been eliminated from 74% of the coastal lagoons south of Morro Bay where they formerly occurred. Wang (1982) reported that only one of ten original populations of this species remains in the San Francisco Bay area.

As of 1981, only 55 lagoons were identified which support tidewater goby populations (Swift, LACM, Verbal comm., 7/84). In southern California populations still occur at Camp Pendleton (3 populations), Santa Clara River, and Ventura. The remaining and majority of populations of tidewater gobies occur north of Ventura, particularly on Vandenberg Air Force Base, between Morro Bay and Point Piedras Blancas, Tomales Bay and Elkhorn Slough (Swift, LACM, Verbal comm., 7/84).

Within the project area, tidewater gobies have been reported to inhabit several intermittent and perennial coastal streams. These include Canada de Santa Anita, Canada del Cojo, Canada de las Agujas, Canada de Algeria, Gaviota Creek, Arroyo Quemado, Tecolote Canyon, Winchester Canyon, Canada del Refugio, and Arroyo Hondo (Swift, 1984; Wells and Diana, 1975; SAI, 1983; ADL, 1985).

Although gobies have been reported to spawn year-round, peak spawning activity typically occurs in April and May (Swift, LACM, Verbal comm., 7/84). Following this spring spawning, 2-4,000 larval and juvenile tidewater gobies may be found in the lagoons. The remaining part of the year (fall through winter) 500-1,500 fishes per lagoon is more typical (Swift, LACM, Verbal comm., 7/84). Tidewater gobies apparently may spend much of their life cycle in freshwater since gravid females have been found there (Irwin and Stoltz, 1984). In fact, only two records exist for the adults in open ocean, both off Camp Pendleton following large storms (Swift, LACM, Verbal comm., 7/84).

## 2. Impact on Candidate Species

Construction, Normal Operations & Abandonment. Species considered as candidates for listing by the USFW are distributed among sandy beaches (snowy plovers, long-billed curlews, black-flowered figworts), coastal lagoons (tidewater gobies), and wetlands (Belding's Savannah Sparrow). Due to the distance of Platform Gail from areas inhabited by these species construction, abandonment, and normal project activities are not expected to have any effect on these candidates.

Oil Spills. Based on the low joint probability of a spill occurring, the low conditional probability of contact to occupied habitat at Goleta Slough, Carpinteria marsh, and Mugu lagoon, the distribution of the candidate species, and the absence of

offshore foraging behavior by any of the candidate species considered, impacts from Platform Gail to candidate species are expected to be insignificant.

Through the use of mathematical techniques of oil spill modeling (see Section 4.1), it has been estimated which areas could be contacted in the unlikely event that a spill does occur. Based on this mathematical prediction of spill contacts, the following impacts could occur to candidate species.

The long billed curlew is vulnerable to contacting an oil spill in coastal saltmarshes where they feed during the day, and when resting at night on sandy beaches scattered throughout the project area. Since these birds do not rest on the water, and are gregarious, the likelihood of a spill contacting this species is lessened. However, an oil spill is less likely to contact individuals and more likely to contact several birds at a time. Loss of several individuals would be locally significant. Conditional probabilities for spills from Platform Gail contacting saltmarshes in the project area within 3 days are estimated to be unlikely.

Snowy plovers are also vulnerable to spills on sandy beaches scattered throughout the project area. The MMS conditional probability of a spill from Platform Gail contacting land within 3 days estimated to be unlikely. Potential impacts are highest in winter when inland nesting birds arrive on the coast. Loss of several individuals is not likely to cause impacts exceeding local significance.

Since Belding's Savannah Sparrows are marsh dependent, they would be vulnerable to an oil spill only if oil entered occupied marsh habitat (i.e., Goleta, Carpinteria, Mugu Lagoon, McGrath Beach, Ormond Beach). Although unlikely, nests could be inundated by oil during high spring tides. MMS conditional probabilities for an oil spill from Platform Gail contacting Goleta Slough and Carpinteria marsh within 3 days are estimated to be unlikely; conditional probabilities of contacts to Santa Clara River and Mugu lagoon are similarly unlikely. Loss of individual sparrows is not likely to exceed local significance.

Tidewater gobies are primarily distributed away from the project site, in the western Santa Barbara Channel. MMS conditional probabilities for contacts to these areas are estimated to be unlikely. In addition, the mouths of the lagoons occupied by tidewater gobies are closed for most of the year, further reducing the likelihood of the species contacting oil. Potential impacts to this species are considered to be unlikely.

Due to the lack of specific habitat preference of the Black-flowered Figwort, there may be little direct impact to the species as a whole from a single adverse impact. Due to its

widespread distribution and abundance above the area of tidal influence, potential impacts to the black-flowered figwort are considered to be insignificant.

### 3. Overall Conclusions

Normal activities will have negligible impacts on long-billed curlews, snowy plovers, Belding's savannah sparrow, tidewater gobies, and black-flowered figworts. In the unlikely event a spill occurred and contacted individuals, impacts could be locally significant. Impacts of local or regional significance are not expected.

### 4. Cumulative Impacts

Most of the above candidates have suffered population losses due to loss of suitable habitat. Platform Gail is not expected to cause additional loss of these important habitats. The additional noise, platform discharges and vessel traffic associated with Platform Gail should have no effect on these species. The added risk of an oil spill occurring, posed by the installation of Platform Gail, does not significantly increase existing levels of risk. Continued loss of suitable habitat for these species due to development of coastal areas may lead to the eventual listing of some of these species. Recent studies have shown organochlorine-induced mortality and residues in long-billed curlews from Oregon (Blus et al., 1985). The authors conclude that most of this residue burden may be accumulating in the wintering ranges of this species (especially Mexico, Guatemala, Honduras, and Costa Rica. Additional threats to candidate species are posed by the EPA-approved use of pesticides containing DDT in Central California agricultural areas.

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Appendix B: Oil Spill Risk Analysis Information

- Appendix B.1: MMS Oil Spill Risk Analysis For Platform Gail
- Appendix B.2: Oil Spill Risk and Trajectory Analysis (Dames and Moore)\*
- Appendix B.3: Discussion and Comparison of the MMS and Dames and Moore Oil Spill Risk Analysis Models
- Appendix B.4: Cumulative Estimate of Oil Spills

\*Copies available for review in Public Information Room,  
MMS, Los Angeles

MMS Oil Spill Risk Analysis for Platform Gail

MMS 1986

Table 1. -- Oil spill probability estimates for spills greater than 1,000 barrels resulting over the expected production life of platform GAIL.

<u>Source</u>	<u>Volume (Bbl)</u>	<u>Mean number of spills from platforms</u>	<u>Mean number of spills from transportation</u>	<u>Mean number of spills (total)</u>	<u>Probability of one or more spills (platforms)</u>	<u>Probability of one or more spills (transportation)</u>	<u>Probability of one or more spills (total)</u>
Platform GAIL	0.052	0.05	0.08	0.14	0.05	0.08	0.13

Table 2. -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain target within 3 days.

Target	Hypothetical Spill Location				
	GL	L1	L2	L3	L4
Land	18	18	11	25	64
N. Sea Otter Range	n	n	n	n	n
S. Sea Otter Range	n	n	n	n	n
Sea Otter Range	n	n	n	n	n
N. Channel Isl.	**	**	55	10	2
S. Channel Isl.	n	n	n	n	n
Channel Islands	**	93	45	9	2
Pt. Reyes Mar. Sanct	n	n	n	n	n
Pt. Reyes Wild. Area	n	n	n	n	n
Farallon Islands	n	n	n	n	n
Least Tern Range	12	10	7	8	n
Begg Rock	n	n	n	n	n
Pismo Beach	n	n	n	n	n
Oso Flaco/San. Maria	n	n	n	n	n
San Ant./Puris. Pt.	n	n	n	n	n
Santa Ynez River	n	n	n	n	n
Jalama Creek	n	n	n	n	n
Goleta Slough	n	n	n	n	n
Carpenteria Marsh	n	n	1	25	89
Santa Clara River	10	8	11	18	2
Mugu Lagoon	12	8	4	1	n

Note: \*\* = Greater than 99.5 percent; n = less than 0.5 percent.

Table 3. -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain target within 10 days.

Target	Hypothetical Spill Location				
	GL	L1	L2	L3	L4
Land	76	76	75	76	87
N. Sea Otter Range	n	n	n	n	n
S. Sea Otter Range	n	n	n	n	n
Sea Otter Range	n	n	n	n	n
N. Channel Isl.	**	**	63	24	8
S. Channel Isl.	n	n	n	n	n
Channel Islands	**	94	55	23	8
Pt. Reyes Mar. Sanct	n	n	n	n	n
Pt. Reyes Wild. Area	n	n	n	n	n
Farallon Islands	n	n	n	n	n
Least Tern Range	45	42	41	24	2
Begg Rock	n	n	n	n	n
Pismo Beach	n	n	n	n	n
Oso Flaco/San. Maria	n	n	n	n	n
San Ant./Puris. Pt.	n	n	n	n	n
Santa Ynez River	n	n	n	n	n
Jalama Creek	n	n	n	n	n
Goleta Slough	n	n	n	n	1
Carpenteria Marsh	3	4	7	37	92
Santa Clara River	31	34	47	42	6
Mugu Lagoon	40	33	22	5	n

Note: \*\* = Greater than 99.5 percent; n = less than 0.5 percent.

Table 4. -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain target within 30 days.

Target	Hypothetical Spill Location				
	GL	L1	L2	L3	L4
Land	94	95	97	97	98
N. Sea Otter Range	n	n	n	n	n
S. Sea Otter Range	n	n	n	n	n
Sea Otter Range	n	n	n	n	n
N. Channel Isl.	**	**	65	29	13
S. Channel Isl.	3	2	1	n	n
Channel Islands	**	94	57	28	13
Pt. Reyes Mar. Sanct	n	n	n	n	n
Pt. Reyes Wild. Area	n	n	n	n	n
Farallon Islands	n	n	n	n	n
Least Tern Range	49	47	48	29	4
Begg Rock	n	n	n	n	n
Pismo Beach	n	n	n	n	n
Oso Flaco/San. Maria	n	n	n	n	n
San Ant./Puris. Pt.	n	n	n	n	n
Santa Ynez River	n	n	n	n	n
Jalama Creek	n	n	n	n	n
Goleta Slough	n	n	n	1	1
Carpenteria Marsh	3	4	8	39	93
Santa Clara River	33	37	52	46	9
Mugu Lagoon	43	37	26	8	1

Note: \*\* = Greater than 99.5 percent; n = less than 0.5 percent.

Table 5. -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain land segment within 3 days.

Land Segment	Hypothetical Spill Location				
	GL	L1	L2	L3	L4
29	n	n	n	n	1
30	2	2	4	23	63
31	3	3	1	n	n
43	9	11	5	1	n
45	3	2	n	n	n

Notes: \*\* = Greater than 99.5 percent; n = less than 0.5 percent.  
 Rows with all values less than 0.5 percent are not shown.

Table 6. -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain land segment within 10 days.

Land Segment	Hypothetical Spill Location				
	GL	L1	L2	L3	L4
29	n	n	n	1	3
30	20	25	42	63	80
31	28	24	14	3	n
41	n	n	n	1	1
43	16	19	16	8	2
44	1	n	n	n	n
45	11	8	3	1	n

Notes: \*\* = Greater than 99.5 percent; n = less than 0.5 percent.  
 Rows with all values less than 0.5 percent are not shown.

Table 7. -- Probabilities (expressed as percent chance) that an oil spill starting at a particular location will contact a certain land segment within 30 days.

Land Segment	Hypothetical Spill Location				
	GL	L1	L2	L3	L4
29	n	n	1	2	4
30	24	30	47	70	83
31	31	27	18	5	n
39	n	n	n	1	2
41	n	1	1	3	3
43	19	22	22	14	5
44	1	n	n	n	n
45	13	10	5	2	n
48	1	n	n	n	n
49	2	2	1	n	n
50	1	1	n	n	n

Notes: \*\* = Greater than 99.5 percent; n = less than 0.5 percent.  
 Rows with all values less than 0.5 percent are not shown.

Table 8. -- Probabilities (expressed as percent chance) of one or more spills, and the estimated number of spills (mean) occurring and contacting targets over the expected production life of platform GAIL.

Target	3 days		10 days		30 days	
	prob	mean	prob	mean	prob	mean
Land	3	0.03	10	0.10	12	0.13
N. Sea Otter Range	n	0.00	n	0.00	n	0.00
S. Sea Otter Range	n	0.00	n	0.00	n	0.00
Sea Otter Range	n	0.00	n	0.00	n	0.00
N. Channel Isl.	7	0.08	8	0.08	8	0.09
S. Channel Isl.	n	0.00	n	0.00	n	0.00
Channel Islands	7	0.07	8	0.08	8	0.09
Pt. Reyes Mar. Sanct	n	0.00	n	0.00	n	0.00
Pt. Reyes Wild. Area	n	0.00	n	0.00	n	0.00
Farallon Islands	n	0.00	n	0.00	n	0.00
Least Tern Range	1	0.01	4	0.05	5	0.05
Begg Rock	n	0.00	n	0.00	n	0.00
Pismo Beach	n	0.00	n	0.00	n	0.00
Oso Flaco/San. Maria	n	0.00	n	0.00	n	0.00
San Ant./Puris. Pt.	n	0.00	n	0.00	n	0.00
Santa Ynez River	n	0.00	n	0.00	n	0.00
Jalama Creek	n	0.00	n	0.00	n	0.00
Goleta Slough	n	0.00	n	0.00	n	0.00
Carpenteria Marsh	2	0.02	3	0.03	3	0.03
Santa Clara River	2	0.02	4	0.05	5	0.05
Mugu Lagoon	1	0.01	3	0.03	3	0.03

Note: n = Less than 0.5 percent.

Table 9. -- Probabilities (expressed as percent chance) of one or more spills, and the estimated number of spills (mean) occurring and contacting land segments over the expected production life of platform GAIL.

Land Segment	3 days		10 days		30 days	
	prob	mean	prob	mean	prob	mean
30	2	0.02	6	0.06	6	0.06
31	n	0.00	2	0.02	2	0.02
43	1	0.01	2	0.02	2	0.02
45	n	0.00	1	0.01	1	0.01

Note: n = Less than 0.5 percent.

TABLE B-1A PROBABILITIES THAT AN OIL SPILL STARTING IN THE WINTER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 3 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	33	N	N	N	**	N	**	N	N	N	2	N	N	N	N	N	N	N	1	1	2
L1	35	N	N	N	**	N	97	N	N	N	1	N	N	N	N	N	N	N	N	1	1
L2	15	N	N	N	80	N	72	N	N	N	1	N	N	N	N	N	N	N	1	1	1
L3	12	N	N	N	24	N	23	N	N	N	1	N	N	N	N	N	N	N	11	3	1
L4	35	N	N	N	5	N	5	N	N	N	N	N	N	N	N	N	N	N	75	1	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-1B PROBABILITIES THAT AN OIL SPILL STARTING IN THE WINTER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 10 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	73	N	N	N	**	N	**	N	N	N	7	N	N	N	N	N	N	N	3	5	7
L1	75	N	N	N	**	N	99	N	N	N	5	N	N	N	N	N	N	N	1	4	5
L2	63	N	N	N	92	N	90	N	N	N	6	N	N	N	N	N	N	N	4	5	4
L3	51	N	N	N	57	N	56	N	N	N	6	N	N	N	N	N	N	1	18	12	2
L4	66	N	N	N	24	N	25	N	N	N	2	N	N	N	N	N	N	3	79	5	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-1C PROBABILITIES THAT AN OIL SPILL STARTING IN THE WINTER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 30 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	94	N	N	N	**	3	**	N	N	N	10	N	N	N	N	N	N	N	4	7	9
L1	94	N	N	N	**	2	99	N	N	N	7	N	N	N	N	N	N	1	2	5	7
L2	96	N	N	N	96	N	95	N	N	N	11	N	N	N	N	N	N	1	6	11	7
L3	95	N	N	N	71	N	70	N	N	N	9	N	N	N	N	N	N	3	22	16	5
L4	94	N	N	N	40	N	40	N	N	N	3	N	N	N	N	N	N	5	80	8	1

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-2A PROBABILITIES THAT AN OIL SPILL STARTING IN THE SPRING SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 3 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	16	N	N	N	**	N	**	N	N	N	22	N	N	N	N	N	N	N	N	14	23
L1	17	N	N	N	**	N	94	N	N	N	21	N	N	N	N	N	N	N	N	13	17
L2	14	N	N	N	52	N	40	N	N	N	14	N	N	N	N	N	N	N	2	18	11
L3	36	N	N	N	5	N	4	N	N	N	18	N	N	N	N	N	N	N	28	33	3
L4	83	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	96	3	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-2B PROBABILITIES THAT AN OIL SPILL STARTING IN THE SPRING SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 10 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	82	N	N	N	**	N	**	N	N	N	69	N	N	N	N	N	N	N	1	39	66
L1	86	N	N	N	**	N	95	N	N	N	67	N	N	N	N	N	N	N	3	44	56
L2	93	N	N	N	55	N	44	N	N	N	69	N	N	N	N	N	N	N	7	67	46
L3	97	N	N	N	7	N	7	N	N	N	43	N	N	N	N	N	N	N	38	64	9
L4	99	N	N	N	N	N	N	N	N	N	2	N	N	N	N	N	N	N	98	7	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-2C PROBABILITIES THAT AN OIL SPILL STARTING IN THE SPRING SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 30 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	96	N	N	N	**	2	**	N	N	N	70	N	N	N	N	N	N	N	1	39	67
L1	98	N	N	N	**	2	95	N	N	N	70	N	N	N	N	N	N	N	3	46	58
L2	**	N	N	N	55	N	44	N	N	N	71	N	N	N	N	N	N	N	7	69	47
L3	**	N	N	N	8	N	7	N	N	N	45	N	N	N	N	N	N	N	39	65	11
L4	**	N	N	N	N	N	N	N	N	N	3	N	N	N	N	N	N	N	98	7	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-3A PROBABILITIES THAT AN OIL SPILL STARTING IN THE SUMMER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 3 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	9	N	N	N	**	N	**	N	N	N	23	N	N	N	N	N	N	N	N	22	21
L1	7	N	N	N	**	N	83	N	N	N	16	N	N	N	N	N	N	N	1	17	13
L2	9	N	N	N	27	N	11	N	N	N	11	N	N	N	N	N	N	N	2	23	5
L3	43	N	N	N	1	N	N	N	N	N	10	N	N	N	N	N	N	N	47	31	1
L4	95	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	99	1	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-3B PROBABILITIES THAT AN OIL SPILL STARTING IN THE SUMMER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 10 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	91	N	N	N	**	N	**	N	N	N	79	N	N	N	N	N	N	N	6	59	63
L1	92	N	N	N	**	N	84	N	N	N	70	N	N	N	N	N	N	N	9	70	46
L2	98	N	N	N	29	N	12	N	N	N	61	N	N	N	N	N	N	N	14	83	17
L3	99	N	N	N	1	N	N	N	N	N	25	N	N	N	N	N	N	N	62	51	2
L4	**	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	**	1	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-3C PROBABILITIES THAT AN OIL SPILL STARTING IN THE SUMMER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 30 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	99	N	N	N	**	1	**	N	N	N	80	N	N	N	N	N	N	N	6	59	64
L1	**	N	N	N	**	N	84	N	N	N	70	N	N	N	N	N	N	N	10	70	47
L2	**	N	N	N	29	N	12	N	N	N	62	N	N	N	N	N	N	N	14	83	18
L3	**	N	N	N	1	N	1	N	N	N	26	N	N	N	N	N	N	N	62	51	2
L4	**	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	**	1	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-4A PROBABILITIES THAT AN OIL SPILL STARTING IN THE AUTUMN SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 3 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	13	N	N	N	**	N	**	N	N	N	2	N	N	N	N	N	N	N	N	2	2
L1	14	N	N	N	**	N	95	N	N	N	2	N	N	N	N	N	N	N	N	1	2
L2	5	N	N	N	62	N	56	N	N	N	2	N	N	N	N	N	N	N	N	2	1
L3	9	N	N	N	9	N	9	N	N	N	3	N	N	N	N	N	N	N	14	7	N
L4	45	N	N	N	2	N	2	N	N	N	N	N	N	N	N	N	N	N	85	2	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-4B PROBABILITIES THAT AN OIL SPILL STARTING IN THE AUTUMN SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 10 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	57	N	N	N	**	N	**	N	N	N	27	N	N	N	N	N	N	N	N	20	24
L1	53	N	N	N	**	N	98	N	N	N	27	N	N	N	N	N	N	N	1	19	25
L2	49	N	N	N	77	N	73	N	N	N	28	N	N	N	N	N	N	N	4	33	19
L3	58	N	N	N	30	N	28	N	N	N	23	N	N	N	N	N	N	N	31	40	6
L4	82	N	N	N	8	N	8	N	N	N	5	N	N	N	N	N	N	N	92	13	1

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-4C PROBABILITIES THAT AN OIL SPILL STARTING IN THE AUTUMN SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN TARGET WITHIN 30 DAYS.

		T A R G E T S																			
LOCATION	LAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GAIL	86	N	N	N	**	6	**	N	N	N	37	N	N	N	N	N	N	N	1	25	33
L1	89	N	N	N	**	2	98	N	N	N	40	1	N	N	N	N	N	N	2	29	36
L2	91	N	N	N	81	2	77	N	N	N	47	N	N	N	N	N	N	N	5	45	34
L3	95	N	N	N	37	N	35	N	N	N	38	N	N	N	N	N	N	N	35	53	13
L4	97	N	N	N	12	N	12	N	N	N	11	N	N	N	N	N	N	N	93	19	3

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.

TABLE B-5A PROBABILITIES THAT AN OIL SPILL STARTING IN THE WINTER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 3 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	2	3
30	N	N	N	5	31
43	24	29	14	4	1
44	1	1	N	N	N
45	8	5	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-5B PROBABILITIES THAT AN OIL SPILL STARTING IN THE WINTER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 10 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	1	5	8
30	3	2	4	17	44
31	2	3	3	1	N
39	N	N	N	N	1
40	N	N	N	N	1
41	N	N	1	2	4
43	46	52	47	23	7
44	2	1	1	N	N
45	20	16	6	2	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-5C PROBABILITIES THAT AN OIL SPILL STARTING IN THE WINTER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 30 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	2	2	9	11
30	6	5	10	24	49
31	4	4	5	2	N
39	N	N	1	3	6
40	N	N	N	N	1
41	1	3	6	10	10
43	55	59	62	41	16
44	2	2	1	N	N
45	23	17	8	5	N
48	1	N	N	N	N
49	1	N	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-6A PROBABILITIES THAT AN OIL SPILL STARTING IN THE SPRING SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 3 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	N	1
30	3	4	8	35	82
31	8	8	4	1	N
43	3	4	1	N	N
45	2	1	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-6B PROBABILITIES THAT AN OIL SPILL STARTING IN THE SPRING SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 10 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	N	1
30	24	33	57	90	98
31	48	44	32	6	N
43	4	6	2	1	N
45	3	3	1	N	N
49	1	1	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-6C PROBABILITIES THAT AN OIL SPILL STARTING IN THE SPRING SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 30 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	N	1
30	26	35	59	91	99
31	51	46	34	7	N
32	1	N	N	N	N
38	1	N	N	N	N
43	4	6	3	1	N
45	3	3	1	N	N
48	1	N	N	N	N
49	6	5	1	N	N
50	2	1	N	N	N
51	N	1	N	N	N
53	1	1	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-7A PROBABILITIES THAT AN OIL SPILL STARTING IN THE SUMMER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 3 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
30	6	4	8	43	95
31	4	3	1	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-7B PROBABILITIES THAT AN OIL SPILL STARTING IN THE SUMMER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 10 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
30	41	56	85	98	**
31	50	35	12	N	N
43	N	N	1	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-7C PROBABILITIES THAT AN OIL SPILL STARTING IN THE SUMMER SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 30 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
30	46	62	87	99	**
31	51	36	12	1	N
43	N	N	1	N	N
45	N	1	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-8A PROBABILITIES THAT AN OIL SPILL STARTING IN THE AUTUMN SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 3 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	N	1
30	N	N	N	7	44
31	N	1	N	N	N
43	8	9	4	1	N
45	5	3	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-8B PROBABILITIES THAT AN OIL SPILL STARTING IN THE AUTUMN SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 10 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	N	2
30	11	9	21	46	76
31	10	12	8	3	1
41	N	N	N	N	1
43	15	18	15	8	1
44	1	N	N	N	N
45	20	14	5	1	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

TABLE B-8C PROBABILITIES THAT AN OIL SPILL STARTING IN THE AUTUMN SEASON AT A PARTICULAR LOCATION WILL CONTACT A CERTAIN LAND SEGMENT WITHIN 30 DAYS.

LAND SEGMENT	GAIL	L1	L2	L3	L4
29	N	N	N	N	2
30	17	18	33	64	86
31	19	24	22	8	1
39	N	N	N	N	1
41	N	N	N	1	2
43	19	22	23	15	5
44	1	N	N	N	N
45	25	18	10	4	1
46	N	1	N	N	N
48	1	1	1	N	N
49	2	2	1	N	N
50	1	2	N	N	N
52	1	N	N	N	N

NOTE: \*\* = GREATER THAN 99.5 PERCENT; N = LESS THAN 0.5 PERCENT.  
 ROWS WITH ALL VALUES LESS THAN 0.5 PERCENT ARE NOT SHOWN.

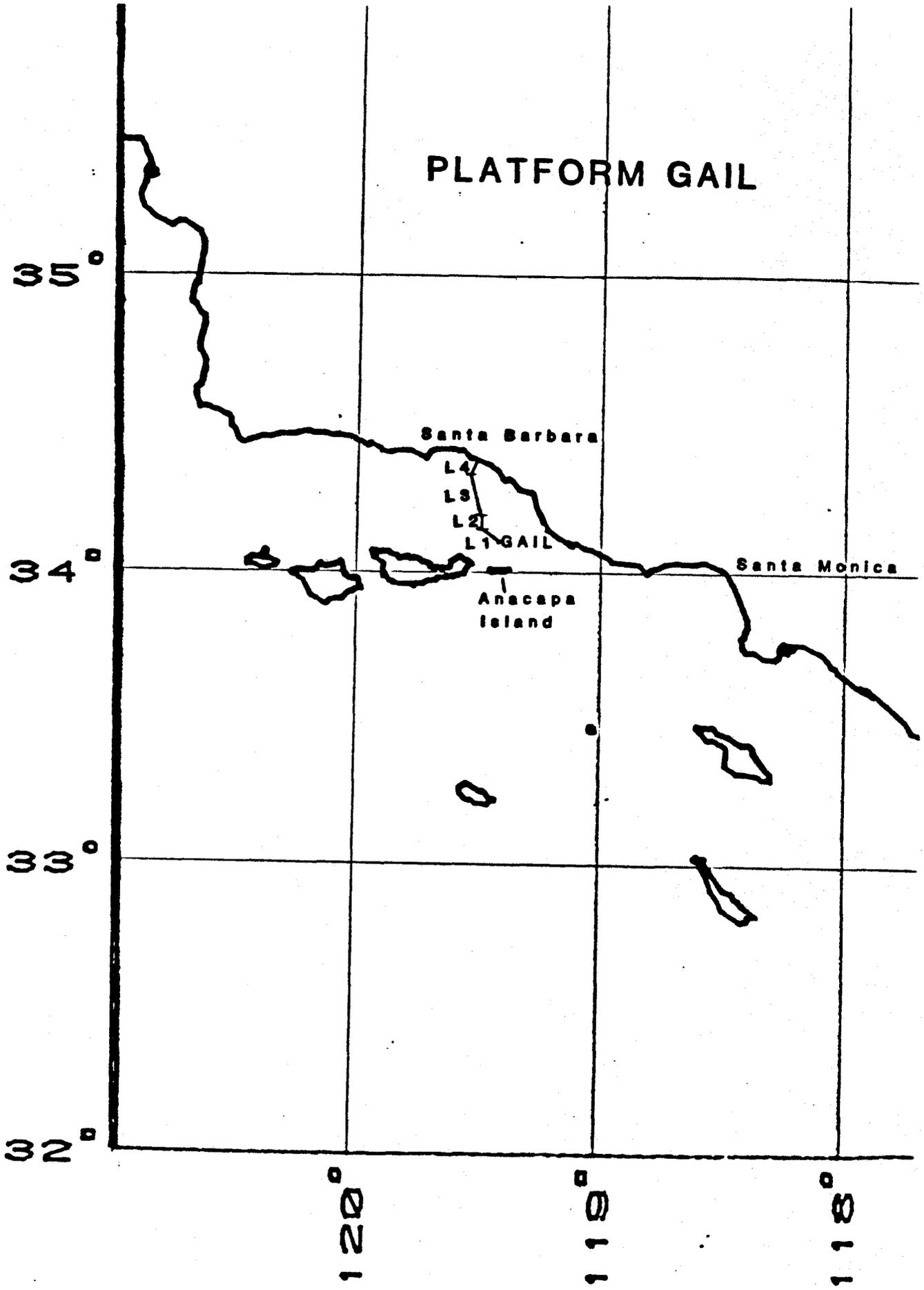


Figure 1.--Location of platform GAIL and pipeline transportation route segments (L1-L4). B.1-16

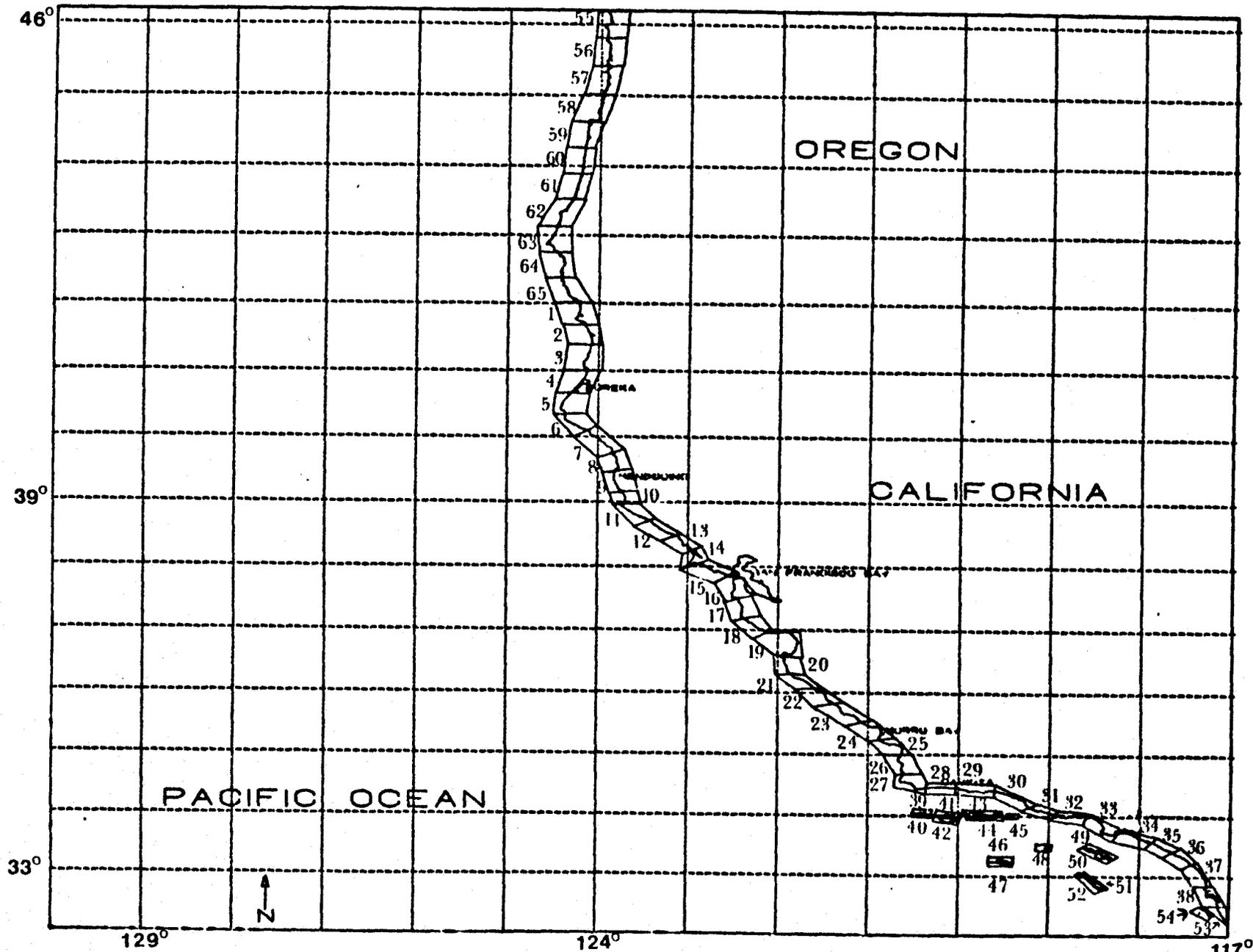


Figure 2.--Map showing the division of the Oregon and California shorelines into 65 segments of approximately equal lengths.

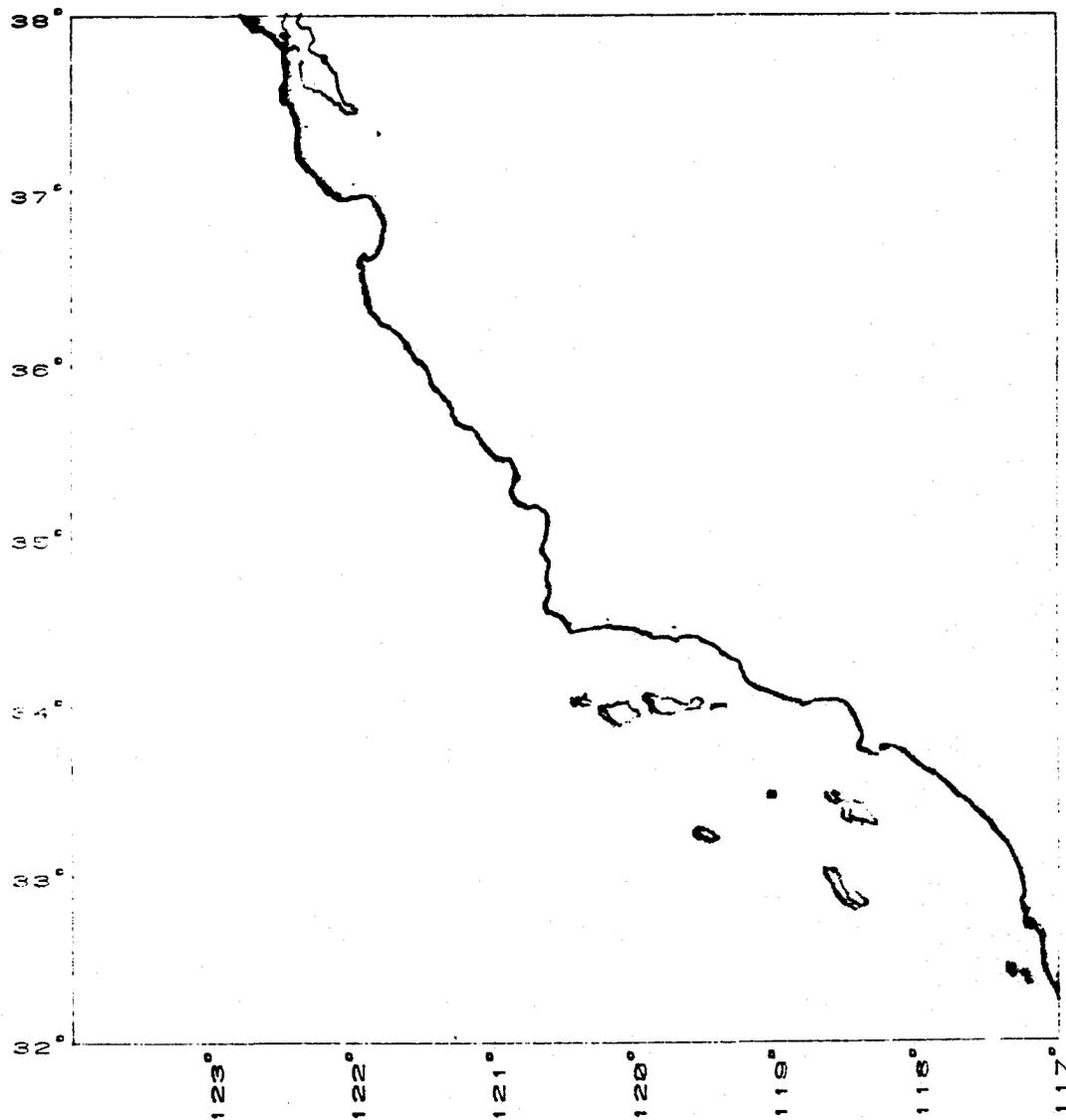


Figure 3.--Location of target "LAND." Shading indicates areal extent.

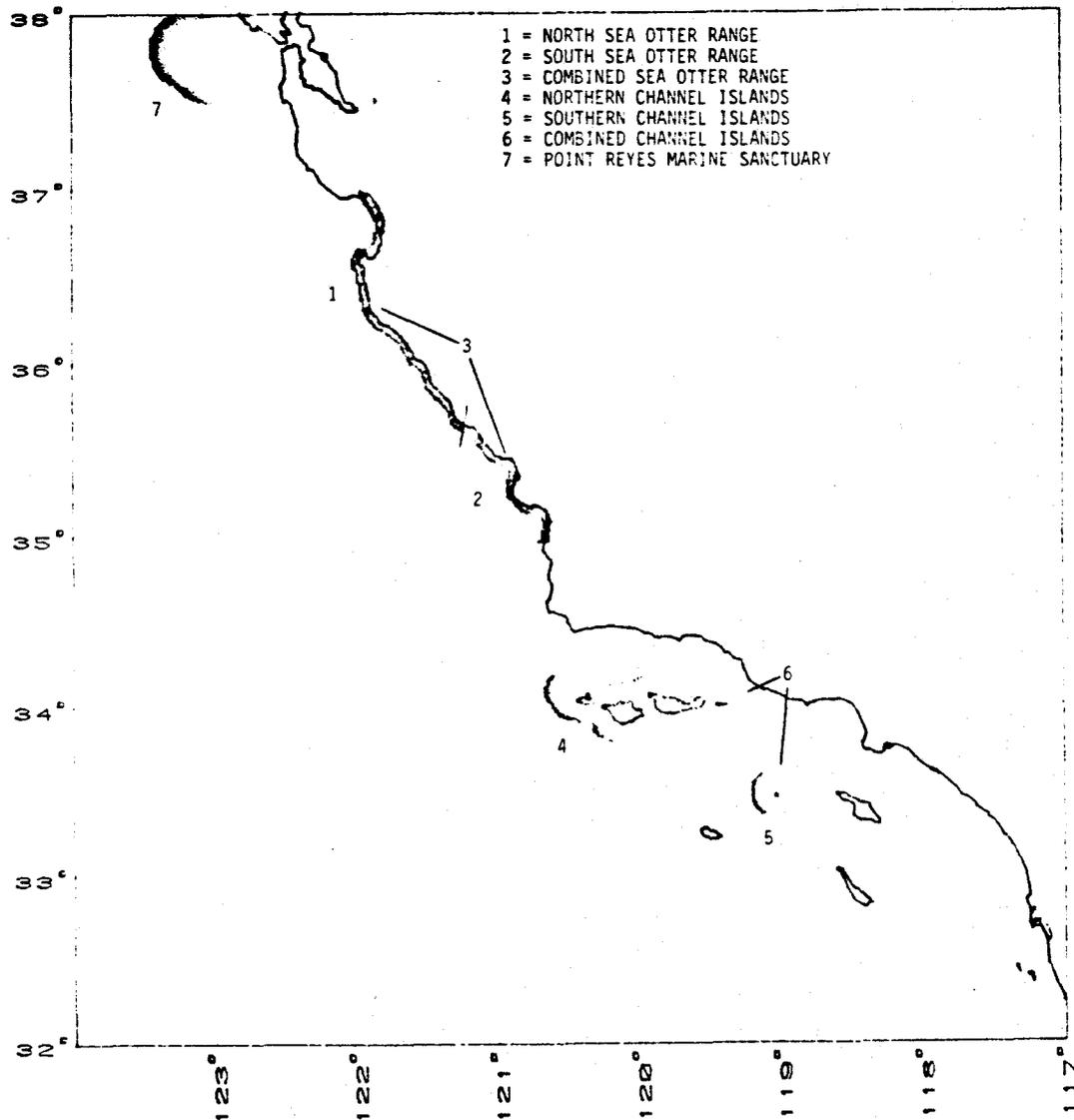


Figure 4.--Location of targets 1-7. Shading indicates areal extent.

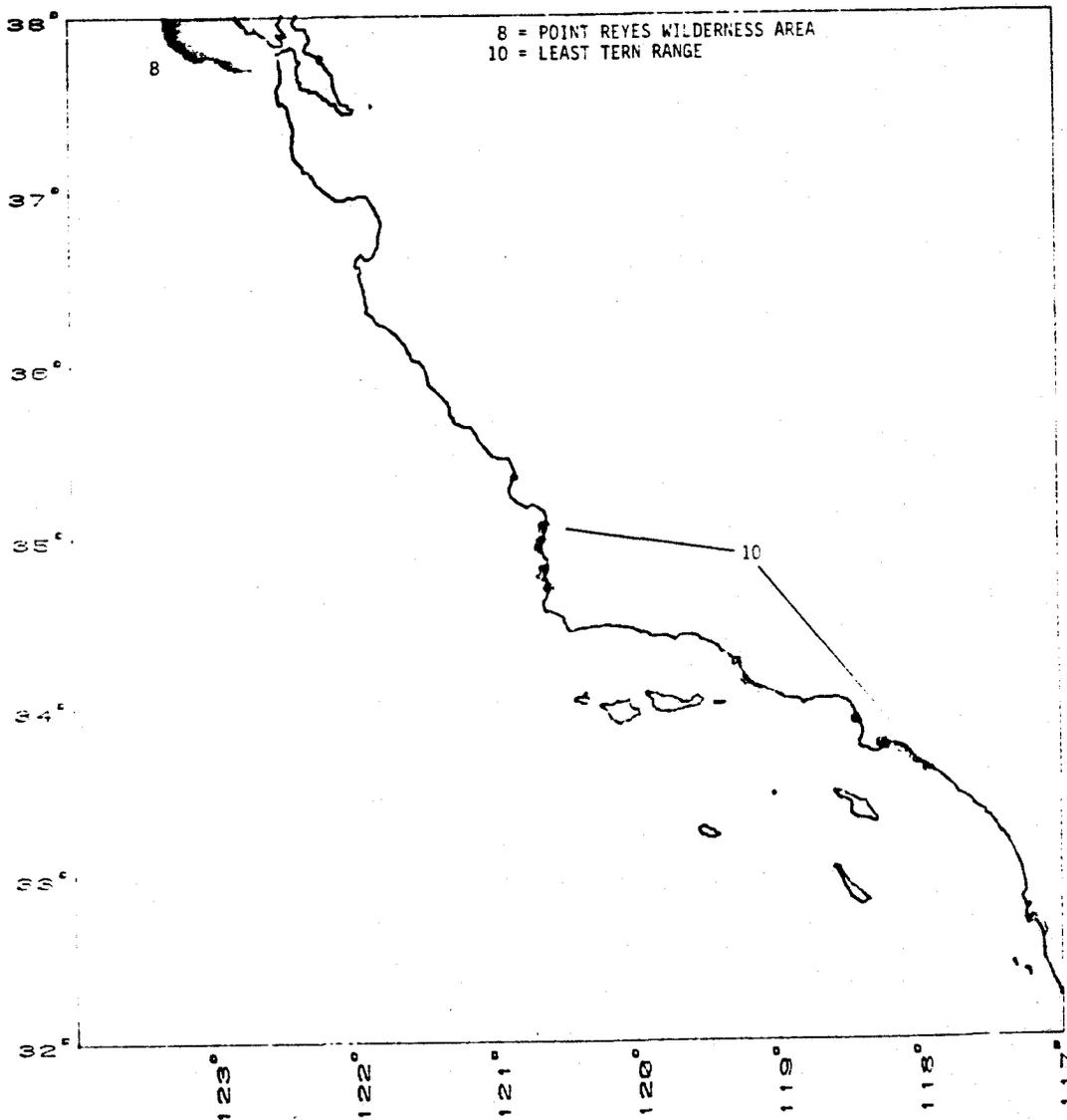


Figure 5.--Location of targets 8 and 10. Shading indicates areal extent.

