

MINUTE ITEM

Calendar Item No. 31
No. 31 ...
TO 0 ... 8/29/85

MINUTE ITEM

31

W 40405	08/29/85
W 40420	PRC 3150
W 40421	PRC 2894
W 40431	PRC 3184
	PRC 2199
	Liverick
	Griggs

RESUMPTION OF OFFSHORE EXPLORATORY
DRILLING OPERATIONS ON STATE OIL AND GAS
LEASES PRC 3184, VENTURA COUNTY, AND PRCS 3150,
2199, AND 2894, SANTA BARBARA COUNTY

During consideration of Calendar Item 31, attached, Mr. Richard Turner, Attorney representing Sandyland Protective Association, appeared to ask that the Commission delete any reference to Lease PRC 3150 in the Environmental Impact Report before certifying the document. The Association was concerned that findings would be adopted even though additional environmental documentation was needed with respect to this proposal.

Executive Officer DeGrick clarified that at the time an application is received to do exploratory drilling on Lease PRC 3150, a site specific EIR would be prepared as a requirement of CEQA.

Upon motion duly made by Commission-Alternate Ordway and seconded by Acting Chairman Harvey, the Resolution in Calendar Item 31 was approved as presented by a vote of 2-0.

Attachment: Calendar Item 31.

A 35
S 18

CALENDAR ITEM

31

08/29/85

W 40405 PRC 3150
W 40420 PRC 2894
W 40423 PRC 3184
W 40431 PRC 2199
Livenick
Griggs

RESUMPTION OF OFFSHORE EXPLORATORY DRILLING OPERATIONS
ON STATE OIL AND GAS LEASES PRC 3184, VENTURA COUNTY
AND PRC'S 3150, 2199 AND 2894, SANTA BARBARA COUNTY

LESSEE/OPERATOR:

Chevron USA, Inc.
P. O. Pox 6917
Ventura, California 93005
Attn: Kit Armstrong

AREA, TYPE LAND AND LOCATION:

State Oil and Gas lease PRC 3184 contains approximately 5,540 acres of submerged lands located immediately west of Pitas Point, approximately six miles, northwest of Ventura in Ventura County. State Oil and Gas Lease PRC 3150 contains approximately 5,553 acres of submerged land immediately west of Carpinteria in Santa Barbara County. State Oil and Gas Leases PRC's 2199 and 2894 contain 3,840 and 4,250 acres of submerged lands, respectively, and are located adjacent to each other due south and due southwest, respectively, of Gaviota in Santa Barbara County.

LEASE INFORMATION:

State Oil and Gas Lease PRC-3184 was originally issued to Standard Oil of California on September 24, 1964. The lease provides an initial drilling term of three years and a continuous drilling

CALENDAR ITEM NO. 31 (CONT'D)

obligation of 120 days between wells. Two exploratory wells have been drilled into the lease but the lease has never produced. State Oil and Gas Lease PRC 3150 was originally issued to Standard Oil of California and Richfield Oil Corp. on July 24, 1964. The lease provides an initial drilling term of three years and a continuous drilling obligation of 120 days between wells. The Carpinteria offshore field is located on the southern portion of the lease and is produced from Platforms Hope and Heidi on which resumption of development drilling has been approved. State Oil and Gas Lease PRC 2199 was originally issued on July 25, 1985 to Humble Oil and Standard Oil of California. The lease provides an initial drilling term of three years and continuous drilling obligation with no more than 120 days between wells. The northern portion of the lease is presently productive. State Oil and Gas Lease PRC 2894 was originally issued to Shell Oil Company and Standard Oil of California on June 28, 1962. The lease provides for a three year initial drilling term and continuous drilling obligation of no more than 120 days between wells. The lease is presently productive.

SUMMARY:

Chevron initially proposed to resume exploratory drilling from mobile rigs on four State Oil and Gas Leases. A total of eleven wells are proposed: two on PRC 3184; two on PRC 3150; four on PRC 2199 and three on PRC 2894. The wells will be drilled to total depths of 6,000 to 18,000 feet, using a jackup type drill rig. Drill rigs will be on location from 35 to 140 days, depending on location and depth of drilling. Chevron has, however, changed their request for resumption of drilling to exclude consideration of and action on PRC 3150 at this time.

Should commercial quantities or hydrocarbons be encountered while drilling and testing, no

CALENDAR ITEM NO. 31 (CONT'D)

production, processing or development of the resource would occur. Any future proposal to develop the resources of Leases PRC's 3184, 2199 or 2894 would be preceded by additional environmental review and analysis and consideration by the Commission.

OTHER PERTINENT INFORMATION:

1. Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (14 Cal. Adm. Code 15025), the Staff has caused to be prepared an EIR identified as EIR No. 384, State Clearinghouse No. 84052317. Such EIR was prepared and circulated for public review pursuant to the provisions of the CEQA.
2. This activity involves lands identified as possessing significant environmental values pursuant to P.R.C. 6370, et seq. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

STATUTORY AND OTHER PERTINENT INFORMATION:

- A. P.R.C.: Div. 6, Parts 1 and 2.
- B. Cal. Adm. Code: Title 2, Div. 3; Title 14, Div. 6.

AB 884: 09/06/85.

AGREEMENT FOR THE PROTECTION OF THIRD PERSONS:

Staff has prepared agreements which are additions to the present lease requirements, are acceptable to the Operator, and offer increased protection to third persons for any damages that may arise from operations conducted under the leases. The agreements provide:

1. Chevron USA, Inc. will furnish the State Lands Commission with a certificate of insurance in the amount of \$10 million for

CALENDAR ITEM NO. 31 (CONT'D)

each of the four leases, evidencing insurance against liability for damages to third persons.

2. Procedures shall be established for the prompt processing of all claims and the prompt payment of uncontested claims.
3. Chevron USA, Inc. will agree to arbitration and mediation procedures approved by the Executive Officer, after consultation with the Office of the Attorney General, to facilitate the settlement of contested claims by third persons without the necessity of litigation.

EXHIBITS: A. Location Map.
 B. EIR Executive Summary.
 C. CEQA Findings.

IT IS RECOMMENDED THAT THE COMMISSION:

1. CERTIFY THAT AN EIR, NO. 384 (STATE CLEARINGHOUSE NO. 84052317), WAS PREPARED FOR THIS PROJECT PURSUANT TO THE PROVISIONS OF CEQA, AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.
2. ADOPT THE FINDINGS HERETO ATTACHED AS EXHIBIT "C" IN CONNECTION WITH THE PROJECT IN COMPLIANCE WITH THE CEQA (P.R.C. SECTION 21000 AND ET SEQ.) AND THE STATE EIR GUIDELINES.
3. FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED FOR THE LAND PURSUANT TO P.R.C. 6370, ET SEQ.
4. CONDITION APPROVAL OF CHEVRON'S APPLICATION ON ITS ACCEPTANCE OF AN AMENDMENT OF STATE OIL AND GAS LEASES PRC 3184, 2199 AND 2894 TO PROVIDE FOR COMPLIANCE WITH STATE LANDS COMMISSION REGULATIONS.
5. AUTHORIZE THE RESUMPTION OF EXPLORATORY DRILLING OPERATIONS ON STATE OIL AND GAS LEASE P.R.C.S 3184, 2199 AND 2894 IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE LEASE AND THE RULES AND REGULATIONS OF THE STATE LANDS COMMISSION SUBJECT TO THE UNDERSTANDING THAT CHEVRON USA, INC. HAS AGREED TO THE FOLLOWING PROVISIONS:

CALENDAR ITEM NO. 31 (CONT'D)

- A. CHEVRON USA, INC. WILL FURNISH TO THE STATE LANDS COMMISSION A CERTIFICATE OF INSURANCE FROM A RECOGNIZED INSURANCE COMPANY DOING BUSINESS IN CALIFORNIA IN THE SUM OF \$10 MILLION, INCLUDING THE STATE AS A NAMED INSURED AND EVIDENCE INSURANCE AGAINST LIABILITY FOR DAMAGES TO THIRD PERSONS CAUSED BY ANY AND ALL DRILLING ACTIVITIES UNDER SAID LEASE. THIS CERTIFICATE SHALL NOT BE CANCELLED, EXCEPT UPON 30 DAYS WRITTEN NOTICE THAT CHEVRON IS REPLACING SAID CERTIFICATE OF INSURANCE WITH A SIMILAR ONE WHICH FULFILLS THE ABOVE REQUIREMENTS, AND SHALL BE IN EFFECT AT ALL TIMES UNTIL ALL DRILLING FROM SAID LEASE TERMINATES AND ALL WELLS HAVE BEEN PROPERLY ABANDONED IN THE MANNER REQUIRED BY LAW.
- B. SHOULD ANY EVENT OCCUR CAUSING A SUBSTANTIAL NUMBER OF CLAIMS FOR DAMAGES TO BE FILED AGAINST CHEVRON USA, INC. AS A RESULT OF OPERATIONS UNDER SAID LEASE, CHEVRON USA, INC SHALL WITHIN TEN DAYS AFTER SUCH EVENT, CAUSE TO BE OPENED OR OPEN A CLAIMS OFFICE WITHIN THE CITY OF SANTA BARBARA STAFFED WITH SUFFICIENT PERSONNEL AND AUTHORITY TO PROCESS ALL CLAIMS AND TO SETTLE ALL UNCONTESTED CLAIMS. BARRING UNUSUAL CIRCUMSTANCES, THE STAFFING OF SAID OFFICE SHALL BE SUFFICIENT TO PROCESS ALL CLAIMS AND SETTLE ALL UNCONTESTED CLAIMS WITHIN 60 DAYS OF THE ESTABLISHMENT OF SAID OFFICE.
- C. TO FACILITATE THE SETTLEMENT OF CONTESTED CLAIMS BY THIRD PERSONS WITHOUT THE NECESSITY OF LIGATION, CHEVRON USA, INC. AGREES TO ARBITRATION AND MEDIATION PROCEDURES APPROVED BY THE EXECUTIVE OFFICER AFTER CONSULTATION WITH THE OFFICE OF THE ATTORNEY GENERAL.
- D. ALL DRILLING SHALL BE CONDUCTED UNDER LEASES PRC 3184, 2894 AND 2199 IN ACCORDANCE WITH APPLICABLE LAWS, THE RULES AND REGULATIONS OF THE STATE LANDS COMMISSION AND THE DIVISION OF OIL AND GAS, AND AS REFERENCED OR DESCRIBED IN THE FINAL EIR INCLUDING MITIGATIONS, RELATING TO EXPLORATORY DRILLING OPERATIONS BY CHEVRON USA, INC. ON STATE OIL AND GAS LEASES PRC'S 3184, 3150, 2894 AND 2199 ADOPTED BY THE STATE LANDS COMMISSION.
- E. CHEVRON USA, INC. SHALL IMPLEMENT AND MAINTAIN THE OIL SPILL CONTINGENCY PLAN ON FILE WITH THE STATE LANDS COMMISSION.

EXHIBIT A

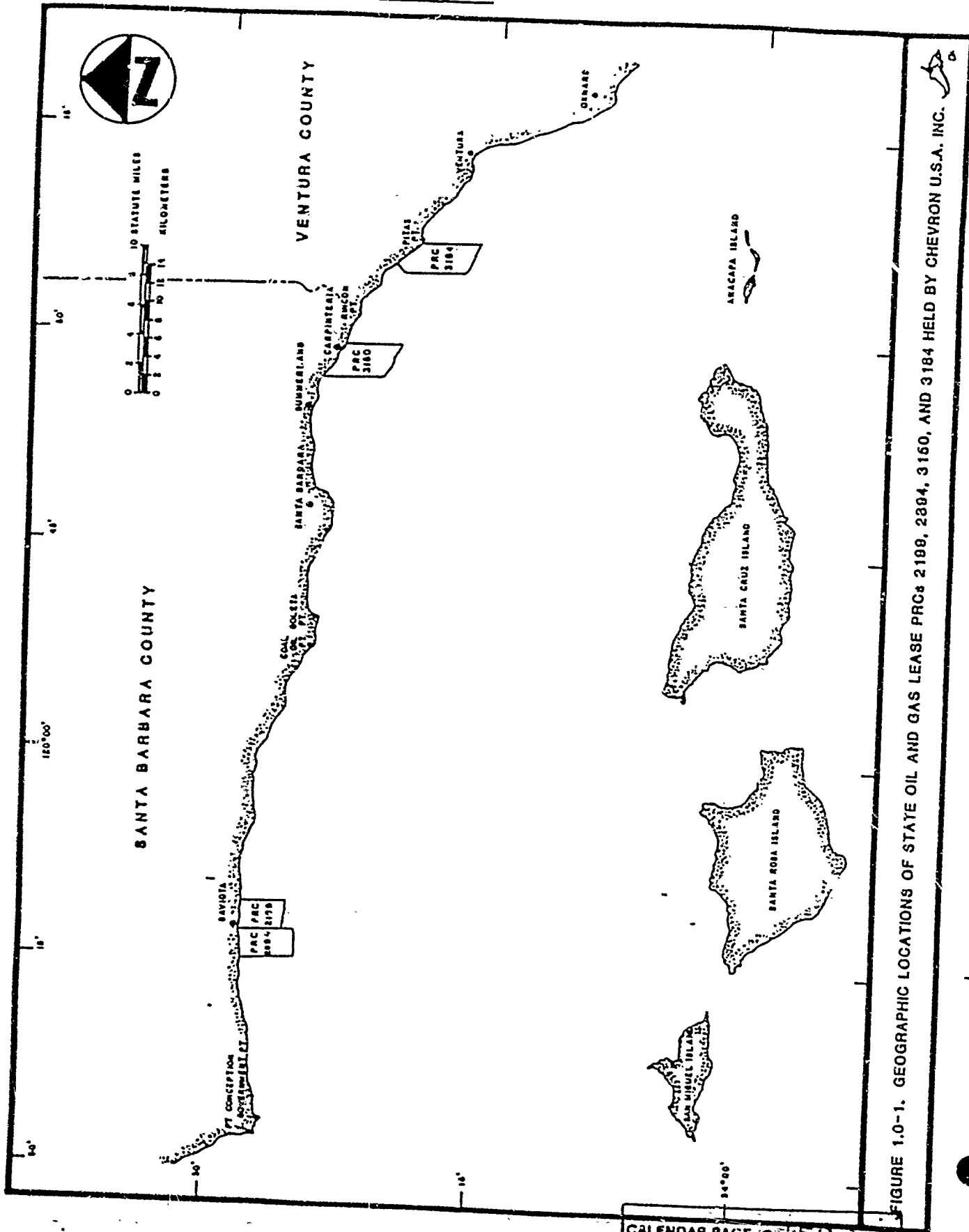


FIGURE 1.0-1. GEOGRAPHIC LOCATIONS OF STATE OIL AND GAS LEASE PRCs 2188, 2884, 3160, AND 3184 HELD BY CHEVRON U.S.A. INC.

CALENDAR PAGE 2445
 MINUTE PAGE 2445

EXHIBIT B
EXECUTIVE SUMMARY

CALENDAR PAGE	413
MINUTE PAGE	244

ES-1.0 INTRODUCTION

Chevron U.S.A. Inc. (Chevron) has proposed to drill up to 11 exploratory wells in California State waters offshore of Gaviota and Carpinteria in Santa Barbara County, and offshore of Pitas Point in Ventura County. In response, the California State Lands Commission (SLC), as lead agency pursuant to the California Environmental Quality Act (CEQA), selected Continental Shelf Associates, Inc. to prepare this Environmental Impact Report (EIR). Other responsible agencies will use this document to formulate decisions and to issue permits.

The EIR has been designed to inform public agency decisionmakers and the general public of the proposed project's objectives and operations, surrounding environmental conditions, potential environmental impacts, reasonable alternatives to the proposed project, cumulative impacts, and mitigation measures to minimize significant effects. Environmental issues that are addressed include geology and potential geologic hazards, meteorology and air quality, physical oceanography, chemical oceanography and water quality, marine biology, cultural resources, socioeconomic, marine traffic and navigation, and system safety and reliability. The EIR also incorporates the results of a biological survey of the four lease tracts which included submersible transects, towed diver observations, otter trawl tows, and box core stations for infauna, sediment grain size, and sediment chemistry. The methodologies used in the preparation of the EIR to address the issues of concern were selected on the basis of best professional judgment and specific agency requests.

