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OCS ENVIRONMENTAL ASSESSMENT

July 8, 1982

Operator	Chevron U.S.A. Inc.	Plan Type	Development/Production
Lease	OCS-P 0296	Block	34 N., 37 W.
Platform	Edith	Date Submitted	April 15, 1981

Prepared by the Office of the Deputy Minerals Manager,
Field Operations, Pacific OCS Region

Related Environmental Documents

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Environmental Impact Report - Environmental Assessment,
Shell OCS Beta Unit Development (prepared jointly with agencies
of the State of California, 1978) 3 Volumes
Environmental Assessment, Exploration, for Lease OCS-P 0296

BUREAU OF LAND MANAGEMENT

Proposed 1975 OCS Oil and Gas General Lease Sale
Offshore Southern California (OCS Sale No. 35), 5 Volumes
Proposed 1979 OCS Oil and Gas Lease Sale
Offshore Southern California (OCS Sale No. 48), 5 Volumes
Proposed 1982 OCS Oil and Gas General Lease Sale
Offshore Southern California (OCS Sale No. 68), 2 Volumes
U.C. Santa Cruz - BLM, Study of Marine Mammals and
Seabirds of the Southern California Bight

ENVIRONMENTAL ASSESSMENT

CHEVRON U.S.A. INC.
OPERATOR

PLAN OF DEVELOPMENT/PRODUCTION,
PROPOSED PLATFORM EDITH, LEASE OCS-P 0296, BETA AREA,
SAN PEDRO BAY, OFFSHORE SOUTHERN CALIFORNIA

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I. DESCRIPTION OF THE PROPOSED ACTION

In December 1980, Chevron U.S.A. Inc. submitted a preliminary Plan of Development and Environmental Report for proposed Platform Edith on Lease OCS-P 0296 in San Pedro Bay. The Plan and Environmental Report were revised and deemed submitted by the Minerals Management Service (MMS) [formerly Conservation Division, United States Geological Survey (USGS)] on April 15, 1981. (See Chevron, 1980a and Chevron 1980b.)

The proposal, as submitted, included information on Platform Edith, a pipeline to transport crude oil from the proposed structure to Platform Elly (Shell Oil Co.) on the adjacent Lease OCS-P 0300, and a submarine power cable from Chevron owned facilities in Huntington Beach. Natural gas produced from Platform Edith was to be used as fuel gas in a process heater with the remainder to be compressed and reinjected into the reservoir. (See Chevron, 1980b, page 4-44.)

Subsequent analyses have shown the alternative of piping the produced gas to shore for use in Chevron's Huntington Beach field to be favorable from both an economic and environmental standpoint. Natural gas is a clean burning fuel and is a highly desirable replacement for fuel oil. With the given requirements for fossil fuels in the Los Angeles Basin, this additional natural gas has the potential to replace oil as a fuel. On April 27, 1981, Chevron submitted a proposal to pipe natural gas from Platform Edith to Platform Eva (located in State waters); from Eva the gas will travel to shore in an existing pipeline. (See Chevron, 1981.)

Platform Edith will be located approximately 13.7 km (8.5 statute miles) southwest of Huntington Beach and 16.1 km (10 miles) south of Long Beach; the Lambert Grid Coordinates are X = 1,424,260 and Y = 525,220, Zone 6. Water depth at the site is 49 m (161 feet). Estimated ultimate oil recovery is 46,000,000

barrels over a 20+ year life of the project. (See Chevron, 1980a, page 6.)

Figure 1 in this EA shows the location of proposed Platform Edith, existing Platforms Ellen and Elly on the Federal OCS, and the eight oil islands and platforms in State waters. The approximate time frames, sequence of events, month and year of activities occurring during project completion are listed in table 1.

Travel modes for moving supplies and equipment to and from Platform Edith will be supply or crew boats and helicopters operating from Long Beach Harbor. Personnel and transportation requirements are summarized by project phase (table 2).

As indicated, about 250 persons are expected to be employed during the installation phase of the platform. It is conceivable, but unlikely, that pipeline installation could take place concurrently; thus the maximum number of persons onsite could reach 350.

Crew boat transportation during the 3-year development drilling phase is expected to average three round-trips per day with supply boat trips once per day. The ensuing production phase will require crew boat trips twice per day and approximately two trips per week for the supply boat. (See Chevron 1980b, pages 19 to 41).

For a detailed description of equipment to be used and platform layout, see the revised POD (Chevron, 1981, sections IV, V, VI) which describes the platform structure, drilling facilities, and platform facilities, respectively. Platform Edith will be designed for the most severe loads that might occur.

TABLE 1

PROJECT SCHEDULE

Activity	Estimated Schedule*
Jacket Installation	December 1982 through January 1983
Module Installation	January 1983 through April 1983
Subsea Cable Installation	
Oil Pipeline Installation	September 1982
Gas Pipeline Installation	October 1982
Spud First Well	April 1983
First Production to Shore	May 1983
Peak Production	July 1985
Recompletions, Workovers	1983 to 2007, as required
Abandonment	approximately 2008

*(See Chevron 1980b, pages 17 to 18a, 77a for schedule discussion. Current estimated schedule dates obtained by personal communication with Chevron U.S.A. Inc., February 18, 1982.

TABLE 2

PROJECT PHASES, PERSONNEL REQUIREMENTS, AND DURATION

	Number of Personnel	Duration
Installation Phase		
Platform Installation	150	180 days
Derrick Barge Support	100	30 days
Pipeline Installation	100	14 days
Subsea Cable Installation	50	10 days
Onshore Electrical Substation Construction	20	60 days
Operations Phase		
Development Drilling		
Contract Drilling	55	3 years
Company Production Personnel	20	3 years
Service Personnel	25	3 years
Production		
Contract Drilling	12	20+ years
Company Production Personnel	20	20+ years
Service Personnel	25	20+ years
Onshore Support	No additional	Project Lifetime

(See Chevron, 1980b, page 19.)

Twelve main legs, framed with diagonal and horizontal bracing comprise the basic structure. The structure will be secured to the ocean bottom with piles driven through the legs of the jacket and welded to the platform. Decks will provide space and load carrying capacity for drilling equipment and production facilities for up to 70 wells.

Of the 70 slots, 47 will be for producing wells and 18 for water injection wells; the remaining five spare conductors will be for exploration and/or service wells. Development drilling will be by two electric drilling rigs. These rigs will be land type with modifications necessary for offshore application. Drilling equipment, and services will be handled on a contract basis. Subsequent to the 3-year development drilling phase, a workover rig will be brought on board to service the wells throughout the project life.

Platform Edith will contain complete production facilities for the treatment of produced oil, gas, and water. Treated oil will be of marketable quality needing no additional onshore treatment. Power will be supplied via a 34.5 kv submarine cable from Chevron facilities in Huntington Beach; the cable will connect into the Southern California Edison power system onshore. Utility systems and support facilities are designed for platform self reliance; back-up systems will be provided for safety and continued operations in the event of emergencies or supply interruptions.

Well production will be artifically lifted with down hole submersible electric pumps. In first stage separation, the small amount of gas in the crude oil and most of the water are removed.

The crude oil then travels to a dehydration unit, where, using heat, the remainder of the water is removed. The marketable quality oil is pumped to

Platform Elly, comingled with Shell's production and enters Shell's pipeline for transport to existing onshore facilties.

Over the lifetime of the project, gas will be utilized as a fuel for a 27 MM BTU/hr heater providing process heat.

In addition, the following method for transporting gas from Edith for ultimate use in the Huntington Beach field has been proposed (Chevron, 1981).

(1.) Chevron will lay a natural gas pipeline along a straight route between Platforms Edith and Eva; the latter is located at 33°39'42" N. Latitude, 118°03'40' W. Longitude on Union's State offshore Lease PRC 3033. The pipeline will be approximately 34,200 feet in length and have a 6 5/8 inch outside diameter. Chevron expects to lay the pipeline on the ocean floor by the stinger lay barge method of construction.

(2.) The gas will comingle with that produced on Eva and travel to shore in Union's existing 8-inch (20.3 cm) line.

(3.) Onshore, the gas will enter Aminoil's existing 12-inch (30.5 cm) gas gathering line near the intersection of Warner Avenue and Algonquin lane for ultimate delivery to the Huntington Beach field. (See Chevron, 1981.)

The utilization of Union's and Aminoil's existing pipelines consolidates the proposed project with existing facilities to the maximum extent possible. This effort to consolidate will minimize the resultant environmental impact from bringing this clean fuel ashore. It is also in compliance with the California Coastal Commission's Policy 30261 b which states consolidation with existing

facilities is highly encouraged and desirable in the coastal zone.

The estimated gas production will peak at a rate of 6.5 MM SCFD in 1985. The gas flow rate will be metered on board Platform Edith. (See figure B-H-1320-0 in Chevron, 1981, for the production forecast.)

The proposed gas pipeline will be equipped with high-low pressure sensors to shut-in wells on Platform Edith. It will also be equipped with an automatic shut-in device located on Union's Platform Eva. The pipeline design, inspection, and operations will comply with OCS Order No. 9, applicable Minerals Management Service policies and State Lands regulations for Oil and Gas Production, Section 2132. The Minerals Management Service will process the application for a gas pipeline right-of-way from Platform Edith to State waters, including the required environmental documentation separately.

In addition, the Army Corps of Engineers requires a permit for construction of offshore platforms and pipelines and is presently preparing an EA for the proposed pipeline not only from Platforms Edith to Eva but also for the crude oil line between Platforms Edith and Elly .

Produced water will be sent to a skim tank for removal of oil and suspended solids by gravity separation. Treated water will be discharged into the ocean until there is sufficient produced water for injection purposes (i.e., formation pressure maintenance, ultimate production enhancement).

Safety systems include the following:

-- Vapor pressure relief system which protects pressure vessels from overpressuring.

-- Fire detection, alarm and suppression systems.

-- Contingency plans.

-- Platform navigational aids.

-- Blowout prevention equipment.

-- Deck drainage/sump system.

-- Personnel safety and escape system.

These are described in Chevron 1980b, page 13 and pages 22 to 25.

Environmental monitoring systems to be installed on Platform Edith will measure:

-- Wind, speed, direction, and deviation in direction.

-- Ambient temperature.

-- Wave height and tide.

-- Ocean currents.

Seismic monitoring equipment is located 6,800 feet (2,073 m) to the southeast at Shell's Beta platforms (Chevron 1980b, page 26). A pipeline volumetric leak detection system, intended to identify leaks smaller than a rupture has been provided by Shell and will be expanded to include the pipeline segment from Platform Edith to Platform Elly (Chevron 1980b, pages 16 and 17).

Onshore support services will originate from existing sources in the Huntington Beach and Long Beach areas. No appreciable increase in size or complexity is anticipated. The subsea power cable will tie into Southern California Edison's electrical distribution network at Huntington Beach. After initial cable hookup, only periodic maintenance will be required. (See Chevron, 1980b, page 27.) Shore facilities at the Port of Long Beach constructed for the Shell Beta project (Platforms Ellen and Elly), such as the crude oil distribution system, are described in USGS and others, Volume I, page 60. These facilities have adequate capacity to support Platform Edith production without expansion.

No new or unusual technology is anticipated for the Platform Edith project.

Chevron has prepared and submitted to the MMS the "Oil Spill and Emergency Contingency Plan for Platform Edith, OCS Lease P 0296" (Chevron, 1980c). The Plan details the purpose and scope of the plan, emergency notification numbers, notification procedures, small spill plan, major spill plan, job descriptions, containment and cleanup procedures, and spill cooperative equipment. The Plan is summarized by Chevron 1980b, pages 27 to 30. The complete plan is available for inspection in the Minerals Management Service Public Information Room in Los Angeles. Also included are hydrogen sulfide and sulfur dioxide contingency plans.

Pollution prevention is addressed in OCS Order No. 2 (Drilling Operations), Order No. 5 (Production Safety Systems), Order No. 6 (Procedure for Completion of Oil and Gas Wells), Order No. 7 (Pollution Prevention and Control). OCS Orders are enforced by both by conditional approvals requiring compliance and by MMS field inspections occurring 365 days a year.

Drilling personnel must attend prescribed MMS certified training courses and pass practical examinations. OCS Standard No. TI (Federal Register 42-251, December 30, 1977 and revised edition Federal Register 45-105, May 29, 1980) give a complete description of these procedures. Higher level personnel must complete the entire training program every 4 years and attend an annual short course. Lower level technicians complete specific training and are involved in regular drills conducted on the platform.

Personnel involved in implementation of the Oil Spill Contingency Plan are identified in section III-1 of the plan (Chevron 1980c). The Chevron on-site foreman, once aware of an incident, would see that proper action has been initiated to stop or reduce flow at the source and to control the spill. The on-site foreman will then immediately notify the appropriate government agencies

and designated Chevron representatives.

A preliminary list of spill containment equipment to be stored and maintained on the platform for immediate use by trained personnel is listed in the Environmental Report (ER) (Chevron, 1980b, pages 28 to 29). Equipment capability is limited to minor spills only (defined here as under 25 barrels). The time period to deploy the equipment on location is estimated at under 30 minutes.

Should the need arise, the responsible Chevron on-site representative will request response from the Southern California Petroleum Contingency Organization; additional equipment and manpower can be deployed to the platform site in less than 1 hour. Other oil spill contingency plans (private, local, State, Regional, and National) are available and readily mobilized upon need (Chevron, *1980b*, pages 29 to 30).

Solid waste, liquid waste, air emissions and pollutants are discussed on pages 30 to 44 in the Description of the Proposed Action of the Environmental Report (Chevron, 1980b). These are further addressed in later sections and appendices.

Maps and diagrams of the proposed project layout are found in the Plan of Development, Chevron 1980a:

Figures	2-1	5-1	800906-1003
	2-4	5-2	800906-1004
	2-5	5-3	800906-1005
	2-6	5-4	800606-1006
	2-7	5-5	E-H-1400
	800906-801	5-6	B-H-1320-0
	800906-8002	800906-1001	6-1
	800906-8003	800906-1002	7-1
			C-21115-0

and in the Environmental Report, Chevron 1980b:

Figures	2-1	3-3	E-H-1403
	2-2	4-1	

Chevron considers the proposed activities to be consistent with the California Coastal Management Plan (CCMP). A discussion of applicable CCMP policies and assessments appears in the Environmental Report (Chevron 1980b, pages 44 to 73). The California Coastal Commission will review the Plan of Development and Environmental Report and make a consistency determination at a public hearing yet to be scheduled.

Measures required to comply with Pacific OCS Operating Orders and other pertinent regulations are addressed in the Environmental Report (Chevron, 1980b, pages 73 to 76). Also see "Regulation Enforcement" in the OCS Lease Sale 48 Environmental Impact Statement (EIS) (BLM, 1979, Volume 3, pages 1355 to 1367). In the case of violations, leases are subject to cancellation and lessees are subject to penalties as provided for in the OCS Lands Act.

Possible nearby pending actions are the construction by Shell Oil Company of Platform Eureka on Lease OCS-P 0301 and the sale of 30 tracts in the San Pedro area as part of Lease Sale 68. The development of Lease OCS-P 0301, if warranted, would probably occur sometime in the mid-1980s although it has not been officially proposed. Lease sale 68 is scheduled for June 1982.

The proposed oil pipeline route to shore has been addressed previously. The crude pipeline from Platform Edith to Platform Elly, spanning 6,800 feet (2,073 m) is designed for a throughput of 8,000 barrels per day at an operating pressure of 650 psi. Based on a design capacity of 40,000 barrels per day for Shell's pipeline from Platform Elly to Long Beach, Chevron estimates their line capacity can be increased to 12,000 barrels per day by increasing operating pressure to 770 psi. (See Chevron, 1980a, page VII-3.) Figure 2.5 in the Environmental Report is a graph of estimated oil production rate. Peaks in production just below 8,000 barrels per day are predicted between 1985 and 1989

with a decline to below 2,000 barrels per day by the year 2007. (See Chevron 1980b, page 77a.)

Wind, wave, and current measurements will be made from Platform Edith. Seismic monitoring equipment is located 6,800 feet (2,073 m) to the southeast at Shell's Beta platforms. The South Coast Air Quality Management District operates air monitoring (air quality, and meteorological) stations at Long Beach and Costa Mesa. Because of the downtown location of the Long Beach station, its sensitivity to OCS generated emissions is questionable.

Standard environmental protection measures are detailed in such USGS publications as:

-- Outer Continental Shelf Safety in Oil and Gas Operations, 1976

-- Policies, Practices, and Responsibilities for Safety and Environmental Protection in Oil and Gas Operations on the Outer Continental Shelf, 1978

-- Inspection of Petroleum Operations on the Outer Continental Shelf, 1977

-- Mineral Resource Management of the Outer Continental Shelf, 1978

-- Leasing and Management of Energy Resources on the Outer Continental Shelf, 1979

-- Pacific Outer Continental Shelf Orders Governing Oil and Gas Lease Operations, 1980 and updates

All of these publications may be obtained from the Minerals Management Service office at the address on the title page of this Environmental Assessment.

II. DESCRIPTION OF THE AFFECTED ENVIRONMENT

Chevron describes the environment at the proposed site in the submitted ER (Chevron, 1980b). In addition, complete EISs have been prepared on the Southern California Bight for OCS Lease Sales 35, 48, and 68 (BLM, 1975, 1979, and 1981 respectively).

A joint EIR-EA was also prepared for the Beta Unit area (USGS, 1978, 1979). Proposed Platform Edith is within this area. Oil production from Platform Edith will be transported to landfall through an existing pipeline, thus eliminating many construction and operational impacts frequently associated with development and production plans.

It is apparent from some of the comments received on Chevron's Environmental Report (ER) (Chevron, 1979b) that the scope of the ER and this EA requires clarification. With respect to resources and other uses of the area, the scope is the general area of the platform as shown in figure 1, and not the entire Southern California Bight. Possible impacts from an unlikely oil spill are covered in a broader scope than the area shown in figure 1.

A. Geology

The geology of the offshore area of southern California, as well as the lease and proposed platform site are discussed in detail in the Environmental Report (Chevron, 1980b, pages 79 to 98); the EIR-EA prepared for the Shell Platforms Ellen and Elly (USGS and others, 1978, Volume 1, pages 63 to 118); the USGS Hazards Evaluation Report (USGS memorandum of June 5, 1981, in appendix 6 of this EA); and the Geotechnical Report prepared by McClelland Engineers for this proposed project including the pipeline route (McClelland Engineers, Inc., 1980, pages 1 to 35).

The proposed platform site is located on the southeastern margin of the nearly flat-lying San Pedro shelf. The latter is a submerged part of the Peninsular Range Province and is bounded by the San Pedro escarpment which slopes into San Pedro basin on the west. To the south, the shelf is dissected by the San Gabriel Submarine Canyon. Slope angles within the canyon average 15 degrees, and relief varies from 150 to approximately 200 feet.

Water depths on the lease range from 145 feet (45 m) in the northwest to 265 feet (82 m) in the southeast. At the proposed site, water is 161 feet (49 m) deep while depths along the pipeline route will range from 161 feet (49 m) at Platform Edith to 330 feet (102 m) at the union with Platform Elly on Lease OCS-P 0300. The sea floor at the proposed site has a slope of 1:160 (0.6 percent) which increases along the planned pipeline to approximately 1:40 (2.5 percent) near Platform Elly. (See Chevron, 1980b, page 87.)

The site is characterized by slight irregularities with less than one foot of relief that may be the result of past operations in the area. In addition, older more consolidated (thus more resistant) outcrops have resulted in minor highs due to differential erosion (see McClelland Engineers, Inc., 1980, pages 6 and 7).

Unconsolidated sediment which forms a veneer over wave truncated rocks at the proposed platform site thickens to 8.5 m (27 feet) at the southeast end of the proposed pipeline route at Platform Elly (USGS memorandum of June 5, 1981, in appendix 6 of this EA).

Seafloor materials at the site consist of a Pleistocene fine silty sand and fine sand with occasional gravel to a depth of 20 m (67 feet). Below this unit, to a depth of 154 m (500 feet), is a very stiff to hard, predominantly clayey

silt also with some gravel. Engineering properties of these materials are described fully in the geotechnical report on the lease (see McClelland Engineers, Inc., 1980, pages 4 to 23).

No hydrocarbon seeps are known in the area of the proposed platform or pipeline route. No indications of slump or creep have been detected (See McClelland Engineers, Inc., 1980, pages 6 to 10). The major structural element in the study area is the Palos Verdes fault zone. Several branches of this northwesterly trending fault cut the southern portion of the lease (Chevron, 1980b, figure 3-3). The proposed platform site is approximately 1,400 feet northeast of the nearest branch. Faults within this zone clearly offset Pleistocene sediment.

One fault within the lease has minor seafloor expression, however, whether this is due to recent movement or differential erosion is unclear. No faults have been located beneath the proposed site (see McClelland Engineers, Inc., 1980, pages 5 to 9).

The Palos Verdes fault is steeply dipping with a vertical displacement of 1,500 m of basement rocks. Significant horizontal separation is also likely (USGS, appendix 6).

The Newport-Inglewood fault is located 15 km northeast of the platform site. This zone trends from offshore Laguna Beach to the Chaviot Hills. There has been a displacement of 1,000 m to 2,000 m in lower Pliocene strata with vertical separation locally of more than 1,000 m near the surface.

Tsunamis are not considered a hazard at the proposed site due to the depth of water. These events do not impact structures in deeper water because wave heights of seismic sea waves are only a few meters or less in those areas.

Subsidence could occur due to fluid withdrawal. Such phenomena have resulted from oil production in the nearby coastal areas.

No formations bearing fresh water of significance have been encountered in the Shell Beta project (USGS and others, 1978, page 118). No other mineral deposits are known in the lease area.

Pipeline

Seafloor topography along the pipeline route is considered suitable for a pipeline. The route is featureless or slightly irregular; irregularities have less than one foot of relief and are thought to be both natural and man-made. Material beneath the seafloor is predominantly sandy-silt (see McClelland Engineers, 1980, pages 9, 10 and 16).

No faults, adverse structure or features indicative of mass movement were recognized along the route. No other conditions of possible engineering significance to pipeline design, construction or maintenance were identified from the seismic data along the route (see McClelland Engineers, Inc., 1980, pages 9 and 10).

B. Meteorology

Meteorological conditions in the area of the proposed platform are described in section 3 of the ER (Chevron, 1980b, pages 98 to 106). The southern California region offshore is characterized by a moderate Mediterranean subtropical climate.

Normal summer and winter temperatures onshore average between 59 and 77 degrees Fahrenheit (15 and 25 degrees C). Temperatures above 90 degrees F. (32.2 degrees C) occur occasionally during the summer, while winter temperatures in rare instances may drop below freezing. Maximum temperatures of 105 degrees F.

(41 degrees C) at San Nicolas Island, 100 degrees F. (37 degrees C) on Catalina, and 111 degrees F. (44 degrees C) at Long Beach have been recorded. The proposed site will be characterized by less extreme conditions than adjacent onshore areas because of the moderating marine influence. (See Chevron, 1980b, page 100; USGS and others, 1980, page 135.)

The movement of air in vertical and horizontal directions is important in the dispersion of atmospheric pollutants. Atmospheric temperature stratification determines the depth of mixing layer (the height above the surface through which vigorous vertical mixing occurs). The top of this layer is usually the base of a temperature inversion layer. In such a zone, vertical motion is inhibited, and pollutant dispersion is reduced to the volume of air below the inversion base.

Temperature inversions often develop in the coastal region of southern California and are most common during the summer and fall. Inversion levels can exist from approximately 500 feet to 2,000 feet (154 m to 600 m) and, when present, limit vertical atmospheric mixing. Severe or persistent inversions can result in heavy buildup of atmospheric pollution.

Data on mixing heights have been obtained for Santa Monica and are considered to be representative of the Los Angeles basin. Mean seasonal diurnal mixing heights are indicated on table 3. It is likely these are similar to elevations at the platform (see Science Applications, Inc., 1978, pages 32 and 33).

TABLE 3

MEAN MORNING AND AFTERNOON MIXING HEIGHTS (METERS)
SANTA MONICA, CALIFORNIA

TIME	PERIOD		
	WINTER	SUMMER	ANNUAL
MORNING	422	562	542
AFTERNOON	893	603	814

(See Science Applications, Inc., 1978, page 31.)

The height of the inversion base with respect to mean sea level is lowest along the north coastal parts of Los Angeles basin and increases in height toward the south and over the interior portions. Daily variations in the inversion heights have also been observed with lowest elevations usually in the early morning hours. (See Science Applications, Inc., 1978, page 33.)

Atmospheric stability near the ground can be categorized as follows:

> Unstable - The lapse rate of temperature is greater than adiabatic (1C/100 meters of ascent). Such a condition supports the vertical dispersion of pollutants.
>
> Neutral - The lapse rate of temperature is equal to the adiabatic, and the vertical dispersion of pollutants is indifferent.
>
> Stable - The lapse rate of temperature is less than adiabatic. The vertical dispersion of pollutants is inhibited.

Stability is further catagorized into classes designated A through G (A is the most unstable, G is the most stable). Category D is the neutral case; E, F, and G represent slight, moderate and extreme stability.

Neutral and stable atmospheric conditions occur frequently along the coast of the Los Angeles basin. Unstable conditions are observed most often during the summer months. However, even during that season the frequency of occurrance of unstable meteorological conditions along the coast is small. (See Science Applications, Inc., 1978, pages 31 and 32.)

Stability conditions have been studied for the Long Beach area and are thought to be representative for the area of the proposed platform. In this region stable conditions occur slightly less than one-third of the time during the summer and nearly half-the-time during the winter (table 4). (See Science Applications, Inc., 1978, pages 31 and 32.)

TABLE 4

FREQUENCY OF OCCURRENCE (PERCENT) OF STABILITY CATEGORY - LONG BEACH, CALIFORNIA

PERIOD	CATEGORY		
	UNSTABLE	NEUTRAL	STABLE
JANUARY	21.2	32.5	46.3
JULY	35.1	33.8	31.1
ANNUAL	25.4	36.6	38.0

(See Science Applications, Inc., 1978, page 31.)

Stratus clouds predominate in the coastal and offshore area. Visibility may be frequently limited by fog or haze which is common along the Pacific coast. Heavy fog resulting in visibility less than 0.25 mile occurs on the average about 45 days per year at Los Angeles International Airport (LAX)--most commonly during the period from winter through spring and early summer (Science Applications, Inc., 1978, pages 5 to 9; USGS and others, 1978, page 138.) At the proposed platform site, frequency of low ceiling and visibility are expected to be somewhat higher than reported along the coast due to the persistence of offshore fog and low clouds. Fog generally lifts during the mid-morning but may persist longer over the water. (See Science Applications, Inc., 1978, pages 5 to 9; Chevron, 1980b, pages 101 and 102.)

Relative humidity usually varies from the high seventies (percent) during the daytime to approximately 82 percent at night. The highest relative humidities

C. Air Quality

Air quality is discussed in the ER (Chevron, 1980b, pages 107 to 113, and appendix 5) and Revised Air Quality Analysis (Chevron, 1982). There are presently no air quality monitors in or data for the San Pedro Channel. Air quality, however, is considered good due to the limited emissions sources in the area.

The South Coast Air Quality Management District (SCAQMD) which includes the Los Angeles air basin has been declared non-attainment for ozone (O_3), particulates (TSP), nitrogen oxides (NO_x), and carbon monoxide (CO). Orange County has been declared attainment for sulfur dioxide (SO_2), however, Los Angeles has been deemed non-attainment for that pollutant. (See Science Applications, Inc., 1978, pages 36 and 37.)

The proposed project is closest to the shoreline in the Huntington Beach area, and the nearest most representative air quality monitoring stations are Costa Mesa and Laguna Beach. Air quality at Costa Mesa is considered good although California standards for ozone, carbon monoxide, nitrogen dioxide, and total suspended particulates were not met at all times (Chevron, 1980b, table 3-5). However quality compares favorably with inland areas of the South Coast Air Basin (Chevron, 1980b, pages 107 and 108).

D. Oceanography

Oceanographic characteristics of the project site are discussed in section 3.4 of the ER (Chevron 1980b, pages 114 to 120). (Also, see USGS and others, 1978, pages 161 to 179.)

Ocean conditions are generally calm. Protection offered by the offshore islands is quite complete, and waves over the shelf are mainly formed in the area.

Swells and locally generated waves are predominantly from the west, although swells may be from any direction. Significant sea height is less than 4 feet (1.2 m) 89 percent of the time while swell observations indicate heights of less than 4 feet (1.2 m) with a frequency of 74 percent. Maximum wave heights during storm conditions have been known to reach 25 feet (7.6 m). (See Chevron 1980b, page 114, table 3-8, table 3-9.)

Confused wave patterns may result from superposition of swell trains and local waves (Chevron, 1980b, page 119, figure 3-9). Tidal ranges vary between less than one foot to slightly more than 6.5 feet (2 m). Storm tides, however, may further raise sea level.

Currents within the San Pedro Channel are complex due to the interaction between the coastline and local or oceanic currents. Measurements taken near the proposed site exhibited strong tidal influence on surface currents. Current directions advanced progressively clockwise over the 24 hour recording period reflecting a progressive tidal wave with a 24 hour period. Current speed varied between 0.12 and 0.46 knots with an average of 0.51 knots. (See USGS and others, 1978, Volume III, pages VIII-19 to VIII-38.)

Currents at mid-depth (120 feet) alternated between northwest during flood tide and southwest during ebb tide. Current speeds varied between 0.12 and 0.46 knots and averaged 0.27 knots. Bottom currents were predominantly toward the west or southwest with current speeds between 0.15 and 0.49 knots. (See USGS and others, 1978, page VIII-31.)

Existing water quality, temperature and visual transparency are discussed in section 3.4.5 of the ER. The waters of the region are all within ranges considered normal for marine waters (Chevron, 1980b, pages 119 to 121).

Tsunamis

Only a few tsunamis have been recorded along the coast south of the Santa Barbara Channel. Locally generated tsunamis occurred in 1879 at Santa Monica and in 1925 and 1933 at Long Beach; the 1933 tsunami resulted from the March 10, 1933 Long Beach earthquake. (See USGS memorandum of June 5, 1981 in appendix 6 of this EA).

All of southern California was affected by the tsunami resulting from the May 1960 Valdavia, Chile earthquake (magnitude 8.5). Long Beach Harbor reported 1.5 m waves and surges in Cerritos Channel. Surges of 1.5 m or more were reported from Marina Del Rey to Newport Harbor as a result of the March 1964 Prince William Sound earthquake. The tsunami generated by the 1964 Alaska earthquake apparently was not discernable in the area. (See USGS memorandum of June 5, 1981 in appendix 6 of the EA).