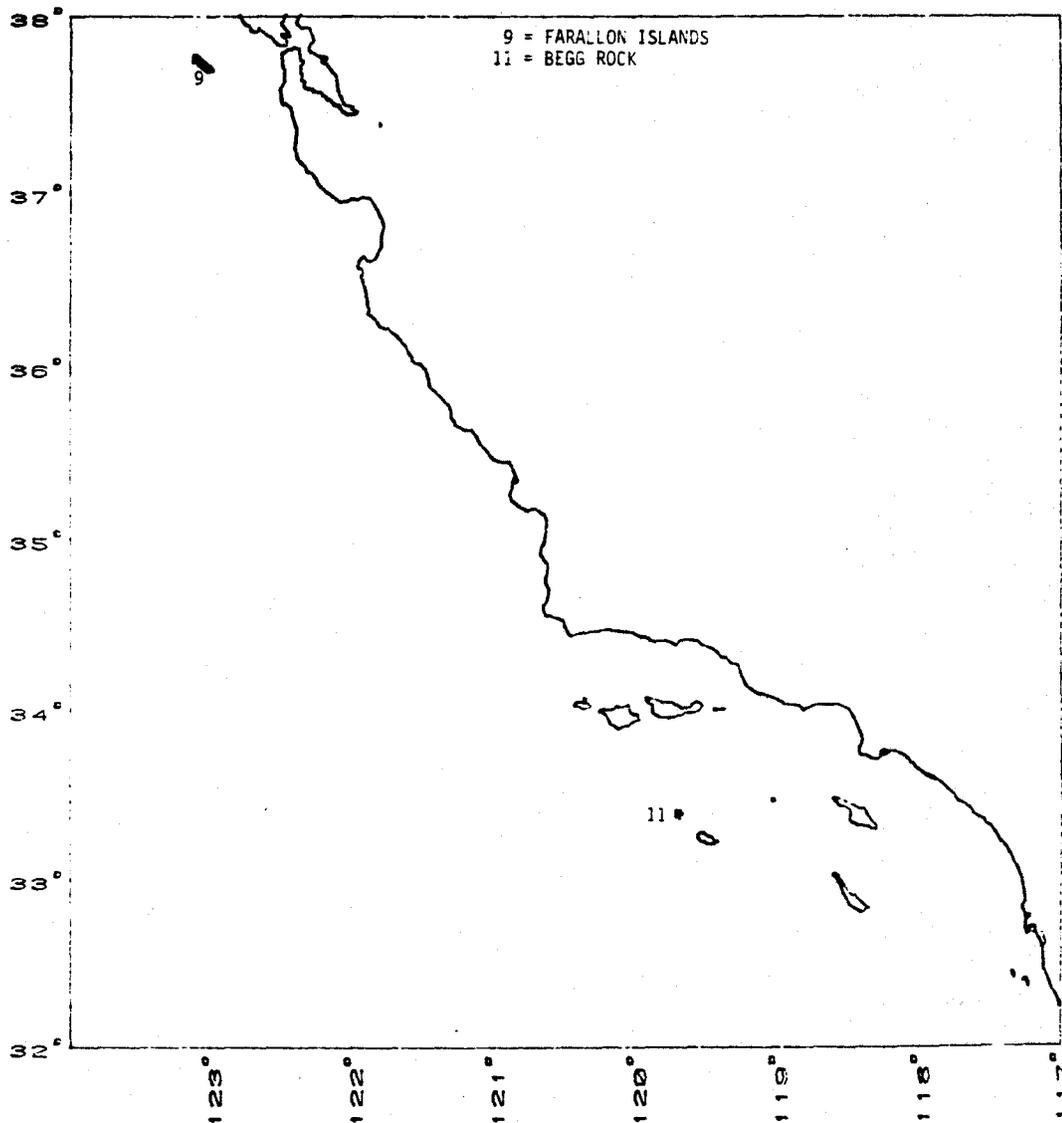


Figure 6.--Location of targets 9 and 11. Shading indicates areal extent.

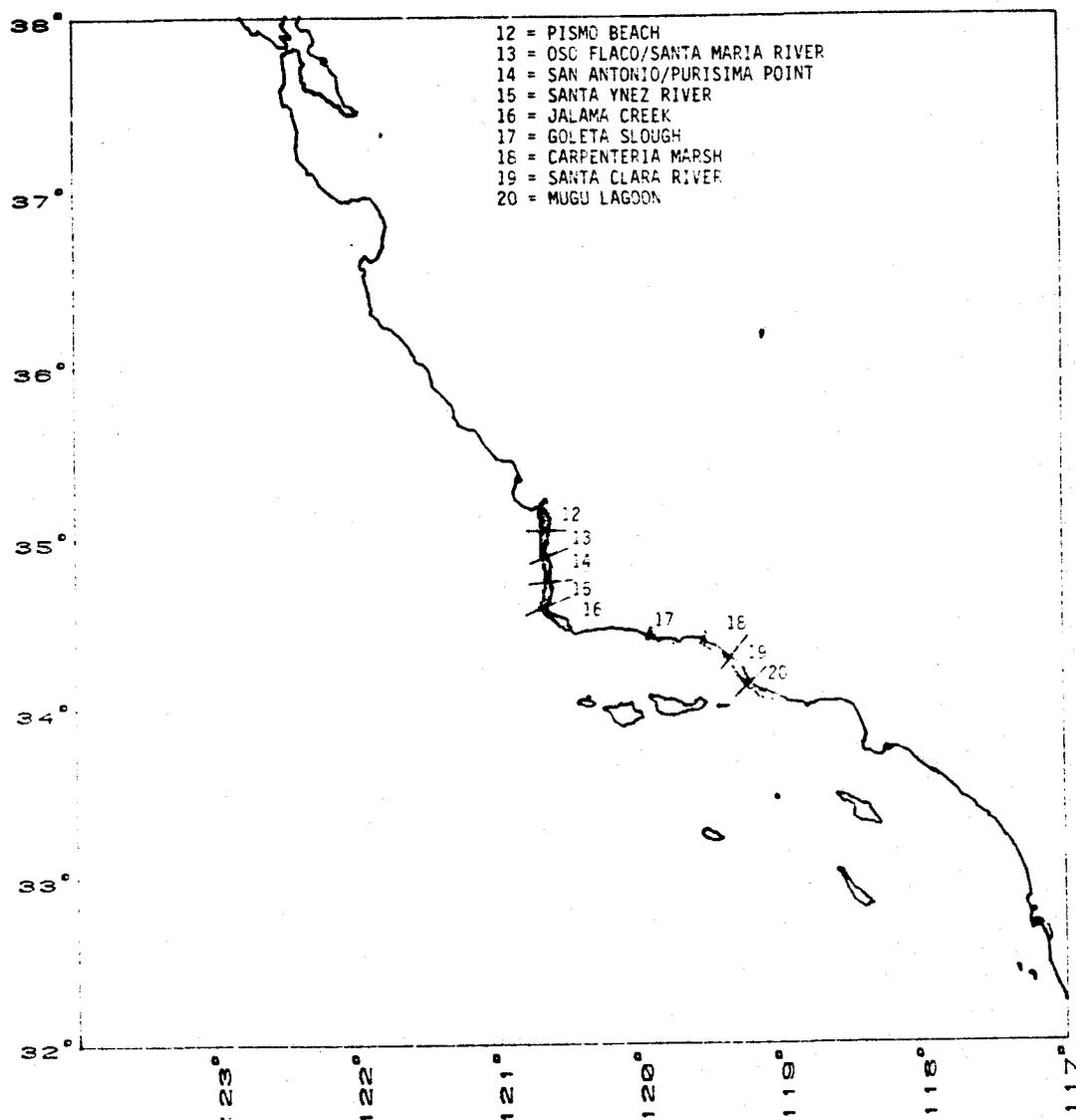


Figure 7.--Location of targets 12-20. Shading indicates areal extent.

### Appendix B.3 - Discussion and Comparison of the MMS and Dames and Moore Oil Spill Risk Analysis Models

The oil spill risk analysis for the Platform GAIL development project was accomplished using both the MMS Oil Spill Risk Analysis Model (OSRAM) and the Dames & Moore Oil Spill Trajectory Model (Dames & Moore, 1985). These reports are contained in Appendices B.1 and B.2, respectively. A brief description of both models and a comparison of methods and results follows.

#### The MMS Oil Spill Risk Analysis Model

There are three main components of the MMS OSRAM. These are 1) oil spill trajectory simulations based on wind and surface currents, tabulated into "conditional probabilities" of contact; 2) oil spill occurrences (both the mean number of spills and the probability of one or more spills occurring) based on spill accident rates derived from historical events; and 3) the mean number of spills and the probability of one or more spills occurring and contacting a target or shoreline segment based on 1) and 2) above as well as on the exposure variable (volume of oil to be produced and transported over the life of the project) resulting in "final" or "joint" probabilities.

Oil spill occurrences are assumed to be described by a Poisson process, which means that a) spills occur randomly and b) are independent events. Additionally, the probability that a spill will occur is assumed to be directly proportional to the volume of oil produced and transported.

Additional assumptions are as follows: 1) seasonally averaged geostrophic oceanic surface currents (based on the oceanic density structure) and seasonal wind transition probabilities can be used to assess the probable trajectories of floating oil; 2) the best estimate of what may happen in the future in terms of accident/spill rates can be based on past U.S. OCS activity and worldwide tankering activity; and 3) the best exposure variable for risk assessment in all activity modes (platforms, tankers and pipelines) is volume of oil produced and transported.

Lanfear and Amstutz (1983) updated oil spill occurrence rates applicable to the U.S. OCS. The spill rates, expressed as number of spills per billion barrels used in OSRAM are:

	$\geq 1,000\text{bbbls}$	$\geq 10,000\text{bbbls}$	1,000-10,000bbbls
Platforms	1.0	0.44	0.56
Pipelines	1.6	0.67	0.93
Tankers	1.3	0.65	0.65

For the purposes of modeling spills from Platform Gail and the associated pipeline, the coastline was divided into land segments, each 20-30 miles in length (Figure 2, Appendix B.1), between Pt. Reyes (north of San Francisco) and the Mexican border (including the Coronado Islands). A total of 20 sensitive areas were designated as targets (Figures 3-7 and Table 2, Appendix B.1); an additional target, 'land', encompasses the entire modelled coastline and offshore islands. Launch points, at Platform Gail and at each of the pipeline segments, are shown in Figure 1, Appendix B.1. Oil spill probability estimates are given in Table 1, Appendix B.1. Overall conditional probabilities of oil spill contact (assuming a spill has occurred) to land segments and selected targets within 3, 10 and 30 days are tabulated in Tables 2-7 (Appendix B.1). The final or joint probabilities of spill occurrence and contact with targets and land segments over the life of the project are contained in Tables 8 and 9 (Appendix B.1). Lastly, seasonal (winter, spring, summer, fall) conditional probabilities for spill contact to targets (Tables B-1A through B-4C, Appendix B.1) and land segments (Tables B-5A through B-8C, Appendix B.1) are given.

The surface ocean currents were derived from the oceanic density structure (geostrophic) from the Dynalysis of Princeton characteristic tracing model of the California Shelf. The oceanographic data used in the Dynalysis study incorporates information from the National Oceanographic Data Center (NODC) and the California Cooperative Fisheries Investigation (CalCOFI), and are current through 1979.

To determine oil spill movements, the model uses 3.5% of the wind speed and rotates the direction a variable angle (inversely proportional to the wind velocity) of 0-25 degrees clockwise (Samuels et al., 1982). This vector is then added to the surface current velocity vector. Long-term wind data, observed from five stations: southeast Farallon Island, Vandenberg, San Nicolas Island, Pt. Mugu and San Diego, are used to construct seasonal transition matrices which are sampled using a random (Monte Carlo) technique. Data from these land-based wind stations were compared to ship wind data to appropriately divide the study area into wind zones. The transition matrix of the appropriate wind zone is then sampled during spill simulations.

The model moves the oil as a centroid (a hypothetical center of mass of an oil slick) in 3 hour increments. In reality, oil does not move as a point but rather as a mass with dimension (due to spreading, diffusion and other factors). To partially account for unknown slick dimensions, the assumption is made that if any part of a land segment is contacted, the entire segment including every estuary, harbor or river in that segment will be contacted. The model does not explicitly account for any cleanup procedures, evaporation, spreading, weathering or sinking, although certain

features incorporated into the model such as the areal extent of targets and land segments and the use of specific time periods (3, 10 and 30 days) for determining trajectory pathways and target and land segment contacts, allow implicit assumptions to be made about these factors. The model records contacts within 3, 10 and 30 days, keeping track of 'hits' to both target and land segments. Model runs terminate when the spill contacts land, crosses a model boundary or remains at sea for more than 30 days.

Spills are categorized into three volume classes: greater than or equal to 1,000 barrels (large); 1,000 to 10,000 barrels; and greater than or equal to 10,000 barrels (very large).

#### The Dames & Moore Model

This oil spill risk and trajectory model was utilized to assess the probability of oil spills occurring from the Platform Gail project and contacting identified sensitive resources.

OSRAM and the Dames & Moore models are basically similar in that they calculate conditional probabilities (assuming a spill has occurred) then final or joint probabilities of occurrence and contact. Most of the underlying assumptions of the Dames & Moore model are also similar. These assumptions are: 1) past spill experience is a reliable indicator of future spill occurrences; 2) the underlying causes of oil spills will be the same in the future as they have been in the past; and 3) causes of oil spills in the Santa Barbara Channel OCS would be the same as for other U.S. offshore areas and regions of the world where historical oil spill occurrence rates have been determined. An additional assumption made in the Dames & Moore model is that true (intrinsic) oil spill occurrence rates will not be affected by improvements in spill prevention technology or more stringent regulatory requirements imposed on OCS operators.

The steps involved in estimating future oil spill risk for the Platform Gail project taken by the model are summarized as follows: 1) historical spill data are compiled on the number and size of spills from different sources; 2) exposure variables are determined for each project element potentially capable of spilling oil (Table 3-1, Appendix B.2); 3) historical spill data and exposure variables are used to estimate an historical spill rate for a particular type of spill (Table 3-2, Appendix B.2); 4) frequency distributions for  $\geq 1,000$  and  $\geq 10,000$  bbls spills are developed from historical data (Table 3-3, Appendix B.2). These distributions are used to provide an estimate of the proportion of all spills that are greater than a given volume; 5) historical spill rates and frequency distributions are correlated to give the statistically expected number of spills of a given size which can be described by a Poisson distribution.

Historical data concerning spill occurrence rates and frequency distributions for blowouts, non-blowout platform spills, and offshore pipeline spills were derived from a study by Stewart and Kennedy (1978). The USCG Pollution Incidence Reporting System (PIRS) and MMS (then USGS) Event File data for the years 1973 to 1975 served as the primary data sources for the study (see Figure 2.1, Appendix B.2).

The trajectory model employs a vectoral addition of wind and current forces to drive the centroid of a two-dimensional surface oil slick. Second order forces such as waves and wind/wave/current interactions, which may tend to slow the progress of a slick are not considered. Physiochemical processes such as evaporation, sinking, dissolution, emulsification and degradation which generally reduce the volume of a slick are also not considered.

The trajectory model was used to simulate the movement of the centroid of an oil spill over 3 and 10 day periods. Physical factors considered predominant driving forces in the model are winds, geostrophic currents and tidal currents. The slick centroid is calculated to move at the same instantaneous velocity as the vectoral sum of the underlying surface currents (geostrophic and tidal), plus 3% of the wind velocity vector.

The model employs a grid system superimposed over the study area of approximate three mile squares corresponding roughly to offshore oil and gas lease block boundaries. This grid system is the basis for input of wind and current data and serves as decision-making points for the model algorithm with respect to target, shoreline or sensitive area contacts (Figures 3-1 through 3-5, Appendix B.2).

A Monte Carlo technique is used to select combinations of wind and current forces acting on a slick at a particular time, and to simulate changes in these forces. Observational data concerning the frequency of occurrence of different wind and current conditions is applied to the Monte Carlo process every 20 minutes during a model run. A total of 200 runs were conducted for each month of the year to approximate the variety of trajectories that could be expected under variable weather conditions. Monthly results were then combined to develop approximate seasonal trajectory predictions (Tables 3-4 through 3-55 and Figures 3-6 through 3-13, Appendix B.2).

A fourteen year record of daily surface wind observations and interpretation from synoptic charts were used to classify winds into general wind regimes. The observed frequency of occurrence of each wind regime and a transition matrix (based on the observed frequency of transitions from one wind type to another) was determined for input to the model. These wind regimes are depicted in Figures 2-2 through 2-15, Appendix B.2.

Several sets of current data were considered as input to the model: shipdrifts, geostrophic currents, wind drift currents derived from wind stress, currents from surface drifters and current meter data. It was determined that no one data set was sufficient for the preparation of reliable circulation charts on a monthly basis. Therefore, the data was combined into the three circulation seasons (Davidson, Upwelling and Oceanic) and used as input to the model on a trajectory basis. In addition, a tidal cycle was calculated and overlaid onto the general offshore circulation pattern. During each trajectory simulation, the net geostrophic surface current component is assumed to remain constant in time and the tidal current component is phased according to the simulated tidal cycle.

#### Model Comparison

The MMS and Dames & Moore oil spill risk analysis models are similar in many respects including certain inherent assumptions, the statistical mathematics and the spill trajectory simulations and calculations. The differences between the models are mostly due to some of the assumptions underlying the data and in the sources of the input data. These differences are highlighted and discussed below.

The notable differences are:

- o The length of the time-step used during model trajectory runs;
- o Sources of the historical spill rates from platform and pipeline transportation routes;
- o Choice of exposure variables and the data used to generate them;
- o The choice the model algorithms have when a trajectory contacts a land segment or target;
- o Determination of wind zones and the use of a variable wind drift angle;
- o Sources of the data used to determine surface current vectors;
- o The use of a simulated tidal cycle as an additional component of surface current vectors.

Time-step. Both models determine the position of a centroid based on wind and current data selected, using a Monte Carlo technique, on a regular interval. The interval used by Dames & Moore is 20 minutes while the OSRAM interval is 3 hrs. For a three day trajectory simulation, the Dames & Moore model will

make 216 wind and current adjustments while OSRAM will make 24. The Dames & Moore model makes decisions regarding target contact based on a grid that is made up of three mile squares within which it is possible for the model to change current and wind values several times. OSRAM makes decisions for target and land segment contact by checking each grid-cell for the presence or absence of targets or land segments as the trajectory movement progresses during each time-step.

An additional difference is that trajectories are launched 500 times per launch point per season in OSRAM whereas 200 trajectories are launched per month per launch site in the Dames & Moore model.

**Historical Spill Rates.** OSRAM uses the updated sources published by Lanfear and Amstutz (1983) which relies on a data base covering 15 years (1964-1980) for both platform and pipeline spills. The Dames & Moore model utilizes a discussion by Stewart and Kennedy (1978). This study relied on a three year data base generated by the Coast Guard and the MMS (then USGS) supported by various other maritime and federal agency files.

**Exposure variables.** The MMS model exposure variable is based on the volume of oil expected to be produced and transported over the life of the project (0.052 billion barrels for Platform Gail). The Dames & Moore model subdivides the platform spill element into three spill types or causes: blowouts, operational/break-in period and operational/post break-in period as shown below. The pipeline spill element may be either leaks or ruptures.

PROJECT ELEMENT	SPILL TYPE OR CAUSE	ESTIMATED SPILL RISK EXPOSURE
Platform GAIL	blowouts	800 well-years
	operations (break-in period)	10 platform-years
	operatinst (post break-in period)	22 platform-years
Offshore pipeline	leak or rupture	192 mile-years

The exposure variables listed above depend on actual operational-related parameters rather than on estimated volumes of production and transportation as with OSRAM.

**Land segment or target contact.** When a trajectory contacts a land mass during an OSRAM simulation, the model must decide whether the land mass is a land segment or a target. If it is a

land segment, the trajectory terminates, while if a target is encountered, it is considered 'transparent' and the model records the contact and continues the trajectory. The Dames & Moore model recognizes only the presence or absence of land within 3 by 3 mile grid cells. When a trajectory contacts a cell which contains land, it terminates and any sensitive resources within that cell (which are also considered contacted) are recorded

Wind zones. OSRAM wind zones are calculated based on US Weather Service records from five coastal stations. Each zone has a data base record of 30 years. The Dames & Moore model relies on a 14 year long record based, in part, on a meteorological station on Platform Hondo (Dean Hargis, Dames & Moore, verbal comm., 3/6/86). Measurements on Platform Hondo were taken at 2 hr intervals. OSRAM also utilizes a variable drift angle which ranges from 0-25 degrees clockwise and which varies inversely with the wind speed. Dames & Moore's model uses no such factor.

Surface currents. The MMS model utilizes seasonal geostrophic surface velocity fields derived from a model produced by Dynalysis of Princeton. This model generates the velocity fields by approximating the equations governing fluid motion in a rotating coordinate system. The Dames & Moore model relies on data from several sources which are combined into the circulation seasons (Davidson, Upwelling, Oceanic).

Tidal cycle. OSRAM does not specifically include a tidal parameter. However, the seasonal geostrophic surface velocity fields, generated by Dynalysis, implicitly account for tidal influences due to the long-term nature of the velocity field data base. The Dames & Moore model adds a simulated tidal cycle even though the tidal influence is not significantly felt in the open ocean. Tides have an influence in waters less than 300 ft, reaching the maximum velocity at 90 ft (Dames & Moore, 1985). This feature is incorporated into their model to help account for slick movement as it approaches land and/or shallower water. A third component of water movement, wave-induced motion, is used only in Dames & Moore's nearshore version of their model.

#### REFERENCES

Dames and Moore. 1985. Oil Spill Risk and Trajectory Analysis, Biological Information Supporting Technical Study for Proposed Platform Gail. Unpublished report. Prepared by Dames and Moore, Santa Barbara, California for Chevron U.S.A., Inc. San Ramon, California. December 1985.

Lanfear, K. J. and D. E. Amstutz. 1983. A Reexamination of Occurrence Rates for Accidental Oil Spills on the U.S. Outer Continental Shelf. In: Proceedings of the Eighth Conference on the Prevention, Behavior, Control and Cleanup of Oil Spills. San

Antonio, Texas, February 28-March 3, 1983.

Samuels, W.B., N.E. Huang, and D.E. Amstutz. 1982. An oilspill trajectory analysis model with a variable wind deflection angle. Ocean Engineering 9:347-360.

Stewart, R.J. and M.B. Kennedy. 1978. An Analysis of U.S. Tanker and Offshore Petroleum Production Oil Spillage through 1975. Martingale, Inc. Cambridge, Mass.

#### Appendix B.4: Cumulative Estimate of Oil Spills

The cumulative risk of oil spills ( $\geq 1,000$  and  $\geq 10,000$  barrels) from platforms, pipelines and tankers in the Southern California Planning Area is shown in the Table B.4-1 below. The expected number of spills and the probability of the occurrence of one or more spills associated with tankering, both while at sea and in port, is also shown.

A basic variable used in the calculations was the volume of oil of each aspect of the cumulative analysis (platforms, pipelines and tankers). For platforms, an estimate of the conditional resource volume present in the Southern California Planning Area was taken from Table IV.A.4.1.2 in the Draft Proposed 5-Year Oil and Gas Leasing Program (MMS, 1986). Added to this amount is the estimated volume of oil that lies within California state waters which was taken from Table IV.C.4-1 in the EIS for Lease Sale 80 (MMS, 1984). The volume of oil that was calculated to be piped ashore included the above state volumes plus 66% of the conditional oil resources of the Southern California Planning Area (Table IV.A.4.a.2 in MMS (1986)). Tankering volumes are based, in part, on the predicted volume of oil which is shipped to California according to estimates from the Lease Sale 80 EIS (MMS, 1984). Approximately 59% of this volume is refined in the Los Angeles area (Cantrell, 1986). Added to this is the remainder of the oil produced in the Southern California Planning Area (34% as opposed to the 66% that is piped ashore, as noted above). Accident rates for platforms, pipelines and tankers are taken from the Oil Spill Risk Analysis Technical Paper 83-9 for Lease Sale 80 (MMS, 1983).

The cumulative values from all sources for each spill scenario were calculated by considering the individual accident rate multiplied by the volume of oil handled by that aspect (i.e. platforms, pipeline, tankers at sea, tankers in port) and summing these parts. This resulted in numbers of expected spills. This value was then used to calculate the probability of one or more spills occurring on a cumulative basis. See MMS (1983) for a more detailed discussion of these calculations. As the table indicates, the risk attributed to Platform Gail is very small in comparison to the overall cumulative risk associated with all existing and future oil spill sources over the life of the project.

Table B.4-1. CUMULATIVE PROBABILITY ESTIMATES OF ONE OR MORE OIL SPILL OCCURRENCES IN THE SOUTHERN CALIFORNIA PLANNING AREA WITH AND WITHOUT PLATFORM GAIL FOR SPILLS  $\geq 1,000$  AND  $\geq 10,000$  BARRELS OVER THE LIFE OF THE PROJECT(32 YEARS)

	WITH PLATFORM GAIL*	WITHOUT PLATFORM GAIL*
	<u>Flat/Pipe/Tank(1)/Tank(2) **</u>	<u>Flat/Pipe/Tank(1)/Tank(2)</u>
<u><math>\geq 1,000</math> barrels</u>		
Expected No. Spills	4.11/4.96/3.71/1.65	4.04/4.87/3.71/1.65
Probability (%)	98.4/99.3/97.5/80.8	98.3/99.2/97.5/80.8
Cumul. All Sources (Expect No./Prob.(%))	14.50/99.99	14.37/99.99
<u><math>\geq 10,000</math> barrels</u>		
Expected No. Spills	1.81/2.08/2.06/0.62	1.79/2.04/2.06/0.62
Probability (%)	83.6/87.4/87.3/46.1	83.2/87.0/87.3/46.1
Cumul. All Sources (Expect. No./Prob.(%))	6.60/99.86	6.50/99.85

\* Volumes calculated as follows:

Platforms-Conditional oil resources for the Southern California Planning Area (2.973 Bbbls) with estimated state reserves and undiscovered resources for S. Calif. and N. Calif (1.011 Bbbls) totalling 4.105 Bbbls.

Pipelines-66% of the conditional oil resources for the Southern California Planning Area (1.962 Bbbls) and all of the state reserves and undiscovered resources (1.135 Bbbls) totalling 3.097 Bbbls.

Tankers-34% of the conditional oil resources for the Southern California Planning Area (1.011 Bbbls), 59% of all Alaskan and foreign tankering to the west coast (3.11 Bbbls) and no tankering from state waters totalling 4.121 Bbbls.

\*\* Plat= Platforms; Pipe= Pipelines; Tank(1)= Tanker spills at sea; Tank(2)= Tanker spills in port.

Appendix C: Archaeological Information

- Appendix C.1: Archaeological and Cultural Resource Review  
(Woodward-Clyde Consultants)\*
- Appendix C.2: MMS Archaeological Analysis of Platform Gail  
Site and Pipeline Routes
- Appendix C.3: Section 106, National Historic Preservation  
Act Consultation: State Historic Preservation  
Officer Response

\* Copies available for review in Public Information Room,  
MMS, Los Angeles

Appendix C.2: MMS Archaeo-  
logical Analysis of  
Platform Gail Site and  
Pipelines Routes



**United States Department of the Interior**

MINERALS MANAGEMENT SERVICE  
PACIFIC OCS REGION, VENTURA DISTRICT  
145 NORTH BRENT STREET SUITE 202  
VENTURA, CALIFORNIA 93003

Leasing and Environment  
LOS ANGELES

MINERALS MANAGEMENT SERVICE  
PACIFIC OCS REGION  
RECEIVED

MAR 31 1986

MINERALS MANAGEMENT SERVICE  
FAC.

MAR 28 1986  
FIELD OPERATIONS  
LOS ANGELES

March 28, 1986

In Reply Refer To:  
MMS-Mail Stop

Memorandum

To: Regional Supervisor, Office of Field Operation, Pacific OCS Region  
From: District Supervisor, Ventura District  
Subject: Archaeological Analysis of Platform Gail Site and Pipeline Routes

Our staff geophysicist has conducted a second review of the geophysical data pertinent to the subject project for evidence of anomalies which might indicate potentially significant archaeological sites. The review was focused along the pipeline corridor and proposed platform site in water depths greater than 394 ft. Shallow portions of the project area appear to have been adequately considered in the Environmental Research Archaeologists report to Woodward-Clyde Consultants (July 9, 1985, in: Appendix E, Geophysical Investigations Drilling and Production Platform Gail Santa Clara Unit...).

The data reviewed consisted of side-scan-sonar, shallow subbottom and depth recorder profiles in the vicinity of the pipeline corridor. Side-scan sonar coverage generally exceeds current NTL requirements for pipeline surveys although coverage along the southern margin of the eastern (Gail) end of the pipeline only extends 1400 ft from the centerline of the corridor. Data Quality is generally good and sonar resolution is approximately 1.5 X 4 m; range and transverse, respectively.

The only sonar targets present on the data reviewed are scattered about the eastern mile of the pipeline corridor at distances of up to 2400 ft from its centerline. A majority of these targets are linear in character and appear to be furrows in the seabed. Others are rectilinear and their coincidence with the site of prior exploratory drilling operations (OCS-P 0209, No. 2; P-0205, Nos 1 and 3) indicates that they are, in all probability, features and debris from exploration operations. No evidence suggestive of shipwrecks was noted by our staff geophysicist.

*James W. Wright*  
James W. Wright

Enclosure

bcc: M. Hill, Office Leasing & Environment  
Platform Gail Development and Production Plan File  
J. C. McCarthy  
J. W. Wright  
Chron  
JCMcCarthy/jh

Appendix C.3: Section 106, National Historic Preservation Act Consultation:  
State Historic Preservation Officer's Response

State of California - The Resources Agency  
OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION  
P.O. Box 2390  
Sacramento, CA 95811  
(916) 445-8006

Date: 4 May 1986

Project No.: MMS 860410A

TITLE: CHEVRON USA, PLATFORM GAIL LEASE OCS-P 0205

The item cited above was received in this office on 10 April 1986.  
Thank you for consulting us pursuant to 36 CFR 800.

We concur in your determination that this undertaking:

- does not involve National Register or eligible properties.  
 will not affect National Register or eligible properties.

The provisions of 36 CFR 800.7 apply if previously unidentified National Register or eligible resources are discovered during construction.

Contact Nicholas Del Cioppo of our staff if you have any questions.

*Kathryn Gualtieri*  
Kathryn Gualtieri  
State Historic Preservation Officer

Appendix D: Nonproprietary Copy of the Development and  
Production Plan (DPP) and Environmental Report (ER)\*

\*Copies available for review in Public Information Room,  
MMS, Los Angeles

Appendix E: Oil Spill and Emergency Contingency Plan for  
Platform Gail - Platform Grace - Santa Clara Unit\*

\* Copies available for review in Public Information Room,  
MMS, Los Angeles

Appendix G: List of Agencies or Groups That MMS Sent a Copy of  
Chevron's DPP for Platform Gail

Appendix G: List of Agencies or Groups That MMS Sent a Copy of  
Chevron's DPP for Platform Gail

1. California Coastal Commission  
San Francisco, California
2. State of California  
Secretary of Environmental Affairs  
Sacramento, California
3. U.S. Fish and Wildlife Service  
Laguna Niguel, California
4. Channel Islands National Park  
Ventura, California
5. National Marine Fisheries Service  
Terminal Island, California
6. 11th Coast Guard District  
Long Beach, California
7. U.S. Office of Ocean and Coastal  
Resources  
National Oceanic and Atmospheric  
Administration  
Washington, D.C.
8. U.S. Environmental Protection  
Agency, Region IX  
San Francisco, California
9. Clerk of the Board, L.A.  
County Board of Supervisors  
Los Angeles, California
10. Air Resources Board  
Sacramento, California
11. Department of Fish and Game  
Long Beach, California
12. Department of Fish and Game  
Morro Bay, California
13. California Division of Oil and Gas  
Long Beach, California

14. California Division of Oil and Gas  
Sacramento, California
15. California Division of Mines and Geology  
Sacramento, California
16. California State Lands Commission  
Long Beach, California
17. California State Lands Commission  
Sacramento, California
18. Ventura County Environmental  
Resource Agency  
Ventura, California
19. County of Ventura APCD  
Ventura, California
20. Federal Energy Regulatory Commission  
Washington, D.C.
22. County of Santa Barbara  
Energy Division  
Santa Barbara, California
23. League of Women Voters  
of Santa Barbara  
Santa Barbara, California

Appendix H: List of Persons Contacted

## Appendix H: List of Persons Contacted

1. Matthew Klope	USAF
2. Dana Seagers	National Marine Fisheries Service
3. Jim Lecky	National Marine Fisheries Service
4. Tom Dohl	UCSC
5. Frank Gress	UCD
6. Nicolas Whelan	NPS
7. Dave Lewis	NPS
8. Lisa Hoefler	Monterey, SPCA
9. Ken Briggs	UCSC
10. Pete Sorensen	USFW
11. Ann Howald	ADL
12. Frank Whogolen	NPS
13. Dave Harlow	USFW
14. Alice McCurdy	Santa Barbara County
15. Michael Fry	UCD
16. Dee Chamberlain	ARCO
17. Skip Onstadt	Clean Seas
18. Jim Bottorff	USFWS
19. Susan Berryhill	Santa Barbara County
20. Ruth Bednarchik	Santa Barbara County
21. Peter Campbell	Santa Barbara County
22. Bill Davis	Oxnard Airport
23. George Dellwo	City of Port Hueneme
24. Bob Harnuth	Port Hueneme
25. Norine Harwood	FAA
26. Gene Kjellberg	Ventura County
27. Marcia Magness	City of Carpinteria
28. Connie Lau	State of California
29. Rick Throckmorton	Aspen Helicopter Service
30. Ron Weinert	Oxnard Elementary Schools
31. Cmdr. Robert Varenko	USCG
32. Cmdr. Kenneth Allen	USCG
33. Robert Almay	Santa Barbara County Planning
34. Mike Sowby	Los Angeles Water Quality Control Board
35. Jesse Nighswanger	Central WQCB
36. Dr. Phil Oshida	EPA
37. Eugene Bromley	EPA
38. Jim Bottorff	USFWS
39. Dwight Sanders	State Lands Commission
40. Larry Espinoza	CDF&G
41. Dr. Jack Anderson	SCCWRP
42. Dr. David Brown	SCCWRP
43. Alice Aldredge	UCSB
44. Jeff Price	Ventura District State Parks
45. Nick Whelan	Channel Islands National Parks
46. Clarence Cabell	Harbormaster, Channel Islands Harbor
47. Frank Anderson	Channel Islands Harbor

48. John Sunada	CDF&G
49. Dick Nitsos	CDF&G
50. Patty Wolf	CDF&G
51. Alana Knaster	Mediation Institute
52. Craig Fusaro	Liaison Office
53. Dennis Bedford	CDF&G
54. Rick Klingbeil	CDF&G
55. Mac Oliphant	CDF&G
56. Alex MacCall	NMFS
57. Cynthia Norris	Chevron
58. Robert Brewer	Trawl Fisherman
59. Ralph Hazard	Trawl Fisherman
60. William Diller	Trawl Fisherman
61. Joe Cansett	Trawl Fisherman
62. Tim Castagnola	F/V CECELIA
63. Mark Sanders	F/V OGENIO
64. Pete Depuy	F/V KAREN MARIE
65. Jon Devrah	F/V LADY OLGA
66. Eugenia Laychek	California Coastal Commission
67. Robert Butler	Chevron
68. Bill Ehorn	NPS
69. Gary Davis	NPS
70. Carol Pillsbury	NPS
71. David Chan	State Office of Offshore Development, Secretary of Environmental Affairs
72. Ray Menebroker	Air Resources Board
73. Nancy Post	Air Resources Board
74. Susan Hansch	California Coastal Commission
75. Devon Bates	California Coastal Commission
76. Nancy Kaufman	USFWS
77. Brooks Harper	USFWS
78. Ralph Swansen	USFWS
79. Nick Del Cioppo	State Historic Preservation Office
80. Mike Kahoe	State Office of Offshore Development, Secretary of Environmental Affairs
81. George Lew	Air Resources Board
82. Andy Ranzieri	Air Resources Board
83. Marie Frieburger	Chevron
84. Roslyn Muller	Chevron
85. Tim Russ	Chevron
86. Robert Butler	Chevron
87. Marsh Shambarger	Chevron
88. L. McCloskey	Chevron
89. Jim Lovins	Chevron
90. L. Campbell	Chevron
91. Larry Rennacker	Ventura APCD
92. Neil Moyer	Ventura APCD
93. Richard Baldwin	Ventura APCD
94. Keith Duval	Ventura APCD
95. Jason Lee	Santa Barbara APCD
96. James Johnson	California Coastal Commission

Appendix I: Correspondence from MMS District Supervisor, Ventura District



# United States Department of the Interior

MINERALS MANAGEMENT SERVICE  
PACIFIC OCS REGION, VENTURA DISTRICT  
145 NORTH BRENT STREET SUITE 202  
VENTURA, CALIFORNIA 93003

MINERALS MANAGEMENT SERVICE  
PACIFIC OCS  
RECEIVED

MAR 7 1986  
FIELD OPERATIONS  
LOS ANGELES

In Reply Refer To:  
MMS-Mail Stop

March 7, 1986

### Memorandum

To: Regional Supervisor, Office of Leasing and Environment, Attn: M. Hill  
Through: Regional Supervisor, Office of Field Operation, Pacific OCS Region  
From: District Supervisor, Ventura District  
Subject: Geohazards Summary for Platform Gail Environment Assessment

In accordance with instructions from the Regional Supervisor, Office of Field Operations in his memorandum of February 12, 1986, we have prepared the attached summary of the geohazards and mitigating measures for the subject project. Our summary has met the "one-page target" discussed in th OFO-OLE Scoping Meeting on February 14, 1986; however, it is our understanding that this summary will be rewritten by OLE into a format consistent with the balance of the EIS being prepared for the Sockeye DPP.

We feel it would be useful to supply this office with a copy of the DEIS for the Gail/Sockeye development project in order that future submittals of this nature more closely conform to the format being used by OLE.

*James W. Wright*  
James W. Wright

Enclosures

MINERALS MANAGEMENT SERVICE  
PACIFIC OCS REGION  
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Leasing

Enclosure 1

Platform Gail and Gail to Grace Pipeline Corridor, Santa Clara Unit

Summary of Potential Geohazards and Seismicity

Geologic and geotechnical investigations of the Platform Gail site and associated Gail to Grace pipeline corridor indicate the principal design considerations in the project area are seismicity, shallow gas and potential slope instability (1), (2), (3), (4).

Dames and Moore's probabilistic seismic risk analysis for the proposed Platform site resulted in design criteria for peak horizontal ground accelerations of 0.22g (return period 270 years) and 0.35g (return period 4000 years) for strength (operating level) and rare intense (ductility level) events, respectively (4). The magnitudes and procedures used in their derivation are in accord with API recommended practice for the area and mitigation is within the range of routine design practice (5).

High resolution geophysical studies in the project area identify areas of geologically recent slope instability (1). The moderate (3° to 5°) southwesterly slopes are characterized by hummocky topography and shallow structures associated with translational movement of the shallow (less than 50ft.) sedimentary unit along dip-slope failure surfaces. Shallow sedimentary units within the project area are commonly characterized by acoustically turbid signatures usually associated with interstitial gas (1). These "turbid" zones are generally observed between 10 and 60ft subbottom, within the slide units, and the presence of gas, petrogenic methane, was verified by geochemical analysis of soil borings from the project area. No relationship between the occurrence of gas signatures and the distribution of hummocky topography was observed. Other potential hazards such as recent, shallow faulting and potential overpressure zones were not identified in areas that would be impacted by the platform and pipeline. The nature of the proposed production operations, regional stress regime and reservoir characteristics indicate that no induced seismicity or subsidence would result from the proposed operations.

The principal mitigating measure employed in this project is avoidance. The proposed platform site is located away from the areas characterized by the two principal foundation zone considerations identified (i.e., potential slope instability and shallow gas). Although located down slope from the hummocky area, geotechnical analyses of the shallow soils and probabilistic determination of peak median accelerations indicate that only very minor seafloor displacements would occur from a rare, intense earthquake. Similarly, the pipeline corridor avoids the hummocky slide terrain for a major portion of its length. The segment of the pipeline that will cross the slope is located on the lowest gradient, least disturbed portion of the slope between platforms Gail and Grace.

#### REFERENCES CITED

- (1) Woodward-Clyde consultants, 1981, Geophysical Investigations, Drilling and Production Platform Gail, Santa Clara Unit - OCS Parcel 205 and 209, Santa Barbara Channel California. Prepared for Chevron USA, Inc., December.
- (2) Woodward-Clyde Consultants, 1981, Geotechnical Investigations, Drilling and Production Platform Gail, Santa Clara Unit - OCS Parcel Nos. 0205 and 0209, Santa Barbara Channel California. Prepared for Chevron USA Inc., December.
- (3) John E. Chance and Associates, Inc., 1981, Bathymetric Survey for Platform Gail, Santa Barbara Channel California. Report for Chevron U.S.A., Inc.
- (4) Dames and Moore, 1981, Report on Seismic Design Parameters, Platform Gail Site, Santa Barbara Channel California. Report for Chevron U.S.A., Inc., November.
- (5) American Petroleum Institute, 1984, Planning, Designing and Constructing Fixed Offshore platforms. Publication No. API RP 2A, 15th ed., October 22.