ES-2.0 PROJECT DESCRIPTION

Chevron proposes to drill four wells in PRC 2199, three wells in PRC 2894, two wells in PRC 3150, and two wells in PRC 3184. Lease tracts and drillsite locations are illustrated in Figures ES-1 and ES-2. Water depths at the four lease tracts range from 15 to 74 m (48 to 243 ft). Distances of a drilling unit to nearest shore range from 0.8 to 4.2 km (0.5 to 2.6 mi) for the four lease tracts.

The DIAMOND M EAGLE (a semi-submersible drilling unit), the KEY SINGAPORE (a jackup drilling unit), or another U.S. Coast Guard (USCG)-approved drilling unit is proposed for PRC 2199. The DIAMOND M EAGLE is capable of self-propulsion and is moored in place at a drillsite by eight anchors. The KEY SINGAPORE is proposed for use on PRCs 2894, 3150, and 3184, and possibly PRC 2199. The KEY SINGAPORE will be towed and positioned at a drillsite by tugboats; then its legs will be jacked down to attain proper footing on the seafloor and to raise the deck above the ocean surface.

The approximate time that a drilling unit will be on location at each site ranges from 35 to 140 days, depending on location and depth of drilling. For any well that requires deepening or re-drilling, an additional 20 days may be required. Assuming that all 11 wells are drilled and that there are no interruptions in the drilling program, the maximum amount of time a drilling unit will be in place in each lease tract is approximately 23 months on PRC 2199, 19 months on PRC 2894, and 10 months each on PRCs 3150 and 3184. This maximum drilling period assumes that the project requires all wells to be drilled for adequate analysis of any existing reserves. Shorter stays can be expected if less than economic prospects are encountered.

Drilling muds to be used by Chevron for each well will be clay-based, chrome-free lignosulfonate muds approved by the U.S. Environmental Protection Agency (EPA). Chevron proposes to discharge used oil-free drilling muds and cuttings directly into the surrounding

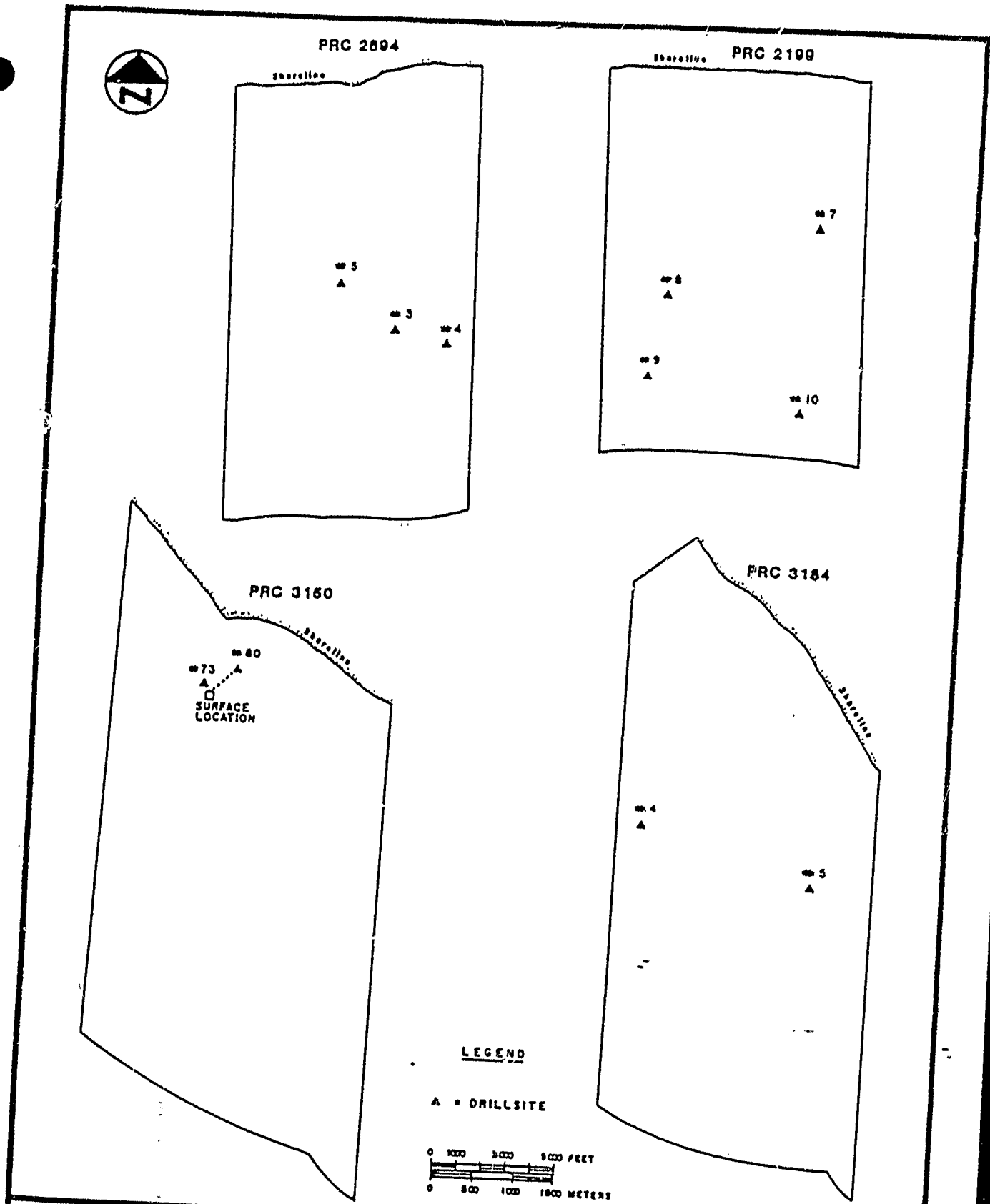


FIGURE ES-2: LOCATION OF DRILLSITES ON EACH LEASE TRACT. WELLS ON PRC 3160 WILL BE DRILLED FROM THE SAME SURFACE LOCATION.

waters at the drillsites in each of the four tracts. These discharges will require authorization from the appropriate Regional Water Quality Control Board and must meet the requirements of the National Pollutant Discharge Elimination System (NPDES) permits issued by the EPA. Any of the drilling muds or cuttings that become contaminated with oil will be transported to shore and disposed at an approved disposal site.

The quantities and rates of drilling mud and cuttings discharges vary during the course of drilling a well. Separation of the drilling solids (formation cuttings) from the mud is continuous while drilling is in progress and occurs about half the time the drilling unit is on location. Discharge rates vary from 1 to 6 bbl h⁻¹. Total estimated cuttings discharges from Chevron's wells vary from 3,000 to 13,000 ft³ per well.

Drilling muds are recirculated through the system, unlike cuttings, and the small amount that adheres to the cuttings is released continuously. Occasionally, there is a bulk discharge when the mud pits are cleaned. Bulk discharges also occur when the mud system is changed to penetrate a particular formation, when the properties of the mud have been altered by the drilling process, or during cementing operations. Bulk discharges may occur every one to three days during the course of drilling a well and will amount to 30 to 100 bbl per discharge of mud for Chevron's wells. A bulk discharge of 1,000 bbl is typical at the end of a drilling operation. Bulk discharges generally occur at a rate of 500 to 2,000 bbl h⁻¹. Two major discharges will occur during the drilling and setting of the conductor and surface string. At the end of a drilling cycle, as much used mud as possible will be disposed into the hole during plugging, with the remainder being discharged to the ocean. The estimated quantities of muds that will be discharged to the ocean vary from 650 to 5,500 bbl per well.

A total of 140 people, consisting of drilling unit and shore-based personnel, will be employed to support drilling operations. The drilling unit will require 110 employees, although only 40 will be on the unit at any one time. With subcontracted personnel, as many as 70 people maximum may be quartered on the drilling unit. Crew rotations are for 28 days on the drilling unit and 28 days off. During off periods, the crew will be returned to their homes, although short-term stays in local motels may be required at times. Other personnel to be associated with the drilling operation will be up to 18 service company employees on an intermittent basis. Supply boats will operate with a crew of six, whereas crew boats will have a full-time crew of two. Eight crew boat trips per month will be required. Chevron operates a pier at Carpinteria from which crew boat operations will be conducted. Supply boats will make 25 trips per month to a drilling unit. These trips will originate in Port Hueneme. Support vessels will use established corridors, and routes of travel will be designed to minimize project impacts. Helicopter travel to service the drilling units, although not proposed by Chevron, could be used to transport crew and some supplies and equipment.

Blowout prevention (BOP) equipment is used to maintain well-flow control throughout the project period. Installation, testing, and operation of the BOP system will comply with Chevron Operating Instructions and SLC and Division of Oil and Gas Regulations. Chevron's "Oil Spill and Emergency Contingency Plan for Santa Barbara Channel State Leases" outlines the response procedures in case of an accidental oil spill or hydrogen sulfide (H₂S) emergency. Regular offshore training drills will be conducted to maintain crew efficiency in spill response and emergency procedures. Chevron's Critical Operations and Curtailment Plan (COCP) will minimize certain critical drilling

operations during periods when conditions are such as to impede spill containment and cleanup operations, communications, or transport of material to the drilling unit in an emergency.

Proposed exploratory activities will be advertised in advance through the Santa Barbara Marine Advisory Program Newsletter and the Notice to Mariners. The Chevron contact person, the SLC, and the Fisheries and Oil Industry Liaison Officer have staff available to discuss any potential conflicts between the drilling activities and fishing operations. Contact with the Santa Barbara Marine Advisory Program and local fishermen will be made by Chevron prior to exploratory activities. Interested parties will be kept informed as to the project's status and scheduling of events.

ES-3.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

Environmental impacts of the proposed project may result from routine project-related activities (e.g., drilling mud and cuttings discharges) or from accidental episodic events (e.g., a blowout or oil spill). These two categories of impacts are reviewed separately below and are summarized in separate tables along with mitigation measures at the end of the Executive Summary. Impacts are summarized according to the following classification scheme:

- Significant environmental impacts that are unavoidable;
- Significant environmental impacts that can be feasibly avoided or mitigated; and
- Adverse but not significant environmental impacts.

ES-3.1 Impacts of Routine Project-Related Activities

Impacts of routine project-related activities are summarized in Tables 1, 2, and 3 at the end of the Executive Summary and are discussed below.

ES-3.1.1 Geology

Geologic impacts from the proposed routine exploratory operations will be localized and short term in nature. Vibrations from leg positioning might induce sediment slides in certain areas of PRC 2894, but not in PRCs 2199, 3150, or 3184. Significant impacts can be mitigated by avoiding areas of PRC 2894 indicated in the Geologic Hazards Report as having high slide potential. There should be no residual impact if potential sediment slide areas are avoided. The remaining impacts are not adverse, beneficial, or significant in themselves, but are mentioned as changes to the geologic environment. During placement of anchors of a semi-submersible drilling unit or legs of a jackup drilling unit, there may be some localized, short-term sediment disturbance and redistribution. Discharges of muds and cuttings will add to the sediments in the area during drilling. Upon completion of drilling and removal of a drilling unit, there will be some temporary alterations of the local bathymetry such as cuttings mounds, anchor scars, and drill holes on the bottom.

ES-3.1.2 Atmospheric Environment

Air quality impacts were determined using a worst-case emissions estimate for a 1-h period. Emission rate was based on an estimate that, at most, 90% of two 2,200-HP engines on the KEY SINGAPORE would be used for any 1-h period during the exploratory activities. Emission rates of nitrogen oxides (NO_x), hydrocarbons, sulfur dioxide (SO₂), carbon monoxide (CO), and total suspended particulates (TSP) that correspond to 3,950 HP h⁻¹ usage of the engines were provided.

For nonreactive pollutants, the Offshore and Coastal Dispersion (OCD) model was applied in a screening analysis to project deliberate overestimates of the air quality impacts of the project emissions, specifically NO_x. Incremental 1-h average concentrations for other pollutants were scaled from the predicted NO_x concentrations. Results indicated that none of the gaseous (nonreactive) air quality standards for Federal PSD (Prevention of Significant Deterioration) increments would be exceeded. There were potential problems with the TSP and PM10 (Particulate Matter 10) standards for a 24-h period, but these problems were attributed to elevated and/or nonrepresentative baseline values. The incremental TSP concentration was below the Federal PSD increment threshold. Additional short-term air quality increments established by Santa Barbara County were below the maximum thresholds at Carpinteria and Gaviota. The nonreactive pollutant impacts are considered to be adverse but not significant.

The annual average concentrations of inert pollutants, conservatively estimated by multiplying the maximum 1-h average concentrations by 0.005, revealed that the incremental concentration increases are expected to be very small. The only potential standard violations were for particulate matter, resulting from a very high background concentration. The annual nonreactive pollutant impacts are considered to be adverse but not significant.

The photochemical trajectory model PLMSTAR was used to determine the impact of the project emissions on ozone concentrations. For conditions that would produce concentrations near the Federal 1-h standard for ozone (i.e., 0.12 ppm), the proposed project's emissions would have the potential to produce an increase in ozone downwind of the project. If the baseline ozone concentration in the impact area were near the exceedance level, the incremental ozone produced by project emissions could create an exceedance of the standard. This maximum predicted incremental concentration increase, however, applies to a short time period and a relatively narrow [approximately 3 km (approximately 2 mi)] swath along the trajectory; therefore, an increased number of exceedances would not necessarily be recorded at existing monitoring locations. Nonetheless, any increase in ozone exceedances would be a significant and unavoidable impact. The incremental ozone increase would most likely be due to the potentially large NO_x emission rate from the EMD diesel engines on the KEY SINGAPORE. Therefore, any mitigation measure that would reduce the NO_x emission rate would likely reduce the incremental ozone impact. The only feasible NO_x control measure for the EMD engines is injection timing retard. Use of a drillship that is equipped with the Caterpillar engines would reduce the NO_x emission rate and the incremental ozone resulting from the NO_x emissions. A smaller incremental ozone increase would not eliminate the possibility of contributing to violations of the ozone standard, but would reduce the probability of a violation. Restricting project operations to the months outside the ozone season of November through April would drastically reduce the possibility of the project emissions contributing to an ozone violation. Offset of the project's NO_x emissions is also a means of mitigating the O₃ and NO₂ impact of the project.

The EPA Level 1 visibility screening analysis was conducted to assess the potential for impacts (arising from project emissions) on visibility in the nearest Class I PSD area. Level 1 analyses yielded impact estimates below the EPA significance criteria at the San Rafael Wilderness Area; therefore no further analyses of impacts in this Class I area were performed. The screening calculations indicated a potential for some local atmospheric discoloration due to the project's NO_x emissions. This effect would most likely be manifested by a thin brown

haze layer offshore during the morning hours when winds are near calm. These impacts are considered adverse but not significant.

ES-3.1.3 Chemical Oceanography/Water Quality

Routine, intermittent bulk discharges of drilling muds during Chevron's exploratory drilling will occasionally reduce water clarity and increase concentrations of total suspended solids within a few kilometers of each drillsite (adverse but not significant impacts). Small bulk discharges may occur every one to three days during the course of drilling a well, and larger discharges are expected to occur a few times during the course of drilling and at the end of drilling (Section ES-2.0). The plume resulting from each bulk discharge may persist in the water column (i.e., remain visible or detectable) for several minutes to several hours, depending on local currents.

Drilling mud and cuttings discharges will also affect sediment quality near each drillsite. Barium is more concentrated in drilling muds than in typical marine sediments, and elevated barium concentrations are likely to persist in sediments around each drillsite for some time after drilling (adverse but not significant impacts). Chromium is the only other metal that is typically present in drilling muds at concentrations much higher than in marine sediments. Because Chevron proposes to use chrome-free lignosulfonate drilling muds for this project, sediment chromium concentrations should not become elevated due to drilling discharges.

Other project discharges are either small in volume and infrequent (e.g., treated sewage, waste from uncontaminated deck drains, well completion and treatment fluids, produced water) or innocuous (seawater used for noncontact cooling of diesel generators) and should have little or no impact on water quality beyond a few meters from the discharge point (adverse but not significant impacts).