E. Other Uses of the Area

Commercial and sport fishing are significant activities in San Pedro Bay. One commentator (appendix 1) stated that San Pedro Bay is the most productive commercial fishing area in California. While Terminal Island has the largest average landing weight (63.8 percent) of the State total, most of the catch is the result of a worldwide operation, with most fish harvested from waters off Central and South America or West Africa. For a discussion of fisheries off southern California see BLM, 1981, pages 4-82 to 4-95.

Lease OCS-P 0296 is located in the region of California Department of Fish and Game Blocks 739 and 740. The most abundant commercial fish are anchovy, jack mackeral, Pacific bonito, rock crab, and squid (Chevron, 1980b, page 121). Major sport fish for the same blocks are rockfish, rock bass, Pacific bonito, California barracuda, Pacific mackeral, and sandbass (Chevron, 1980b, page 135).

One commentator (appendix 1) critiques the fact that in Chevron, 1980b, page 121, the five most abundant taxa in Fish Block 740 only constitute 34 percent of the landings and suggests other important taxa should be listed. A check of unpublished Department of Fish and Game data for this block identified 34 taxa and extreme variability both seasonally and in pounds landed. [In one extreme, 14 pounds of soupfin shark are recorded for February 1975, the total of that species for the year. On the other hand, the northern anchovy and jack mackeral were dominant at 39,858,395 and 1,786,551 pounds, respectively for the entire year. Market squid, boccacio, and Pacific mackeral followed respectively.] A representative and comprehensive discussion of site-specific taxa is presented in USGS and others (1979, pages 229 through 258).

Proposed Platform Edith is located in the Maritime Traffic Separation scheme (TSS). The structure will be situated 6,076 feet (1.8 km) from the northbound shipping lane and 5,468 feet (1.7 km) from the southbound shipping lane (see figure 1). By letter of June 12, 1981, the U. S. Coast Guard has no objection to the action proposed by Chevron U.S.A. Inc. (appendix 7 of this EA).

The area of the proposed platform site is not used for routine military purposes. In the event of possible military usage, access is controlled during hazardous operations.

Recreation is an integral part of the southern California economy and environment. Recreational and harbor areas are listed in table 3-12 of Chevron, 1980b, pages 123b to 123d; number of berthings in the marinas under governmental jurisdiction is presented in table 3-13 of the same reference, page 123e.

No kelp (and therefore no kelp harvesting) occur at the project site. The majority of the nearest kelp beds are located south of Newport Beach. Kelp

is also found off Santa Catalina. The site is one that at present would not be considered appropriate for mariculture; however, studies are being conducted both on cultivating kelp at greater water depths and mariculture from platforms.

No prehistoric cultural resources have been detected in the project area. Two possible historical anomalies appeared on the side scan sonar. They lie near the edge of the 2,000 foot (609.6 m) radius of the impact area surrounding the proposed platform and will be avoided during anchoring activities. Appendix 7 of Chevron, 1980b, is the cultural resources report on proposed Platform Edith and the pipeline route by Scientific Resources, Inc.; the report is summarized on pages 125 to 129 of the same reference.

Areas of special biological concern are listed in table 3-14 of Chevron, 1980b, pages 130a to 130b. Included are Areas of Special Biological Significance, marine ecological reserves, marine life refuges, wetlands, and sensitive bird rookeries. All are at a considerable distance from the platform site. (See figure 2 which is modifed from USGS and others, 1978, Volume 1, page 273.) The proposed Platform Edith will be located approximately 3,000 feet (915 m) west of the existing Shell pipeline which runs from Platform Elly to onshore facilities (see figure 1).

There are no known potential mineral resources other than oil and gas in the immediate area of Lease OCS-P 0296. The lease is located in the separation zone between shipping lanes which precludes ocean dumping activities.

F. Flora and Fauna

The biological oceanography of the Southern California Bight and San Pedro Channel including the pelagic and benthic environments has been well

described. (See: Chevron, 1980b, pages 131 to 140; USGS and others, 1978, volume 1, pages 179 to 274; BLM, 1979, volume 1, pages 276 to 572; and BLM, 1975, volume 1, pages 157 to 512 and the "Benthic Environment of Subsea Cable Route" in appendix 6 in Chevron, 1980b.)

A wide diversity of oceanic phytoplankton characterize the San Pedro Channel areas. The California Current carries species originating in subarctic waters southward into the area while the northward flowing undercurrent and the Davidson current transports equatorial species to the north. Composition and abundance is determined by the relative contribution of these currents, upwelling, and seasonal factors. The Southern California Bight region exhibits higher productivity, as indicated by chlorophyll concentrations, than in more oceanic waters. Major phytoplankton species are listed in Chevron, 1980b, page 132a. Major zooplankton species are listed in Chevron, 1980b, pages 133a and 134a. Additionally, larval fishes are very abundant due to the large amount of coastline available for inshore spawning. As with phytoplankton, seasonal and yearly abundance varies.

The fish fauna of the San Pedro Channel area belongs to the warm water, San Diegan subdivision of the California region. This subject has been addressed under commercial and sport baseline fishing at the beginning of section 3.5.1 of the ER (Chevron, 1980b, page 121).

The benthic environment is summarized in Chevron, 1980b, pages 136 to 139, with emphasis on macrofauna. The sea bottom is composed of olive green sandy silt. Species diversity and abundance is highest in nearshore shelf regions such as the San Pedro Shelf, as compared to deep basins offshore. Typical species are listed in Chevron, 1980b, page 138a.

Marine mammals and birds are addressed in: USGS and others, 1978, volume 1, pages 261 to 268; Chevron, 1980b, pages 141 to 149; and Biological Opinions of National Marine Fisheries Service and the Fish and Wildlife Service, 1979 (appendix 1 of this Environmental Assessment). Complete species lists and breeding areas (along the coast and northern and southern Channel islands) are presented therein. Marine mammals and birds concentrate over areas of high relief such as islands and mainland shelves. Only very rarely are they observed from areas of the central San Pedro Channel, such as from Platforms Ellen and Elly.

There are no known endangered species of flora and fauna residing in the proposed project area. In the larger San Pedro Channel area, the California gray whale, an endangered species, commonly is observed. The rare and endangered California brown pelican and California least tern also inhabit the San Pedro Channel. The endangered lightfooted clapper rail, Beldings savannah sparrow and southern bald eagle are observed along the coast and within estuaries. Casual visitors or migrants through the Southern California Bight are the endangered green sea turtle, loggerhead turtle, leatherneck turtle, blue whale, fin whale, sei whale, humpback whale, sperm whale, and right whale (National Marine Fisheries Service, 1978, Biological Opinion, appendix 1).

F. Socio-economics

As the result of the labor requirements for the proposed production activities, approximately 10 families will be added to the Orange/Los Angeles County area. The proposed activities will help maintain the current level of offshore related employment but not affect the local population to any great extent. Existing highways, railroad networks and major urban centers in Orange County (population 1,808,000 in 1978) and Los Angeles County (population

7,079,000 in 1978) are more than adequate to support the proposed activities.

The addition of crew vessels and workboats will have a negligible impact on the existing public transportation services in Los Angeles/Orange counties.

Both Long Beach and Huntington Beach have been oil production-oriented communities, historically relying on direct and indirect revenues from the industry. The vote in Long Beach was overwhelmingly in favor of the SOHIO project. As such, informed public opinion would be predicted to be neutral or favorable toward the Chevron project.

The United Brotherhood of Carpenters and Joiners of America, Pile Drivers Local 2375, AFL-CIO, has submitted comments concerning the socio-economic impacts of this project and the use of foreign labor for platform installation. A reply prepared by Chevron details the cost of this project, the percent of work contracted to foreign companies, and the labor costs which will be lost to the local domestic labor force (appendix 8). The labor costs lost to local workers will be $480,000 dollars or 0.6 percent of the total project. Total cost of the project is approximately $80 million, with a total cost of work by domestic companies of about $60 million.

Other concerns of the Union are discussed in Section VI of this EA.

III. ENVIRONMENTAL CONSEQUENCES

Chevron's (1980b) Environmental Report discusses impacts of the environment on proposed Platform Edith and of the proposed Plan of Development on the physical, biological, and socio-economic environments of the San Pedro Bay area. Probable and potential impacts are further discussed in the documents listed on the cover page of this Environmental Assessment.

The following environmental consequences are summarized from these sources, with site specific focus on the Platform Edith location. Also, see appendices 1 and 7 for agency comments on the Environmental Report and Plan of Development. Comments are numbered and responded to in these appendices. Appendix 6 reproduces the Environmental Geology Report, including geologic hazards, prepared by the office of the Deputy Manager, Resource Evaluation, Pacific OCS Region.

A. Geologic Hazards

The geologic characteristics of this region have been discussed in section 3 of this document and by the MMS Resource Evaluation Office (appendix 6). McClelland Engineers, after conducting geotechnical studies and completing two 500 foot borings at the drill site, concluded that construction and maintenance of a platform at the proposed site and a pipeline along the proposed route appear feasible. Geologic conditions identified in the area are not expected to adversely affect the proposed construction operations. A map was prepared of anomalies within the lease; none were identified in the proposed area of activity. (See McClelland Engineers, Inc. 1980.)

The project will not greatly modify the ocean floor. Most disturbance will occur during the setting of the well conductor pipes and placement of the platform. These activities will be temporary in nature. In addition, used

drilling muds and cuttings will be discharged below the platform during the drilling phase.

These materials will accumulate on the ocean floor beneath and adjacent to the platform. The sediments will vary from fine clays used in drilling fluid to larger particles from drill cuttings. Discharges will span approximately three years.

Studies (Ecomar, 1978; Ayers, R. C. and others, 1980a; Ayers, R. C. and others, 1980b) indicate the solids settle quickly within a short distance from the drill site. These studies also concluded the deposits would be dispersed quickly upon completion of drilling. In contrast, studies conducted on Platforms Hilda and Hazel (Bascom, W., and others, 1976) located in approximately 100 feet of water in the Santa Barbara Channel indicate mounds of mud and cuttings persisted beneath the platforms 10 years after drilling was completed.

Bottom disruption may also occur during installation of the pipeline between Edith and Elly. Recent reports have indicated the presence of anchor scars and adjacent berms along the pipeline route between Platforms Grace and Hope (BLM, 1981, page 4-88). These disturbances are the result of lay barge operations. Scars are at least 100 m from the pipeline and approximately 100 m to 166 m in length. Relief is generally about 3 m but may be as great as 8 m at the end of the scar where the anchors were removed.

There is no evidence of landslides, shallow slump or creep in the area of the proposed platform (USGS memorandum of June 5, 1981 in appendix 6 of this EA). Because of the gentle slopes in the area, such movements are not expected (McClelland Engineers, Inc. page 6).

Ground rupture from fault movement is not considered likely since no evidence

of active or inactive faulting at the platform site has been found. Several northwest-trending surface to near surface faults, probably traces of the Palos Verdes fault zone, are located 1,302 feet (420 m) to 4,263 feet (1,375 m) west and southwest of the proposed platform site. Two of these faults cut the sea floor but do not offset it. No faults were mapped crossing the proposed pipeline route. (See the USGS memorandum of June 5, 1981 in appendix 7 of this EA.)

Seismic activity, however, is frequent in the San Pedro shelf region (USGS, memorandum of June 5, 1981 in appendix 6 of the EA). Some events appear to align with the Palos Verdes fault although this association is not well documented. The largest nearby earthquake occurred in 1933, possibly along the Newport-Inglewood fault. Magnitude of this event was 6.3.

Potential for significant earthquake induced ground shaking is high because of proximity to the Palos Verdes and Newport-Inglewood faults. Concentration of earthquake events in the Long Beach area is primarily due to activity on the Newport-Inglewood fault zone (USGS, memorandum of June 5, 1982 in appendix 6 of this EA).

In addition, other major faults are present in the southern California region. Table 3-3 in the ER lists such faults and maximum credible magnitudes.

Table 5 below lists maximum accelerations which may be expected from nearby faults, including the San Andreas.

TABLE 5

Fault	Maximum Earthquake Magnitude	Closest Approach of Fault to Site (km)	Maximum Accelerations (g) Rock	Mudline
Palos Verdes	6.5 to 7.0	0.7	0.5 to 0.7	0.25 to 0.4
Newport-Inglewood	6.5 to 7.0	15.0	0.2 to 0.5	0.15 to 0.3
San Andreas	8.5 plus	71.5	0.10	0.10

(See USGS and others, 1978, volume 1, page 117.)

Strong ground shaking is considered to include accelerations greater than .1 g. Such levels could be expected at the site even though epicenters may be located at some distance. Platforms, pipelines and other oil production equipment must be designed to withstand expectable ground motions from such shaking.

U. S. Fish and Wildlife Service (FWS) was concerned about performance of the platform during earthquake situations (FWS memorandum of May 27, 1981 in appendix 7 of this EA). Probability of platform failure is small. However, if a spill should occur due to a platform collapse, discharge of oil would be limited by automatic subsurface safety valves and automatic pipeline shutdown valves. If a pipeline should rupture, spillage would be controlled by automatic shutdown of pumps and closure of valves along the pipeline (Chevron, 1980b, pages 9 to 17).

Casing rupture has been caused by fault displacement in several California fields. No blowouts have resulted and subsurface valves installed in accordance with Pacific OCS Orders Nos. 5 and 6 would limit a spill from this type of accident.

The combination of earthquake potential and the presence of 60 to 70 feet of sandy material at the proposed site raises concern about liquefaction due to excessive pore pressure during cyclic loading. However, geotechnical studies indicate materials in this area exhibit resistance to loss of strength and general site stability problems are not of concern. (See McClelland Engineers, Inc. 1980, pages 17 to 19.)

Three anomalous areas with possible shallow gas were mapped within 600 m of the proposed platform site and proposed platform route. The largest anomaly is about 0.8 km^2 in area and 21 m to 37 m below the sea floor. The two smaller areas are located north and south-southwest of the proposed site at a depth of 30 m to 37 m respectively. In addition, two possible zones of gas charged sediments were also located in the southeast quarter of the lease. Possible indications of hydrocarbon seeps are common on the lease although not prominently at the platform site or along the pipeline route to Elly (see USGS memorandum of June 5, 1981 in appendix 6 of this EA).

The possible presence of shallow gas or other hydrocarbons is taken into consideration in drilling programs and is not considered to a problem in the San Pedro region. Numerous wells have been drilled in this region without incident.

Subsidence due to fluid withdrawal could occur within the area. To prevent such a problem, a program of water injection to maintain reservoir pore pressures will begin soon after the start of production and continue throughout the life of the field. Therefore subsidence is not expected to occur. (See Chevron, 1980b, page 65.)

No fresh water bearing formations of significance have been encountered in

the Beta field, thus no mitigating measures will be required (Chevron, 1980b, page 97).

Only a few tsunamis have been generated along the coast south of the Santa Barbara Channel. Locally generated tsunamis occurred in 1879 (at Santa Monica) and at Long Beach in 1933. In addition, all of southern California was affected by the 1960 Valdavia, Chile earthquake. None have caused serious damage. (See USGS, appendix 6.)

A blowout is thought to be unlikely due to geologic conditions in the area. Numerous exploratory wells have been drilled and the following conditions have been observed that lower the probability of such an event (Chevron, 1980b, pages 164 and 165):

1. Thick capping strata above the producing zone.
2. The presence of low gravity oil which has little gas associated with it.
3. The absence of abnormally high gas pressures.
4. No loss of circulation.

Compliance with USGS Pacific OCS Orders Nos. 2, 5, and 6 will mitigate the potential for uncontrolled flow of oil or gas during the life of the project.

Oil Pipeline

Construction and maintainance of the proposed pipeline are not expected to be affected by the geologic characteristics of the area provided appropriate actions are taken to mitigate potential effects of seismic shaking. No faults, adverse structural features or mass movement features were recognized along the route. (See McClelland Engineers, Inc. 1980, pages 30 to 36.)

B. Meteorology

The moderate weather typical of the San Pedro Channel is not expected to affect the proposed project. Temporary severe conditions or heavy fog could occasionally limit activities.

A Critical Operations and Curtailment Plan describing conditions during which certain operations will be suspended has been submitted to USGS by Chevron, Inc. The intent of this plan is to minimize the performance of critical drilling and production operations when wind and sea conditions would seriously impede the containment and cleanup of oil spilled on the waters.

Critical operations will not begin or be conducted when wind speed is greater than 40 knots or when fog is so dense that visibility on the structure is limited. Critical operations are defined as those operations where potential for a significant spill exists. (See Oil Spill and Emergency Contingency Plan, Chevron 1980c.)

Air Quality

Air quality in the area will be impacted by activities during installation and production. Projected emissions are listed on table 4-1 of the ER and table 4-2 of the Air Quality Analysis (revised February 1, 1982) for each year of activity. These impacts are discussed in section 4.2.2 of the ER and in the Air Quality Analysis (revised February 1, 1981) submitted by Chevron (1980b, 1980c, and 1982).

The DOI has established air quality regulations for oil and gas operations in the OCS (30 CFR 250.57). Exemption formulas and limits have been established which can be used to determine the annual levels of emissions an OCS facility can emit and not significantly effect onshore air quality. If projected

emissions are below these levels, a new production plan is exempt from further Federal air quality review. Calculations indicate the proposed activities throughout the life of the project remain below levels permitted by USGS. (See tables 4-1, Chevron, 1980b, and table 2, Chevron, 1982, for exemption levels and projected emissions.)

FWS (memorandum of June 12, 1981 in appendix 7 of this EA) questioned whether the sustained emissions meet existing standards of the local air quality management district. The South Coast Air Quality Management District (SCAQMD) adopted New Source Review Rule (Rule 13) on October 5, 1979 (amended March 7, 1980). The rule is applicable to new stationary sources which result in a net emission increase (from the source of any non-attainment air contaminant greater than 150 pounds (68 kg) per day except for CO, for which an increase up to 750 pounds (340 kg) per day.

This project will not exceed the allowable 150 pounds/day limits set by SCAQMD. Onshore emissions will result from additional throughput in Shell's onshore system. Chevron, however, is required to obtain an amendment to Shell's SCAQMD air quality permit to allow the incremental increase in flow through Shell's onshore facility.

C. Physical Oceanography

Local oceanographic conditions will not generally affect the project. Sea states might intermittently limit activities (see Critical Operations and Curtailment Plan, Chevron, 1980c, appendix 5).

Discharges to the marine environment will include water based drilling muds and cuttings, formation waters and sewage discharge. Such discharges will occur under an NPDES permit issued by the Environmental Protection Agency (EPA) and

under USGS, OCS Order No. 7. These discharges will not contain hydrocarbons. Impacts of these discharges are discussed in section 4.3.2 in the ER.

FWS indicates a concern about the impacts of drilling muds (FWS memorandum of May 27, 1981 in appendix 1 of this EA). Recent studies of such impacts are discussed in the FEIS for Sale 53. Based on such studies it is suggested drilling muds and cuttings should have relatively minimal short-term effects on ocean water quality or benthic fauna at distances greater than about 1,000 m.

It was concluded that water quality in the immediate vicinity of drilling will be degraded. Such degradation will decrease with distance from the platforms and no significant decrease should occur at distances greater than a few kilometers under normal operating conditions.

D. Other Uses of the Area

As stated earlier, Platform Edith will be located in the Maritime Traffic Separation Scheme (TSS) and will be equipped as a first class navigational aid for shipping and boating. The U. S. Coast Guard has no objection to the proposed project (see U. S. Coast Guard correspondence of June 12, 1981).

There will be minimal impact on commercial and sport fishing, except in the event of a large oil spill which could cause short-term high impacts by preclusion of fishing in this area. One commentator requested mention of space-use conflicts, particularly in view of other platforms being considered for the area. BLM (1981, pages 4-67 to 4-75) discusses impacts on fish and fisheries as related to OCS Lease Sale 68 and states that, in general, a maximum radius of 1,320 feet (403 m) may be lost around all offshore structures. Present structures in the Beta Unit area are Platforms Ellen and Elly. The only other platform contemplated at this time is Eureka on Lease OCS-P 0301, approximately

one mile southwest of Platform Ellen. Approximately 0.6 to 1 square mile will be lost to commercial and recreational fishing due to the 3 to 4 platforms anticipated in this area.

The existing Shell pipeline will be utilized for transportation of oil production to shore. The area contains no known mineral resources other than natural gas and oil.

As recommended by the cultural resources investigation, the two undefined anomalies noted at the edge of the 2,000 foot (609 m) radius of impact surrounding the platform will be avoided during anchoring activities connected with platform and pipeline construction.

The project area is not presently suitable for mariculture activities. However, it is not inconceivable that the platform could be used as a "station" for certain mariculture activities should feasibility studies underway be successful; this has not been proposed.

E. Flora and Fauna

The pelagic and benthic environments in the area have been described. No unique, unusual biological features have been reported. Impacts of platform construction and development drilling will affect the water column and sea floor within the lease in a highly localized and short-term manner.

Discharged clean drill cuttings are partially dispersed by currents but also may form a mound at each drill site. Discharges of used drilling muds are intermittent; dilution is rapid. The proposed activities will not affect the biota except for some benthic organisms in the immediate area of activity and limited, temporary impact on the plankton.

Release of drilling muds and oil free cuttings will alter the benthic environment surrounding the platform. Both epifaunal and infaunal benthic communities will be locally affected during platform implacement and the drilling phase of the program.

A slow accumulation of sediments may allow some organisms to tolerate the changes. Some organisms could migrate through successive layers of sediments, and move over the surface without being buried. More rapid sedimentation may smother and bury benthos resulting in localized high mortalities. Drill cuttings will be of a different consistency, size range, and chemical composition than surface sediments. Organisms which currently occupy the sediments may not be pre-adapted to this changing sediment regime and may show local replacement by different community assemblages. Recolonization of disturbed areas is expected to occur over time.

The pipelines from Platform Edith to Platform Elly will lay along the ocean floor. Construction will not require dredging or major disturbance to the ocean floor. Minor turbidity is expected due to installation of the platform and pipeline. Effects from the installation of the submarine power cable from Huntington Beach to Platform Edith would be localized turbidity, minor sediment disruption, and a small change of habitat. The marine environment along the proposed cable route is naturally characterized by frequent turbidity and sand movement.

A slight impact may be a temporary reduction in local phytoplankton productivity and zooplankton activity due to the increased turbidity. The disturbance is expected to be limited due to the abundant and transient nature of the plankton. Dilution will be a mitigating factor as circulation patterns are favorable for rapid dispersion.

With few exceptions, fish are highly mobile and capable of moving rapidly and freely over considerable distances. Temporary limited disturbance of habitat and food source of some demersal fish is expected in the immediate area of installation activities.

Various species of fish are attracted to offshore oil platforms, which serve as artificial reefs providing food and/or shelter. Platform Edith may be expected to attract reef fishes such as surf perches, rock fishes, sea basses, and sculpins, in addition to open ocean fishes including Pacific sardine, jack mackeral, Pacific mackerel, yellowtail, and bonito.

Concerns for marine mammals and birds focus on the very unlikely event of a substantial oil spill and on the hypothesized impacts of noise and platform presence on migratory routes especially those of the cetaceans.

Endangered Species

On June 5 and 6, 1979, the USGS (now MMS) met with National Marine Fisheries Service and the U. S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act; biological opinions were issued by these agencies on September 25, 1979 and November 1, 1979, respectively. The opinions concluded that identified activities, such as those similar to the Chevron U.S.A. Inc., Plan of Development, were not likely to jeopardize the continued existence of listed species. (See appendix 1 of this EA.)

BLM (1981) summarizes the significant impact producing agents and impacts on endangered species (pages 4-1 to 4-46 and 4-83 to 4-88, respectively). Impact producing agents include potential oil spills, manmade structures, vessel traffic, noise, other discharges, and changes in economic activity.

The following two paragraphs are quoted from BLM (1981, pages 4-85 and 4-86). Lease OCS-P 0296 lies within the area covered by proposed Sale No. 68.

> "Of the seven endangered whale species that are found within the Bight, the gray whale is considered the most vulnerable to the potential impacts from lease Sale No. 68. The gray whale is a frequent (bi-annual) visitor to the SCB, is found in large numbers, and frequents nearshore areas associated with oil and gas development. The gray whale is potentially vulnerable to ingestion, inhalation, and epidermal contamination as a result of contac with oil, although the degree of impact from these factors is currently unknown. Noise pollution is a factor suggested by some to cause the gray whale to alter its migratory route, although this hypothesis was not supported by Dohl (1978)[1] in his three-year study of cetaceans of the SCB; noise pollution and offshore disturbances have been increasing concurrent with the increases in gray whale population numbers. Recent sightings of gray whales in more distant offshore areas have been attributed to increases in population numbers, not OCS activity (Dohl et al. 1980). The low probability of a spill from lease Sale No. 68 and the gray whale's seasonal presence within the SCB are factors that minimize this species' risk to impacts from Sale No. 68 activities.
>
> The other endangered whale species are less likely to be impacted than the gray whale since individuals of these species are less abundant and utilize more distant offshore regions of the Bight. Assuming that a spill occurs, endangered baleen whales (e.g. blue, fin, humpback) could accidentally ingest oil while feeding, thereby fouling their baleen plates. Other baleen whales, such as right and Sei whales which skim the water surface, may be the most vulnerable of the baleen feeders. The effects of oil ingestion on cetaceans considered to be low due to the low probability of an oil spill occurring as a result of Sale No. 68 activities."

BLM (1981, personal communication) cautioned that the gray whale is the most likely species to be observed in Lease OCS-P 0296.

BLM (memorandum of June 23, 1981; in appendix 1) also offered refinements on the endangered species discussion in the Chevron (1980b) Environmental Report:

[1]Dohl, T. P., K. S. Norris, R. L. Guess, J. D. Bryant, and M. W. Honig. 1978. Cetacean of the Southern California Bight. Part II, volume III of the Draft Final Report of Summary of Marine Mammal and Seabird Surveys of the Southern California Bight Area 1975-1978, 414 p.

-- Gray whales are known to collide with boats or ships. (Refer to Patten, D. R., W. F. Samaras, and D. R. McIntyre. 1980. Tailless grays: Whales versus vessels. Abstract No. 73 in: Abstracts, Southern California Academy of Sciences Annual Meeting, May 2 and 3, 1980.)

-- The most recent sighting of a Pacific right whale was off the coast of California in the Santa Barbara Channel in April 1981. Prior to this incident, the last sighting of a right whale was near San Diego in 1955. One sighting every 20 to 25 years is typical for this species.

-- The California sea otter is listed as threatened by the Federal government.

The light-footed clapper rail, Belding's savanna sparrow, salt-marsh birds, and least tern are found at Anaheim Bay, Bolsa Chica, upper Newport Bay, and the Santa Margarita River. If a spill should occur and strike either nesting or foraging areas of the bird species, they would be heavily impacted; the plant species would be impacted as spilled oil struck a marsh area and was deposited during high tide. Endangered sea turtle species have been seen in Long Beach Harbor on rare occasions as migrants, but not as part of a resident breeding population.

Other endangered species of San Pedro Bay area (inhabiting the coastal zone and Santa Catalina island) are terrestrial and would not be impacted by an oil spill.

Based upon this information we have determined that approval of the proposed action will not jeopardize the continued existence of any endangered species or result in the destruction or adverse modification of critical habitat.

Because of the distance of the proposed platform from shore, the use of an existing pipeline to shore and the use of existing onshore facilities, no impact is anticipted on breeding habitats, migration routes, endangered or threatened species or their critical habitat.

In summary, the impacts to flora and fauna resulting from construction of the platform and production and drilling would primarily affect benthic organisms. These impacts would be insignificant. Recolonization of disturbed areas by planktonic larvae will begin following cessation of habitat disturbance. In addition, the platform structure will serve as an artificial reef, possibly attracting more organisms than were originally present.

E. Onshore Impacts

Presently in the Long Beach - Huntington Beach offshore areas there are six oil islands and two platforms in State waters and two platforms on the Federal OCS (figure 1). Onshore oil development and production has been an important part of the socio-economic infrastructure and a conspicuous component in the physical environment since the turn of the century.

Onshore impacts are discussed in Chevron, 1980b, pages 185 to 191. The proposed activities will serve to maintain existing levels of onshore employment and services but will have no other perceptible impact on local employment, population and industry, community services, public opinion, transportation systems on facilities, or scarce coastal resources.

The project will not place any demands on resources within the affected area other than those which the area has historically been experiencing with past and present production work. Chevron, 1979b, pages 186 to 188 list requirements for supplies and equipment, water, aggregate energy, and other resources.

Onshore support facilities are already in existence in Huntington Beach, Long Beach, and the ports of Long Beach and Los Angeles. The only onshore construction will be the installation of a submarine cable from Chevron's Huntington Beach facilities to proposed Platform Edith. The grading for the construction of the electrical substation will not impact any cultural resources. Onshore construction is expected to last 60 days, and power cable installation within State waters approximately five days. Associated construction emissions appear to be the main impact; however, they will have a negligible impact on long term onshore air quality.

F. Accidents

Possible, but highly unlikely major acccidents from Platform Edith are addressed in Chevron, 1981b, pages 192 to 207. In the context of the proposed activities, the only type of accident which might result in substantial adverse impact is a major oil spill. Possible oil spill impacts from nearby Shell Platforms Ellen and Elly were described in USGS and others, 1979, pages 115 to 143. Lease sale environmental impact statements have addressed potential accidents including oil spills in the Southern California Bight (BLM, 1975, volume 2, pages 31 to 92; BLM, 1979, volume 2, pages 740 to 856; BLM, 1981, volume 1, pages 4-1 to 4-26).

During development drilling and production, oil spills can occur from blowouts, fires, pipeline leaks or ruptures, pump failures, ship collisions, and operating equipment failures. The primary causes of spills are equipment inadequacies and operator errors. The most likely cause of a major oil spill associated directly with development drilling is a blowout. However, it is not the most likely cause of any spill. In general, leaks, ruptures, and equipment failures are the most common causes of oil spills from offshore facilities.

The multitude of operating practices resulting from industry precautions, OCS Orders, and government regulations have evolved to minimize these possibilities. The implementation of Chevron's Oil Spill Contingency Plan has been discussed in section 1 of this EA.

IV. ALTERNATIVES TO THE PROPOSED ACTION

Alternatives to the proposed action are presented in Chevron (1980b, pages 208 to 221). These are: (1) no project, (2) project postponement, and (3) alternative offshore facilities.