Appendix J: Projects Considered in the Cumulative Analysis

Appendix J - Projects Considered in the Cumulative Analysis

1. Gaviota Interim Marine Terminal
2. Shell Hercules State Tidelands Project
3. Santa Ynez Unit Development
4. Arco Ellwood Platforms
5. Hyatt Hotell (adjacent to Ellwood)
6. Santa Barbara Shores (Condo. Development west of UCSB)
7. Devereaux University Exchange Project (homes/apartments - Isla Vista)
8. Voit Business Park (light industry center northwest of Santa Barbara Airport)
9. One Hundred Megawatt Cogeneration Plant (UCSB Campus)
10. Red Lion Motor Inn
11. Gas Plant at Carpinteria-expansion plans withdrawn
12. Port Hueneme - Port facilities
13. Platform Julius (San Miguel Project)
14. Point Arguello Platforms - Platforms Hermosa, Harvest, and Hacienda
15. Point Pedernales Platforms - Platform Irene, Independence
16. Getty Gaviota Facility
17. Union Cojo - Platforms Helen and Herman
18. Phillips Tajiguas Pipeline expansion
19. Government Point (See URS, 1985, pg. C1.0-1)
20. Exxon Las Flores Canyon "
21. Texaco Gaviota Marine Terminal "
22. Phillips Ellwood Terminal "
23. Lompoc Airport Expansion "
24. VAFB Development "
25. Hollister Business Park (Santa Barbara) "
26. Santa Barbara Business Park "
27. Los Carneros Community (Santa Barbara) "
28. Transportation Center (Oxnard) "
29. Oxnard Town Center "
30. Mandalay Bay (Oxnard) "
31. Ventura County Fairgrounds (Ventura) "
32. Route 101 Improvements (Ventura) "
33. Kimball Road Rt. 126 (Ventura) "

**Appendix K: Abbreviations**

Appendix K: Abbreviations

ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ADL	Arthur D. Little
AHF	Allan Hancock Foundation
APCD	Air Pollution Control District
API	American Petroleum Institute
ASBS	Area of Special Biological Significance
BLM	Bureau of Land Management
BOP	blowout prevention
CARB	California Air Resources Board
CCC	California Coastal Commission
CDF&G	California Department of Fish and Game
CMCS	Center for Marine and Coastal Studies
CO	carbon monoxide
CS	Clean Seas
CSWRCB	California State Water Resources Control Board
CZMA	Coastal Zone Management Act
DPP	Development and Production Plan
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ER	Environmental Report
ESA	Endangered Species Analysis
FAA	Federal Aviation Administration
FY	Fiscal Year
H <sub>2</sub> S	hydrogen sulfide
I&M	inspection and maintenance
JIMS	Joint Interagency Modeling Study
LPC	Limiting Permissible Concentration
MBC	Marine Biological Consultants
MMS	Minerals Management Service
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
NDBO	National Data Buoy Office
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NO	nitrogen dioxide
NO <sub>2</sub>	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRC	National Research Council
NTL	Notice to Lessee
O <sub>2</sub>	Oxygen
OSC	On-Scene Coordinator
OSCP	Oil Spill Contingency Plan

OSRAM	Oil Spill Risk Analysis Model
POCS	Pacific Outer Continental Shelf
PFM	Pacific Fishery Management Council
PSD	Prevention of Significant Deterioration
SAAQS	State Ambient Air Quality Standards
SAI	Systems Applications, Inc.
SCAMIT	Southern California Association of Marine Invertebrate Taxonomists
SCAQMD	South Coast Air Quality Management District
SCCAB	South Central Coast Air Basin
SCCWRP	Southern California Coastal Water Research Project
SO <sub>2</sub>	sulfur dioxide
TDS	total dissolved solids
TSP	total suspended particulates
UCD	University of California at Davis
USAF	United States Air Force
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	volatile organic compounds
VTSS	Vessel Traffic Separation Scheme
WSF	water soluble factor
ZID	Zone of Initial Dilution

Appendix L: Units of Measure

## Appendix L: Units of Measure

### UNITS OF MEASURE

bbbls	=	billion barrels of oil
bbls	=	barrels of oil
bbls/yr	=	barrels per year
BOPD	=	barrels of oil per day
cm	=	centimeters
cm/sec	=	centimeter per second
F	=	Fahrenheit
fms	=	fathoms
ft	=	feet
hr(s)	=	hour(s)
in	=	inches
km	=	kilometers
kw	=	kilowatt
l	=	liter
lb	=	pound
m	=	meters
mg/l	=	milligram per liter
mi	=	miles
min	=	minutes
mm	=	millimeters
MMSCFD	=	million standard cubic feet per day
mt	=	metric tons
nm	=	nautical mile
ppb	=	parts per billion
ppm	=	parts per million
sq km	=	square kilometers
sq mm	=	square miles
sq nm	=	square nautical miles
ug/m <sup>3</sup>	=	micrograms per cubic meter
yr	=	year

Appendix F: Review Comments and Related Correspondence from  
Outside Agencies or Interest Groups

Below is the listing of the comments MMS received from federal, state and local agencies and other interested parties relating to the proposed Platform Gail project. There are two pages of comments per actual page of text. Thus, a "left" and a "right" side exists for each text page. In the following listing, F-2r translates to page F-2, the right side of the page when the document is oriented sideways.

<u>AGENCY</u>	<u>PAGE</u>
National Marine Fisheries Service	F-11
U. S. Coast Guard	F-1r
County of Santa Barbara Resource Management Dept.	F-2r
Office of Ocean and Coastal Resource Management (NOAA)	F-5r
County of Ventura Resource Management Agency	F-61
Planning Division	F-6r
Air Pollution Control Dist.	F-81
California Coastal Commission	F-101
State of California	F-15r
Air Resources Board	F-20r
Dept. of Boating and Waterways	F-231
Dept. of Conservation	F-23r
Dept. of Fish and Game	F-241
State Lands Commission	F-25r
State Water Resources Control Board	F-261
County of Santa Barbara	
Dept. of Regional Programs	F-271
Resource Management Dept.	
Energy Division	F-281
County of Ventura	
Air Pollution Control District	F-311
Planning Division	F-33r
City of Oxnard	F-351
League of Women Voters of Calif.	F-42r
League of Women Voters of Santa Barbara	F-43r
National Park Service	F-481
U. S. Environmental Protection Agency	F-50r
Ventura Unified School District	F-52r
Oxnard School District	F-54r
County of Ventura	
Air Pollution Control District	F-561
State of California	F-56r
Resources Agency	F-571
Dept. of Fish and Game	F-57r
Office of Historic Preservation (Dept. of Parks and Recreation)	F-58r
MMS Response to Coastal Commission Comments (15 April 1986)	F-591
(30 April 1986)	F-721

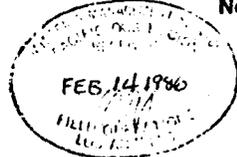


**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
 NATIONAL MARINE FISHERIES SERVICE

Southwest Region  
 300 South Ferry Street  
 Terminal Island, California 90731

February 12, 1986 F/SWR33:JJS

Mr. Thomas W. Dunaway  
 Regional Supervisor  
 Office of Field Operations  
 Minerals Management Service  
 Pacific OCS Region  
 1340 West Sixth Street  
 Los Angeles, CA 90017



*Noted - Mason*  
 Noted - Dunaway

Dear Mr. Dunaway:

We have reviewed the information you provided with your letter of January 29, 1986, regarding the "Development and Production Plan" for Lease Tract OCS-P 0205 which overlaps the southeastern end of the Santa Barbara Channel Islands National Marine Sanctuary. While the actual work proposed on Tract P 0205 is scheduled to take place outside the designated Sanctuary boundary, it is critical that during development and production, all aspects of the spill contingency plan for the unit be strictly followed. This recommendation is even more important given the fact that the Channel Island nearest the site proposed for Platform Gail on Tract P 0205, Anacapa Island, is a designated State Ecological Reserve as well.

The information included in the "Environmental Report" provided for the project accurately assesses the impacts which can be expected from the construction and operation of a single production platform and associated pipelines on Tract P 0205. However, it would be useful to include in the final environmental report for the project, those portions of the "Marine Wildlife Contingency Plan" prepared for your office by the Cities Service Oil and Gas Corporation in June 1985, which relate to the Channel Islands Sanctuary.

Sincerely yours,

*James J. Slawson*  
 James J. Slawson  
 Chief, Protected Species and  
 Habitat Conservation Branch

U.S. Department  
 of Transportation  
 United States  
 Coast Guard



Commander  
 Eleventh Coast Guard District  
 MINERALS MANAGEMENT SERVICE

MAR 14 1986

FIELD OPERATIONS  
 LOS ANGELES

Mr. Thomas W. Dunaway  
 Minerals Management Service  
 1340 W. Sixth Street  
 Los Angeles, CA 90017

Dear Mr. Dunaway:

We have reviewed Chevron U.S.A. Inc's Development and Production Plan for OCS P-0205, Santa Clara Unit. Our comments are enclosed.

Sincerely,

*Kenneth B. Allen*  
 KENNETH B. ALLEN  
 Commander, U. S. Coast Guard  
 Chief, Marine Environmental Protection/  
 Port Safety Branch  
 By direction of the District Commander

Encl: (1) Comments

Noted - Dunaway

Noted - Mason

Union Bank Bldg.  
 400 Oceangate  
 Long Beach, CA 90822-5399  
 Staff Symbol: mep  
 (213) 590-2301

16465  
 11 March 1986

Re: Chevron U.S.A. Inc's Development  
 and Production Plan for OCS P-0205  
 Santa Clara Unit

MINERALS MANAGEMENT SERVICE  
 PACIFIC OCS REGION  
 RECEIVED

MAR 20 1986

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 LOS AN

COMMENTS ON CHEVRON U.S.A. INC.'S  
DEVELOPMENT AND PRODUCTION PLAN FOR  
OCS P-0205, SANTA CLARA UNIT

As the platform will be considered a Class A structure according to 33 CFR 67, a Coast Guard approved Private Aids to Navigation Application will be required. The application can be obtained from the Eleventh Coast Guard District Aids to Navigation Branch at the above address. The Coast Guard must be notified of plans to deploy the platform as early as possible so timely notice of its presence can be published in a Notice to Mariners. We require at least two weeks advanced notice of the platform's deployment.

EIR p. 2-13, 2.5.6.7 a. The obstruction lights must be visible at a distance of at least 5 nautical miles 90% of the nights of the year. The lighting and fog signal equipment must be approved by the Coast Guard.

EIR p. 2-13 and POD p. IV-18. The Coast Guard has no requirements regarding platform color. The EIR states the platform will be painted white, while the POD states the platform will be painted a bright, highly visible color per Coast Guard recommendations. The plans should agree.

POD p. IV-18. Paragraph 4.7 states the Coast Guard PAR Study of 1981 concluded 99% of the ships in the Santa Barbara Channel use the TSS. This is not true. The PAR study surveyed only commercial vessels that called at the Ports of Los Angeles/Long Beach. The PAR study does not address non-commercial vessel traffic patterns (i.e. pleasure craft, fishing boats, etc.).

POD p. IV-19. It is obvious from reading the Plan that it is not up-to-date. It discusses events that occurred in 1985 as if they are going to occur in the future.

ENCLOSURE ( )



# County of Santa Barbara

## RESOURCE MANAGEMENT DEPARTMENT

Dianne Guzman, AICP, Director  
Dev Vrat, Assistant Director

Energy Division

Noted - Dunaway

MINERALS MANAGEMENT SERVICE  
LOS ANGELES

MAR 31 1986

March 25, 1986

Leasing  
LOS ANGELES

MINERALS MANAGEMENT SERVICE  
LOS ANGELES

MAR 26 1986

FIELD OPERATIONS  
LOS ANGELES

Thomas W. Dunaway  
Minerals Management Service  
1340 W. Sixth St.  
Los Angeles, CA 90017

RE: Chevron's Proposed Platform Gail-Lease OCS-P0205

Dear Mr. Dunaway:

We have reviewed the Environmental Report for Chevron's Platform Gail, proposed for location in the Outer Continental Shelf 24 miles southeast of Santa Barbara. Several general comments are appropriate; these are found below. Comments specific to the Environmental Report/Development and Production Plan furnished by Chevron are included as an attachment. Please note that these comments have been prepared in consultation with the Santa Barbara County Air Pollution Control District, and thus reflect that agency's input, as well.

### General Comments

- 1). An Environmental Impact Statement should be prepared to fully consider the cumulative construction and operation impacts attributable to OCS development in this area of the Santa Barbara Channel.
- 2). Impacts of any modification to both onshore and offshore facilities should be fully discussed, including prolonging the operational life, and associated emissions, of existing facilities.
- 3). Onshore air quality impacts should be examined using methodologies adopted by adjacent air quality Districts.
- 4). All feasible measures to reduce ozone precursors (including those measures identified in Chevron's Point Arguello Project permit issued by Santa Barbara County) should be included in this project.

If you have questions about any of the comments included herein, please contact Peter Cantle of this office, at (805) 963-7103.

Sincerely,

*Dianne Guzman*

DIANNE GUZMAN  
Director

DG:PC:1s:5649e  
Attachments

cc: Bill Master, APCD  
Susan Hansch, California Coastal Commission  
Marsha Magness, City of Carpinteria  
Nancy Post, Air Resources Board

Specific Comments and Questions  
Environmental Report for Platform Gail and Subsea Pipelines

- 1) p.2-1 Is general NPDES permit in effect or is further permitting required?
- 2) p.2-3 What are projected emissions increases due to increased sour gas treatment introduced from Gail into Grace's Stretford unit?
- 3) P.2-8 Has Chevron investigated the possibility of a fully or partially electrified platform? Please provide reasoning for not utilizing this less-polluting methodology.
- 4) p.2-8 What gas-sweetening methods will be used on Gail to provide fuel gas? What emissions are expected? What will be done with by-products?
- 5) p.2-9 Re: mud system. Narrative indicates "each rig" will have two mud pumps. Elsewhere it is stated that a single rig will be used to drill on the platform. Please clarify.
- 6) p.2-9 What are power sources for mud pumps, desander, desilter, mixers, degasser and shale shaker? Are these emissions accounted for?
- 7) p.2-10 Please explain sanitary systems relative to personnel quarters.
- 8) p.2-12 What is "ESD condition with zone deluge"?
- 9) p.2-13 Re: H<sub>2</sub>S and SO<sub>2</sub> Contingency Plan. Does the "detailed emergency plan" in Appendix 7 also cover SO<sub>2</sub>?
- 10) p.2-13 Re: Navigation aids. Due to the proximity of the platform's proposed location to the re-routed shipping lanes, the use of an Automatic Radar Plotting Aid unit should be required.
- 11) p.2-14 It is not clear how oily cuttings are segregated from uncontaminated cuttings. Please explain.
- 12) p.2-14 Are crew, supply and support vessel emissions accounted for? What increases are projected? What mitigation measures is Chevron committing to?
- 13) p.2-18 What seismic criteria are used for pipeline design?
- 14) p.2-19 Please give more detail on hydrostatic test waters and inhibitors.
- 15) p.2-19 Is no leak detection system proposed for the gas line? Please discuss.
- 16) p.2-20 What modifications to sour gas treatment facilities are projected for both platform Grace and the Carpinteria plant?

- 17) p.2-20 Is the Carpinteria facility going to be modified or expanded to accommodate new production? Are any modifications required of existing permits? Please give details and clarification.
- 18) p.2-21 What is the fate of H<sub>2</sub>S in crude when it is stripped?
- 19) p.2-29 What is current status of EPA's general permit for NPDES? Our understanding is that it still has not been issued and that the California Coastal Commission has voted not to grant a consistency determination. Please comment.
- 20) p.2-33 How is water to be discharged to ocean tested for oil content? How often?
- 21) p.2-36 Re: produced water. What chemical constituents are expected to occur in produced water? Please give details.
- 22) p.2-37 It is our understanding that NPDES discharges within 1000m of the National Marine Sanctuary boundary are to receive different (more stringent) treatment than NPDES discharges elsewhere. Please comment.
- 23) p.2-46 Re: visual assessment. The fact that other platforms are visible on the horizon line does not mean that "visual intrusion of Platform Gail...will be limited...."
- 24) p.4-5 Re: air quality and Class II PSD. Isn't Anacapa (and rest of Park/Sanctuary) a Class I area for PSD? Please comment.
- 25) p.4-6 Re: air quality. Chevron should apply same air pollution control technologies to Platform Gail as are to be used on Platforms Hermosa and Hidalgo. See general comments.
- 26) p.4-7 What are average daily mobile source emissions within the 3-mile limit?
- 27) p.4-10 Justify statement that there "will be no increase in emissions from ... Grace associated with gas from ...Gail." Does not an increase in throughput generally lead to an increase in emissions?
- 28) p.4-13 Re: mitigation measures. Santa Barbara County believes it is appropriate to implement additional mitigation measures similar in scope and intent to those provided for the Pt. Arguello Project platforms.
- 29) p.4-14 Re: cumulative air quality impacts. The general concern facing Santa Barbara County is onshore impacts from offshore sources. Once again, Chevron should use the approach utilized in their Pt. Arguello Project to fully address this problem satisfactorily. The treatment in the environmental report essentially skirts the issue.

- 30) p.4-14 Re: cumulative air quality impacts. This section acknowledges the ongoing studies to assess cumulative air quality impacts (JIMS and SCCCAMPS). Any permits issued prior to completion of those studies should include a re-opener to require additional mitigation, if determined necessary by those studies.
- 31) p. 4-15 General comment re: paragraph 4. Throughout this document, the phrase "in the unlikely event of an oil spill" has been used. Oil spills occur. Perhaps a spill of very large size is unlikely; however, sufficient spills have occurred to cause the issue to be raised repeatedly. Thus, the use of the word "unlikely" is questionable.
- 32) p.4-17 Please describe sanitary waste discharges from platform and work vessels.
- 33) p.4-19 Please give anticipated make-up of "completion fluids."
- 34) p.4-28 Please be more specific about those mitigation measures intended for the pipeline to minimize impacts to fishing industry.
- 35) p.4-28, p.4-29 Re: timing of installation and seabed scarring. Pipeline installation is scheduled from mid-September - December. As noted in the document (p.4-29) "most severe scarring...has occurred where...pipelaying barges have been anchored in soft bottom sediments such as is found in the project area, and have been subjected to storm conditions." Storms are likely to occur during late October, November, and December. Thus, the likelihood of seabed scarring due to anchor deployment from the pipeline barge is greater than if this activity were conducted during a different time of year. In addition, the proposed pipeline installation period overlays the cetacean migration period.
- 36) p.4-29 What "various alternatives" will be explored to mitigate seabed scarring?
- 37) p.4-36 Re: Notification of marine interests. Notices at harbor master's offices in appropriate ports in the Channel area should also be required. In addition, radio broadcasts during construction operations would be appropriate.
- 38) p.4-41 As requested previously (comment 21), please give chemical analysis of produced waters from Platform Gail.
- 39) p.4-41 Please give details regarding inertness of barite as a drill mud constituent. In addition, please supply chemical analysis of all muds to be used.
- 40) p.4-42 Re: catastrophic impacts. Text says that trajectory modelling has shown that an oil spill would not contact Anacapa Island. However, elsewhere (p.4-38) Santa Cruz Island is identified as a likely contact point for a spill. Please address this point.

- 41) p.4-53 Re: Lack of measurable affect of drilling muds on planktonic crustaceans. Recent studies at UCSB seem to contradict this statement (i.e., studies by Morse and Aldredge show that drill muds do, in fact, negatively affect larval/planktonic species). Please comment.
- 42) p.4-56 How does Chevron explain the marked difference in results between the studies that generally cite low to moderate affets on fish and shellfish vs. the MBC/SAI (1983) study which "clearly demonstrated that early and adult life stages of fish and shellfish experienced both lethal and sublethal effects following exposure to parts per billion levels of petroleum hydrocarbons" (emphasis added).
- 43) p.4-56 Re: oil spill impact on Anacapa Island. Earlier in text, Anacapa was not identified as a potential contact point for an oil spill. In this section, the island is identified as a contact point. Please clarify.
- 44) p.4-57 Why has a 75-hour time constraint been used for spill trajectory modelling?
- 45) p.4-91 Re: cumulative socioeconomic impact. While any one phase of this project may not have a significant impact on housing availability, all phases of any one project or all hydrocarbon development projects taken together certainly will have a significant effect.

PC:ls:5641e



*Notice*

UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT  
Washington, D.C. 20235

March 28, 1986

MINERALS MANAGEMENT SERVICE  
PACIFIC

MAR 31 1986

FIELD OFFICE  
LOS ANGELES

Mr. Thomas W. Dunaway  
Regional Supervisor  
Office of Field Operations  
Minerals Management Service  
Pacific OCS Region  
1340 West Sixth Street  
Los Angeles, CA 90017

Dear Mr. Dunaway,

We have reviewed the information enclosed with your letter dated January 29, 1986. This information concerned a Development and Production Plan for the placement of a platform on Lease OCS-P 0205, with associated pipelines to Chevron's existing Platform Grace on Lease OCS-P 0217.

It is clear the proposed activity will be located outside the boundary of the Channel Islands National Marine Sanctuary. On the basis of the documentation submitted, we anticipate no significant impacts from normal development and operation of Platform Gail and associated subsea pipelines.

Please include this office on your mailing list for the Environmental Assessment presently being prepared for the proposed project by the Minerals Management Service. Thank you for the opportunity to comment.

Sincerely,

*Peter L. Tweedt*  
Peter L. Tweedt  
Director.

RESOURCE MANAGEMENT AGENCY  
county of ventura

Noted - Van Auker  
Noted - Mason

Victor R. Husbands  
Agency Director

RVICE

March 25, 1986

MAR 25 1986  
FIELD OPERATIONS  
LOS ANGELES

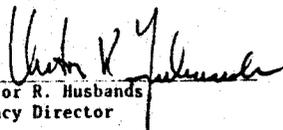
Mr. Thomas W. Dunaway, Regional Supervisor  
Minerals Management Service  
Pacific OCS Region  
1340 W. 6th Street  
Los Angeles, CA 90017

Subject: Ventura County Comments on Chevron USA Inc.'s Development and Production Plan (DPP) and Environmental Report (ER) for Platform Gail-Lease OCS-P0205

Dear Mr. Dunaway:

The above-referenced environmental document has been reviewed by appropriate Ventura County agencies. Specific reviewing agency comments are attached. Please respond to the comments as required by the California Environmental Quality Act. All responses should be addressed to the commenting agency with a copy to the Commercial/Industrial Section, Resource Management Agency.

Sincerely,

  
Victor R. Husbands  
Agency Director

VRH:j/C131

Attachments

800 South Victoria Avenue, Ventura, CA 93009

RESOURCE MANAGEMENT AGENCY  
county of ventura

Planning Division

Thomas Berg  
Manager

March 25, 1986

Mr. Thomas W. Dunaway, Regional Supervisor  
Minerals Management Service  
Pacific OCS Region  
1340 W. Sixth St.  
Los Angeles, CA 90017

Subject: Planning Division Comments on Chevron USA Inc.'s Development and Production Plan (DPP) and Environmental Report (ER) for Platform Gail-Lease OCS-P0205

Dear Mr. Dunaway:

This is in response to your letter requesting Planning Division Comments on the above-referenced project. Accordingly, the Planning Division has reviewed the Development and Production Plan (DPP) and the Environmental Report (ER) associated with the proposed project. Staff requests the following information, which includes comments on environmental and socio-economic concerns, be incorporated into the final DPP and ER.

VISUAL/AESTHETIC IMPACTS

The proposed project will be located approximately 11 miles southwest of the City of San Buenaventura and about 10 miles west of the cities of Oxnard and Port Hueneme. Three offshore platforms (Grace, Gina, and Gilda) are already located in this general area, and the placement of a fourth platform may represent a cumulatively significant visual intrusion which may further detract from visitors' and residents' views of the Channel Islands. Views from the Channel Islands (particularly Anacapa and Santa Cruz Islands) would also be adversely impacted by the construction of a fourth offshore platform in this area. The project proponent should investigate any measures available that would reduce cumulative visual impacts.

TYPOGRAPHICAL ERROR

There is a typographical error on page 4-58, second paragraph, third sentence (i.e., "decreases" appears to read better as "decreasing").

VESSEL TRAFFIC CONFLICTS

Although the platform will be located just west of the vessel traffic separation scheme (VISS), the proximity of the platform to the southbound traffic lane may pose a hazard to vessel traffic during periods of poor visibility or inclement weather. Therefore, considerations should be given to additional measures which could be taken to minimize this hazard (e.g., vessel traffic monitoring and warning system).

800 South Victoria Avenue, Ventura, CA 93009

Mr. Thomas W. Dunaway  
March 25, 1986  
Page 2

#### SUPPORT VESSEL TRAFFIC

The Environmental Report (ER) references helicopter trips to the platform from the Ventura County Airport at Oxnard during the platform and subsea pipeline installation phases and during the drilling phase. The ER describes the increase in airport traffic as "minimal." However, any increase in air traffic due to a proposed new offshore project may cumulatively impact the existing airport facilities and surrounding urban areas. Consideration of these potential cumulative impacts and any measures to mitigate their impacts should be addressed.

#### OIL SPILLS

The closest oil spill response vessels are located in Santa Barbara (estimated three hour response time) and Long Beach (no estimated response time). As the number of platforms in the Ventura/Oxnard/Port Hueneme area increases, the possibility for an oil spill increases proportionately. A three hour response time for oil spill response vessels does not seem reasonable. Therefore, the feasibility of locating an oil spill response vessel in Ventura County (Port of Hueneme) should be addressed.

#### SOCIOECONOMICS

##### Cumulative Impact on Employment, Population and Housing

The ER states "population levels from cumulative (hydrocarbon) development are essentially within plan levels and are considered negligible." The ER also states that "because of the limited nature of the Platform Gail project.... the project is expected to have a negligible impact on permanent housing." The County's current adopted land use plan and policies do not address any potential population increases from major offshore hydrocarbon development which may occur in the 1980's and beyond including Chevron's proposed Platform Gail. Therefore, any potential increase from offshore oil and gas production must be addressed and adequate mitigation measures should also be proposed.

##### Cumulative Effects on Community Services

No mention of the cumulative impact of any increase in student populations on already overcrowded public school systems in Ventura County is discussed (e. g., the Oxnard School District). Any increase in students in these already overcrowded systems would be significant. A discussion of impacts resulting from any increase in school age children and the identification of adequate mitigation measures should be included in the ER.

##### Cumulative Impact on Transportation

Many existing streets and intersections in Western Ventura County (including the incorporated cities), are already experiencing cumulatively significant impacts from existing peak flow traffic levels. Any increase in existing traffic levels would therefore be significant and would have significant adverse impacts on these streets and intersections. The ER, however, states "none of the specific locations that would be affected ..... including streets and intersections .....

Mr. Thomas W. Dunaway  
March 25, 1986  
Page 3

were determined to have significant adverse cumulative impacts." The ER should be revised to discuss current traffic related problems and the cumulative impact of any increase in traffic on existing streets and intersections. Adequate mitigation measures also need to be identified.

#### CUMULATIVE IMPACTS

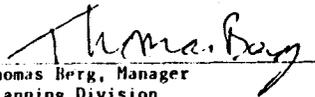
The ER states that impacts would not be significant because of the temporary nature of the project. However, in many cases the project will result in cumulative impacts which will affect air quality, drilling mud discharge, the potential for oil spills, and several economic issues including population, schools and existing transportation systems (streets and intersections). Therefore, the Platform Gail ER should include adequate discussions of cumulative impacts and identification of mitigation measures.

It is our suggestion that the Reassessment phase report (Ventura County Socioeconomic Monitoring and Mitigation Program), prepared by Centaur Associates, be utilized as a resource in updating the socioeconomic data included in these draft documents. It should be noted that while the information contained in Centaur's Reassessment/Cumulative Projects List is complete, as of February 1986, it has not been formally reviewed nor endorsed by the Ventura County Board of Supervisors, city councils, etc. A copy of the Centaur report will be mailed to you when it is available for public distribution.

Thank you for the opportunity to provide comments on this proposal. If you have any questions or require further clarification concerning this response, please contact Gene Kjellberg at (805) 654-2455.

Sincerely

RESOURCE MANAGEMENT AGENCY

  
Thomas Berg, Manager  
Planning Division

TB:j/C133

cc: Victor Husbands

COUNTY OF VENTURA

Air Pollution Control District

MEMORANDUM

Date: February 28, 1986

To: Tom Berg, Director, Planning Division

From: Dick Baldwin, APCO *DH Baldwin*

Subject: Development Plan (DP) and Environmental Report (ER) for Proposed Platform Gail

In her memo of January 31, 1986, Ms. Jan Sharpless requested we submit our comments on the subject activity to her office by February 28, 1986. Given below are our comments for inclusion into the County's transmittal to Ms. Sharpless. If you have any questions please contact Larry Rennacker or Neil Moyer of my staff at (805) 654-5033 or (805) 654-2665, respectively.

The subject proposal is located approximately nine miles off the mainland portion of Ventura County. Ventura County has one of the five worst air quality problems for ozone of any county in the United States. It has been demonstrated that winds flow from the project location to onshore areas of Ventura County and on days of elevated ozone (Smith, 1983). It has also been demonstrated that a platform located as far as 90 to 100 miles offshore from Ventura County is capable of adversely affecting ozone concentrations in Ventura County (MMS, 1985). If the proposed activity were located onshore, it would be one of the largest sources of oxides of nitrogen and reactive organic compounds in the county. As the project is proposed, the District will have no option except to require the California Coastal Commission (CCC) find the proposed activity inconsistent with the California Coastal Zone Management Plan (CZMP).

To find a proposed activity consistent with the CZMP, the CCC must find it consistent with the requirements of local air pollution control districts (Section 30253, 3)).

To be consistent with the rules and regulation of the District, the proposed activity must comply with the Districts New Source Review Rule and Prevention of Significant Deterioration Rule. The activity as proposed in the DP and ER does not meet these criteria (APCD Rules 26.1 and 26.3, respectively).

Without the CCC certification, the activity cannot be approved by the DOI.

The applicable requirements of the District are given in detail below:

NSR (26.1)

For sources emitting more than 25 tons per year of of reactive organic compounds or oxides of nitrogen, Best Available Control Technology (BACT) must be applied and

remaining emissions must be sufficiently offset to provide a net air quality benefit. BACT is currently defined by the District as follows:

- \* Platform Primary Power Source: Power cable from onshore power grid.
  - \* Platform Pumps/Compressors: Electric.
  - \* Platform Flares: Emergency only and smokeless.
  - \* Platform Fugitive Hydrocarbon Emissions: Inspection and maintenance program with pump and compressor seals vented to a vapor recovery system.
- The District is actively considering the following control measures as BACT:
- \* Platform Process Heaters: Electric.
  - \* Crew and Supply Boat: Pre-chamber diesel or < 6 gm NOx/ hp-hr.
  - \* Boiler Pile Driver: Gas fuel with pyrocore burners or < 15 ppm NOx @ 0% oxygen.
  - \* Other Diesel Engines: Selected catalytic reduction or < 3 gm NOx/ hp-hr.

PSD (Rule 26.3)

For sources which emit more than five pounds per hour of oxides of sulfur, emissions must be reduced to an equivalent of the sulfur content of commercial quality natural gas, or 0.1% sulfur compound content fuel oil.

Sulfur Compounds (Rule 54)

A source may emit no more than 10 ppm hydrogen sulfide, by volume, at the source.

We recognize that the OCS is a unique environment and are willing and look forward to working with the applicant on the issue of BACT.

Other comments specific to the ER as written are given below:

Page	Comment
6-2	The document indicates that by using cable power from onshore, power costs will be increased by 55% and NOx by 53%. Documentation for these figures are needed. Platforms Gina and Gilda are close to Gail and they are cable powered. The NOx increase is based on an assumption that all power will be

provided by the Edison fossil fuel generating stations at Mandalay Bay and Ormand Beach. This assumption is unrealistic in that the electrical power comes from the Edison grid system. Only a small fraction of future power demand is expected to be supplied from Edison by burning fossil fuels at Ormand Beach and Mandalay Bay (ARB, 1986).

- 4-10 The document indicates that no increase in emissions from Grace will occur due to the production from Gail. Fugitive platform hydrocarbon emissions are primarily a function of gas processing components, and the pipeline from Gail to Grace will require additional components. Additionally, to handle the gas production at Gail, the gas compressors on Grace will have to operate under higher loads resulting in greater emissions. Therefore, some increase in emissions can be expected.
- 4-7 Emissions from launching the platform jackets are missing from the emission calculations.
- 4-8 The District's definition of a source specifies that emissions from cargo carriers associated with a source shall be considered emissions from the source. Consequently, to be consistent with District rules, emissions from supply boats should be included in any tabulation of source emissions. In Table 4.3-1 supply boat emissions were left out. In addition, the District does not distinguish between emissions generated inside and outside the three mile limit. Consequently, all emissions from base to destination and return should be included as emissions from the source.
- 4-14 The JIMS program has never been endorsed by the participating agencies for regulatory use, and the model evaluated in JIMS so far has failed to meet the performance criteria specified by the participating agency members. The District hopes to improve the JIMS model through the development of its nonattainment plan such that it can be used as described in the ER.

#### Appendix

- A The environmental documents for Harvest and Hermosa indicated that tugboats used for platform installation have a horsepower range of 18000-40000. The Appendix indicates a range a horsepower of less than 10000. Unless the applicant can document that tugs in this range are available or are under contract, emissions should be calculated using the higher range. (Also see comments p 4-8)
- 3-24 In Table 3.3-1, the California one hour sulfur dioxide standard has been changed to 0.25 ppm, and there is no longer a National Secondary Standard for carbon monoxide.

- 2-56 Include as a protection measure an internal combustion engine compliance program consisting of air/fuel ratio monitoring program (readouts-controllers) and periodic exhaust NOx sampling.

In conclusion, we look forward to working with the applicant towards a successful OCS development program, and we encourage the applicant to contact the District at the earliest possible date.

#### References

- (ARB, 1986) Telephone conversation with Mr. Don Koberline of the ARB, February 27, 1986.
- (MMS, 1985) "Union Oil Project/Exxon Project Central Santa Maria Basin Area Study EIS/EIR, Technical Appendix B, Air Quality Meteorology Volume 1, Arthur D. Little Inc.
- (Smith, 1983) "Analysis of Santa Barbara Oxidant Study", Ted Smith, Meteorology Research, Inc., December, 1983.

cc: Dave Caulkins, EPA  
Ray Menebroker, ARB  
John English, SBCAPCD  
Chron

Noted - Van Auker

GEORGE DEVEREUX, G. S. S.

## CALIFORNIA COASTAL COMMISSION

431 HOWARD STREET, 4TH FLOOR  
SAN FRANCISCO, CA 94102  
(415) 398-9000

APR 2 1986

March 31, 1986

Leasing and Environment  
LOS ANGELESThomas Dunaway  
Minerals Management Service  
1340 W. Sixth Street  
Los Angeles, CA 90017RE: Chevron Platform Gail - P-0205

Dear Mr. Dunaway:

The staff of the California Coastal Commission has received the Development and Production Plan and the Environmental Report for the proposed Platform Gail and hereby submit for your review the following questions regarding the proposal. MMS and Chevron responses to these comments and questions will help the Coastal Commission review the plan for consistency with the California Coastal Management Plan. We must express our concern with procedures that result in our review prior to completion of the Environmental Assessment expected in June and geologic investigations expected in May.

This letter shall also serve as notice to MMS that the Commission cannot either concur or object to this consistency certification within 90 days of receipt of the proposal on January 30, 1986, or by April 30, 1986. The Commission staff hope to present a recommendation to the Commission in May, however, we may not have adequate information with which to recommend concurrence at that time. In order to meet internal and external deadlines leading up to the Commission hearing on the consistency certification presently scheduled for May 13-15, 1986 in San Diego, we need answers to these questions by April 15, 1986 at the latest.

The following concerns are organized by subject.

A. Marine Resources

1. The Environmental Report (ER) does not provide specific mitigation measures to protect seabirds, sea otters, or other marine mammals in the event of an oil spill. The document must provide a thorough explanation of the methods and facilities available to use to cleanup and rehabilitate these species in the event of an oil spill. Are existing facilities adequate to handle substantial numbers of seabirds and marine mammals? Have capture techniques

improved to the point where oiled wildlife can be safely recovered, cleaned and the returned to their natural habitat?

2. The endangered California gray whale migrates through this area twice each year over a period lasting from November through May. A pod of three gray whales were sited during the marine biological survey and several are known to winter in the area (ER page 3-131, Wellington and Anderson 1978, MMS 1984.). Only brief mention is made in the Environmental Report (pg. 4-86) of the conflicts between construction activities, noise and interference with the seasonal cetacean migrations. On previous projects the CCC has adopted findings which disagree with the conclusions of insignificant impacts contained in the ER.

On page 2-36, the ER states: "The construction of the platform will occur during the seasonal cetacean migration period." Previous operators have agreed to limit construction to the times when whales are not migrating through the construction zones. The report should include an updated construction schedule in light of the delayed submittal, NPDES permits and Coastal Commission consistency requirements. The report should discuss the potential disturbance to the whales especially on mother calf pairs during the northward migration. The document should include mitigation measures such as construction timing, to preclude construction of the pipeline nor placement of the platform between December 1 and April 30, and crew and supply boat traffic lanes.

3. Provide a map and description of "possible outcrops" along the proposed pipeline corridor (pg 3-169 & 170, and 4-40 of the ER) as identified by Woodward Clyde Consultants 1981, Nekton, 1983 and more recent studies. Indicate if and when more studies are anticipated.

4. Although Chevron appears to have made a commitment not to discharge chrome or ferrochrome lignosulfonates (pages 4-19 and 4-41 of the ER, eg. "...Chevron does not anticipate using this type of mud.") it is not clear that Chevron will not use this mud. Please clarify.

5. Clarify on page 4-40 of the ER how the pipeline would be anchored. Are the proposed anchors to be used only for construction activities? When and how will hazards (rocky areas) be identified?

6. The Site Specific Marine Biological Survey identified a new potential species found during the field studies which had not previously been recorded in the eastern Pacific. What were the results of research on Petalosarsia sp. A?

B. Oil Spills

1. The Coastal Commission routinely requires 1500 feet of open ocean containment boom to be available for onsite operations. Chevron has one 750 foot section of boom proposed for the platform and one for workboats in the area. It is not clear whether 1500 feet of this boom will always be located at the site or within a

certain response time from the platform. For production facilities this equipment should be ready to be deployed within 15 to 60 minutes. The appropriate response time is dependent on the location of the platform, the proximity to environmentally sensitive habitats, oil spill trajectories, and the response time of the oil spill cooperatives. Please provide the plans for storage and deployment of 1500 feet of boom, along with estimates of the time for full deployment. Also provide the rationale for the response time, i.e. the nearest sensitive area is \_\_\_ miles away and the trajectories show that it will take \_\_\_ hours for the oil to get there.

2. Please explain the mechanical oil recovery rate that you anticipate during the onsite oil clean-up operation. Is there sufficient oil storage capacity to operate the onsite equipment until the cooperative arrives? Please specify the capacity of the oil storage equipment.

3. The Commission requires that the dispersant used be the most effective and the least toxic for the oil that will be produced. Chevron must provide data to prove that the dispersant proposed for use will meet the effectiveness and toxicity objectives. The oil from Platform Gail will range from relatively light varieties to some heavier crudes according to Chevron personnel (meeting between Chevron and CCC 3/18/86). Therefore, different types of dispersant will be necessary depending on the type of oil spilled. If the dispersant for the heavy oil happens to be one that has yet to be licensed in California, Chevron should indicate what steps are being taken to obtain those approvals so that the preferable chemical is available.

4. The Commission has expressed its concern with the ability of the Mr. Clean offshore oil spill response vessels to operate offshore for extended periods of time. This concern has been raised in part by the problems experienced by Mr. Clean II during the Puerto Rican tanker spill off northern California. Most of the offshore supply vessels (190 - 200 feet) currently operating off the California coastline are larger than the Mr. Clean vessels (130 - 165 feet). The Commission would like a thorough explanation why the clean-up vessels are smaller and perhaps not as stable as the workboats. The Commission's standard is for "maximum feasible mitigation" and must we assure that this standard is being met by the oil spill cooperative vessels.

5. Clean Seas has recently notified the Commission staff that they plan to sell the Tidemar VII oil storage barge. We are concerned with this proposal because of the many problems experienced during actual spills with obtaining and transporting contract storage barges over long distances. Problems occurred during the Alvenus spill off the Gulf coast and the Puerto Rican spill off the northern California coast. Please provide specifics regarding the response times for contract vessels, the compatibility of Clean Seas equipment with available storage barges, and the overall rationale for this decision as it relates to providing the maximum feasible mitigation for oil spills.

### C. Vessel Traffic Safety

1. Is Chevron committing specifically to install the ARPA on Platform Gail?

Page IV-19 of the Supplement to the DPP states: "Chevron is committed to the use of a United States Coast Guard approved Automatic Radar Plotting Aid (ARPA) to be installed on a platform on a standby boat in the Santa Clara Unit." On page VI-18, the DPP states: "A United States Coast Guard approved Automatic Radar Plotting Aid (ARPA) unit will be installed on the platform." On page 2-13 of the ER, it is stated "The use of a United States Coast Guard approved Automatic Radar Plotting Aid (ARPA) unit to be installed on the platform is being considered." On page 4-36 of the ER, the statement made on page IV-19 of the DPP is repeated.

2. Page IV-20 of the DPP states: "If radio contact cannot be made before an approaching vessel closes within a designated safe distance of the platform, the observer will dispatch a boat or helicopter to alert the approaching ship of the platform ahead.... The actual time of dispatch of the boat or helicopter will depend upon the speed and course of the approaching vessel as determined from the observer's vessel tracking."

Would a boat or helicopter always be available at the platform? Being 2,053 feet from the buffer zone and 3,694 feet from the lane, does Chevron believe there would be time to call for a helicopter from shore?

3. Please discuss in detail the predominance of fog and low clouds which would inhibit visibility in the area of the proposed platform. How many days per year, during what seasons is visibility obstructed? (ER page 3-18)

4. Does the "Consolidated Marine Oil Terminal (CMOT) at Los Angeles" refer to Pactex or another proposed project? (ER page 3-58)

5. Page IV-18 of the DPP states that Platform Gail would be 3,694 feet (1,126m) from the north bound shipping lane. Page 4-31 of the ER states that the Platform would be approximately 4,100 feet (1,249m) north of the shipping lane. Which figure is accurate?

6. Would the proposed 500-meter safety zone around the platform exclude vessels under 100-feet? (ER page 4-35)

7. Please explain in detail the legend for Figure 2.6-1 (ER page 2-16) and indicate the pipeline routes from Gail to Grace. Are inspection routes for the pipelines going to follow the course shown on the map or the actual placement of the lines?

### D. Fisheries

1. In the ER on Figure 2.6-1, explain what the single dashed line depicts.

2. The ER states that the pipelines will be 8.625" in diameter. Is this the outside diameter including protective coatings, insulation, anodes, and connections? If not, give the outside diameter, which includes these additional features. Also, provide a to-scale schematic drawing of the pipeline profiles or cross sections depicting the different components of the pipelines. If shrouds will be required, provide a to-scale drawing of these fixtures, also.

Provide the location of the surface soils sampling stations within the pipeline corridor. Were dirt core surveys or other detailed surface soil surveys conducted within the pipeline corridor? If so, explain the type of survey which was done or if and when any are planned.

4. Explain whether any recreational fishing occurs in the immediate vicinity of Platform Gail.

5. Detail the steps Chevron will undertake to minimize anchor scarring.

6. Detail the mitigation measures, in addition to post-construction surveys, Chevron will use to eliminate problems with dropped debris or anchor scars, if the surveys determine that problems with trawlers will arise due to these impacts.

7. Provide a map accurately depicting the platform and pipeline construction zone radius and width. These areas should include the amount of space necessary for all of the construction and installation equipment and vessels, including the anchors and anchor lines.

8. Please provide the exact locations of the mooring buoys.

9. We have received reports from fishermen that oil and gas related equipment they have retrieved from their fishing gear has not been marked to identify the company using it. Describe what type of equipment will be marked and what the identification method will be.

10. Please indicate Chevron's commitment to notice construction schedules in the Oil and Gas Project Newsletter for Fishermen and Offshore Operators 30 days prior to commencement of offshore construction.

11. The analysis of impacts on the commercial fishing activities in the ER is a significant improvement over the analyses in previous ERs and DPPs, and we appreciate the efforts in attempting to address these issues. However, environmental documents for previously permitted and pending projects (Pt. Pedernales EIS/R, Santa Ynez Unit EIS/R, and Point Arguello EIS/R, for example) indicate that offshore oil and gas facilities and activities present a cumulative impact on commercial fishing and related activities. Our concern is heightened because the documents rely, as does the ER for Platform Gail, on limited Department of Fish and Game fish block and port landings information, some interviews with fishermen and other

fishing industry representatives, and in some cases, other information such as MMS studies. None of this information quantifies the impacts of displacement caused by the oil and gas facilities, dropped debris, snags, support boat traffic, or harm to the fisheries resources. Therefore the actual impacts may not be accurately represented in the documents.

We believe that quantifying the impacts of offshore facilities on ex-vessel income, and on local businesses which depend on the income and fish is critical to the Commission's review of the Platform Gail project. ERG Pacific Inc. has developed one method for assessing the economic impacts on the fishing industry for the San Miguel field development plan. This draft report shows that Platform Julius and the six hypothetical platforms in the Santa Maria Basin will affect the industry by causing a reduction in its catch. A similar analysis should be completed for the Platform Gail proposal or, Chevron should show how it will provide the information in another manner necessary to determine individual and cumulative impacts on the commercial fishing industry. The analysis should focus on the fisheries that operate in the Santa Barbara Channel.

We have requested that a similar analysis be done or equivalent cumulative impact data be submitted for the Gaviota Interim Marine Terminal. We believe that a regional study for the federal and state waters of the Santa Barbara Channel would most accurately determine the cumulative impacts of offshore oil and gas development. Therefore, we would like to discuss this request and the option of coordinating a regional study with other oil companies which have applied for long-term projects in the Santa Barbara prior to commencement of this analysis.

#### E. Air Quality

1. Specifically, what are the detailed project mitigation measures Chevron is proposing in an effort to reduce air emission impacts?

2. What is the reliability of the Allison turbines to continue reducing NOx emissions by 70% over the life of the platform? What are the maintenance requirements and have these turbines been tested to meet 70% NOx reduction in an actual application lasting more than 5-10 years? How will these turbines be tested and will Chevron replace them if 70% reduction cannot be maintained? In such event, will Chevron commit to a curtailment plan until 70% reduction is again achieved?