ES-3.1.4 Marine Biology

ES-3.1.4.1 Plankton

Routine, intermittent, bulk drilling mud discharges during Chevron's exploratory drilling will occasionally reduce water clarity and increase concentrations of total suspended solids within a few kilometers of each drillsite. The increased turbidity may reduce phytoplankton photosynthesis and interfere with zooplankton filter-feeding and visual predation. Because of the intermittency and short duration (several minutes to a few hours) of bulk drilling mud discharges, these impacts are judged to be adverse but not significant.

ES-3.1.4.2 Intertidal Communities

No impact of routine, project-related activities upon intertidal communities is anticipated.

ES-3.1.4.3 Subtidal Benthic Communities

Routine, project-related activities may have several types of impacts upon subtidal benthic communities.

During emplacement and removal of a jackup drilling unit to be used at most or all of the proposed drillsites, benthic organisms in a limited area directly beneath the drilling unit will be crushed and/or buried as the legs are either jacked down to rest on the bottom or retracted (adverse but not significant impact). All of the drillsites are located in areas of soft-bottom substrates; consequently, infauna and soft-bottom epifauna are most likely to be affected.

In PRC 2199, a semi-submersible drilling unit may be used on one or more wells. The unit would be held in place by eight 20-ton anchors deployed in a radial pattern around the drillsite. Benthic organisms within a small area would likely be buried and/or crushed during deployment and recovery of these anchors (adverse but not significant impact). The anchors are typically deployed out to 1,500 m (5,000 ft) from the drilling unit. Because hard-bottom areas containing sessile macroepibiota are within this radius of the proposed drillsites in PRC 2199, hard-bottom biota could be adversely affected unless the anchors are deployed so as to avoid hard bottom (significant impact that can feasibly be avoided/mitigated).

Benthic organisms near each drillsite may be buried or fouled due to deposition of discharged drilling cuttings (and, to a lesser extent, drilling muds). The greatest potential for significant impacts is in PRC 3150, where the drillsite is located in shallow water [15 m (50 ft)] within about 100 m (328 ft) south of a hard-bottom area (Carpinteria Reef). Cuttings accumulations of up to 90 cm (2.9 ft) may occur near the drillsite in PRC 3150, although the hard-bottom area should receive much lower accumulations (or none, if currents consistently flow toward the south or southeast away from the reef). Drilling mud accumulations near the drillsite in PRC 3150 may approach 2 mm thickness, which is in the range at which significant lethal and sublethal effects on benthos have been noted in laboratory experiments. Because of the potentially thick accumulations of cuttings and muds in the area, the likely sensitivity of hard-bottom epibiota to sedimentation, and the ecological importance of the hard-bottom/kelp habitat at Carpinteria Reef, the impacts of drilling cuttings and muds in PRC 3150 are judged potentially adverse and significant. However, the impacts could be avoided or mitigated. All impacts could be avoided if muds and cuttings were disposed onshore or barged to an approved ocean disposal site. Impacts could be lessened by regulating discharge conditions--especially by restricting discharges to times when currents are strong and/or flowing away from Carpinteria Reef. Also, shunting could be used to localize deposition near the drillsite in PRC 3150, but this would not prevent the material from later being resuspended and transported toward the reef. Impacts of mud and cuttings deposition in PRCs 2199, 2894, and 3184 are judged to be adverse but not significant, with the exception of the prominent rock outcrop identified in PRC 2199. The water depth of the proposed drillsites in PRCs 2199 and 2894 [57 to 74 m (187 to 243 ft)] will allow settling mud and cuttings particles to disperse widely before reaching the bottom and should prevent thick accumulations. In PRC 3184, cuttings may accumulate to a thickness of 20 cm (0.7 ft) very near the drillsite, but the cuttings should affect a small area and there is no nearby hard-bottom biota.

ES-3.1.4.4 Kelp

Drilling mud and cuttings discharges may affect the health of giant kelp (Macrocystis) communities, especially in PRC 3150, where kelp is located within about 100 m (328 ft) of the drillsite at Carpinteria Reef. Kelp is also located in the inshore portions of PRCs 2199 and 2894 (Gaviota area), but the drillsites are several hundred to several thousand meters from the seaward extent of the kelp beds and kelp are unlikely to be affected.

Intermittent drilling mud discharges will create plumes of turbid water that could affect kelp photosynthesis. However, as the plumes are infrequently produced and of short duration, this impact is judged to be adverse but not significant.

It is possible that exposure of kelp in PRC 3150 to drilling muds in suspension and muds and cuttings deposited on the substrate may exert subtle, indirect effects on the plants themselves or the ecosystem of which they are an integral part. For example, deposited drilling mud and cuttings particles might affect recruitment of new plants or larval settlement of invertebrates that graze on them. These or other significant adverse effects on kelp communities in PRC 3150 cannot be ruled out. However, such impacts are avoidable and could feasibly be mitigated to an insignificant level. Impacts could be avoided by requiring onshore or approved ocean disposal of drilling muds and cuttings. Impacts could be lessened by regulating discharge conditions; the most effective approach would be to restrict discharges to times when currents are strong (which would assure rapid dispersion and thin accumulations on the bottom) and/or flowing away from Carpinteria Reef. Also, shunting could be used to localize deposition near the drilling unit in PRC 3150, although this would not prevent the material from later being resuspended and transported toward the kelp bed.

Kelp plants could also be damaged by passage of crew or work boats during routine operations in PRC 3150. It is expected that these boats would avoid traversing Carpinteria Reef in any case to avoid grounding--but this could also be required as a mitigation measure. The use of restricted vessel traffic corridors will also reduce the identified impacts to an insignificant level. As an alternative to crew and supply boat travel, helicopters could be used in a limited capacity to transport crew and some supplies, thereby reducing impacts to insignificant levels. Helicopter travel, in lieu of some supply and crew boat traffic, would result in minor increases in noise.

ES-3.1.4.5 Fishes

Placement and removal of the drilling units may disturb or frighten some fishes from the areas of the proposed drillsites (adverse but not significant impact). A small area of soft-bottom habitat at each drillsite will temporarily be preempted by the presence of a drilling unit (adverse but not significant impact).

During bulk drilling mud discharges, the increased turbidity may hamper visual predation by fishes swimming near the drilling units. As the discharges are infrequent and of short duration and the fishes can forage elsewhere, this impact is judged to be adverse but not significant.

Once a drilling unit is in place at a drillsite, it will probably attract "reef" fish species that will use the structure as a habitat and/or feeding place (the drilling units will be in place long enough for fouling epibiota to develop on the underwater portions of the structure). Other fishes may be attracted to cuttings piles, which also provide some vertical relief. These impacts could be classified as beneficial on a local level and insignificant on a regional basis--although it is not clear that the presence of the additional habitat would provide an overall enhancement of fish resources in the areas near the proposed drillsites, and in any case, the effect would be temporary. Fishes that live near the drilling units are not expected to bioaccumulate metals from the drilling muds (with the possible exception of barium, a major drilling mud constituent that has not been linked to toxic effects) or organic pollutants to any significant degree.

ES-3.1.4.6 Marine Mammals

Routine exploratory activities are expected to produce various impacts on marine mammals which are resident or transient

visitors to the project area. Noise from exploratory activities may hamper acoustic communication and echolocation among cetaceans migrating through the project area, particularly PRCs 2199 and 2894. Marine mammals that may be affected by noise include Gray Whale, Harbor Seal, and Southern Sea Otter. Some avoidance of the source of noise may occur; this impact is judged to be adverse but not significant.

Increased boat traffic associated with routine exploration activities will result in a slight increase in the probability of collision (considered a rare occurrence) of resting pinniped, Southern Sea Otter, and Gray Whale; other cetaceans either avoid or chase transiting vessels. Even though the probability of this occurrence is low, the impact is considered significant and feasibly mitigated. Mitigation measures for transient marine mammals species (e.g., Gray Whale) include the seasonal placement and retrieval of the drilling unit, thereby avoiding the migratory period, and adequate training of crew and supply vessel personnel to identify and avoid migrating individuals. For resident species, trained crew avoidance is proposed as a feasible mitigation measure. Effective implementation of these standards should reduce this impact to an insignificant level.

Drilling mud and cuttings discharges, resulting in increased turbidity downcurrent from the discharge at each drillsite, might obscure fishes from the view of foraging marine mammals. Due to the infrequent nature of the discharges and the short duration of the turbidity increases, this impact is considered adverse but not significant. Marine mammals which are either resident or transient to the lease tracts are not expected to bioaccumulate metals from the drilling muds.

ES-3.1.4.7 Marine Birds

During Chevron's proposed exploratory drilling, intermittent, localized turbidity plumes resulting from drilling discharges may prevent or discourage marine birds from foraging in the immediate vicinity of the drilling units. This impact is judged to be adverse but not significant, as the birds should be able to forage elsewhere. The potential for bioaccumulation of metals from drilling muds in birds that do forage in the vicinity of a drilling unit is judged to be very low.

ES-3.1.4.8 Unique Marine Environments

Routine, exploratory activities should not significantly impact Marine Refuges, Ecological Reserves or Preserves, or Areas of Special Biological Significance of the Santa Barbara Channel area due to the distance separating most of these areas from the lease tracts involved. One exception is the hard-bottom area (Carpinteria Reef) adjacent to the proposed drillsite in PRC 3150, which may receive significant impacts from mud and cuttings discharge deposition. These impacts can be feasibly avoided or mitigated by requiring onshore or approved ocean disposal of muds and cuttings, restricting discharges to periods when currents are moving away from the hard-bottom feature, or requiring shunting of discharges.

ES-3.1.5 Cultural Resources

Impacts to cultural resources can result from burial of artifacts by drilling mud and cuttings discharges, and from disturbance or destruction of resources by placement and anchoring of a drilling unit (significant but mitigable). Drilling mud impacts are expected to be minimal because the maximum predicted mud thickness on the bottom is less than 2.1 mm (0.0 in) at all sites. The thickness of cuttings

deposited on the bottom is expected to range from 1 to 5 cm (0.03 to 0.2 ft) around drillsites at PRCs 2199 and 2894; 72 to 90 cm (2.4 to 3.0 ft) around the drillsite at PRC 3150; and 12 to 20 cm (0.4 to 0.7 ft) around the drillsites in PRC 3184. However, only a small area [$<0.01 \text{ km}^2$ ($<0.006 \text{ mi}^2$)] would be impacted at each site. Any potential impacts could be avoided by locating cuttings discharges away from suspected cultural resources. Drilling unit placement and/or anchoring may be of more significance because of the potential for destruction of an artifact. These impacts can be avoided by placing the drilling unit and anchors away from suspected cultural resources. Possible artifacts on PRC 3150 (for which an exact location is not known) can be avoided by establishing a zone of protection around the site or by conducting a visual inspection of the area.

ES-3.1.6 Socioeconomics

ES-3.1.6.1 Regional Growth

No significant adverse impacts on regional growth are expected from routine project-related activities. The project would have minor beneficial impacts because of local purchases of materials, rentals of equipment, and requirements for services. No permanent immigration of labor is expected.

ES-3.1.6.2 Housing

Beneficial project impacts would result from temporary increases in occupancy rates and sales in the local transient lodging industry. No permanent housing would be required.

ES-3.1.6.3 Tourism

A slight decrease in tourism may result from the proposed project. No definitive estimates of economic loss are available, but the impact is judged to be adverse but not significant.

ES-3.1.6.4 Commercial and Recreational Fisheries

The presence of a drilling unit will exclude fishermen from relatively small areas (0.4-km (0.25-mi) radius around a jackup drilling unit, and 1.6-km (1.0-mi) radius around a semi-submersible drilling unit) near Carpinteria Reef and other fishing regions (significant but mitigable impact). Chevron has proposed a jackup drilling unit (KEY SINGAPORE) for PRCs 2199, 2894, 3150, and 3184, although a semi-submersible drilling unit (DIAMOND M EAGLE) may be used on PRC 2199. If a semi-submersible drilling unit is used, anchor buoys should be removed from or moved up the anchor chains, or submersible buoys should be positioned below net depths to reduce the possibility of entanglement with fishing gear.

Drilling unit presence may require fishermen to alter course, and set-gear fishermen may be excluded from support boat corridors; however, these significant impacts can be mitigated. Chevron has prepared a "Contingency Plan for Contacts with Commercial Fisheries." This plan is contained in the applications to drill which Chevron submitted to the SLC and includes: advance notices of proposed activities; contact with local fishermen and industry groups prior to beginning activities; and the availability of Chevron personnel, the SLC, and the Fisheries and Oil Industry Liaison Office to discuss potential conflicts between drilling activities and fishing operations. Chevron will advertise its proposed exploratory activities in advance through the Santa Barbara Marine Advisory Program Newsletter and the Notice to Mariners. All oil- and gas-related vessels should use established vessel traffic routes, or

designate such lanes, during daytime hours, except during emergencies. Helicopter travel to service the drilling units has not been proposed by Chevron. Helicopters could be used to transport crew and some supplies and equipment.

There is potential for fishing gear damage or loss after a drilling unit is removed, but this significant impact can be mitigated. Chevron should survey areas disturbed by drilling operations after drilling and clear any debris that could cause fishing gear damage or loss.

Impacts of drilling mud and cuttings discharges on kelp and fishes have been discussed previously (Sections ES-3.1.4.4 and ES-3.1.4.5).

ES-3.1.6.5 Landfills

As proposed, only oil-contaminated platform wastes, including any of the drilling muds or cuttings that become contaminated with oil, would be transported to shore and disposed at an approved disposal site (adverse but not significant impact on the landfill). As an alternative, all muds and cuttings from project drilling operations could be disposed onshore at an approved disposal site (adverse but not significant impact on the landfill). Hauling of wastes to a landfill would cause minimal additional adverse but not significant impacts on traffic, air pollution, energy consumption, and noise. Potential mitigation measures include establishment of a new oil company Class II-1 landfill, deepwater dumping (i.e., approved ocean disposal), reuse of drilling muds, use of cuttings as landfill cover material, and neutralization or fixation of Class I material.

ES-3.1.6.6 Noise

Fog signals could cause significant impacts to residents onshore of PRC 3150 and PRC 3184. Use of a "one-half mile" fog signal rather than a "two-mile" signal would mitigate this problem. Drilling during least foggy months would also mitigate the impacts. Noise from crew and supply boats is judged to be adverse but not significant, and could be mitigated by allowing support boat use only during daytime hours.

ES-3.1.6.7 Visual Resources

Visual impacts on residents, park visitors, and highway/rail travelers are judged to be high for PRC 3184 and moderate for PRCs 2199, 2894, and 3150. Visual impacts are less at the Gaviota sites (PRCs 2199 and 2894) and Carpinteria site (PRC 3150) than at the Pitas Point site (PRC 3184) because of low population in the area and the proximity of existing platforms, respectively. Direct impacts on ocean viewers onshore within 8 km (5 mi) of a drilling unit are significant and unavoidable. Some impact reduction could be achieved by operating during non-tourist seasons, shielding shore-facing lights, flaring during daylight hours only, and painting the drilling unit light blue-gray. Impacts on ocean viewers onshore between 8 to 16 km (5 to 10 mi) from a drilling unit are adverse but not significant.

ES-3.2 Impacts Related to Accidents

Impacts related to accidents are summarized in Tables 4 and 5 at the end of the Executive Summary and are discussed below.

ES-3.2.1 System Safety and Reliability

System safety and reliability (SS&R) impacts result from abnormal operation of the project. Unless there is an accident, there

the low molecular weight unsaturated compounds and those having aromatic properties. A subsurface spill may saturate the water column with light fractions that would have quickly evaporated had the spill occurred at the surface (adverse but not significant impacts). Floating oil will eventually decrease in buoyancy and sink to the bottom after extended weathering. Biodegradation products from the sunken matter will be released into the water column, and oxidation will remove oxygen from the surrounding water. Normal mixing of bottom waters should prevent anoxic conditions for developing.

ES-3.2.2.4 Impacts on Marine Biology

ES-3.2.2.4.1 Plankton

Plankton would primarily be affected by exposure to the toxic components of an oil spill. These effects are expected to be minimal, however, because of short life spans and rapid reproduction rates of most plankton species. Although concern exists for the potential impacts on the eggs and larvae of commercial species, studies done after actual oil spills have demonstrated minimal and, at worst, short-term impacts on plankton communities (adverse but not significant impacts).