The no-project alternative is not seen as viable insofar as the Federal Government is concerned. Current Department of Interior policy is that oil and gas leases must be explored and developed within a reasonable time. State and local authorities, however, may consider the no-project alternative as viable. If the project is denied, resulting impacts may include: project oil replacement by foreign oil, additional cost to the consumer from tankering of imported oil, negative air quality impacts from tankering, negative effect on U. S. balance of payments, and loss of income to the lessees, governmental entities, contractors, and personnel. Other impacts, as discussed in section III of this EA, would not occur, including those that are beneficial.

Project postponement impacts are essentially the same as those for the proposed project, except that they would occur at a later date. The applicant's ability to implement the project could be eliminated, especially if the Department of the Interior terminates the lease due to non-exploitation. Possible advantages could, but not necessarily, result from delay attended by significantly higher costs. A theoretical example is that a long postponement could mean the oil resources would be more valuable as raw materials (such as petrochemicals) than as fuel, resulting in another project with a different primary use for the produced products.

Alternative offshore facility considerations involve drilling, processing and crude transport. Subsea completions are economically infeasible because the viscous oil deposits require artificial lift for production; continuous well

V. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

There are some adverse, but not significant, effects anticipated with the proposed Plan of Development.

	Construction	Drilling	Operational
- Localized disturbance of bottom Sediment around platform	X	X	
- Localized increase in turbidity, with associated effects on water quality and marine biota	X	X	
- Slight decrease in offshore air quality.	X	X	X
- Preclusion of a small area around the platform (about 2.2 mile of 310 ha.) from competing uses such as commercial and sport fishing.	X	X	X
- Possible minor disruption of migratory and other activities of marine mammals.	X	X	X
- Possible temporary disruption of use/activities and resources due to oil spills.		X	X
- Potential visual impact of the platform to persons on shore.	X	X	X

VI. CONTROVERSIAL ISSUES

While a number of comments have been received on the Environmental Report (Chevron, 1980b), most have related to interest in the document, the project or agency missions and are not controversial. These comments are in appendices 1 and 7 of this EA.

The United Brotherhood of Carpenters and Joiners of America, Pile Drivers Local 2375, AFL-CIO, however, requested (April 1, 1982) that MMS withhold approval of the Development and Production Plan for Platform Edith until Chevron corrected

alleged errors in the Environmental Report and furnished all information required by the Outer Continental Shelf Lands Act. Additional comments were submitted April 7, 1982. (See appendix 8 of the EA for complete comments.)

The major concern of the Union is the proposed use of foreign workers during installation of the platform. It is alleged that such an action will deny employment to local workers and that this socio-economic impact is not addressed in the ER. MMS has questioned Chevron concerning the above. Changes in socio-economic impacts are discussed in detail in correspondence from Chevron (June 22, 1982) in appendix 8 and Section II.F of this EA.

It is also alleged that the use of foreign workers may soon be held to be illegal and that it would be improper to approve the Plan until this issue is settled by the court.

The law, however, does not presently restrict the use of foreign labor in the installation of platforms on the OCS and there are no regulatory measures requiring the employment of citizens of the United States for such work. The restriction on employment under Section 30 of the OCS Lands Act Amendments of 1978, 43 U.S.C. 1356(a)(3), was contingent upon adoption of regulations to implement statutory provisions for manning by U. S. citizens. Final rules were published Thursday, March 4, 1982 (Federal Register, Volume 47, No. 43, pages 9,366 to 9,386) but will not become effective until April 5, 1983. Chevron at present is under no legal obligation to employ citizens of the United States in the installation of platforms.

In further comments, the Union alleges that many persons are concerned with offshore oil and gas development as is evidenced by public comments submitted on Sale 68. These comments pertained to an entire sale not this single project.

No objections have been raised by the State, the public or local officials within the year and 3 months since the proposal was submitted to MMS. In addition, the State will hold public hearinngs before making a determination of consistency with respect to the California Coastal Plan.

The Union raises concerns about the quality of craftmanship of foreign workers and ability of the platform to withstand seismic loading. The Platform Verification requirements of MMS (OCS Order 8) will insure quality workmanship and and soundness of structure.

The location of the platform has also been given the approval of the U. S. Coast Guard, the Federal agency with jurisdiction over such matters. Chevron will also meet all requirements of color and lighting set by USCG.

Concerns over socio-economic impacts and seismic risk raised by the Union have been addressed in this EA (Sections III.F.) and the letter from Chevron (Appendix 8).

The Union correctly pointed out that a derrick ship will be used rather than a derrick barge (as stated in the ER). Chevron acknowledges this change and has submitted revised air quality calculations (appendix 8).

The Union raises concerns for endangered species within the area of proposed activity. These have been addressed in the EA and in comments submitted by Fish and Wildlife Service and National Marine Fisheries Service, agencies with management authority for these species.

Potential impacts of discharge of muds, cuttings and oil were also mentioned by the Union. These impacts have recently been studied by EPA and were found to be minimal and/or of short duration. Because of these findings EPA recently

issued a General NPDES Permit for southern California (Federal Register, Volume 47, No. 33, Thursday, February 18, 1982, pages 7,312 to 7,329). Discharge of oil is not permitted.

The Union concerns over impacts to commercial fishing are addressed in Section III.D. of this EA.

VII. FINDING OF NO SIGNIFICANT IMPACT

We have examined the impacts of Chevron U.S.A. Inc. plan of development/ production, proposed Platform Edith, Lease OCS-P 0296 Beta area, San Pedro Bay, offshore southern California, in the preceeding pages of the environmental assessment. The following summary sheet shows the evaluation of these impacts against each of the parameters listed for "significance" in 40 CFR 1508.27 and the background impact reference for our reasons of determining the no impact or not significant impact category.

SUMMARY TABULATION
CHEVRON U.S.A. INC., OPERATOR
PLAN OF DEVELOPMENT/PRODUCTION,
PROPOSED PLATFORM EDITH, LEASE OCS-P 0296, BETA AREA,
SAN PEDRO BAY, OFFSHORE SOUTHERN CALIFORNIA

K E Y

NI - No Impact
NS - No Significant Impact

CEQ Parameter 40 CFR 1508.27(b)	Severity of Impact Level/Degree of Significance	Parameter Subheading (if appropriate)	EA Reference Page(s)	ER Reference Page(s)
1. Beneficial and/or adverse effects.	NS	Objectives	1 to 2	5 to 6
		Geology	12 to 14	79 to 98
		Geologic Hazards, Platform Site	29 to 31	155 to 165
		Geologic Hazards, Pipeline Route	Appendix 6 32 to 34	166 to 168
		Meteorology	15 to 21 34 to 35	98 to 107
		Air Quality	20 to 21 35 to 36	168 108 to 113 169 to 174 Appendices 2, 3, 4, and 5
		Oceanography	21 to 23 36 to 37	114 to 121
		Commercial Fishing	23 to 24 37	121 181
		Shipping	24 and 37	122
		Military Uses	24	122 and 181
		Boating and Recreation	24 and 37	123 and 181
		Kelp Harvesting and Other Commercial Uses	24 and 25 38	124 and 181

CEQ Parameter 40 CFR 1508.27(b)	Severity of Impact Level/Degree of Significance	Parameter Subheading (if appropriate)	EA Reference Page(s)	ER Reference Page(s)
1. Beneficial and/or adverse effect (Continued).		Potential or Known Cultural Resources	25 38	125 to 129 181 Appendix 7
		Refuges, Preserves, Marine Sanctuaries	25	130 181
		Existing Pipelines and Cables Sensitive Underwater Features	4 to 6 10 25 to 27 Appendix 1 40 to 42	130 181 150
		Flora and Fauna--Pelagic and Benthic	38 to 39	130 181 150
		Socio-economics	27 to 28 43 to 44	152 to 154 186 to 192
2. Public health and safety.	NS		28	21 to 26
3. Unique characteristics of of the geographical area	NS	Also see CEQ parameter 1 (above)	27 to 28	79 to 98
4. Effects highly controversial.	NS		27 to 28	152
5. Highly uncertain effects or unique or unknown risks	NI		8	
6. Establishes precedent for future actions or is a decision in principle for future action.	NI		43	
7. Assessment of cumulative actions and impacts thereof. Note 40 CFR 1508.7.	NS	Note: Cumulative impacts are also addressed in CEQ Parameter "1" above.	10	181 186 to 192

CEQ Parameter 40 CFR 1508.27(b)	Severity of Impact Level/Degree of Significance	Parameter Subheading (if appropriate)	EA Reference Page(s)	ER Reference Page(s)
8. Effects on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant cultural historical resources.	NI			125 to 129 Appendix 7 Appendix 7
9. Effects on endangered or threatened species or their habitat that have been determined to be critical under the Endangered Species Act of 1973.	NS		42	141 to 152 182 to 185 Appendix 6
0. Threatens a violation of Federal, State, or local law or requirements imposed for protection of the environment.	NI	Under present regulations there is no violation of air quality standards, as published in 30 CFR 250.57. However, DOI and USGS air quality regulations have been challenged by the State of California by Civil No. 81-3234 CBM (MX) in the U. S. District Court for the Central District of California.		
.. Other related NEPA and environmental documents.		Please see cover of this EA. Inspection copies are available at: Minerals Management Service, Room 144E, 1340 West Sixth Street, Los Angeles, California 90017.		
		References		224 to 233

VIII. ENVIRONMENTAL ASSESSMENT DETERMINATION

CHEVRON U.S.A. INC., OPERATOR
PLAN OF DEVELOPMENT/PRODUCTION, PROPOSED PLATFORM EDITH,
LEASE OCS-P 0296, BETA AREA, SAN PEDRO BAY, OFFSHORE SOUTHERN CALIFORNIA

In my opinion, approval of the proposed action involving Chevron U.S.A. Inc. Plan of Development from Lease OCS-P 0296 in the Beta Area, San Pedro Bay, described in this environmental assessment, does not constitute a major Federal action significantly affecting the quality of the human environment in the sense of NEPA, section 102(2)(C). In rendering this opinion, I have given special consideration to 30 CFR 250.34-4 (compliance with NEPA).

William E. Grant 7/8/82

H. T. Cypher (Date)
Deputy Minerals Manager
Field Operations, Pacific OCS Region

I determine that preparation of an Environmental Impact Statement is not required.

Reid T. Stone 7/8/82

Reid T. Stone (Date)
Acting Minerals Manager
Pacific OCS Region

IX. REFERENCES

Ayers, R. C. Jr.; Sauer, T. C., Jr.; Stuebner, D. O.; Meek, R. P.; 1980, in Procedings of Symposium: Research on Environmental Fate and Effects of Drilling Fluids and Cuttings, held in Lake Buena Vista, Florida; January 21 to 24, 1980.

Ayers, R. C. Jr.; Sauer, T. C., Jr.; Meek, R. P.; Bowers, G.; 1980, in Proceedings of Symposium: Research on Environmental Fate and Effects of Drilling Fluids and Cuttings, held in Lake Buena Vista, Florida; January 21 to 24, 1980.

Bascom, W.; Mearns, A. J.; Moore, M. D.; 1976, A Biological Survey of Oil Platforms in the Santa Barbara Channel, in offshore Technology Conference, 1976, Paper No. OTC 2523.

Bureau of Land Management, 1979, Final Environmental Impact Statement, proposed OCS oil and gas lease sale, offshore southern California, OCS Sale 48; 5 volumes.

Bureau of Land Management, 1975, Final Environmental Impact Statement, proposed 1975 OCS oil and gas general lease sale offshore southern California, OCS Sale No. 35; 5 volumes.

Bureau of Land Management, 1980, Final Environmental Impact Statement, proposed 1980 OCS oil and gas general lease sale offshore central and northern California OCS Sale No. 53; 2 volumes.

Bureau of Land Management, 1981, Final Environmental Impact Statement, proposed 1982 OCS oil and gas general lease sale offshore southern California, OCS Sale No. 68; 2 volumes.

Chevron U.S.A. Inc., 1980a, Development and production for proposed Platform Edith, San Pedro Bay, offshore southern California, Federal Lease OCS-P 0296.

Chevron U.S.A. Inc., 1980b, Environmental Report for proposed Platform Edith, San Pedro Bay, offshore southern California, Federal Lease OCS-P 0296.

Chevron U.S.A. Inc., 1980c, Oil Spill and Emergency Contingency Plan for Platform Edith, Lease OCS-P 0296.

Chevron U.S.A. Inc., 1981, Revision to: Development and Production Plan for Platform Edith, Lease OCS-P 0296.

Ecomar, Inc., 1978. Tanner Bank Mud and Cuttings Study. Conducted for Shell Oil Company.

Fish and Wildlife Service memorandum of May 27, 1981.

McClelland Engineers, Inc., 1980, Geotechnical and Geophysical Site Investigations Proposed Platform Edith and Pipeline Route, Beta Unit 0296 Development, San Pedro, California. Geotechnical Consultants; Houston, Texas.

National Marine Fisheries Service correspondence of June 8, 1981.

(IX. References continued)

Science Applications, Inc., 1978, Air Quality Impact of Shell Oil Company's Beta Project; Report No. SAI-78-804-LJ; Project I-022-05-137-60, La Jolla, California.

United States Coast Guard correspondence of June 12, 1981.

U. S. Geological Survey, State Lands Commission, Port of Long Beach, 1978, Environmental Impact Report - Environmental Assessment, Shell OCS Beta Unit development: technical assistance, WESTEC Services; Inc., 4 volumes.

U. S. Geological Survey memorandum of October 23, 1980.

X. APPENDICES

1. Biological, Endangered, and Threatened Species Surveys
2. Cultural Resource Surveys
3. Contingency Plans
4. Maps, Diagrams, Photographs
5. Proposed Plan of Development and Environmental Report
6. U. S. Geological Survey Reports
7. Review Commments, and Correspondence from Other Agencies and the Public
8. Correspondence Received After 1981

APPENDIX 1

BIOLOGICAL, ENDANGERED, AND THREATENED SPECIES SURVEYS

Correspondence:

U. S. Fish and Wildlife Service, Memorandum of May 27, 1981
National Marine Fisheries Service, Letter of June 8, 1982
Biological Opinion, National Marine Fisheries Service, September 25, 1979
Bureau of Land Management, Memorandum of June 23, 1981
Biological Opinion, U. S. Fish and Wildlife Service, November 1, 1979.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
24000 Avila Road
Laguna Niguel, CA 92677

May 27, 1981

Memorandum

To: Acting Deputy Conservation Manager
Field Operations, Pacific OCS Region
USGS, Los Angeles, California

From: for Field Supervisor, USFWS (ES-LN), Laguna Niguel, CA

Subject: 655 DM 1 Review, Development and Production Plan--OCS-P 0296, Platform Edith; Chevron U.S.A. Inc., Operator

We have completed a review of the Development and Production Plan and Environment Report which discuss proposed construction and operation of a crude oil pipeline connecting Chevron's Platform Edith (OCS-P 0296) to Shell's Platform Elly (OCS-P 0300) in San Pedro Bay, California.

GENERAL COMMENTS

The Environmental Report (ER) appears to be a well organized and referenced document with some site specific information. The use of cross referenced sections assists the reader to understand the content and format of the report. The selection of a connecting pipeline, rather than a new onshore line minimizes potential impacts during construction. Our concerns for the ER relate to questions not covered in the document and include: 1) method for and duration of dismantling the pipeline and platform after the 20 year project period; 2) proposed operation and maintenance of and mitigation for the pipeline, especially how it relates to minor and major oil spills; and 3) need for a more detailed discussion of the operation of the 72 well platform in case of blowout/earthquake situations. Additionally, the location of these facilities in the shipping lanes to Ports of Los Angeles and Long Beach appears to increase the potential for a collision with the platform and an oil spill.

Appendices with the calculations for air quality add to the general value of the ER and provide some insight into the anticipated Development and Production Plan.

The Development and Production Plan is an informative document. However, there is no clear discussion of mitigation measures or for the following:
1. 1) the source of freshwater for use in steam injection for the heavy crude and the impact this demand or use of freshwater will have on other water
2. uses in southern California; 2) the proper disposal of drilling muds in a

Class I disposal site; and 3) the prevention of additional toxicity from entering into the food web of the southern California ecosystem due to the heavy organometallic chemicals and certain heavy metals of the drilling
3. muds. A meaningful discussion of these factors should be incorporated into documents submitted for the necessary Corps of Engineers and California Coastal Commission permits and for any Environmental Assessment/Environmental Impact Statement (EA/EIS) prepared by Geological Survey and/or Bureau of Land Management.

SPECIFIC COMMENTS

Section 2.18 Coastal Zone Consistency

Information should be provided about the time of and the method for pile driving for the jacket as well as for laying the subsea pipeline and power cables. If this work is done at the wrong time of the year or in a manner
4. which will suspend waste materials and chemicals in the sediments, significant short-term and potentially long-term impacts to biological resources may be the result. Particular biological resources which may be impacted include: gray whales, pelagic marine bird species (shearwaters, auklets); bottom bait and recreational fisheries; and epifaunal invertebrates (pismo clams, polychaete worms, and cancer crabs) and other components of the marine food web of the Southern California Bight.

According to the ER, you studied the potential for a hazardous oil spill only to Palos Verdes. We believe that the summary of physical oceanographic conditions in the document indicates that a spill could extend upcoast
5. beyond Palos Verdes towards Malibu and Ventura County. Additional analysis of the potential spatial extent of an oil spill should be reevaluated and discussed thoroughly, especially the extent of possible biological damage from proposed "cleaning up operations" in the subtidal and intertidal habitats of the mainland and Santa Catalina Island. Accurate prediction of a potential oil spill is important due to the seasonal variation of the occurrence of many marine species and adverse impacts which could occur to those resources due to an oil spill.

Section 3.3 Air Quality

Analysis of air quality issues reflects a somewhat limited view. Additionally, this is the case even when these are combined with the discussion in other
6. sections (Sections 4.2 and 4.6) of the report. Although, the impacts to air quality from construction are minimal, emissions from sustained operations together with prevailing wind patterns do not appear to meet the existing standards of the Air Quality Management District and guidelines from the Environmental Protection Agency for the onshore area. Synergistic impacts with onshore and other offshore facilities need to be discussed in these documents or in the Geological Survey's EA/EIS.

Section 3.4 Water Quality

The information is well presented and referenced; however, its scope and content appear too limited. Details for the immediate project area and inter-relationships to attached epifaunal invertebrates and associated
7. nearshore fish species should be provided in the document. Additional oceanographic (biological and chemical) information from other researchers, i.e. Southern California Coastal Water Research Program, University of

Southern California, University of California-Los Angeles, and University of California-Santa Barbara oceanographic and marine studies, should also be incorporated. If this data is not available, future studies should be formulated and evaluated by concerned agencies.

Section 4.3 Drilling Muds

Summary of published literature is good; however, it appears to rely too heavily on Gulf of Mexico research. More recent studies at Massachusetts Institute of Technology, Oklahoma State University, University of Rhode
8. Island, and Louisiana State University indicate a growing awareness of longer term impacts from drilling muds. The use of sophisticated elutriate tests of longer duration (120+ hour tests) should be included in a revised and more specific discussion.

The use of the Tanner Bank Study information appears to raise more questions rather than answer them. Likewise, the use of a very tolerant, non-marine
9. fish species (Gasterosteus aculeatus) for very limited bioassay experiments has very limited application to the analysis. We suggest new experiments using native marine benthic invertebrate and fish species in both controlled and field experiments.

Should you have any questions concerning the above comments and informational needs, they could be discussed at a meeting of concerned agencies similar to the October 1979 coordination meeting, or conference telephone hookup. Please contact John Wolfe at FTS 796-4270 should you desire to discuss these issues further.

David McGilliway

Fish and Wildlife Service, Letter of May 27, 1981

The general comments are noted. The method and duration of dismanteling the platform after the 20 year project period are similar to those of installation. All casing, wellhead equipment, and piling is to be removed to a depth of at least 5 meters (16 feet) below the ocean floor, or to a depth approved by the District Supervisor after a review of the data on the ocean bottom conditions. The lessee must verify that the location has been cleared of all obstructions. Platform Harry in Santa Barbara State waters was dismanteled and removed in 1974, without incident or environmental degredation. In general, pipelines are either removed or alternately filled with cement and abandoned; this would be determined by responsible and interested agencies at the time of platform abandonment.

Operations and maintenance of the pipeline are discussed section VII of the Plan of Development. Pipelines are designed and maintained for protection against water currents, storn scouring, soft bottoms, and other environmental factors. The ocean surface above the pipeline will be inspected a minimum of once each week for indication of leakage, and by side scan soar to identify all exposed portions of pipelines at least once each year. All exposed portions are inspected by photographic or other means. On a continuous basis, a volumetic leak detection system (measuring pressure, temperature, and volume) would detect leaks smaller than a rupture immediately large leaks, as from pipeline rupture would also be detected by a high/low pressure sensor on the pipeline exit from Edith.

Information on platform shut-in in the event of blowout/earthquake situations is contained in the Plan of Development, especially section V and VI, drilling

and platform facilities, and referenced appendices referenced in these sections. Also, the Oil Spill and Emergency Contingency Plan for Platform Edith, available for inspection in the MMS Public Information Room, details procedures in the unlikely event of spills less than and greater than 10 barrels (420 gallons). With respect to facility location, the U. S. Coast Guard (memorandum of June 12, 1981, in appendix 6 of this EA) states that the Development and Production Plan ". . . are well written and adequately address the concerns of the Coast Guard. As such, this office has no objection to the action proposed by Chevron U.S.A. Inc."

1. Chevron is not planning to utilize steam injection on Platform Edith. A waterflood program is anticipated using sea water. Sea water injection will continue until the volume of water from production separaters is adequate to replace sea water as the injection fluid.

2. Chevron is planning to use the same type of drilling muds (mostly water-based) on Platform Edith as on Platform Grace. Chevron is in the process of obtaining a general NPDES permit to discharge clean water-based muds from the platform. This action will eliminate any need to barge normally utilized water-based muds.

   Chevron does not use oil emulsion drilling muds unless critical hole conditions require it. The occurrence of utilizing oil-based drilling muds and disposal by bargin emulsions to shore is so infrequent that the barges' impact on air quality would be negligible. However, if onshore disposal at an approved dump site is required, Chevron will be in complete compliance with the California Department of Health Services regulations mandated for the disposal of hazardous wastes.

3. The discharge and disposal of drilling muds and cuttings from Platform Edith will be consistent with OCS Order No. 7, Pacific region and NPDES permit conditions.

4. This concern is addressed in the Environmental Report Sections 4.1.1.1, 4.1.2.1, and Appendix 6.

5. Chevron's complete Oil Spill and Emergency contingency Plan for Platform Edith is available for review at the Minerals Management Service Office, 1340 W. Sixth Street, Los Angeles or at the Standard Oil Library, 225 Bush, San Francisco. The Plan discusses the contingency procedures if a spill enters State waters and endangers shoreline areas and biological habitats.

6. Emissions from sustained operations from proposed Platform Edith are far below the emission exemption limit per 30 CFR Part 250. The exemption limit corresponds to the maximum amount a facility can emit and not affect the air quality of the nearest land mass. In fact, the maximum annual emissions of NO_X occurring in 1985, is only 13 percent of the allowable exemption limit per Federal regulations. The proposed facility is located in federal waters, and therefore, is under the jurisdiction of the Department of the Interior Air Quality regulations (30 CFR Part 250).

7, 8, and 9.

Water quality and drilling muds have, as indicated, been addressed by many authors, institutions, and symposia. The MMS was a co-sponsor of the symposium on "Research on Environmental Fate and Effects of Drilling Fluids and Cuttings" (cited in the Reference Section as API and others). The sponsors included both U. S. and Canadian agencies. Other U. S. sponsoring

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, California 90731

June 8, 1981

NOTED - CYPHER

F/SWR31:JHL
1503-06

NOTED - DUNAWAY

Mr. H. T. Cypher
Acting Deputy Conservation Manager
Field Operations, Pacific OCS Region
Geological Survey
1340 West Sixth Street
Los Angeles, CA 90017

Dear Mr. Cypher:

1. We have reviewed the Environmental Report, and Development and Production Plan submitted by Chevron U.S.A. Inc., for the installation of Platform Edith on OCS Lease P0296. We anticipate no adverse impacts to the fishery resources for which we are responsible, and we expect the project will not jeopardize the continued existence of any threatened or endangered species.

2. We believe Chevron is remiss in not presenting concerns for potential impacts to endangered species. Our September 25, 1979 biological opinion (enclosed) on the development of OCS oil and gas reserves in the Southern California Bight discusses several potential impacts. We recommend that the U.S. Geological Survey address these concerns in the Environmental Assessment. The Bureau of Land Management should be contacted regarding results of studies they have funded to investigate impacts of development on endangered species.

Sincerely yours,

J. Gary Smith
Acting Regional Director

Enclosure

F6:TRL

SEP 2 5 1979

Mr. J. S. Cragwall, Jr.
Acting Director
Geological Survey
U.S. Department of the Interior
Reston, Virginia 22092

Dear Mr. Cragwall:

This letter responds to your May 18, 1979, request for formal consultation pursuant to Section 7 of the Endangered Species Act, as amended, regarding the possible impact to listed species from Outer Continental Shelf (OCS) oil and gas exploration activities in southern California. The enclosed biological opinion concludes that the identified activities are not likely to jeopardize the continued existence of listed species.

The opinion recommends that the Geological Survey allow the utilization of offshore storage and treatment facilities only under the most stringent safety guidelines possible and only when no other alternatives are available.

I look forward to continued cooperation in future consultations.

Sincerely yours,

Winfred H. Meibohm

for Terry L. Leitzell
Assistant Administrator
for Fisheries

Enclosure

cc:
F, Fx31, F6 (T. Loughlin, J. Tyler, and R. Miller), FSW, F113
GCF, F114, F7 (w/Enclosure)

F6:TRLoughlin, 634-1792/93, 9-13-79, blp

FSW

Endangered Species Act

Section 7 Consultation

Agency: United States Geological Survey

Activity or Program: Development of Outer Continental Shelf Oil and Gas Reserves in the Southern California Bight

Consultation Conducted by: National Marine Fisheries Service, Regional Director, Southwest Region

Summary:

By memorandum of May 18, 1979, the Director of the Geological Survey (GS) requested formal consultation on all Outer Continental Shelf (OCS) oil and gas exploration, development, and production activities in the Southern California Bight according to regulations promulgated under Section 7 of the Endangered Species Act of 1973, as amended. To assist me in responding to the request, a team was appointed consisting of representatives from National Marine Fisheries Service (NMFS) Southwest Region and Central Office. Although not participating as team members, the Southwest Fisheries Center and the Northwest and Alaska Fisheries Center were helpful in providing information used in the formulation of our biological opinion.

The team met June 5-7, 1979, with representatives of GS and the Fish and Wildlife Service consultation team to discuss ongoing and proposed GS activities in the Southern California Bight. These activities are the result of development of tracts leased in pre-lease sale 35 offerings, lease sale 35, and lease sale 48.

After reviewing available information and discussing effects of ongoing and proposed activities with GS, the consultation team recommended that GS allow the utilization of offshore storage and treatment (OS&T) facilities only under the most stringent safety guidelines possible and only when no other alternatives are available. The team also recommended that GS work with NMFS, Fish and Wildlife Service and any other concerned agencies to establish a program to monitor cumulative impacts of OCS oil and gas development on the threatened and endangered species in the area. The team concluded that the identified activities would not jeopardize the continued existence of any of the endangered or threatened species in question.

Proposed Action

The project area includes the U.S. contiguous zone from Point Conception to the California-Mexico border. Five groups of tracts within the project area have been identified as potential oil and gas producing areas. These areas are the Santa Barbara Channel, the Santa Rosa Ridge, Santa Barbara Island, San Pedro Bay, and Tanner-Cortes Bank.

There are currently 15 platforms located in the Santa Barbara Channel, eight in State waters and seven in Federal waters. The majority (10) are located southwest of Carpenteria. The other five are located in the west end of the Channel; four are in State waters between Coal Oil Point and Point Conception, and one, the Hondo platform, is in Federal waters approximately five miles south of Refugio Cove. Forty subsea completions have been installed in the Santa Barbara Channel, all in State waters. An OS&T is planned for installation near Hondo platform as soon as it receives Environmental Protection Agency approval. The OS&T will separate the crude oil from the oil-water emulsion that comes from the wells. The crude oil will be stored and water will be piped back to the platform for injection into the formation. At regular intervals, depending on the rate of production, the OS&T will transfer the crude oil to shuttle tankers for transport to onshore refineries.

The only other existing platforms in the Southern California Bight are two in state waters south of Huntington Beach. There are, however, four platforms planned for installation in late 1979. Two of these will be placed in the east end of the Santa Barbara Channel and two will be placed in San Pedro Bay. There are no platforms or subsea completions in any of the other groups of tracts.

GS has estimated that approximately 371 wells will have to be drilled to adequately explore leased tracts for oil deposits. Exploration of leased tracts is currently being conducted by four drilling ships. Since there are no plans to bring in additional exploration vessels, the necessary exploratory wells will be drilled without an increase in the current overall level of activities related to exploration during the course of the project. If more drilling ships are required in order to speed up the exploration process, the cumulative environmental impacts would probably remain the same, but the increased level of activity in the short term would be more likely to have an immediate adverse impact on the species involved. An additional 87 platforms, 86 subsea completions, and over 1,000 miles of pipelines have been estimated to be required to fully develop these offshore fields. The length of time necessary for this development is 25 years and the total life of the project is estimated to be 40 years.

The distribution of the oil fields in the OCS appears to be patchy. The subsea completions are expected to be concentrated around the deep water (300m.) oil fields at the west end of the Santa Barbara Channel, in the southern half of the San Pedro Bay group of tracts, and around the Tanner-Cortes Bank. Where ecologically and economically feasible, pipelines will be used to bring crude products to existing refineries on shore. When pipelines prove infeasible, OS&T's coupled with tanker and barge transportation will be utilized. GS estimates that four OS&T systems may be required during the development of the Southern California Bight oil and gas reserves.

Endangered Species Present in the Project Area

The species of concern in the consultation were as follows:

blue whale (Balaenoptera musculus)
fin whale (B. physalus)
sei whale (B. borealis)
humpback whale (Megaptera novaeangliae)
sperm whale (Physeter catadon)

gray whale (Eschrictius robustus)
right whale (Eubalaena glacialis)
Pacific ridley turtle (Lepidochelys olivacea)
green sea turtle (Chelonia mydas)
loggerhead turtle (Caretta caretta)
leatherback turtle (Dermochelys coreacea)

All of these are either casual visitors or migrants through the Southern California Bight.

The North Pacific population of blue whales is approximately 1,700 individuals. A significant portion migrates through the project area from May through July on their way to their summer feeding grounds and again from September to February during their return migration to their wintering grounds in the warm waters off southern Baja California. The probable migratory pathway and distribution of the blue whale in the Southern California Bight has been described as generally offshore, very near or outside of the Channel Islands, and along the Santa Rosa Ridge to Tanner-Cortes Banks. While they are frequently observed around the Channel Islands, they are seldom seen from shore.