3. Does the air model assessment study (Appendix A) consider as the worst case analysis emissions generated from diesel fueled turbines during initial operation? Please explain.

4. What are the power sources of all equipment proposed on the platform including the crane, mud pumps desilter, desander and mixers as noted on page 2-9 of the ER? Are they diesel powered?

5. Page 2-14 of the ER notes the environmental monitoring systems to be used on the platforms. Are ambient air quality and emission monitors proposed to be located on the platform? Would monitors on the platform provide valuable ambient and emission data? Please explain.

6. Page 2-14 of the ER describes the proposed transportation modes. Did the air modelling study include measures to reduce emissions from crew and supply boats such as using larger boats to deliver crew and supplies to multiple platforms?

7. Page 2-20 of the ER notes that gas from Platform Gail will be further processed at Carpinteria. What type and quantity of emission increases (over existing emissions today) will occur at the Carpinteria plant? Were these emission increases included in the air quality modelling study? Please explain. We understand the Carpinteria facility has excess capacity. How will extending the operational life of this facility affect County efforts to reach attainment? Is this facility now using BACT? What additional mitigation measures could be applied to this facility?

8. Page 2-47 of the ER notes that Section 30253(3) is not applicable as the Air Resources Board and the APCD do not have jurisdiction over activities on the federal OCS. We disagree with this statement. The project has not been properly assessed to determine consistency with the CZMP. The project must also be reviewed under the requirements of Section 30250. The Coastal Act requires that projects on the OCS must be consistent with the requirements of the ARB or local APCD, including the State's Plan for attaining and maintaining federal ambient air quality standards. Thus, a review of the analysis of project emissions must be conducted by the ARB, Santa Barbara and Ventura County's APCD's to determine if the project, on an individual basis or in combination with other existing or proposed project emissions, would impede the state's strategies for and progress toward attainment.

The Commission staff need comments from the ARB, Ventura County and Santa Barbara County APCD's on the accuracy and completeness of the air model impact assessment and whether or not the model identifies any air standard or requirement exceedences and therefore requires further project mitigation. Staff has requested such comments.

The Commission does not have sufficient information to determine the potential for violating Clean Air Act, ARB, Santa Barbara County and Ventura County APCD, air quality standards and requirements in the onshore areas, or for exacerbating the efforts to attain and or maintain these standards in onshore areas. Until this analysis by these agencies is completed the project may not be found consistent to the maximum extent practicable with the CCMP. As you know, air quality impacts cross many jurisdictions beyond their origination and therefore impacts to all coastal areas must be considered during our consistency review process.

9. Page 4-5 of the ER discusses air quality and Class II PSD standards. Please explain why Anacapa Island, six miles to the south, is not noted as a Class I PSD area and how project emissions would adversely affect the island's designation.

10. Page 4-6 of the ER notes mobile source emissions related to the construction activities. How are these included in the air assessment modelling analysis?

11. Page 4-10 of the ER notes that no increase of emissions from Platform Grace associated with gas at Gail will occur. Please explain this statement particularly since additional gas will be sweetened over today's processing volume, and this has to create some incremental increase in emissions over today's emissions.

12. Alternative onshore processing sites in Ventura County and associated emissions must be considered and analyzed pursuant to Coastal Act Section 30260 in the model assessment. These sites include the Union Mandalay facility, Mobil Rincon facility and the Phillips La Conchita facility.

13. Page 6-2 of the ER discusses a comparison of the electric grid cable vs gas turbine platform sources. This comparison needs to be reviewed by the ARB, Ventura County and Santa Barbara County APCD's to verify its accuracy and completeness of appropriate information. Until such input is provided to Commission staff, we cannot determine what additional information, if any, is necessary.

#### F. General Comments

1. None of the submitted materials identify the impact upon fresh water supplies on land due to increased (permitted) processing onshore and socioeconomic effects. Quantify demand for fresh water as a result of this project, availability and cumulative impact upon the overdraft of the Oxnard plain.

2. Page 2-1 of the ER notes that produced water will be treated and discharged into the ocean. Page 2-8 notes the desalination units are proposed to produce fresh water. Has Chevron explored the possibility of further treating the connate water for use on the platform as potable or non-potable uses, including drill muds and fire suppression? What are the constraints or problems in using this water? Has industry used connate water for these purposes in the past?

3. Explain how visibility will be reduced and clarify this statement: "The distance from sensitive receptor areas coupled with reduced visibility in the project area will aid in reducing the dominant presence of the structure throughout the years." (page 4-99 of the ER)

4. Does the spare pipeline noted on page 2-1 of the ER have any other potential uses for future expansion of this platform or other platforms?

5. Page 2-3 of the ER notes that 3.2 tons of sulfur per day will be produced on Platform Grace. What form (i.e., granular or powder) will this sulfur be, how will it be transported to shore and contained, and will it be hazardous on the platform or in transport?

6. Page 2-7 of the ER discusses production facilities. How is the produced oil metered to determine quantity for federal royalty purposes? How is it metered as it is piped and commingled with other platform oils to the Carpinteria processing facility? What is the accuracy of this metering system?

### C. Cumulative Impacts

The Commission is required by the Coastal Act to analyze cumulative impacts when reviewing development which would have an effect within or upon the coastal zone. The Commission has had a continuing concern for the cumulative effects of oil and gas development offshore California and within the Santa Barbara Channel. These concerns are shared by other governmental entities and the public.

The issue has been addressed in the EIS/R for the Point Pedernales Development which concluded that oil and non-oil related development in the Santa Maria Basin and Santa Barbara Channel offshore and onshore areas would cause a significant cumulative effect on environmental resources.

Because the existing information on these previously reviewed projects identify potential cumulative impacts, we find it necessary to conduct a cumulative impact analysis for the Platform Gail project. This analysis will consider the effects of existing and recently permitted oil related developments in addition to the potential effects from new proposals in the Channel; for example, ARCO Coal Oil Point, Shell Molino, Union Cojo, and the marine terminals at Gaviota and/or Las Flores. The ER states on page 2-58 that Platform Gail is one of 15 planned platforms for the Channel.

It is possible that the Environmental Assessment, being prepared by MMS which builds upon previous EISs for the Santa Clara Unit, will contain in detail the following requested information. However, because the EA will not be available until June, and the Commission must evaluate consistency prior to that time, we must receive these materials by April 15, 1986. To facilitate our analysis we are requesting additional information, as specified below.

1. Oil Spills. Provide an analysis of the cumulative probability of the occurrence of oil spills in the Santa Barbara Channel from existing, permitted, and proposed offshore oil related development. Include in this analysis the incremental affect of Platform Gail and the related pipelines.

2. Fisheries. Provide an economic analysis of the effect of existing, permitted, and proposed offshore oil related development on the commercial fishing industry. Include the incremental affect of construction and operation of Platform Gail, the pipeline, and related support boat traffic.

### 3. Marine Resources.

a. Provide the annual amounts of drilling muds, cuttings, produced water, and deck drainage which will be discharged from existing, permitted, and proposed offshore oil related development. Include and break out in these figures, the amounts which are expected to be discharged from Platform Gail.

b. Detail the impacts of these discharges on the marine environment, paying particular attention to federal and state listed species, commercial and recreational viable fish and shellfish species.

4. Vessel Traffic Safety. The ER states that up to 15 new platforms are anticipated in the Santa Barbara Channel. To the best of your abilities, map the location of these platforms in relation to the VTSS lanes and the buffer zones.

5. Air Quality. Provide an analysis to identify the potential cumulative impacts of existing, development, the Platform Gail project, and any reasonably foreseeable onshore and offshore oil related development in Ventura and Santa Barbara Counties. This analysis should determine 1) the potential for any violations of federal and state air quality standards; and 2) whether the identified cumulative impacts would result in further impediments to Ventura's and Santa Barbara's ability to attain the goals of their Air Quality Attainment Plans. Appropriate air modeling would be necessary to conduct this analysis.

6. Water Use. There is no evaluation of onshore fresh water demand as a result of the proposed project. Provide information on whether additional water use for processing will aggravate the overdraft situation in Ventura County.

### H. Geotechnical Concerns

1. The proposed platform is located on an buried ancient slide deposit. There is a slide terrain area immediately to the north of the proposed platform and pipeline. The Geotechnical Report states that this upslope would move only 280 feet in the event of slope failure. (Page E-22) Has this type of prediction been used before, and if so, where?

2. Should the upper slope fail and displace material greater than 280 feet, what would the impacts be upon the platform, upon the pipelines, and upon the buried ancient slide deposit? Could a slope failure originating from the upper slide area act as a driving mechanism to reactivate the buried ancient slide deposit?

3. Show Platform Grace and all the associated pipeline routes (existing and proposed) on the map on page 3-9 of the ER. Do the pipelines cross the Mid-Channel Fault on their way to Platform Grace from Platform Gail? Do they cross the Hueneme Trend? What are the risks associated with these faults?

4. The proposed pipelines travel through the buried ancient slide zone, through an area of shallow gas deposits, along the base of the slide terrain, then across the slide terrain to Platform Grace. Explain the risks and the impacts of major slope displacements along the entire route of the pipeline and the projected stability and integrity of the lines.

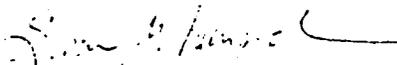
5. Explain why the pipelines and platform are placed in the midst of these potentially hazardous areas and if these are the least environmentally damaging locations.

6. What design measures have been applied to the pipelines to withstand rupture due to seafloor slumping? How much lateral movement can the pipelines withstand before they rupture? Are there any shut-off valves proposed for installation along the unstable areas of the seafloor? Could they be used to minimize the impact of seafloor displacement?

Please submit materials as they become available to Ms. Devon Bates, Project Manager or call her to discuss these requests in further detail.

Thank you for your consideration and responses to these questions. We look forward to continuing communications with MMS and with Chevron as needed to resolve these remaining issues.

Sincerely,

  
SUSAN HANSCH, Manager  
Energy and Ocean Resources Unit

SH/DB/ces

cc: Cynthia Norris, Chevron U.S.A., Inc.

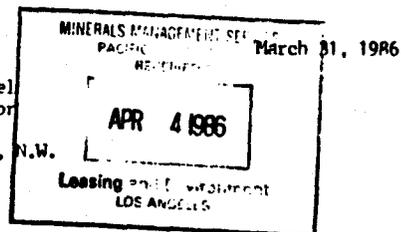
0426N



State of California

SACRAMENTO

JANANNE SHARPLESS  
Secretary of  
Environmental Affairs



Honorable Donald P. Hodel  
Secretary of the Interior  
Interior Bldg., Rm 6151  
C between 18th and 19th, N.W.  
Washington DC 20240

Dear Secretary Hodel:

In my capacity as Governor Deukmejian's OCS Policy Coordinator, I am pleased to submit the Governor's comments on the Development and Production Plan (DPP) for Chevron's Platform Gail on Lease OCS-P 0205.

In preparing the Governor's comments, I actively sought recommendations from the private sector, state and local agencies, and representatives of various interest groups. Attachment A is a summary of the issues raised by those who responded. Attachment B contains the complete responses that I received.

The comments contained in this letter and the attachments are based on a review of the documents provided by Thomas Dunaway dated January 29, 1986. Since then, I have been informed that Chevron has also provided additional air quality information to the Air Resources Board (ARB) and the California Coastal Commission (CCC). Because this information was received too late to incorporate into our review of Platform Gail, our air quality comments are necessarily incomplete at this time. However, once our review of the new air quality modeling information has been completed, I will provide you with the Governor's recommendations on the size, timing, and location of the Platform Gail Project with respect to air quality.

The following comments summarize the major concerns of the Governor with respect to the size, timing, and location of the Platform Gail Project. With the above exception, these points were discussed with staff from the Los Angeles office of Minerals Management Service (MMS) at a meeting on March 13, 1986. Included with each concern is a summary of our understanding of how MMS intends to respond to each concern, as agreed to at the March 13 meeting.

In addition to the following concerns, the responses I received on the Platform Gail Project requested additional clarifications on a number of points in the DPP and the Environmental Report. These requests are summarized in Attachment A and detailed in Attachment B. The Governor requests that these points of clarification and any necessary adjustments in the environmental impact conclusions and required mitigation measures be addressed in the REPA documentation for the Platform Gail Project.

APR 2 1986  
FIELD OPERATIONS  
LOS ANGELES  
MINERALS MANAGEMENT SERVICE  
PACIFIC OCS

Air Quality

- o Modeling is needed to assess the impact of project emissions and alternative mitigation measures on attainment of State and Federal ambient air quality standards and on exceedance of federal Prevention of Significant Deterioration increment.

Action Item: Chevron has performed modeling in accordance to a protocol worked out with ARB staff. After ARB has completed a review of the modeling analysis, staff from my office, ARB, and MMS will meet to agree on how to handle any remaining concerns with the air quality impacts of the Platform Gail Project. MMS will require mitigation to prevent onshore impacts, including consideration of grid power if necessary.

- o Refine the project's emission inventory. Emissions associated with platform transport and launching, flaring, and from crew and supply boats within the three mile limit should be included. Potential increases in emissions associated with oil and gas treatment on Platform Grace and at Carpinteria should be clarified. Calculation of NO<sub>x</sub> emission rates need to be justified. Emissions for cargo barge tug boat and smokeless flares need to be revised.

Action item: MMS will require Chevron to review the emission inventory and re-run the air quality model as necessary to reflect any significant changes in emissions.

- o Justify cumulative impact conclusions.

Action item: We understand the cumulative impact scenario has been addressed in Chevron's recently submitted modeling results. Both MMS and ARB will review the modeling results to ensure that there is a technical basis for the conclusions.

- o Justify conclusions on use of grid power.

Action item: Chevron has provided a grid power analysis to CCC. ARB and MMS will review this analysis and discuss their findings.

- o An in-depth discussion of the I&M program for Platform Gail is needed.

Action item: The NEPA documentation will provide information at the same level of detail as in the Point Arguello EIS/EIR.

- o Specify measures to be used to reduce air emissions.

Action item: MMS will discuss measures in the NEPA documentation and specify the required measures in their Record of

Decision. These measures will be discussed first with my office and ARB following our review of Chevron's new air modeling results.

- o Update baseline air quality data.

Action item: MMS will obtain 1984 data from ARB for the update.

After we have met with MMS to discuss the results of the air modeling, we will follow up with a letter detailing the points of agreement.

Vessel Safety

Safety measures should be considered in light of the proximity of the platform to the northbound vessel traffic lane, e.g. a vessel traffic monitoring and warning system.

Action item: MMS has required Chevron to install 4 quick-flashing 5-mile lights on the platform, 2-mile fog horns, and as an added safety measure, to paint the platform white. Chevron has also proposed to install an automatic radar plotting array to alert platform personnel and incoming vessels. The NEPA documentation will determine whether the radar device will be located on Platform Gail or another platform in the Santa Clara Unit.

Oil Spills

Because the platform is near a number of important fish and wildlife species, special measures which allow for early detection and rapid cleanup of oil spills should be identified. The feasibility of locating an oil spill response vessel in Ventura County should be assessed.

Action item: In the NEPA documentation, MMS will detail the state-of-the-art leak detection system and the other spill detection and clean-up measures. In addition to these measures, Chevron has agreed to station a crew boat at Platform Gail or Grace, capable of deploying booms and skimmers to respond to spills of less than 1000 bbl. For larger spills, a response vessel (Mr. Clean) will be operated out of Santa Barbara, with a response time of about three hours.

Fisheries

Provide further specifications on the program to survey and remove seafloor obstacles from project construction.

Action item: In the NEPA documentation, MMS will detail the post construction survey and cleanup methods. Methods to minimize anchor scarring will be detailed in the Critical Operations Curtailment and Contingency Plan.

Discharges

The cumulative impact of discharges on the Channel Islands National Marine Sanctuary and on State waters from south of Pitas Point to north of Anacapa Island should be discussed.

Action item: MMS will address this issue in the NEPA documentation.

Socioeconomics

Impacts of the project on employment, public services and transportation in Santa Barbara and Ventura Counties should be quantified and mitigation measures proposed, such as inclusion of this project in the Tri-County Socioeconomic Monitoring Program.

Action item: In the NEPA documentation, MMS will quantify the socioeconomic impacts, particularly those issues identified in Attachments A and B. Any identified significant impacts will be mitigated. Chevron has proposed to include Platform Gail in the Tri-County Monitoring Program.

In addition, we understand MMS attempted to obtain the baseline socioeconomic data being developed by Ventura County for their portion of the monitoring program, but was told it was unavailable at that time. Ventura County has since provided a copy to Chevron and if also made available to MMS, should be used for the socioeconomic portions of the NEPA documentation as appropriate. In considering whether this data is appropriate, please note the comment by the City of Oxnard that data from previous EIS/EIRs may be more relevant to western Ventura County.

Visual

Identify measures to reduce cumulative visual impacts.

Action item: Mitigation measures will be analyzed as appropriate in the NEPA documentation.

Air Traffic

Evaluate measures to mitigate cumulative impacts on Ventura County Airport.

Action item: MMS will identify any required mitigation measures in the NEPA documentation.

I appreciate the efforts of MMS staff to work with us on these concerns. I know you will continue to support this effort to resolve the issues, as more fully described in the attachments.

Again, thank you for your cooperation.

Sincerely,

  
Jananne Sharpless  
Secretary of Environmental  
Affairs

Enclosures

cc: Governor's Office  
Bill Grant  
✓ Tom Dunaway

P-17

ATTACHMENT A  
Summary of Issues  
Development and Production Plan for Chevron's Platform Gail,  
Lease OCS-P 0205

STATE AGENCIES

Air Resources Board - Air quality data should be updated and the air quality analysis should be expanded to include an assessment to determine whether Platform Gail emissions will individually or cumulatively interfere with efforts to attain and maintain State and Federal ambient air quality standards or cause an exceedance of the PSD increment.

The conclusions on use of grid power should be documented.

The document should clarify whether processing activities on Platform Grace cause a net increase in emissions from this platform.

An in-depth discussion of the I&M program for Platform Gail should be provided.

Emissions calculation for turbines should be checked, and emissions associated with platform jacket transport and launching, flaring, and crew and supply boats in State waters should be included in the emissions inventory.

Specific mitigation measures should be prepared to comply with the Clean Air Act and California Coastal Act requirements.

Baseline air quality data should be updated.

Department of Boating and Waterways - No comments.

Department of Conservation - Oil and gas production from the Monterey Formation should not cause land subsidence. Conservation expresses confidence that drilling will be carried out in accordance with OCS orders.

Department of Fish and Game - Construction and placement of the project facilities would preclude purse seine, trawling, and gill net activities at the immediate project site. A program for post construction survey and cleanup should be specified to minimize impact to trawling.

The Department is still reviewing the issue of drilling fluid discharge and reserves judgement until completion of the review.

The oil spill analysis indicates that a spill would contact the coast between Ventura and Ormand Beach in three days and may reach certain areas in fifteen hours. Special measures for early detection and rapid cleanup of oil spills should be adopted.

State Lands Commission - The Commission makes the observation that Chevron is offering an alternative to onshore processing of oil.

State Water Resources Control Board - The cumulative impact of discharges on the Channel Islands National Marine Sanctuary and on State waters from south of Pitas Point to north of Anacapa Island should be discussed.

LOCAL AGENCIES

County of Santa Barbara, Department of Regional Programs - This project should be included in the Tri-County socioeconomic monitoring program to ensure that impacts are identified and mitigated.

County of Santa Barbara, Resource Management Department - Cumulative impacts including onshore air quality impacts on the Santa Barbara Channel area should be discussed. All feasible mitigation measures similar to those issued by the County for the Point Arguello project should be required. The same emission controls used on Platforms Hermosa and Hildalgo should also be applied to Platform Gail for both the project and cumulative scenarios. Any approvals issued for Platform Gail should include a re-opener to require any additional mitigation identified through the JIMS and SCCCA/PS studies.

Onshore air quality impacts should be examined using methodologies adopted by the adjacent air quality Districts.

The document should fully discuss whether oil and gas processing will cause a net increase in emissions from Platform Grace and the Carpinteria Plant. Grid power should be examined to reduce air quality impacts. The emission inventory should be clarified in a number of areas.

Automatic Radar Plotting Aid should be required due to proximity of the platform to the shipping lanes.

Disposition of by-products should be specified.

EPA's NPDES requirements for drilling fluids and produced water should be identified.

Specify mitigation measures to minimize impacts of the pipeline on commercial fishing. Pipeline installation during September and December is undesirable. The likelihood of seabed scarring is greater during this period. Notices at harbor masters' offices at appropriate ports should be required along with radio broadcasts during construction operations.

Discuss leak detection system for the gas pipeline.

In addition, the County has requested further details on the project design and on various statements in the DPP and ER. These are detailed in the County's letter in Attachment B. Each point of clarification should be discussed in the NEPA documentation.

Ventura Air Pollution Control District - Documentation is needed for the conclusions on grid power use and on emissions from Platform Grace.

Emissions associated with platform jacket launching, supply boats, and increased production throughout should be included in the emission inventory.

The California one-hour SO<sub>2</sub> standard is 0.15 ppm; there is no National Secondary Standard for O<sub>3</sub>.

The APCD looks forward to working with the applicant in resolving air quality issues. Their letter identifies several emission control levels that should be considered as mitigation measures for any onshore air impacts.

Ventura Planning Division - Measures to mitigate visual impacts should be examined.

Vessel safety measures including a vessel traffic monitoring and warning system should be adopted due to the proximity of the platform to shipping lanes.

It should be demonstrated that the project and cumulative impacts on airport traffic at Oxnard is minimal, and any required mitigation measures specified.

The feasibility of locating an oil spill response vessel at Port of Hueneme should be addressed.

Impacts of the project on employment, population, public services, and transportation in Ventura County should be identified and mitigated. Contrary to statements in the ER, the County's land use plan and policies do not account for population increases from OCS development in the 1980's, including Platform Gail. Any impacts on overcrowded school districts such as Oxnard School District would be significant and should be mitigated.

A cumulative impact analysis for employment, population, housing, community services, and transportation should be provided and mitigations identified. The socioeconomic data should be updated using the County's Reassessment Phase Report from the Ventura County Socioeconomic Monitoring and Mitigation Program.

Cumulative impacts from air quality, drilling mud discharge, and oil spills should also be identified and mitigated.

City of Oxnard - The City is concerned with socioeconomic impacts including employment, population, housing, public services and transportation in Port Hueneme.

Contrary to statements in the ER, the County and City land use plans and policies do not account for population increases from OCS development in the 1980s, including Platform Gail. The City also feels that the population

reassessment now being completed by Centaur Associates for Ventura County underpredicts the impacts on western Ventura County.

#### INTEREST GROUPS

League of Women Voters of California - Only federal air quality standards were discussed. The League urges the project be required to comply with local air quality requirements. Cumulative air impacts should be analyzed. The use of the State Street air quality monitor should be justified.

The conclusion of minimal traffic impact should be explained, and the analysis should be presented in greater detail.

J & J and BKK are no longer accepting hazardous waste. Impact of oily waste disposal on Casimira's life expectancy and truck traffic should be discussed.

The statements of baseline conditions are imprecise. Worst case scenarios are not addressed.

League of Women Voters of Santa Barbara - The Environmental Report should clarify whether existing facilities at Platform Grace and Carpinteria and the associated facilities can accommodate Gail production; if not, what modifications would be required? Distribution and transportation of natural gas and gas liquids should be analyzed as part of the full project.

The League is concerned with proximity of the project to the Channel Islands National Marine Sanctuary. An oil spill could adversely impact these marine resources. Consideration should be given to banning oil development so close to the Sanctuary. Alternatively, the environmental risks should be further analyzed.

Cumulative impacts should be considered, with special reference to Chevron's leases in the adjacent State waters.

The socioeconomic impact analysis should be expanded especially regarding project and cumulative impacts on Ventura County and on traffic and transportation in Santa Barbara County.

ATTACHMENT B

Letters received as of March 13, 1986 on  
Development and Production Plan for  
Chevron's Platform Gail

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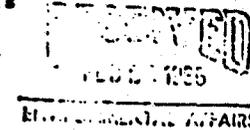
Memorandum

To : John Doyle  
Deputy Secretary of  
Environmental Affairs

Date : February 27, 1986

Subject: Comments on  
Environmental Report  
and Supplement  
to Santa Clara Unit  
Development and  
Production Plan:  
Platform Gail and  
Associated Pipelines

James Boyle  
Executive Officer  
From : Air Resources Board



We have reviewed the Supplement to Santa Clara Unit Development and Production Plan: Platform Gail and Associated Pipelines, and the Environmental Report for the project. Our comments below cover air quality sections of these documents.

Background

Chevron has proposed to install and operate Platform Gail on OCS Lease P-0205 in the Santa Clara Unit which is located about 10.3 statute miles offshore of Ventura County. The platform is expected to be installed in 1986. Peak production is estimated at 13,300 barrels of oil per day and 20.2 million standard cubic feet of gas per day.

Platform Gail will be the third platform in the Santa Clara Unit; the other two are existing Platforms Grace and Gilda. Three Pipelines, each about six miles long, will be installed between Platforms Gail and Grace; one will transport oil from Gail to Grace, one to transport gas to or from Grace, and one spare. H<sub>2</sub>S will be removed from Platform Gail's gas at Platform Grace, using the existing Stretford Unit. From Platform Grace, the oil and gas will be piped via Platform Hope to the onshore processing facility at Carpinteria.

Twenty-five wells are planned to be drilled by a single rig over a six year period. During operation, power will be provided by gas turbines on the platform. Other emission sources include cranes, flare, emergency generators and fire pump engines, and crew and supply boats. Emissions control measures that would be used during operation include water injection to reduce NO<sub>x</sub> emissions from the gas turbines, vapor recovery system to reduce hydrocarbon emissions, and inspection and maintenance program to reduce fugitive hydrocarbon emissions. Gas for use on Platform Gail will be sweetened on the platform using an amine process.

The air quality section in the Environmental Report found the project emissions lower than the Department of Interior exemption levels, and states that emissions will not significantly impact onshore air quality. No air quality modeling was performed.

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Comments

The following are our comments on the air quality sections in the Environmental Report (ER).

1. We believe a more thorough air quality analysis should be prepared for this project, due to the magnitude of the emissions. For example, NO<sub>x</sub> emissions are estimated in the ER to be 175.65 tons during the 4 to 6 month construction phase (excluding mobile sources) and 37.3 tons per year during peak operation activities (excluding mobile sources). With the corrections suggested below, emissions would be even higher. The air quality analysis should include an assessment to determine whether Platform Gail's emissions (including associated project emissions and alternate mitigation measures such as an electric cable from shore) either individually or cumulatively, will (1) interfere with onshore efforts to attain and maintain state and federal ambient air quality standards or (2) cause an exceedance of federal Prevention of Significant Deterioration increment.
2. ER page 6-2 discusses the use of an electric subsea cable as an alternative to gas turbines on the platform. It states that emissions would increase by 53% and costs would increase by 55% if electric cable is used instead of gas turbines. No documentation was provided to support these claims. We believe the emissions increases are grossly in error, perhaps because all of the utility power was assumed to be generated by fossil fuel power plants on the Ventura County coastline. Our latest analysis of the utility grid system for this area indicates that, at the present time, only 4% of this added demand would come from fossil fueled power plants in California. A switch to a power cable would thus reduce net emissions by almost the emissions total for the gas turbines.
3. On ER page 4-10, it states that gas and oil from Platform Gail will be piped to Platform Grace where H<sub>2</sub>S will be removed from the gas. The ER claims that there will be no increase in emissions from Platform Grace as a result of the oil and gas from Platform Gail. Additional valves, flanges and seals will be installed which would increase fugitive hydrocarbon emissions, and the additional gas through the Stretford Unit would increase SO<sub>2</sub> emissions.

It should be noted that Santa Barbara County APCD has issued a permit to Chevron for the Carpinteria Processing Facility Modification and Crude Oil Pipeline

associated with Platform Grace. This permit limits emissions from the Carpinteria Processing Facility, Platform Hope, and Platform Grace. It is unclear how the increase in emissions at Platform Grace and the Processing Facility as a result of the increased throughput from Platform Gail will comply with this permit from the District. It is also unclear whether emissions from Platform Gail will be mitigated so that there is no net increase in emissions from the Carpinteria Processing Facility, and Platforms Hope, Grace, and Gail.

4. ER page 4-14 lists measures proposed by Chevron that are intended to reduce air emissions. The description is too vague to ensure that the measures will be implemented or will reduce emissions. For example, an inspection and maintenance program is proposed for control of fugitive hydrocarbon emissions. However, there is no discussion of the details of the program (e.g., frequency of inspection, time to repair) or the expected reduction in emissions. The terms "low NO<sub>x</sub> engines" and "low sulfur fuel oil" also need further explanation to assess their control efficiencies. There is no indication that the vapor recovery system would be enclosed or vented to the flare. Furthermore, no compliance monitoring is proposed for any of the mitigation measures.
5. Emission estimates for the gas turbines are based on actual test data. Due to variations in test conditions and individual turbines, the vendor will only guarantee a 50% reduction from water injection at a 0.8:1 water-to-fuel injection rate. Using an increased water injection rate (beyond 0.8:1) will result in a higher NO<sub>x</sub> removal level. For Platforms Hermosa and Hidalgo, Chevron agreed to a 70% NO<sub>x</sub> reduction with the use of water injection.
6. ER page A-17 presents calculated emission rates for the turbine generators. The NO<sub>x</sub> emission factor is lower than that used in Environmental Reports for other platforms that also control NO<sub>x</sub> emissions. For example, the Environmental Report for Platform Harvest, which also uses Allison 501 KB turbines with water injection, assumes a NO<sub>x</sub> emission rate about 25% greater than the rate assumed for Platform Gail. Further justification should be provided for the NO<sub>x</sub> emission rate used for Platform Gail.

7. Emissions from the transport and launching of the platform jacket appear to be missing from the list of construction emissions. These emissions may be substantial, as tugs associated with this activity can have large diesel engines (e.g., Ocean Tiger, used for Chevron's Platform Hermosa, has approximately 40,000 h.p.; Seiha Maru No. 2, used for Texaco's Platform Harvest, has about 27,000 h.p.). NO<sub>x</sub> emissions from a single 40,000 h.p. tug can be as much as 16 tons/day.
8. No emission estimates are included for emergency flaring or for flaring due to routine inspection and maintenance of processing equipment vessels.
9. ER pages 3-23 to 3-29 discuss existing air quality. The data presented are several years out of date and should be updated.
10. Emissions from crew and supply boats were estimated only for those emissions beyond 3 miles from shore. Emissions within 3 miles of shore also should have been included. Revising the calculations and including emissions within 3 miles from shore would more than triple the supply boat NO<sub>x</sub> emissions and would double the crew boat NO<sub>x</sub> emissions.
11. ER page 2-48 claims that smokeless flares minimize hydrocarbon and NO<sub>x</sub> emissions. Although smokeless flares may reduce hydrocarbons, they probably do not reduce NO<sub>x</sub> emissions.
12. ER page 2-58 states that Platform Gail represents only a minor increment to cumulatively significant impacts, and is largely insignificant by itself. No support for this statement is provided. It should be noted that the purpose of looking at cumulative impacts is to assess whether a number of sources, whose individual impacts may be minor, can cumulatively create an impact requiring mitigation.
13. ER page 4-14 suggests that modeling has been done or will be done, or that results from previous modeling can be used, to estimate impacts from Platform Gail. This is misleading since there appears to be no commitment to model the impacts of this project. In earlier discussions with Chevron, we were informed that some sort of air quality analysis was performed for the project. Results of this analysis, however, were not included in the ER.

14. The annual cargo barge tug boat emissions listed in Table 4.3-1 are low by a factor of 9. The annual emissions appear to be based on the cargo barge tug boat operating only 2 days, while the same table states that it will operate for 18 days.
15. To accurately assess crew and supply boat emissions, the ER should indicate whether a crew boat is continuously stationed at Platform Grace.
16. Projects that do not meet Section 30253 of the California Coastal Act can be found consistent by the Coastal Commission under Section 30260, which requires mitigation of impacts to the maximum extent feasible. As noted in comments 2 and 4 above, we believe insufficient information has been provided to allow us to verify that the proposed air pollution control measures will provide maximum feasible mitigation. Documentation is needed to support claims in the ER that emissions and costs would increase if electric cable is used instead of gas turbines. We believe net emissions would decrease with use of an electric cable. Details are needed of the proposed pollution control measures to assess their control efficiencies, and to ensure that the measures will be implemented.

It is stated on ER page 2-47 that the project will comply with the Clean Air Act requirements. A thorough documentation of compliance, however, has not been provided. As discussed above the air quality analysis should be expanded and specific mitigations should be proposed.

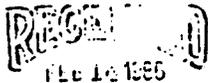
We appreciate the opportunity to comment on the Environmental Report for Platform Gail. If you have any questions, please contact Peter Venturini, Chief, Stationary Source Division, at (916) 445-0650.

## Memorandum

To : Jananne Sharpless  
Secretary of Environmental Affairs  
Air Resources Board  
1102 Q Street  
Sacramento, CA 95814

Date : February 13, 1986

Subject: Chevron U.S.A. Inc.'s  
Development and Production  
Plan (DPP) for Platform Gail



ENVIRONMENTAL AFFAIRS

From : Department of Boating and Waterways

The Department of Boating and Waterways has no comments on subject DPP for Platform Gail project.

*William H. Ivers*

WILLIAM H. IVERS  
Director

F-23

## Memorandum

To : Jananne Sharpless  
Secretary for Environmental Affairs  
1102 Q Street  
Sacramento, CA 95814

Date : FEB 24 1986

Subject: Chevron U.S.A. Inc.'s  
Development and Production  
Plan (DDP) for Platform  
Gail, Santa Barbara Channel  
OCD-P 0205

From : Department of Conservation—Office of the Director

The Department of Conservation's Division of Oil and Gas has reviewed the Development and Production Plan and Environmental Report for Chevron's Platform Gail project in the Santa Barbara Channel and submits the following comments.

Water produced in conjunction with oil and gas will be separated on the platform and discharged into the ocean. Water disposal will be in conformance with the applicable NPDES permit; therefore, the Division will not be involved in any waste-disposal operations unless Chevron proposes in the future to use onshore injection wells.

Land subsidence does not appear to present a problem since it is reported that the producing zones are comprised of well indurated shales of the Monterey formation. Porosity in the Monterey is a result of fractures; therefore it is unlikely that compaction of the producing zone will occur. In addition, the folded nature of the producing beds and the resulting structural rigidity provide further reason to believe that land subsidence will not present a problem.

As in the review of other documents, the Department has not had access to proprietary information furnished to the MMS and is therefore unable to provide a thorough engineering evaluation; we are confident, however, that development drilling and procedures will be carried out in accordance with OCS Orders.

If you have any questions, please contact Bob Reid at 3-1781.

*Dennis J. O'Bryant*  
Dennis J. O'Bryant  
Environmental Program Coordinator

cc: Bob Reid

(7)

## Memorandum

-2-

To : Dennis O'Bryant  
Environmental Coordinator  
Department of Conservation  
1416 Ninth Street  
Sacramento, California 95814

Date : February 26, 1986

From : Department of Fish and Game

Subject : Environmental Report and Development and Production Plan, Platform Gail, Santa Clara Unit, Chevron U.S.A., Inc., OCS-P0205, Santa Barbara Channel

Chevron U.S.A. Inc. proposes to construct an oil and gas production processing platform to be identified as platform Gail. Pipelines will also be constructed to transport "dry" oil and gas to existing platform Grace, where the product will be mingled and transported to an existing onshore treatment and storage facility.

The Department has various project-related concerns with respect to potential impacts to commercial fishing, marine resources and endangered species. These concerns also relate to potential cumulative impacts from this proposal combined with existing, planned and/or projected platform development within the Santa Barbara Channel OCS as well as State tidelands oil and gas leases. These cumulative impacts should be addressed for this proposal in considerably more detail in any subsequent documents related thereto. Impacts could result from: 1) platform and pipeline installation and supply and crew vessel travel routes disrupting commercial fishing activities, 2) ocean disposal of drill muds and formation water and 3) oil spills.

Platform Gail, to be located approximately 17.5 statute miles west of Port Hueneme in about 123 fathoms (739 feet), and its associated pipelines would occupy part of an area utilized by commercial fishermen. The principal fisheries impacted would be purse seine and trawl fisheries. Anchovies are target species of the purse seine fishery, while flatfish (English and petrale sole) and rockfish are trawl target species. In addition, some gill net fishing for shark may also occur in the area of interest.

Construction and placement of the platform would physically preclude purse seine, trawling and gill net activities from the immediate project site. Under certain weather and current conditions, fishing could be precluded from adjacent areas as far as four miles from the platform site for purse seine operations and perhaps two miles for trawlers and gill net fishermen.

Pipeline-laying operations can also result in impacts to the indicated fisheries. Impacts to gill net and purse seine operations are expected to be short term, but pipeline-laying (and platform construction) could result in significant impacts to trawlers if existing trawl routes were degraded or lost as a result of anchor scars and/or pipeline projections. To reduce or eliminate these impacts, the pipeline route, as well as the area around the platform utilized by construction and supply vessels, should be surveyed upon completion of construction, and all items found on, or severe alterations of, the sea floor which could preclude trawling should be removed. We note that Chevron has made general reference to measures (pages 4-28 and 4-29) which might lessen the above impacts, but we believe the survey methods and the program to eliminate these obstacles should be made more specific and should be adopted as a mitigation measure in the final project document.

The applicant proposes to discharge spent drilling fluids and formation waters at the platform site. Information is presented in the environmental document regarding the toxicity of various components of drilling fluids. The document also indicates that the zone of impact would not be significant. The Department has reviewed, and is still reviewing, other information regarding the effects of these discharges on marine resources.

Accordingly, we reserve judgment about the analysis of acute and chronic toxicity of drilling fluids as presented, until we have completed our analysis. We believe, with respect to the cumulative effect of this and other projects, that the issue may still be relevant. In addition, the constituents in produced formation waters need to be identified and the pre-discharge method of treatment should be described. We will review and, as appropriate, have input to the Environmental Protection Agency regarding the development of discharge requirements for this project.

An oil spill, especially a major spill, could impact nearshore habitats and resources such as kelp beds, rocky and sandy intertidal and subtidal habitats, marine mammal haul-out sites along the mainland and Channel Island shorelines, and benthic and pelagic organisms which cannot avoid the spill. The oil spill risk and impact assessment section of the document we reviewed indicates that an oil spill from either the pipeline or the platform would contact the mainland coast between Ventura and Ormand Beach within three days and may reach certain mainland areas within fifteen hours.

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The Channel Island area has particular significance for a number of important fish and wildlife species. Since some of the islands are as close as seven statute miles from the platform site, we are particularly concerned about the probability of impacts from spill events. The document we were provided discusses spill probabilities for the islands in general terms, but references an oil spill risk and trajectory analysis and an oil spill contingency plan which we did not receive for review. Considering the potential for oil spills to reach the Islands, as well as the mainland, and in recognition of the high value we place on those habitats, we believe it is important that special measures, which allow for early detection and rapid cleanup of oil spills, be adopted for this project. Until we have had an opportunity to review the spill contingency plan associated with this platform, we consider our analysis for this matter incomplete.

Should you have any questions regarding our comments, please contact R. E. Mall, Environmental Services Supervisor, Marine Resources division, 245 W. Broadway, Suite 350, Long Beach, California 90802. His phone number is ATSS 8-635-5155 or (213) 590-5155.

  
Jack C. Parnell  
Director

State of California

State Lands Commission

## Memorandum

To : David Char.  
Office of Offshore Development  
Secretary of Environmental Affairs

Date : February 24, 1986

File No. : W 1835.14

From : S. R. Livenick  
STATE LANDS COMMISSION  
245 West Broadway, Suite 425 - Long Beach, CA 90802

Telephone: ATSS  
(635) -5215

Subject : Chevron USA's DPP for Platform "Gail"

The Extractive Development Program staff has reviewed the Platform Gail DPP and offers the following observations:

- a. That Chevron has by proposed full offshore dehydration of oil and H<sub>2</sub>S removal from oil and gas (offshore processing) at proposed Platform "Gail" and at existing Platform "Grace". Dry oil (pipeline quality) processed on Platform "Gail" will be commingled with dry oil processed on Platform "Grace" and transported to the Carpinteria facility in Santa Barbara County for sales. The Federal dry oil (Gail and Grace) will not be commingled with State wet oil (Hope and Heidi or Hilda and Hazel) at any time. Gas from Gail will be sweetened on Grace, commingled with State gas on Hope and processed at the Carpinteria sweet gas facility. Thus, the offshore processing will make unnecessary any expansion of the Carpinteria oil and gas processing plants.
- b. That the Chevron proposal involves a platform designed for 13,300 barrels of oil and 20.2 MMCF gas per day, considered a small platform, comparable in size to that proposed by Union Oil at Point Conception (State Oil and Gas Lease PRC 2879) and half as big as that proposed by Shell at Molino (PRC 2920). The water depth, however, is much greater at the Gail site (739 feet) than at the Haley (285 feet) and Hercules (271 feet) sites, meaning

## Memorandum

that Gail will be very much more expensive to build. Clearly, Chevron's numbers must show offshore processing to be technically and economically attractive and viable compared to pro-rating or phasing production or to permitting addition capacity and a sour gas plant at Carpinteria.

The real significance of the Gail project is that Chevron is proposing segregated full offshore processing of oil as well as commingled partial offshore processing of gas, much as Union and Shell (and also ARCO at Coal Oil Point) have proposed as alternatives to their preferred projects, and thus ~~Chevron~~ that is avoiding the proliferation or expansion of onshore processing facilities; that the oil processing is segregated not only by jurisdiction (Federal oil is segregated from State oil) but also by platform (Gail and Grace oil streams are commingled after dehydration); and finally that the project offers technically and economically viable solutions to the limitations of the onshore environment.

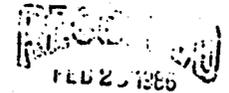
*Susan R. Livenick*  
 SUSAN R. LIVENICK  
 Associate Mineral  
 Resources Engineer

SRL:cg

F-26

To : Ms. Jananne Sharpless  
 Secretary of Environmental Affairs  
 1102 Q Street  
 Sacramento, CA 95814

Date : February 26, 1986



ENVIRONMENTAL AFFAIRS

*Raymond Walsh*

Raymond Walsh  
 Interim Executive Director  
 From : STATE WATER RESOURCES CONTROL BOARD

Subject: CHEVRON USA INC.'S DEVELOPMENT AND PRODUCTION PLAN (DPP) FOR PLATFORM GAIL

The DPP by Chevron for Platform Gail includes offshore development for a three-deck, 36-slot platform in federal waters approximately 11 miles southwest of Ventura in OCS Lease P-205. Three subsea pipelines are proposed (crude oil line, gas line, and spare oil/gas line) to connect with Platform Grace (installed in 1979), approximately 6 miles northwest of Platform Gail. Produced crude will be degassed and dehydrated on the platform before being sent by pipeline to Platform Grace.

Our concerns and recommendations to the Department of the Interior at this stage in the development process are as follows:

1. Since Platform Gail is proposed for federal waters, all discharges including drill muds and cuttings will be subject to the U. S. Environmental Protection Agency, Region 9's general National Pollutant Discharge Elimination System (NPDES) permit issued December 8, 1983. The 'old' general permit covers discharges from tracts leased in 1968, and the Platform Gail lease was acquired from Lease Sale #4, 1968. We would, however, be interested in an area study indicating cumulative impacts for the Santa Barbara basin, especially impacts projected for State waters south of Pitas Point and north of Anacapa Island (about 3 miles from proposed site). Cumulative impacts on the Channel Islands National Marine Sanctuary (about 1/2 mile from proposed site) should also be presented.
2. Since the DPP does not include new subsea pipelines in State waters or new onshore facilities, we have no immediate concerns in these areas.

Thank you for this opportunity to make recommendations to the Department of the Interior. If you have any questions regarding the State Board's concerns, please call Ed Anton of the Division of Water Quality at (916) 445-9552.