ES-3.2.2.4.2 Intertidal Communities

Oil spills can have significant impacts on intertidal communities. The severity and duration of these impacts are functions of the biological characteristics of the intertidal species and the tendency for oil to persist in these environments. Marshes, sheltered tidal flats, and sheltered rocky coasts are among the habitats most sensitive to an oil spill, whereas exposed rocky headlands are the least sensitive. The predominant shoreline types in the area include sandy beaches, sand-gravel-cobble beaches, and rocky areas. Oil which penetrates into marshes at Carpinteria and Goleta Sloughs can have long-term, major impacts. (Marshes are discussed in more detail in ES-3.2.2.4.7.) Proposed mitigation measures would reduce the impacts associated with a spill, but not to an insignificant level. Mitigation would include the use of booms or other methods to reduce or prevent oil (depending upon spill size) from entering these areas.

ES-3.2.2.4.3 Benthos

Benthic organisms can be impacted by oil that sinks to the bottom and becomes incorporated into sediments. This oil can become a chronic source of pollution and remain in sediments for long periods of time (months to years). Impacts would be associated with burial of organisms (of special concern in hard-bottom areas) and availability of toxic materials through ingestion and adsorption. The latter effect would be a function of the degree of weathering the oil undergoes before it sinks. Ultimately, the level of impact could range from adverse but not significant to significant and unavoidable, depending upon a variety of factors including water depth and hydrodynamics. Significant impacts can be reduced, but not to an insignificant level, by the use of booms, skimmers, or other mechanical means to contain and clean up oil and dispersants to dissipate oil.

ES-3.2.2.4.4 Nekton

Pelagic fishes and invertebrates tend to be among the most sensitive species to oil exposure. However, few effects have been observed on these animals during actual oil spills, probably because the organisms have the ability to swim away from a spill. Impacts are expected to be adverse but not significant.

ES-3.2.2.4.5 Marine Mammals

Marine mammals that become coated with oil as a result of a spill may die due to loss of thermoregulatory capabilities. The mammals may also be harmed through inhalation or ingestion of oil. Susceptible species that may frequent or reside in the project areas include Sea Lion, Harbor Seal, Gray Whale, and Sea Otter. Overall, impacts to marine mammals are deemed to be significant. For Sea Lion and Harbor Seal, impacts (significant and unavoidable) could potentially be most serious due to the size of the populations in proximity to the project area. In the case of Gray Whale and Sea Otter, impacts would likely be less because these species are either transients (seasonally) or are rare visitors to the area. Whales have the ability to detect and avoid oil spills.

Booms, skimmers, and other mechanical means could be used to contain and clean up a spill. However, secondary impacts could result to seals, particularly during the breeding season, and cleanup activities in seal haul-out areas and rookeries should be minimized. Dispersants could be used to dissipate a spill. Vessels could be used to direct mammals away from slicks.

ES-3.2.2.4.6 Marine Birds

Oil spill impacts on marine birds could be significant, depending on the migratory nature of the species and its presence or absence in the area at the time of a spill. Impacts could result from direct coating and from secondary effects due to chronic exposure to oil in habitats important to birds (e.g., marshes). Bird species of concern in the area that are threatened by an oil spill are Brown Pelican, Light-Footed Clapper Rail, Belding's Savannah Sparrow, and California Least Tern. Effects can include direct mortality, reduced egg-hatching success, behavioral disturbances, and other physiological stress. Significant impacts can be reduced, but not to an insignificant level, by using booms or other mechanical means to keep oil out of areas used by birds.

ES-3.2.2.4.7 Unique Marine Environments

Based on trajectory analyses conducted for PRCs 2199, 2894, 3150, and 3184, an oil spill could potentially affect several unique marine environments in the Santa Barbara Channel area. Oil moving west from PRCs 2199 and 2894 was projected to come ashore along the South Coast Intertidal Preserve (San Augustine to El Capitan State Beach). Impacts on rocky intertidal and sandy beach habitats would be significant, although cleanup efforts are expected to be most successful (and long-term impacts thus reduced) in sandy beach areas. Nearshore, kelp beds may experience short-term losses in productivity, although no serious long-term impacts on kelp are expected due to their natural mucus defense mechanism. Secondary impacts on kelp-associated organisms are possible, some of which might be severe. Oil spills moving to the east from PRCs 2199 and 2894 are not expected to reach the shoreline.

For PRC 3150, oil moving west from the discharge point could affect the shoreline between Goleta/Santa Barbara and just west of Summerland. Unique marine environments at Goleta Point, Goleta Slough, and More Mesa could be affected. Most serious impacts would be evident if oil moves into Goleta Slough, although oil spill measures could significantly reduce or eliminate the negative impacts for smaller spills. One endangered avian species (Belding's Savannah Sparrow) and one plant species (Salt Marsh Bird's Beak) present in Goleta Slough would be

seriously affected in the event oil reaches into the marsh. There could be significant impacts on Harbor Seal which typically haul out in the vicinity of Goleta Point, More Mesa, and Goleta Rocks. Oil moving east from a discharge point within PRC 3150 is projected to strike shore between Carpinteria and Rincon Point, an area which contains the unique marine environments of Carpinteria Marsh, Carpinteria Pier, and Carpinteria Reef. The nature and severity of the impacts at Carpinteria Marsh, should oil enter the protected environment, would be similar to those noted for Goleta Slough. Carpinteria Marsh is inhabited by two endangered avian species--Light-Footed Clapper Rail and Belding's Savannah Sparrow, and one endangered plant--Salt Marsh Bird's Beak; impacts on the Carpinteria Marsh population would be similar to those noted for Goleta Slough. Prepositioning spill response equipment is most critical for this area due to the relatively short time (45 min) needed for a spill originating in PRC 3150 to reach the Carpinteria nearshore area. Significant impacts could occur to Harbor Seal that haul out at Carpinteria Pier, particularly during pupping season. The rocky intertidal/subtidal habitat of Carpinteria Reef would be significantly impacted by oil contamination.

For PRC 3184, spilled oil is expected to move to the west due to the prevailing winds in this portion of the Channel. Oil landfall was projected between Ventura and Pitas Point, an area which encompasses the Ventura and Santa Clara River mouths. Oil entering these areas would result in serious impacts to indigenous species, including the endangered California Least Tern, Belding's Savannah Sparrow, and Salt Marsh Bird's Beak, which are found in the Santa Clara River mouth.

Impacts to endangered or threatened species range from negligible to significant depending upon the species under consideration and its susceptibility and occurrence in the Channel. Endangered whale species, although seasonally present in low numbers within the area, could potentially receive moderate impacts from oil contact or ingestion. No impacts to the Sea Otter population are foreseen, as this species is a rare visitor to the area. Brown Pelican and California Least Tern, both foragers, could be significantly affected in the event of a spill. Offshore, Brown Pelican would be affected during foraging. Nearshore, some California Least Terns could be killed if oil were to reach the tern's coastal marsh habitat. Other endangered marsh inhabitants that could be affected by oil include Light-Footed Clapper Rail, Belding's Savannah Sparrow, and Salt Marsh Bird's Beak.

ES-3.2.2.5 Impacts on Socioeconomics

ES-3.2.2.5.1 Tourism

The tourism industry would suffer significant but temporary losses in the event that an oil spill affected park and beach areas. Less significant impacts would result from smaller spills. Some mitigation could be accomplished with adequate cleanup plans, equipment, and crews. Impacts, even with successful mitigation efforts would not be reduced to insignificance.

ES-3.2.2.5.2 Commercial and Recreational Fisheries

An oil spill could have direct effects on adults and larvae of important commercial and recreational species by damaging habitat, breeding, and nursery areas and causing mortality, all of which could reduce the total available catch. An oil spill may adversely affect (significant and unavoidable) commercial and recreational fisheries by excluding uncontaminated areas from fishing. A major spill could cause temporary closure of harbors, marinas, and beaches associated

with fishing activities. Contaminated areas would be avoided because oil has potential adverse effects on the quality of any organism coming into contact with it; fishes may be affected by direct coating or ingestion of hydrocarbons. Oil could also foul fishing equipment, requiring cleaning of vessels and either cleaning or replacement of gear. Avoidance of areas by fishermen due to an oil spill would last at least for the duration of the spill and probably much longer.

ES-3.2.2.5.3 Landfills

Disposal of spilled oil would have a minor impact on the life of the Casimialia Class I Landfill even if the spill were sizeable and all of the oil were collected and transported to Casimialia.

ES-3.2.2.5.4 Noise

Use of nearshore boats and heavy equipment to clean up beaches after an accidental oil spill would cause significant and unavoidable noise impacts on beach area residents and visitors. Mitigation would be early response to spills to avoid shoreline and nearshore oil pollution, thereby eliminating the need for oil spill cleanup equipment.

ES-3.2.2.5.5 Visual

Major oil spills that reach beaches would have moderate to high impacts on visual resources (significant, unavoidable impact). Lesser spills could discolor ocean surface water. Mitigation measures to lessen the impacts would include early cleanup response to avoid beach and nearshore oil pollution.

ES-3.2.3 Mitigation Measures

Mitigation measures and resources for controlling a spill and limiting potential impacts are discussed in the following sections.

ES-3.2.3.1 Contingency Planning and Spill Response

Effective emergency response is dependent upon planning at all levels. Several existing contingency plans apply to the proposed project.

The National Oil and Hazardous Substances Pollution Contingency Plan, more commonly referred to as the National Contingency Plan (NCP), provides the framework and mechanism for Federal response for pollution incidents. An On-Scene Coordinator (OSC) is the pre-designated Federal official under the NCP responsible for coordinating government response to pollution incidents. Each OSC is required to have a detailed Contingency Plan. In addition, the Region IX Contingency Plan of the Regional Response Team applies specifically to the area that includes PRCs 2199, 2894, 3150, and 3184.

The State of California Oil Spill Contingency Plan provides the organizational framework within the State for spill contingency planning and response. Spill source abatement efforts are shared by the SIC and the Division of Oil and Gas. The State Plan requires local governments to prepare local contingency plans. Santa Barbara County is in the process of completely updating and revising its contingency plan. In addition, the CCC had developed a Policy Statement on Oil Spill Response Measures. The main text of the EIR summarizes the applicable CCC policies and how Chevron plans to meet these policies.

Chevron is a member of the local Clean Seas Oil Spill Response Cooperative, which has a contingency plan. In addition, Chevron has prepared an Oil Spill and Emergency Response Plan that complies with the SLC's regulations and establishes the procedures, responsibilities, and actions for response by Chevron personnel and contractors in the event of a spill.

In most cases, sufficient time should be available to deploy first-response oil spill containment and cleanup equipment to prevent or reduce the amount of oil reaching environmentally sensitive areas, except possibly for a spill at PRC 3150. This site is adjacent to Carpinteria Reef and within several thousand meters of Carpinteria Marsh (El Estero Slough). Chevron and Clean Seas have a specific response strategy for Carpinteria Marsh. Preplanned strategies have also been developed for all other environmentally sensitive areas along the coast.

ES-3.2.3.2 Spill Response Equipment Effectiveness

Although no firm values can be selected at which oil spill response equipment no longer works, data indicate that the equipment may be effective in the project areas from 79 to 95% of the time on an annual basis. On a worst-month and best-month basis, response equipment may be effective 68 to 88% and 88 to 99% of the month, respectively.

ES-3.2.3.3 Dispersant Use

When dispersants are applied to a slick, oil is broken into tiny droplets which can be more effectively dispersed by natural processes. The disadvantage of using dispersants is that they tend to mix the oil into the water column, thereby increasing the exposure risk of pelagic and subtidal organisms. However, dispersants have undergone significant refinements such that current products are relatively nontoxic. A Committee of the American Society for Testing and Materials is currently reviewing guidelines for dispersant use in the marine environment. For offshore spills, it has been suggested that dispersants be used when a spill threatens highly aggregated populations of organisms or oil-sensitive coastal areas. When fish eggs and/or larvae are present, it has been recommended that dispersants be applied only if use would minimize the overall environmental damage caused by the spill.

ES-4.0 Alternatives to the Proposed Project

There are several alternatives to the proposed project. These are: (1) no project; (2) delaying the project; (3) drilling of fewer wells than proposed; (4) directional drilling from shore; and (5) moving proposed drillsite locations.

The no project alternative would preclude all impacts of the proposed project. It would also indefinitely postpone the development and utilization of any potential hydrocarbon resources located on the tracts. Loss of revenue to the State from the potential production could be substantial.

Delaying the project would postpone but not mitigate project-related impacts. It is unlikely the project delay would necessitate immediate development of alternative resources; however, over the long term, such a delay could increase the need for imports of foreign oil. Several years may elapse between discovery and development of a resource for use.

Eleven drillsites are proposed as the maximum number of wells needed to evaluate the hydrocarbon potential of the lease tracts. If fewer

wells were drilled now, additional drilling (with attendant impacts) could be necessary in the future.

Directional drilling from shore is not considered feasible due to the horizontal distances from shore and the total drilling angles required which would be in excess of desirable and safe conditions. This is particularly true for proposed drillsites on PRC 3150 which, due to the nature of geologic structure, cannot be adequately evaluated from shore. In some cases, directional drilling from shore may result in greater environmental impact.

The primary reason for moving drillsite locations would be to minimize hard-bottom and/or cultural resources impacts. Potential impacts to cultural resources are significant but mitigable for all proposed lease tracts, and only PRC 3150 is near sensitive kelp and reef habitats.

ES-5.0 Cumulative Impacts

Chevron's proposed activities, are of a generally short-term nature and are expected to contribute insignificantly to the overall impacts of ongoing oil and gas activities in the Santa Barbara Channel environment. No additional impacts are expected from exploratory operations offshore for onshore water resources and terrestrial and freshwater biology. Minor impacts (insignificant contribution to cumulative impacts) were noted for exploratory activity and its effect on geology, air quality, marine water quality, marine biology, socioeconomics, and other uses (commercial and recreational fishing, kelp harvesting, mariculture, traffic recreation, military activities). Potentially significant contributions to cumulative impacts on cultural resources and aesthetics were noted for Chevron's exploratory activities.

ES-6.0 Irreversible and Irrecoverable Commitment of Resources

Hydrocarbon resources are not irreversibly or irretrievably committed by the proposed exploratory drilling program. If commercial quantities of hydrocarbons were found, future resource development would result in the irreversible commitment of hydrocarbons to the extent they were produced. Energy resources directly committed to the proposed project include fuels for drilling unit propulsion, equipment powering, and support vessel activities. No land or ocean bottom resources will be irreversibly or irretrievably committed due to the temporary nature of the proposed drilling project. Materials such as cement, well casings, and drilling muds will be expended. Although loss of gas or oil from a spill exists, accident expenditures are not inevitable.

ES-7.0 The Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The short-term benefit of the proposed exploratory project will be the collection of information that may lead to the recovery of hydrocarbon resources. Although project-associated impacts will generally be of a short-term nature, some potential long-term cumulative impacts are possible. Given that most drilling discharge impacts can be mitigated, and given the low probability of a significant oil spill, the proposed project is expected to have minimal impacts on long-term productivity.

6.1.2 Revised Tables

CALENDAR PAGE	15	.25
MINUTE PAGE	2466	

TABLE 1. SUMMARY OF SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS WHICH ARE ASSOCIATED WITH ROUTINE PROJECT-RELATED ACTIVITIES.

Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Air Quality Incremental increase in ozone may contribute to violations of Federal 1-h standard	a) Use drilling unit equipped with Caterpillar engines and lower NO _x emissions b) Obtain NO _x emission effects c) Allow project to operate only during non-ozone season months (i.e., April through November)	a) Would reduce incremental increase in ozone b) If offsets have the same impact area as proposed project, this would counteract project emissions c) Would drastically reduce the probability that background ozone is near the exceedance level Partially effective	a) Fewer exceedances of NO _x reductions are achieved b) Not significant if such offsets can be identified c) Not significant unless atypical weather conditions occur
Socioeconomics: Visual Direct impact of ocean views on residents, park visitors, and travelers within 8 km (5 mi) of the lease tracts	Shield shore-facing lights (flare during daytime hours only; paint the drilling unit light blue-gray; operate during nontourist seasons)		Locally significant (within 8 km (5 mi) of the lease tracts) and unavoidable; short (vs) duration of the time drilling unit is on site; regionally insignificant

CALENDAR PAGE 15
MINUTE PAGE 2467

TABLE 2. SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS WHICH ARE ASSOCIATED WITH ROUTINE PROJECT-RELATED ACTIVITIES AND CAN BE FEASIBLY AVOIDED OR MITIGATED.

Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact	
Geology	Possible sediment slides in some areas of PRC 2894 only due to vibrations from drilling unit leg positioning	Avoid areas of PRC 2894 indicated as high slide potential areas in the Geologic Hazards Report	Completely effective	No residual impact if high slide areas are successfully avoided
Marine Biology: Subtidal Benthic Communities	Crushing and/or burial of hard-bottom benthos by anchors (PRC 2199 only--if semi-submersible unit used)	Specify that anchors be placed to avoid hard-bottom features in PRCs 2199/2894	Completely effective for hard-bottom areas	No residual impact if hard-bottom areas are completely avoided during deployment and retrieval of anchors
	Burial of benthos near drilling units due to deposition of drilling muds and cuttings for the outcrop area in PRC 2199 and Carpenteria Reef in PRC 2150; see Unique Marine Environments	<p>a) Onshore disposal of drilling muds and cuttings</p> <p>b) Regulation of mud and cuttings discharges</p> <ul style="list-style-type: none"> - restrict discharges to periods of high current speeds - restrict discharge periods when currents are flowing away from hard-bottom areas - require shunting <p>c) Approved ocean disposal</p>	<p>a) Completely effective</p> <p>b) Partially or completely effective</p> <p>c) Completely effective</p>	<p>a) Residual impact includes minor increases in vessel traffic and pollution, and increased potential for collisions; onshore impacts would include increased vehicular traffic and pollution, and increased filling rate at receiving jumpsite</p> <p>b) Residual impact would either be increased dilution and reduced risk of impact on hard bottom (high currents), movement of mud and cuttings plume offshore (directional currents), or localized deposition (shunting)</p> <p>c) Residual impact includes minor increases in vessel traffic and pollution, and increased potential for collisions</p>

CALENDAR PAGE 15.27
MINUTE PAGE 2468

TABLE 2. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Marine Biology: Kelp (PAC 3150)	Deposition of drilling muds and cuttings may exert subtle effects on kelp communities; e.g., altered recruitment, effects on grazers, etc.	a) Onshore disposal of drilling muds and cuttings	a) Completely effective	a) Residual impact includes minor increases in vessel traffic and pollution, and increased potential for collisions; onshore impacts would include increased vehicular traffic and pollution, and increased filling rate at receiving dumpsite
		b) Regulation of mud cuttings discharges - require shunting - restrict discharges to periods of strong currents flowing away from kelp bed	b) Partially or completely effective	b) Residual impact would either be increased dilution and reduced risk of impact on kelp community (high currents), movement of mud and cuttings plume offshore (directional currents), or localized deposition (shunting)
		c) Approved ocean disposal	c) Completely effective	c) Residual impact includes minor increases in vessel traffic and pollution, and increased potential for collisions
	Physical damage to kelp plants due to crew and supply boat traffic in PAC 3150	Require that crew and supply boats avoid kelp area at Carpenteria Reef and use restricted corridors; helicopters could be used to transport crew and some supplies and equipment	Completely effective	Residual impact would include increased noise associated with helicopter travel (locally insignificant; regionally insignificant; short term for duration of exploratory drilling)

TABLE 2. (CONTINUED).

Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
<p>Marine Mammals</p> <p>Vessel traffic collision (low probability) with:</p> <p>a) transient species</p> <p>b) resident species</p>	<p>a) Seasonal drilling unit placement/retrieval and trained crew avoidance; helicopters could be used to transport crew and some supplies and equipment</p> <p>b) Trained crew avoidance; helicopters could be used to transport crew and some supplies and equipment</p>	<p>a) Partially or completely effective</p> <p>b) Partially or completely effective</p>	<p>a) Residual impact would include increased noise associated with helicopter travel (locally insignificant; short term for duration of exploratory drilling)</p> <p>b) Residual impact identical to (a) above</p>
<p>Unique Marine Environments</p> <p>Durial of epibiota of hard-bottom area (Carpenteria Reef in PHC 1150) due to disposition of drilling muds and cuttings; see Marine Biology: Subtidal Benthic Communities</p>	<p>a) Onshore disposal of drilling muds and cuttings</p> <p>b) Regulation of mud and cuttings discharges</p> <ul style="list-style-type: none"> - restrict discharges to periods of high current speeds - restrict discharges to periods when currents are flowing away from hard-bottom area - require shunting <p>c) Approval ocean disposal</p>	<p>a) Completely Effective</p> <p>b) Partially or completely effective</p> <p>c) Completely effective</p>	<p>a) Residual impact includes minor increases in vessel traffic and pollution and increased potential for collisions; onshore impacts would include increased vehicular traffic and increased filling rate at receiving dumpsite</p> <p>b) Residual impact would either be increased dilution and reduced risk of impact on hard bottom (high currents), movement of mud and cuttings plume offshore (directional currents), or localized deposition (shunting)</p> <p>c) Residual impact includes minor increases in vessel traffic and pollution, and increased potential for collisions</p>

CALENDAR PAGE
MINUTE PAGE
2470
15
29

TABLE 2. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Cultural Resources	Burial of resources by mud and cuttings discharges; physical disturbance and destruction by drilling unit placement and anchoring	Locate cuttings discharges to avoid burial of suspected resources; drilling unit and anchor placement should be designed to avoid resources; establish a zone of protection around a suspected site on PRC 3150 or conduct a visual inspection using a qualified archeologist	Completely effective	No residual impact if resources are avoided and cuttings discharges are released away from suspected cultural resource area
Commercial and Recreational Fisheries	Fishermen will be excluded from 0.4-km (0.25-mi) radius around a jack-up drilling unit, and 1.6-km (1.0-mi) radius around a semi-submersible drilling unit	Use a jackup drilling unit on all leases; if a semi-submersible drilling unit is used on PRC 2199, anchor buoys should be removed from or moved up anchor chains, or submersible buoys should be positioned below net depths	Partially effective	Residual impact is reduced to insignificant by use of a jackup; residual impact of moving anchor buoys or positioning below net depths reduces impact to insignificant, particularly when notice is made in the <u>Santa Barbara Marine Advisory Program Newsletter</u> ; locally insignificant and short term for duration of the time drilling unit is on site
	Drilling unit presence may require fishermen to alter course, and set gear fishermen may be excluded from support boat corridors	Chevron has prepared a "Contingency Plan for Contacts with Commercial Fisheries"; proposed exploratory activities should be advertised in advance in the <u>Santa Barbara Marine Advisory Program Newsletter</u> and <u>Notice to Mariners</u> ; support vessels should use established vessel traffic routes during daytime hours except during emergencies; helicopters could be used to transport crew and some supplies and equipment	Partially effective	Once fishermen have been notified through the proper channels, residual impact is reduced to adverse but not significant and short term locally; regionally insignificant; helicopter use would result in increased noise (locally insignificant); regionally insignificant; short term for duration of exploratory drilling

CALENDAR PAGE 152.30
MINUTE PAGE 24771

TABLE 2. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
	Potential fishing gear damage or loss after drilling unit is removed	Survey area disturbed by drilling operations after drilling and clear any debris that could cause fish gear damage or loss	Completely effective	No residual impact if debris, identified during a post-drill survey, is cleared from the lease tract
Socioeconomics Noise	Fog signal noise results in corrected LDI values above 75 dB on change in excess of 3 dB, projected to occur more than a few days per year	a) Use "one-half mile" rather than a "two-mile" fog signal; b) Drill during least foggy months	a) Completely effective b) Partially effective	a) With appropriate approval from the U.S. Coast Guard, impacts reduced to adverse but not significant since onshore dB levels will be reduced to below significant levels; short term locally; regionally insignificant b) Fog periods cannot be completely avoided

TABLE 3. SUMMARY OF ADVERSE BUT NOT SIGNIFICANT ENVIRONMENTAL IMPACTS WHICH ARE ASSOCIATED WITH ROUTINE PROJECT-RELATED ACTIVITIES.

Impact Description	Scope
Air Quality	
NO _x emissions would result in an incremental increase in NO ₂ concentration, but total concentration would be below applicable standards	Local (within the onshore area identified in trajectory analysis) and short term (duration of the drilling)
CO, SO ₂ , and particulate matter emissions would result in incremental increases in CO, SO ₂ , TSP, and PM10 concentrations, but concentrations would be below regulatory thresholds and would not result in violations of standard.	Local (within the onshore area identified in trajectory analysis); short term (duration of drilling)
Atmospheric discoloration due to NO _x emissions	Local (within the onshore area identified in trajectory analysis); short term (duration of drilling)
Chemical Oceanography/ Water Quality	
Intermittent turbidity due to discharges of drilling muds and cuttings	Local (within several kilometers down current of discharge point); short term (only during periodic discharges)
Elevated concentrations of some metals (particularly barium; others not likely to be detected at elevated concentrations) in sediments near drilling unit due to discharges of drilling muds and cuttings; alteration of sediment due to drilling discharge composition near drilling unit	Local (within several kilometers down current of discharge point, within deposition area); long term
Slight elevations in concentrations of chlorine, nutrients trace metals, and organics due to other drilling-associated discharges within the immediate vicinity of drilling unit	Local (within several kilometers down current of discharge point); long term and short term

CALENDAR/PAGE 152.32
MINUTE/PAGE 2473

TABLE 3. (CONTINUED).

	Impact Description	Scope
Marine Biology: Plankton	Intermittent turbidity due to drilling mud and cuttings discharges may affect photosynthesis (phytoplankton), interfere with filter feeding (zooplankton), and hamper visual predation (zooplankton)	Local (within several kilometers down current of the discharge point); short term (only during periodic discharges)
Marine Biology: Subtidal Benthic Communities	Crushing and/or burial of benthos under drilling unit during emplacement and removal (all tracts)	Local (immediately beneath drilling unit); short term (duration of drilling unit on site)
	Crushing and/or burial of small areas of benthos from anchor placement (deployment and recovery) (PRC 2199 only--if subsarable unit used)	Local (immediately beneath anchors); short term (duration of drilling unit on site)
	Burial of benthos near drilling units due to deposition of drilling muds and cuttings for most of PRC 2199 (exclusive of the Carpenteria Reef area) and all of PRCs 2894 and 3184	Local (within several kilometers down current of the discharge point); short term (only following discharges)
Marine Biology: Kelp	Intermittent turbidity due to drilling mud and cuttings discharges may affect photosynthesis	Local (within several kilometers down current of the discharge point); short term (only during periodic discharges)
Marine Biology: Fishes	Disturbance or frightening of fishes during placement and removal of drilling unit	Local (within several kilometers of drilling unit); short term (only during placement/removal)
	Disruption of visual predation due to turbidity during drilling mud and cuttings discharges	Local (within several kilometers down current of discharge point); short term (only during periodic discharges)

GALERONAN PAGE 152.33
 MINUTE PAGE - 2474

TABLE 3. (CONTINUED).

	Impact Description	Scope
Marine Biology: Marine Mammals	Avoidance of the drilling unit attributed to noise; acoustic communication and echolocation hampered for some species (Gray Whale, Harbor Seal, Southern Sea Otter)	Local (within several tens of kilometers around drilling unit); short term (only during drilling)
	Decreased ability of foraging mammals to sight prey due to increased turbidity from the discharge of drilling muds and cuttings	Local (within several kilometers of discharge); short term (only during periodic discharges)
Marine Biology: Marine Birds	Intermittent turbidity from drilling mud and cuttings discharges may prevent or discourage foraging near drilling units	Local (within several kilometers of discharge); short term (only during periodic discharges)
Socioeconomics: Tourism	Minor reduction of tourist expenditures	Local; short term (only during drilling)
Socioeconomics: Landfills	Reduction of landfill life expectancy and increased traffic, air pollution, energy consumption, and noise from onshore disposal of drilling wastes	Local; long term (landfill) and short term (traffic, pollution, energy consumption, noise)
Socioeconomics: Noise	Fog signal noise results in corrected LDN values above 75 dB on change of 1 to 3 dB, projected to occur more than a few days over the drilling period	Local (within several kilometers of the source); short term (periodic, short-lived)
	Noise from support vessels	Local (within several kilometers of the source; short term (only while vessels are on site))
Socioeconomics: Visual	Direct impact of ocean views on residents, park visitors, and travelers from 0 to 16 km (5 to 10 mi) from the lease tracts	Local (8 to 16 km (5 to 10 mi) from tracts); short term (only while drilling units are on site)

CALENDAR PAGE 152.34
MINUTE PAGE 2475

TABLE 4. SUMMARY OF SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS RELATED TO ACCIDENTS.

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
System Safety and Reliability	Impact on vessels calling at Getty five-buoy mooring and proposed terminal near PRCs 2199 and 2894	Inform Getty and Brandenburg Marine of the timing, locations, and movements of drilling units and support vessels in advance; make radio contact with approaching vessels	Partially effective	Residual impact would be significant if a collision occurs
	Support vessels striking Carpinteria Reef near PRC 3150	Brief support vessel crews of the hazard; vessels should approach and depart drilling units from the west or south side away from reef; temporarily mark reef with buoys	Partially or completely effective	Residual impact would be significant if a vessel strikes reef; severity dependent upon fuel spill
	Blowout	Ensure immediate availability and minimal response time for spill cleanup and containment equipment.	Partially effective	Significant residual impact for large magnitude spills
	H ₂ S cloud reaching residences near PRC 3150	Develop a risk management plan which exceeds current requirements, with particular emphasis on procedures to be followed during release of hazardous substances; review layout of drilling unit facilities in terms of safety considerations; training and notification of public	Partially or completely effective	Significant residual impact; severity dependent upon time of day, day of week, amount of release, meteorological conditions

CALENDAR PAGE
MINUTE PAGE

152.35

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Marine Biology: Intertidal Communities a) Marshes	Loss of primary and secondary productivity; loss of nesting, rearing, and feeding habitats for birds; and loss of spawning and rearing habitats for fishes and invertebrates from an oil spill near PRC 3150 (Carpinteria Marsh (El Estero)) and PRC 3184 (Santa Clara River and Ventura River mouths); see Unique Marine Environments: Marshes	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means (e.g., sorbent pads; blockage of pathways using bulldozers) to prevent oil from entering tidal marshes; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	Significant residual impact if spill reaches into marsh; severity dependent upon amount of oil, its toxicity and degree of weathering, season of spill; no residual impact if mitigation measures are completely effective
b) Kelp Beds	Loss of productivity from an oil spill; see Unique Marine Environments: Kelp Beds	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means (e.g., sorbent pads) to contain and clean up oil; use less toxic or nontoxic dispersants to dissipate oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	Residual impact of oil reaching kelp beds is significant for large spills; losses of primary and secondary production expected; impact duration will depend on the degree of oiling but can be long term; no residual impact if mitigation measures are completely effective in protecting kelp beds

CALENDAR PAGE 152.36
MINUTE PAGE 2477

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
c) Rocky Shorelines	Smothering and death of shoreline communities from an oil spill; see Unique Marine Environments: Rocky Intertidal/Subtidal	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to contain and clean up oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impact if mitigation measures are completely effective and oil does not reach shoreline; otherwise, residual impact would be significant to adverse; oil reaching rocky shorelines will be naturally cleaned and impacts will be short term in high energy areas; oil may persist for years in sheltered areas
d) Sandy Beaches	Coating of the beach by oil and incorporation into sediments, resulting in death of indigenous organisms; see Unique Marine Environments: Sandy Beaches	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to contain and clean up oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impact if mitigation measures are completely effective and oil does not reach beach; otherwise, residual impact would be significant to adverse; sandy beaches typically have relatively low biological populations, but oil can have a long residence time.