The North Pacific population of the fin whale numbers approximately 17,000 individuals. Fin whales may be found west of the Channel Islands year round. They are, however, most abundant in late spring or early summer.

Sei whales in the North Pacific number about 9,000 whales. Little is known about their migratory habits. Sei whales may be found off Southern California, west of the Channel Islands during the late summer or early fall. There is also a possibility that these whales may be feeding in the southern California Bight.

Sperm whales are the most abundant of the large whales in the North Pacific, numbering about 300,000 individuals. They are common in the project area from April until the middle of June and again from late August to mid-November, indicating a northward migration in the spring and return migration in the fall. The boundaries of the migratory path are not well known but probably are quite broad.

The humpback whale is one of the most severely depleted of the whale stocks. The North Pacific population is estimated at approximately 850 individuals. A portion of this population migrates from Alaska south to its calving and breeding grounds off the western coast of Baja California, where it spends the winter months. During the summer these whales may be found in any portion of their range.

The most prominent whale occurring in the Southern California Bight is the gray whale. The current population is estimated at about 15,000 whales. Its rather narrow migratory path along the California coastline makes it the most frequently observed endangered whale as well as the species most likely to be adversely impacted as a result of OCS development. Essentially, the entire population of gray whales migrates through the project area from late September through December on its southern migration to the calving and breeding grounds in Baja California, and again on its northward migration between February and June. Juvenile gray whales have been known to take up residence for extended periods in the kelp beds along the coast and around the Channel Islands, in order to feed on the crustaceans living in the kelp canopy.

The most depleted species stock is the North Pacific population of Pacific right whales which numbers only about 220 individuals.

Individuals of all four species of listed sea turtles may be found in the project area. They are probably transient portions of their respective populations feeding at the northern limits of their ranges. They are not known to nest here. There is no historical evidence of any nesting beaches north of Guerro Negro Lagoon, Baja California Sur, Mexico, and there are no known nesting beaches remaining on the Baja Peninsula.

Probable Impacts

The most probable source of adverse impacts on endangered species in the project area are oil spills from various sources; increased vessel traffic due to the greater number of platform support vessels as well as increased tanker and barge traffic; and increased levels of noise resulting from exploration, construction, and production activities.

The severest impacts are likely to result from a catastrophic event resulting in a large oil spill. Such events include blowouts, the sinking of or breaking up of tankers, and accidents involving OS&T's. The probability of an oil spill occurring during the life of this project has been estimated by GS to be 100%. In the light of this high probability we recognize that the availability of oil spill containment and clean-up equipment reduces the likelihood of severe impacts resulting from a spill when it does occur.

There are few data available pertaining to the effects of oil on endangered species. Some anecdotal information indicates that gray whales swim through naturally occurring oil slicks in the Santa Barbara Channel. There is no way to access the long term or chronic effects of contacting oil. Some of the adverse effects which could result from contact with an oil spill include eye damage, inhalation of toxic fumes or aerosols, ingestion of oil, and the fouling of baleen plates.

The species most likely to be impacted by an oil spill is the gray whale. If a large spill occurred during the whales migration, a significant portion of the population could encounter the spill, and possibly suffer one or more of the adverse effects listed above.

A catastrophic spill would have the most severe impact on the North Pacific population of right whales. The probability of right whales encountering such a spill is small, because their population is so depleted. Although there has not been a documented sighting of a right whale in the project area since 1956, the elimination of just a few individuals could result in the loss of the recruitment of an entire season.

We are not aware of any information on the effects of oil on sea turtles. Presumably they would be susceptable to the same sorts of ill effects as the cetaceans. Since the few sea turtles occurring in the project area are feeding at the northern extent of their range and since there are no nesting beaches in or near the project area, the impacts of a spill on the sea turtle populations is expected to be slight.

OS&T's appear to represent a threat to the environment because they require unnecessary handling of oil at sea. The OS&T planned for installation near the Hondo platform in the Santa Barbara Channel will be located outside of the three-mile territorial sea where it will encounter the full force of the severe winter storms that occur in the Channel. Although the mooring system is designed to withstand a hundred year storm, should the the OS&t break loose it would probably ground and break up, resulting in a spill of up to 200,000 barrels of oil. There is also the threat of a collision between the OS&T and the shuttle tankers that it would load. Even though the possibility of such accidents is remote, the threat of such accidents could be eliminated by utilizing onshore storage and and treatment facilities coupled with nearshore marine terminals for shuttle tankers.

Increased vessel traffic increases the probability of the occurrance of whale-vessel collisions. Every year a few whales wash ashore with definite signs of injury resulting from confrontations with large vessels. We do not know how many whales are killed or seriously injured in this manner each year nor do we know the impact of this mortality on endangered species populations.

The gray whale is most likely to be impacted by increased vessel traffic because it is most abundant endangered species in the project area and its migratory route coincides with traffic lanes in the Southern California Bight. Vessel traffic could be one of the stimuli pushing the gray whale migration offshore.

Noise in the Southern California Bight issues from several sources, including commercial vessel traffic, pleasure craft traffic, fishing operations, military operations and OCS mineral development. There are no data available that indicate the relative amounts of noise contributed by each of these sources. Therefore, we are not able to predict what the impacts of noise from OCS oil and gas development on endangered species will be.

However, increased activities will increase noise levels by some degree. Our concern is that noise levels in the Southern California Bight may reach a threshold resulting in the abandonment of migratory routes and feeding grounds by endangered whales.

Estimates prior to the mid-1960's indicated only 5-10% of the gray whale population migrated along offshore routes. Recent observations indicate a higher percentage of the population is utilizing offshore routes around the Channel Islands. The reasons for this apparent offshore shift are not clear. The increasing population, currently 15,000 whales, up from 3,000 in 1952, may be expanding the migratory path seaward as a result of population pressures, or the gray whales may be migrating further offshore in an effort to avoid noise from human activities which have increased substantially in the last 20 years.

In October, 1978, humpback whales were observed feeding on Northern anchovies over the Santa Rosa Ridge. Additional feeding areas may be found around the Tanner-Cortes Bank. If noise levels reach a threshold the whales may abandon these areas, thus diminishing available feeding areas and increasing competition on remaining feeding grounds.

Recommendations:

We recommend that GS establish a program to monitor the impacts of OCS oil and gas development in the Southern California Bight. The purpose of this program would be to centralize information already available to various offices within GS, so that other agencies could have access to that information. The type of information we are interested in includes, among other things, location and cause of chronic pollution, results of exploratory activities so that we may anticipate the development of areas which may be important to endangered species, and any reports on behavior of animals around drill-ships and platforms.

We recommend that GS cooperate with NMFS in the placement of observers aboard exploratory vessels and platforms when in the opinion of the Regional Director, Southwest Region, NMFS the placement of an observer may yield data useful in the determination of impacts of oil and gas development on endangered species. The Southwest Regional currently reviews Environmental Reports for plans of exploration and development and could as part of the review consider the benefit of placing an observer on board a particular vessel or platform without consuming much additional time. Should the Regional Director decide to place an observer aboard a vessel or platform we would expect GS assistance in providing support.

We recommend OS&T's be utilized only when onshore storage and treatment facilities and near shore marine terminals are not feasible. NMFS is concerned with the use of OS&T's. OS&T's require extra handling of oil while at sea thus increasing the chance of a spill that could impact endangered species. We further recommend that any OS&T's that are installed be closely monitored by GS and that GS in consultation with Coast Guard and NMFS develop and implement strict procedural guidelines, for the safe transfer of oil from the OS&T to shuttle tankers, prior to the initiation of the proposed operations. These guidelines should include, among other things, criteria for the cessation of transfer of oil during high seas or inclement weather.

We recommend that GS contact the Regional Director, Southwest Region, NMFS to initiate development of a monitoring program and OS&T operational guidelines.

Finally, we recommend that consultation be reinitiated in the event that studies, being funded by the Bureau of Land Management, on the effects of noise and oil pollution on marine mammals produce information relevant to this opinion, or data indicating potential adverse impacts on listed species of whales and sea turtles become available, or should another species in the project area be listed as threatened or endangered.

National Marine Fisheries Service

1. Comment noted. Thank you.

2. Please see section IV.

Concerns for potential impacts to endangered species are noted on pages 3 and 4 of the preceding NMFS Biological Opinion. The project area of the opinion included five zones from Point Conception to the California-Mexico border, of which San Pedro Bay is one.

Also of interest is the Draft EIS for OCS Sale 68 (BLM, 1981) and the National Marine Fisheries Service biological opinion on pages 8-49 to 8-69 in that document. The project area included three zones from Point Conception to the United States/Mexico border, in which San Pedro Bay is included in the inner bank area. Impacts on Endangered and Threatened Species are discussed in BLM (1981) pages 4-83 to 4-87. The BLM information appropriate to Lease OCS-P 0296 and surrounding area is summarized in sections II and III of this EA.

NOTED - CYPHER

UNITED STATES GOVERNMENT

memorandum

DATE: JUN 23 1981

REPLY TO ATTN OF: Manager, Pacific OCS Office

NOTED - DUNAWAY

1780.11
OCS-P 0296

SUBJECT: 655 DM 1 Review: Development and Production Plan and Environmental Report for Proposed Platform Edith and Subsea Oil Pipeline; OCS-P 0296; Chevron, U.S.A., Inc., Operator

TO: Acting Deputy Conservation Manager, Field Operations, Pacific OCS Region

This Office has reviewed Chevron's Development and Production Plan (D and PP) and Environmental Report (ER) for Proposed Platform Edith and the subsea oil pipelines between Platform Edith and Platform Elly and we recommend approval.

This approval and review covers only those plans outlined in the D and PP and ER provided to us by USGS on 22 April 1981. Subsequent to this D and PP and ER, Chevron proposed on 27 April 1981 the development of the produced gas resources from Platform Edith. Previously, Chevron had planned to use a portion of the produced gas as fuel in the process heater on Edith, with the remainder of the produced gas to be reinjected into the formation. Chevron now proposes to transport gas from Platform Edith via a 6-inch subsea pipeline to Union's platform Eva. The gas will commingle with Eva gas and then will be transported via Union's existing 8-inch line to shore. From there the gas enters Aminoil's existing 12-inch gas gathering line and then flows to Chevron's Huntington Beach field.

The review of the plan of development for the gas pipeline from Platform Edith to Union's Platform Eva will be processed according to the Memorandum of Understanding Between the BLM and USGS for OCS pipelines (August, 1980) and 655 DM 1.

Our comments on the D and PP and ER are as Follows:

1. No legal conflicts nor encumbrances exist on the lease. Chevron is properly designated as operator.

2. Chevron's oil spill contingency plan is acceptable.

3. Comments on the environmental resources are as follows:

Cultural Resources

No comment.

Commercial Fishing

1. Page 121, para. 2. The San Pedro Bay area is the most productive commercial fishing area in California. The importance of this fishing area should be discussed.

2. Page 121, para. 3. Since this region is such an important commercial fishing area, mention should be made that a large oil spill could cause short-term high impacts to the fishing industry by the preclusion of fishing in this area. Also, since many boats fish this area, the addition of another platform could cause some space-use conflicts (particularly in view of other platforms being considered for this area). Centaur Associates Inc. (1981) has written a report for BLM that discusses these types of impacts. The report is entitled "Assessment of Space and Use Conflicts between the Fishing and Oil Industries". The report is available for review in this office.

3. Page 121, Table 3-11. 1) Pounds of fish are landed not loaded. 2) The original source of the data should be cited, not Dames and Moore. Also, please note that this table does not occur on pg. 259 of the Dames and Moore study although it is included in that report. 3) Since the five most abundant taxa in Fish Block 740 only constitute 34% of the landings, other important taxa should be listed.

4. Page 124, para. 2, line 1. The first sentence is misleading. Macrocystis pyrifera also is found in many other locations including nearby Santa Catalina Island.

5. Page 124, para. 3, line 6. Ref. 1, P. 268 does not state that no adverse impacts are to be expected due to the distance from the proposed platform site to the kelp beds. The sentence should be reorganized so that it is clear that it is Chevron's conclusion there will be no adverse impacts. Ref. 33 does say 1) pg. 175 that the effects of an oil spill from the Shell Beta project on kelp communities would be limited, as these communities are several miles from the project site, and, 2) pg. 157 that benthic disturbance from pipeline trenching and disposal of drill cuttings and muds are not expected to affect any kelp communities, since they are distant from the project.

6. Page 124, para. 3, line 9. Ref. 2, p. 508 (volume 1) does not state that this site is not appropriate for immediate or future mariculture usage. Although giant kelp does not typically grow at the depths under consideration, studies to determine the feasibility of culturing Macrocystis pyrifera in deep water are now being conducted. Other reasons may exist that could preclude mariculture in this area, but this conclusion was not given on p. 508 of Ref. 2.

7. Page 135, para. 2, line 1. The San Pedro Bay area is one of the most productive sport fishing areas in California. The importance of this fishing area should be mentioned. The numbers given reflect only the catch by the commercial passenger fishing vessel fleet. Private boats also are frequently used to fish the area.

8. Page 135, para. 3, line 9. Since this region is such an important sport fishing area mention should be made that a large oil spill could cause short-term high impacts to the commercial passenger fishing vessel operators by precluding fishing in the area.

9. Page 135. Table 3-18. 1) The original source of this data should be cited, not Dames and Moore. 2) This data is out of date. Catch by origin data through 1978 is available from the California Department of Fish and Game.

10. Page 140, para. 2, line 9. The anticipated impacts on kelp from a large oil spill should also be included (however, see comment on page 124, para 3).

11. Page 181, para. 1, line 1. See comments above concerning Page 121, para. 3.

12. Page 182. See comments above concerning page 135, para. 3, line 9.

13. Page 224, line 8. This is not a correct reference. The sale was proposed not the statement.

14. Appendix 6, page 5, para. 3, line 1.
Stephens (1973) is not in the literature cited section. Does this refer to Stephen(s) et al. (1975)?

15. Appendix 6, page 5, para. 5, line 1. USGS et al. (1978) is not in the literature cited section. Does this refer to USGS et al. (1980)?

16. Appendix 6, page 17, last line.
Stephens et al. (1973) is not in the literature cited section. Does this refer to Stephen(s) et al. (1975)?

17. Appendix 6, page 18. The original source of this data should be cited, not Dames and Moore.

18. Appendix 6, Page 19. See comments above concerning Page 135, Table 3-18.

19. Appendix 6, page 20. Identify the source of this data.

Marine Mammals (cetaceans and pinnipeds)

20. Page 147. In reference to line 5, gray whales are known to collide with boats or ships.

21. Refer to Patten, D.R., W.F. Samaras, and D.R. McIntyre. 1980. Tailless grays: Whales versus vessels. Abstract No. 73 in: Abstracts, Southern California Academy of Sciences Annual Meeting, May 2-3, 1980.

22. Page 147, 18th line. This statement is incorrect. The sentence should be reworded as follows: "As for the Pacific right whales, the first sighting of such a whale was off the coast of California in the Santa Barbara Channel in April 1981. Prior to this incident, the last sighting of a right whale was near San Diego in 1955. One sighting every 20 to 25 years is typical for this species."
Page 150, para. 2, line 11. Insert as the fifth sentence in this paragraph:

23. "The California sea otter is listed as threatened by the federal government.

Water Quality

24. Pages 32-33. The total expected volumes of discharges (muds and cuttings) should be identified.

25. Pages 33-34. It would be very beneficial if Chevron could provide the Department of Interior with a detailed analysis on trace metal content.

26. Pages 119-120. Trace metal data should be discussed for the water column and sediments (especially) in the area of consideration.

27. Page 175. Some discharges do contain hydrocarbons and may not be below any possible toxic level for trace metals (especially near the platform discharge point) in the water and sediments.

28. Page 177. The 1980 Drilling Muds Symposium (cited below) presented some papers that provide evidence of moderately toxic drilling muds.
Research on Environmental Fate and Effects of Drilling Fluids and Cuttings. Lake Buena Vista, Florida Jan 21-24, 1980. 2 vols. Sponsored by API, EPA. BLM, DOE, USGS and NOAA.

This report is available for review in our office.

29. Page 182-18B. The proposed activity will very likely affect an area much greater than 100 square meters.

The drill cuttings and muds (mostly cuttings) will not vary from a localized deposit.

In general, the discussion of effects of drilling muds and cuttings takes a too positive attitude toward a no effects conclusion. This is unwarranted given what appears to be contradictions within the document. For example the discussion on pages 178-179 indicates that rapid, high-rate discharges of muds could occur, while on page 182 the discussion is about slow accumulation of sediments: and on page 182, paragraph 1, the statement is made that only a "few benthic animals within an area of less than 100 square meters" will be affected, while page 183, paragraph 1, last line, indicates a "radically different community assemblage" will replace the pre-existing benthic community. On page 182 "No information is available..." regarding the fauna around the immediate area and then page 184 states there are no known rare or endangered species of flora or fauna.

4. Development and Production Plan.

30. Section VIII. The proposed length of the subsea oil pipeline should be included in this section.

William E. Grant

Bureau of Land Management

1. For a discussion of commercial and sport fishing, please see the EIR/EA for Shell OCS Beta Unit Development (USGS and others, 1978) Volume I, pages 224 to 260 and Volume II, pages 169 and 170.

2. The comments on commercial fishing are noted and add to the completeness of the discussion in the Chevron ER (Chevron, 1980b, pages 181 to 183). Also noted is the discussion of impacts on fish and fisheries in the Sale 68 DEIS pages 4-67 through 4-75 which integrates data from Centaus Associates Inc. (1981), "Assessment of Space and Use Conflicts Between the Fishing and Oil Industries."

3. "Landed" is correct, rather than "loaded," as noticed (Chevron, 1980b, page 121).

The rationale for citing Dames & Moore is given in the Shell Beta EIR/EA (USGS and others, Volume I, page 224, paragraphs 2 through 5). For other important taxa, please see the Shell Beta EIR/EA, pages 229 through 258.

4. For clarification and an easily comprehended overview of kelp distribution in the Southern California Bight, the reader is referred to Visual 2 in the Sale 35 EIS (BLM, 1975, volume 5).

5. The comment indicates clarification is needed that Chevron believes there will be no construction impacts on kelp because of the distance from existing kelp beds, but that impacts from a major oil spill could occur on kelp if a spill reached them.

6. As stated in the comment feasibility studies of culturing Macrocystis pynfera in deep water are not being conducted. The intent is to state that

the project not in an area viewed, or in the present or foreseeably future desirable for mariculture.

7. Please refer to the response to Comment 1. . The importance of sport fising is acknowledged.

8. The comment on the impact of a large oil spill, if one occurred, on sport fishing is acknowledged.

9. Original source of data, of course, is generally preferable. Please see response to Comment 17. Raw data, a stated, is available through 1978; however, it has not been compiled. The present thrust of the California Department of Fish and Game is on developing techniques to compile current data expeditiously.

10. Anticipated oil spill impacts on kelp have been described in: BLM, 1981, volume 1, pages 4-17 and 4-21; BLM, 1980, volume 1, pages 4-119 through 4-120; BLM, 1979, volume 2, pages 1,001 through 1,003; and BLM, 1975, volume 2, page 244; and others.

11. Please see response to Comment 3. .

12. Please see response to Comment 1. .

13. The comment regarding the references citation is correct. "Proposed" should be before "OCS Sale No. 35."

14. The comment is correct. "Stephens et al. (1975)" is the proper citation.

15. The comment is correct. The date of USGS et al. should be 1978 rather than 1980 (appendix 6, page 10, reference 4, line 2). In USGS et al. 1980, volume 2, pages 278, 279, and 280, there are six specific references to Environmental Quality Analysts and one for Marine Biological Consultants.

16. The comment is correct. "Stephens et al. (1975)" is the proper citation.

17. The complete title of the Dames & Moore (1978), as cited on page 227 of the ER and page 10 of appendix C, is:

> "Dames and Moore, (1978) "Regional Baseline Environmental Data for Proposed Beta Project, Long Beach, California, Shell Oil Company."

This is a site-specific, commissioned baseline document for the Beta Unit area designed as a basic reference doument. Dames & Moore (personal communication, July 2, 1981) reported that additionally:

- The basic intent was to review and consolidate a comprehensive literature.
- Information is displayed as most appropriate for application to the project.
- Information may not be displayed in a manner identical to that in the original; information from more than one document may be consolidated.
- The approach was to prepare in a single document information available, for the reader to read, digest, understand, and relate to the project area.

18. Please see response to Comment 9. .

19. Chevron reports the source of data to be: Squire, J. L. (January 1964) U. S. Fish and Wildlife Service Circular 174 republished in "Chart Guide to Southern California Boating, Diving and Fishing 1975-1977."

20. to 23. These comments have been incorporated in section III.E. of this EA.

24. The total expected volumes of discharge for both drilling muds and cuttings would be approximately 454 cubic yards/day. The drilling phase of the project is estimated to be 3 years; some drilling will occur later but will be negligible. For perspective naturally occurring "discharges" (e.g., river discharges, land runoff, and erosion) should be considered.

25. It is not possible at this time to provide trace metal analyses for any of the discharges from proposed Platform Edith, mainly, because they do not exist. We can, however, submit a trace metals analyses for produced water from Platform Grace in the Santa Barbara Channel. This is a requirement of the NPDES Permit. None of the other discharges have been analyzed for trace metals.

Constituent	Concentration	NPDES Permit Limit
Arsenic - As	0.005 mg/l	0.79 mg/l
Cadmium - Cd	0.20 "	0.30 "
Chromium (Total) - Cr	0.07 "	0.20 "
Copper - Cu	0.12 "	0.20 "
Mercury - Hg	<0.0001 "	0.014 "
Nickel - Ni	0.33 "	1.00 "
Zinc - Zn	0.09 "	0.89 "
Silver - Ag	<0.01 "	0.016 "
Lead - Pb	0.38 "	0.40 "

26. Pages 119 and 120. Trace metals (such as cadmium, copper, zonc, mercury, and lead) are normal constituents of receiving water and sedimentary material. In the Southern Californnia Bight, trace metals within the water column and sediments are derived from natural sources (weathering of pre-existing rock material) and man-induced sources. The movement of trace metals from source area to depositional site is complex, and involves many interrelated physical, chemical, and biological processes.

The levels of metals in the waters of the Southern California Bight, even in the vicinity of river discharges and waste-water outfalls, are within ranges reported for seawater in various areas around the world. Trace metal concentrations measured in the southern California study area are presented in the following table.

RECEIVING WATER TRACE METAL CONCENTRATIONS
WITHIN THE STUDY AREA

Trace Metal	Concentration (mg/l)
Cobalt - Co	0.0001 - 0.0002
Copper - Cu	.0016 - 0.0090
Iron - Fe	.0019 - .0443
Mercury - Hg	0.00003
Nickel - Ni	0.0004 - 0.0025
Lead - Pb	0.0004 - 0.0182
Zinc - Zn	0.0011 - 0.0412

Sediment samples collected by Dames & Moore close to the proposed Beta Project pipeline route were analyzed for mercury, cadmium, zinc, lead, and oil and grease. This study concluded that the concentrations of pollutants in the samples analyzed were below the maximum allowable concentrations required by the EPA for the dredging and replacement of material in the pipeline trenches. Trace metal concentrations in surface sediments are presented in the following table.

27. Most produced water streams (after separation from the crude oil) contain small amounts of hydrocarbons both in a dispersed state. Most produced water also contains trace amounts of heavy metals. In past experiences with NPDES permits it has been possible to meet all requirements set regarding trace amount limitations on hydrocarbons and heavy metals.

28. The report cited is also available in our office. Without resuspending debate, we note various conclusions have been reached. A more recent paper is: "Ayers, R. C., Jr., 1980, The Fate and Effect of Offshore Drilling Discharges; presented to the second meeting of the United Nations Environmental Consultive Committee on the Petroleum Industry, Paris, France, June 2 to 4, 1981.

29. The localized deposition of the drill cuttings will probably have an immediate diverse affect within an area of less than 100 square meters. But the drilling muds will be dispersed in the water column, creating a discernable plume for several thousand feet. Please refer to ER Platform Edith, section 4.3.2.2., page 179.

30. Section VII of the Development and Production Plan discusses the subsea oil pycline. The length is 6,800 feet (2,073 meters) in length.

[Appendix 1]

BIOLOGICAL OPINION

U. S. FISH AND WILDLIFE SERVICE
November 1, 1979

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

In Reply Refer To:
FWS/OBS 375.419
USGS 79-2

NOV 1 1979

GEOLOGICAL SURVEY
RECEIVED
NOV 23 1979
LOS ANGELES

Memorandum

To: Director, U.S. Geological Survey

From: Acting Director

Subject: Biological Opinion Regarding Oil and Gas Exploration and Certain Development Activities in Southern California

On April 24, 1979, the Fish and Wildlife Service (FWS) sent a memorandum to the U.S. Geological Survey (GS) requesting initiation of consultation under Section 7 of the Endangered Species Act of 1973, as amended, for Outer Continental Shelf (OCS) oil and gas exploration, development, and production activities on tracts in the OCS Sale No. 35 area (Southern California). By memorandum dated May 18, 1979, (Attachment 1) GS requested consultation with the FWS and expanded the scope of the request to include all lease sale activities off Southern California not previously subject to Section 7 consultation.

In response to this request, I appointed a consultation team by memorandum dated May 30, 1979, (Attachment 2) to assist me in determining whether the subject exploration, development, and production activities off Southern California are likely to jeopardize the continued existence of Endangered or Threatened species or result in the destruction or adverse modification of Critical Habitat of such species.

The team was comprised of Nancy Sweeney, Brian Kinnear, Steve Tonjes, and David Watts, Office of Endangered Species, Washington, D.C.; and Ralph Swanson, Sacramento Area Office, FWS.

On June 5 and 6, 1979, the FWS consultation team and National Marine Fisheries Service (NMFS) representatives met with GS representatives in Los Angeles, California, to discuss the exploration, development, and production activities in Southern California and their impact on Threatened and Endangered species within the area. A list of the participants is attached (Attachment 3).

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

The consultation team reviewed reports, publications, and correspondence from knowledgeable sources on the species considered in this consultation identified below, and numerous telephone contacts were made with other experts. Information contained in the Final Environmental Impact Statements (FEIS) for OCS Sales 35 and 48, Southern California, was carefully evaluated to ascertain the effects of the exploration activities on listed species and their habitats. In addition, development plans were reviewed for seven development tracts. Copies of pertinent records and documents are included in an administrative record maintained at the Office of Endangered Species and are incorporated herein by reference.

Project Description

GS has primary regulatory authority for exploration, development, and production activities in the OCS after the issuance of the leases by the Bureau of Land Management (BLM).

Exploration of the OCS requires certain onshore support facilities including office space, helicopter and/or fixed-wing aircraft facilities, docks for boating activities, and supply bases. Due to the uncertain nature of oil exploration, companies are generally unwilling to construct new facilities to support exploration activities and usually prefer to utilize existing areas and facilities. At present, the numerous onshore facilities in Southern California being used for exploration activities will support any proposed new exploration.

Therefore, the biological opinion is based on the assumption that existing onshore facilities will continue to be utilized for exploration activities. Should the use pattern of these facilities be changed or additional onshore facilities be required which may affect listed species or their habitats, GS must reinitiate consultation.

Development and production (development/production) activities planned for seven specific tracts are included in this consultation. In the future, GS will review each development/production plan to insure compliance with Section 7.

Development/production plans include the location for the platform placement, possible transportation routes (pipelines and/or barges, tankers), and identification of specific onshore facilities and their intended use, i.e. storage, refinement, etc. These plans have more specific information than do the exploration plans.

Your request for consultation included the following species: bald eagle (Haliaeetus leucocephalus), American peregrine falcon (Falco peregrinus anatum), southern sea otter (Enhydra lutris nereis), brown pelican (Pelecanus occidentalis), California least tern (Sterna albifrons browni), light-footed clapper rail (Rallus longirostris levipes), Aleutian Canada goose (Branta canadensis leucopareia), San Clemente loggerhead shrike

(Lanius ludovicianus mearnsi), San Clemente sage sparrow (Amphispiza belli clementeae), Smith's blue butterfly (Shijimiaeoides enoptes smithi), San Clemente broom (Lotus scoparius ssp. traskiae), San Clemente Island bush-mallow (Malacothamnus clementinus), San Clemente Island larkspur (Delphinium kinkiense), San Clemente Island Indian paintbrush (Castilleja grisea), olive Ridley sea turtle (Lepidochelys olivacea), green sea turtle (Chelonia mydas), loggerhead sea turtle (Caretta caretta), and leatherback sea turtle (Dermochelys coriacea).

After reviewing the proposed activities and biological data on the above species, we have determined that the following species will not be affected because they are not known to occur in the impact area from the proposed exploration and the specific development/production activities. They are the Aleutian Canada goose, San Clemente loggerhead shrike, San Clemente sage sparrow, Smith's blue butterfly, San Clemente broom, San Clemente Island bushmallow, San Clemente Island larkspur, and San Clemente Island Indian paintbrush. Therefore, they are not considered in this consultation.

The sea turtles listed above were also included in your consultation request. The NMFS has jurisdiction over Endangered and Threatened sea turtles while they are in the aquatic environment; they are under the jurisdiction of the FWS onshore. Since these four sea turtles have no known nesting sites within the proposed project area, we defer consultation to NMFS.

We feel that two additional species should be included in this consultation: El Segundo blue butterfly (Shijimiaeoides battoides allyni) and salt marsh bird's beak (Cordylanthus maritimus ssp. maritimus).

The following species are included in this biological opinion: El Segundo blue butterfly, bald eagle, American peregrine falcon, southern sea otter, California brown pelican, California least tern, light-footed clapper rail, and salt marsh bird's beak.

After evaluating the proposed activities and their effects on the following eight species, it is my biological opinion that these activities, as proposed, are not likely to jeopardize the continued existence of the species.

A summary of the biological data and considerations of the consultation team are provided for each of the eight species.

El Segundo Blue Butterfly (Shijimiaeoides battoides allyni)

The El Segundo blue butterfly is an insect endemic to the Southern California coastal strand. This species was listed as Endangered on June 1, 1976. Critical Habitat has not yet been designated for this species.

This butterfly is limited to two small remnants of the once extensive El Segundo Dunes system (36 square miles) extending from the Los Angeles Airport to San Pedro, in Los Angeles County. Its current distribution is limited to dunes adjacent to the Los Angeles Airport and a small parcel of commercially owned land on the Chevron oil refinery in El Segundo.