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(13)

COUNTY OF SANTA BARBARA

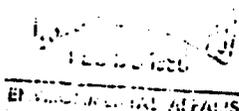
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GERALD R. LORDEN  
Director



907 Laguna St.  
Santa Barbara, California 93101  
Telephone: 963-1100

DEPARTMENT OF REGIONAL PROGRAMS



February 18, 1986

Ms. Jananne Sharpless  
Secretary of Environmental Affairs  
State of California  
1102 Q Street  
Sacramento, CA 95814

Re: Chevron USA Inc's Development and Production Plan for  
Platform Gail.

Dear Ms. Sharpless:

I have reviewed the DPP and the environmental report for Platform Gail. My comments are directed toward the issue area of socioeconomic impacts.

As correctly stated in the report Chevron is required to participate in a socioeconomic monitoring and mitigation program as per requirements imposed by the county on the Chevron Pt. Arguello project. I believe the Chevron Platform Gail project should also be included in this monitoring program to insure cumulative socioeconomic impacts are identified and mitigated.

Will State Lands support us in our efforts to get MMS assistance in monitoring socioeconomic impacts of oil and gas development on Santa Barbara and Ventura counties? We request that MMS require Chevron's participation in our monitoring program. In this manner we can adequately document the employment and expenditure impacts of Platform Gail. This is preferable to relying on estimates in the environmental report. The local governments in the tri county region would be most appreciative of your assistance in this matter. We are very concerned about

the potential fiscal and service impacts of local population growth due to cumulative development of our offshore oil and gas resources.

Thank you for your cooperation.

Sincerely,

*Michael G. Powers*

Michael G. Powers  
Area Planner

cc: Amy Margerum, Energy Division, Dept. of Resource Management  
Gene Kjellberg, Resource Management Agency, Ventura County  
Andy Back, Planning Dept., County of San Luis Obispo.

MGP:SH

F-27

(15)



# County of Santa Barbara

## RESOURCE MANAGEMENT DEPARTMENT

Dianna Guzman, AICP, Director  
Dev Vrat, Assistant Director

Energy Division

16-01000  
16-01000  
16-01000

If you have questions about any of the comments included herein, please contact Peter Cantle of this office, at (805) 963-7103.

Sincerely,

JOHN PATTON  
Deputy Director

JP:PC:1s:5649e

cc: Bill Master, APCD  
Susan Hansch, California Coastal Commission  
Marsha Magness, City of Carpinteria  
Nancy Post, Air Resources Board

Attachments

February 28, 1986

Jananne Sharpless  
Secretary of Environmental Affairs  
State of California  
1102 Q Street  
Sacramento, CA 95814

RE: Chevron's Proposed Platform Gail-Lease OCS-P0205

Dear Ms. Sharpless:

We have reviewed the Environmental Report for Chevron's Platform Gail, proposed location in the Outer Continental Shelf 24 miles southeast of Santa Barbara. Several general comments are appropriate; these are found below. Comments specific to the Environmental Report/Development and Production Plan furnished by Chevron are included as an attachment. Please note that these comments have been prepared in consultation with the Santa Barbara County Air Pollution Control District, and thus reflect that agency's input, as well.

General Comments

- 1). An Environmental Impact Statement should be prepared to fully consider the cumulative construction and operation impacts attributable to OCS development in this area of the Santa Barbara Channel.
- 2). Impacts of any modification to both onshore and offshore facilities should be fully discussed, including prolonging the operational life, and associated emissions, of existing facilities.
- 3). Onshore air quality impacts should be examined using methodologies adopted by adjacent air quality Districts.
4. All feasible measures to reduce ozone precursors (including those measures identified in Chevron's Point Arguello Project permit issued by Santa Barbara County) should be included in this project.

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1226 Anacapa Street, Santa Barbara, CA 93101 (805) 963-7103

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F-28

Specific Comments and Questions  
Environmental Report for Platform Gail and Subsea Pipelines

- 1) p.2-1 Is general NPDES permit in effect or is further permitting required?
- 2) p.2-3 What are projected emissions increases due to increased sour gas treatment introduced from Gail into Grace's Stretford unit?
- 3) p.2-8 Has Chevron investigated the possibility of a fully or partially electrified platform? Please provide reasoning for not utilizing this less-polluting methodology.
- 4) p.2-8 What gas-sweetening methods will be used on Gail to provide fuel gas? What emissions are expected? What will be done with by-products?
- 5) p.2-9 Re: mud system. Narrative indicates "each rig" will have two mud pumps. Elsewhere it is stated that a single rig will be used to drill on the platform. Please clarify.
- 6) p.2-9 What are power sources for mud pumps, desander, desilter, mixers, degasser and shale shaker? Are these emissions accounted for?
- 7) p.2-10 Please explain sanitary systems relative to personnel quarters.
- 8) p.2-12 What is "ESD condition with zone deluge?"
- 9) p.2-13 Re: H<sub>2</sub>S and SO<sub>2</sub> Contingency Plan. Does the "detailed emergency plan" in Appendix 7 also cover SO<sub>2</sub>?
- 10) p.2-13 Re: Navigation aids. Due to the proximity of the platform's proposed location to the re-routed shipping lanes, the use of an Automatic Radar Plotting Aid unit should be required.
- 11) p.2-14 It is not clear how oily cuttings are segregated from uncontaminated cuttings. Please explain.
- 12) p.2-14 Are crew, supply and support vessel emissions accounted for? What increases are projected? What mitigation measures is Chevron committing to?
- 13) p.2-18 What seismic criteria are used for pipeline design?
- 14) p.2-19 Please give more detail on hydrostatic test waters and inhibitors.
- 15) p.2-19 Is no leak detection system proposed for the gas line? Please discuss.
- 16) p.2-20 What modifications to sour gas treatment facilities are projected for both platform Grace and the Carpinteria plant?

- 17) p.2-20 Is the Carpinteria facility going to be modified or expanded to accommodate new production? Are any modifications required of existing permits? Please give details and clarification.
- 18) p.2-21 What is the fate of H<sub>2</sub>S in crude when it is stripped?
- 19) p.2-29 What is current status of EPA's general permit for NPDES? Our understanding is that it still has not been issued and that the California Coastal Commission has voted not to grant a consistency determination. Please comment.
- 20) p.2-33 How is water to be discharged to ocean tested for oil content? How often?
- 21) p.2-36 Re: produced water. What chemical constituents are expected to occur in produced water? Please give details.
- 22) p.2-37 It is our understanding that NPDES discharges within 1000m of the National Marine Sanctuary boundary are to receive different (more stringent) treatment than NPDES discharges elsewhere. Please comment.
- 23) p.2-46 Re: visual assessment. The fact that other platforms are visible on the horizon line does not mean that "visual intrusion of Platform Gail...will be limited...."
- 24) p.4-5 Re: air quality and Class II PSD. Isn't Anacapa (and rest of Park/Sanctuary) a Class I area for PSD? Please comment.
- 25) p.4-6 Re: air quality. Chevron should apply same air pollution control technologies to Platform Gail as are to be used on Platforms Hermosa and Hidalgo. See general comments.
- 26) p.4-7 What are average daily mobile source emissions within the 3-mile limit?
- 27) p.4-10 Justify statement that there "will be no increase in emissions from ... Grace associated with gas from ...Gail." Does not an increase in throughput generally lead to an increase in emissions?
- 28) p.4-13 Re: mitigation measures. Santa Barbara County believes it is appropriate to implement additional mitigation measures similar in scope and intent to those provided for the Pt. Arguello Project platforms.
- 29) p.4-14 Re: cumulative air quality impacts. The general concern facing Santa Barbara County is onshore impacts from offshore sources. Once again, Chevron should use the approach utilized in their Pt. Arguello Project to fully address this problem satisfactorily. The treatment in the environmental report essentially skirts the issue.

- 30) p.4-14 Re: cumulative air quality impacts. This section acknowledges the ongoing studies to assess cumulative air quality impacts (JIMS and SCCAMPs). Any permits issued prior to completion of those studies should include a re-opener to require additional mitigation, if determined necessary by those studies.
- 31) p. 4-15 General comment re: paragraph 4. Throughout this document, the phrase "in the unlikely event of an oil spill" has been used. Oil spills occur. Perhaps a spill of very large size is unlikely; however, sufficient spills have occurred to cause the issue to be raised repeatedly. Thus, the use of the word "unlikely" is questionable.
- 32) p.4-17 Please describe sanitary waste discharges from platform and work vessels.
- 33) p.4-19 Please give anticipated make-up of "completion fluids."
- 34) p.4-28 Please be more specific about those mitigation measures intended for the pipeline to minimize impacts to fishing industry.
- 35) p.4-28, p.4-29 Re: timing of installation and seabed scarring. Pipeline installation is scheduled from mid-September - December. As noted in the document (p.4-29) "most severe scarring...has occurred where...pipelaying barges have been anchored in soft bottom sediments such as is found in the project area, and have been subjected to storm conditions." Storms are likely to occur during late October, November, and December. Thus, the likelihood of seabed scarring due to anchor deployment from the pipeline barge is greater than if this activity were conducted during a different time of year. In addition, the proposed pipeline installation period overlays the cetacean migration period.
- 36) p.4-29 What "various alternatives" will be explored to mitigate seabed scarring?
- 37) p.4-36 Re: Notification of marine interests. Notices at harbor master's offices in appropriate ports in the Channel area should also be required. In addition, radio broadcasts during construction operations would be appropriate.
- 38) p.4-41 As requested previously (comment 21), please give chemical analysis of produced waters from Platform Gail.
- 39) p.4-41 Please give details regarding inertness of barite as a drill mud constituent. In addition, please supply chemical analysis of all muds to be used.
- 40) p.4-42 Re: catastrophic impacts. Text says that trajectory modelling has shown that an oil spill would not contact Anacapa Island. However, elsewhere (p.4-38) Santa Cruz Island is identified as a likely contact point for a spill. Please address this point.

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- 41) p.4-53 Re: lack of measurable affect of drilling muds on planktonic crustaceans. Recent studies at UCSB seem to contradict this statement (i.e., studies by Morse and Aldredge show that drill muds do, in fact, negatively affect larval/planktonic species). Please comment.
- 42) p.4-56 How does Chevron explain the marked difference in results between the studies that generally cite low to moderate affects on fish and shellfish vs. the MBC/SAI (1983) study which "clearly demonstrated that early and adult life stages of fish and shellfish experienced both lethal and sublethal effects following exposure to parts per billion levels of petroleum hydrocarbons" (emphasis added).
- 43) p.4-56 Re: oil spill impact on Anacapa Island. Earlier in text, Anacapa was not identified as a potential contact point for an oil spill. In this section, the island is identified as a contact point. Please clarify.
- 44) p.4-57 Why has a 75-hour time constraint been used for spill trajectory modelling?
- 45) p.4-91 Re: cumulative socioeconomic impact. While any one phase of this project may not have a significant impact on housing availability, all phases of any one project or all hydrocarbon development projects taken together certainly will have a significant effect.

PC:ls:5641e

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RESOURCE MANAGEMENT AGENCY

county of ventura

Air Pollution  
Control District

Richard H. Baldwin  
Air Pollution Control Officer

March 12, 1986

RECEIVED  
MAR 13 1986

ENVIRONMENTAL AFFAIRS

Ms. Jananne Sharpless  
Secretary of Environmental Affairs  
State of California  
1102 Q Street  
Sacramento, CA 95814

RE: CHEVRON USA INC.'S DEVELOPMENT AND PRODUCTION PLAN (DPP)  
FOR PLATFORM GAIL

On February 28, 1986, our comments on the subject DPP were telefaxed to your office. The original should have been included in with the Ventura County transmittal package and mailed to you the following Monday. However, our comments were inadvertently left out of said package. Our comments are therefore enclosed herein.

If you have any questions, please contact Larry Rennacker or Neil Moyer of my staff, at (805) 654-5033 or (805) 654-2665, respectively.

Sincerely,

*Richard H. Baldwin*

Richard H. Baldwin  
Air Pollution Control Officer

LRL2JS

cc: Vic Husbands, RMA  
Tom Berg, RMA - Planning  
Gene Kjellberg, RMA - Planning

(22)

Government Center, Administration Building

COUNTY OF VENTURA

Air Pollution Control District

MEMORANDUM

Date: February 28, 1986

To: Tom Berg, Director, Planning Division

From: Dick Baldwin, APCO *RH Baldwin*

Subject: Development Plan (DP) and Environmental Report (ER) for  
Proposed Platform Gail

In her memo of January 31, 1986, Ms. Jan Sharpless requested we submit our comments on the subject activity to her office by February 28, 1986. Given below are our comments for inclusion into the County's transmittal to Ms. Sharpless. If you have any questions please contact Larry Rennacker or Neil Moyer of my staff at (805) 654-5033 or (805) 654-2665, respectively.

The subject proposal is located approximately nine miles off the mainland portion of Ventura County. Ventura County has one of the five worst air quality problems for ozone of any county in the United States. It has been demonstrated that winds flow from the project location to onshore areas of Ventura County and on days of elevated ozone (Smith, 1983). It has also been demonstrated that a platform located as far as 90 to 100 miles offshore from Ventura County is capable of adversely affecting ozone concentrations in Ventura County (WMS, 1985). If the proposed activity were located onshore, it would be one of the largest sources of oxides of nitrogen and reactive organic compounds in the county. As the project is proposed, the District will have no option except to require the California Coastal Commission (CCC) find the proposed activity inconsistent with the California Coastal Zone Management Plan (CZMP).

To find a proposed activity consistent with the CZMP, the CCC must find it consistent with the requirements of local air pollution control districts (Section 30253, 3)).

To be consistent with the rules and regulation of the District, the proposed activity must comply with the Districts New Source Review Rule and Prevention of Significant Deterioration Rule. The activity as proposed in the DP and ER does not meet these criteria (APCD Rules 26.1 and 26.3, respectively).

Without the CCC certification, the activity cannot be approved by the DOI.

The applicable requirements of the District are given in detail below:

NSR (26.1)

For sources emitting more than 25 tons per year of of reactive organic compounds or oxides of nitrogen, Best Available Control Technology (BACT) must be applied and

(23)

remaining emissions must be sufficiently offset to provide a net air quality benefit. BACT is currently defined by the District as follows:

- \* Platform Primary Power Source: Power cable from onshore power grid.
- \* Platform Pumps/Compressors: Electric.
- \* Platform Flares: Emergency only and smokeless.
- \* Platform Fugitive Hydrocarbon Emissions: Inspection and maintenance program with pump and compressor seals vented to a vapor recovery system.

The District is actively considering the following control measures as BACT:

- \* Platform Process Heaters: Electric.
- \* Crew and Supply Boat: Pre-chamber diesel or < 6 gm NOx/ hp-hr.
- \* Boiler Pile Driver: Gas fuel with pyrocare burners or < 15 ppm NOx @ 0% oxygen.
- \* Other Diesel Engines: Selected catalytic reduction or < 3 gm NOx/ hp-hr.

#### PSD (Rule 26.3)

For sources which emit more than five pounds per hour of oxides of sulfur, emissions must be reduced to an equivalent of the sulfur content of commercial quality natural gas, or 0.1% sulfur compound content fuel oil.

#### Sulfur Compounds (Rule 54)

A source may emit no more than 10 ppm hydrogen sulfide, by volume, at the source.

We recognize that the OCS is a unique environment and are willing and look forward to working with the applicant on the issue of BACT.

Other comments specific to the ER as written are given below:

Page	Comment
6-2	The document indicates that by using cable power from onshore, power costs will be increased by 55% and NOx by 53%. Documentation for these figures are needed. Platforms Gina and Gilda are close to Gail and they are cable powered. The NOx increase is based on an assumption that all power will be

(24)

provided by the Edison fossil fuel generating stations at Mandalay Bay and Ormand Beach. This assumption is unrealistic in that the electrical power comes from the Edison grid system. Only a small fraction of future power demand is expected to be supplied from Edison by burning fossil fuels at Ormand Beach and Mandalay Bay (ARB, 1986).

4-10 The document indicates that no increase in emissions from Grace will occur due to the production from Gail. Fugitive platform hydrocarbon emissions are primarily a function of gas processing components, and the pipeline from Gail to Grace will require additional components. Additionally, to handle the gas production at Gail, the gas compressors on Grace will have to operate under higher loads resulting in greater emissions. Therefore, some increase in emissions can be expected.

4-7 Emissions from launching the platform jackets are missing from the emission calculations.

4-8 The District's definition of a source specifies that emissions from cargo carriers associated with a source shall be considered emissions from the source. Consequently, to be consistent with District rules, emissions from supply boats should be included in any tabulation of source emissions. In Table 4.3-1 supply boat emissions were left out. In addition, the District does not distinguish between emissions generated inside and outside the three mile limit. Consequently, all emissions from base to destination and return should be included as emissions from the source.

4-14 The JIMS program has never been endorsed by the participating agencies for regulatory use, and the model evaluated in JIMS so far has failed to meet the performance criteria specified by the participating agency members. The District hopes to improve the JIMS model through the development of its nonattainment plan such that it can be used as described in the ER.

#### Appendix

A The environmental documents for Harvest and Hermosa indicated that tugboats used for platform installation have a horsepower range of 18000-40000. The Appendix indicates a range a horsepower of less than 10000. Unless the applicant can document that tugs in this range are available or are under contract, emissions should be calculated using the higher range. (Also see comments p 4-8)

3-24 In Table 3.3-1, the California one hour sulfur dioxide standard has been changed to 0.25 ppm, and there is no longer a National Secondary Standard for carbon monoxide.

(25)

RESOURCE MANAGEMENT AGENCY  
**county of ventura**

Planning Division

Thomas B...

2-56 Include as a protection measure an internal combustion engine compliance program consisting of air/fuel ratio monitoring program (readouts-controllers) and periodic exhaust NOx sampling.

In conclusion, we look forward to working with the applicant towards a successful OCS development program, and we encourage the applicant to contact the District at the earliest possible date.

References

(ARB, 1986) Telephone conversation with Mr. Don Koberline of the ARB, February 27, 1986.

(MMS, 1985) "Union Oil Project/Exxon Project Central Santa Maria Basin Area Study EIS/EIR, Technical Appendix B, Air Quality Meteorology Volume 1, Arthur D. Little Inc.

(Smith, 1983) "Analysis of Santa Barbara Oxidant Study", Ted Smith, Meteorology Research, Inc., December, 1983.

cc: Dave Caulkins, EPA  
Ray Menebroker, ARB  
John English, SBCAPCD  
Chron

February 28, 1986

Ms. Jananne Sharpless  
Secretary of Environmental Affairs  
State of California  
1102 Q Street  
Sacramento, CA 95814

Subject: Ventura County Comments on Chevron USA Inc.'s Development and Production Plan (DPP) for Platform Gail - Lease OCS-PO205

Dear Ms. Sharpless:

This is in response to your letter requesting Planning Division comments on the size, location, and timing of the above referenced project. Accordingly, the Planning Division has reviewed the Development and Production Plan (DDP) and the Environmental Report (ER) associated with the proposed project. Staff requests the following information, which includes comments on environmental and socioeconomic concerns, be incorporated into the final DDP and ER.

VISUAL/AESTHETIC IMPACTS

The proposed project will be located approximately 11 miles southwest of the City of San Buenaventura and about 10 miles west of the Cities of Oxnard and Port Hueneme. Three offshore platforms (Grace, Gina and Gilda) are already located in this general area and the placement of a fourth platform may represent a cumulatively significant visual intrusion which may further detract from visitors and residents views of the Channel Islands. Views from the Channel Islands (particularly Anacapa and Santa Cruz Islands) would also be adversely impacted by the construction of a fourth offshore platform in this area. The project proponent should investigate any measures available that would reduce cumulative visual impacts.

TYPOGRAPHICAL ERROR

There may be a typographical error on Page 4-58, 2nd paragraph, 3rd sentence (i.e., "decreases" appears to read better as "decreasing").

VESSEL TRAFFIC CONFLICTS

Although the platform will be located east of the Vessel Traffic Separation Scheme (VISS), the proximity of the platform to the northbound traffic lane (about two-thirds of a mile), may pose a hazard to vessel traffic during

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Ms. Jananne Sharpless  
February 28, 1986  
Page 2

conditions of poor visibility or inclement weather. Therefore, consideration should be given to any additional measures which could be taken to minimize this hazard (e.g., vessel traffic monitoring and warning system).

#### SUPPORT VESSEL TRAFFIC

The Environmental Report (ER) references helicopter trips to the platform from the Ventura County Airport at Oxnard during the platform and subsea pipeline installation phases and during the drilling phase. The ER describes the increase in airport traffic as "minimal." However, any increase in air traffic due to a proposed new offshore project may cumulatively impact the existing airport facilities and surrounding urban areas. Consideration of these potential cumulative impacts and any measures to mitigate their impacts should be addressed.

#### OIL SPILLS

The closest oil spill response vessels are located in Santa Barbara (estimated 3 hour response time) and Long Beach (no estimated response time). As the number of platforms in the Ventura/Oxnard/Port Hueneme area increases, the possibility for an oil spill also increases proportionately. A three hour response time for oil spill response vessels does not seem reasonable. Therefore, the feasibility of locating an oil spill response vessel in Ventura County (Port of Hueneme) should be addressed.

#### SOCIOECONOMICS

##### Cumulative Impact on Employment, Population and Housing

The ER states "Population levels from cumulative (hydrocarbon) development are essentially within planned levels and are considered negligible." The ER also states that "because of the limited nature of the Platform Gail project ...the project is expected to have a negligible impact on permanent housing." The County's current adopted land use plan and policies do not address any potential population increases from offshore hydrocarbon development which may occur in the 1980's and beyond including Chevron's proposed Platform Gail. Therefore, any potential increase in population from offshore production must be addressed and adequate mitigation measures should also be proposed.

##### Cumulative Effects on Community Services

No mention of the cumulative impact of any increase in student populations on already overcrowded public school systems in Ventura County is discussed (e.g., the Oxnard School District). Any increase in students in these already overcrowded systems would be significant. Discussions of impacts resulting from any increase in school age children and the identification of adequate mitigation measures should be included in the ER.

##### Cumulative Impact on Transportation

Many existing streets and intersections in Western Ventura County (including the incorporated cities), are already experiencing cumulatively significant impacts

Ms. Jananne Sharpless  
February 28, 1986  
Page 3

from existing peak flow traffic levels. Any increase in existing traffic levels would therefore be significant and would have significant adverse impacts on these streets and intersections. The ER, however, states "None of the specific locations that would be affected....including streets and intersections...were determined to have significant adverse cumulative impacts." The ER should be revised to discuss current traffic related problems and the cumulative impact of any increase in traffic on existing streets and intersections. Adequate mitigation measures also need to be identified.

#### CUMULATIVE IMPACTS

The ER states that impacts would not be significant because of the temporary nature of the project. However, in many cases the project will result in cumulative impacts with regard to air quality, drilling mud discharge, potential for oil spills and several socioeconomic issues including population, schools and existing transportation systems (streets and intersections). Therefore, the Platform Gail ER should include adequate discussions of cumulative impacts and identification of mitigation measures.

It is our suggestion that the Reassessment Phase Report (Ventura County Socioeconomic Monitoring and Mitigation Program), prepared by Centaur Associates, be utilized as a resource in updating the socioeconomic data included in these draft documents. It should be noted that while the information contained in Centaur's Reassessment/Cumulative Projects List is complete, as of February 1986, it has not been formally reviewed by the Ventura County Board of Supervisors, city councils, etc. A copy of the Centaur report will be mailed to the project proponent under separate cover.

Thank you for the opportunity to provide comments on this proposal. We would appreciate a copy of the State's comments as soon as they are available. If you have any questions or require further clarification concerning this response, please contact Gene Kjellberg at (805) 654-2455.

Sincerely,

RESOURCE MANAGEMENT AGENCY

  
Thomas Berg, Manager  
Planning Division

TB:jw/B249

cc: Victor Husbands

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F-34



COMMUNITY DEVELOPMENT DEPARTMENT • 305 W. THIRD ST. • OXNARD, CA 93030 • (805) 984-4657

RICHARD J. MAGGIO, DIRECTOR

February 11, 1986

RECEIVED  
FEB 14 1986

Ms. Jananne Sharpless  
Secretary of Environmental Affairs  
1102 "Q" Street  
Sacramento, California 95814

Dear Ms. Sharpless:

Subject: Chevron USA Inc's Development and Production Plan (DPP) for Platform Gail

In response to the request stated in your letter of January 31, we have reviewed the Environmental Report for Platform Gail. After reviewing the report and giving careful attention to Section 4.7 concerned with Socioeconomic Impacts, we have comments to offer as follows:

1. Subsection 4.7.1.5 Cumulative Impact on Employment, Population, and Housing. For reference, it is stated that "Population levels from cumulative (hydrocarbon) development are essentially within planned levels and are considered negligible." Our response to this statement is that a review of both the County-wide planning process, as well as the process utilized within the City of Oxnard since the mid-1970's, indicate that no provision was made for any of the offshore projects recently developed or currently being considered, including Chevron's. Therefore, current adopted land use plans and policies are not based upon and do not include any provision for further hydrocarbon development beyond that already existing in the mid-1970's when the Regional Land Use Planning Program was developed by Ventura County and its constituent cities.

For reference, it is also stated that "Because of the limited nature of platform construction, the project is expected to have negligible impact on permanent housing." Our response to this statement is that while any one phase of a project may not have a significant impact on housing, all of the phases of any one project or all of the hydrocarbon development projects taken together will have a significant effect on the housing market.

2. Subsection 4.7.2.4 Cumulative Impact on Community Services. For reference, it is stated that "the A. D. Little data is old and conservatively high. The (population) reassessment for Ventura County will be available in a month and the new data is expected to show lower (population) impact than the 1984 Little analysis." Our response to this statement is that we have just reviewed the preliminary population reassessment data for Ventura County and found it to be artificially low for Western Ventura County, even if the new consultant's total population

Ms. Jananne Sharpless

-2-

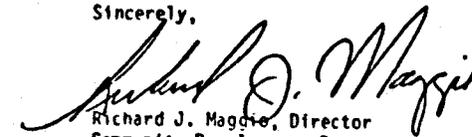
February 11, 1986

impact numbers are accepted, because travel time between place of work and residence was not taken into account along with other variables such as was done in the 1984 Little analysis prepared by AES. Therefore, it is felt that the cumulative population impact on Western Ventura County and the City of Oxnard will be far higher than currently indicated in the preliminary reassessment data.

3. Subsection 4.7.3.2 Cumulative Impacts on Transportation. For reference, it was stated that "None of the specific locations that would be affected by Platform Gail-related traffic including...streets and intersections near Port Hueneme, were determined to have significant adverse cumulative impacts." Our response to this statement is that just the opposite is more likely to be true and that transportation impacts related to servicing outercontinental shelf (OCS) exploration, development, and production activities through Port Hueneme already are and will continue to be significant. A report describing the various types of impacts that was recently sent to the City Council, along with copies of related news clippings, is attached for reference.

In closing, I want to thank you for the opportunity to review and comment on the Environmental Report for Chevron's proposed Platform Gail project. In addition, I want to take the opportunity to emphasize once again that we are very concerned about the cumulative effects of all OCS development, whether it be on federal or state leases in the Santa Barbara Channel or Santa Maria Basin. If you have any questions concerning the comments made in this letter, please feel welcome to contact either me or Ralph Steele of this Department.

Sincerely,

  
Richard J. Maggio, Director  
Community Development Department

RJM:MGW/RJS:jly

cc: City Manager  
Ventura County  
Santa Barbara County

Enclosures

F-35



# AGENDA ITEM

January 27, 1986

TO: City Council  
 FROM: City Manager  
 SUBJECT: Review of Comments on Draft Environmental Impact Report for Proposed Port of Hueneme Expansion

### Recommendation

It is recommended that the comments made by City Departments on the Draft Environmental Impact Report be approved and that the City Council direct the Community Development Director to transmit the comments to the Oxnard Harbor District.

### Introduction and Summary

During a regular meeting of the City Council held on January 14, staff presented estimates of current and future costs incurred by the City of Oxnard for providing services to the Oxnard Harbor District. At the conclusion of the meeting, the City Council directed staff to thoroughly review the Draft Environmental Impact Report for the Port's proposed expansion and forward comments to it for review before sending them on to the Harbor District.

The review of the Draft Environmental Impact Report was conducted by the Fire, Police, and Public Works Departments. Comments from each of these departments are attached and they have concluded that the impacts on the services or facilities for which they are responsible have not been adequately described. In addition, adequate mitigation measures have not been proposed. A detailed overview of the comments from each department is presented subsequently in the section entitled Discussion.

Department Head: Richard Maggio Prepared By: Ralph J. Steele

Agenda Item Review: City Manager \_\_\_\_\_ Finance N/A City Attorney N/A Purchasing 1/2  
 Council Action: Date: \_\_\_\_\_ Approved as Recommended \_\_\_\_\_ Other \_\_\_\_\_

- Takasugi \_\_\_\_\_
- Lopez \_\_\_\_\_
- Maron \_\_\_\_\_
- Plisky \_\_\_\_\_
- Johs \_\_\_\_\_

AGENDA ITEM NO. F-4

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### Discussion

Attached to this memorandum are reports on pertinent sections of the Draft Environmental Impact Report for the Port's proposed expansion that have been prepared by the City of Oxnard's Fire, Police, and Public Works Departments. In reviewing the Draft Environmental Impact Report, staff of each department gave consideration to whether or not the impacts of the Port's activities on the services and facilities provided by the City of Oxnard were adequately described.

#### Fire:

In the Draft Environmental Impact Report for the Harbor Expansion Project, it is recognized that the Oxnard Fire Department provides the larger portion of fire protection for the project area. This is the result of a mutual aid agreement with Ventura County and the close proximity of City fire stations to the project area. In the report, it is also recognized that because the Oxnard Fire Department is providing service to the City with a minimum staff level that an increased demand for services stemming from the Port's expansion may result in a significant negative impact upon the Oxnard Fire Department. Subsequently, this could result in decreasing the Department's capability to respond in a timely manner within the City of Oxnard to requests for fire or emergency assistance.

In conclusion, since the Draft Environmental Impact Report does not address the need to at least maintain the present level of fire protection within the City of Oxnard, it is considered to be inadequate.

#### Police:

In general, the Draft Environmental Impact Report fails to recognize the impact magnitude of the proposed development on the Police Department and the City of Oxnard. The data contained in the Draft Environmental Impact Report pertaining to existing retail and truck traffic is grossly underestimated. Also, the existing and projected security, investigative, and patrol burdens (along with attendant financial expense) on the Oxnard Police Department stemming from working the numerous burglaries and thefts occurring and projected for the auto-rail shipments from the Harbor, are ignored.

Brief mention is made in the Report (page 5-24) of the Oxnard Police Department's concerns regarding safety/traffic issues, and security for rail shipments; however, the Environmental Impact Report addresses these issues as if they were only potential future problems, rather than a current magnification of problems that have existed for a number of years. As an example, railroad activity associated with the Port has already escalated. On December 23, 1985, an 83-car train of Mazda cars

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was routed through Oxnard from the Hueneme Harbor area. Three increments of tri-level and bi-level railcars moved over 1,200 autos through six busy intersections: 1) Patterson and Channel Islands, 2) Patterson and Hemlock, 3) Patterson and Wooley, 4) Wooley and Ventura, 5) Five-Points, and 6) Wooley and Commercial) to the Oxnard Southern Pacific yards. Five police officers were engaged in traffic and crossing control on these train movements between 10:30 a.m. and 4:00 p.m. Then, the train was staged in the Southern Pacific yards between 5:00 p.m. and 1:00 a.m. the following morning and four additional police were engaged in securing the 83-car train prior to its departure from Oxnard. Obviously this current expansion will considerably increase the existing security problems, as well as the time delay and obstruction of the flow of traffic at six major thoroughfares in downtown Oxnard. These factors have not been considered in the Draft Environmental Impact Report, which tends to portray only far distant assumed future increases and ignore current increases.

Additional information received by the Police Department indicates that Southern Pacific Railroad is withdrawing its existing railroad detectives and police from this (Oxnard-Ventura-Hueneme) segment of the rail complex and is reassigning them to the Los Angeles area. This will further impact the Police Department, and of course cause far greater impairment to providing adequate security in the future for the entire City of Oxnard.

In view of the Draft Environmental Impact Report's failure to address the impacts on police service requirements and propose adequate mitigation measures, it is recommended that the Oxnard Harbor District establish its own security force and a liaison with the Oxnard Police Department. It is also recommended that consideration be given to establishing a Joint Powers Agreement between the Oxnard Harbor District and the City of Oxnard to mitigate demands for police service and problems arising from Port Hueneme Harbor activities on the City of Oxnard Police Department.

#### Public Works:

The Public Works Department Staff has reviewed the Draft Environmental Impact Report for the Port of Hueneme Master Plan Amendments and expansion of the Port facilities. The Public Works Department recognizes that the proposed improvements will enhance the Port and the environmental document makes a strong case for the project. However, the impacts of the project are too easily dismissed. Our comments regarding the Draft Environmental Impact Report are listed below by topic.

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#### Air Pollution

1. In the summary of Environmental Impacts (Table 5-1), the additional "deep draft vessel emissions" are noted as not being in compliance with the Ventura County Air Pollution Control District (VCAPCD) Air Quality Management Plan (AQMP). While these emissions are "possibly significant," the proposed mitigation is to amend only the AQMP rather than reducing or off-setting the emissions.
2. In the discussion of cumulative air quality impacts, the OCS support activity levels are internally inconsistent and contradictory. For example, on Page 6-2 the report states there will be four round trips for four boats per day (32 trips/day). Then the Draft Environmental Impact Report identifies "traffic-related" emission, stating the emissions will only be within the City of Port Hueneme. Public Works Department staff takes exception with this statement, noting that while the pollution will affect the basin's air quality, more of the landside emissions will probably occur in Oxnard than in the City of Port Hueneme. This could be especially significant for carbon monoxide (CO), with port emissions contributing to localized pollutant concentrations. This should be noted in the final EIR.
3. The air pollution impacts summary (Table 5.2-1) fails to identify the impacts of a total of 180,000 imported light-duty autos per year (90,000 existing and 90,000 additional vehicles). This represents the unloading and loading of autos from ships to rail or truck shipping. Rough estimates project this source to generate in excess of four tons/year of pollutants (ROC).

In summary, the Air Quality Section in the Draft Environmental Impact Report fails to quantify the cumulative air pollution impacts, while recognizing they will be significant. The Draft Environmental Impact Report then fails to propose any program to mitigate the air quality impacts, including the new deep-draft pollutants consisting of 30.8 tons/year of NOx, 32.7 tons/year of SO<sub>2</sub>, and 13.3 tons/year of ROC.

#### Noise

1. In the summary Table (5-1), the increased truck and train noise is dismissed as "insignificant" and no mitigations are proposed. However, trucks are the main source of noise along Victoria Avenue, and conceivably this project could cause a doubling of truck traffic on Victoria Avenue and Saviers Road along with a significant increase in noise. The volumes of train traffic, and consequent rail noise levels, on an annualized basis, are relatively low. This can be misleading, since the preponderance of the train traffic occurs in a few months marking the beginning of the new auto "year." This train traffic primarily occurs at night, when noise levels are much more

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noticeable and have more community impacts. Since a significant amount of the railroad route traverses Oxnard residential areas, this should be considered a significant impact, and more thoroughly addressed.

2. Under the issue of construction noise, the impact of truck noise during construction is identified as significant near the Clara Street Gate. However, the excavation spoils will be hauled through Oxnard, and probably up either Victoria or Ventura Avenues. Residential areas along these routes in Oxnard might be significantly impacted by the truck noise, but no mitigations for these residences are offered.
3. Although in 1990 the off-shore oil industry will account for virtually as many tons of cargo through the Port as will the deep draft cargo activities, the Draft Environmental Impact Report virtually dismisses the impacts of the oil sector truck traffic. Consequently, there is no cumulative deep draft and off-shore oil activities truck related noise impact analysis. The noise report begrudgingly admits the noise could "cause a small exceedance of the 'acceptable' outdoor noise level in quiet residential areas...", and then, instead of mitigating the noise, the Draft Environmental Impact Report just suggests such exceedances commonly occur near industrial or large urban areas.

Similar to the air quality issue, the increases in noise and the noise impacts appear to be minimized. The Draft Environmental Impact Report also appears to focus on the noise impacts in the City of Port of Hueneme and minimize any impacts in Oxnard and the unincorporated County areas.

#### Transportation

1. The Draft Environmental Impact Report continues to make reference to actions and activities which could increase the traffic impacts, and then assures the reader that all the traffic impacts are minimal or small. In contrast, the Public Works Department feels the projected daily Port-related trip projections are artificially low. In the cumulation section, 1,321 daily additional trips are identified; however, the 1989 workforce will add almost 600 workers. This plus truck trips seems to be inconsistent with the cumulative impacts identified. Based on the projections of Port activity in the appendices, which are very conservative, there will be in 1990 an increase of 89,428 off-shore oil-related truck trips, 676,800 off-shore oil-related light-duty vehicles trips (2,256 trips/day x 300 days/year, 37,444 new deep-draft related truck trips (based on Table 7, Page F-2 and Table H-6, Page H-21), and another 78,000 annual non-oil-related light-duty vehicle trips - totaling 754,800 annual light duty vehicle trips and 126,872 annual truck trips. This

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means in 1990 there will be approximately 381,672 new directly related Port trips or an average of 1,468 trips per day. For an "industrial use" this represents a sizeable number of trips, especially considering that one-third will be heavy trucks. By the year 2000, these numbers could be significantly greater, especially the light-duty vehicle trips.

2. The basic thrust of the Draft Environmental Impact Report appears to be a claim that since the Port's expansion will only add 1,250 LDV trips (340 per peak hour trips) per day, and other projects will cause an increase in traffic, the Port has little or no responsibility to mitigate traffic impacts. First, it is worth noting that the Draft Environmental Impact Report forecasts a several percent increase in traffic volumes at selected intersections. The City of Newport Beach, in their traffic phasing ordinance, identifies a one percent increase at certain critical intersections as a triggering level for detailed analysis. While Oxnard does not have a similar ordinance, we generally follow the same principle. Even assuming the unrealistically low traffic figures are correct, the Port should pay its incremental fair share of the costs of mitigating traffic impacts. All of the projects listed in the cumulative impacts and mitigation section within Oxnard will pay a traffic impact fee of \$91.85 per trip generated. Using the Draft Environmental Impact Report trip projections, the Port would pay a traffic fee of \$114,812. This fee is collected to ensure that missing links in the arterial system are constructed.
3. The truck traffic volumes are much more critical to traffic operations and pavement maintenance than autos. In addition, in traffic, especially at intersections, trucks cause traffic "congestion" equivalent to several cars. The more maneuvering and stop and starts the route has, the more exasperated this condition becomes. Since the trucks require larger traffic "gaps" to change lanes or turn, and are usually slower to accelerate than autos, this impact in Oxnard will be significant. A City count of weekday truck traffic on Victoria south of Channel Islands Boulevard found over 500 trucks (exclusive of pick-up trucks) using this route between 5 a.m. and 10 p.m. Almost half of these trucks (256) were semis or "double bottom" trailers. Another 278 trucks turned between Channel Islands Boulevard (east) and Victoria Avenue (north). The Naval Construction Battalion Center developed similar data for Victoria in November 1984, finding 466 trucks on Victoria Avenue south of Channel Islands Boulevard between 6 a.m. and 6 p.m. They found 285 of these trucks used the Victoria Avenue Gate. Even if only half of these trucks are Port-related, this implies the truck activity levels shown in the Draft Environmental Impact Report are grossly understated.

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Street Maintenance

1. Of all the Port expansion's impacts, that of road deterioration is the most significant. Based on studies by the AASHO and governmental agencies, one (legally) loaded tractor-trailer truck has the same impact on a roadway as 10,000 automobiles. The Port Draft Environmental Impact Report projects an average of 500 heavy truck trips per day. Oxnard City Staff projects a higher range from 600 to 800 trucks per day. These vehicles each travel on City streets a minimum of one mile. The approximate distances on City streets for Port traffic is as follows:

ROUTE	ROUTE MILEAGE IN OXNARD	PERCENT OF PORT-RELATED TRUCK TRAFFIC	DAILY MILES OF TRUCK TRAVEL IN OXNARD
Hueneme Rd. to Highway 1	1	12%	30
Hueneme Rd. to Saviers to Hwy. 101	6	37%	1020
Victoria Ave. to Highway 101	3	26%	720
Victoria Ave. to Harbor Boulevard	3	5%	240
Hueneme Rd. to Pleasant Valley Rd.	3	9%	180
Hueneme to Pleasant Valley to Rice	5	11%	350
		<u>100%</u>	<u>2540</u>

This means that each weekday, Oxnard City streets carry approximately 2,540 truck miles from the Port of Hueneme trucks on City streets. This is equivalent to 25,400,000 daily auto miles of travel, or the daily equivalent of at least five times the total auto impacts within the City. Obviously, the Port is not the only source of truck traffic within the City of Oxnard. However, in contrast to other truck traffic, the limited number of routes repeatedly used by the Port-related truck traffic has significantly more impact on these selected routes than does much of the other truck traffic in town. Based on our estimates of Port-related truck traffic and truck counts on City streets, the Port accounts for approximately 20 percent of the large truck traffic currently using Harbor Boulevard, Victoria Avenue, Saviers Road, Oxnard Boulevard, and Pleasant Valley Road. Obviously, the percentage is much higher on Harbor Boulevard and Victoria Avenue, and lower on Oxnard Boulevard.

2. A large share of the City of Oxnard street maintenance problems occur because of trucks utilizing the streets. Since the Port of Hueneme is projecting doubling the capacity of their Port facilities this should also double their trucking impacts. In addition, the Port expansion will impact railroad crossings for the Ventura County Railroad. The increased rail traffic in the recent past, coupled

with increased motor vehicle traffic, is causing a need for Oxnard to construct additional safety devices, such as railroad gates and additional warning devices. In addition, the truck traffic crossing the rails has exacerbated the need to improve the road surfaces (including in some cases the railroad and street elevations) to maintain safe crossings. The expansion will make this situation much worse.

3. The Traffic Management Program proposed (Page 6.8) as a mitigation is inadequate. A more realistic program, which should be included in the Environmental Impact Report, would be one similar to that prepared for the San Francisco Bay area.
4. As previously discussed, the Port traffic impacts appear to be understated and this is especially true of the impacts of truck traffic. The Port-related traffic, especially trucking, is impacting impeding traffic flow in Oxnard, and causing significant pavement deterioration. The trend is clearly toward an acceleration of these conditions. For this reason, one or more of the following mitigations should be included:
  - a. Improved Freeway Access
    - 1) Participate in the reconstruction of the Highway 1/101/ Ventura Road/Wagon Wheel Interchange.
    - 2) Participate in constructing an extension of Rice Avenue to Hueneme Road.
    - 3) Pay the traffic impact fee to the City of Oxnard based on the Port's fair share (this could be applied to the above projects).
    - 4) Participate in four-laning the Victoria Avenue Bridge over the Santa Clara River, and/or improvements to the Victoria Avenue/Highway 101 interchange.
  - b. Road Maintenance
    - 1) Assist the City of Oxnard in maintenance of roads which provide truck access to the Port.
    - 2) Reconstruct truck routes serving the Port to higher (heavier) standards.

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Obviously, these proposals are neither all inclusive or exclusive. We did not, for example, attempt to identify all the intersections which will be impacted, nor all the minor modifications which can be made.

#### Water and Sewerage

The Draft Environmental Impact Report fails to adequately address the issues of water and sewerage impacts. If the off-shore oil boom takes place, water demand could jump up to over 600 acre feet per year. There is no discussion of how much of the City of Port Hueneme's 3,600 annual acre feet is currently being used, or any suggestions of mitigations which are available and could be used to reduce water consumption, especially for the off-shore oil operations.

In the Sanitary Sewer Section (5.8.2.4.4), the same type of problem exists. The Draft Environmental Impact Report provides data on the available sewer plant capacity, but no information on the current Port usage rate. This should be obtainable, and included in the Environmental Impact Report.

#### Induced Growth

The employment projections are only concerned with direct employment, and there is no discussion of induced employment growth or the impacts of the induced growth. This would appear to be a major omission since it is very likely that the Port expansion will generate off-site development which should be estimated.