CALENDAR PAGE 152.37
MINUTE PAGE 24/8

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Marine Biology/ Benthos	Lethal and sublethal effects on benthic infauna and epifauna from oil which reaches the sea bottom	Provide adequate containment and cleanup plans, equipment, and crew; use booms, skimmers, and other mechanical means to contain and clean up oil; use dispersants to dissipate oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially to completely effective before a spill reaches the benthos; ineffective otherwise	No residual impacts if mitigation measures are effective; otherwise, significant to insignificant and long term to short term locally and regionally; oil which sinks to the bottom is likely to remain for years
Marine Biology/ Marine Mammals	Lethal and sublethal effects on marine mammals by coating or ingestion of oil; see Unique Marine Environment; Endangered Species and Haul-Out Areas	Provide adequate containment and cleanup plans, equipment, and crew; use booms, skimmers, and other mechanical means to contain and clean up a spill; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment; use dispersant to dissipate a spill; use vessel to direct mammals away from slicks; minimize clean up activities in seal haul-out areas and rookeries	Partially or completely effective	No residual impacts if mitigation measures are effective; significant impacts to endangered whales or Sea Otter could be long term; oil reaching seal haul-out areas can remain for extended periods of time, exerting lethal and sublethal effects

TABLE 4. (CONTINUED).

Marine Biology: Marine Birds	Impact Description	Mitigation Measure	Mitigation Measures Effectiveness	Residual Impact
	Coating of birds by oil can be fatal; hatching success can be reduced if eggs come in contact with oil; sublethal stress can also be induced through ingestion or coating of oil; see Unique Marine Environments; Endangered Species	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to keep oil out of areas heavily used by birds (e.g., marshes); safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment; establish bird cleaning stations	Partially or completely effective	No residual impacts if mitigation measures are effective; otherwise, significant residual impacts to resident and migrant species through habitat contaminants, fouling; severity dependent upon size, toxicity, and season of spill
Unique Marine Environments; Rocky Intertidal/ Subtidal	Smothering and death from oil of shoreline communities near PRCs 2199 and 2894 (South Coast Intertidal Preserve) and PRC 3150 (Goleta Point, Goleta Rocks, Carpinteria Reef); see Marine Biology; Intertidal Communities, (c) Rocky Shorelines	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to contain and clean up oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impacts if mitigation measures are effective and oil does not reach shorelines; otherwise, significant to adverse residual impact results; in high energy areas, oil will be naturally cleaned and impacts will be short term; in sheltered areas, oil may persist for years and biological damage can be significant

CALENDAR PAGE 152.39
MINUTE PAGE 248.0

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Unique Marine Environment: Sandy Beaches	Coating of beach by oil and incorporation into sediments can be lethal to indigenous species near PRCs 2199 and 2894 (South Coast Intertidal Preserve) and PRC 3150 (More Mesa); see Marine Biology/Intertidal Committee, (c) Sandy Beaches	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to contain and clean up oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impacts if mitigation measures are completely effective; otherwise, residual impacts would be significant to adjacent sandy beaches typically have low populations; oil in sediments can have long residence time
Unique Marine Environment: Kelp Beds	Loss of productivity in kelp beds from an oil spill near PRCs 2199 and 2894 (South Coast Intertidal Preserve); see Marine Biology/Intertidal Committee, (b) Kelp Beds	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to contain and clean up oil; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment; use less toxic or non-toxic dispersants to disperse oil; preposition oil spill equipment, ensuring rapid response	Partially or completely effective	No residual impact if mitigation measures are completely effective and oil does not reach kelp; otherwise residual impact is significant to insignificant, and for large spills oil reaching kelp beds may result in immediate losses of primary and secondary production; impact duration will depend on the degree of oiling but can be long term

TABLE 4. (CONTINUED).

Unique Marine Environmental Marshes	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
	Loss of primary and secondary productivity; loss of nesting, rearing, and feeding habitats for birds; and loss of spawning and rearing habitats for fishes and invertebrates from an oil spill near POC 3157 (Carpinteria Marsh (El Estero)) and POC 3184 (Santa Clara River and Ventura River mouths); see Marine Biology: Intertidal Communities, (4) Marshes	Provide adequate containment and clean up plans, equipment, and crews; use booms, skimmers, and other mechanical means to prevent oil from entering tidal marshes; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impact if mitigation measures are completely effective; otherwise, significant residual impacts if spill reaches onto marsh; severity dependent upon amount of oil, season of spill (presence of residents and/or migrants), oil toxicity. Marsh cleanup activity would be disruptive
Unique Marine Environmental: Endangered Species	Loss of foraging and nesting habitats for endangered inhabitants (Light-footed Clapper Rail, Belding's Savannah Sparrow, California Least Tern) of marshes and tidal estuaries from an oil spill; oiling of Salt Marsh Bird's Beak; coating of endangered avifauna resulting in diminished hatching success, sublethal stress, or fatality (see Marine Biology: Marine birds); lethal and sublethal effects on endangered marine mammals (see Marine Biology: Marine Mammals)	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to prevent oil from entering tidal marshes and to minimize spreading in coastal waters; spill by mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment to protect sensitive marshes;	Partially or completely effective	No residual impact if mitigation measures are completely effective in preventing widespread distribution of oil; otherwise, significant residual impacts would result; oil which enters a marsh or spreads in coastal waters could have serious effects on endangered species

CALENDAR PAGE 152.41
MINUTE PAGE 2482

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measures	Mitigation Measure Effectiveness	Residual Impact
Unique Marine Environmental Haul-Out Areas	Oiling of Harbor Seal near PRC 3150 (Goleta Rocks, More Mesa, Goleta Point, Carpinteria Pier) resulting in sublethal and lethal effects; see Marine Biology; Marine Mammals	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means to prevent oil from reaching haul-out areas; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impact if mitigation measures are completely effective in preventing oil from reaching haul-out areas; otherwise, significant to adverse residual impacts; severity dependent upon spill size, degree of weathering, season; cleanup activity would be disruptive
Commercial and Recreational Fisheries	Lethal and sublethal effects on commercial and recreational species from an oil spill	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment	Partially or completely effective	No residual impacts if mitigation measures are completely effective; otherwise, significant to adverse residual impacts to commercial and recreational species; duration potentially long term
	Fouling of fishing equipment with oil	Provide adequate containment and cleanup plans, equipment, and crews; clean vessels and either clean or replace gear	Partially or completely effective	No residual impact if mitigation measures are effective; residual impacts insignificant and short term locally for minor spills; significant to adverse for major spills; duration potentially long term

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Commercial and Recreational Fisheries	Exclusion of oil-contaminated areas from fishing	Provide adequate containment and cleanup plans, equipment, and crews	Partially or completely effective	No residual impact if mitigation measures are completely effective; insignificant and short term locally for minor spills; significant to adverse for major spills; duration could be long term
Socioeconomics: Tourism	Reduced access to park and beach areas from oil spills resulting in loss of tourist revenues	Provide adequate containment and cleanup plans, equipment, and crews	Partially effective	Significant to adverse, depending upon spill size, resulting from increased offshore and onshore traffic, pollution, decreased aesthetic value
Socioeconomics: Noise	Reduced access to park and beach areas from oil spills, potentially resulting in loss of tourist revenues	Provide adequate containment and cleanup plans, equipment, and crews	Partially effective	Significant to adverse, depending upon spill size, resulting from increased offshore and onshore traffic
	Increased noise levels from oil spill cleanup equipment	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment; response to avoid shoreline and nearshore oil pollution	Partially effective	Significant to adverse, depending upon spill size, resulting from increased offshore and onshore traffic

CALENDAR PAGE 152.43
MINUTE PAGE 2484

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Commercial and Recreational Fisheries	Exclusion of oil-contaminated areas from fishing	Provide adequate containment and cleanup plans, equipment, and crews	Partially or completely effective	No residual impact if mitigation measures are completely effective; insignificant and short term locally for minor spills; significant to adverse for major spills; duration could be long term
Socioeconomics: Tourism	Reduced access to park and beach areas from oil spills resulting in loss of tourist revenues	Provide adequate containment and cleanup plans, equipment, and crews	Partially effective	Significant to adverse, depending upon spill size, resulting from increased offshore and onshore traffic, pollution, decreased aesthetic value
Socioeconomics: Noise	Reduced access to park and beach areas from oil spills, potentially resulting in loss of tourist revenues	Provide adequate containment and cleanup plans, equipment, and crews	Partially effective	Significant to adverse, depending upon spill size, resulting from increased offshore and onshore traffic
	Increased noise levels from oil spill cleanup equipment	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment; response to avoid shoreline and nearshore oil pollution	Partially effective	Significant to adverse, depending upon spill size, resulting from increased offshore and onshore traffic

CALENDAR PAGE 152.43
MINUTE PAGE 248.4

TABLE 4. (CONTINUED).

	Impact Description	Mitigation Measure	Mitigation Measure Effectiveness	Residual Impact
Socioeconomics: Visual	Fouling of beaches with oil and discoloration of ocean surface water within the viewshed	Provide adequate containment and cleanup plans, equipment, and crews; use booms, skimmers, and other mechanical means; safety mechanisms (e.g., blowout preventers, etc.); preposition oil spill equipment; early response to avoid shoreline and nearshore oil pollution	Partially effective	Residual impacts significant to adverse, dependent upon spill size; impact duration short term for ocean discoloration, long term for beach fouling

CALENDAR PAGE 152.44
MINUTE PAGE 2485

TABLE 5. SUMMARY OF ADVERSE BUT NOT SIGNIFICANT ENVIRONMENTAL IMPACTS RELATED TO ACCIDENTS.

	Impact Description	Scope
System Safety and Reliability	Fuel transfer spills (small spill, <100 gal)	Local; short term
Chemical Oceanography/ Water Quality	Increased levels of hydrocarbons in the water column from an oil spill	Local to regional; short term
Marine Biology: Plankton	Decreased primary production by phytoplankton, resulting in decreased secondary production; lethal and sublethal effects on eggs, larvae, and/or adult zooplankton from an oil spill	Local to regional; short term
Marine Biology: Nekton	Lethal and sublethal effects on pelagic fishes and invertebrates from an oil spill	Local; short term (nekton have the ability to swim away from a spill)
Socioeconomics: Landfills	Minor reduction of the life of the Caswellia Landfill from an oil spill	Local (reduced Caswellia capacity) to regional (increased demand on other landfills); long term

CALENDAR PAGE 152.45
MINUTE PAGE 2486

EXHIBIT C

CEQA FINDINGS

Herewith are presented the findings made by the State Lands Commission, pursuant to Section 15091, Title 14, California Administrative Code, on the proposed Chevron U.S.A., Inc. Exploratory Drilling EIR. All significant impacts of the projects identified in the EIR are discussed below.

The impacts are organized according to the resource affected (air quality, geology, marine biology, etc.), and whether the impact is due to: 1) normal project operation; 2) accidents; or 3) cumulative effects.

For each significant impact a finding has been made of one or more of the following as appropriate:

- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
- b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

The appropriate findings are followed by a narrative of facts supporting them. These discussions have been drawn from the EIR. When appropriate, reference is made to applicable sections in the text.

- INDEX -

I. IMPACTS RELATED TO NORMAL PROJECT OPERATIONS

- . Geology
- . Air Quality
- . Marine Biology
 - Subtidal Benthic Communities
 - Kelp
 - Marine Mammals
 - Unique Marine Environments
- . Cultural Resources
- . Socioeconomics
 - Commercial and Recreational Fisheries
 - Visual
 - Noise

II. IMPACTS RELATED TO ACCIDENTS

- . Oil Spills - Overview
- . Systems Safety and Reliability
- . Marine Biology
 - Intertidal Communities
 - Marshes
 - Rocky Shorelines
 - Sandy Beaches
 - Kelp Beds
 - Benthos
 - Marine Birds
 - Endangered Species
- . Socioeconomics
 - Commercial and Recreational Fisheries
 - Tourism
 - Visual
 - Noise

III. CUMULATIVE IMPACTS

- . Air Quality
- . Socioeconomics
 - Visual

I. IMPACTS RELATED TO NORMAL PROJECT OPERATIONS

GEOLOGY

IMPACT: Possible sediment slides in some areas of PRC 2894 due to vibrations from drilling unit leg positioning.

FINDING: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDING:

Geologic impacts from the proposed routine exploratory operations will be localized and short-term in nature. Vibrations from leg positioning might induce sediment slides in certain areas of PRC 2894, but not in PRC's 2199, 3150, or 3184.

MITIGATION MEASURES:

1. Avoid areas of PRC 2894 indicated in the Geologic Hazards Report as having high slide potential.

There should be no residual impact if potential sediment slide areas are avoided.

AIR QUALITY

IMPACT: Incremental increase in ozone may contribute to violations of Federal 1-h standard

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding (Santa Barbara County and Ventura County Air Pollution Control Districts). Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING FINDINGS:

The projected impact on ozone air quality along the Gaviota and Carpinteria trajectories are summarized in Table 4.1-6 of the DEIR.

The results indicate that for conditions that would produce concentrations near the Federal 1-h standard for ozone (i.e., 0.12 ppm), the proposed project emissions would have the potential to produce an increase in ozone downwind of the project. If the baseline ozone concentration in the impact area is near the exceedance level, the incremental ozone produced by project emissions could create an exceedance of the standard. However, it should be pointed out that this maximum predicted incremental concentration increase applies to a short time period and a relatively narrow [-3 km (-2 mi)] swatch along the trajectory; therefore, an increased number of exceedances would not necessarily be recorded at existing monitoring locations. Nonetheless, any increase in ozone exceedances would be a significant and unavoidable impact.

The incremental ozone increase is due mostly to the potentially large NO_x emission rate from the EMD diesel engines on the KEY SINGAPORE. Therefore, any measure that would reduce the NO_x emission rate would likely reduce the incremental ozone impact.

CALENDAR TIME	152.49
MINUTE TIME	2492

The only feasible NO_x control measure for the EMD engines is injection timing retard. However, the NO_x emission rates used in the air quality impact assessment reflect the implementation of this control measure. Therefore, there do not appear to be further control measures that could be applied to the KEY SINGAPORE engines.

MITIGATION MEASURES:

1. Caterp P-399 diesel engines emit about half the NO_x H₂ as the EMD engines. Therefore, use of a drillsnap that is equipped with the Caterpillar engines would reduce the NO_x emission rate and the incremental ozone resulting from the NO_x emissions. A smaller incremental ozone increase would not eliminate the possibility of contributing to violations of the ozone standard, but would reduce the probability that a violation would result.
2. Restricting project operations to the months outside the ozone season of April through November would drastically reduce the possibility of the project emissions contributing on an ozone violations. This is due to the fact that the ozone concentrations without the project approach the exceedance level during the ozone season.
3. Offset of the project's NO_x emissions is also a means of mitigating the O₃ and NO₂ impact of the project. Securing offsets having the same impact area as the proposed project would be very difficult, given the nonindustrial nature of the Santa Barbara-Ventura region and the correspondingly limited number of existing major stationary NO_x sources. An offset program will be evaluated by Santa Barbara and Ventura County Air Pollution Control Districts (APCD) during Chevron's permit process.

Jurisdiction and regulatory authority over air quality in the lease areas reside with Santa Barbara County and Ventura County Air Pollution Control Districts. The Districts have and enforce rules and regulations applicable to oil and gas projects in the waters of the State of California, and are the appropriate agencies to enforce proposed mitigation measures.

MARINE BIOLOGY
Subtidal Benthic Communities

IMPACT: Crushing and/or burial of hard-bottom benthos by anchors (PRC 2199 only---if semi-submersible unit is used).

FINDING: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDING:

During emplacement and removal of a jackup drilling unit to be used at most or all of the proposed drillsite, benthic organisms in a limited area directly beneath the drilling unit will be crushed and/or buried as the legs are either jacked down to rest on the bottom or retracted. All of the drillsites are located in areas of soft-bottom substrates; consequently, infauna and soft-bottom epifauna are most like to be affected.

IN PRC 2199, a semi-submersible drilling unit may be used on one or more wells. The unit would be held in place by eight 20-ton anchors deployed in a radial pattern around the drillsite. Benthic organisms within a small area would likely be buried and/or crushed during deployment and recovery of these anchors. The anchors are typically deployed 5,000 feet out from the drilling unit. Because hard-bottom areas containing sessile macroepibiota are within this radius of the proposed drillsites in PRC 2199, hard-bottom biota could be adversely affected.