The El Segundo blue is dependent upon coastal dune habitat which contains two species of buckwheat (Eriogonum) that provide the butterfly with nesting, feeding, and resting habitat. The conversion of this essential dune habitat to urban developments threatens the continued survival of this species.

Onshore activities such as the placement of pipelines and the location of refineries, present the greatest threat to the destruction of this species' habitat. However, since existing onshore facilities are to be used, proposed oil and gas exploration or development/production activities are not expected to jeopardize the continued existence of this species.

Bald Eagle (Haliaeetus leucocephalus)

The bald eagle was listed as Endangered in 43 of the contiguous 48 States including California, and Threatened in the remaining five States on February 14, 1978. Critical Habitat has not yet been determined for this species. This large bird occurs from Alaska to northern Mexico and lives in association with aquatic habitats such as lakes, large rivers, and estuaries.

Bald eagles nested on the Channel Islands until the mid 1950's. Reproductive failure, probably due to pesticide contamination of its food sources, and habitat losses have been the chief causes for the eagle's decline and present status. The reintroduction of the bald eagle to the northern Channel Islands is planned for the future. In addition, Santa Catalina is also being considered for eagle hacking within the near future.

Successful reintroduction of bald eagles to their former nesting range in California will result in the increased numbers utilizing coastal areas.

The potential impacts to the eagle from proposed oil and gas exploration and development/production activities are disturbance to its nesting areas resulting from onshore activities and the possibility of an oil spill reaching the coast and subsequently oiling the eagles and/or contaminating the food source. Oiled eagles returning to the nest to incubate could contaminate the eggs or nestlings. Toxicological studies have indicated that even small amounts of oil applied to an egg are toxic to the embryo.

Recent information indicates that bald eagles may be wintering on the Channel Islands. Since no onshore development is proposed for the Islands, the impacts from an oil spill to wintering eagles would be limited to the contamination of the eagle's food source or feather contamination of individual eagles.

However, the present concentrations of California's eagle population are located along inland lakes and rivers, and are removed from the impacts of coastal oil and gas development activities.

American Peregrine Falcon (Falco peregrinus anatum)

The American peregrine was listed as Endangered on June 2 and October 13, 1970, and a portion of the peregrine's Critical Habitat was designated in the August 11, 1977, Federal Register. This subspecies once occurred widely through much of North America from southern Alaska and Canada, to northern Mexico. This peregrine is migratory in the northern portion of its breeding range, but exhibits less migratory behavior toward the southern portion of its range. In California, the species once occurred throughout the State where cliff faces and steep rocky slopes provided suitable nesting locations. The mountains, sea coast, and Channel Islands historically harbored significant populations.

The species has suffered a drastic decline throughout its range primarily due to reproductive failure resulting from pesticide contamination of its avian prey. Currently, less than fifty known pairs remain in California and the species has been extirpated from the Channel Islands.

Several historic eyries are located along the coast from Point Conception south to the Mexican border. At present, however, only one active nest site, located west of Santa Barbara, exists along this reach of the coast. Considerable effort is currently being expended toward recovery of this species, chiefly through captive propagation and reintroduction. The Channel Islands include several sites where reintroduction efforts may eventually be made. Natural expansion of American peregrines is anticipated with the decreased usage of residual pesticides.

The falcons prey heavily upon coastal birds. The potential impacts on the American peregrine falcon from oil and gas exploration and development/ production activities are identical to those on the bald eagle.

At this time, there are no proposals for new onshore facilities along the Southern California coast, particularly in the vicinity of Point Conception. Should additional facilities be proposed, GS must reinitiate Section 7 consultation. The Oilspill Risk Analysis, prepared by GS for the Southern California (Proposed Sale 48) Outer Continental Shelf Lease Area, arbitrarily divides the California coast into segments and projects the probability of oil impacting these segments from various offshore lease locations. According to this analysis, the probability of an OCS related oil spill reaching the vicinity of the one active peregrine nest is less than ten percent. Since the Critical Habitat is outside of the area considered in this consultation, that habitat will not be destroyed or adversely modified by the proposal.

Transient American peregrines may be found in small numbers along the coast, especially during migration and winter periods. We recommend that the majority of the estuaries, bays, lagoons, and rivers have available cleanup equipment to close off these areas within two hours of a spill occurrence. This action would minimize the impact of the oil, should it reach the shore.

Southern Sea Otter (Enhydra lutris nereis)

The southern sea otter was listed in the Federal Register as Threatened on January 14, 1977. Critical Habitat has not yet been determined for this species.

Historically, the southern sea otter was found in relative abundance along the California coast. The principal population decreases resulted from commercial harvest by fur traders during the 1800's, and the population was brought to near extinction at the turn of the century.

In 1938, the southern sea otter was identified off Point Sur, California and that population has expanded to an estimated high of 1,856 individuals (1976 census) with a range between Point San Luis (San Luis Obispo County) to Ano Nuevo Point (Santa Cruz County). A few wandering individuals have been sighted to the north and south of these range limits. Provided the population continues to increase at the current census rate, it is presumed that the population will extend its range to the Channel Islands and mainland south of Point Conception. Because the area considered in this consultation is part of the southern sea otter's historical range, it will be considered in this consultation.

The southern sea otter is an opportunistic predator which forages in both the rocky and soft sediment communities, seldom ranging beyond the 20-30 fathom depth curve.

An oil spill could affect sea otters in several ways. When trying to determine these effects, the physical configuration and the amount of oil on the surface of the water must be considered. The oil is influenced by environmental factors including wind, waves, temperature, suspended sediments, and time. Direct contact with oil would mat the coat and decrease the otter's natural insulation against temperature loss. Constant preening to maintain the insulating quality of the coat would result in the direct injestion of some petroleum products. As stated in the DES for Sale No. 48, "Accidental exposure of two sea otters to a small but unknown amount of oil (probably diesel) in an experimental holding pool on Amchitka Island resulted in fur matting, progressively severe distress, emergence from the water, and death by exposure within several hours" (K.W. Kenyon, unpublished data). "The oil in this case formed a visible sheen comparable to that sometimes present in harbor areas where gulls appear unaffected by it."

The sea otter feeds on benthic organisms such as abalone, pismo clams, and urchins.

There are natural factors which affect the persistence of oil such as dilution, evaporation, photo-oxidation, sedimentation by adsorption on suspended particles and microbial degradation. Because of these factors, it makes it difficult to determine the effects of oil on benthic communities. Oil which settles to the bottom, depending upon the factors identified above, could kill benthic organisms by smothering the organisms or from its toxic effects.

In the event of an oil spill, another major effect on otters would be the local loss of food sources. The secondary effect would be the long term contamination of shellfish populations which may also result in the injestion of petroleum products by the sea otters.

The southern sea otter does not presently inhabit the area considered in this consultation. Should the otter move into this area during the life of these activities, GS must reinitiate Section 7 consultation to determine whether the ongoing activities are likely to jeopardize the continued existence of the sea otter.

California Brown Pelican (Pelicanus occidentalis californicus)

The California brown pelican was originally listed as Endangered on October 13, 1970. Critical Habitat has not yet been determined for this species. All subspecies of brown pelicans were listed on December 2, 1970.

The only regular breeding colonies of this subspecies in the United States are located on Anacapa Island and nearby Scorpion Rock. This nesting population is augmented from late July through early November by large numbers of pelicans which regularly disperse north from Mexican waters. These migrants are generally gone again by early December; however, it has been recently determined that some may be recruited into the Anacapa breeding population.

Pelicans rarely are found far from salt water, or farther than 20-30 miles offshore. They forage intensively in the Santa Barbara Channel. Their major food is small fishes (primarily anchovy), which they capture near the surface by plunge-diving from the air.

During the late 1960's and early 1970's, the Anacapa colony suffered catastrophic nesting failure induced by DDT and its derivatives accumulating in the reproducing adults. Following the ban on this pesticide, the fledging rate has continued to fluctuate widely but has not dropped to the low numbers experienced earlier.

Pelicans may be affected by oil spills through contamination of their plumage as they dive for food or drift on the surface. This may contribute to direct mortality or result in reduced hatchability of eggs oiled from the fouled plumage of an adult bird. Individual pelicans that have been found oiled have responded well to treatment.

In accordance with the Oilspill Risk Analysis, we have identified ten segments which contain habitats important to the listed species and are susceptible to damage from oil (Attachment 4). Of these ten, Anacapa, Segment 50, has the greatest projected likelihood of being hit by oil from the greatest number of sources (Attachment 5).

It is difficult to predict from oil spill probabilities what the effects of oil activities might be on Anacapa. The only known incident of significant numbers of pelicans being oiled was after a spill from the Navy vessel Manatee in August 1973. Concentrations of light tar washed up on beaches from San Clemente south into Mexico. Twenty to 25 juvenile pelicans were found oiled. In contrast, no pelicans were reported oiled as a result of the January 1969, Santa Barbara blowout. Judging only from location of the spills, the results should have been reversed, but timing was the determinant in these cases. The San Clemente spill occurred in the late summer, when large numbers of pelicans were dispersed throughout the area; the Santa Barbara spill occurred in the winter, just following a severe storm, when relatively few pelicans were in the area and fewer still would have been far from shelter. While the breeding grounds and feeding areas surrounding Anacapa Island are extremely vulnerable locations, the San Clemente spill indicates that large amounts of oil anywhere within the pelicans' range could cause significant damage at the wrong time of year.

No pelican losses from OCS activities off Southern California have been reported to date, nor from nearby activities in the State tidelands. Additional threat from OCS Sale 48 has been considerably reduced by the withdrawal of tracts that were close to Anacapa.

To assist GS in carrying out their responsibility for the conservation of the listed species, the following recommendations are given.

From Attachment 5, the following tracts, transportation routes, and pipeline routes indicate a high probability of an oil spill contacting Anacapa Island. Tracts leased before Sale No. 48: 166, 202, 203, 204, 205, 208, 210, 215, 216, 217, 233, 234, 240, and 241. Tracts leased in Sale No. 48: 337, 346, 347, and 361. Transportation Route: T6 and T7. Pipleline Route: L4 and L6.

We recommend that GS require the lessee to assign a high priority and prescribe specific measures for the protection of Anacapa Island in all Oil Spill Contingency Plans submitted to GS for exploration or development/production within the above listed tracts, and for activities that might result in substantially increased tanker traffic over the identified transportation routes.

In accordance with OCS Operating Order No. 7, the proper authorities must be notified in the event of an oil spill occurrence. We would like to insure maximum protection to Anacapa Island by further recommending that GS require the oil spill containment equipment, which is maintained on the invididual platforms, also be required to respond to a spill from another platform in the area.

California Least Tern (Sterna albifrons browni)

The California least tern was listed as Endangered in the Federal Register on October 13, 1970. Critical Habitat has not yet been designated for this subspecies.

The least tern migrates from Mexico each spring to establish breeding colonies on the California coast. It occupies coastal habitats from the Pacific coast of Baja California to the San Francisco Bay from April to September.

The least tern usually chooses a nesting location in an open expanse of sand, dirt, or dried mud close to a lagoon or estuary where food can be obtained. Prey consists of small fish such as the northern anchovy (Engraulis mordax), deepbody anchovy (Anchoa compressa), jacksmelt (Atherinopsis californiensis), topsmelt (Atherinops affinis), California grunion (Leuresthes tenuis), shiner surfperch (Cymatogaster aggregata), California killifish (Fundulus parvipinnis), and mosquitofish (Gambusia affinis). The reduction in numbers of least terns has resulted from the loss of feeding and nesting habitats and disruption of nest sites by human-associated activities.

Potential threats to the California least tern from oil and gas activities are related to oil spills and increased human activities in coastal areas where nesting colonies occur. The birds could be contaminated by a spill as they dive for food. This may contribute to direct mortaility or result in reduced hatchability of eggs oiled from the fouled plumage of an adult bird. Oil spills cause severe damage when they enter coastal wetlands, and could destroy essential feeding areas for the terns.

To assist GS in implementing its responsibility for the conservation of the species, the following recommendation is given. GS should require that the Oil Spill Contingency Plans include provisions for the deployment of adequate containment equipment into the areas listed below to prevent the entry of an advancing oil spill. The necessary equipment must be onsite, within two hours, on any of these areas that are threatened by a spill.

The areas identified in the Recovery Plan as essential habitat for least terns are: Mission Bay; Sweetwater Marsh Complex; Tijuana River Estuary; South San Diego Bay; North San Diego Bay; Los Penasquitos Lagoon; San Dieguito Lagoon; San Elijo Lagoon; Batiquitos Lagoon; Agua Hedionda Lagoon; Buena Vista Lagoon; Santa Margarita River; Santa Ana River; Anahiem Bay/ Huntington Harbor; San Gabriel River/Alamitos Bay; Harbor Lake; Terminal Island; Playa del Rey; Mugu Lagoon; and Ormond Beach (Attachment 4).

Light-footed Clapper Rail (Rallus longirostris levipes)

The light-footed clapper rail was listed as Endangered on October 13, 1970. Critical Habitat has not yet been designated for this subspecies. Histori-

cally, the clapper rail's range extended from Santa Barbara County, California, to San Quintin Bay, Baja California, Mexico. Currently, this subspecies probably occurs in 16 California marshes and at least two marshes in Baja California. Distribution is along approximately 200 miles of United States coastline from Goleta Slough in Santa Barbara County south to the Tijuana Estuary in San Diego County.

Food consists of various invertebrates (crustaceans, mollusks and annelids) found in tidal coastal marshes. Past decline of the species has been attributed to the loss of over 65 percent of its former habitat as well as overhunting prior to 1939.

Potential threats from oil and gas activities could be from oil spills and increased human activities in the estuaries where existing populations live. The population estimate of 1976 suggested a total population of 250 birds distributed throughout 16 locations in California. Of these, five are in public ownership and may contain over 40 percent of the estimated population in California. Through the efforts of the Light-Footed Clapper Rail Recovery Team, a plan to stabilize this species through land acquisition and marsh management has been approved.

According to the Oilspill Risk Analysis, the possibility of an oil spill hitting clapper rail habitat is low. In addition, with the use of existing onshore facilities, no increased human disturbance from these activities is likely.

In order to assist GS in carrying out its responsibility to conserve the species, it is recommended that GS require the lessee to deploy the required containment equipment onto those areas identified in the Draft Recovery Plan as essential clapper rail habitat (Attachment 4). The necessary equipment should be onsite within two hours of an oil spill to prevent the entry of any advancing spill. Those areas to be included in the Oil Spill Contingency Plans for exploration and development/production are: Mission Bay; Sweetwater River complex; Tijuana River Estuary; South San Diego Bay; San Diego River mouth; Los Penasquitos Lagoon; upper Newport Bay; Anaheim Bay; Mugu Lagoon area; Carpinteria Marsh; and Goleta Slough.

Salt Marsh Bird's Beak (Cordylanthus maritimus asp. maritimus)

Salt marsh bird's beak is an annual herb (15-30 cm high) with purple flowers, that inhabits the upper elevations of tidal salt marshes. Populations of bird's beak are associated with pickleweed (Salicornia) and salt grass (Distichlis) near elevations at and above high tide. The bird's beak was listed as Endangered in the Federal Register on September 28, 1978. Critical Habitat has not yet been determined for C. m. maritimus.

Historically, this subspecies occurred from Carpinteria in Santa Barbara County south to San Diego County and northern Baja California, Mexico.

Today, distribution is restricted to the Sandyland Marsh (Carpinteria) in Santa Barbara County, Point Mugu in Ventura County, and the Tijuana River Estuary in San Diego County.

Destruction of coastal salt marshes is the major factor responsible for the elimination of this wetland species.

The Carpinteria Marsh area and the Tijuana River Estuary are in public ownership; and since existing onshore facilities will be utilized, the potential for further destruction of the bird's beaks' existing habitat from OCS activities has been reduced. The probability of an oil spill reaching this species' habitat is minimal.

Although the remaining populations of the salt marsh bird's beak are located inside protected estuaries and along the upper elevations of tidal salt marshes, the potential for inundation by an OCS related oil spill still exists.

In order to assist GS in carrying out their responsibility to conserve the listed species, it is recommended that GS require the necessary containment equipment be deployed to those three areas identified above within two hours of an oil spill. This requirement should be a part of the Oil Spill Contingency Plan for each exploration and development/production plan.

Development Plans

This consultation includes three existing development activities and four proposed development plans. A discussion of these development tracts follows:

The three existing development tracts are located in the Santa Barbara Channel (tracts 166, 240, and 241). The proposed development plans for tracts 188, 202, and 217 are also located in the Santa Barbara Channel. The remaining development plan (tract 300) is located south of Long Beach.

There are two platforms on tract 166—Hogan and Houchin—located five miles south of Carpinteria. These platforms are sending 4,600 barrels of oil per day via pipeline to existing facilities at La Conchita. Crew boats make two or three round trips a day from existing facilities at Carpinteria.

Another tract under development, tract 241, has three platforms sending 20,024 barrels of oil per day via existing pipeline to the Rincon facilities. These platforms require two to three crew boat trips a day from Carpinteria.

The third producing tract is tract 240, containing platform Hillhouse. This tract is located ten miles south of Summerland. The platform is serviced by two or three crew boats a day from Carpinteria. The 7,752 barrels of oil per day is transported by connecting pipeline to the tract 241 pipeline which goes to the Rincon facilities.

There are four proposed development plans being considered in this consultation. The first is a proposal for tract 217 for platform Grace. The estimated production is 16,000 barrels of oil per day by 1982. The tract is located 12 miles south-southwest of Rincon. It is proposed to connect this platform to the State platform Hope via pipeline, then to Carpinteria via existing pipeline. An additional pipeline proposal associated with this platform, is a 5.8 mile overland pipeline from Carpinteria south to Ventura. This pipeline is south of Carpinteria Marsh.

Tract 188 is located five miles south of Refugio Cove and platform Hondo will be placed on the tract. It is estimated that a production rate of 60,000 barrels of oil per day will be produced by 1982. The oil will be transported by pipeline to an offshore storage and transport (OS&T) vessel. This OS&T vessel will be located within the same tract. It is anticipated that two to three crew boat trips per day will originate from Carpinteria and two helicopter trips per week out of Ventura or Santa Barbara will be servicing this platform. From the OS&T vessel the oil will be tankered to an existing onshore facility.

Platform Girty is proposed for tract 202, located four miles southwest of Oxnard. Oil production is estimated to be 6,000 barrels per day and will travel via pipeline to a proposed onshore facility south of McGrath Lake at Ventura. It is estimated that three boat trips a day and three to four helicopter trips a month from Ventura will be needed to service this platform. From the proposed facility in Ventura, the oil will go to the Carpinteria facilities and then to Rincon facilities. There are two proposed onshore pipeline routes from Carpinteria to Rincon—one directly to Rincon, the other from Carpinteria to Rincon via La Conchita.

The fourth proposed development plan is located on tract 300, seven miles south of Long Beach. There will be two platforms on this tract, Ellen and Elly, with an estimated production rate of 16,000 barrels of oil per day by 1982. A proposed pipeline will connect these platforms to Long Beach refinery facilities. Three to four crew boats a day and two helicopter trips per week from Huntington Beach are anticipated to serve this tract. There is a proposal to place a platform, Eureka, on the adjacent tract, number 301. This platform will be joined to those on 300 by pipeline.

The four proposed development plans (tracts 188, 202, 217, and 300) specifically address the proposed pipeline routes and the onshore facilities to be used. We have reviewed the proposals and believe that the proposed pipeline routes and the construction of the onshore facility are not likely to jeopardize the continued existence of the listed species or destroy or adversely modify the Critical Habitat of the American peregrine falcon. However, Section 7 consultation must be reinitiated should any of the following occur which may affect listed species or their Critical Habitats: (1) alternative pipeline route be planned; (2) the construction of additional onshore facilities; (3) a change in the use pattern be conducted at the onshore facilities mentioned above; or (4) a new species be listed.

Cumulative Effects

There are numerous offshore and coastal projects and activities in Southern California. Those known to the Office of Endangered Species which could have an impact on the Endangered and Threatened species are considered in this consultation.

The Standard Oil Company of Ohio (SOHIO) pipeline project proposes to transport Alaskan crude oil from Valdez, Alaska to a new (unconstructed) unloading facility at Long Beach, California by tanker. Fourteen tankers will be required, each making 23 round trips per year, to transport the oil. From Long Beach, 500,000 barrels of oil per day will be transported by pipeline to Midland, Texas.

Additional increases in tankers carrying oil out of California can be attributed to the Naval Petroleum Production Act transporting oil from Elk Hills in the San Joaquin Valley to Port Hueneme via pipeline. It is proposed that 350,000 barrels of crude oil a day be sold to any interested party, which makes it difficult to predict the transport routes. However, it could possibly go to the Los Angeles/Long Beach area or even to the east coast traveling through the Panama Canal.

The Chanslor-Western Oil and Development Company has proposed to explore the Vaca Tar Sands. Because the oil would be extremely viscous, an oil processing plant or coking facility would probably be needed at the project site before being shipped by pipeline.

Additional vessel traffic can be expected in the San Pedro and Santa Barbara Channels from the Space Shuttle program.

There are two nuclear power plant proposals. The first, at Diablo Canyon in San Luis Obispo County, has been constructed, but start-up has not been granted. The second plant is in operation but has proposed to expand the facilities. This one is located at San Onofre, Orange County.

There are several Liquified Natural Gas (LNG) facilities proposed for Southern California. None have received approval yet. The onshore LNG plant would be at Point Conception and the offshore sites being considered are: Beachers Bay; Chinese Harbor; San Pedro Point; Smugglers Cove; East Channel Shelf; and Camp Pendleton. If the onshore LNG facility at Point Conception is approved, it will be processing gas from Alaska (400 million cubic feet a day) and from Indonesia (500 million cubic feet a day). This would increase tanker traffic (190 trips a year) into Point Conception.

The Office of Coastal Zone Management (OCZM) has proposed a marine sanctuary be designated around the northern Channel Islands and Santa Barbara Island which would exclude oil and gas activities within six nautical miles of the islands. Concurrently, the OCS Sale No. 48 excluded those tracts within six nautical miles of the Channel Islands and Santa Barbara Island.

The State of California leases tracts within three nautical miles of the coast. These activities generate the placement of pipelines, increased crew boats/supply boats and helicopters servicing the rigs, possible construction of additional processing facilities, and increased tankering.

There are several U.S. Army Corps of Engineers projects in the area including maintenance dredging, beach erosion, and harbor deepening projects.

All of the above projects potentially increase the disturbance to Endangered and Threatened species' habitat and/or increase the possibility of an oil spill occurring within the Southern California area considered in this consultation.

An individual project or activity may have no significant impact upon the listed species, but when considered in light of the numerous projects within the same area, significant impacts could occur.

With accelerated offshore oil and gas activities, the probable risk of oil spills also increases. Additional oil spillage could increase the impacts to Endangered and Threatened species. Due to this, immediate oil spill containment response is extremely necessary.

An increase in onshore activities presents another possible impact to the listed species. There are numerous coastal activities in this area. Due to the stress on the coastal area, changes in OCS related onshore activities must be evaluated carefully.

Conclusion

This biological opinion covers the oil and gas exploration activities for those tracts leased prior to OCS Sale 35, and those leased in OCS Sale 35 and 48. It also covers the seven development tracts identified above.

We have rendered our conservation recommendations for the protection of the El Segundo blue butterfly, the California brown pelican, the California least tern, the light-footed clapper rail, and the salt marsh bird's beak. Any activity or program authorized, funded, or carried out by a Federal agency which may affect any listed species or its Critical Habitat, will require Section 7 consultation.

The GS is reminded of their continuing responsibility to review their activities in light of their Section 7 obligations. Should additional onshore facilities be proposed, or the use pattern of existing facilities be changed, or a new species be listed that may be affect by exploration activities, Section 7 consultation must be initiated if a "may affect" determination is made. Also, should the construction of additional onshore facilities be proposed, different pipeline routes be proposed, a change in

the use pattern of the existing onshore facilities be proposed, or a new species be listed which may be affected by the development plans contained in this consultation, Section 7 consultation must be reinitiated.

GS must review all development/production plans not covered by this consultation in light of Section 7(c) of the Endangered Species Act of 1973, as amended.

We would like to thank GS for their consideration in providing the necessary information needed to conduct this consultation.

Robert S. Cook

Robert S. Cook

Attachments (5)

APPENDIX 2

CULTURAL RESOURCE SURVEYS

See "Cultural Resources Report on Proposed Platform Edith and Pipeline Route - OCS Lease P 0296 in Chevron U.S.A. Inc., December 1980, Platform Edith Environmental Report; Appendix 7."

APPENDIX 3

CONTINGENCY PLANS

Chevron U.S.A. Inc. submitted the "Oil Spill and Emergency Contingency Plan for Platform Edith OCS Lease P 0296" on April 10, 1981. It is available for inspection in the Public Information Room at the Minerals Management Service Pacific OCS Region Office, 1340 West Sixth Street, Los Angeles, California 90017.

APPENDIX 4

MAPS, DIAGRAMS, PHOTOGRAPHS

See "List of Tables and Figures" in Chevron U.S.A. Inc., December 1980, Platform Edith Environmental Report.

Maps and Diagrams also appear throughout the Environmental Assessment

APPENDIX 5

PROPOSED PLAN OF DEVELOPMENT AND ENVIRONMENTAL REPORT

These are available for inspection in the Public Information Room at the Minerals Management Service Pacific OCS Region Office, 1340 West Sixth Street, Los Angeles, California 9017. Copies were mailed to federal agencies as specified by 30 CFR 250.34 and the Department of the Interior Manual. State distribution was through the California Coastal Commission and the Governor's Office of Planning and Research.

Revisions to the Development and Production Plan and Air Quality Analysis were received in October 1981 and February 1982, respectively.

APPENDIX 6

U. S. GEOLOGICAL SURVEY REPORTS

Environmental Geology for Proposed Platform Edith and Production Pipeline, Memorandum from Deputy Conservation Manager, June 5, 1981

United States Department of the Interior

GEOLOGICAL SURVEY

1340 W. Sixth Street
Suite 100
Los Angeles, California 90017

NOTED - CYPHER

June 5, 1981

MEMORANDUM

To: Deputy Conservation Manager, Field Operations

From: Deputy Conservation Manager, Resource Evaluation

Subject: Environmental Geology for Proposed Platform Edith and Production Pipeline

INTRODUCTION

Chevron U.S.A. Inc. has submitted a plan of development for approval of the installation of proposed Platform Edith and production pipeline on the outer San Pedro Shelf and upper slope in the southeast quarter of Lease OCS P-0296 (fig. 1). The proposed platform, to be located about 16 km south of Long Beach, will develop the northern part of the Beta field, which also occurs in Leases P-0300 and P-0301.

The proposed platform is a conventional 16-leg template-type platform to be installed in 49 m of water. The platform will have a capacity of 72 wells. A 6-inch (15 cm) O.D., 1,981 m long crude oil pipeline will be installed between Platform Edith and Shell's Platform Elly located on Lease P-0300.

Lease P-0296 was acquired by Chevron, Union Oil of California, Getty Oil Company and Skelly Oil Company in OCS Lease Sale 35, held in December, 1975. The present participation includes Chevron, Union, and Champlin Petroleum Company. Following the lease sale, Chevron, as operator, drilled thirteen exploratory and confirmation wells on this lease. Chevron is operator for development of Beta field crude oil reserves located in Lease P-0296.

REGIONAL SETTING

San Pedro shelf is a flat-topped platform extending from the shoreline southwest to the arcuate San Pedro escarpment (fig. 2). In addition to Newport Canyon, which heads close to shore, two canyons, San Pedro Sea Valley and San Gabriel Canyon, indent the outer portion of the shelf and the escarpment.

San Pedro shelf forms part of the submerged western extension of the Peninsular

Ranges province which is known as the California continental borderland. The Peninsular Ranges province is characterized by northwest-trending ridges separated by sediment filled basins. Crowell (1975) described the structural character of the province as a series of northwest-trending faults separated by large elongate blocks which are being squeezed, distorted, elevated and depressed. Junger and Wagner (1977) showed that the predominant structures in the continental borderland are compressional anticlines which form bathymetric ridges with intervening basins. The origin of the structure of the continental borderland is not clear but is believed to be the result of right-lateral wrench faulting at great depth (Junger, 1976).

STRUCTURE

Major structures in the San Pedro shelf area are the Newport-Inglewood and Palos Verdes Hills faults, the Palos Verdes Hills anticline, and the Wilmington graben (fig. 2).

The two major faults in the region, the Newport-Inglewood and Palos Verdes Hills faults, are both considered active and are respectively located 15 km northeast and 420 m west of the proposed platform site and pipeline route. Both faults exhibit strike-slip and dip-slip separation and both occur as zones of en echelon breaks or as single traces.

The Newport-Inglewood fault zone trends northwest from offshore Laguna Beach to the Cheviot Hills where it terminates against the Santa Monica-Raymond fault zone. The fault has a right-lateral strike slip displacement of 1,000 m to 2,000 m in lower Pliocene strata (Yerkes and others, 1965) and probably 3,000 m in middle Miocene strata (Hill, 1971). Vertical separation is locally more than 1,000 m at the surface (Yerkes and others, 1965).

The Palos Verdes Hills fault is exposed on the northeast side of the Palos Verdes Hills and continues offshore forming the boundary between the Palos Verdes Hills anticline and Wilmington graben. It is a steeply dipping reverse fault with a vertical displacement of 1,500 m on the basement rocks (Yerkes and others, 1965). Significant strike-slip separation along the fault is likely (Greene and others, 1975). Numerous small folds diverge westward at angles of 20° to 30° from the fault indicating right lateral shear (Junger and Wagner, 1977).

The Palos Verdes Hills anticline extends northwest and southeast from beneath the Palos Verdes Hills for a total length of about 70 km (Junger and Wagner, 1977). The San Pedro escarpment forms its southwestern flank.

The Wilmington graben is a down-dropped block between the Palos Verdes Hills fault and a series of unnamed faults southwest of the Newport-Inglewood fault zone. This region forms the southernmost part of the prolific oil-producing Los Angeles basin (Greene and others, 1975).

STRATIGRAPHY

Greene and others (1975) mapped the base of the unconsolidated Quaternary sediments

from seismic profiles; sediments reach a maximum thickness of 80 m in the Wilmington Graben. Quaternary sediments lap onto the crest of the Palos Verdes Hills anticline where Miocene rocks are exposed at the sea floor. Recent sediments covering the San Pedro shelf range from coarse sand to clay. Pleistocene cross-bedded prograding deltaic deposits were identified in the Wilmington Graben by Junger and Wagner (1977).