#### Summary and Conclusions

The final and most important issue, is that the Draft Environmental Impact Report repeatedly fails to comply with the mandates of the California Environmental Quality Act (CEQA) in its failure to provide or suggest reasonable and available mitigation measures for impacts which have been identified. In some cases, including noise pollution, air pollution, water usage, and sewerage generation, the Draft Environmental Impact Report confuses impact mitigation with Plan (or facility) consistency. The two are not interchangeable. An impact is a significant change in the environment, regardless of its consistency with plans or standards; and to comply with CEQA, it must be mitigated, or a finding stating why it cannot be mitigated must be made.

Also, of special concern to the Oxnard Public Works Department is the proposed traffic impact study. As noted above, we are very much interested in cooperating in such a study, which then could be used to develop whatever traffic mitigations are justified. We feel that if the

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study is not done as a part of the Draft Environmental Impact Report, a finding should be made that such a study will be made prior to action by the California Coastal Commission on this project.

#### Conclusion

Conclusions stated individually by each department are as follows:

- Fire: Since the Draft Environmental Impact Report does not address the need to at least maintain the present level of fire protection within the City of Oxnard, it is considered to be inadequate.
- Police: The Draft Environmental Impact Report fails to address the impacts on police service requirements and present adequate mitigation measures.
- Public Works: The Draft Environmental Impact Report fails to fully disclose the real magnitude of the proposed Port expansions on the City of Oxnard. In addition, the Draft Environmental Impact Report repeatedly fails to comply with the mandates of the California Environmental Quality Act because reasonable and available mitigation measures have not been proposed for impacts which have been identified.

RJM:MSH:RS:Jly

cc: Ron Bogardus  
Bob Owens  
Jim Frandsen  
Walt Yates

Attachments

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# Streets in Oxnard To Take Pounding In Port Expansion

By JIM SCHULTZ

An expansion of the Port of Hueneme could have more than a \$1.5 million impact on Oxnard's street system, the Oxnard City Council was told Tuesday.

As a result, the city staff will meet with harbor district executives to discuss current and future service and facility levels and how to ease their potential impacts.

Oxnard Harbor District Chairman Ray Fletcher said the city and harbor have maintained "excellent relations" in the past years and that he welcomes the upcoming talks.

City staff also was given the authorization to review and comment upon a draft Environmental Impact Report (EIR) on the harbor expansion proposal.

The Oxnard Harbor District is scheduled to hold a public hearing on the EIR document Jan. 27.

Oxnard city staff, including the Fire, Police and Public Works departments, have reviewed the harbor's current impact on the city, but that the harbor's expansion will have a significant impact on future services and facilities, especially on the city's highway system.

In a brief discussion on the issue, Oxnard City Manager David Mora said that the harbor's expansion could result in at least a doubling of service requirements and impacts on city facilities. Under the proposed plan, the port's capacity would be doubled.

Oxnard Community Development

Director Dick Maggio also said that it appears that the port's impact to the city's highway system is conservatively estimated at \$150,000 per year in operation and maintenance costs, plus capital construction costs of between \$250,000 and \$1.5 million.

"If the port doubles its operations, the impacts on the city will double to \$300,000 per year for operation and maintenance," plus the hefty construction costs, Mora said in a report to council.

Mora has estimated that the harbor now has an annual cost of \$291,000 on Oxnard services and facilities.

But, he has said, after the port's capacity is expanded, the costs for services provided by the city, along with impacts on its facilities, could range from \$525,000 to \$825,000 on a yearly basis.

Two options have been identified that could be pursued as a means of obtaining adequate mitigation and compensation for services provided by the city, Mora has said.

These options include using a mitigation agreement between the city and harbor district or reorganizing the harbor district.

Of all the impacts from the harbor's expansion, that of road deterioration is the most significant, Mora said.

The U.S. Department of Transportation has said that one fully loaded tractor-trailer truck has the same impact on a roadway as 10,000 cars.

Mora has said that the harbor operation now generates about 260 truck trips per day, and that its expansion could mean an extra 112

(See Port Expansion, Page 2)

# U.S. Force Urged To Curb Terrorism

WASHINGTON (AP) — Secretary of State George P. Shultz said today the United States must have "the stomach" to strike back at terrorists and to take covert military action to further U.S. interests abroad.

"It must be clearly and unequivocally the policy of the United States to fight back," Shultz said in a speech

In his speech, Shultz said, "Cap and I discuss these issues and these challenges frequently, and we will be working together, in full agreement on the urgency of the problem."

Shultz said the United States should not be deterred because terrorist threats often lack "simple clarity." He said the danger is that

...Secretary Cap and Weinberger, although providing details, confirmed the incident involving the Libyan fighters Tuesday evening. He said he found nothing remarkable about the affair because Libyan planes had patrolled in the general area before.

"Libyan planes have been up in that area. This is a little farther north than we've been before, but I don't think there's anything unusual about it," Weinberger said.

The administration sources also sought to downplay the incident, citing the Libyan MiGs had turned back toward home before the F-15s arrived on the scene. One source agreed, however, the MiGs had appeared unexpectedly and moved usually close to the surveillance area — "within 300 feet."

In other developments, Pentagon officials stepped up their war of words against Libya and the Soviet Union, with spokesman Robert B. McInerney branding the introduction of U.S. surface-to-air missiles in Libya a significant and dangerous escalation in the Soviet-Libyan arms relationship.

Sims also said the Soviet Union had increased its surveillance of U.S. ships and aircraft in the Mediterranean region.

# Use

(Page 1)

current fiscal year must be slashed by 4.9 percent under the Gramm-Rudman act. The law calls for a balanced budget by 1991, with cuts coming equally from defense and domestic spending.

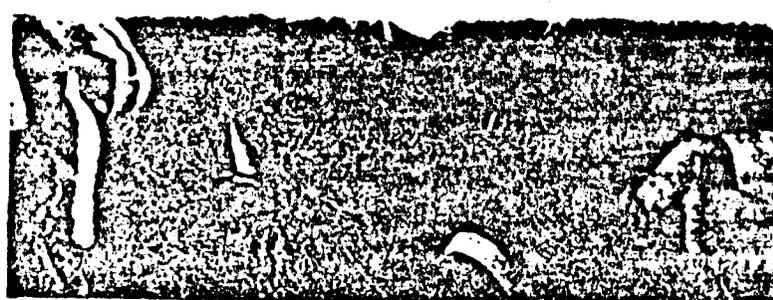
When nations place their comfort over their security, they end with their," Weinberger said. "It wonders me," as the old Pennsylvania Dutchman said, when I hear defense budget attacked on the basis of what the attackers are pleased to call the "fairness doctrine," as though our security is merely one of a long list of national priorities," he said.

# N-Weapons

(Continued from Page 1)

Gorbachev said after the superpowers have reduced their "relevant" by 50 percent, all nuclear weapons would be called on to eliminate their tactical nuclear arms.

In a third stage, to begin no later than 1995, Gorbachev said, calls for a nation of all remaining nuclear weapons on Earth and a universal agreement not to bring them into be-



BIG FELLOW IS DIFFICULT TO IMPRESS Johnny, one of three gorillas at the Audubon Zoo in New Orleans, yawns while undergoing physical. Heavily sedated to prevent monkey business, Johnny was pronounced fit.

# Port Expansion

(Continued from Page 1)

truck trips each day. In 1984 and 1985, truck counts taken at Victoria Avenue and Channel Islands Boulevard indicated a non-military truck volume in excess of 600 vehicles a day.

Oxnard Mayor Nao Takasugi also said that officials need to address problems caused by military traffic and its impact on the city's streets.

Based on the estimates of cargo activity at the port, city staff estimates typical weekday truck traffic from all port activities to be between 600 and 800 trucks per day, Mora has said.

Each weekday, Mora said, Oxnard's streets carry about 2,540 truck miles of traffic from the Port of Hueneme. This is equivalent to 25,400,000 daily auto miles of travel, or the daily equivalent of at least five times the total auto impacts within the city, Mora said.

Although the port is not the only source of truck traffic within the city of Oxnard, Mora said that the limited number of routes repeatedly used by the port-related truck traffic has a significant impact on them.

The city estimates that the port accounts for about 20 percent of the large truck traffic now using Harbor Boulevard, Victoria Avenue, Saviers Road, Oxnard Boulevard and Pleasant Valley Road.

The annual cost impact of the port-related truck traffic road maintenance is about \$130,000, Mora said. "To thus, \$20,000 can be added for maintenance of railroad crossing and related items for a total annual cost estimate of \$150,000," he said.

Mora has said that because the Port of Hueneme is projecting doubling its capacity of port facilities, this should also double its trucking impacts.

Maggio said that it is difficult to develop an exact dollar cost estimate for existing or future fire protection services available to the Port Hueneme area from the city of Oxnard.

"Such a figure may be as low as \$75,000 per year for current costs on an annual basis or as high as \$275,000 for projected costs related to the port's expansion," Mora's report said.

Direct costs associated with providing police services have been estimated at \$66,100 in 1983, but these costs could grow to over \$150,000 in the first year following the port's expansion, Mora said.

# Therapy Aid Offered for Rape Victims

The Rape and Sexual Abuse Center of Ventura County is offering thru low-cost therapy groups for rape and incest victims.

All groups are conducted by licensed therapists. Interested female victims should call the therapist for entry into any group.

Six sessions for rape victims will begin in Ventura tonight. Peggy Rusk will direct the group and be number is 656-5218.

In Westlake, Barbara Farber will begin a group for adult women, age 2 and up, also beginning tonight. Her number is 496-3800.

Barbara St. Amand of New Beginnings Counseling Center in Camarillo will begin a group for teen-age adult women Thursday. She can be reached by calling 987-3162.

The rape survival group is six sessions and the incest groups are eight weeks each.

The therapy is being funded by grant from the Livingston Foundation. A sliding scale, with the maximum cost of \$3 per session, is requested to help rebuild for future groups.

# Ventura Holdup Suspect Arrested

A man wanted in connection with the robbery of a bar and 13 patrons in Ventura was arrested in Thousand

custody without incident. "They just scooped him up right quick," Cap said.

# Ban FCC

...sharply limit the restrictions that could be placed on the FCC. Officials need that allowing local dishes to ban dishes people don't like their opponents of earth dishes, Page 2)

LIFESAVER COMMERCIAL FILMED ON HUENEHME PIER  
Cameraman Mike Van Houton and production lifesaving promotion for television Tuesdays at  
even set up to tape scenes for 'Take Seven.' Part Huenehme fishing pier

### Oxnard Critics Harsh

## Officials Score Port Report

Harsh criticism, including a charge of gross inadequacy, has been leveled by Oxnard city officials against a draft environmental impact report on the proposed expansion of the Port of Huenehme.

The Oxnard City Council briefly reviewed the written comments made by several high ranking city officials Tuesday, and authorized staff to deliver the remarks to Oxnard Harbor District representatives.

City staff alleges that the draft EIR does not fully address numerous issues and their impacts on Oxnard, including air and noise pollution, traffic impacts on streets, and fire and police requirements.

Harbor District Executive Director Anthony Taormina was in attendance

at council's lengthy daytime session when the item was scheduled to be heard but the matter did not finally come before council until its resumed meeting. Taormina was not present at the evening session.

Still, he earlier told a reporter that the EIR is only in its preliminary stages and not in its final form. The final document is not expected to be finished until March.

Nevertheless, he disagreed with an opinion by one city official that the draft EIR appears to have been written hastily.

Still, the fire, police and public works departments have all reviewed the draft EIR and agree that the document has many shortcomings.

The document is "a disappointment in terms of its failure to fully disclose

the real magnitude of the exposure to impacts on the city of Oxnard," Oxnard Public Works Director Jim Frandson said in a report to Oxnard Community Development Director Dick Maggio.

"To some degree that can be accepted as a case of reasonable reports' reaching different conclusions," Frandson said.

The draft EIR, he said, "reflects the hasty preparation in its internal inconsistencies, omissions, and general need for a better job of editing."

Taormina said the draft EIR was not prepared quickly.

He said he has been working on the draft EIR for several months, while work has been progressing for about a year.

He said earlier in the week that he would not respond to other allegations made by city officials in various documents about the EIR because he has not read them.

"The final and most important issue is that the EIR repeatedly fails to comply with mandates of the California Environmental Quality Act in its failure to provide or suggest reasonable and available mitigation measures for impacts which have been identified," Frandson said in his report.

Frandson said that in some cases, including noise pollution, water usage, and sewage generation, the draft EIR "refuses impact mitigation with facility consistency."

"The two are not interchangeable," he said.

"An impact is a significant change in the environment regardless of its consistency with plans or standards, and to comply with CEQA, it must be mitigated or a finding stated why it cannot be mitigated must be done," Frandson said.

Also of special concern he said is a proposed traffic impact study.

"We are very much interested in cooperating with such a study, which then would be used to develop whatever traffic mitigations are justified," he said.

"We feel that if the study is not done as a part of the draft EIR, a finding should be made that such a study will be made prior to action by the California Coastal Commission on this project," Frandson said.

In another report to council from Oxnard City Manager David Mora

## Petitioners Oppose Satellite Dish Law

Adoption of an ordinance regulating the installation of satellite TV dishes in Oxnard was continued for one month Tuesday by the City Council after the proposed law was assailed as being un-American and unfair by numerous satellite TV owners and dealers.

A petition signed by about 150 people opposed to the ordinance was also submitted.

Mayor Van Takahagi stressed however, that the proposed ordinance does not in any way ban the installation of the large saucer shaped dishes, but it is needed to ensure that they do not run "unchecked" throughout the area.

"Our main concern is that they do not stick out like a sore thumb," Oxnard Community Development Director Dick Maggio said.

Those in opposition to the proposed regulations were unimpressed.

Christopher Moore, manager of cabinet-makers in Ventura, said the proposed law restricts "freedom and justice for all" and likened the regulation to those laws in the Soviet Union.

He also took exception to the terms in which he considered the dishes to be

be said.

While many audience members said the proposed ordinance is an infringement on their rights, Maggio said the large objects can infringe on the rights of those neighbors who are forced to look at them.

Joe Fernandez said however, that the same argument can be made for those who plant trees in their yards.

After more than two hours of debate council agreed to continue the item after several questions were raised concerning sections of the ordinance.

One of those sections stipulated that the satellite dishes had to colored to be compatible with their surrounding area.

Several said though that painting the device might affect TV reception.

Other questions were also raised about permit fees and the screening of the TV dishes.

The ordinance would require an owner of a satellite TV dish to obtain a building permit before it could be installed, and would also regulate its placement. Maggio said the fees would range from \$40 to \$60.

"The height and placement of the

## LEAGUE OF WOMEN VOTERS OF CALIFORNIA



926 J St., Suite 1000, Sacramento, CA 95814 • (916) 442-7215

Linda Broder, President

February 23, 1986

TO: Jananne Sharpless, Secretary of Environmental Affairs, State of California

FROM: Marilyn Dale, Energy Director, League of Women Voters of California

RE: Comment on Environmental Report: Platform Gail and associated Pipelines

### General Comments on the Environmental Report

1. The unavailability and delays in receiving the complete report made comments more difficult to coordinate. Although the WVS in Los Angeles was not able to furnish this material until February 19, once it was in their hands, they sent copies by express delivery service which was appreciated.
2. The numbering system in sections III and IV should correspond to each other to make cross references easier, e.g. Existing Transportation is 3.7.5 and Effects on Existing Transportation is 4.7.3; the sub-section numbers should be the same. This document is supposedly designed to aid in the public's participation in the planning and permitting process and should be written with that in mind.
3. Overall, I find this a weak and unrevealing report. Statements of existing conditions, in many instances, are imprecise with no substantiating data. Mitigations, again, do not address the potential problems nor see this project as part of an on-going process. A worst case scenario is completely neglected. An environmental report should supply sufficient information on which decision makers can make sound judgements; in that sense, I believe that this one is inadequate.

### Air Quality Impacts

Air quality impacts are examined in isolation and not in relation to existing conditions, air currents, and time of day. What other, future projects, now known to be in the early planning stages, off-shore and on-shore, will have a cumulative impact throughout the production schedule of Platform Gail? If these statistics cannot be given at this time, the report should not be considered final until such data is available for public comment with all impacts known and mitigated, as necessary, for consideration in the permitting process.

There is the State Street monitor, p. 3-26? If it is in Santa Barbara,

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how does this reading apply to a platform 21 miles southeast of Santa Barbara. The Anacapa Island monitoring station may be the closest on-shore facility, but seems to have little to do with Ventura coast collecting insects and current conditions. Only the 1986 standards for 1990 and 1992 are referred to, p. 3-26. The League of Women Voters of California urges consistency with new source compliance standards in the most stringent adjacent Air Quality Management District. This, of course, applies to all other pollutants, as well.

#### Transportation

The adverse on-shore traffic levels referred to on page 4-94 should be stated in terms of roadway, intersection, time of day and level of service. Why will traffic generated by Platform Gail not affect this? It should be explained in all the above terms as well as source. Should Chevron contribute to the cost of increased parking area in the Oxnard Harbor District as part of the complete project?

#### Hazardous Waste Disposal

Statement on page 3-162 is incorrect as BKK in West Covina is no longer available as a Class I disposal site.

The 1980 disposal rate for Casmalia is no longer applicable with the closure of J & J and BKK for hazardous wastes. What is the current rate of disposal at Casmalia? What is the present life expectancy? How does drilling and production of Platform Gail impact this life expectancy? What will the transportation of wastes to Casmalia mean-- number and weight of trucks, routes, time of day?

Thank you for the opportunity to comment on this report.

Sincerely,

*Marilyn Dale*

Marilyn Dale

cc: P. Smith, L. Broder, M. Elum



1217-A De La Vina Street  
Santa Barbara  
California 93101  
Telephone: (805) 965-1422

### LEAGUE OF WOMEN VOTERS OF SANTA BARBARA

February 27, 1986

To: Jananne Sharpless  
Secretary of Environmental Affairs  
State of California

Re: Request of January 31, 1986 for Input to Governor's Comments on CHEVRON USA INC.'S DEVELOPMENT AND PRODUCTION PLAN (DPP) FOR PLATFORM GAIL

The League of Women Voters of Santa Barbara has reviewed in detail the January 1986 DPP Executive Summary (ES) and Sections 2 through 10 of the January 1986 Supplement to Santa Clara Unit Environmental Report for Platform Gail and Subsea Pipelines (ER). In line with your instructions the following comments are organized according to Size, Location and Timing of the Project.

#### Size of Proposed Project

The League has studied the source data (ES and ER) and is familiar with such details as can be gleaned relative to "size." For the record we found relevant data more or less limited to these three components of the project: 1) Platform Gail itself; 2) the two subsea pipelines to be constructed from Platform Gail to Platform Grace; and 3) the subsea pipelines already installed from Platform Grace to Platform Hope and from there to landfall at Carpinteria.

Therein lies the League's first concern: either there is no information or only the sketchiest of data on "existing" facilities on which the project is completely dependent.

#### Gas Facilities

The ES gives this information: natural gas produced at Platform Gail will be transported to Platform Grace where it will be processed and commingled with Grace's production and transported to shore via Platform Hope; existing facilities at Carpinteria will be used for the final processing of the produced gas. The ER does not elaborate.

Both the ES and the ER provide some limited descriptive data on existing subsea gas lines from Platform Gail to Hope to shore, but no data are given on the adequacy of these facilities. Will they accommodate Gail's production in addition to production from Platforms Grace and Hope, or does Gail's production fill gaps caused by declining production from Grace and Hope?

What about onshore gas plant facilities? Just what does the gas plant at Carpinteria consist of? What are the components? Are there any gas storage tanks? How many? Capacity? Unused capacity? What is the capacity of the facility's processing component? Unused capacity? All we are told in the ES and ER is that the gas plant has been functioning since 1959 and has processed gas from the Summerland Field, the Carpinteria Field and from Platform Grace in the Santa Clara Field.

The ER hints that the gas plant may have to be expanded: "Sour gas produced from Platform Gail will be treated at Platform Grace...prior to

(11)

.. Gas Facilities - continued

final treatment at Carpinteria. When the zones with sour gas are drilled, samples will be taken and analyzed. These future results will become the design basis for the future processing facilities at Carpinteria." (2-20)

Since gas production from Platform Gail may not peak until 1998 there may be nothing to worry about, but decision-makers should know the score. But in the meantime has a project application been filed with local government or have pre-application hearings been held with planning staff for any possible "future processing facilities?"

Re distribution/transport of processed gas, there is only the sketchiest of information. The ES dismisses any project involvement in distribution of wet or dry gas processed at the plant; that responsibility is identified as the purchaser's problem: "The dry gas leaving the plant is used for plant fuel or sold to Southern California Gas....Recovered liquids are fractionated into propane, mixed butanes, and natural gasoline. The natural gasoline is blended and sold with the crude. Propane is sold to Van Gas Distributors and butane to Chevron Liquids and Gas group for distribution." (2-20)

Whether the responsibility of purchaser or applicant the joint problems of distribution and transport should be more thoroughly studied and documented in the project description and in the Environmental Report.

.. Oil Facilities

Re already installed subsea oil pipelines, how adequate are they to accommodate additional input from Platform Gail? Or will Gail's production replace declining, depleted Grace/Hope production?

Re onshore facilities it is in the oil area that the inadequacy of onshore data is particularly disconcerting. What happens at landfall? Does Hope's pipeline connect immediately, without diversion, into existing onshore pipelines leading to the Carpinteria facility, and directly from there, again without holdover, into existing oil pipeline(s) to Chevron's El Segundo refinery?

Are there any holdover/storage facilities for oil at the Carpinteria plant? If so, what are they? How many storage tanks? What are their capacities? Unused capacity? Will the oil facility at Carpinteria undergo expansion? There doesn't seem to be even a hint of oil facility expansion as there was for gas facility expansion.

Re pipeline transportation from Carpinteria to El Segundo, Figure 1.1 shows 6 miles of 10" pipeline from Carpinteria to Rincon (whose oil pipeline is this?); a 32" oil pipeline from Rincon to Ventura operated by Mobil, ending at a Union Terminal and at a Getty Terminal; then from that point three separate pipelines owned by three different companies, all three going to Los Angeles presumably. What control does Chevron have over use of these pipelines? What guarantees does Chevron have that capacity will be available in each or any of these pipelines to carry Gail's production as it occurs day by day? Will Union or Getty terminal facilities be available if a holdover is necessary? Will unaccommodated Platform Gail production have to be stored in Carpinteria? Where in Carpinteria?

(48)

.. Location of Project

.. Offshore

Platform Gail is located in OCS Lease P0205 most of which lies within the six-mile buffer zone surrounding the Channel Islands National Marine Sanctuary. The platform is in the upper right hand corner of the lease, putting it just barely outside the Sanctuary's six-mile buffer zone.

The new pipelines to be constructed from Platform Gail to Grace will parallel the Sanctuary for several miles before veering off toward Platform Grace. The nearness of the Platform and the new pipelines to the Sanctuary is a real cause for concern. The ER, in Section 4, states as follows:

"Potential impacts related to oil and gas development involve the possibility of accidents. Potential accidents associated with the Platform Gail project (including platform operations, the pipelines from Gail to Platform Grace, and Platform Gail support vessel activities) could potentially result in an oil spill, fire or explosion and platform marine vessel collision."

In view of the very uncertain State of the Art of oil spill prevention/containment/cleanup the League submits that serious consideration should be given to banning oil/gas development so close to established sanctuaries. In any event environmental data should be amplified.

The current oil/gas lease map shows a complex of Chevron leases in the Santa Clara Unit tied by subsea pipelines to a companion complex of Chevron leases in adjoining state waters. State plans for leasing add impetus and priority to efforts being made to synchronize all oil/gas developments, onshore and offshore, in other words to reverse the present policy of attempting to resolve issues on a case-by-case basis. It hasn't worked, and each time it is attempted the problem is compounded.

The need to synchronize developments was highlighted last June with the issuance of a DEIR for Chevron's proposed exploratory drilling in state waters off Santa Barbara and Ventura Counties. The Santa Barbara County sites were off Caviota and Carpinteria. Concurrently there were hearings on Chevron's Point Arguello Project. Chevron testimony indicated a very close air quality interdependence between plans to explore in state waters and plans to build an oil/gas processing facility at Caviota (Point Arguello Project); Chevron wished to use cleanup measures on one project to offset emissions from the other project.

.. Onshore

The lack of data on onshore facilities makes identity/analysis of onshore location issues impossible. The need for onshore data is especially significant at this particular time because of the discovery of PCB contamination at Chevron's Caviota site followed by the disclosure that there was PCB contamination at the Carpinteria site as well. See enclosed copies of pertinent newspaper articles.

Another onshore location issue relates to the El Segundo refinery, calling for detailed analysis as to type of facility, kind/type of components, capacity/capacities, extent to which it has been retrofitted to accommodate sour crude. Detailed data on the refinery are necessary in view of concerns already expressed by the Southern California Association of Governments and the South Coast Air Quality Management District.

The ER's socioeconomic data are incomplete, even superficial, especially as

(49)

.. Onshore (Location of Project) - continued

regards impact on Ventura County. Impact on Santa Barbara County needs more adequate analysis, particularly impact on traffic and transportation modes.

The ER's analysis of cumulative impact is weak, revealing the usual EIR or EIS difficulty of pinpointing a particular project's responsibility for triggering mandated sanctions including curtailment of activities. The case-by-case approach accentuates this negative, but it is incumbent on each individual EIR/S to identify trigger points.

Timing of Proposed Project

Source data indicate that Platform Call is expected to be installed during 1986 and that production will start early 1987. Oil produced is expected to peak in 1990 but gas production not until 1998.

The timing of the project during 1986-87 is out of sync with other oil/gas developments impacting Santa Barbara County and the South Central Coast in general. Particular reference is to the Department of Interior's ongoing five-year leasing program activities and to DOI's also ongoing concurrent negotiations looking to hoped-for upgrading of California air quality regulations.

The League is already on record with your office, and reiterates today the following recommendation:

that the Santa Barbara Channel and the Santa Maria Basin should be removed from further exploration and leasing until comprehensive plans and policies are in place designed to maintain the County's long-range planning goals in light of the increased development forecasts and resource constraints, and until the County is assured that project applicants and lessees are required to comply with the County's stringent air quality standards.

Thank you for this opportunity to submit input on Project Call. We hope the Governor will transmit our concerns en toto to the Department of the Interior.

Marty Blum

Marty Blum, President  
League of Women Voters of Santa Barbara

Attached: Santa Barbara News-Press articles as follows:

- February 12, 1986, "Chevron admits PCBs in soil at Carpinteria"
- February 13, 1986, "Chevron says PCBs cleanup at Carpinteria plant months away"
- February 19, 1986, "County seeks law on toxic spills; Supervisors want reports mandated"
- February 23, 1986, Editorial, "Moral choice - just because it's legal doesn't mean it's right"

(50)

Page A-1  
25 cents  
88 Pages  
Santa Barbara, Calif., Wednesday, Feb. 12, 1986

# Chevron admits PCBs in soil at Carpinteria

By Keith E. Dalton  
News-Press Staff Writer

Chevron declined today that toxic PCBs have contaminated soil at its oil and gas processing plant next to Carpinteria City Hall.

Chevron spokesman Mel Campbell told the News-Press that tests conducted by the Environmental Protection Agency (EPA) at one "hot spot" at the Carpinteria facility showed a level of 6,300 parts per million. The average levels are believed to be 200 to 250 ppm, he said.

The state Department of Health Services and the EPA says PCBs are a potential health hazard at levels of 50 ppm.

The public announcement followed Chevron's admission last week that it had learned a year ago that a leak of polychlorinated biphenyls (PCBs) had contaminated soils at a 2 1/2-acre former oil and gas plant site in Gaviota. That contamination occurred sometime between 1961 and the plant's demolition in September 1966 at a site 300 yards from the Vista del Mar

School and two residences. The Gaviota contamination levels averaged 240 ppm, with a peak of 3,730 ppm, a report prepared for Chevron says.

Chevron spokeswoman Jocelyn Kempe said Chevron officials from Ventura briefed the facility's 10 employees and Carpinteria Mayor Tom Lewis on the PCBs on Tuesday. "He (Lewis) was not upset, nor were any of the employees," she said. Lewis is a Chevron employee at the plant in Carpinteria.

Lewis said this afternoon that

there is no threat to or problem for any of the citizenry of Carpinteria. Ms. Kempe said Chevron also has discussed the Carpinteria contamination with David Hardy, aide to 1st District Supervisor David Yager of Montecito. The plant is in Yager's district.

Yager confirmed that Chevron officials told him about the Carpinteria contamination Tuesday and then met in Yager's Santa Barbara office with Hardy, who then briefed him.

See Page A-1, Col. 8

## Chevron admits Carpinteria PCB contamination

Continued from Page A-1  
Yager said he instructed his aide to notify Dr. Lawrence Hart, county Health Care Services director, and David Elbaum, county administrative officer.

"I wish I had learned about the PCB contamination when it was first discovered" last spring, Yager said. "But having been informed now, I think the county is on top of the situation."

"If the facts are as they have been presented by Chevron, there is no immediate cause for alarm."

The PCB spill at the Carpinteria plant is "in an isolated section of a large complex" and - unlike the contamination at the Chevron site in Gaviota - there "are no schoolchil-

News-Press Staff Writer  
Chuck Schultz contributed to this story.

dren or residences involved."

The plant is within Carpinteria city limits and therefore "not within the county's land-use jurisdiction," Yager added.

Campbell said the Carpinteria contamination is contained in an area where an existing oil and gas processing plant is operated. That will make cleanup more difficult. Testing still is under way because, "We do not know the extent of the contamination," he said.

He said the contamination site, believed by Chevron to be about a quarter of an acre, has been barricaded and access is restricted only to employees who work at the facility. Ramps also have been installed so workers' shoes do not come in direct contact with PCB-laced soil. Campbell said.

He said Chevron learned of the Carpinteria PCB contamination, caused by leaking heat-transfer fluid, in February 1983. That was the same time the EPA advised the company that PCB-contaminated fluids had leaked from a heat-transfer system into the soil at the Gaviota plant before it was torn down.

A statement released today by Chevron says testing by the EPA and private consultants hired by Chevron "emphasize that there is no potential health hazard posed by

## Supervisors want reports mandated

# County seeks law on toxic spills

By Chuck Schultz  
News-Press Staff Writer

State, federal, and Chevron officials promised Tuesday to work with the county to prevent a repeat of what one termed "a comedy of errors" in reporting PCB contamination at the site of Chevron's planned oil and gas processing plant near Gaviota.

But some county officials are convinced such cooperation will not happen without new legal requirements that force the state and federal governments — and private companies — to inform local health officials of such incidents.

"I'm not certain this won't happen again," said county Supervisor Michael Stoker at the close of a 2 1/4-hour board hearing Tuesday afternoon. "It's apparent to me that none of these entities is going to do anything but what is legally required," Stoker added.

He called for the county to consider enacting a new ordinance that would impose "substantial penalties" on project monitors who learn of chemical contamination at a development site, but then fail to report such to the county. The county counsel's office is to report back to the board in two weeks on the legality of enacting such an ordinance.

The big question the supervisors wanted answered Tuesday was why hazardous levels of PCBs were discovered in soil at Gaviota and at Chevron's processing plant in Carpinteria a year ago but never reported to county officials until at

least December — or disclosed to the public until earlier this month.

"Chevron had to have made a concerted effort not to disclose this situation," contended Robert Hazard, a member of the Vista del Mar Union School board. He told the supervisors that Chevron officials never mentioned the PCB contamination during lengthy negotiations last year with school officials concerning conditions to be imposed on construction of its Gaviota processing plant.

"I believe Chevron went out of their way not to disclose this information," another resident of the Gaviota area complained.

But a company spokesman, Doug Uchikura, said "a comedy of errors" resulted in miscommunication among the various parties about the PCB contamination at Gaviota. He told the board that Chevron did not know of the existence of the PCBs until soil samples were taken in June and did not know the extent of the contamination until late August.

"We were trying to handle this (contamination problem) on a routine basis. It was our information — as it seems to have been the opinion of the EPA and the state Department of Health Services — that a health problem was not presented by this contamination and we proceeded accordingly," Uchikura said.

"From this point forward, our sensitivities have been heightened and we will work with the county to keep these kinds of things from happening again," he added.

Numerous speakers argued that the environmental impact report that was the basis for approval of the Chevron project was flawed because it did not address the PCB contamination. They urged that the county yank the permits for the Chevron project and reopen the environmental review process.

"It does not appear that is possible," though, because the county has already "issued all of our discretionary permits," said Dianne Guzman, county resource management director. She added that county attorneys and planning officials are still studying that issue, however.

Rich Vaile, an environmental engineer for the federal Environmental Protection Agency, said EPA inspectors visited the Gaviota site in February 1985 but did not uncover the PCB spill at that time. "We conducted inspections but we could not substantiate that there was any (PCB) spill at Gaviota," Vaile said.

If his agency had thought there was a health hazard present, it would have notified the county, he assured the supervisors.

Jim McNally, a program manager for the state health department, said the state did not learn of the contamination at Gaviota until Oct. 31, when Chevron submitted a plan for cleaning up the 3,900 cubic yards of PCB-laced soil. McNally added that the state did not send an investigator to the site until December, despite the fact that the contaminated area was only the length of a football field away from the Vista

del Mar school.

"Based on the (PCB) concentrations and description as provided in the (Chevron) cleanup plan... we didn't feel it was urgent to immediately go out to the site," McNally said. After inspecting the site, "we notified the county hazardous waste specialist in December of the Gaviota cleanup (plans) and he approved the commencement date with what we thought was the county's support," he added.

In the future, the state will notify local health officials in writing "of any pending cleanups involving their respective jurisdictions," McNally promised.

He told the board that there is no law requiring companies to report PCB spills immediately. That prompted Supervisor David Yager to suggest that the county seek legislation requiring the federal government and the state "to see that such events are reported to them when they take place." Yager's motion was unanimously supported by his colleagues on the board.

Dr. Lawrence Hart, county Health Care Services director, said written notification by the state will be an improvement but he also urged that state officials notify him by telegram as soon as a problem involving health issues or toxic chemicals is discovered. Hart said he is also developing a system to have all county departments notify Health Care Services within 24 hours whenever "they come across something involving chemicals or health issues."

Staff Barbara, Call, News-Press, Wednesday, Feb. 18, 1986

# Local News

Thursday, Feb. 13, 1986

## Chevron says PCBs cleanup at Carpinteria plant months away

By Chuck Schultz  
News-Press Staff Writer

It may be months before cleanup begins on an area contaminated by high levels of PCB at Chevron's processing plant in Carpinteria, but plant spokesmen — including Carpinteria Mayor Tom Lewis — insist there is no threat to workers or the public.

The contaminated soil, in a 20-by-100-foot area at the southeast corner of the plant, poses "no threat to the public at all," Lewis said Wednesday. He is the head operator at the plant and has worked there for 27 years.

Lewis and other Chevron officials said the polychlorinated biphenyls (PCBs) apparently leaked into the ground sometime before 1972, when PCB fluids used in an oil heater at the plant were drained and replaced with a liquid known as Therminol.

### Faulty seals

Lewis said he suspects the PCBs leaked from faulty seals on pumps at the base of the heater, and he added that some of the chemical also likely spilled when the system

was drained in 1972.

"Whatever (PCBs) are in the ground have been there a long time," plant foreman Mark Huntley said.

The soil contamination was not discovered, though, until federal Environmental Protection Agency (EPA) inspectors visited the Carpinteria site a year ago, during "routine inspections of Monsanto customers," said Steve Merritt, an environmental technologist for Chevron. The Missouri chemical company manufactured PCBs before they were banned by Congress in 1978.

### Were notified

All 16 Carpinteria plant operators were notified about the contamination in May 1985 after soil tests confirmed the presence of PCB levels as high as 8,300 parts per million in the area. Chevron officials said more soil samples will have to be taken to determine the full extent — and depth — of the contamination, however.

Negotiations also are under way between Chevron and the EPA to

determine procedures for cleaning up the area. Huntley estimated that it will be "at least a couple of months more" before a cleanup plan is completed and removal of the contaminated soil can begin.

Dr. Lawrence Hart, county Health Care Services director, said he was notified of the PCB contamination Tuesday night by Chevron officials. His department still is trying to track down details of the spill and cleanup plans, Hart said.

### Not close to homes

From what he knows so far, there is no immediate health danger to the public because the contaminated area is not close to any residential areas, he added.

Huntley said all of the plant operators — including himself and Lewis — pass through the contaminated area at least a couple of times a week in the course of their duties. But none of the workers have expressed any concerns about having to walk through the area, where a wooden barricade has been erected and a pathway of metal-and-plastic grating laid down to keep shoes

from coming in contact with the PCB-laced soil, Huntley said.

"I can't think of anyone who would refuse to walk through there," he said. The plant operators know "they are not going to die from walking through there," Huntley added.

### Not afraid

"There are none of us that would hesitate to walk through the area," Lewis agreed.

The Carpinteria plant is within the Carpinteria city limits and next to City Hall, Lewis said. "I don't think any city officials after learning of the PCB contamination will be any more afraid," however.

"If I did, I would have said it's a big deal," he said. "I certainly don't perceive this as being a threat to the community or public health," Lewis added.

"I had that stuff (PCBs) all over me" without suffering any ill effects when the chemical was used at the plant as a heat-exchange fluid during the early years of the Carpinteria plant's operation, Lewis said.

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over picture

# Editorial Page

Sunday, Feb. 23, 1986

## Moral choice

*Just because it's legal doesn't mean it's right*

Almost from the moment the public learned that Chevron's Gaviota construction site is contaminated with PCBs, the fact of the toxic soil's presence was less an issue than the fact that so many people had failed to mention the fact for so long. The past two weeks of intense rationalizing and finger-pointing now ought to result in a legal deterrent that will discourage similar communication failures in future.

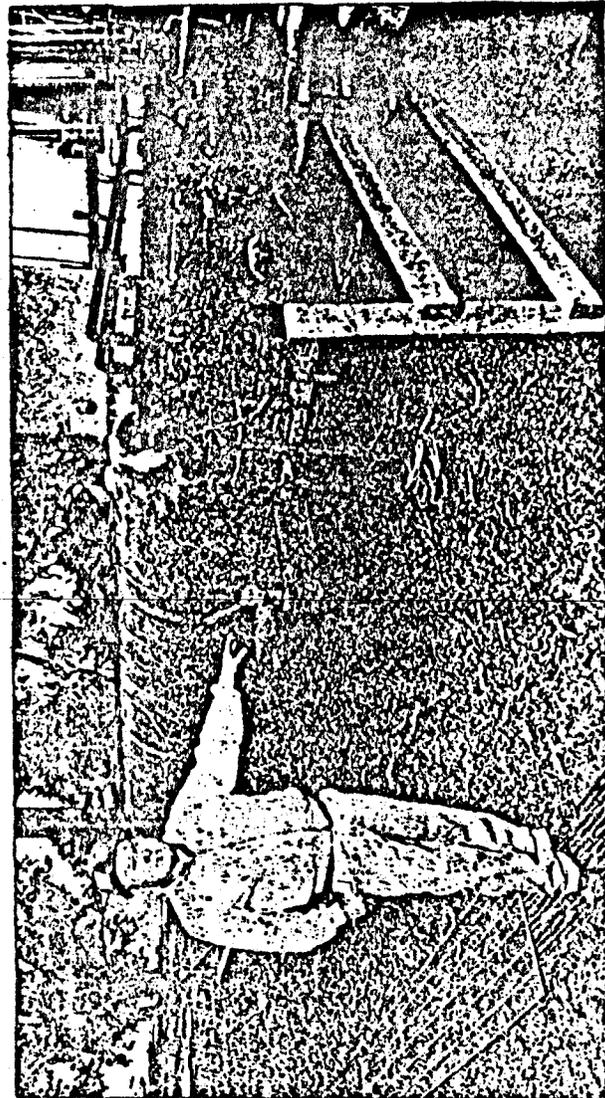
The story of how first Chevron and then the state Department of Health Services and county employees did not report the discovery a year ago of the PCB-laden soil is not particularly shocking. There is apparently no law requiring that such information be reported. When political, economic or other pressures abound — as they surely must have in this instance — the natural human impulse is to contain the bad news.

For much of the time last year when Chevron dealt quietly with the contamination problem, and when neither state nor county officials aware of the situation made it known to the Board of Supervisors or the public, a bitter and costly election campaign on offshore oil development dominated county politics. In light of the facts now known, it is difficult not to speculate on a connection between the lack of reporting and the Measure A election. Such a connection, if it existed, would not be difficult to understand. What remains to come out of this incident is a way to bolster the moral choice with a little practical suasion.

That's what laws are for. Perhaps our legislators could take up the matter of inadequate reporting requirements on such issues with their colleagues in Sacramento. Companies such as Chevron should surely face substantial punishment for failing to let state and local authorities know immediately when they turn up something like the PCB contamination. For its part, we hope the county can devise an ordinance, armed with stiff penalties, to similarly require that companies doing business in the county, as well as local government officials supervising the business, report to one or more designated county authorities who are at or near the top of the decision-

making ladder.

Chevron's contrite and cooperative attitude since its Gaviota PCB problem became known is sincerely welcome. So also is the "gentleman's agreement" to be more forthright with the county reached last week among state, federal and industry spokesmen. But the final fact of the matter is that nothing can beat the threat of punishment for reminding people to do the right thing.



no threat at all." Pathway of grating keeps workers' shoes from coming in contact with the PCB-laced soil.

Carpenter Mayor Tom Lewis, head operator at Chevron's processing plant, says an area contaminated by PCBs "poses

SANTA BARBARA NEWS-PRESS



Noted - Dunaway

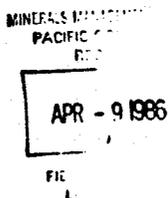
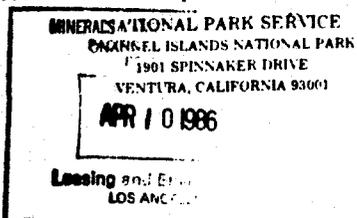
United States Department of the Interior

IN APPLY REFER TO:

L7619 CH15

April 7, 1986

Memorandum



To: Regional Supervisor, Office of Field Operations,  
Minerals Management Service, Pacific OCS Region  
1340 West Sixth Street, Los Angeles, CA 90017

From: Superintendent, Channel Islands National Park

Subject: 655 DM 1 Review, Development and Production Plan  
--OCS-P-0205, Santa Clara Unit

We appreciate your courtesy in extending the comment period on the subject document for us. Though the plan is in three volumes, we will limit our comments solely to the Environmental Report.

Comments on the Proposal:

Our concerns over the project as proposed remain what they have been for several years for regional petroleum development in general around the Channel Islands, only more so due to the proximity of the lease tract to Channel Islands National Park/Marine Sanctuary.

Our primary concern is that development of Lease No. P-0205 has inherent risks (not high, but existing) of a catastrophic oil spill, and that any such accident will place the resources of the marine sanctuary (immediately adjacent to the lease tract) and the park (approximately five miles directly south and thus generally downwind and downcurrent from the proposed development) in jeopardy. To reiterate the value of these resources, both Channel Islands National Park and Channel Islands National Marine Sanctuary were designated in order to recognize and protect nationally outstanding biological and cultural (and in the case of the park, paleontological as well) features of the islands and the Santa Barbara Channel. Anacapa Island, the closest and thus the most heavily visited of all the islands in the park/sanctuary, is notable for its stark beauty, as well as the presence of the only consistent nesting colony of the (federal and state listed) endangered California brown pelican in the United States.

An additional impact of the proposed development to Anacapa Island particularly would be the very intrusive nature of a

permanent platform to the aesthetic resources of the park. Viewshed is a substantial value to many national parks, and on Anacapa, with its unobstructed views of other islands, and of a vast expanse of the mainland, it is particularly important. For the same reason that the Environmental Report properly concludes that the proposed platform will have only minor impact to the viewshed of the islands from the coast -- because it is so far out to sea -- the proposed platform will have substantial impact to the viewshed from the park to the mainland.

Finally, we remain concerned over the future cumulative effects that petroleum development surrounding the park/sanctuary will likely have in the future to air and water quality. Anacapa is one of the park islands which has a present designation as a Class II Air Quality Area, and we will continue cooperating with all interested entities in ensuring its ability to maintain the air quality requirements of that status.