MITIGATION MEASURES:

1. Require that anchors not be deployed near the hard-bottom areas.

Avoidance of the sensitive area will substantially minimize potential damage to the hard-bottom epibiota due to deployment and retrieval of anchors.

CALENDAR NUMBER	152.51
MINUTE PAGE	2432

MARINE BIOLOGY
Subtidal Benthic Communities

IMPACT: Burial of benthos near drilling units due to deposition of drilling muds and cuttings for the outcrop area in PRC 2199 and Carpinteria Reef in PRC 3150.

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding (Regional Water Quality Control Board, Central Coast Region). Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING FINDING:

Routine drilling-related activities that may produce impacts include: emplacement and removal of the drilling units; discharges of drilling muds and cuttings; discharges of treated sewage and other wastes; and boat traffic to and from the drilling units. Some organisms may be affected by discharged drilling cuttings and/or muds which is a significant yet mitigable impact in the case of the prominent rocky outcrop in PRC 2199 and Carpinteria Reef in PRC 3150. The rocky outcrop in PRC 2199 is not in the immediate vicinity of the drillsites as is Carpinteria Reef in PRC 3150. The effects of drilling mud and cuttings deposition are likely to be most serious in PRC 3150 where the shallow water depth at the drillsite [15 m (49 feet)] will minimize dispersion prior to deposition.

Benthic communities in the vicinity of each drillsite will receive the most serious impacts. Discharges of drilling muds and cuttings may bury organism near the discharge point and kill or stress others due to toxic properties of the muds.

The Commission recognizes the principal role of the Central Coast District Water Quality Control Board in regulating the effects of drilling muds and cuttings on marine biota in the project area. The Commission's regulations for oil and gas drilling and production operations on State tide and submerged lands specifically provide:

The lessee shall dispose of those drill cuttings and drilling muds associated with drilling and production well work, in accordance with regulations promulgated by the appropriate Regional Water Quality Control Board. The method employed to dispose of the drill cuttings and drilling muds shall be submitted to the staff for approval along with the drilling mud program that is required in Section 2128(d)(1). (2 Cal. Admin. Code Section 2138).

MITIGATION MEASURES:

1. Onshore disposal of drilling muds and cuttings.

Since this measure will avoid the potential impact, it is deemed completely effective.

2. Regulation of mud and cuttings discharge:

- a. restrict discharges to periods of high currents;
- b. restrict discharge periods when currents are flowing away from hard-bottom areas; or
- c. require shunting (e.g., piping at or close to the sea-bottom).

This measure is deemed to be partially to completely effective because it is dependent on environmental conditions at the time of discharge.

3. Require disposal in an approved ocean disposal site.

Since this measure will involve the transportation of the drilling muds and cuttings away from the sensitive areas, it will also avoid the potential effect and thus deemed completely effective.

CALENDAR VALUE	152.55
MINUTE PAGE	2494

MARINE BIOLOGY
Kelp

IMPACT: Deposition of drilling muds and cuttings may exert subtle effects on kelp communities (PRC 3150 only).

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding (Regional Water Quality Control Board, Central Coast Region). Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING FINDING:

Drilling mud and cuttings discharges may affect the health of giant kelp communities, especially in PRC 3150, where kelp is located within about 300 feet of the drillsite at Carpinteria Reef. Kelp is also located in the inshore portions of PRC's 2199 and 2894, but the drillsites are several hundred to several thousand feet from the seaward extent of the kelp beds and kelp are unlikely to be affected.

It is possible that exposure of kelp in PRC 3150 to drilling muds in suspension and muds and cuttings deposited on the substrate may exert subtle, indirect effects on the plants themselves or the ecosystem of which they are an integral part. For example, deposited drilling mud and cuttings particles might affect recruitment of new plants or larval settlement of invertebrates that graze on the.

The Commission recognizes the principal role of the Central Coast District Water Quality Control Board in regulating the effects of drilling muds and cuttings on marine biota in the project area. The Commission's regulations for oil and gas drilling and production operations on State tide and submerged lands specifically provide:

The lessee shall dispose of those drill cuttings and drilling muds associated with drilling and production well work, in accordance with regulations promulgated by the appropriate Regional Water Quality Control Board. The method employed to dispose of the drill cuttings and drilling muds shall be submitted to the staff for approval along with the drilling mud program that is required in Section 2128(d)(1). (2 Cal. Admin. Code Section 2138).

MITIGATION MEASURES:

1. Onshore disposal of drilling muds and cuttings.

Since this measure will avoid the potential affect, it will be completely effective.

2. Regulation of mud and cuttings discharges:

- a. restrict discharges to periods of high currents;
- b. restrict discharge periods when currents are flowing away from hard-bottom areas; or
- c. require shunting.

This measure is deemed to be partially to completely effective because it is dependent on environmental conditions.

3. Require disposal in an approved ocean disposal site.

Since this measure will involve the transportation of the drilling muds and cuttings away from sensitive areas, the measure will be completely effective.

MARINE BIOLOGY
Kelp

IMPACT: Physical damage to kelp plants due to crew and supply boat traffic in PRC 3150

FINDING: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDING:

Kelp plants associated with Carpinteria Reef could be damaged by passage of crew or work boats during routine operations in PRC 3150. This can be avoided by specifying that boats approach from the south and west, thereby avoiding the reef.

MITIGATION MEASURES

1. Require that crew and supply boats avoid kelp area at Carpinteria Reef and use restricted corridors.

Since this measure involves the avoidance of potential damage to the kelp, it will be completely effective.

MARINE BIOLOGY
Marine Mammals

IMPACT: Vessels working on placement or retrieval of drilling unit or servicing the unit while it is in operation may collide with resident or transient marine mammals.

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

The California Department of Fish and Game regulations also apply, and mitigations adopted by that Agency have been included in the project.

FACTS SUPPORTING FINDING:

Several species of cetacean, (whales and dolphins) and pinnipeds (seals and related families) as well as the sea otter either live in the project area or travel through it on migrations. The increased boat traffic associated with the project could increase the risk of collision with these mammals, causing injury or death.

Many studies have shown that the majority of marine mammals exhibit strong "avoidance" behavior when presented with the sound of a boat, and will thus not present a problem to the relatively slow moving supply boats.

Within the project area the main problems will come from resting pinnipeds and sea otters which do not notice the boats, and from Grey Whales, which exhibit indifference to boat noises at most times.

CALENDAR PAGE	152.57
MINUTE PAGE	2498

MITIGATION MEASURES:

Three mitigations are proposed for the project which should reduce the impact to an insignificant level.

1. The placement and removal of the drilling unit will be scheduled between the migrations of the Gray Whales, so that whale transit will be at a minimum when boat traffic is high;
2. Crews could be transported by helicopter, reducing significantly the total boat traffic (see hearing comment response 54 in the FEIR for a discussion of helicopter impacts); and,
3. Boat crews will be trained to observe and avoid mammals resting on the water surface.

MARINE BIOLOGY
Unique Marine Environments

IMPACT: Burial of epibiota of hard-bottom area (Carpinteria Reef in PRC 3150) due to deposition of drilling muds and cuttings.

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding (Regional Water Quality Control Board, Central Coast Region). Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING FINDING:

Because of their distance from the proposed drillsites, none of the Marine Refuges, Ecological Reserves or Preserves, or Areas of Special Biological Significance in the Santa Barbara Channel should experience impacts from routine, project-related activities. The only unique marine environment that may be affected is Carpinteria Reef, a subtidal/intertidal hard-bottom feature in PRC 3150 that is classified by Santa Barbara County and the California Coastal Commission as an environmentally sensitive habitat. The Reef is close enough to the proposed drillsite in PRC 3150 (the seaward edge is within about 300 feet of the proposed drillsite) to receive accumulations of drilling muds and cuttings discharged during exploratory drilling. Accumulations of several millimeters thickness of cuttings and several hundred microns thickness of drilling muds are possible at distances of 300 feet or more from the proposed drillsite. However, the actual accumulations on the reef are difficult to predict because they will depend largely on local ocean currents, which will vary in speed and direction over the course of the exploratory drilling period.

If drilling muds and cuttings accumulate at Carpinteria Reef, hard-bottom epibiota sensitive to sedimentation (or to components of the drilling muds) may be adversely affected.

The Commission recognizes the principal role of the Central Coast District Water Quality Control Board in regulating the effects of drilling muds and cuttings on marine biota in the project area. The Commission's regulations for oil and gas drilling and production operations on State tide and submerged lands specifically provide:

The lessee shall dispose of those drill cuttings and drilling muds associated with drilling and production well work, in accordance with regulations promulgated by the appropriate Regional Water Quality Control Board. The method employed to dispose of the drill cuttings and drilling muds shall be submitted to the staff for approval along with the drilling mud program that is required in Section 2128(d)(1). (2 Cal. Admin. Code Section 2138).

MITIGATION MEASURES:

1. Onshore disposal of drilling muds and cuttings.

Since this measure will avoid the potential effect, it is deemed completely effective.

2. Regulation of mud and cuttings discharge:

- a. Restrict discharges to periods of high currents;
- b. Restrict discharge periods when currents are flowing away from hard-bottom areas; or
- c. Require shunting (e.g. piping at or close to the sea-bottom).

This measure is deemed to be partially to completely effective because it is dependent on environmental conditions at the time of discharge.

3. Require disposal in an approved ocean disposal site.

Since this measure will involve the transportation of the drilling muds and cuttings away from the sensitive areas, it will also avoid the potential effect and thus deemed completely effective.

CULTURAL RESOURCES

IMPACT: Possible cultural resources could be buried by drilling mud and cuttings discharges. Also, such resources could be damaged by drilling unit placement and/or anchoring systems.

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Fluctuating sea levels and the long history of human use of the project area make possible the presence of many types of cultural relicts on or just below the sea floor. These include shipwrecks, aboriginal sites and watercraft, and lost anchorage, or piers. All of these artifacts could be damaged by drill units or their anchors, and could be buried if under a mud/cuttings disposal site.

MITIGATION MEASURES:

The proposed mitigation includes a detailed survey of disposal, unit placement, and anchor sites for cultural remains. Any positive findings, as well as the sites already identified (primarily on site PRC 3150) will be surrounded by a "zone of protection." No discharges will be permitted within these zones. Unit and anchor placement will also be out of the zones. This will preserve suspected artifacts for future evaluation.

SOCIOECONOMICS
Commercial and Recreational Fisheries

IMPACT: Fishing operations will be excluded from an area with a 0.4 km (0.25 mile) radius around a jack-up drilling unit, and a 1.6 km (1.0 mile) radius around a semi-submersible drilling unit.

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

The California Coastal Commission has issued a general policy statement on conflicts between commercial fishing and drilling operations which suggests several mitigation measures which are included in the EIR.

FACTS SUPPORTING FINDING:

Fishing operations are restricted by the placement of drilling rigs and their associated anchoring systems. It is the consensus of many commercial fisherpersons that a jack-up rig excludes them from an area with a radius of approximately 1/4 mile, while the anchors used by semi-submersible rigs extend out for approximately 1 mile. In particular, access to the Carpinteria Reef fishing ground could be restricted.

MITIGATION MEASURES:

To limit the effects of rig placement the operator has agreed to follow the Coastal Commission's suggestion and use jack-up rigs on leases PRC 2894, 3150 and 3184. A jack-up is also proposed for PRC 2199, but may not be available, forcing use of a semi-submersible (Diamond M. Eagle). If this occurs, anchor buoys will be used, positioned below normal fishing net depth. The combination of these corrections will reduce the areas excluded from fishing to the absolute minimum.

CALIFORNIA STATE	152.62
REVENUES	2503

SOCIOECONOMICS
Commercial and Recreational Fisheries

IMPACT: The presence of the active drilling unit may require fisherpersons to alter courses, and set gear operations may be excluded from supply boat corridors.

- FINDING:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

The California Coastal Commission has issued a general policy statement on conflicts between commercial fishing and drilling operations which suggests several mitigation measures which are included in the EIR.

FACTS SUPPORTING FINDING:

The physical presence of a drilling unit and the traffic corridors used by supply boats effect commercial fishing operations in several ways. Vessels dragging trawl nets must alter course or haul-in and re-set gear more frequently to avoid drilling units and subsea structures. Purse seiners cannot set up their nets up-current near drilling units or supply boat corridors because of the danger of collision during lengthy haul-ins. Finally, set-gear operators (gill netters and trappers) find it prudent to avoid areas near drilling units to minimize damage from support boat traffic.

MITIGATION MEASURES:

To reduce or avoid these problems the operator of the project, Chevron, has adopted a "Contingency Plan for Contacts with Commercial Fisheries." The measures contained in that plan include notification in advance of drilling operations, establishment of support boat corridors and restriction of

their use to daylight hours (except during an emergency), and use of helicopters for crew transport. The early notification of fisherpersons will be carried both in the Santa Barbara Marine Advisory Program Newsletter and the Notice to Mariners. This will allow fisherpersons to plan their operations to minimize any damage to their equipment. By restricting the times and routes of supply boat approach most fishing operations can be either left unaffected (much netting is done at night) or done in areas away from the support activities. Both of these procedures, in addition to the use of helicopters to reduce boat traffic will avoid the effects of this impact.

SOCIOECONOMICS
Commercial and Recreational Fishing

IMPACT: Fishing gear could be damaged or lost on remains of drilling equipment left after drilling unit is removed.

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

When a unit is actively drilling a lot of equipment rests on top of the well, on the sea floor. This equipment guides the drill string, supports pumping equipment, and shuts off the hole in case of accidents. After drilling and other operations have been completed this well-head gear projects above the sea bed and could possibly catch fishing gear, causing damage or loss.

MITIGATION MEASURES:

A two-stage mitigation has been proposed for this project that will eliminate this impact.

1. A full survey will be done of the drilling site after operations are complete. This will identify all potentially hazardous equipment on the sea floor.
2. All of the equipment will then be removed, with well sealed and cemented in beneath the sea floor, so that nothing will be left that could damage fishing gear.

SOCIOECONOMICS
Visual

IMPACT: Direct impact of ocean views on residents, park visitors, and travelers within 8 km (5 mi) of the lease tracts

FINDING: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Although individual perceptions of what is attractive and what is not attractive are highly subjective, most persons can agree that there are high, moderate, and low degrees of impact relative to four basic determinants of visual impact. The level of impact of projects on visual receptors was determined by applying site-specific weightings to these four separate determinants of visual impacts:

- 1) Viewing population (number of receptors),
- 2) Distance (from project to receptors),
- 3) Duration (period of time project is in place), and
- 4) Degree of change (comparison to existing view).

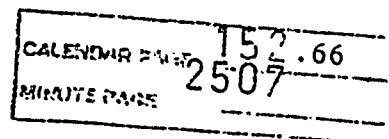
For purposes of the analysis, all visual effects were considered to be adverse because there is general agreement that increased industrial development in a scenic natural environment results in the degradation of the visual quality of relatively undeveloped landscapes and/or seascapes.

Leases 2199 & 2894

Based on the visual impact assessment, (Table 4.1-13 of the DEIR) the project is judged to have a low level of impact on the viewing population at Gaviota.

The average distance from the drillsites in PRCs 2199 and 2894 to the shore at Gaviota is 2.7 km (1.7 mi). The project is judged to have a high distance factor impact rating at Gaviota.

Exploratory drilling would take place at Gaviota for a period of approximately 42 months. Because this is between 24 and 48 months, the project would have a moderate impact rating on the visibility factor at Gaviota.



In the vicinity of Gaviota, Platform Helen is about 5.3 km (3.3 mi) west and Platform Hondo and the Exxon OS&T are located about 8.0 km (5.0 mi) southeast of the nearest exploratory drillsites. With these existing offshore facilities within the same viewing area, placement of the proposed exploratory drilling unit is judged to have a moderate impact on the degree of change factor at Gaviota.

Lease 3150

The visual impact assessment (Table 4.1-13) for this lease indicated a moderate level of impact on visual resources.

The project would be located about 0.8 km (0.5mi) from the nearest shoreline (Sandy Point). The project distance impact is considered to be high.

Because the exploratory drilling is intended to last about 10 months at Carpinteria (less than 24 months), its impact is rated low.

The degree of change for Carpinteria is judged to be moderate because of the proximity of two existing platforms: Hazel about 2.7 km (1.7 mi) southwest of the proposed drillsites; and Hilda, about 5.1 km (3.2 mi) to the west. Further, directly south, about 5.3 km (3.3 mi), is the Henry through Heidi Platform group.