The generalized stratigraphic section for the Palos Verdes Hills is as follows:

AGE	UNIT	LITHOLOGY
Pliocene	Repetto Formation	Bluish-gray massive glauconitic siltstone
Upper Miocene (Delmontian)	Monterey Formation (Malaga Mudstone)	Radiolarian mudstone, diatomaceous shale, limestone, and volcanic ash
Upper Miocene (Upper Mohnian)	Monterey Formation (Valmonte Diatomite)	Diatomite, diatomaceous shale and mudstone and volcanic ash
Upper Miocene (Lower Mohnian)	Monterey Formation	Bituminous phosphatic platy shale, volcanic ash and schist conglomerate
Middle Miocene (Luisian)	Monterey Formation (Miraleste Tuff and Altamira Shale)	Cherty and porcelaneous shale with some limestone and schist conglomerate
Middle Miocene (Relizian)	Monterey Formation (Portugese Tuff and unnamed lower unit)	Silty to sandy shale and basalt
Mesozoic or older	Catalina Schist	Fine-grained, foliated gray-green schist intruded by Miocene plutonic rocks

From Yerkes and others (1965) and White (1952).

SEISMICITY

The southern California continental borderland is within the circum-Pacific volcanic and seismic belt that has been active throughout middle and late Cenozoic time. Tectonism has accelerated during the latter part of this era, with maximum activity occurring in Quaternary time (Hamilton and others, 1969).

Earthquakes in the continental borderland have been monitored since the 1920's, although reliable accounts of California earthquakes date from 1800. Since 1932,

instrumentally recorded earthquakes throughout southern California have been reported by the California Institute of Technology (Hileman and others, 1973). In 1969, the U. S. Geological Survey installed a seismograph network in southern California that included stations on San Miguel and Santa Cruz Islands; in 1973, a third station was installed on Anacapa Island. More than 20 earthquakes of magnitude 6.0 or greater have been reported in southern California since 1912 (fig. 3).

Earthquake epicenter locations in the Los Angeles area are shown in figure 4. The concentration of events in the Long Beach area is primarily due to activity on the Newport-Inglewood fault zone. Some of the epicenters are aligned with the Palos Verdes Hills fault, probably the most important fault from an environmental standpoint (Vedder and others, 1976), and the San Pedro escarpment (Greene and others, 1975).

TSUNAMIS

Only a few locally generated tsunamis have been recorded along the coast south of the Santa Barbara Channel and none caused major damage. Since the area is seismically active, inundation along the coastal lowlands could result from both locally generated and external tsunamis (Vedder and others, 1976).

Locally generated tsunamis occured in 1879 at Santa Monica and in 1925 and 1933 at Long Beach (Iida and others, 1967). The 1933 tsunami resulted from the March 10, 1933 Long Beach earthquake.

All of southern California was affected by the tsunami resulting from the May 1960 Valdivia, Chile earthquake (magnitude 8.5). Long Beach harbor reported 1.5 m waves and surges in Cerritos Channel. Surges of some 1.5 m or more were reported from Marina Del Rey to Newport Harbor as a result of the March 1964 Prince William Sound earthquake. The tsunami generated by the 1964 Alaska earthquake apparently was not discernable in the area.

GEOLOGIC HAZARDS ANALYSIS

Slope Stability

The site of proposed Platform Edith and production pipeline is on the outer San Pedro shelf and upper slope. In this area the shelf break is defined as the 70-m isobath. San Gabriel Canyon heads about 1,800 m east of the proposed platform site. Water depth at the proposed platform site is 49 m. Water depth along the proposed pipeline route ranges from 49 m at proposed Platform Edith to 76 m at Platform Elly.

The sea floor has a gentle southeast slope in the southeast quarter of Lease P-0296. Slope at the proposed platform site is about 0.3° SSE. Slope along the proposed pipeline route gradually increases to 1.6° SSE at Platform Elly.

Thickness of unconsolidated surficial sediment is highly variable in the area as a result of depression and ridge development associated with the vertical

component of movement on the Palos Verdes Hills fault zone. Bedrock outcrops associated with the fault zone west and southwest of the proposed platform site have been eroded flat by wave and current action, probably during a lower stand in sea level. The outer shelf is generally swept clean of sediment by current action, whereas the upper slope is the site of deposition. Unconsolidated sediment forms a veneer over wave truncated rocks at the proposed platform site. Scattered outcrops, with relief less than 0.5 m, occur along most of the central proposed pipeline route. Unconsolidated sediment forms a southward thickening wedge below the shelf break that is as thick as 8.5 m at the southeast end of the proposed pipeline route at Platform Elly.

No evidence of slumping was indicated by the geophysical data.

Faulting

Several northwest-trending surface to near surface faults, probably surface traces of the Palos Verdes Hills fault zone, are located 420-1,375 m west and southwest of the proposed platform site and pipeline route. Two of these faults cut the sea floor, but do not offset it.

No faults were mapped crossing the proposed pipeline route.

Shallow Gas and Hydrocarbon Seeps

Three amplitude anomalies, possible indications of shallow gas, were mapped within 600 m of the proposed platform site and northern part of the proposed pipeline route. The largest anomaly is about 0.8 sq km in area and is 21-37 m below the sea floor. It is mapped on several parallel and intersecting tracklines within 200 m south and west of the proposed platform site. Two smaller anomalies, mapped on single tracklines, located north and south-southwest of the proposed platform site, are at a subsurface depth of 30 m and 37 m, respectively.

Two acoustically turbid zones, possible indications of gas-charged sediments, were mapped in the upper 10 m of sediment in the southeast quarter of Lease P-0296. One zone was mapped 800 m south of the proposed platform site. The second zone underlies about 0.5 sq km of sea floor along 510 m of the proposed pipeline route, about 250 m northwest of Platform Elly.

Water-column anomalies, a possible indication of hydrocarbon seeps, are common in the lease but scarce in the area of the proposed platform site and pipeline route. One anomaly occurs within 1,000 m of the proposed platform site and pipeline route. It is located about 425 m west of the proposed platform site, above a sea-floor cutting trace of the Palos Verdes Hills fault zone.

Burton B. Barnes

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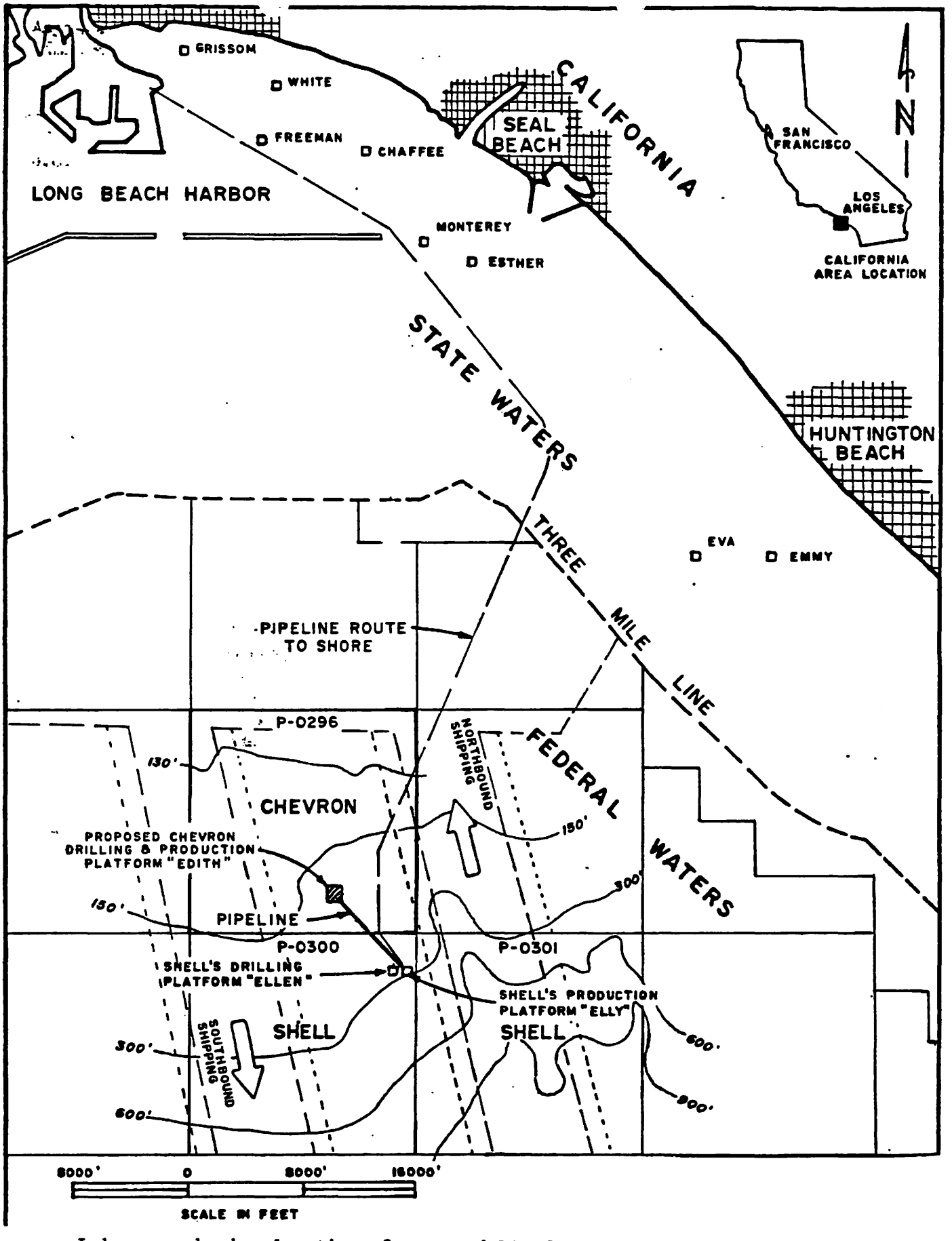
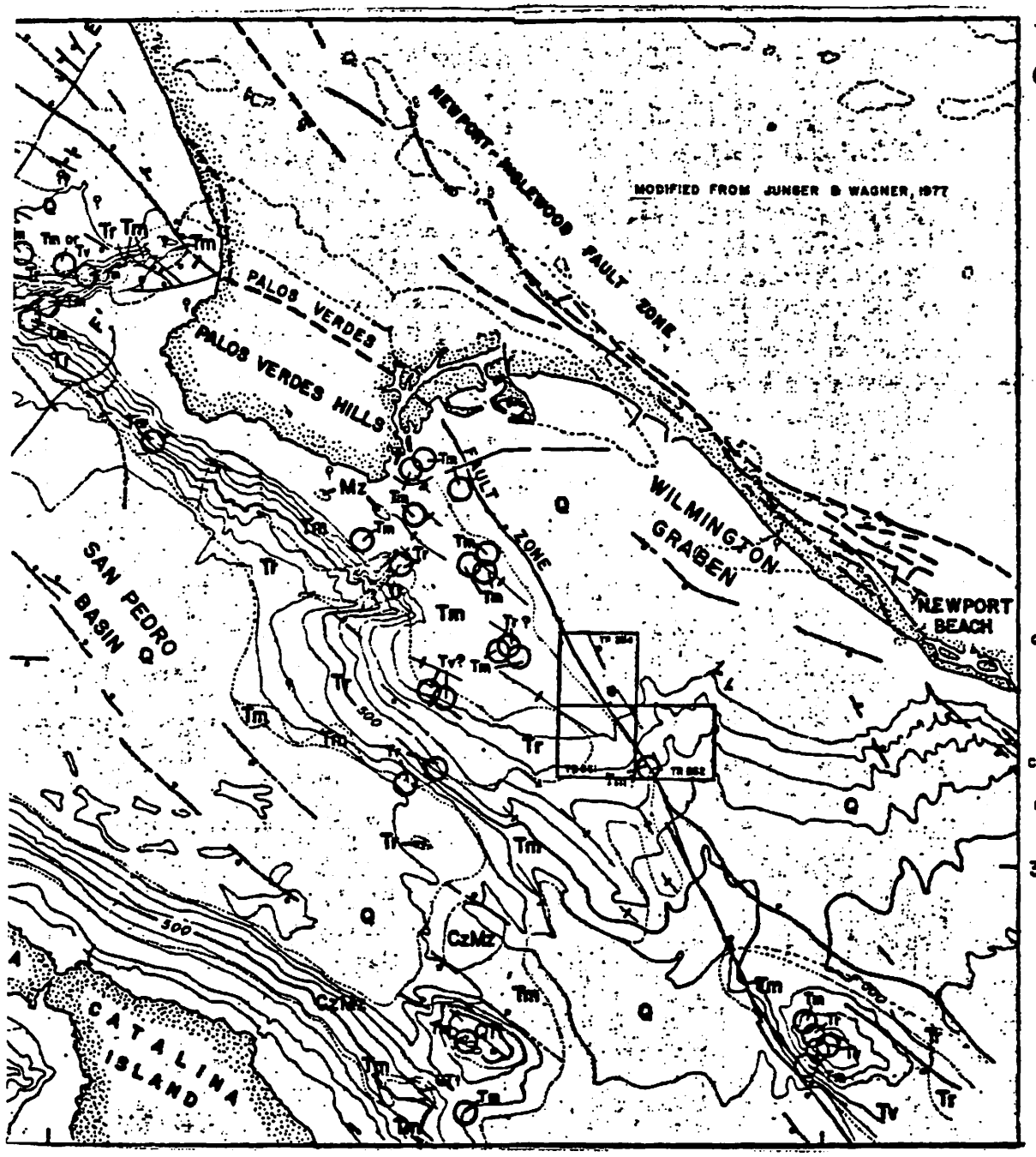


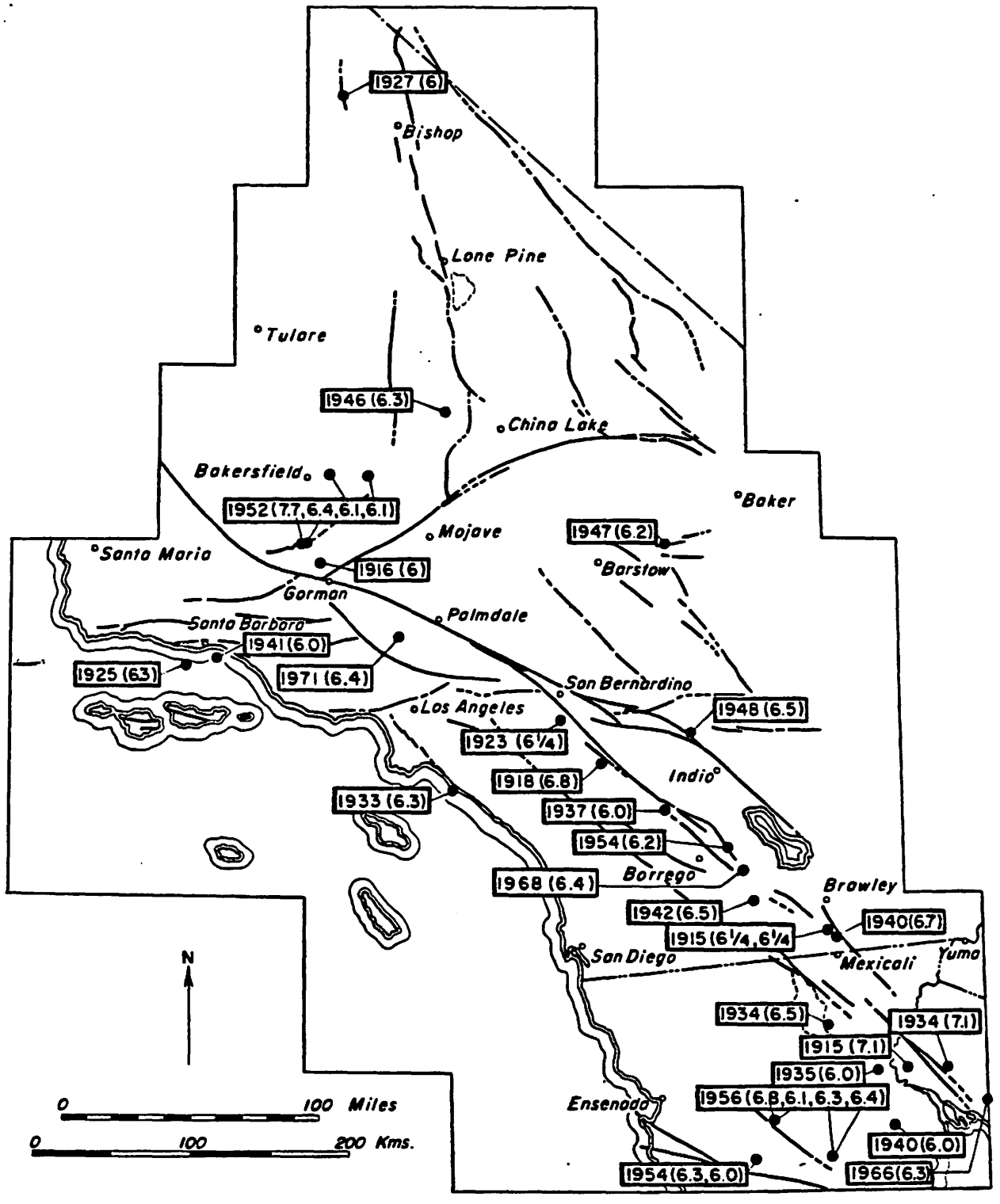
Index map showing location of proposed Platform Edith and production pipeline, San Pedro Shelf.

Fig. 1



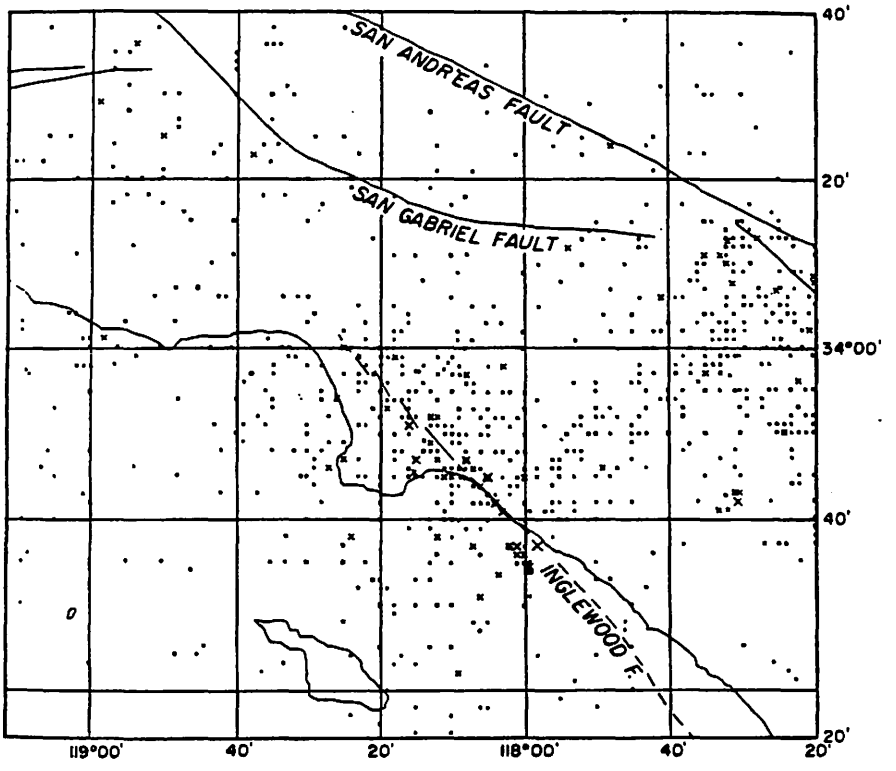
San Pedro Shelf

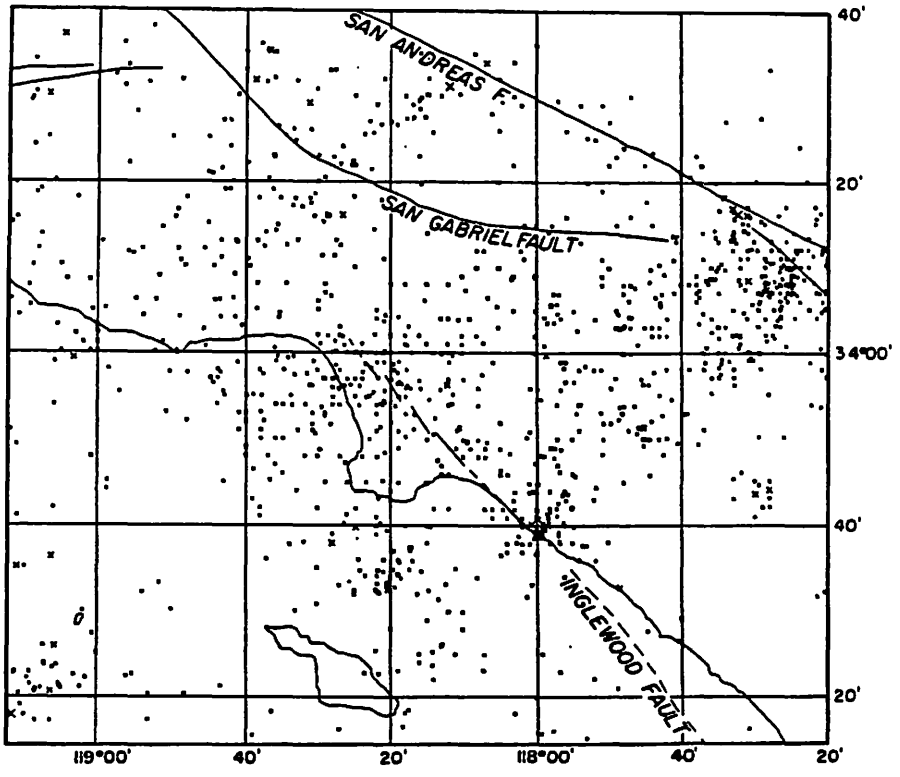
Fig. 2



Earthquakes of magnitude 6.0 and greater in the southern California region, 1912-1972, modified from Allen et al. (1965).

Fig. 3





Earthquake Epicenters Los Angeles Area

Fig. 4

APPENDIX 7

REVIEW COMMENTS AND CORRESPONDENCE FROM OTHER AGENCIES AND THE PUBLIC

Correspondence:

U. S. Coast Guard, letter of June 12, 1981

U. S. Environmental Protection Agency, letter of June 19, 1980

Also see correspondence in appendix 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

19 JUN 1981

H.T. Cypher, Acting Deputy Conservation Manager
Field Operations, Pacific OCS Region
U.S. Geological Survey
160 Federal Building
1340 West Sixth Street
Los Angeles CA 90017

GEOLOGICAL SURVEY
PACIFIC OCS REGION
RECEIVED
JUN 22 1981
FIELD OPERATIONS
LOS ANGELES

NOTED - DUNAWAY

Dear Mr. Cypher:

The Environmental Protection Agency (EPA) has received and reviewed the Environmental Report and the Development and Production Plan for PLATFORM EDITH (OCS-P 0296).

We offer the attached air-related comment for consideration and inclusion in the proposed Environmental Assessment.

The EPA appreciates the opportunity to review these environmental documents and requests three copies of the Environmental Assessment when available.

If you have any questions regarding our comments, please contact Susan Sakaki, EIS Review Coordinator, at (415)556-7858.

Sincerely yours,

Terry F. Stumph

for Jake Mackenzie, Director
Surveillance and Analysis Division

Attachment

Air Quality Comment

The Environmental Assessment (EA) should itemize sources of fugitive emissions on the drilling platform. Specifically, all valves, flanges, and compressor seals emissions should be identified. Vapor emission factors for these items should be taken from Assessment of Atmospheric Emissions from Petroleum Refining: Volume 3, Appendix B, EPA-600/2-80-075 C, April 1980.

Environmental Protection Agency

For an itemization of sources of fugitive emissions on the drilling platform please see the Chevron ER, appendix 3, pages 3-9, 3-10, and 3-13. It should be noted that production is only treated to pipeline quality, and not refined, on the platform. Vapor emissions therefore were taken from Volume 1, Fugitive Emissions from Petroleum Production Operations, March 1980, API, Appendix E.

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

NOTED · CLIFTON

MAILING ADDRESS:
COMMANDER (mocs)
ELEVENTH COAST GUARD DISTRICT
UNION BANK BLDG.
400 OCEANGATE
LONG BEACH, CA. 90822

16475/30
12 June 1981

Department of Interior
U. S. Geological Survey
160 Federal Bldg.
1340 W. Sixth St.
Los Angeles, CA 90017

NOTED · DUNAWAY

Ref: Platform Edith Plan of Development

Dear Sir:

The Development and Production Plan and accompanying Environmental Report for proposed Platform Edith have been reviewed. Both documents are well written and adequately address the concerns of the Coast Guard. As such, this office has no objection to the action proposed by Chevron U.S.A. Inc.

Thank you very much for the opportunity to review these documents.

Sincerely,

J. E. TERVEEN
Lieutenant, U. S. Coast Guard
Chief, Outer Continental Shelf
Management Branch
By direction of the District Commander

Copy: CCGD11(oan)
Chevron U.S.A. Inc.
P. O. Box 7643
San Francisco, CA 94120

APPENDIX 8

CORRESPONDENCE RECEIVED AFTER 1981

United Brotherhood of Carpenters and Joiners;
April 1, 1982; April 7, 1982

Chevron U.S.A. Inc., June 22, 1982

UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA

LOCAL UNION No. 2375
PILE DRIVERS, BRIDGE, WHARF, DOCK
CARPENTERS, WELDERS, DIVERS, RIG BUILDERS,
DRILLERS AND ROTARY HELPERS

728 LAGOON AVENUE
WILMINGTON, CALIF.
(213) 830-5300

Notice of Inaccuracy in Environmental Report for Platform Edith submitted by Chevron U.S.A., Inc.
Objection to Consideration of Uncorrected Report
Request for Withholding of Approval

The United Brotherhood of Carpenters and Joiners of America, Pile Drivers' Local No. 2375, AFL-CIO, respectfully request the Minerals Management Service to withhold approval of the Development and Production Plan for Platform Edith submitted by Chevron U.S.A., Inc. until Chevron U.S.A., Inc. corrects errors in the Environmental Report and furnishes information required by regulations pursuant to the Outer Continental Shelf Lands Act, 43 U.S.C. Section 1331 et seq.

In support of their request Local 2375 submits the following:

1. Local 2375's Statement as to their interest in the matter.
2. Local 2375's Statement of law and facts in support of withholding of approval.
3. Attached Exhibits.

Respectfully submitted,

ROBERT W. SCHAFER

Dated at Wilmington, California this
1st day of April, 1982.

Local 2375's Statement of Interest in the Matter

The United Brotherhood of Carpenters and Joiners of America, Pile Drivers' Local No. 2375, AFL-CIO, (hereafter Local 2375), is an organization in which employees have membership, and which exists for the prupose, inter alia, of representing employees in collective bargaining with respect to wages, hours, and other terms and conditions of employment.

The membership of Local 2375 includes citizens of the United States who are employed and who seek employment on facilities engaged in exploration and development activities on the Outer Continental Shelf off the coast of California. The work performed by members of Local 2375 includes, among other things, various tasks involved in the installation of oil drilling platforms on the Outer Continental Shelf. For example, crews comprising Local 2375 members work on drilling platforms performing the welding and piledriving tasks involved in anchoring platforms to the ocean floor. Local 2375 members also regularly perform the work of inspecting and making repairs on platform pilings underwater.

The Pile Drivers Local Union 2375 has built 26 platforms in the offshore waters off of California since 1957. Until Texaco Inc.'s Platform "Habitat" platform installation work has traditionally been performed by members of Local 2375. A list of platforms installed by Local 2375 is attached as Exhibit "1".

Local 2375 members are denied and will be denied employment opportunities when foreign workers perform the work described above on the Outer Continental Shelf. The economic loss to Local 2375 members for a representative 25-day project, involving 30 employees working two 12-hour shifts per day, would currently amount to approximately $221,820 in wages and fringe benefits.

The majority of the membership of Local 2375 reside in the coastal region immediately adjacent to waters where offshore oil platform installation has been performed.

Because of the harm that will be suffered by the members of Local 2375 and pursuant to Title 1 of the National Environmental Policy Act of 1969 and 40 CFR Section 1506.6, Local 2375 has the right to request the Minerals Management Service to withhold approval of the Development and Production Plan submitted by Chevron U.S.A., Inc. until they correct the errors and furnish information that is required by regulation as will be discussed below.

Respectfully submitted,

Robert W. Schafer
ROBERT W. SCHAFER

Dated at Wilmington, California this
1st day of April, 1982.

Local 2375's Statement of Law and Facts in Support of Withholding of Approval

Pursuant to the Outer Continental Shelf Lands Act Amendments of 1978, 43 U.S.C. Section 1356(a), Congress clearly mandated the Department of Transportation to issue regulations, within six months after September 18, 1978, requiring that all vessels, rigs, platforms, or other vehicles or structures engaged in Outer Continental Shelf activities be manned or crewed by United States citizens or aliens lawfully admitted to the United States for permanent residence. The Department of Transportation delegated the task to the U.S. Coast Guard who published the regulations on March 4, 1982. The regulations are not to become effective until April 5, 1983. As the Department of Transportation failed to issue the regulations within the prescribed time period the effective date of the regulations is the subject of litigation pending in District Court in Washington, D.C.

Presently, there are foreign contractors employing foreign workers engaged in Outer Continental Shelf activities. This use of foreign labor is contrary to United States policy. In enacting 43 U.S.C. Section 1356, Congress sought to preserve and enhance employment opportunities for American workers in Outer Continental Shelf activities. As the legislative history demonstrates, Congress "was concerned about the testimony of numerous witness that foreign workers on the U.S. Outer Continental Shelf have been increasing in recent years". H. Rep. 590, 95th Cong., 2d Sess., p. 175 (1977). Accordingly, Congress fashioned Section 1356 to address its "concern of providing the fullest possible employment for Americans in U.S. Outer Continental Shelf activities" while minimizing the "likelihood of retaliation" against American workers in foreign offshore activities. H. Conf. Rep. 1474, 95th Cong., 2d Sess., p. 123 (1978) [emphasis added].

Clearly, it is the policy of the United States to preserve and enhance employment opportunities for American workers on Outer Continental Shelf activities. Pursuant to 40 CFR Section 1500.2, Federal agencies shall to the fullest extent possible interpret and administer the policies, regulations, and public laws of the United States. Chevron U.S.A., Inc. ("Chevron"), in the Environmental Report for Platform Edith, submitted in conjunction with their Development and Production Plan contains inaccurate statements concerning the source of the workers who will be employed during the installation phase of Platform Edith. The report implies all the workers will be coming from the local area. At page 2-1 of the Environmental Report it states that during platform construction 80% of the workers will come from the Los Angeles and surrounding areas and 20% will come from the Ventura and Long Beach areas. Chevron has informed us that, through its contractor,Raymond Offshore Constructors, the installation work has been subcontracted to Heerema Marine Contractors which is a foreign contractor and employs foreign personnel. This use of foreign workers will have a significant socio-economic effect on the local area. This impact has not been mentioned in the Environmental Report. In these times of high unemployment, allowing jobs that were intended by Congress to be filled by American to go to foreign workers creates an even more onerous socio-economic impact.