Proposed Mitigation of Concerns:

Because of the national importance of protecting Channel Islands National Park/Marine Sanctuary (and in particular Anacapa Island because of its proximity) from the potential of catastrophic accident due to the proposed development, we suggest on two measures which might mitigate, to some degree, our concerns. First, we do not find it unreasonable that the permittee make its own arrangements for an oil containment boat in Oxnard, Ventura, or Port Hueneme, rather than relying, as it intends from a statement on page 2-40, on a boat stationed two hours away, minimally, in Santa Barbara.

As well, while few mitigating requirements can be practically expected to alter our concern for aesthetic degradation from Anacapa Island, it does not seem unreasonable that the proposed platform be required to be painted a neutral or camouflaged color. We feel that present technology should be able to offer some compromise between the requirements of boating safety insofar as ensuring that the platform can be seen by vessels in close proximity, and our concern over aesthetic values from the park.

Comments on Adequacy of the Document:

In general, the document appears to be complete, but shares the weakness of many such environmental documents in that much of it appears to be word-processed "boiler-plate," not giving the reader a great deal of faith that much original investigation was undertaken for this particular project. In fact, many of our specific comments deal with updating old information.

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Specific comments follow:

Page 2-3: Not the Channel Islands National Park, but the Channel Islands National Marine Sanctuary, boundary abuts the southern lease boundary.

Pages 2-40, 41: As was stated above, we recommend that the permittee be required to make arrangements for a more proximate oil containment vessel in Oxnard, Ventura, or Pt. Hueneme; given the significant national values at stake, to rely on a boat two hours away in Santa Barbara does not seem reasonable when the response time could be easily halved.

Page 2-46: The discussion of "Coastal Visual Resources and Special Communities" is incomplete; it should also address the visual impact of the platform from Anacapa Island in the National Park. Notwithstanding the other platforms in the vicinity, this would be the closest and the most intrusive to the park's aesthetic resources.

Page 3-23: It should be pointed out that Anacapa Island, as part of Channel Islands National Park, is a Class II Air Quality Area.

Page 3-66: On Figure 3. 5-5, Anacapa Island is now part of Channel Islands National Park.

Page 3-67: The discussion of the national park is slightly incorrect. Currently, the entirety of all five islands mentioned, as well as their surrounding one nautical mile of water, constitute Channel Islands National Park. Ultimately, the National Park Service will purchase all of Santa Rosa Island and the eastern property on Santa Cruz Island. Nevertheless, even now these privately owned islands are within the boundary of the national park.

Page 3-68: It is not the regulations of Channel Islands National Marine Sanctuary which restrict the harvest of living marine resources, e.g., Kelp Bed 109. It is the specific ecological reserve regulations promulgated by the California Fish and Game Commission which prohibit kelp harvesting within Anacapa Island State Ecological Reserve.

Page 3-92: The discussions about Channel Islands National Park and Channel Islands National Marine Sanctuary are rather intermixed. Channel Islands National Park was established on March 5, 1980, to protect, among other resources, the brown pelican nesting areas, undisturbed tidepool areas, pinniped breeding grounds, geological formations and cultural resources. It encompasses the old Channel Islands National Monument islands of Anacapa and Santa Barbara, as well as the islands of San Miguel, Santa Cruz, and Santa Rosa, and the one nautical mile of ocean surrounding each of the five. In January 1985, a General

Management Plan revision was prepared by the National Park Service addressing visitor use and limited development on all the park islands, including Anacapa.

On the other hand, Channel Islands National Marine Sanctuary was independently created in September of 1980, and does encompass the ocean for six nautical miles surrounding the same five islands which constitute the national park. The discussion of the marine sanctuary regulations is accurate as far as those which are addressed.

Page 3-93: Re the statement, "The closest ecological reserve to the lease is the Channel Islands": To be more precise, three state of California ecological reserves are present, one each surrounding the islands of Anacapa, San Miguel, and Santa Barbara. This statement is similar to the one on page 3-77, "Due to the protection given the islands as marine sanctuaries . . .", indicating an imprecision in the use of titles, further muddying an already confusing jurisdictional situation. Since actual areas have as part of their proper names such terms as "marine sanctuary," "national park" "ecological reserve," "area of biological significance," etc., it would be well if these documents used such terms correctly.

Page 3-105: Latest reports from National Marine Fisheries Service scientists indicate that Stellar sea lions no longer breed on San Miguel Island.

Page 3-114: In addition to those areas listed, Santa Barbara Island hosted nesting pelicans in 1985 and 1986.

Pages 3-118, 119: For an update on peregrine falcons, in 1985 a joint effort by the National Park Service and the Peregrine Fund successfully hatched three birds on San Miguel Island. As well, several peregrine sightings have occurred on park islands annually, particularly during the winter, for the last few years.

Page 3-157: Along with those named, the Police Department of the City of San Buenaventura should be added to the list of law enforcement agencies.

Pages 4-15, 16: We are heartened that vessels such as Mr. Clean can operate safely and effectively in moderate to heavy seas, but a reference to the documentation of this ability would be welcome. Also, the statement that dispersants may be requested should be coupled with a reference to page 4-60, which discusses the effects from dispersants to marine birds; this would be most valuable in light of Anacapa's importance as a brown pelican breeding colony.



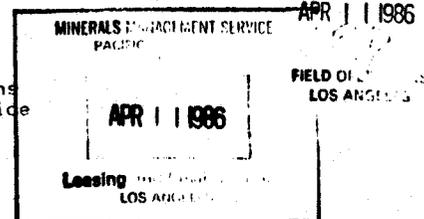
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Noted - Dunaway

REGION IX  
215 Fremont Street  
San Francisco, Ca. 94105

MINERALS  
PACIFIC

7 APR 1986



Thomas W. Dunaway  
Regional Supervisor  
Office of Field Operations  
Minerals Management Service  
Pacific OCS Region  
1340 West Sixth Street  
Los Angeles, CA 90017

Dear Mr. Dunaway:

We have reviewed the Development and Production Plan and the Environmental Report for Chevron's Platform Gail per the telephone request (March 27, 1986) of Maurice Hill. Mr. Hill was particularly concerned about the accuracy of statements in these documents regarding National Pollutant Discharge Elimination System (NPDES) permit requirements for this platform.

The Environmental Report on page 2-29 indicates that Platform Gail would be discharging in accordance with general NPDES permit No. CA0110516 which was issued on December 8, 1983. This general permit expired on June 30, 1984, and due to delays in the reissuance of the permit the statements in the Environmental Report pertaining to the permit need to be updated.

EPA, Region 9 is currently in the process of reissuing general NPDES No. CA0110516. On August 22, 1985, Region 9 proposed issuance of two general NPDES permits which together would replace existing permit No. CA0110516 (50 Federal Register 34036). Proposed permit No. CAG280605 would apply to exploratory operations and permit No. CAG280622 would apply to development and production operations. However, it is unclear at the present time whether these permits will be issued prior to installation of Platform Gail.

Representatives of Chevron and EPA, Region 9 met on March 11, 1986, to discuss NPDES permit requirements for Platform Gail. We have enclosed a letter from Region 9 to Chevron which explains the requirements. Due to the fact that Platform Gail cannot be covered by the existing general permit and the uncertainties in the issuance timetable for the new general permits, the Chevron representatives indicated that they would apply for two individual NPDES permits for the platform (one permit for the minor discharges and another for drilling and production discharges). Region 9 has not yet received the permit applications from Chevron but they are expected in the near future.

Page 4-65: "A spill could result in low to moderate level impacts at any location . . ." A reference would be appreciated. Certainly, a major concern because of the proposed platform's location is its potential impact to the Anacapa pelican colony, its breeding and fledging birds. What is the potential impact to this one area?

Page 4-68: As stated for page 3-114, pelicans have nested the past two years on Santa Barbara Island as well.

Page 4-70: The statements under the discussions of peregrine falcons and bald eagles that impacts to these species are of low probability because of their small numbers has an inherent corollary observation which should have been stated; i.e., because of low regional numbers of these species, each oil contact becomes particularly important. For both of these species, the National Park Service has plans to at least encourage their natural recolonization, if not to engage in reintroduction projects, consistent with the requirements of the Endangered Species Act.

Page 4-83: As with the above discussion, the statement that the sea otter is not expected to be in the project area, and therefore no impact is expected, begs the point. As with the falcon and the eagle, the southern sea otter was an important historical component of the Channel Islands ecosystem; the policy of the National Park Service is to encourage recolonization of native species back into their natural ranges; therefore, we hope and expect that conditions in the region will not be so adverse that the species will be unable to return.

Page 4-85: We are surprised in the discussion of cumulative impacts that the trajectory analysis does not show a spill contacting the Channel Islands. Perhaps this statement refers only to the proposed development? Otherwise, we were under the assumption that at least one large oil spill was predicted to reach the islands. The very close proximity of the proposed platform upcurrent of Anacapa Island indicates that the statement may be correct only from a statistics point of view.

We thank you for the opportunity to comment on the plan. We would be most interested in receiving a copy of the subsequent environmental documentation developed by your office as a result of this plan.

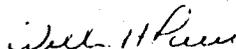
Sincerely,

William H. Ehorn  
Superintendent

150

Should you have any questions regarding this matter, please contact Eugene Bromley of the Permits and Pretreatment Section at (FIS) 454-8330.

Sincerely yours,

  
William H. Pierce, Chief  
Permits and Compliance Branch  
Water Management Division

Enclosure

cc: Maurice Hill, MMS, Pacific OCS Office

F-51

27 MAR 1986

Cynthia A. Norris  
Land Department, Western Region  
Chevron U.S.A. Inc.  
P.O. Box 5050  
San Ramon, CA 94583-0905

Dear Ms. Norris:

This is in response to your letter of February 19, 1986, concerning National Pollutant Discharge Elimination System (NPDES) permit requirements for Platform Gail.

Discharges from existing oil and gas operations in Federal waters off Southern California are authorized by general NPDES permit No. CA0110516. EPA, Region 9 is currently in the process of reissuing this permit. Although this permit expired on June 30, 1984, the permit has been extended via the provisions of the Administrative Procedure Act for permittees properly notifying Region 9 prior to June 30, 1984, of their intent to discharge in accordance with the permit. However, in accordance with guidance from EPA Headquarters, new facilities notifying Region 9 of their intent to discharge after expiration of the general permit cannot be covered by the extended permit. Individual NPDES permits must be obtained for such facilities.

On June 22, 1984, Chevron U.S.A. Inc. notified EPA, Region 9 of its intent to discharge in accordance with general NPDES permit No. CA0110516 for various activities to be conducted on leases acquired in Lease Sale Nos. 35, 48, 53, 68 and Reoffering Sale No. 2. However, Platform Gail was not specifically identified in this notification and would not be located in the area identified in the notification. In addition, information pertaining to the discharges from the platform was not provided as required by Part I.A.6 of the general permit. The development plan, environmental report and the site-specific biological survey report for the platform which could have been used by Region 9 to obtain the needed information did not become available until January, 1986, well after the expiration of the general permit.

In view these factors, Region 9 has determined that proper notification for coverage under the general permit was not provided for Platform Gail prior to the expiration of the general permit. As such, an individual permit will be required for this platform. We have enclosed Standard Form C for your convenience.

VENTURA UNIFIED SCHOOL DISTRICT



888 SOUTH ARCADE DRIVE  
VENTURA, CALIFORNIA 93003  
PHONE (AREA CODE 805) 948-5391

THE POINSETTIA CITY BY THE SEA  
BUSINESS SERVICES DIVISION

Should you have any questions regarding this matter, please contact Eugene Bromley of the Permits and Pretreatment Section at (415) 974-8330.

Sincerely yours,

ORIGINAL SIGNED BY:  
RICHARD E. REAVIS  
Frank M. Covington  
Director, Water Management Division

April 18, 1986

Richard L. Wilhelmsen  
Regional Supervisor  
Office of Leasing and Environment  
United States Department of the Interior  
1340 West Sixth Street  
Los Angeles, California 90017

Re: Platform Gail

Dear Mr. Wilhelmsen:

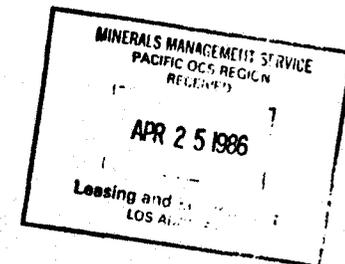
We have received your letter requesting information and enrollment data concerning the Ventura Unified School District for your Environmental Assessment for the Development and Production Plan of Platform Gail.

I am enclosing a chart listing each of our schools, their capacity and enrollment for the past four years. Also enclosed are charts of the District's first month enrollment by grade from 1981-82 through 1985-86 and projected enrollment through 1990-91.

Sincerely,

John C. Wolfe, Ed.D.  
Associate Superintendent

JCW: jr  
Enc.



Enclosure

VENTURA UNIFIED SCHOOL DISTRICT

SCHOOL	Capacity	1982-83	1983-84	1984-85	1985-86
Arnaz Elementary	265	270	217	233	250
Blanche Reynolds Elem.	470	320	317	343	343
Elmhurst Elementary	570	496	502	496	535
E. P. Foster Elementary	430	335	360	356	430
Juanamaria Elementary	540	552	485	470	462
Junipero Serra "	770	631	710	765	804
Lincoln Elementary	300	284	273	258	259
Loma Vista Elementary	360	309	293	319	330
Montalvo Elementary	480	483	478	444	464
Oak View Elementary	300	269	271	284	293
Pierpont Elementary	200	168	159	200	197
Poinsettia Elementary	630	518	565	644	647
Portola Elementary	390	328	321	342	364
Saticoy Elementary	530	459	432	427	482
Sheridan Way Elementary	530	402	470	486	501
Will Rogers Elementary	520	284	379	391	408
Anacapa Middle School	1050	960	893	837	787
Balboa Middle School	1200	1114	1045	954	905
Cabrillo Middle School	1050	975	924	849	822
De Anza Middle School	750	607	599	580	596
Buena High School	2350	2269	2338	2307	2291
Ventura High School	2200	2051	1985	2075	2102

VENTURA UNIFIED SCHOOL DISTRICT  
First Month Enrollment  
1985-86 Projected to 1990-91

Grade	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91
K	1247	1280	1300	1300	1300	1300
1	1153	1200	1235	1255	1255	1255
2	1051	1155	1200	1235	1255	1255
3	1082	1060	1160	1205	1240	1260
4	1004	1090	1070	1170	1215	1250
5	1027	1010	1100	1080	1180	1225
6	972	1045	1030	1120	1100	1100
7	990	980	1050	1040	1130	1110
8	1071	985	975	1045	1035	1125
9	1182	1130	1045	1035	1105	1095
10	1191	1100	1050	965	955	1025
11	1093	1100	1010	960	875	865
12	882	995	1000	910	860	765

K-5	6564	6795	7065	7245	7445	7545
6-8	3033	3010	3055	3205	3265	3335
9-12	<u>4348</u>	<u>4325</u>	<u>4105</u>	<u>3870</u>	<u>3795</u>	<u>3750</u>
Tot. Reg.	13945	14130	14225	14320	14505	14630
K-5 Spec.	175	175	175	175	175	175
6-8 Spec.	84	85	85	85	85	85
9-12 Spec.	<u>47</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>
Tot. Spec.	306	310	310	310	310	310
Continuation	118	120	120	120	120	120
Opportunity	<u>72</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>75</u>
	190	195	195	195	195	195
Home Taught	24	25	25	25	25	25
Indep. Study	<u>294</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>
Total	318	325	325	325	325	325
GRAND TOTAL	<u>14759</u>	<u>14960</u>	<u>15055</u>	<u>15150</u>	<u>15335</u>	<u>15460</u>

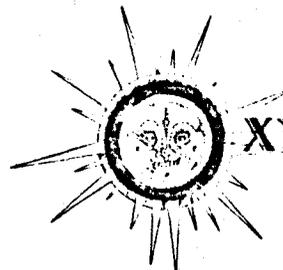
Div. Bus. Ser.  
JCW: jr  
2/86

VENTURA UNIFIED SCHOOL DISTRICT  
First Month Enrollment  
1981-82 to 1985-86

Grade	1981-82	1982-83	1983-84	1984-85	1985-86
K	1086	1092	1115	1198	1247
1	1018	1016	1041	1066	1153
2	987	995	1006	1061	1051
3	972	946	995	1001	1082
4	1037	977	927	1028	1004
5	1108	1032	971	952	1027
6	1243	1114	1064	973	972
7	1188	1234	1127	1061	990
8	1119	1228	1217	1109	1071
9	1093	1132	1287	1253	1182
10	1137	1168	1044	1187	1191
11	1126	1043	1052	988	1093
12	1081	1010	934	961	882

K-5	6208	6058	6055	6306	6564
6-8	3550	3576	3408	3143	3033
9-12	4437	4353	4317	4389	4348
<b>Total</b>					
Regular	<u>14195</u>	<u>13987</u>	<u>13780</u>	<u>13838</u>	<u>13945</u>

Div. Bus. Ser.  
JCW: jr  
2/86



# OXNARD SCHOOL DISTRICT

831 SOUTH "B" STREET • OXNARD, CALIFORNIA 93030 • 805/487 3918

April 21, 1986

**BOARD OF TRUSTEES**

CHARLES R. JOHNSON  
President

JEAN M. HARRIS  
Clerk

JACK T. FOWLER  
DOROTHE J. STERLING  
WILLIAM D. HILL

**ADMINISTRATION**

NORMAN R. BREKKE  
Superintendent

JOHN S. MARSHALL Ed.D.  
Assistant Superintendent  
Educational Services

ARROYCE M. DRISKILL  
Assistant Superintendent  
Business and Fiscal Services

KENT PATTERSON  
Assistant Superintendent  
Personnel Services

United States Department of the Interior  
Minerals Management Service  
Pacific OCS Region  
1340 West Sixth Street  
Los Angeles, California 90017

Attn: Richard L. Wilhelmsen  
Regional Supervisor  
Office of Leasing and Environment

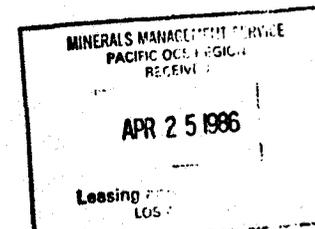
Dear Mr. Wilhelmsen:

The Oxnard School District has experienced a substantial growth rate and will, from all indications, continue to experience a population growth through the year 2000.

Currently the elementary schools in the district average 733 students each, while the Ventura County average is 436 students per school. Our student/teacher ratio is 30.87 students per teacher while the comparable 1984-85 state average was 27.76 students per teacher.

Seventy-six percent of our students are on year-round schedules. This number will significantly increase, with a corresponding decrease and possible elimination of traditional classes within the next two years. Should our growth rate continue or increase, the district will fill one new elementary school by the fall of 1987 without substantially relieving the present level of enrollment at our schools. By the fall of 1988 we will also need another intermediate school. The Office of Local Assistance has recognized our need for one junior high and two elementary schools over our present inventory.

If student growth resulting from residential expansion continues or accelerates for any reason, we will find that the YRE safety valve will soon be exhausted.

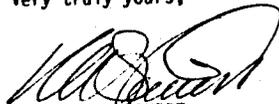


Richard L. Wilhelmsen  
April 21, 1986  
Page 2

The projected enrollment shown on the enclosed table is based on the projection formula required by the Leroy F. Greene State School Building Lease-Purchase Law of 1976.

If I can be of further assistance please telephone extension 228.

Very truly yours,



RONALD A. HEINERT  
Director of Facilities

RAW:pl

Enclosure

<u>NAME OF SCHOOL</u>	<u>Design Capacity</u>	<u>Current Enrollment</u>
Curren	763	760
Driffill	680	940
Elm	540	529
Fremont	1,018	1,104
Harrington	600	594
Haydock	980	893
Juanita	822	805
Kamala	727	915
Lemonwood	815	712
Marina West	840	913
McKinna	700	747
Ramona	609	602
Rose Avenue	839	804
Sierra Linda	630	664
San Miguel	84	72
Nueva Vista	60	45
	<u>10,707</u>	<u>11,099</u>

<u>School Year</u>	<u>Actual Enrollment</u>
1982/83	10,261
1983/84	10,443
1984/85	10,455
1985/86	10,702

<u>School Year</u>	<u>Projected Enrollment</u>
1986/87	11,245
1987/88	11,605
1988/89	12,031

RESOURCE MANAGEMENT AGENCY  
**COUNTY OF VENTURA**

Air Pollution  
Control District  
Noted - Dunaway  
Richard H. Baldwin  
Air Pollution Control Officer

May 2, 1986

Ms. Devon Bates  
State of California  
California Coastal Commission  
631 Howard Street, 4th Floor  
San Francisco, CA 94105

Subject: Coastal Commission Hearing on Proposed Platform Gail

Dear Ms. Bates:

As you know, we have been meeting with Chevron regarding Chevron's letter to the District of April 28, 1986 (a copy was sent to you). In its letter Chevron presented several proposals to satisfy our requirements. We discussed our consistency requirements in detail with Chevron and believe each issue, except one, can be resolved to our mutual satisfaction by May 13, 1986.

The single outstanding issue is the use of modeling to determine the amount of offsets necessary for the production phase. We need additional time to evaluate the technical and policy merits of this modeling proposal. The proposal may require policy direction from our Board of Supervisors.

We will submit our final comments on Gail to the Coastal Commission no later than May 16, 1986. Assuming we reach agreement, our submittal will include a letter from Chevron in which Chevron has committed to specific measures, and a letter from us indicating that these measures will be acceptable to the District.

If you have any questions please call me at (805) 654-2667, or Larry Rennacker of my staff at (805) 654-5033.

Sincerely,

*Richard H. Baldwin*  
Richard H. Baldwin  
Air Pollution Control Officer

cc: Ray Mennebroker, ARB  
John English, SRCAPCD  
Tom Dunaway, MMS  
Jim Lovins, Chevron

Government Center, Administration Building  
800 South Victoria Avenue, Ventura, CA 93009 (805) 654-2806



State of California  
SACRAMENTO



JANANNE SHARPLESS  
Secretary of  
Environmental Affairs

Noted - Dunaway

Noted - Mason

May 2, 1986

Honorable Donald P. Hodel  
Secretary of the Interior  
Interior Bldg., Rm 6151  
C between 18th and 19th, N.W.  
Washington, DC 20240

Dear Secretary Hodel:

On March 31, 1986, I provided you with Governor Deukmejian's comments on the Development and Production Plan for Chevron's Platform Gail on Lease OCS-P 0205. Contained with that letter were comments from the California Department of Fish and Game. One of the concerns raised by Fish and Game was a request for additional information on the oil spill risk analysis and contingency planning.

The Minerals Management Service subsequently provided Fish and Game the additional information in response to the Department's comments. The Department has reviewed this information and concluded that the Oil Spill and Emergency Contingency Plan for Platforms Gail and Grace adequately provides for the early detection and rapid deployment of appropriate containment and cleanup equipment in the event of an oil spill associated with the proposed project. Attached is a copy of the Department's findings.

Sincerely,

*Jananne Sharpless*  
Jananne Sharpless  
Secretary of Environmental  
Affairs

Attachment

cc: Bill Grant, Minerals Management Service  
Peter Douglas, California Coastal Commission  
Cynthia Morris, Chevron USA

1102 Q STREET, SACRAMENTO, CALIFORNIA 95814

(916) 322 5840

I-56

## Memorandum

RECEIVED

APR 25 1986

APR 25 1986

To : Jananne Sharpless  
Secretary of Environmental Affairs  
1102 Q Street  
Sacramento, CA 95812

ENVIRONMENTAL AFFAIRS

File No.:

Subject:

From : Office of the Secretary

As the result of recent information supplied by the Minerals Management Service, the Department of Fish and Game has proposed additional comments on the Development and Production Plan (DPP) for Chevron's Platform Gail.

I hope this information will be useful in preparing the State's comments on the DPP.

Sincerely,



Randall M. Ward  
Resources Agency OCS Coordinator

cc: Dr. Gordon F. Snow  
Department of Fish and Game

## Memorandum

To : Dennis O'Bryant  
Environmental Coordinator  
Department of Conservation  
1416 Ninth Street  
Sacramento, California 95814

Date April 12, 1986

From : Department of Fish and Game

Subject : Oil Spill and Emergency Contingency Plan, Platform Gail and Platform Grace, Santa Clara Unit, Chevron U.S.A. Inc., OCS-P0205, Santa Barbara Channel

In our February 26, 1986 response to you regarding the Development and Production Plan (DPP) for Platform Gail, we stated that until we had an opportunity to review the oil spill contingency plan associated with the DPP for Platform Gail, our analysis for this project was incomplete. We subsequently received, from the Minerals Management Service, the subject document along with an Endangered Species Analysis and an Oil Spill Risk and Trajectory Analysis. We have completed our review of this material and are providing you with the following comments for use in developing the State's position on this matter.

The contingency plan provides for initial response times and a level of on-site equipment which appear adequate for a first-response effort to contain a small oil spill as well as to initiate control response for a large oil spill. In the event of a major oil spill (greater than 10,000 barrels), the contingency plan outlines the location and response times of additional containment and cleanup equipment as well as special containment and protection techniques which will be employed if and when shoreline contamination becomes probable. If these plans are successfully implemented, they will significantly reduce the potential for an oil spill reaching biologically sensitive areas.

It is our opinion that the Oil Spill and Emergency Contingency Plan for Platforms Gail and Grace adequately provides for the early detection and rapid deployment of appropriate containment and cleanup equipment in the event of an oil spill associated with this proposal.

RECEIVED BY  
Department of Conservation  
APR 12 1986  
SACRAMENTO  
FISH AND GAME  
PUBLIC OFFICE

Our contact for this matter is R. E. Mall, Environmental Services Supervisor, Marine Resources Division, 245 W. Broadway, Suite 350, Long Beach, California 90802. His phone number is ATSS 8-635-5155 or (213) 590-5155.

*Jack C. Parnell*  
for Jack C. Parnell  
Director

*Santa Clara Unity JPP Corresp. File, Lease CS-P0205*

State of California - The Resources Agency  
OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION  
P.O. Box 2390  
Sacramento, CA 95811  
(916) 445 8006

Date: 4 May 1986

Project No.: MMS 860410A

TITLE: CHEVRON USA, PLATFORM GAIL LEASE.DCS-P 0205

The item cited above was received in this office on 10 April 1986.  
Thank you for consulting us pursuant to 36 CFR 800.

We concur in your determination that this undertaking:

- does not involve National Register or eligible properties.  
 will not affect National Register or eligible properties.

The provisions of 36 CFR 800.7 apply if previously unidentified National Register or eligible resources are discovered during construction.

Contact Nicholas Del Cioppo of our staff if you have any questions.

*Kathryn Gualtieri*  
Kathryn Gualtieri  
State Historic Preservation Officer



*W. Dunaway*

United States Department of the Interior

MINERALS MANAGEMENT SERVICE  
PACIFIC OCS REGION  
1340 WEST SIXTH STREET  
LOS ANGELES, CALIFORNIA 90017

In Reply Refer To:  
MMS-Mail Stop

April 15, 1986

Mr. Peter Douglas  
California Coastal Commission  
631 Howard Street, 4th Floor  
San Francisco, California 94105

Re: Platform Gail DPP, Lease  
OCS-P 0205, Santa Clara  
Unit, Santa Barbara Channel

Dear Mr. Douglas,

We have received the Commission's review regarding Chevron's Platform Gail, dated March 31, 1986. The review stated numerous questions concerning information that the Commission staff feels is needed to evaluate consistency of the DPP with the California Coastal Management Program (CCMP). The Commission staff requested that it receive MMS's response to these questions by April 15, 1986. Our response is enclosed with this letter.

We would like to emphasize once again that Chevron's proposed Platform Gail and subsea pipelines to Platform Grace represent a further stage of development of the 13-year-old Santa Clara Unit in the eastern Santa Barbara Channel. Chevron is proposing no additional onshore facilities or substantial modifications to those already in place. The three proposed pipelines, lying in an approximately 100-foot-wide corridor, will tie-in to Platform Grace. No coastal development or County permits will need to be issued. Platform Gail itself is a relatively small platform for the Pacific OCS, with only 36 slots, and will be located in deep water (739 feet) surrounded by a gently sloping sea floor noticeably lacking in any distinctive biological communities, blanketed by a thick veneer of soft sediments. The proposed platform site is 0.6 n. mi. from the Channel Islands National Marine Sanctuary, and 0.73 n. mi. from the northbound lane of the Vessel Traffic Safety System (VTSS).

In order to better understand the Commission staff's concerns, MMS had a meeting with Ms. Susan Hansch and Ms. Devon Bates in your office on April 9, 1986 which resulted in clarification of several remaining questions. Two of the Commission's questions, one regarding an economic analysis of cumulative commercial fishing impacts in the Santa Barbara Channel and one regarding

2

air quality impacts, will necessitate additional time to answer. The Commission staff agreed to an extension date of April 30 for responding further to these two questions and to any other remaining questions which may need to be augmented in more detail. We request that the Commission staff review the Enclosure and inform MMS of any additional information they may need by April 21, 1986.

We have responded to each of the Commission's questions in as much detail as possible. We have separated our responses into two sections--General Responses, involving policy issues, and Specific Responses, involving each question enumerated in the Commission's March 31, 1986 letter. Certain responses were prepared in consultation with Chevron and with other responsible agencies. Many of the Commission staff's questions involve information already specified in the DPP and its support documents, and in the Pacific OCS Orders. All of these materials have been previously submitted to your office.

MMS appreciates the cooperative efforts which your staff has shown during this consistency review. Platform Gail is an important project, and the time and assistance contributed by the Commission staff has been beneficial. If you have any questions, please contact Ms. Julia Van Auker at (213) 894-2845.

Sincerely,

*Thomas W. Dunaway*  
Thomas W. Dunaway  
Regional Supervisor  
Office of Field Operations

Enclosure

cc: Ms. Cynthia Norris  
Chevron USA, Inc.

F-59

General Responses

1. Page 1, first paragraph states that the Commission staff is concerned "with procedures that result in our review prior to completion of the Environmental Assessment expected in June and geologic investigations expected in May." The regulations which govern the timing of agency reviews of a DPP are found in the Outer Continental Shelf Lands Act, as Amended (OCSLAA), Section 25 (g) and (h); in the Coastal Zone Management Act of 1972 (CZMA), Section 307 (c)(3); and in Title 15 CFR Part 930.79 and Title 30 CFR Part 250.34-2. These regulations specify that the Commission has three months with which to decide whether or not the DPP is consistent with the CCMP (California Coastal Management Program). If three months are insufficient time for the Commission to reach this decision, an additional three months may be requested.

Chevron had submitted all of the necessary geological and geophysical analyses to support the Development and Production Plan (DPP) prior to MMS deeming the Plan complete in January, 1986.

2. Page 2, second paragraph of the Commission's letter states that "[t]he report should include an updated construction schedule in light of the delayed submittal, NPDES permits and Coastal Commission consistency requirements." (emphasis added) MMS was concerned that the Commission apparently felt that the delivery of a particular document or report which had been submitted by our office had somehow been delayed. The Platform Gail DPP's time schedule is still viable as the project time schedule. The Commission staff explained that they did not recall why this statement was included in the letter, as there was no delayed submittal of any document, and that all documents submitted had been timely.

3. During meetings with the Commission staff, MMS was asked to review whether or not it would be feasible to bury the proposed subsea pipelines in areas reported to be prime locations for certain bottom trawling commercial fisheries. MMS Pacific OCS Order 9, "Approval Procedures for Pipelines", specifies general design requirements and right-of-way application procedures that all Pacific OCS operators must follow. Included in this Order are inspection procedures that are to be complied with, involving external and internal inspections.

Pacific OCS subsea pipelines are laid on the sea floor. Exposing the pipelines in this manner facilitates the required yearly external inspections and enables any accidental leak of oil to be quickly detected by frequent visual inspections of the sea surface. MMS requirements have ensured that Chevron has designed and will be installing their pipelines in the least environmentally damaging manner possible, and that they will be compatible with fishing concerns.

4. With respect to the various commercial fishing issues raised in the Commission staff's letter, MMS would point out that there are differences of opinion between MMS and the Commission regarding commercial fishing activities on the OCS.

The commercial fishing issues discussed by the Commission staff are economic issues and, therefore, may not be within the Commission's consistency authority. The Commission's assertion of jurisdiction over an activity that does not affect the land and water use in the coastal zone is directly contrary to Section 307(c) and (e) of the Coastal Zone Management Act.

Under the OCSLAA and subsequent judicial decisions, the Secretary of the Interior is solely responsible for resolving conflicts between OCS oil and gas operations and fishing activities. (See OCSLAA, 73 U.S.C. 1801(13), 43 U.S.C. 1802(7), 43 U.S.C. 1334 (a)(1)(B), 43 U.S.C. 1334 (a)(2)(A)(1), 43 U.S.C. 1840(g)(3), 43 U.S.C. 1334 (a)(2)(D), and 43 U.S.C. 1351 (h)(1)(D)(i).) See also Commonwealth of Massachusetts v. Andrus.

MMS does not feel that the Platform Gail project, as proposed, will significantly impact the commercial fisheries of the Santa Barbara Channel.

Specific Responses

The following specific responses are numbered according to the Commission's response letter, dated March 31, 1986.

A. Marine Resources

A.1. Based on the MMS Oil Spill Risk Assessment for Platform Gail, the estimated total probability of one or more spills greater than 1,000 barrels is 13 percent over the expected production life. Thus, it is very unlikely that a spill will occur as a result of Platform Gail.

The MMS is presently conducting formal Section 7 Endangered Species Act consultations with the U. S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Both the USFWS and NMFS are preparing Biological Opinions for threatened and endangered species under their respective jurisdictions. In the event that either agency requires additional mitigation measures for the protection of threatened and endangered species from oil spills, the MMS will require, in its DPP approval letter, that Chevron commit to such measures.

MMS has required Chevron to prepare an Oil Spill and Emergency Contingency Plan for Platform Gail pursuant to OCS Order No. 7. The plan was approved by the U. S. Coast Guard and MMS in August, 1985. This plan was then submitted to the Commission, USFWS and NMFS. Please refer to this plan for details on Chevron's methods for responding to potential oil spills. Appendix 1 of the plan identifies sensitive biological resources in the project area. Appendix 3 presents a list of contractors who will provide various support equipment and services in the unlikely event of an oil spill.

Hooks, McCloskey and Associates has prepared a Draft Marine Wildlife Contingency Plan for Cities Service Oil and Gas Corporation. This document was submitted to the Commission in Fall, 1985. A final document is expected in May, 1986. The document includes procedures for the capture, care, rehabilitation, and release of oiled marine wildlife. The document also provides lists of primary and support facilities for oiled sea otters, pinnipeds, and seabirds.

In addition, the MMS has funded a "Sea Otter Oil Spill Mitigation Study". This study is being conducted by Hubbs Marine Research Institute. A final document is expected in the second quarter of 1986. The purpose of this study is to assess existing techniques, test these techniques, and develop new techniques to capture, restrain, clean, rehabilitate, and release oiled sea otters. The study will also provide a survey of potential rehabilitation sites for oiled sea otters.

Existing capabilities for housing and rehabilitating oiled seabirds and mammals are coordinated by the California Department of Fish and Game (CDFG). Presently, this capability consists of four trailers of equipment strategically located along the California coast. Each trailer contains equipment necessary for the cleaning of 500 birds. If a spill occurs, one or all of these trailers could be moved into the Santa Barbara area within 24 hours. The nearest trailers to Platform Gail are located at the Newport Bay Ecological Reserve and Vandenberg

Air Force Base. If large numbers of seabirds were oiled, the International Bird Rescue Research Center would likely be contacted to assist in the response operations. There are no "facilities" dedicated to the cleaning and rehabilitation of oiled birds and mammals in the Santa Barbara Channel. In the event a spill occurred, a site would be chosen which is central to clean-up operations and which meets the necessary criteria of providing hot water and electricity. Trained individuals and volunteers would be coordinated by the CDFG and/or the International Bird Rescue Center, if involved.

Several small rescue groups and zoos have responded to the care of oiled animals in the past. The Santa Barbara Zoological Gardens has rehabilitated several different species of birds, including endangered birds like the brown pelican. This small facility is temporarily unavailable at this time. The Santa Barbara Marine Mammal Center has operated as a retrieval and rehabilitation center for a number of years. Both of these small organizations are non-profit and are capable of handling a limited number of animals.

Capture techniques vary in their success depending on the species. Most marine mammals are very difficult to catch unless they are very ill, and even then they may be too large or inaccessible to approach. Sea otters have been captured using a variety of techniques. The MMS is currently funding a study through Hubbs, as discussed above, to evaluate these methods specifically as they would relate to capture of oiled sea otters.

Coastal birds have primarily been recovered on beaches following an oil spill. These birds are fairly easy to catch once ashore and include grebes and murres which are very vulnerable to oil. Other species like the brown pelican pose more difficult problems for capture since the birds may fly away easily. These species also take longer and are more difficult to rehabilitate.

A.2. As proposed in the DPP, Chevron is not anticipating any platform installation or pipeline construction activities during the time period which is of concern to the Commission. Chevron proposes to begin installation of Platform Gail at the end of August, 1986. Pipeline installation operations are proposed between October and the beginning of December, 1986.

The NMFS is preparing a Biological Opinion on endangered whales, including the gray whale, for Platform Gail. The NMFS does not believe that Chevron's proposed construction activities will significantly affect gray whales (personal communication, Dana Seagers and Jim Leaky, NMFS, April 10, 1986). This statement is supported by past Biological Opinions prepared for other Pacific OCS platforms (Platform Julius in the northern Santa Maria Basin, Platforms Independence and Irene off Point Pedernales, and Platforms Harvest, Hermosa and Hidalgo off Point Conception). These opinions have stated that "the evidence collected to date indicates that gray whales may respond to the most intense of the sounds associated with construction and production by short term changes in swimming speed, altered surface behavior, and small deflections in course, resuming normal course and speed after passing the source (Malme and others, 1983)." The previous opinions have all resulted in a finding of "no jeopardy". Furthermore, the NMFS continues to monitor OCS activities for indications of cumulative impacts.

Based on these past opinions and recent personal communications with NMFS, the MMS does not believe that Chevron should modify the timing of their proposed

construction activities.

Reference:

Malme, C. I., Miles, P. R., Clark, C. W., Tyack, P., and Bird, J. E., 1983, Investigations of the potential effects of underwater noise from petroleum industry activities on migrating gray whale behavior: report prepared for MMS, contract no. AA51-CT2-39.

A.3. The statement, "Certain side scan sonar targets were identified: . . . and scattered low relief targets (possible outcrops)" (p. 3-169 to -170 of the Environmental Report, ER) does not agree with either the Chevron or MMS geophysicists' interpretations of the same side scan sonographs or any other of the high-resolution geophysical data collected during the shallow hazards survey. The ER's tentative hypothesis in the Cultural Resources discussion quoted above does not conclusively state that rock outcrops exist in the project area.

The statement, "Rocky areas will be avoided when choosing the anchor sites" (p. 4-40 of the ER) may imply to a reader that Chevron has found certain rock outcrops within the pipeline corridor. Instead, this statement is more correctly intended to inform the reader that it is Chevron's standard practice, as is the case for all Pacific OCS operators, to avoid impacting any rocky areas when feasible, as a general policy. This meaning becomes clear when the paragraph is read in its entirety. This statement in the ER is not meant to imply that Chevron or its contractors has interpreted rock outcrops along the pipeline route or at the proposed Platform Gail site.

There are no additional shallow hazards surveys anticipated to be conducted by Chevron or its contractors, as no such additional surveys are needed

A.4. The MMS feels the approval or disapproval of any offshore discharge is primarily the responsibility of the Environmental Protection Agency (EPA). Platform Gail's discharges will involve only those discharges allowable under its individual National Pollutant Discharge Elimination System (NPDES) permits, to be prepared by EPA.

Chevron intends to use EPA-approved generic muds No. 5 or 7. However, variations of these muds may be necessary, depending on downhole conditions. While these conditions are not anticipated, Chevron recognizes that there is a possibility that they may be encountered. If they are, Chevron will attempt to use EPA-approved chrome-free lignosulfonates. However, if Chevron must use chrome lignosulfonates because of unique downhole conditions, Chevron is proposing to barge all muds containing chromium to shore for onshore disposal.

A.5. The pipelines will not be mechanically anchored on the sea floor once installed - the lines will simply lie on the bottom (see Section 7.7.1 in the Development and Production Plan, DPP). Anchoring solely by gravity will serve to allow the pipeline to adjust to any microscale changes in the local bathymetry, and to settle into the soft bottom sediments to a small degree.

anchors will only be used to temporarily secure the pipelaying barge during construction. The final barge anchoring pattern will be determined by the pipelaying contractor (McDermott) at the time of pipeline installation. MMS will

require Chevron to (1) submit proposed anchoring plans for the pipeline construction activities prior to approval of Chevron's right-of-way application and (2) submit a post-construction anchor map, to evidence which anchor sites were actually used.

A pre-construction survey of the pipeline route will be conducted by Chevron, in order to ascertain any minor bathymetric changes of the sea floor and for fine-scale engineering adjustments.

The statement, "When and how will hazards (rocky areas) be identified?" implies that certain "hazards" have yet to be identified by Chevron. Such is not the case. Prior to submitting its DPP, Chevron conducted shallow hazards surveys and other engineering surveys (geochemistry, paleontology, bottom sampling, seismic characterization, and geotechnical) to thoroughly ascertain all geologic and geotechnical conditions of the proposed pipeline route and platform site. These surveys were conducted according to the proper Notice-to-Lessees and Operators (NTLs), and the survey results and data were reviewed by MMS prior to our deeming the DPP formally complete. These state-of-the-art survey data and their interpretations document all of the geological conditions involved in the proposed pipeline route and platform site. The presence or absence of rock outcrops on the sea floor has been carefully evaluated by Chevron and MMS. The Commission staff geologist has also reviewed the shallow hazards data and results of this and all the other engineering surveys specified above. All shallow geological hazards and engineering constraints were ascertained prior to the DPP being formally deemed submitted.

A.6. Potentially new, undescribed benthic species are routinely discovered on marine biological surveys, due to intense sampling at specific sites. A potentially new species of Cumacean (cf. *Petalosarsia* sp. A) was recorded at Station 8 of the marine biological survey for Platform Gail (McClelland Engineers, Inc., 1986). According to the McClelland Engineers project biologist for this survey, only 1.5 individuals were collected from 24 grab samples taken from eight sampling locations (personal communication, Mr. Harry Finney, April 3, 1986). Although a specimen has been provided to the Southern California Association of Invertebrate Taxonomists (SCAMIT), further taxonomic studies cannot be conducted due to the paucity of sample size. Initial observations conclude that the specimen appears to be very similar to an Atlantic species of *Petalosarsia*.

Reference:  
McClelland Engineers, Inc., 1986, Site specific marine biological survey, Platform Gail: report to Chevron USA, Inc.

B. Oil Spills

B.1. Chevron's oil spill equipment for Platforms Grace and Gail is proposed as follows:

- a) Platform Grace: 750 feet of Whittaker Expandi boom  
One Walosep W-1 skimmer with power pack and pump  
240 feet of sorbent boom  
1500 sorbent pads

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- b) Crewboat stationed at Platform Grace: (Note - this crewboat is normally moored at the platform except for mail runs, crew changes, and occasional equipment runs.)

750 feet of Whittaker Expandi boom  
300 sorbent pads

- c) Platform Gail: 750 feet of Whittaker Expandi boom  
240 feet of sorbent boom  
1500 sorbent pads

- d) Carpinteria Crewboat: (Note - this crewboat's station is near the Carpinteria Pier. This crewboat's primary function is to serve Chevron's Platforms Hope, Heidi, Hilda and Hazel.) Should an oil spill occur, the Carpinteria crewboat (and/or other crewboats utilizing the Carpinteria Pier) could be available to assist the Platform Grace crewboat.

Storage for recovered oil will be facilitated by the Walosep W-1 skimmer container which can also function as an oil/water separator. In view of the response times for Clean Seas, as described below, the 15 barrel capacity of the skimmer's container is deemed sufficient by Chevron. This storage capacity is described further in our response to Comment B.2.