Pursuant to Section 20(d) of the Outer Continental Shelf Lands Act, the Sec-

retary of the Interior shall consider available relevant environmental information in making decisions (including those related to exploration plans, drilling permits, and development and production plans), in developing appropriate regulations and lease conditions, and in issuing operating orders. Chevron has the information concerning how many foreign workers will be employed during the installation of Platform Edith, and the resulting loss of employemnt opportunities for American workers. This information must be included in the Environmental Report for Platform Edith in order that the Secretary of the Interior will be able to consider this information in making any decisions concerning Platform Edith.

30 CFR Section 250.34-3(b)(4)(B) states, in pertinent part, that an environmental report is to include the requirements for labor, including the approximate number of local personnel who will be employed for,or in support of, the development activities (classified by the major skills or crafts that will be required from local sources and estimated numbers of each such skill needed). Pursuant to the Outer Continental Shelf Lands Act, Section 2(1), "the term 'development' means those activities which take place following discovery of minerals in paying quantities, including geophysical activity, drilling, platform construction, and operation of all onshore support facilities, and which are for the purpose of ultimately producing the minerals discovered." [emphasis added]. Clearly, Chevron is mandated to list the requirements for labor during the installation of Platform Edith, including the approximate number of local personnel who will be employed. In the Environmental Report submitted by Chevron this information is not included. This information is available to Chevron and must be included in the Environmental Report.

A further adverse economic and social effect of Chevron employing foreign personnel is the harm to American owned companies. American owned construction companies are at a competitive disadvantage when bidding against foreign owned construction companies for awards of contracts for projects on the Outer Continental Shelf. Foreign contractors are able to win awards for Outer Continental Shelf projects based not on the merits of good management, good engineering, good design and quality crafts manship, but rather based solely on the advantage foreign contractors would have by hiring low-wage foreign workers. The result is some American contractors could be driven out of business. This would mean an even greater denial of employment opportunities.

With the increased demand for domestic oil production there will be increased activity on the Outer Continental Shelf of off California. This growth is evident in articles in Offshore Magazine (copies attached as Exhibit "2"). If foreign workers are employed on Outer Continental Shelf activities in offshore waters of California, Local 2375 and the local contractors will be seriously affected.

An example of how an American contractor can be hurt by a foreign contractor follows. J. Ray McDermott and Company, Inc., an American contractor in the marine construction business, has been the contractor on the following platforms:

Atlantic Richfield's North Channel Platform, 1957
Santa Barbara Channel, Platform Hazel, 1958
Shell Platform B, 1964
Shell Platform D, 1965

Amaco Platform Anna, 1966
Amaco Platform Bruce, 1966
Shell Platform C, 1967
Platform Pan Am, 1967
Phillips Oil, Santa Barbara Channel, 1967
Atlantic Richfield, 1968
Atlantic Richfield, King Salmon, 1968
Sunland Oil, Santa Barbara Channel, 1968
Sun Oil, Santa Barbara Channel, 1970
Exxon, Platform Hondo, 1976

J. Ray McDermott and Company, Inc. was underbid by Heerema Marine Contractors for the contract for Texaco, Inc.'s Platform Habitat. This resulted in an economic loss to McDermott and a loss of employment opportunities for American workers. McDermott traditionally hires Local 2375 members and pays the prevailing wages in the local area.

Whil investigating the loss of employment opportunities for Americans on the Outer Continental Shelf, on Wednesday, November 14, 1979, the House of Representatives, Select Committee of the Outer Continental Shelf held an Outer Continental Shelf Oversight Hearing. One of the witnesses who testified before the committee was James J. Wildasin, the senior vice-president of Raymond Offshore Constructors, Inc., a wholly owned subsidiary of Raymond International Builders. Mr. Wildasin testified that,

> "Raymond Offshore Constructors, since mid-1978, has submitted bids for approximately 100 offshore installation jobs, and approximately one-fifth of these jobs were awarded to foreign owned marine construction companies. The value of the jobs awarded to foreign owned construction companies is estimated between $20 and $25 million. This does not include pipeline installation contracts that have been awarded to foreign owned construction companies nor does it include installation jobs for which, for one reason or another, we did not submit a quotation. We estimate we submitted quotations on approximately two-thirds of the total number of inquiries."

When questioned further Mr. Wildasin testified that foreign companies paid foreign workers at a lower rate than the American worker and this gives foreign companies a competitive advantage over American companies and "if they are in an area that they have been able to find that they are experiencing an advantage, that has to give them a one up, and I would expect that they would continue to follow something in an area where they do have an advantage."

Mr. Wildasin also testified as to the impact to the American worker. Usint the amount of the contracts lost between mid-1978 to November 1979, Mr. Wildasin computed the following amount of wages lost to American workers:

> "Assuming a derrick barge spread sells in today's market at U.S. $60,000 a day, the above contract value would represent between 333 and 417 derrick barge spread days. On the further assumption that 90 men are employed on a derrick barge at any one time and that each man works a 12-hour shift every day and receives 15.14 pay hours per day with an average wage of U.S. $7.65 per hour, then the above derrick barge spread days represents a payment to the work force of between $3.4 and $4.3 million. Based on the above assumption, an estimated U.S. $3.9 million has been paid to

foreign workers that could have been paid to the members of the U.S. work force. Extrapolating these numbers to cover an entire platform installation market, the amount paid to foreign workers approximately U.S. $5.8 million."

The use of foreign contractors impacts both business and the American worker. Mr. Wildasin, when questioned about losing business, stated, "We do lose business which affects the company, Raymond Offshore Constructors, in this case, and also it does affect the American work force in that you are losing, as I presented here, over the year and a half approximately $6 million of money that could be paid to the American work force if they were qualified to perform the necessary functions, and I believe they are."

A footnote should be added here. Gary Shields, an attorney with Raymond International Builders, Inc. testified at the same hearing, that "Raymond Offshore Constructors, Inc. is a U.S. employer and will hire or will be compelled to hire from a U.S. work force." This, as testified by Mr. Wildasin, puts Raymond Offshore Constructors at a competitive disadvantage when competing against foreign companies. Raymond Offshore has found a way to be competitive, simply subcontract the work to a foreign company. That is what is happening on Chevron's Platform Edith. Raymond Offshore. who testified so eloquently as to the loss to American workers, is the general contractor for Platform Edith and has subcontracted the installation work to Heerema Marine Contractors, a foreign company. Since Raymond was having trouble competing they join forces with these foreign companies and the party that suffers is the American worker.

Chevron has had the information regarding the use of foreign personnel on the installation of Platform Edith yet their Environmental Report implies that their hiring policy is in compliance with Congressional intent and United States policy which is untrue and should be corrected.

According to Executive Order 11246, as amended (41 CFR Section 60-1.4(a)), no lessee of an OCS tract may discriminate against any employee because of race, color, religion, sex, or national origin. [emphasis added]. An Equal Opportunity Clause is included in every lease. (The lease for OCS Parcel 296 includes such a clause and a copy of the lease is attached as Exhibit "3"). Heerema Marine Contractors refuses to hire American workers to do the installation work which is discrimination because of national origin. Chevron, as the lessee of OCS Parcel 296, should be found to be in violation of the lease agreement, and as per Section (h)(6) of the lease, the lease should be cancelled or suspended until Chevron corrects the situation.

The legality of the use of foreign workers on OCS activities is currently being questioned in two seperate actions in Federal Court. The International Brotherhood of Carpenters filed suit against the Department of Transportation and the U.S. Coast Guard to compel the government to accelerate the effective date of the regulations issued pursuant to the Outer Continental Shelf Lands Act Amendments of 1978, 43 U.S.C. Section 1356(a). (Relevant materials filed in the action are attached as Exhibit "4").

Peter Weiner, the Chief Deputy Director of the State of California's Depart-

ment of Industrial Relations has informed us of Governor Brown's concern and his department's concern over the use of foreign workers on the OCS off of California. Mr. Weiner is contemplating filing an amicus brief for the International Brotherhood of Carpenters in the suit against the Department of Transportation.

The Pile Drivers Local Union 2375 filed in District Court in Los Angeles a suit against the Attorney General and the Immigration and Naturalization Service for a writ of mandate to compel the Immigration and Naturalization Service to enforce the immigration laws on the Outer Continental Shelf. (A copy of the complaint is attached as Exhibit "5").

As it is possible the use of foreign workers may be soon held to be illegal it would be improper for the Minerals Management Service to approve any development and production plan of any company that is intending to use foreign workers to construct the platform. The Local 2375 requests that the Minerals Management Service hold in abeyance approval of the Development and Production Plan submitted by Chevron pending the outcome of the above mentioned court actions.

Along with Governor Brown and Peter Weiner another party that is concerned with the use of foreign workers on the offshore waters of California is Michael Fischer, the Executive Director of the California Coastal Commission. By letter dated March 15, 1982 (a copy of which is attached as Exhibit "6") Mr. Fischer expressed his concern over the situation to Robert Schafer the Business Manager of Local 2375.

Other concerned parties are Congressman Glenn Anderson, The Cabinet Makers and Millmen Local 721, Councilwoman Joan Milke Flores, and Senator Henry Jackson. (Copies of correspondence are attached as Exhibit "7").

Chevron's assertions on public opinion as it relates to additional industrialization, found at page 152 and 153, are questionable. The Environmental Report states there is a small minority which vocally opposes petroleum development in any offshore form, a small minority that supports offshore petroleum and a large majority which appears to be neutral toward the proposed activities. This breakdown is untrue. Chevron implies that only a few environmentalists and a few persons from fishing and tourist industry special interest groups are concerned with offshore petroleum development. Many persons with diverse backgrounds and interests are concerned with offshore petroleum development. At the Santa Barbara hearings on the Draft Environmental Statement for proposed OCS Sale No. 68 held on July 29th and 30th, 1981, representatives from the Governor's Office of Planning and Research; the County of Santa Barbara, the Department of Resource Development; The California Coastal Commission, South Central Coast District; Naomi Schwartz for Assemblyman Gary Hart; La Donna Kueny for the Honorable Robert Lagomarsino; among many others who appeared to speak. For a complete list see Exhibit "8", A close inspection of the list shows that more than just a few environmentalists are concerned with offshore petroleum development.

Further proof of the concern of civic leaders and other groups, along with environmental groups, can be found by a reading of the written comments received by the Bureau of Land Management regarding proposed OCS Sale No. 68. (See Exhibit "9").

Comments were received from the following public agencies who are concerned with the impact of offshore petroleum development:

The Mayor, City of Avalon
The Department of Development Services, City of Huntington Beach
The Department of Community Development, City of Laguna Beach
The Planning Department, City of Oxnard
The City Manager, City of Redondo Beach
The Mayor, City of Santa Barbara
The Mayor, City of Santa Monica
Robert K. Dornan, House of Representatives
The Environmental Management Agency, County of Orange
The Board of Supervisors, County of Santa Barbara
The Department of Resource Management, County of Santa Barbara
The Resource Management Agency, County of Ventura
The Marine Mammal Commission
The Port of Long Beach
The San Diego Association of Governments
The South Coast Air Quality Management District
State of California, Governor's Office, Office of Planning and Research
The Air Resources Board
The California Coastal Commission
The California Department of Parks and Recreation
The State of Washington, Department of Ecology
The National Oceanic and Atmospheric Administration
The United States Department of the Interior, National Park Service
The United States Environmental Protcetion Agency

In addition, comments were received from various citizens groups and property owner associations. (See Exhibit "10"). Comments were received by various groups that would be affected by Platform Edith, so it is not appropriate to state that the majority of people are neutral towards the proposed activities. The cities of Huntington Beach, Newport Beach, and Laguna Beach all submitted comments on OCS Lease Sale No. 68. These three cities are all in the oil spill trajectory from Platform Edith. (see Exhibit "11"). It would be fair to state that they are concerned with Platform Edith. The cities of San Clemente, Oceanside, and the cities surrounding San Diego, if informed that they also lie in the oil spill trajectory from Platform Edith would also be concerned. According to the Chevron Oil Field Research Company, "the most likely impact area would be Oceanside to San Clemente with a spill reaching the shoreline in 42 to 84 hours."

Many communities, if informed of the potential danger from Platform Edith, would not be neutral to the proposed activities. There is a danger of a serious oil spill due to earthquake activity. The San Pedro Bay, which is the location of Platform Edith, is a structurally complex and seismotectonically active region and is currently undergoing structural deformation. The proposed platform lies only 1400 feet (427 m) from the Palos Verdes fault which is classified as an active fault.

Further, it would be accurate to state that the localities would be concerned about the quality of the craftsmanship involved in the construction of the platform if they would be impacted by an oil spill from Platform Edith. Foreign workers' qualifications are questionable, unavailable and unascertainable. Local 2375 members are qualified and have the necessary certifications that insure quality craftsmanship.

In the event of a disaster due to shoddy workmanship a foreign contractor may not be subject to scrutiny in any investigation. A foreign contractor may be unavailable when liability is being assessed. This would be a concern to any locality that would be affected by an oil spill.

Certainly, it is clear that those affected by matters of employment are concerned with the construction of Platform Edith. The installation of Platform Edith should mean jobs for many American workers yet the use of Chevron of a foreign contractor seriously impacts these American workers.

Of additional interest to the communities that would be affected by an oil spill and to the Port of Long Beach is the proximity of Platform Edith to the shipping lanes. (See Exhibit "13"). The proposed platform will be placed approximately 6,076 feet (1.8 km) from the northbound shipping lane and 5,468 feet (1.7 km) from the southbound shipping lane. The Environmental Report for Platform Edith, at page 194, states "The proximity of the platform to the shipping lanes presents a potential hazard for a major oil spill through collision by an off-course ship." This is a matter of concern to the Port of Long Beach and the coastal cities adjacent to Platform Edith.

The United States Coast Guard, in their comments on OCS Sale 68, (Exhibit "12"), expressed concern over tracts 159, 160, 164, 165, 167, 168, 169, 171, 173, 180, 181, and 186. A study of the map (Exhibit "13") shows these tracts surround the tract that Platform Edith is to be situated upon. It is clear that the Coast Guard is concerned about Platform Edith.

In the Environmental Report, at page 72, Chevron states that the platform location will not pose a substantial hazard to vessel traffic and can be used as a navigational aid. The report goes on to state that Shell's Platforms Elly and Ellen are closer to the shipping lane and that Shell's platforms' locations was approved by the Coast Guard and considered beneficial as navigational aids to marine traffic. In a letter dated August 24, 1981 (a copy of which is attached as Exhibit "14") to the Bureau of Land Management, Leland R. Hill, the Director of Port Planning, the Port of Long Beach wrote,

> "It is suggested ... that offshore platforms could provide a benefit to navigation if properly equipped. We find this misleading as ships currently have no difficulty navigating in Southern California waters and can only be hindered by having to navigate around increasing numbers of offshore structures. Simply painting the structures brightly and equipping them with navigational aids does not insure that they will not be hit by a ship.... it seems foolhardy to allow incompatible activities such as oil development to occur in established shipping lanes of vessel precautionary areas."

Though Chevron points out that Shell's Platforms Elly and Ellen are nearer to the shipping lanes they fail to point out that Platform Edith will be closer to the Precautionary Area. Further, in regards to Shell Oil, Commander R. I. Price of the U.S.

Coast Guard stated, "it is understood that the oil found by Shell Oil Company in OCS Parcel 0300 (Tract 261) under the TSS [traffic seperation scheme] just south of the Precautionary Area is too vicous to permit exploitation by subsea methods. Hence, it is perceived that any oil that might be under the adjacent Precautionary Area would pose the same problem. It is difficult to conceive permitting structures in these new tracts." The tracts mentioned by Commander Price are the tracts adjacent to Platform Edith.

Further, in the Environmental Report, at page 122, it is stated the platform will be painted yellow or white so that it will be clearly visible for several miles. Yet, in the lease stipulations for OCS Parcel 0296 it states, "In the approval of exploration and development plans, including the installation of platforms, the Supervisor shall require the lessee to camouflage all structures by appropriate painting." (See Exhibit "3"). This inconsistency should be corrected before approval of the Development and Production Plan submitted by Chevron is granted.

30 CFR Section 250.34-3(b)(1)(ii) states an Environmental Report shall contain an assessment of the effects on the environment expected to occur as a result of the implementation of the related plan. This section of the report shall identify specific and cumulative impacts that may occur both onshore and offshore and measures proposed to mitigate these impacts. Pursuant to 40 CFR Section 1508.8 effects include economic and social impacts. Under Section 1508.7 "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency, (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Environmental Report for Platform Edith fails to adequately cover the economic and social impact of using a foreign contractor to install Platform Edith and the denial of employment opportunities to Americans. In fact the report implies that the installation of Platform Edith is beneficial to the employment situation in the local area which is untrue. At page of 209 of the report, Chevron states that in the event that the project is cancelled, "Denial of the project will result in loss of income to ... the contractors and personnel who would conduct the drilling, production, construction, and supply operations." In reality, if the project was denied the economic loss would result to Chevron because the economic loss to the contractors and personnel from the local area already occured when Chevron decided to use a foreign contractor to install Platform Edith.

In the event Chevron were to argue the loss to members of Local 2375 is minor when compared to the cost of the project, the Environmental Report, pursuant to the regulations must discuss the cumulative impacts as well. The members of Local 2375, who traditionaly perform the platform installation work in the offshore waters of California, were denied employment opportunities when Texaco, Inc. used foreign workers to install Platform Habitat. Members of Local 2375 are about to be denied

employment opportunities by Chevron. The Environmental Report fails to include such a discussion of the cumulative impacts. Additionally, as was shown above, from the testimony at the Outer Continental Shelf Oversight Hearing, in just a year and a half, American workers lost approximately $6 million. With increased activity on the Outer Continental Shelf, if foreign contractors continue to employ foreign personnel this loss will grow substantially. This is the second platform in a short period of time that will be installed by foreign workers. As it is reasonably foreseeable that this will continue it must be discussed in the Environmental Report.

An additional socio-economic impact that should be included in the Environmental Report is the amount of revenue lost by the Federal and State governments as a result of Chevron employing foreign personnel. If local personnel were employed on the project Federal and State income taxes would have to be paid. The foreign personnel employed by Heerema Marine Contractors do not pay taxes. With the high federal budget deficit and budget and program cutbacks, with state and city governments in financial trouble the further reduction of revenue from taxes and the increased benefits that must be paid such as unemployment compensation could have serious consequences to the governments involved and thus to the people of the local area.

Further, foreign personnel return nothing to the local area and contribute nothing to the economy of the community. Local workers buy and rent property, pay utilities, purchase consumer goods, recreate and entertain, and support the businesses in the local community. When foreign workers are employed on the Outer Continental Shelf the local community does not benefit at all. When Americans are denied employment opportunities the entire community suffers. The true measure of the socio-economic impact is not merely the resulting loss of wages to American workers but the loss to the entire community.

When Heerema Marine Contractors installed Platform Habitat for Texaco, Inc. the derrick ship "Challenger" was used to perform the installation. The "Challenger" is 634 feet long, 96 feet wide and has crew quarters for 144 men. (See Exhibit "15"). The "Challenger" will be used to install Platform Edith. In the Environmental Report for Platform Edith they state the installation of the platform will be performed from a derrick barge. As Heerema Marine Contractors will be using an ocean going ship, instead of a barge, the figures listed by Chevron for facility construction emissions will be inaccurate. The increase in NOx emissions could be significant. The California Air Resources Board in a recent report estimated that a drill ship, which is approximately the size of the "Challenger" emits in a single day as much NOx as 23,000 automobiles driven 50 miles each.

In addition, other emission figures will also be inaccurate because of the use of foreign workers instead of drawing from the local work force. The amount of crew boat trips will be changed and the amount of traffic in the harbor and on the roads will be different than what is stated in the Environmental Report.

Pursuant to 30 CFR Section 250.34-3(b)(1)(i)(4) an Environmental Report shall include the quantities, types, and plans for disposal of solid and liquid wastes and pollutants likely to be generated by offshore operations. The Environmental Report for Platform Edith fails to include a discussion of sewage disposal during the instal-

lation phase of the platform. During the installation phase foreign personnel will be living aboard the "Challenger". Chevron should include in the report details as to the sewage treatment facilities, if any, aboard the "Challenger". The amount of wastes including sewage, domestic waste, deck drainage (rain and washdown), solids (paper, steel, plastic, garbage, etc.), solvents and other possible hazardous wastes, and gaseous emissions that will be discharged by the "Challenger" should be included in the Environmental Report.

As the quality of the work to be performed by Heerema Marine Contractors is in question, significant questions are raised about the threat to the environment. If the work is not done properly then the likelihood of an oil spill is increased. Chevron fails to adequately cover the impact of an oil spill in several areas and also fails to cover areas that should be discussed because of the questions raised concerning the quality of the craftsmanship involved in constructing Platform Edith. The areas that are not adequately covered in the Environmental Report are:

1. the danger from seismic activity
2. the danger to endangered species
3. the impact on the commercial fishing industry
4. the impact on sport fishing
5. the possibility of an oil spill
6. the ability to clean up an oil spill

All of the above could be affected by the quality of the craftsmanship used to install Platform Edith and will be discussed below.

1. The Environmental Report for Platform Edith fails to adequately discuss the danger from seismic activity in the San Pedro Bay. Earthquake activity is not even mentioned in the section regarding potential for major oil spills. Though the report does cover some aspects of earthquake activity and its possible affect on Platform Edith the report states that the platform will be able to withstand ground motions that could be expected from a magnitude 6 earthquake on the Palos Verdes fault and a magnitude of 6½ on the Newport-Inglewood fault. The report does not adequately show the danger of earthquake activity.

According to the Final EIS for OCS Lease Sale No. 68, "High seismicity characterizes all of the California coastal region. Earthquakes in the Borderland have been monitored since the 1920's. More than 20 earthquakes of magnitude 6.0 or greater have occurred in Southern California since 1912. The largest earthquake centered in offshore Southern California, magnitude 7.3, occurred west of Point Arguello in 1927 (Hamilton, et al., 1969). Epicenters of the major earthquakes in Southern California during 1900-1974 are plotted on the Geological Hazards Visual (attached as Exhibit "16"), which show events greater than or equal to magnitude 4.

Offshore Southern California is cut by numerous faults, many of which are identified as active. Four major active fault zones transect the iner basin and ridge areas; these are the Palos Verdes, Malibu Coast, Newport-Inglewood, and Rose Canyon

fault zones. Many smaller faults associated with these zones may be active (Ziony, et al., 1974' Jennings, 1975; Richmond, et. al., 1981). The most significant of these faults are the Palos Verdes and Newport-Inglewood fault zones. Faults in these zones show large vertical and horizontal displacements and have long histories of seismic activity that extend to the present time.

The longest Quaternary fault mapped in the inner basin and ridge area is the San Clemente fault extending more than 100km. Several earthquakes have been reported in the vicinity of this fault (Hileman, et. al., 1973)." [emphasis added]

Platform Edith will be located less than a mile from the Palos Verdes fault and 9 miles from the Newport-Inglewood fault which are the two most significant fault zones in the Inner basin and ridge area. The San Clemente fault which is the longest Quaternary fault in the area is 42 miles from Platfrom Edith. The estimated upper level magnitude, as determined by Dames & Moore (1978), for the San Clemente fault is 7.25.

The San Andreas faylt, which travels for 700 miles through California is only 59 miles from the site of Platform Edith. The estimated upper level magnitude of the San Andreas fault is over 9 (Dames & Moore, 1978).

With such a high level of seismicity the Environmental Report should include in its discussion of potential for major oil spills the possibility of a major spill from earthquake activity.

2. The Environmental Report fails to adequately cover the impact to endangered and threatened species in the event of an oil spill. In the Final EIS for OCS Lease Sale No. 68 covers the impact to engangered species is described as follows: "If a spill should occur and strike any of the first seven areas listed in Table IV.C.7-2 (attached as Exhibit "17"), a high ecological loss could be expected". Five of the first seven areas on the table are Bolsa Chica and Anaheim Bay; Least Tern Nestine Sanctuary and Santa Ana River Mouth; Upper Newport Bay and Santa Margarita River; San Diego Co. Lagoons and the San Diego Bay and Tijuana Estuary. These five areas all lie in the oil spill trajectory from Platform Edith so the impact to these areas should be covered in the Environmental Report. The Final EIS describes the impact to birds, "Potentially impacted species would include the California brown pelican, California least tern, light-footed clapper rail, Belding's savannah sparrow, and the black rail. If a spill should occur and strike either nesting or foraging areas (eg. least tern nesting sanctuary on Huntington Beach), these species could be heavily impacted."

According to the Biological Opinion by the Fish and Wildlife Service, United States Department of the Interior sent to the Bureau of Land Management on April 29, 1981, high losses could occur to the brown pelican and the least tern in the event of an oil spill. First, the California brown pelican. "Contrary to statements made by Chevron U.S.A., Inc., before the California Coastal Commission 1980, pelicans do not avoid oil. [emphasis added]. Pelicans may be affected by oilspills through contamination of their plumage since they dive for food or drift on the water surface. This may contribute to direct mortality or result in reduced hatchability of eggs oiled from the fouled plumage of an adult bird. As young pelicans fledge, they often congregate in large numbers on the water surface near the colony or on rocks along

the shore. Young pelicans do not at first range far from the colony. If an oilspill occurred during the breeding season... the effects would be detrimental to the young pelicans and likely cause some mortality. In the fall and winter months when pelicans are not breeding, the thousands of Mexican pelicans which join the California Coastal birds are vulnerable to oiling as they plunge-dive for food extensively throughout the waters of the SCB."

"In southern California, the abundance of the anchovy resource varies almost unpredictably from year to year. "Brown pelicans depend on anchovies; their reproductive rates and survival vary with variations in the availability of anchovies" (Anderson et al. 1980). Unfortunately, there is little data currently available identifying the impacts (if any) which oilspills may have on the anchovy resource and its consequent availability to pelicans. However, three major areas of concern are recognized; 1) an oilslick may obscure the ability of foraging pelicans to visually locate anchovies, 2) petrochemically contaminated anchovies ingested by pelicans may cause lethal or sub-lethal effects, and 3) should a reduction in anchovy biomass occur as a result of an oilspill, this decrease in the prey base available to pelicans would reduce the potential for a recovery of this listed species."

The California Least Tern. "Potential threats to the California least tern from oil and gas activities are related to oilspills and increased human activities in coastal areas where nesting colonies occur. The birds could be contaminated by a spill as they dive for food. This may contribute to direct mortality or result in reduced hatchability of eggs oiled from the fouled plumage of an adult bird. Toxicology studies have indicated that even small amounts of oil applied to an egg are toxic to the embryo. Oilspills cause severe damage when they enter coastal wetlands, and could contaminate prey species and/or their habitat thus destroying essential feeding areas for the terns".

The EIS for OCS No. 68 also covers the potential danger to whales. "The gray whale is a frequent (bi-annual) visitor to the SCB [Southern California Bight], is found in large numbers, and frequents nearshore areas associated with oil and gas development. The gray whale is potentially vulnerable to ingestion, inhalation, and epidermal contamination as a result of contact with oil. Assuming that a spill occurs, endangered baleen whales (eg. blue, fin, humpback) could accidentally ingest oil while feeding, thereby fouling their baleen plates. Other baleen whales, such as right and sei whales which skim the water surface, may be the most vulnerable of the baleen feeders(Pivornas, 1979)."

3. The Environmental Report for Platform Edith states "a neglible impact is to be expected on the commerical fish industry as a result of construction and production activities at the proposed site". The report does not provide proper coverage of the subject. The area where Platform Edith lies is an important commercial fishing area. Between the years 1970 through 1975 the average yearly commercial catch totaled 42,223,385 pounds. (See Exhibit "18")

Oil from Platform Edith will flow through a 6,800 foot (2,073m) pipeline to Shell Oil Company's Platform Elly. The crude line will be 6 inches O.D. (15.2 cm). There will also be a submarine power cable running, approximately 6.5 statute miles (10.5 km), from Chevron owned facilities in Huntington Beach to Platform Edith.

The proposed pipeline and subsea cable, along with mud mounds and trenches from the anchors of pipelaying barges could seriously affect the commercial fishing industry. According to W.F. "Zeke" Grader Jr., General Manager/Counsel for the Pacific Coast Federation of Fishermen's Associations, Inc., (a copy of his letter, dated August 12, 1981, to the Bureau of Land Management is attached as Exhibit "19") these mud mounds and trenches along with the impacts of trace metals in drilling muds, competition for berthing space, increased vessel traffic and the impact of seismic vessels on fishing activities all create problems for commercial fishermen.

In the event of an oil spill the commercial fishing industry could suffer serious losses. Even if a small amount of fish were lost, plankton and small marine plants and animals that many larger fish feed on would die. Some fish would not be marketable due to tainting. The commercial fishermen could also suffer losses if they were confined to port by oil containment booms or their boats and gear were contaminated by the spill. The Final EIS for OCS Lease Sale No. 68 stated, "Impact from oil spills probably would be greatest in the Inner Banks since this area encompasses the regions most productive fishing grounds and ports".

4. The Environmental Report at page 135 and 136, states that many fish will be attracted by Platform Edith. They imply that this will be good for sportsfishing. Chevron should include in this section material showing that it is possible that the fish that would live in this area could be contaminated by trace metals from drilling muds. According to the Final EIS for proposed OCS Sale No. 68, on the effects of trace metals "... minimal impacts to the pelagic fauna and flora would result. The exceptions to this case are for fish which might congregate around platforms and be exposed to low rate continuous discharges and intermittent high rate discharges... Impacts on these organisms could be significant for pollutant uptake...".

According to the Environmental Report, at page 176, on the subject of drilling mud toxicity states". There is much documentation in the literature to support the facts that most water-base-drilling muds are relatively non-toxic to marine animals and benthic sea life". This is not a belief held by all scientists. According to an article entitled "Offshore ..." published in the Los Angeles Times on Sunday March 7, 1982, written by Joan Sweeney. "Oil spokesmen and some scientists cite findings of research, much of it funded by the oil industry, that no long-term environmental effects from spills such as the Santa Barbara one or from other drilling activities have been documented. But other scientists attack these studies, saying they have not been subjected to vigorous scientific scruting and review.

Howard L. Sanders, senior scientist at Woods Hole Oceanografic Institute, said, "Too much of the work is very poor science. In this type of science the conclusion can always be stated that 'there is no evidence to show...' As long as you consistently do dirty science, its's going to be difficult to demonstrate the effects unless they are truly catastrophic".

Some scientists and environmentalists contend that chronic discharges of oil and other byproducts such as drilling muds-which maintain pressure to prevent blowouts, lubricate the bit and carry cuttings to the surface-may be responsible for subtle long-term changes that could eventually prove devastating to some marine life but would be untraceable and unnoticed until irreparable damage had been done.

They contend that some of these wastes have non-lethal toxic effects that disrupt the normal growth, reproductive or behavior patterns of some sea life". Copyright 1982, Los Angeles Time, Reprinted by permission.

Trace metals found in drilling muds can be a problem to sealife. "The California Mussel Watch Program monitors water quality along the mainland coast and at stations on the offshore islands. Fourteen of the thirty-two stations monitored by the program are in Southern California and the mussels, Mytilus Californianus, collected from these stations reflected the general trend throughout the State with mussels located near major urban centers showing greater concentrations of trace metals in tissues than mussels collected away from the urban areas (California State Mussel Watch, Vol. II, 1979). Areas with significant accumulations of lead, silver and zinc in mussels are...Newport Beach Marine Life Refuge ASBS [Area of Special Biological Significance]. Cadium, lead, and zinc levels in mussels exceeded the proposed Food and Drug Administration (FDA) interim Alert Level at: Santa Catalina Island ASBS, Newport Beach Marine Life Refuge ..." Final EIS for OCS Sale No. 68, at p. 3-15. Due to the already high concentration of trace metals found in the waters of Southern California, Chevron must be compelled to discuss the impact of adding more trace metals to the areas waters.

Chevron U.S.A. Inc., should also include evidence from fishermen that crab, lobster, and shrimp are of ten found in the same waters where platforms are later installed and are not attracted by the platforms as the oil companies state.

Even if fish are attracted by offshore structures acting as artificial reefs this may not benefit fishermen. According to the Final EIS for OCS Lease Sale No. 68 "There is no doubt that production platforms and probably other offshore structures act as artificial reefs (Simpson, 1977). However, this most likely will have a slight impact on most fish populations and may not benefit fishermen since oil companies generally discourage fishermen from anchoring or otherwise floating next to a platform".

5. In the Environmental Report Chevron downplays the potential for a major oil spill. The report states that OCS Orders minimizes the likelihood of a major spill. The report seems to conclude that the only chance for a major spill is through collision by an off-course ship. The report ignores the potential for a major spill through seismic activity or through platform collapse due to the quality of the work. The Final EIS for OCS Sale No. 68 disputes the findings of Chevron. The EIS says that a high probability of an oil spill already exists on the OCS off of Southern California. The EIS also states that predicting spills is uncertain. Charles Brandes, of the State Office of Planning and Research said, "Every time you add another drill you increase the odds". Offshore drilling: high-risk search for black gold, "The Register" March 6, 1982. Chevron should be compelled to admit in their Environmental Report that there is a serious risk of a major spill. The proximity to the shipping lanes, the danger from seismic activity causing the platform to collapse due to the fact that foreign workers, without the certification local workers are required to have, may not construct the platform properly are a real risk to the environment and the local community and should be discussed completely in the Environmental Report.

6. In the Environmental Report Chevron U.S.A., Inc. describe the various oil spill clean up equipment that will be stored and maintained on the platform, dispersants to be used, and they list the oil spill contingency plans which are currently in effect in Southern California. The report implies that an oil spill will quickly and effectively be contained and cleaned up. This is not accurate. According to the California Coastal Commission Preliminary Draft Report: Oil Spill Response Capability Study, Phase I: Clean Seas (April, 1981), at page 58, "An oil spill can never be totally contained and cleaned up regardless of the technology used. Oil spill containment and cleanup technology has improved through the extensive research and development efforts by government and industry, but a large oil spill heading toward shore still cannot be stopped with today's technology".

As to the equipment and dispersants to be used the Coastal Commission Report, at page 12, stated, "Mechanical equipment is the first priority because it does not involve adding chemical substances to the water column. The use of this equipment is usually limited to relatively calm waters, because adverse weather conditions can seriously reduce its effectiveness".

An example of the ineffectiveness of mechanical equipment is shown in a letter dated December 8, 1980, from Jack K. Traub, the State Agency Coordinator for Spills of Oil and Hazardous Materials for the Department of Fish and Game, to Brian Baird of the California Coastal Commission (a copy of which is attached as Exhibit "20"). On December 4, 1980, Brian Baird, Jack Traub and Dennis Rau, from the U. S. Geological Survey, went to inspect the oil spill response capability of Chevron U.S.A., Inc.'s Glomar Atlantic. During the inspection the oil spill skimmer was not placed in the ocean because of five foot waves. Since this inspection was of a Chevron U.S.A., Inc. vessel they must know of the limited use of mechanical equipment.

The Environmental Report lists that stored on the platform will be five drums of COREXIT 9527 dispersant. The California Coastal Commission, at page 12, states, "The use of chemical agents is highly controversial because of the potential toxic impacts they may have on the marine environment". The possible danger to the marine environment is evident by examining the warnings included in the product information concerning COREXIT 9527. (a copy of which is attached as Exhibit "21")

In a letter dated, April 28, 1977, from Clyde B. Eller, the Director of the Surveillance and Analysis Division, United States Environmental Protection Agency to Charles D. Barker, General Manager of the Southern California - Petroleum Contingency Organization (a copy of which is attached as Exhibit "22"), Mr. Eller said "We cannot agree to the statement that the use of dispersants will be considered preferable to allowing substantial oil stranding or the drifting of oil into areas of commercial or special biological significance. A number of reviewers have expressed concern about the possibility of chronic affects of dispersants to marine life. The possibilities of reduction in egg viability and physiological alterations, particularly to larval development, need much study before we can predict with confidence that dispersants and/or dispersed oil (using dispersants) will have less detrimental effects on living marine resources than spilled oil".

The Environmental Report does not present a truthful discussion of Chevron's ability to clean up an oil spill, nor the potential danger to the environment from the use of chemical dispersants. For a fair discussion of oil spill response

capability evidence of the ineffectiveness of mechanical equipment and the danger of chemical dispersants should be included in the Environmental Report.

Section 3 of the Outer Continental Shelf Lands Act States in pertinent part that it is the policy of the United States "that since exploration, development, and production of the minerals of the outer Continental Shelf will have significant impacts on coastal and non-coastal areas of the coastal States, and on other affected States, and, in recognition of the national interest in the effective management of the marine, coastal, and human environments -

(A) Such States and their affected local governments may require assistance in protecting their coastal zones and other affected areas from any temporary or permanent adverse effects of such impacts; and

(B) such States, and through such States, affected local governments, are entitled to an opportunity to participate, to the extent consistent with the national interest, in the policy and planning decisions made by the Federal Government relating to exploration for, and development and production of, minerals of the outer Continental Shelf".

40 C.F.R. Section 1500,1 (b) states in pertinent part "NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality". [emphasis added]

The information provided by Chevron U.S.A., Inc. in the Environmental Report for Platform Edith is incomplete, inaccurate, and misleading. The Socio-economic impact is totally misleading. As it is the policy of the United States to provide States with proper information so they can formulate correct policy and planning decisions, and the Secretary of the Interior is mandated to consider available relevant environmental information, Chevron U.S.A., Inc. must be compelled to correct the errors and provide the information that is required but lacking in their Environmental Report. If this relevant material is allowed to be left out of the Environmental Report it will be impossible for the Governor of the State of California, the California Coastal Commission or the Secretary of the Interior to formulate proper decisions or to consider alternatives that would reduce or eliminate the adverse impact.

Addendum to Local 2375's Statement of Law and Facts

The Pile Drivers Local Union 2375 received from the Office of the Governor of the State of California a copy of Governor Edmund G. Brown Jr.'s letter to Secretary Watt containing his comments concerning proposed OCS Sale No. 68. In his comments Governor Brown expresses his concern over the use of foreign workers on the Outer Continental Shelf. A copy of Governor Brown's letter to Secretary Watt, his press release, and detailed comments concerning the use of foreign labor are attached here as Exhibit "A".

Therefore, the Pile Drivers Local Union 2375 respectfully requests that the Minerals Management Service:

1. Conduct necessary studies regarding the impact of the use of foreign workers on the local community;
   Following such studies and submission of revised data from Chevron U.S.A., Inc. we request that the affected citizenry be afforded the opportunity to review the revisions and the data submitted by Chevron and be afforded the opportunity to comment upon, and, if necessary, to submit data in opposition to such revision by means of correspondences and/or public hearings before this agency;
2. Compel Chevron to correct any errors discussed above in the Environmental Report;
3. Compel Chevron to clarify and correct any misleading statements in the Environmental Report and provide all relevant information;
4. Compel Chevron to provide the information required by the regulations;
5. Hold in abeyance any approval of the Development and Production Plan submitted by Chevron pending the outcome of the judicial proceedings discussed above.
   In the alternative:
   Refrain from approving the Development and Production Plan until the Environmental Report is corrected and the required information furnished;
6. Refrain from submitting the Development and Production Plan to the California Coastal Commission until the Environmental Report is corrected and the required information furnished;
7. If the Minerals Management Service refuse to compel Chevron to correct the errors in the Environmental Report and to provide the required information we request that this file and any related material be turned over to the Attorney General, pursuant to 43 U.S.C. Section 1350(a) to have the Department of Justice investigate whether or not a criminal or civil action should be filed to enforce any provision of the Outer Continental Shelf Lands Act or any regulations promulgated under the Act or of the lease entered into by Chevron.
8. Advise the Pile Drivers Local Union 2375 of any decision reached by the Minerals Management Service.

Respectfully submitted,

ROBERT W. SCHAFER
Business Manager
Pile Drivers Local Union 2375

Dated at Wilmington, California this
1st day of April, 1982.

Telex
To: Bob Conover
Riverside

UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA

LOCAL UNION No. 2375
PILE DRIVERS, BRIDGE, WHARF AND DOCK CARPENTERS,
WELDERS, RIG-BUILDERS, DRILLERS AND ROTARY HELPERS,
MARINE DIVERS AND TENDERS

LOS ANGELES
728 LAGOON AVENUE
WILMINGTON, CALIFORNIA 90744
(213) 830-5300

NOTED - CLIFTON

Reid Stone
Minerals Manager
Pacific OCS Office
1340 West 6th Street
Suite 240
Los Angeles, California 90017

CERTIFIED MAIL #614264
RETURN RECEIPT REQUESTED

RE: Platform Edith

Dear Mr. Stone:

Enclosed you will find additional comments regarding the Environmental Report for Platform Edith submitted by Chevron U. S. A. , Inc..

Sincerely,
PILE DRIVERS LOCAL UNION 2375

Robert W. Schafer

ROBERT W. SCHAFER
Business Manager

Enclosure

RWS:cm
opeiu#30
afl-cio

April 7, 1982

Addendum to the comments submitted by the Pile Drivers Local Union 2375, regarding the Environmental Report for Platform Edith prepared by Chevron U.S.A., Inc..

When examining the Environmental Report for Platform Edith the Minerals Management Service should thoroughly investigate the issues to determine the impact to the environment because the credibility of the oil companies in general, and Chevron U.S.A., Inc. in particular is questionable. Some examples to show why the credibility of the oil industry is in question follow. In the "Report of the Commission on Fiscal Accountability of the Nation's Energy Resources, ("Commission Report") the Commission was investigating underpayment of oil and gas royalties and theft of oil and gas from Federal and Indian lands. The report stated at page 13:

> "Because of serious inadequacies in management, the Federal government is failing to detect underpayment of oil and gas royalties. As a result, the industry is not paying the full share of royalties it rightly owes for oil and gas removed from Federal and Indian lands.
>
> Most of the scores of witnesses and dozens of documents examined by the Commission during its six-month inquiry concurred with the view set forth above. An exception was the oil industry. None of the industry witnesses agreed that underpayment of royalties is a significant problem.
>
> The amount of underpayment is uncertain, since the government's royalty records are too unreliable to provide an overall estimate. Figures of about one hundred million to several hundred million dollars a year were suggested by officials of the Interior Department (the Inspector General and the Acting Director of the Geological Survey) and the Acting Comptroller General of the United States."

In the discussion on theft the Report Stated:

> "Whether oil theft is a serious widespread problem was a matter of disagreement in the Commission's hearings. The Commission concludes that oil thefts from Federal and Indian leases are occuring, that they deserve serious national attention, and that their exact extent and amount are unknown. Lax security at Federal and Indian lease sites is well-documented and is an open invitation to theft.
>
> None of the industry spokesmen appearing before the Commission--officials of six major oil and gas companies and three large independent crude oil producers -- believed that oil theft was widespread or

significant. All were satisfied with their own arrangements for security against theft. They believed their interest in preventing theft was greater than that of the Federal or Indian landowners, because they collect seven-eights of the proceeds from sales, while the landowners collect one-eighth. (This argument is discussed further below.)

A number of witnesses were convinced, to the contrary, that oil theft is extensive. These witnesses, many with first hand experience in the field, included present and former employees of the Geological Survey, private security investigators, and representatives of some States and Indian tribes." Commission Report page 26-28.

When discussing motives for theft, the Report Stated:

"While it is true that the oil industry as a whole has more to lose from theft than Federal and Indian landowners, the same may not be true of an individual, dishonest operator.

In a situation where the operator himself is dishonest, the argument that the "industry" has more interest than the Federal government in stopping theft does not apply." Commission Report page 30-31.

The Office of Inspector General and its predecessor office conducted eleven oil and gas audits. With the exception of El Paso Natural Gas, Chevron U.S.A., Inc. was found to have the highest total of additional royalties indentified at $7,621,755. In fact, Chevron U.S.A., Inc.'s total was higher than the additional royalties indentified of Texaco, Ocean, Mobil, Getty, Cabot, Sun, Amoco, and Conoco combined. Commission Report 305-311.

In testimony before governmental agencies oil company spokesman are not always accurate in their responses. In the Biological Opinion by the Fish and Wildlife Service, United States Department of the Interior sent to the Bureau of Land Management on April 29, 1981, written by Ronald E. Lambertson the Associate Director, it stated, "Contrary to statements made by Chevron U.S.A., Inc., before the California Coastal Commission 1980, pelicans do not avoid oil."

The data submitted from scientific studies should be examined carefully because much of the research is funded by the oil companies and is of questionable validity. An example of how scientific studies can be used to document the oil industry's position on a subject, even when the weight of the evidence is against their position is shown in the report of the State of California Air Resources Board "Air Quality Aspects of the Development of Offshore Oil and Gas Resources", February 25, 1982. In the response to Chevron's testimony on the Air Quality

Aspects of Chevron's 14 exploratory wells on OCS Leases P-0331, -0332, and -0338. The Air Resources Board disputes the Findings of Chevron on almost every point. In addition, the Boards's Analysis of Direct Adverse Air Quality Impact of Chevron's Proposed Project arrives at a completely different conclusion than the study conducted by Chevron U.S.A., Inc..

As the credibility of the oil industry in general and Chevron U.S.A., Inc. in particular is in question, the Pile Drivers Local Union 2375 respectfully requests that the Minerals Management Service thoroughly investigate the findings of the Environmental Report for Platform Edith and conduct independent studies to insure that the impact to the environment will be carefully assessed in the Environmental Report.

Respectfully submitted,
PILE DRIVERS LOCAL UNION 2375

Robert W. Schafer

ROBERT W. SCHAFER
Business Manager

RWS:cm
opeiu#30
afl-cio

cc: Stone
: Conover

Chevron U.S.A. Inc.
2120 Diamond Boulevard, Concord, California
Mail Address: P.O. Box 8000, Concord, CA 94524

Edward B. Scott II
District Land Supervisor
Outer Continental Shelf
Land Department, Western Region

June 22, 1982

NOTED - CYPHER

Plan of Development and Production
Platform Edith

NOTED - DUNAWAY

MINERALS MANAGEMENT SERVICE
PACIFIC OCS REGION
RECEIVED
JUN 23 1982
FIELD OPERATIONS
LOS ANGELES

Mr. H. T. Cypher
Deputy Minerals Manager, Field Operations
Minerals Management Service
Pacific OCS Region
1340 West Sixth Street
Los Angeles, California 90017-1297

Dear Mr. Cypher:

Chevron U.S.A. Inc. submits the following in response to comments made by the United Brotherhood of Carpenters and Joiners of America, Pile Drivers Local No. 2375 on the subject Plan of Development and Production:

1. The Union asserts that the use of Heerema Marine Contractors to launch and set the platform jacket violates United States policy as expressed in the OCS Lands Act Amendments of 1978. The Union sites Section 1356 (a) of the OCS Lands Act and the proposed implementing regulations as standing for the proposition that only American labor is to be used on OCS projects. While the OCS Lands Act does seek to encourage the use of domestic labor, Section 1356 (c) provides an exception to the domestic manning requirement in the situation where the vessel used in an OCS project is over 50% owned by citizens of a foreign nation and such nation does not have a national manning requirement for equipment engaged in offshore oil and gas activities. In the case of Heerema Marine Contractors, it is a Dutch firm which owns the Challenger derrick ship to be used in platform installation. Furthermore, Holland does not have a reciprocal national manning requirement for offshore activities. While the Union quoted part of the Congressional Record formulated when Section 1356 of the Act was being legislated as standing for the proposition that only American labor is to be used in OCS activities, the Union should likewise emphasize that part of the administrative record which expressed the Congressional intent to minimize the "likelihood of retaliation" against American workers in foreign offshore activities. This latter rationale was the impetus behind the exception to the national manning requirement expressed in Section 1356 (c) of the Act.

2. On the question of the socio-economic impact and domestic/foreign labor breakdown of the platform, it must be emphasized that most of the project labor will be by American workers. Furthermore, the estimated labor costs for Heerema's portion of platform installation constitutes less than 1% of

the total project cost. For a breakdown of the total project cost and the project tasks performed by foreign companies, see Attachment 1 hereto.

Also, on the question of the project's benefit to the American labor force, drilling and other production operations from the platform will be conducted by American workers.

In support of the Union's assertion that only American labor should be used on OCS projects, the Union sites a letter from Mr. Michael Fischer, Executive Director of the California Coastal Commission. It is to be noted that Mr. Fischer's letter specifies that the Coastal Commission "is not able to dictate the nationality of oil company employees and contractors."

Therefore, Chevron is acting lawfully in its use of Heerema to launch the platform jacket. Also, on balance, the project is a net benefit to the American labor force.

3. The Union states that the Environmental Report for Platform Edith inaccurately discusses the use of a derrick barge for platform installation. The Union points out that the Challenger, Harima's vessel, is a derrick ship, not a barge. It is correct that the Challenger is a derrick ship. Therefore, Chevron recalculated the air emissions for the launch vessel and total facility emissions, as shown on Attachment 2 hereto. The recalculations show minor increases in project air emissions. In any event, project emissions still fall well within the limitations established by the Minerals Management Service's air quality regulations.

4. Throughout their comments the Union points to a concern over the abilities of Platform Edith to withstand seismic activity. On this point, it must be emphasized that the reasonably foreseeable seismic activity in the project area was taken into account in platform design. This will be confirmed by the Minerals Management Service in their analysis during Platform Verification pursuant to OCS Order No. 8.

5. The Union expresses concern over the potential hazard to vessel traffic due to the platform's location within the separation zone of the traffic separation scheme. In this regard, the Agency having responsibility for vessel traffic safety, i.e. the U. S. Coast Guard, has not found that the project presents an unacceptable risk. In order to enhance the acceptability of the project from a marine safety standpoint, the Aids to Navigation package for the platform has been presented to and approved by the Coast Guard.

6. The Union expresses concern as to the economic impacts which would result from an oil spill, particularly to commercial fishermen. Protection against adverse economic impacts is provided by the oil spill contingency fund mandated by the OCS Lands Act. Chevron will obtain the requisite Certificate of Financial Reponsbility to cover Platform Edith and the related oil and gas pipelines.

7. The Union expresses concerns as to perceived adverse impacts from the discharge of drilling muds from the platform. As stated in Chevron's Environmental Report, there is sufficient scientific documentation available to support the conclusion that the use of water-based drilling muds will not

cause unreasonable degradation of the marine environment. Such conclusion was reached by the Environmental Protection Agency in its recent issuance of the NPDES General Permit, which covers Lease OCS P-0296, upon which Platform Edith will be installed and operated. EPA's conclusion is founded upon and justified by the substantial administrative record prepared during the General Permit process.

8. The Union expresses concern as to the capabilities of existing technology to clean up and contain an oil spill. In the unlikely event of an oil spill, state-of-the-art equipment and techniques would be used both at the platform and, if necessary, by the Southern California Petroleum Contingency Organization (the local oil spill cooperative) to supplement offshore oil spill containment and clean-up capabilities.

9. The Union asserts that the use of Heerema during platform installation jeopardizes the quality of the Platform Edith project due to what the Union refers to as Heerema's "questionable" qualifications. This assertion is totally unfounded.

After your review of this response to the Union's comments on the subject Plan of Development, it is anticipated that you will promptly make your decision as to whether such Plan is approved so that Chevron may abide by the project time constraints imposed by the Department of Interior when the suspension of operations was granted for Lease OCS P-0296.

If you have any questions, please contact D. E. Uchikura at (805) 684-6961.

Sincerely,

Edward B. Scott

DEU:vt

ATTACHMENT 1

PLATFORM EDITH FOREIGN LABOR BREAKDOWN

The total cost of the Edith project is approximately $80 million.

The breakdown of those portions of the project performed by foreign companies is:

a)	- Jacket fabrication	(Nippon Steel)	$ 8.7 million
	- Piles and Curved Conductor pipe fabrication	(Nippon Steel)	3.1 million
	- Tow from Japan	(Nippon Steel)	2.5 million
	Total (Nippon Steel)		$14.3 million
b)	- Jacket, piles curved conductor pipes installation	(Heerema)	2.65 million
	- Mobilization and demobilization of launch barge	(Heerema)	3.4 million
	- Setting modules	(Heerema)	.3 million
	Total (Heerema)		$ 6.35 million

Total cost of work done by foreign companies (Nippon Steel and Heerema) is $20.65 million.

The preceding figures include labor and materials. The estimated cost of Heerema's labor is $480,000. The latter figure is derived as follows:

20 men x 12 hours/day x 20 days = 4800 man hours
4800 x $50/hour = $240,000
$240,000 x 2 = $480,000

The total work performed by foreign companies constitutes approximately 25% of the total project cost. Heerema's labor (at $480,000) constitutes approximately .6% of the total project.

ATTACHMENT 2

Air emissions were recalculated according to the decision to use a Derrick Ship instead of a Derrick Barge as previously noted for installation of Platform Edith. Attached please find revised pages of the Environmental Report for Platform Edith, December 1980.

Differences in emissions from the two ship types and total facility installation was found to be minor. Please find a comparison of emissions listed below.

	NO_x	THC	CO	SO_2	TSP
	lb/day	lb/day	lb/day	lb /day	lb/day
Ships					
Derrick Barge (1980 Report)	956.8	76.5	208.1	63.6	68.3
Derrick Ship (1982 Revision)	1,024.3	81.9	222.8	68.1	73.2
Difference (increase of emissions) with use of Derrick Ship)	67.5	5.4	14.7	4.5	4.9
Facility					
Total Facility (1980 Report) Installation Emissions(ton/day)	110.7	9.2	24.4	8.2	6.9
Total Facility (1982 Revision) Installation Emissions (ton/day)	114.4	9.2	25.0	8.3	7.2
Difference in total emissions	3.7	0	0.6	0.1	0.3

APPENDIX 3

Facility Construction Emissions

Platform construction emissions (for Mobile source and onshore emissions calculations, see Appendix 2).

Platform Construction

Tugboat Emissions (5600 hp - Full Mode)
Assume 17% operating factor, 25% full mode

$$24 \frac{hr}{day} \times 0.17 \times .25 \times 166.4 \frac{gal}{hr} = 169.7 \frac{gal}{day}$$

$$169.7 \frac{gal}{day} \times \frac{62.4 \text{ lb}}{1000 \text{ gal}} \text{ CO} = 10.6 \frac{lb}{day} \text{ CO}$$

$$169.7 \frac{gal}{day} = \frac{29.5 \text{ lb}}{1000 \text{ gal}} \text{ THC} = 5.0 \frac{lb}{day} \text{ THC}$$

$$169.7 \frac{gal}{day} = \frac{307 \text{ lb}}{1000 \text{ gal}} NO_x = 52.1 \frac{lb}{day} NO_x$$

$$169.7 \frac{gal}{day} \times \frac{29.2 \text{ lb}}{1000 \text{ gal}} SO_2 = 4.9 \frac{lb}{day} SO_2$$

Tugboat Emissions (5600 hp - Idle Mode)
Assume 17% operating factor, 75% idle mode

$$24 \frac{hour}{day} \times .17 \times .75 \times 6.5 \frac{gal}{hr} = 19.9 \frac{gal}{day}$$

$$19.9 \frac{gal}{day} \times \frac{148.5 \text{ lb}}{1000 \text{ gal}} \text{ CO} = 2.9 \frac{lb}{day} \text{ CO}$$

$$19.9 \frac{gal}{day} \times \frac{60 \text{ lb}}{1000 \text{ gal}} \text{ THC} = 1.2 \frac{lb}{day} \text{ THC}$$

$$19.9 \frac{gal}{day} \times \frac{367 \text{ lb}}{1000 \text{ gal}} NO_x = 7.3 \frac{lb}{day} NO_x$$

$$19.9 \frac{gal}{day} \times \frac{29.2 \text{ lb}}{1000 \text{ gal}} SO_2 = 0.6 \frac{lb}{day} SO_2$$

Derrick Ship (15950 hp)

$$2184 \frac{gal}{day} \times \frac{469 \text{ lb}}{1000 \text{ gal}} NO_x = 1024.3 \frac{lb}{day} NO_x$$

$$2184 \frac{gal}{day} \times \frac{37.5 \text{ lb}}{1000 \text{ gal}} \text{ THC} = 81.9 \frac{lb}{day} \text{ THC}$$

*NOTE: Construction emission factors are found in Appendix 4.

$$2184 \frac{gal}{day} \times \frac{102.0 \text{ lb CO}}{1000 \text{ gal}} = 222.8 \frac{lb}{day} \text{ CO}$$

$$2184 \frac{gal}{day} \times \frac{31.2 \text{ lb } SO_2}{1000 \text{ gal}} = 68.1 \frac{lb}{day} SO_2$$

$$2184 \frac{gal}{day} \times \frac{33.5 \text{ lb TSP}}{1000 \text{ gal}} = 73.2 \frac{lb}{day} \text{ TSP}$$

Boiler for Pile Driving

$$1260 \frac{gal}{day} \times \frac{22 \text{ lb } NO_x}{1000 \text{ gal}} = 27.7 \frac{lb}{day} NO_x$$

$$1260 \frac{gal}{day} \times \frac{1 \text{ lb THC}}{1000 \text{ gal}} = 1.3 \frac{lb}{day} \text{ THC}$$

$$1260 \frac{gal}{day} \times \frac{5 \text{ lb CO}}{1000 \text{ gal}} = 6.3 \frac{lb}{day} \text{ CO}$$

$$1260 \frac{gal}{day} \times \frac{29.2 \text{ lb } SO_2}{1000 \text{ gal}} = 36.8 \frac{lb}{day} SO_2$$

$$1260 \frac{gal}{day} \times \frac{2 \text{ lb TSP}}{1000 \text{ gal}} = 2.5 \frac{lb}{day} \text{ TSP}$$

Fugitive Emissions

Assume diesel storage emissions include breathing and displacement.

$$10.7 \frac{\text{lb THC (gasoline)}}{1000 \text{ gal throughout}} \times \frac{0.3 \text{ psia RVP (diesel)}}{10.0 \text{ psi RVP (gasoline)}}$$

$$= 0.3 \frac{\text{lb THC}}{1000 \text{ gal}}$$

$$0.3 \frac{\text{lb THC}}{1000 \text{ gal}} \times \left[(.50)(2000 \frac{gal}{day}) + (.50)(3300 \frac{gal}{day}) \right] = 0.8 \frac{\text{lb THC}}{day}$$

Pipeline Construction:

Barge Tug (4800 hp, Full Mode)
Assume 50% operating factor, 75% full mode

$$24 \frac{hour}{day} \times .50 \times 200 \frac{gal}{hr} \times .75 = 1800 \frac{gal}{day}$$

$$1800 \frac{gal}{day} \times \frac{62.4 \text{ lb CO}}{1000 \text{ gal}} = 112.3 \frac{lb}{day} \text{ CO}$$

$$1800 \frac{gal}{day} \times \frac{29.5 \text{ lb THC}}{1000 \text{ gal}} = 53.1 \frac{lb}{day} \text{ THC}$$

*NOTE: Construction emissions factors are found in Appendix 4.

APPENDIX 3

TABLE 1

FACILITY CONSTRUCTION EMISSIONS

	Activity Duration days	CO lb/day	VOC(1) lb/day	NO_x lb/day	SO_2 lb/day	TSP lb/day
Platform Construction	180	236.3	88.1	1083.7	73.6	73.2
Derrick Ship Boiler	30	6.3	1.3	27.7	36.8	2.5
Pipeline Construction	14	376.2	150.4	1747.1	132.3	83.7
Subsea Cable Installation	10	196.7	54.7	858.8	60.5	24.1
TOTAL (TON)(2)		25.0	9.2	114.4	8.3	7.2

(1) Values listed are actually total hydrocarbons. VOC values are less than THC.

(2) Total emissions are calculated by multiplying emission rate in lb/day by duration and converting to tons.

*NOTE: Construction emission factors are found in Appendix 4.

TABLE 2-1

FACILITY INSTALLATION EMISSIONS

	Activity Duration days	CO lb/day	VOC(1) lb/day	NO_x lb/day	SO_2 lb/day	TSP lb/day
Platform Construction	180	236.3	88.1	1083.7	73.6	73.2
Derrick Ship Boiler	30	6.3	1.3	27.7	36.8	2.5
Pipeline Construction	14	376.2	150.4	1747.1	132.3	83.7
Subsea Cable Installation	10	196.7	54.7	858.8	60.5	24.1
TOTAL (TON)(2)		25.0	9.2	114.4	8.3	7.2

(1) Values listed are actually total hydrocarbons. VOC values are less than THC.

(2) Total emissions are calculated by multiplying emission rate in lb/day by duration and converting to tons.

*NOTE: Construction emission factors are found in Appendix 4.