The response times from notification to Platform Gail:

Platform Grace Crewboat - approximately 25 minutes  
Carpinteria Crewboat (with stop at Platform Grace to pick up skimmer) - approximately 1 hour and 45 minutes  
Clean Seas' Fast Response Boat (from Santa Barbara Harbor) - approximately 1 hour and 50 minutes  
Clean Seas' Mr. Clean I (from Santa Barbara Harbor) - approximately 3 hours

These response times are considered sufficient in view of the fact that trajectory modeling shows a minimum time to onshore impact of 50 to 55 hours. (Refer to Appendix 2 of the Platform Gail - Platform Grace Oil Spill Contingency Plan, 1985.) The point of impact is near Channel Islands Harbor which is 8.9 n. mi. from Platform Gail.

B.2. Oil recovery rates are difficult to predict due to the many variables which can affect a mechanical skimmer's operation. These variables include: sea state, oil gravity, oil viscosity, oil spill layer thickness, and pump capacity. Technical specifications for the Walosep W-1, which Chevron has on Platform Grace, state that this unit can recover 30 cubic meters per hour or 7926 gallons (189 barrels [bbl]). This rate, however, should have the following qualifiers attached:

- a) This capacity is most likely based on the pump's capacity.
- b) The test data was provided from a manufacturer's lab test and the EPA's OHMSETT facility test tank.
- c) This rate is for an oil of  $\leq 10,000$  centistokes viscosity.
- d) The oil layer which the unit was tested in was 1/5th of an inch or 5.1 mm. (This is an extremely thick layer which most likely could only be produced in lab test tank conditions and not the open ocean.)

As the oil slick's layer (thickness) decreases, so does the recovery rate. To place this 5.1 mm oil layer in perspective, please see Attachment B-1, "Correlation of Oil Volume Per Unit Area With Slick Thickness." As an example, 42 gallons (1 bbl) spread over one acre will yield a slick thickness of only 0.0394 mm. Further, a spill of 1,607 gallons (38.26 bbl) spread over one acre would only yield a slick thickness of 1.50 mm.

MMS would point out to the Commission staff that, regardless of the efficiency rate of the oil spill equipment, the paramount concern is to clean up all spilled oil.

A final aspect in recovery rates which must also be considered is the time necessary to corral the oil slick inside booms. In doing so, this increases the slick thickness which enhances the recovery rate.

The oil storage capacity of the equipment listed in this response to Comment B.1 is sufficient for clean-up operations until Clean Seas' equipment can arrive.

B.3. Chevron requested Mr. Dean Hargis of Dames and Moore to analyze dispersant effectiveness and toxicity information from two studies performed relevant to Platform Gail's location and crude oils. These studies are:

- a) Union's 1983 work on developing dispersant pre-planning information for their Lease OCS-P 0203 Plan of Exploration (POE); and
- b) Chevron U.S.A. dispersant effectiveness study of August 1985 performed on crude oils from Chevron's Platform Grace on Lease OCS-P 0217.

See Mr. Hargis' analysis of these studies (Attachment B-2). The dispersant Corexit 9550 has been approved by the EPA but not the State Water Resources Control Board for use in California.

In the first two to three years of operation, Platform Gail will be producing crude oils in the mid-20's to low 30's API Gravity range. (These are similar to crude oil gravities currently being produced by Platform Grace.) Corexit 9527, or an equivalent dispersant, would be the appropriate dispersant for use on these crude oils. Later, Platform Gail may be producing crude oils in the high teens API Gravity. Corexit 9550, or an equivalent dispersant, would probably be more appropriate for use on these crudes. It is expected that within the next two to three years, Exxon Chemical Company will be able to gain approval for Corexit 9550 to be used offshore of California for controlling oil spills.

As in any proposed dispersant application, Chevron will always utilize the mandated dispersant request procedure through the appropriate government agencies.

B.4. The response to this comment is as stated in Clean Seas' letter dated April 5, 1986. This letter (Attachment B-3) was prepared at the request of Chevron by L. A. Onstad, Manager, Clean Seas, to address the concerns of Comment Nos. B.4 and B.5.

B.5. The response to this comment is as stated in Clean Seas' letter dated April 5, 1986. This letter (Attachment B-3) was prepared at the request of Chevron by L. A. Onstad, Manager, Clean Seas, to address the concerns

of Comment Nos. B.4 and B.5.

C. Vessel Traffic Safety

C.1. and C.2. Chevron is no longer considering the installation of an Automatic Radar Plotting Aid (ARPA) for the following reasons:

- a) The U. S. Coast Guard is the agency responsible for regulating vessel traffic and such regulation is an area of expertise for the U. S. Coast Guard. The U. S. Coast Guard's opinion, voiced to Chevron as well as other operators and to the Commission, is that ARPA on offshore platforms is not an effective means of regulating vessel traffic, nor can such a system avoid collisions.
- b) The location of the platform, near an established and designated shipping lane, greatly reduces the chance of collision.
- c) Historically, ship/platform collisions have not occurred near such designated shipping lanes.
- d) Reliance on such detection devices could lead to less attention or alert vessel maneuvers and procedures, thereby increasing the risk of mishap.

C.3. Summarized below are monthly frequencies of visibilities less than or equal to two miles. The data were taken from the Climatological Study, Southern California Operating Area, U. S. Navy, 1971.

Jan	2.4%	Jul	20.4%
Feb	8.5	Aug	24.3
Mar	7.4	Sep	20.8
Apr	17.2	Oct	27.1
May	13.3	Nov	9.9
Jun	11.5	Dec	3.7

During the summer, the strong flow from the northwest produces optimum conditions for advection fog, with upwelling of cold water beneath the warm, moist air from the North Pacific High. As noted above, this is reflected in the visibility statistics. Also, note that the winter months show a minimum of reduced visibilities, which results from the southward drift of the Pacific High.

A more detailed breakdown of visibility conditions for the months of January and July is provided below (see Climatological Study, referenced above):

Visibility Range (n. mi.)	January (%)	July (%)
< 0.5	0.2	4.7
0.5 to 1	0.7	5.0
1 to 2	1.5	10.7
2 to 5	5.6	31.5
5 to 10	41.4	39.9
> 10	50.6	8.2

C.4. The reference to the Consolidated Marine Oil Terminal (CMOT) at Los Angeles (see page 3-58 of the ER) should be disregarded.

C.5. Platform Gail will be located 4421 feet (1348 m) from the northbound lane of the Vessel Traffic Separation Scheme (personal communication, Lt. Commander Robert S. Varanko, Los Angeles/Long Beach Marine Safety Office, U. S. Coast Guard, April 9, 1986).

C.6. Department of Transportation regulations (U. S. Coast Guard) Title 33 CFR Part 147 states that those vessels under 100 feet in length overall (supply crew, and fishing boats) not engaged in towing, or U. S. Coast Guard authorized vessels may enter the 500-meter safety zone around a platform.

C.7. Inspection routes (lightened, dashed lines) for the pipelines between Platforms Grace and Gail will follow the actual placement of the pipelines. Figure 2.6-1 in the ER (Attachment C-1) has been amended to reflect the proposed pipeline route. Darkened, double-dashed lines represent service vessel traffic corridors that have been set up by the Offshore Oil Service Vessel Traffic Corridor Program. Darkened, single-dashed lines represent service vessel traffic boundaries; service vessels are requested to stay outside of these lines, which coincide with the 30-fathom bathymetric contour.

D. Commercial and Sport Fisheries

D.1. The single dashed lines in Figure 2.6-1 of the ER are the routes of service vessel pipeline inspection corridors, either daily or weekly, as explained in the legend. Note that the Platform Gail to Grace pipeline inspection corridor will follow the pipeline route depicted in Figure 2.6-1 when completed. (See Attachment C-1.)

D.2. As proposed, all three Platform Gail to Grace pipelines will be 8-5/8 inch outside diameter (O.D.) lines with two types of final coating. Approximately 2600 feet of concrete-finished pipe will run from Platform Grace south in the shoalest water of the route with a finished pipe diameter of 11-5/8 inches (see Attachment D-1). The rest of the line (2600 feet south of Platform Grace to the Platform Gail site) will not be coated with concrete but will have two thin films of fusion-bonded epoxy coating. This pipe will be 8.657 inch O.D. Each type of pipe will have periodically-spaced sacrificial collar-type anodes. These anodes will be buried within the concrete coating (see Attachment D-2) in one case or attached and smoothed over in the other case (See Attachment D-3). In no case will the final diameter exceed 11-5/8 inches. As there are to be no pipeline connections to this line, there is no need for pipeline shrouds.

D.3. Dart core soil samples were taken along the pipeline corridor (see Attachment D-4).

D.4. Platform Gail is in 739+ feet of water. Rock outcrops are not present in the study area and only limited recreational fishing takes place in the project area. Ninety-one percent of the sport fish taken in CDFG Fish Block 684 (in which Platform Gail is located) is taken adjacent to reef areas or near

kelp beds at Anacapa Island, located outside Lease OCS-P 0205. This is shown on Table 3.5-3 of Chevron's ER. The dominant sport fishing species are rockfish, kelp bass, and Pacific mackerel. Fish Block 684 also provides fishing for giant sea bass, barracuda, and yellowtail near Anacapa Island. Figure 3.5-5 of the ER indicates that sport fishing activity is largely limited to depths of 10 to 20 fathoms (60 to 120 feet) along the mainland coast and in the vicinity of Anacapa Island. According to Love and others (1985), proportionately greater sportfishing efforts occur in the vicinity of Anacapa and Santa Cruz Islands than in the remainder of the Northern Channel Islands. Since Platform Gail will be located at a depth of 739 feet and the associated pipelines will be laid to Platform Grace over a depth range of 320 to 740 feet, it is not expected that significant sport fishing occurs near the proposed project area. Once installed, however, it is possible that Platform Gail could become a site of sport fishing activity since many common, shallow water species of sport interest will probably be attracted to the platform. According to Berwick and Thomson (1984), the platforms closest to Santa Barbara and Carpinteria have the most intense sport fishing pressure.

References:

Love, M. S., Westphal, W., and Collins, R. A., 1985, Distributional pattern of fishes captured aboard commercial passenger fishing vessels along the Northern Channel Islands, California: Fishery Bulletin v. 83, no. 3, p. 243-252.

Berwick, N. B., and Thomson, R. D., 1984, Technical Appendix N, Part 3, Recreation, in Little, A. D., Inc., Point Arguello Field and Gaviota Processing Facility Area Study and Chevron/Texaco Development Plans EIR/EIS; prepared for Santa Barbara County, Minerals Management Service, California State Lands Commission and the Office of Environmental Affairs.

D.5. Chevron proposes to minimize scarring of the sea floor due to anchors dragging by avoiding laying the pipeline during the storm season. This is probably the single most important factor in reducing the number and length of sea floor scars. Additionally, Contractors laying the pipeline will be instructed by Chevron to pick up rather than drag anchors during repositioning operations. All anchor locations will be surveyed during positioning and repositioning.

D.6. Once post-construction surveys are conducted and reports have been prepared, Chevron will review the data for presence or absence of any operations-related debris. Should the data show obvious oil and gas operations-related debris, Chevron is proposing to conduct trial trawls of the sea floor with standard trawling equipment to determine compatibility with bottom fishing techniques. If conventional trawling is not possible, Chevron is proposing to attempt to clear sea floor obstacles using heavier trawl equipment and additional vessels as necessary.

If equipment is lost overboard, Chevron will be required to attempt to retrieve the object, if it is likely to be retrievable (in other words, large enough to be located and pulled back aboard). If a piece of equipment is lost that proves to be unretrievable and which creates a sea floor obstacle, Chevron will be required to notify the Coast Guard of the situation, and to provide coordinates of the location. These requirements are specified in Pacific OCS Order No. 1.

D.7. The radius of construction interference around Platform Gail will be

approximately 7000 feet (the anticipated spread of the anchors). Such a radius will impinge on the VTSS, and will require Coast Guard approval. As an alternative, if Coast Guard approval is not obtained, the anchors will be pulled in so they are outside the VTSS and closer to the rig. There will likely be two additional anchors set to compensate for the shorter anchor distance. The platform installation contractor anticipates using a pipeline anchor mooring spread of 6 to 7:1. Therefore, the anchor spread for most of the pipeline route will be approximately 4000 feet from the centerline, but only approximately 2200 feet from the centerline at Platform Grace. (see Attachment D.5).

D.8. As proposed, the supply boat mooring buoys will use the catenary system (see Attachment D-6). The two buoys will be attached to the sea floor 1918 feet north and 1880 feet south of the center of the platform.

D.9. Chevron will be required to minimize equipment losses during construction, drilling and production activities, as specified in Pacific OCS Order 1.

With respect to the Commission staff's request, "Describe what type of equipment will be marked and what the identification method will be", Pacific OCS Order 1 clarifies this requirement:

"5. Marking of Equipment. Whenever practicable, all materials, equipment, tools, containers, and items used on the OCS are to be properly color coded, stamped, or labeled with the owner's identification prior to actual use. For oil and gas operations, this means the owner's identification, as approved or prescribed by the Director, is to be placed upon all materials, cable, equipment, tools, containers, and other objects which could be freed and lost overboard from rigs, platforms, or supply vessels and are of sufficient size or are of such a nature that they could be expected to interfere with commercial fishing gear if dropped overboard."

If the situation arises whereby fishermen are experiencing damage to their equipment, the proper procedures for the filing and processing of damage claims through the Fishermen's Contingency Fund (43 USC 1841) or the Fishing Vessel and Gear Damage Compensation Fund (Fishermen's Protection Act-1978) will be followed. In addition, MMS requires, as a policy, that when substantiated reports of gear hang-ups are received by our office, the incident is investigated and, if the investigation warrants, the operator must re-clear the site. Both of the compensation funds have been and are being extensively used to assist in mitigation of losses due to conflicts between fishermen and oil and gas activities. The Pacific OCS Region assists the NMFS in processing such claims on a regular and continuing basis.

D.10. Chevron is proposing to notify fishermen of project construction schedules in the Coast Guard's Notice to Mariners. The proposed project has already appeared in the Santa Barbara Marine Advisory Newsletter. Thirty days prior to commencement of project construction activities, Chevron will again publish a notice of the construction schedule in the Oil and Gas Project Newsletter for Fishermen and Offshore Operators.

D.11. Along with the response that follows, please refer to the General Comment No. 4, on page 2 of this Enclosure.

The Commission staff's Comment D.11 asks that Chevron quantify the impacts of: displacement caused by oil and gas facilities, dropped debris, snags, support boat traffic, or harm to the commercial fisheries resources. Without more specific data from the fishermen, such a study is not viable. Furthermore, the likelihood of successful fish catches is dependent on many natural variables. Long-term data then are needed to smooth out some of the inconsistencies.

Oil and gas platforms occupy space on the OCS and therefore cause some interference to commercial fishing activity. However, interference does not necessarily equate with reduced catches. In the Gulf of Mexico, commercial fishing has improved dramatically because of the better fishing habitats offered by the offshore rigs. This has caused a problem of attracting boats from adjacent states, increasing competition. Still, fishing problems and conflicts do arise which have to be mitigated - not an unusual situation given the large number of platforms (over 4,000) and pipelines (over 14,000 miles) in the Gulf of Mexico. In contrast, the Santa Barbara Channel (Point Conception to Oxnard and from shore out to the three-mile buffer around the Northern Channel Islands) is an area of approximately 1600 square miles, with 19 platforms. When one considers that nine of the platforms are grouped together on the Dos Cuadras and Carpinteria antiformal structures, the actual platform locations and the impacted areas occupy only about two percent of the Santa Barbara Channel. The total impacted area offshore would only represent a few percent of the total area. Furthermore, there will undoubtedly be some platforms removed in the next ten years.

Mitigation of dropped debris and snags continues to be negotiated by the Fisheries Liaison Office. Equipment damage claims are handled by the Fishermen's Contingency Fund and Fishing Vessel and Gear Damage Compensation Fund. While claim compensation is an after-the-fact approach to the problem, it does appear to be working. In addition, the oil industry is required to prevent or minimize occurrences of situations that contribute to sea floor obstacles, anchor scars, and lost equipment. Compensation to commercial fishermen for a valid claim seems to be the best approach.

In summary, the cumulative impact of oil and gas development in the Santa Barbara Channel is largely competition for space. Pipelines and platforms can impede or preclude certain types of fishing activities, but, at most, this represents only a few percent of the entire Santa Barbara Channel region, even considering future development. Equipment losses and bottom scarring by anchors used to drill exploratory wells and construct facilities may be additional impacts. Generally, anchor scarring is self correcting within a short period of time, but oil companies are attempting to reduce the occurrence by prudent anchor-laying and retrieval practices. Avoiding stormy times of the year for pipeline laying also decreases the incidences of anchor scarring. Lost equipment is a very broad category that can range from merely being a nuisance to actual preclusion of bottom trawling. Currently, lost or damaged equipment can be claimed for reimbursement from the Fishermen's Contingency Fund or the Fishing Vessel and Gear Damage Compensation Fund. Oil companies are working to reduce the amount of debris, but the problem is broader as it includes non-oil debris as well as debris from oil operations of years ago.

As far as recommending a regional study for the Santa Barbara Channel, more detailed information should be obtained from the fishermen first. The collection of data could be handled through the Fisheries Liaison Office and be kept confidential except for general purposes. Quite simply, the fishermen would specify where they fish, how often, and what they catch. Furthermore, the fishermen could provide information on where they encounter sea floor problems. Such information may also shed light on fishing by out-of-state boats as well as natural variability of fish catches. If these data warrant a more detailed study, it could be considered for implementation.

Chevron and MMS will have further consultation with the Commission staff on this issue, and will submit further augmentation to Comment D.11 in the forthcoming April 30 letter to the Commission.

### E. Air Quality

E.1. Chevron is proposing the following mitigation measures to reduce air quality impacts:

- a) water injection for the gas turbines;
- b) inspection and maintenance (I & M) program similar in scope to that planned for Platform Hermosa. (Chevron is currently working with Santa Barbara Air Pollution Control District [APCD] on developing an I & M program)
- c) vapor recovery system which recovers several sources of fuel and off-gases such as hydrocarbon blanket vapors from tanks, off-gas from the glycol regenerator;
- d) 0.3 weight percent sulfur fuel for diesel-powered equipment; and
- e) low NO<sub>x</sub> emitting Caterpillar engines for the cranes.

The I & M program is proposed to be consistent with the existing Ventura County APCD I & M requirements, as Platform Gail is off the coast of Ventura County.

E.2. As stated in the DPP (p. VI-19), "Significant operating experience with gas turbines has demonstrated the feasibility of water injection. Water injection has been proven to be feasible by emissions compliance tests on the San Diego Union-Tribune Centaur generator which utilizes water injection to reduce NO<sub>x</sub> emissions (Reference 6.6.1 on p. VI-23 of the DPP). Information regarding water injection is available in 'Standards for Support and Environmental Impact Statement, Volume I, Proposed Standards of Performance for Stationary Gas Turbines,' EPA, September, 1977."

For the Allison 501 KB turbines proposed for Platform Gail, a greater than 70% reduction in NO<sub>x</sub> emissions has been demonstrated (see Figure 6.1 of the DPP). Chevron will be required to use the proper maintenance and operation of all pollution control equipment.

Chevron expects the reliability of Allison equipment (owned by General Motors) to be good. Allison turbines with water injection have been in operation for about two years with good results. Chevron will meet all of Allison's recommended maintenance requirements to ensure the equipment performs as designed. Chevron is installing BACT (i.e., water injection) for this turbine, and the manufacturer is guaranteeing a 70% reduction at base load.

E.3. Chevron does not propose powering the turbines with diesel fuel. Gas would be sent from Platform Grace to fuel the turbines until Platform Gail produces sufficient gas on its own.

E.4. Detailed below is a list of equipment proposed for Platform Gail, along with its power source:

Equipment	Power Source/Fuel
turbines	gas
cranes	diesel
standby generator	diesel
firewater pump	diesel
starting air compressors	diesel
starting engines for turbines	diesel
mud pumps	electric
desilter	electric
desander	electric
degasser	electric

E.5. No air quality or emissions monitoring equipment is proposed. Air quality monitors would not provide viable information, as they would only provide information on the air quality on the platform. Emissions monitoring equipment could be used to determine the effectiveness of the control equipment.

The meteorological monitoring equipment that Chevron is proposing to locate on Platform Gail would provide a useful data base for the eastern Santa Barbara Channel.

E.6. The air quality assessment study (Systems Applications, Inc. [SAI], 1984) did not consider any measures to reduce emissions from crew and supply boats. For the modeling analysis, it was conservatively assumed (worst-case) that the crew and supply boats were idling at the platform simultaneously.

#### Reference:

SAI, 1984, Air Quality Impact Assessment of Emissions from the Proposed Platform Gail of Chevron, USA, Inc.; report prepared for Chevron.

E.7. Chevron will comply WITH the permitted limits and meet all conditions of the existing Santa Barbara APCD permit for the Carpinteria processing facility. In addition, Chevron will abide by the County's Air Quality Attainment Plan (AQAP) and adopt any applicable control strategies resulting from that process.

The Carpinteria plant presently processes approximately 5 to 10 MMSCFD of gas. At peak Platform Gail production, Carpinteria will process approximately 20 to 23 MMSCFD. In 1986, as part of another Chevron project, this facility will be instituting an I & M program. Chevron will also be installing pre-stratified charge systems on two compressors and a clean burn conversion kit on another compressor to achieve an 80% NO<sub>x</sub> reduction. Increasing throughput in this plant will not increase fugitive hydrocarbons. Again, the Carpinteria processing facility will be within its permitted level. No emission increases were included in the air quality modeling study.

E.8. MMS has noted the Commission staff's comment.

Chevron is participating in a continuing dialogue with ARB and Ventura County and Santa Barbara County APCDs in an effort to meet those agencies' concerns.

E.9. Anacapa Island has been nominated for Class I status; the Commission staff's statement that the island is a Class I PSD (Prevention of Significant Deterioration) area is incorrect. To date, Anacapa Island remains a Class II area. It should be noted in the ER (p. 4-5) that in calculating the emission exemption levels the distance to Anacapa Island was used. In developing the emission exemption formulas, the Department of the Interior (DOI) assumed source characteristics and meteorological conditions similar to those encountered on the OCS. Working with the concentration significance levels, the DOI then calculated, for each pollutant and averaging time, the emission rates that would produce onshore ambient concentrations equivalent to the significance levels. Note that the significance levels are as stringent or more stringent than PSD Class I increments (see Title 30 CFR 250.57-1(e) and (i)).

Platform Gail is located 6.6 nautical miles from Anacapa Island (personal communication, Lt. R. S. Varanko, U. S. Coast Guard, April 10, 1986).

E.10. Construction emissions were not considered in the air quality assessment (SAI, 1984), as agreed upon by the ARB and Chevron. However, it should be noted in the ER (Table 4.3-2) that the construction emissions are below the emission exemption levels. Thus, according to the DOI regulations (Title 30 CFR 250.57-1(d)), no significant onshore air quality impacts are expected.

Emissions from docked (at the platform site) mobile sources, not mobile sources in transit, were included in the modeling analysis for Platform Gail.

E.11. Tie-ins on Platform Grace will be minimal. These connections would not cause a significant increase in fugitive hydrocarbon emissions, which are calculated based on the number of valves, flanges, etc., in a facility. The addition of these two connections would not cause a significant change in emissions.

No increases in fugitive emissions (i.e., from valves, flanges, pumps) will occur. Fugitive emissions are not a function of throughput. They are calculated based on the number of connections which, in this project's case, will not increase.

The Stretford process for sweetening natural gas will not show any increase in fugitive emissions. The process is a direct conversion of H<sub>2</sub>S to elemental sulfur and no SO<sub>2</sub> is formed. Hence, there are no emissions of SO<sub>2</sub>.

E.12. No new processing sites are being considered by Chevron for the Platform Gail DPP. Chevron will be using an existing facility at Carpinteria. The Carpinteria processing facility can handle both Platform Gail's and Grace's production without any permit modification.

E.13. The Commission staff has been provided with a copy of Chevron's grid power analysis, as has the Santa Barbara County and Ventura County APCDs. Currently, Chevron is addressing ARB's concerns with the analysis.

## F. General Comments

F.1. During platform and pipeline installation, once the platform modules have been set the desalination system will be available for domestic needs. Prior to startup of the desalination system, potable water requirements will be met by desalination units onboard the work boat. Sea water will be used for pipeline and platform hydrostatic testing. During the drilling phase, fresh water will be brought from onshore sources. As a drilling contractor has not yet been selected, the source of this water cannot be determined. All fresh water for domestic operational and production needs will be met by the platform desalination system.

F.2. Chevron has not explored the possibility of using connate water (produced from underground geologic formations) on the platform in place of desalination of sea water. The reason is that the supply of connate water available is too variable throughout the life of the project. During the initial drilling phase, no produced water is available for use. Even during initial production, little water will be available because production will attempt to maximize hydrocarbons, not water. Also, connate water in the Santa Barbara Channel is typically brackish to briny.

It should be noted that fresh water will be brought from shore for mixing drilling mud. Only excess production of desalinated sea water will be stored for later drilling water use.

Fresh water usage will be limited to the drilling period. A desalination plant will meet both production and domestic fresh water needs.

F.3. As mentioned in the ER (p. 4-99), there are no mitigation measures available to reduce the visual presence of an offshore platform.

Since Platform Gail is relatively remote (greater than 10 miles) from onshore populated areas and visibility in the area is often less than 10 miles, the visual impact of the platform is reduced. This should help clarify the statement, "The distance from sensitive receptor areas coupled with reduced visibility in the project area will aid in reducing the dominant presence of the structure throughout the years."

F.4. The spare pipeline is a back-up line for either the gas or oil product lines if either one of those lines are taken from service. The spare pipeline can also be used as a utility line. There is no intent to operate the spare line for future expansion of this platform or other platforms.

F.5. The Stretford unit on Platform Grace is permitted to handle both Grace's and Gail's production. A Stretford liquid "slurry" is produced that can contain up to a design maximum of 3.2 tons of sulfur per day. This slurry is classified as a hazardous waste during transport. The slurry is first transported in portable tanks by work boat to shore where vacuum trucks then transport the material to a Class II-1 disposal site.

F.6. Three Lease Automatic Custody Transfer (LACT) units, located on the west wellhead deck, will be used for the metering of oil on Platform Gail. Each LACT unit consists of: 1) a positive displacement meter with gross and temperature-compensated net totalizers, 2) a sampler, and 3) a bottom sediment and water analyzer, to ensure proper quality of the metered oil.

All LACT units are connected to a meter prover to maintain accurate calibration.

The oil is metered on Platform Gail before it is transported by pipeline to Platform Grace. Platform Grace's production is metered separately prior to any commingling.

With respect to accuracy, the equipment used will be standard LACT units similar to those used on other platforms in the Pacific OCS. Meter provings will be conducted regularly to ensure proper determination of produced volumes.

G. Cumulative Impacts

G.1. The cumulative risk of oil spills (greater than 1,000 and greater than 10,000 barrels) from platforms and pipelines in the Santa Maria Basin and Santa Barbara Channel is shown in the table below. Total production values for these areas are based on data contained in A. D. Little, 1985, while the basic exposure statistics and spill rate estimates for platforms and pipelines are from MMS, 1983. The table shows that the risk attributable to the presence of Platform Gail is very small compared to the overall probability of spill occurrence.

CUMULATIVE PROBABILITY ESTIMATES OF ONE OR MORE OIL SPILL OCCURRENCES IN THE SANTA BARBARA CHANNEL AND SANTA MARIA BASIN WITH AND WITHOUT PLATFORM GAIL FOR SPILLS > 1,000 and > 10,000 BARRELS\* (1986 THROUGH 1995)

	WITH PLATFORM GAIL (1.497 billion bbl production)	WITHOUT PLATFORM GAIL (1.445 billion bbl production)
	Platform/Pipeline/Total	Platform/Pipeline/Total
<u>&gt;1,000 barrels:</u>		
Estimated value	1.497/2.395/3.892	1.445/2.312/3.757
Probability (%)	77.6/90.9/98.0	76.4/90.1/97.7
<u>&gt;10,000 barrels:</u>		
Estimated value	0.659/1.003/1.662	0.635/0.968/1.604
Probability (%)	48.3/63.3/81.1	47.0/62.0/79.8

\*MMS exposure statistic for Platform Gail = 0.052 barrels  
Oil spill risk rates are: Platforms = 1.0; pipelines = 1.6; total = 2.6

References:

MMS, 1983, An Oil Spill Risk Analysis for the Southern California Lease Offering (February 1984) (Sale 80); U. S. Geological Survey Open-File Report no. 83-563.

A. D. Little, 1985, Union Oil Project/Exxon Project Shamrock and Central Santa Maria Basin Area Study EIS/EIR: prepared for County of Santa Barbara, MMS, State Lands Commission, California Coastal Commission, and Office of Environmental Affairs.

G.2. The Commission staff's request for a cumulative economic analysis of commercial fishing impacts in the Santa Barbara Channel touches on several sensitive issues. Further discussions with Chevron, MMS and the Commission staff will examine the feasibility of such a study. The April 30, 1986 letter to the Commission staff will document these discussions. If such a study is shown to be feasible, the discussions will then determine the scope and content of the study to be conducted.

G.3.a. This comment refers to cumulative impacts over the life of the project. Please note that Chevron is applying to the EPA for two individual NPDES permits for the construction and operations phases. MMS does not believe that normal operations from Platform Gail will contribute a significant incremental addition to the cumulative impacts on water quality. This is because it is unlikely that discharges resulting from normal operations will physically overlap either similar or different discharges originating from other coastal-related projects in the OCS, state waters, or onshore. The amounts (volumes) of discharges into the OCS are not necessarily the determining factor in this cumulative analysis. The key consideration is whether or not these discharges combine to significantly effect the water quality and the biota on a regional basis. If the discharges from Platform Gail are benign to begin with (e.g., desalination brine) or become undetectable by dilution after discharge (e.g., drilling muds), then the discharges can have, at most, only a moderate local impact. If, in addition, none of the discharge plumes from other OCS development activities interact or combine with any Platform Gail discharges, then it is unlikely that regional, and thus cumulative, impacts may occur.

The nearest existing platforms to Platform Gail are Gilda, Grace and Gina, located approximately 4, 5.5 and 7.5 miles away from the proposed site of Gail, respectively. The discharge plumes of these platforms do not intermingle due to normal oceanographic conditions (WESTEC, 1986), and the addition of Gail is not likely to cause any additional cumulative degradation to the water quality in the area. Much information concerning the behavior of drilling fluid plumes may be found in CSA, 1985, and EPA, 1985, and of produced water plumes in EPA, 1985.

No other Federal platforms are presently proposed for the eastern end of the Santa Barbara Channel. The nearest proposed platform is Platform Harmony, approximately 45 miles from the proposed site of Platform Gail. The nearest proposed State leases are off Carpinteria (Platforms Hope and Heidi). These platforms are too distant for their discharges to be considered in a cumulative analysis.

References: EPA, 1985, Assessment of Environmental Fate and Effects of Discharges from Offshore Oil and Gas Operations: prepared for EPA by Dalton, Dalton, and Newport, EPA Contract #68-01-6195.

Continental Shelf Associates, Inc., (CSA), 1985, Assessment of the Long-Term Fate and Effective Methods of Mitigation of California Outer Continental Shelf Platform Particulate Discharges: prepared for MMS, MMS Contract #14-12-0001-30056.

WESTEC, 1986, Environmental Report: Platform Gail and Associated Pipelines (Supplement to Santa Clara Unit): prepared for Chevron.

G.3.b. Any pelagic or benthic mobile animal moving through the Gilda/Gina/Grace Gail area may contact discharge plumes or deposits from muds and cuttings. It is unlikely that a mobile organism will remain in an area where discharge plumes occur, and it will likely leave the area under these circumstances.

Short-term exposure to discharged muds and cuttings are not expected to result in harmful effects on these animals. Dilution rates are such that acute toxic effects are nearly impossible unless an organism remains close to the discharge point (NRC, 1983). Sublethal effects are also unlikely to occur unless an organism remains within tens of meters of the discharge point (NRC, 1983). Long-term sublethal effects are more difficult to assess. Processes such as bioaccumulation do occur but evidence concerning organisms' mechanisms for sequestering and detoxifying metals or organics is sparse (NRC, 1983). Researchers at California State University, Long Beach and Lawrence Livermore Labs are investigating the detoxifying mechanisms at the cellular and molecular levels. In essence, subtle long-term effects are still being assessed. Unfortunately, the natural variability inherent in natural systems makes this a painstaking process with much more research needed in the future.

The operation of Platform Gail will cause a small incremental increase in the volumes of effluents discharged into the Pacific OCS. It was stated in response to Comment G.3.a, above, that it is unlikely that cumulative impacts to marine water resources will occur due to these effluents and that these effluents from Platform Gail will cause, at most, only a moderate local impact on the water quality. Given these assessments, cumulative impacts to Federal and State listed species and commercial and recreational viable fish and shellfish species are also unlikely to occur. A cumulative analysis detailing the potential effects of these and other discharges is contained in MMS, 1983.

References:

MMS, 1983, FEIS, Proposed Southern California Lease Offering, April, 1984 (Sale 80): Department of the Interior, 2 volumes.

National Research Council, 1983, Drilling Discharges in the Marine Environment: National Academy Press, Washington, D. C.

G.4. A map detailing all proposed OCS platforms for the Santa Barbara Channel is included as Attachment G-1.

G.5. To assess cumulative impacts from inert pollutants, the air quality assessment prepared by SAI for Chevron will be used. To determine cumulative photochemical impacts, the Joint Interagency Modeling Study (JIMS) will be used. The purpose of JIMS was to determine the impact that proposed OCS exploration and development activities would have on air quality in the South Central Coast Air Basin.

G.6. Refer to response number F.1.

H. Geotechnical Concerns

H.1. The calculation referenced on page E-22 of the geotechnical report (prepared for Chevron by Woodward-Clyde Consultants) was not done as a "prediction". As noted on page E-18 of the same report, "... in order to see the consequence of a very unlikely event that the soils within a slide mass became completely remolded, a geometrical analysis was made using a conservative estimate of remolded strength corresponding to a stable slope of approximately

5°. It was assumed that all soils within a slide mass undergo strains large enough for the residual strength to be applicable . . . ; the resulting estimate of slope displacement is shown in Figure E-11. Since it is highly unlikely that a mass flow type of failure is possible for the type of soils present in the north slope area, slope displacement of 275 feet shown in Figure E-11 is considered to be extremely conservative."

H.2. Please refer to the response to Commission staff's comment H.1, above, regarding movement greater than 280 feet. The impact on the various elements raised in this question is as follows:

Platform: As noted on page E-22, the impact on the platform is negligible.

Pipelines: The impact is also negligible because the pipelines are also several hundred to thousands of feet away from the toe of the steepest part of the northern slope. The possible behavior of the slope where the pipelines are placed up-slope is discussed in response to Commission staff's comment H.4, below.

Buried ancient landslide: The impact is negligible.

It is highly unlikely that a slope failure originating from the upper slide area would act as a driving mechanism to reactivate the buried ancient slide.

H.3. Attachment H-1 is an updated Figure 3.1-4 from the ER, showing the Platform Gail to Grace proposed pipeline route and the existing Platform Grace to Hope pipeline route. This map is simplified and does not show the degree of structural complexity of the Santa Barbara Channel. Of course, it is this complexity that provides the trapping mechanisms for all the oil fields. The proposed Platform Gail to Grace pipeline route will cross the mid-Channel structure but will not cross the Hueneme trend (which actually includes some faults in addition to the folding). For their review of the seismic design parameters for Platform Gail, Dames and Moore concluded "that the mid-Channel fault should not be considered a hazard that has a potential for surface rupture and need not be considered in the seismic source model for the probabilistic risk analysis." The MMS staff geophysicist has had past discussions with the Chevron geophysicists regarding the plasticity of this structure evident on the high-resolution geophysical and seismic data. Actual surface expression of the mid-Channel structure at this location in the eastern Santa Barbara Basin is revealed in toothpaste-like antiforms, unlike the same structure further west-northwest, where linear surface features document the more brittle nature of the near-surface rocks.

The slide terrain in the vicinity of the project may be seismically induced and may possibly be related to the mid-Channel structure, but the degree of movement in this slide terrain is apparently limited to small rotational block displacements. The design criteria of the pipeline allows for some ground movement without failure.

H.4. As noted in the response to Comment no. H.2, the impact of slope movement in the northern slope on the pipeline is negligible throughout most of the pipelines' length. As the pipelines are placed up-slope (from water depths of approximately 750 feet up-slope toward Platform Grace), the impact on the pipelines depends on the potential behavior of this part of the slope. Cross-sections across this part of the slope indicate that the steepest segments are slightly less than 4°, and the steepest "over-all" slope is approximately 2°. Accordingly, significant slope movement in this part of the slope is judged to be highly unlikely.

H.5. The platform is located on top of the geologic structure that contains oil. Moving off this structure, away from "potentially hazardous areas," would not allow for maximum hydrocarbon recovery. The main concern is not that the platform is located near these features, but that the platform is adequately designed to handle the potential risks. As far as being located in the "least environmentally damaging location," any platform location will create minor impacts. However, most impacts are temporary and occur during installation and construction activities. Impacts during production are limited, transitory, and insignificant.

H.6. The primary design criteria for the pipelines include spanning calculations (unsupported pipe) and pipe strength. The pipelines can absorb a lot of stretch, but the specific amount depends upon the length of line involved. Severe lateral movement of the pipelines will more likely cause crimping than failure. Crimping may result in a pressure drop, causing the lines to be shut off.

No provisions have been made for subsea shut-off valves in the unstable areas of the sea floor. While such valves are available and can be activated either electrically or hydraulically, they add considerable complication to the pipeline integrity and operation. Additional lines would have to be run to operate these valves, and internal inspection (pigging) procedures would have to be redesigned. Maintenance would also be a problem, given the water depths in the project area.

The present pipeline design is adequate to handle the anticipated typical small displacements that have occurred in the past in this low-slope area. Subsea shut-off valves would add unnecessary operational and maintenance complexity to the system. Pipeline shut-off valves will be located instead on each platform.

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April 30, 1986

Mr. Peter Douglas  
California Coastal Commission  
631 Howard Street, Fourth Floor  
San Francisco, California 94105

Re: Platform Gail UPP, Santa  
Clara Unit, Lease UCS-P 0205

Dear Mr. Douglas,

By letter dated April 15, 1986, MMS responded to the Commission's questions concerning Chevron's Platform Gail DPP. The letter acknowledged the ongoing discussions of issues of air quality and economic analysis of cumulative impacts to commercial fishing, and closed by stating that MMS would augment those responses with another formal communication. This letter serves to supplement our April 15, 1986 letter. The information contained herein addresses the Commission's issues of air quality impacts, economic analysis of cumulative commercial fishing impacts, informal questions which have been raised by the Commission staff regarding burial of subsea pipelines in the Pacific UCS Region, and two minor revisions to the previous MMS response (enclosed).

We trust that the earlier April 15 letter and this letter together adequately provide the information requested in your March 31, 1986 letter to MMS.

Should you have any further questions, please contact Julia Van Auken at (213) 894-2845.

Sincerely,

*Thomas W. Dunaway*

Thomas W. Dunaway  
Regional Supervisor  
Office of Field Operations

Enclosure

cc: Ms. Cynthia Norris, Chevron USA, Inc.

ENCLOSURE  
page 1

#### Potential Air Quality Impacts Related to Platform Gail

A meeting was held on April 25, 1986 in Ventura to discuss the Platform Gail air quality issues. Meeting attendees included Ventura and Santa Barbara County APCDs, ARB, Office of Environmental Affairs, Commission, MMS, and Chevron. During this meeting the ARB indicated that Chevron has addressed all of the ARB's major concerns regarding air quality issues. Chevron provided verbal responses to the Ventura County APCD comments submitted to MMS and the Office of Environmental Affairs, concerning offsets of emissions.

The ARB stated that they were favorably impressed with Chevron's solution, and were confident that the details could be worked out.

#### Economic Analysis of Cumulative Commercial Fishing Impacts

The MMS has examined the Commission staff's proposal that Chevron conduct a cumulative economic analysis of commercial fishing impacts. Results of our examination show that this is not a feasible request, due to several factors.

In order to ascertain the parameters involved in the feasibility of such an analysis, specifics of the Commission's proposed cumulative economic analysis of commercial fishing impacts were discussed at several meetings with the Commission staff and with commercial fishermen of the Santa Barbara Channel. On April 4, 1986, Chevron met with MMS, the Commission staff, and a concerned commercial fisherman (Ralph Hazzard) to discuss the potential for commercial fishing impacts. On April 7, 1986, MMS discussed the concept of this study with the Commission staff. On April 15, 1986, a joint meeting was convened in Santa Barbara, with Chevron, MMS, the Commission staff, the Fisheries Liaison Office, and eight local commercial fishermen in attendance.

The express purpose of the April 15 meeting was to identify the actual extent of the area precluded from particular commercial fisheries and to examine pertinent confidential catch statistics from the Platform Gail project area, to better determine what potential economic impacts the project itself may have on the commercial fishing industry in the Santa Barbara Channel. Unfortunately, this meeting did not clarify the catch statistics for this area, as the fishermen were hesitant to rely on the accuracy of different reporting procedures which have been in effect over the last eleven years. (These different reporting procedures may not necessarily result in statistics which are comparable from year to year.)

Based on the discussions from these meetings, MMS feels that both ourselves and Chevron have made a good faith effort to examine the feasibility of the Commission staff's proposal. MMS also recognizes the additional time and effort that fishermen themselves have made to cooperate with Chevron and the agencies involved to study this issue. Because of the

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very limited physical scope of the Platform Gail project as proposed and because of the very understandable reluctance of the fishermen to reveal sensitive catch statistics in this area, MMS feels that such a cumulative economic analysis is neither feasible nor appropriate at this time.

#### Aspects Regarding Burial of Subsea Pipelines in the Pacific OCS Region

The Commission's informal proposal to require Chevron to bury the three pipelines extending from Platforms Gail to Grace involves several environmental and safety aspects which are of significant concern to MMS:

1. Pipeline burial techniques would create additional environmental impacts to the sea floor, of a greater magnitude than the simple procedure of laying the lines on the sea floor. Trenching will potentially cause additional turbidity in the water column, and will greatly scar the sea floor. Disturbing the sea floor in this manner will also eradicate the existing natural sorting and cohesion of the near-surface clay, silt, and sand particles, thereby making the sea floor in this area much more susceptible to local scour and erosion.
2. Trenching, pipelaying and backfilling techniques at these water depths (739 feet and shoaler) are beyond current state-of-the-art techniques. To our knowledge, no such procedures have been conducted before in this environment.
3. Burial of subsea pipelines in these water depths will substantially impair the pipelines' capability to withstand earthquake activity, as opposed to pipelines lying exposed on the sea floor, should such events occur during the lifetime of the project. An exposed pipeline is engineered to adjust to seismic jarring very easily; once buried, such forces could potentially rupture the line.
4. External inspection requirements of Pacific OCS pipelines would be significantly compromised. Pipeline welds, sacrificial anodes, and various connections would be hidden from view (video coverage utilizing a remote-controlled vehicle), along with the external condition of the pipeline itself. The potential for any needed repairs would be more difficult to ascertain.

Additionally, estimated engineering and operations costs to Chevron for pipeline trenching alone exceed 2.3 million dollars (personal communication, Brown and Root Engineers, April 6, 1986).

In summary, these aspects of subsea pipeline burial operations present substantial environmental and safety compromises to Chevron's DPP as it is now proposed. MMS feels that the pipelaying procedures as currently proposed represent those that are the least environmentally damaging.

#### Revisions to MMS Response (Dated April 15, 1986)

1. MMS Response No. E.1, page 15: Please amend the complete response so that it reads:

"E.1. Chevron is proposing the following mitigation measures to reduce air quality impacts:

- a) water injection for the gas turbines;
- b) inspection and maintenance (I & M) program in accordance with prudent operating practices;
- c) vapor recovery system which recovers several sources of fuel and off-gases such as hydrocarbon blanket vapors from tanks and off-gas from the glycol regenerator;
- d) 0.3 weight percent sulfur fuel for diesel-powered equipment; and
- e) low NO<sub>x</sub> emitting caterpillar engines for the cranes."

2. MMS Response No. E.11, page 17: Please amend the complete response so that it reads:

"E.11. Tie-ins on Platform Grace will be minimal. These connections would not cause a significant increase in fugitive hydrocarbon emissions, which are calculated based on the number of valves, flanges, etc., in a facility. The addition of these connections would not cause a significant change in emissions."