Lease 3184

Table 4.1-13 indicates the project would have a high impact level on visual resources at Pitas Point.

The project exploratory drillsites would be located an average of about 2.3 km (1.45 mi) from the shore and would therefore have a high distance factor impact.

The exploratory drilling is proposed to last about 10 months in this area, and would therefore have a low impact on the duration factor.

Platform Heidi (in the Henry through Heidi Platform group) is located 9.8 km (6.1 mi) northwest of the nearest exploratory drillsites at Pitas Point, while Platform Gilda is 13.6 km (8.5 mi) to the south. With this relatively great distance, the degree of change factor is judged to be substantial in this area, and would get a high impact rating because the drilling unit would be introducing a high level change element into the area.

CALENDAR PAGE	152.67
NUMBER OF PAGES	2508

Other Visual Considerations:

Flaring: Although natural gas flaring is not expected to be extensive, it can be quite visible if done at night, especially with wells drilled near shore.

Structure Lights: USCG regulations state that obstruction lights for Class "A" structures shall be of sufficient candlepower as to be visible at a distance of at least 9.3 km (5.8 mi) 90% of the nights of the year. In the 11th USCG District waters, this translates to a requirement for at least 6,500 candela. Although 6,500 candela would not create an inordinate amount of light onshore [a distance of about 0.8 km (0.5 mi) at Carpinteria], it would nevertheless be quite brilliant on the nighttime horizon. Because of structure size and proximity to shore, lights from the Carpinteria drillsites would be quite obvious and may be distracting to shoreline residences for the duration of exploratory drilling.

MITIGATION MEASURES:

The purpose of visual mitigations is to make obtrusive project features less evident by reducing their visibility or the degree to which they contrast with their surrounding environment.

Relocation to some extent is possible with the use of directional drilling techniques; however, relocation of the drillsites would not improve the visual affect appreciably because the drilling units would remain in view regardless of position in the lease tract. Because of the shallowness of the water at most of the drillsites, a jackup drilling unit of the KEY SINGAPORE type with its extremely long legs (410 ft less depth of water) would have to be used. Less conspicuous drilling units are not feasible under such circumstances.

Because the majority of the visitors to the State and County parks along the shoreline use the parks during summer months, there would be less impact on the viewing population if all drilling occurred between September and June; however, because of the high cost of relocating the drilling unit, this is not considered to be a practical mitigation measure. It would be most effective at the Carpinteria URIA (PRC 3150) where the drilling unit location would be especially close to shore and Carpinteria State Park. It may be possible to schedule the overall drilling program so as to minimize the number of summer months during which drilling occurs close to Carpinteria Beach.

1. Where necessary lighting on the drilling units is so bright as to be a visual problem to residents, the offensive lights would be shielded to prevent direct glare onto shore. Such selective shielding should not create a navigational hazard. In fact, the USCG has permitted total elimination of the shoreward side lights on Shell's Penrod 76 drilling unit about 3.7 km (6 mi) east of Gaviota, at the request of nearby residents (USCG, 1984).
2. Mitigation of the glare from occasional flaring would be accomplished by allowing such flaring to take place during daylight hours only.

SOCIOECONOMICS
Noise

IMPACT: Fog signal noise results in corrected LDN values above 75 dB or change in excess of 3 dB, projected to occur more than a few days per year

- FINDINGS:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding (U.S. Coast Guard). Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING FINDINGS:

Noise is defined as unwanted or objectionable sound. Sound is a form of energy associated with pressure changes in an elastic medium such as air. It is characterized by its magnitude (energy level), frequency (pitch or tone), and duration.

Perceived loudness is a function of both energy and frequency content. At the same energy level, sounds at different pitches may have radically different perceived loudnesses. Consequently, instruments designed to measure acoustic noise are equipped with electrical filters that approximate the frequency response of the human ear. In this way, measurements may be made that are reasonably representative of human perception levels.

Measurement of sound power in this study was by use of the "A" weighted decibel (dB). An increase of 3dB represents a doubling of the sound power, while an increase of about 10 dB is needed to double the perceived loudness. In addition, noise must be placed in the context of community noise exposure and group response to long-term noise exposure. The day-night average noise level (LDN) is used for this.

Three distinct noise sources from the project were considered: (1) drilling and related operations; (2) operation of transport boats (supply and personnel); and, (3) fog-horn operation.

The impact analysis considers the probable levels of generated noise, the reduction in noise level as a function of distance to the onshore receptor sites under consideration, and the existing uses and noise environments of these sites. The degree of impact is then judged in terms of the resultant LDN at the receptor with the addition of project noise, including any appropriate adjustments recommended by the California Office of Noise Control (CONC) (1976) for different uses, community settings, and source characteristics.

For this EIR, both potential levels and durations of exposure to noise have been considered in assessing the significance of impacts. A corrected threshold LDB value of 60dB represents a change from the normally acceptable into the conditionally acceptable range. If the threshold is exceeded on a calculated change of less than 1 dB, it is not considered significant: the environment must already be relatively noisy, and likely subject to fluctuations larger than the calculated difference. If the change is from 1 to 3 dB and of long duration (e.g., likely to occur for weeks or months) or more than 3 dB for more than two or three days, the impact is rated as significant.

For activities related to Lease PRC 2199 and Lease PRC 2394 (Gaviota) noise impacts from all sources were found to be insignificant for the two receptor sites: Vista Del Mar School and Gaviota Beach State Park. Lease PRC 3150 (Carpinteria) and Lease PRC 3184 (Pitas Point) would have significant impacts on local receptors, but only from the fog-horn operation.

MITIGATION MEASURES:

These impacts could be mitigated by:

1. Coast Guard relaxation of fog signal requirements to allow a 1/2 mile fog-horn instead of the "two-mile" signal which is proposed; or,
2. Scheduling of operations to avoid peak fog months.

The first of these measures would reduce noise at the receptor sites to below the significance level. It would reduce not only the level of noise, but also frequency of use. Implementation of this measure is dependent on a decision from the Coast Guard. The second mitigation measure is judged to be only partially effective since foggy weather is not entirely predictable. Activities underway during the least foggy months may still experience fog.

II. IMPACTS RELATED TO ACCIDENTS

Explanatory Notes:

Many of the impacts which would result from abnormal events during operation of the project derive from oil spill impacts. Because the basic analysis of impacts and mitigation measures for oil spills have applicability for a large number of the accident-related impacts, the following overview analysis is presented here to avoid unnecessary repetition.

After the discussion of oil spills, each specific impact due to accidents is then discussed individually, by resource affected. An additional issue, System Safety and Reliability, is also discussed in detail for accident-related impacts.

Oil Spills - Overview

During exploratory drilling, an oil spill could occur as a result of a well blowout, a vessel ramming a drilling unit, or collision of an oil tanker in the vicinity of the Getty mooring. The likelihood of an oil spill resulting from any of these potential accidents is considered "unlikely," defined as possible, but not likely within the life of the project (Section 4.2 of the DEIR).

The significance of environmental impacts due to an oil spill, in the unlikely event one occurred, would be a function of the type and quantities of oil spilled, trajectories and spill landfall locations, and the effectiveness of spill response measures. The significance and duration of spills are also influenced by weathering processes, including spreading, drift, evaporation, dissolution, dispersion, emulsification, sedimentation, biodegradation, and photooxidation.

Data on winds, tides, and water currents were used to perform an oil spill trajectory analysis for three spill sizes for each lease tract. Oil may reach shore within 4 h for PRCs 2199 and 2894, 45 min for PRC 3150, and 2 h for PRC 3184. (Section 4.2.1 of the DEIR)

The most likely landfall of an oil spill in PRCs 2199 and 2894 is between El Capitan Beach State Park to the east and San Augustine to the west.

Conditions at PRC 3150 would most likely cause a landfall between Rincon Point to the south and east and Santa Barbara to the north and west; however, landfall may occur as far south as Pitas Point and as far to the north and west as Gaviota.

Conditions at PRC 3184 would most likely cause a landfall between Ventura to the south and Summerland to the north and west. Approximately 32 km (20 mi) of coast that could be affected consists of 40% straight and narrow sandy beaches, 10% sand-gravel-cobble beaches, 30% riprap and seawall, and 20% wetlands. Most beaches are backed by cliffs.

The California Public Resources Code and the State Lands Commission implementing regulations (2 Cal. Admin. Code Sections 2125-2142) govern and control oil and gas activities on state lands. Specifically, the "Regulations for Oil and Gas Drilling and Production Operations on State Tide and Submerged Lands" (SLC, 1980) pertain to oil and gas drilling operations on state oil and gas leases located on state tide and submerged

lands under the jurisdiction of the State Lands Commission, and are applicable to operations conducted from mobile rigs, fixed offshore structures and upland locations serving these leases. The following specific references to the Administrative Code are incorporated herein by reference: (1) Article 3.2 -Oil and Gas Drilling Regulations; (2) Article 3.3 -Oil and Gas Production and Regulations; (3) Article 3.4 -Oil and Gas Drilling and Production Operations: Pollution Control. Article 3.2 begins with the general requirement:

"All drilling operations conducted on State oil and gas leases shall be carried on in a proper and workmanlike manner in accordance with accepted good oil-field practice.

Authority: Public Resources Code Sections 6103, 6108, 6216, 6301, and 6873(d), and Government Code Section 11152.

Reference: Public Resources Code Sections 6005, 6216, 6301, 6871, 6871.1 and 6873(d)."

The regulations cited above further cover many safety provisions of exploratory drilling. In particular, they address:

- well casing requirements
- casing cementing requirements
- pressure testing of casing
- blowout prevention equipment requirements
- pressure testing of blowout prevention equipment
- inspection and maintenance
- supervision and training
- hydrogen sulfide program
- mud program
- drilling practices
- plugging and abandonment of wells
- pollution control
- disposal of muds and cuttings
- oil spill contingency plan
- critical operations and curtailment plan

The regulations as a body significantly reduce the likelihood of an oil spill. In addition to engineering requirements (blowout preventers, etc.), training and supervision competency, inspection and equipment testing, the regulations require the submission to and approval by Commission staff Critical Operations and Curtailment Plan and an Oil Spill Contingency Plan prior to any drilling or production activities.

Critical operations are those where the potential for a significant spill exists. A Critical Operations and Curtailment Plan (COCP) is required to minimize certain critical drilling operations during periods when conditions are such as to impede spill containment and cleanup operations, communications, or transport of material to the drilling unit in an emergency. Chevron has an approved COCP on file with the State Lands Commission for their leases.

Weather conditions will be monitored daily while conducting drilling work on a well capable of flowing oil or gas to the surface. If a critical operation is in progress or is about to be initiated when one of these circumstances arises, the operator will decide to cease, limit, continue, or not commence the critical operation. Chevron will take into account whether immediate cessation of the critical operation might endanger the well or increase the risk of oil spillage.

Chevron has prepared an "Oil Spill and Emergency Contingency Plan" for its Santa Barbara Channel State leases (Chevron, 1983). The basic purpose of this plan is to establish procedures, responsibilities, and actions to be taken to provide for rapid and effective response by Chevron personnel and contractors in the event an oil spill should occur during the exploratory drilling operations. The plan was prepared to comply with the Regulations for Oil and Gas Drilling and Production Operations on State Tide and Submerged Lands, Article 3.4., and has been approved by the State Lands Commission.

Several other existing contingency plans apply to the proposed project.

The National Oil and Hazardous Substances Pollution Contingency Plan, more commonly referred to as the National Contingency Plan (NCP), provides the framework and mechanism for Federal response to actual or potential pollution incidents. Briefly, this national plan and its annexes provide for: assignment of responsibilities among Federal agencies in coordination with State and local agencies; procedures for identifying, containing, dispersing and removing oil and hazardous substances; a procedure for coordinating scientific support of cleanup operations; assessment of damage and research efforts; and a system of surveillance and reporting to give agencies rapid notification of discharges. The plan covering this area was published in 1979 by the Captain of the Port of Los Angeles-Long Beach. It has been periodically updated since then (Cdr. L. N. Onstad, 1984, personal communication, USCG).

The State of California Oil Spill Contingency Plan was published in 1983. It provides the organizational framework within the State for spill contingency planning and response. It assigns responsibility for coordination of State response to coastal oil spills to the Director, CDFG. The State plan also requires local governments to prepare local contingency plans for oil spill response. Santa Barbara County is in the process of completely updating and revising its plan in response to this requirement and the major expansion of offshore oil and gas development occurring in the County. The CCC (1983b) has developed a Policy Statement on Oil Spill Response Measures.

The oil and gas industry assumes primary responsibility for spill abatement response and cleanup from its facilities and has formed an Oil Spill Cooperative comprising member companies operating in the geographic area. Clean Seas is the local cooperative and has prepared a contingency plan (Clean Seas, 1983). The Clean Seas Contingency Plan establishes an organizational framework for response to spills of a member company, provides detailed response procedures for specific sites along the coast, and has detailed lists of its own equipment as well as support equipment available through local contractors. It also serves as a training document used in conducting spill response training for operator personnel.

In summary, exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. For example, blowout prevention (BOP) equipment will be used throughout the project period. Also, an Oil Spill Contingency Plan, including procedures for containment and cleanup of oil spills, and a Critical Operations and Curtailment Plan have been filed with and approved by the Commission staff. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill.

SYSTEMS SAFETY AND RELIABILITY

IMPACT: Impact on vessels calling at Getty five-buoy mooring and proposed terminal near PRC's 2199 and 2894.

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

The present Mooring Master boarding area at the Getty five-buoy mooring near Gaviota is in the area of the proposed drillsite for PRC's 2199 and 2894. Assuming that all proposed wells are drilled and that there are no interruptions in the drilling program, the maximum amount of time a drilling unit will be in place is approximately 23 months on PRC 2199 and 19 months on PRC 2894. Over that time period, approximately 42 vessels may call at the Getty mooring. All of these vessels would have to pass within 4.8 km (3 miles) of the drilling unit. Captain R.H. Brandenburger of Brandenburger Marine, the firm that supplies the Mooring Masters for the vessels calling at Getty, states that the proposed project would not present a hazard to its operations. Mooring Masters would be aware of the presence and location of the drilling units and the Mooring Master boarding area would be adjusted as necessary. In addition, vessels approaching the Mooring Master boarding area and transiting to and from the mooring would be operating at low speeds.

The consequence of a collision, if it resulted in a 1 to 2 tank oil spill, would be a moderate to significant impact. However, the probability analysis concluded that the potential for such a collision fell into the "unlikely" category.

The only marine terminal proposed for the future that might be affected by drilling is the Getty Terminal at Gaviota. This facility falls into the same category (unlikely) as the Mooring Master when collision potential was analyzed. Absent more specific design information it is not possible to evaluate spill potential and hence significance of impact. A Supplemental EIR, which will address these issues in more detail, is currently being prepared by Santa Barbara County.

CALIFORNIA	152.77
MINUTE PAGE	2518

Because the proposed drillsites on PRC's 2199 and 2894 are near the Getty five-buoy mooring and proposed terminal, it is recommended that Chevron inform Getty and Branderburger Marine of the timing, location, and intended movements of drilling units and support vessels in advance so that adjustments can be made accordingly. Barges and tankers calling at the mooring/terminal should also be notified in advance of the location and intended movements. This is regularly done through the USCG's local Notice to Mariners which is published weekly and the Broadcast to Mariners which is regularly broadcast over radio to the vessels. Radio contact should be made with any vessels approaching the area. It is felt that implementing these mitigation measures would reduce the likelihood of collisions from unlikely to rare, thus substantially lessening the potential impact associated with this issue.

SYSTEMS SAFETY AND RELIABILITY

IMPACT: Support vessels striking Carpinteria Reef near PRC 3150

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Supply/crew boat groundings are addressed because of the proximity of the proposed drillsite in PRC 3150 to Carpinteria Reef. It is not considered a problem for the other lease tracts. The reef is approximately 100 m (328 feet) north of the proposed drillsite. The reef is exposed at times during low tides and is marked on navigational charts. A supply or crew boat which hits the reef could spill some or all of its fuel. Supply boats have the capacity to carry approximately 113,000 gallons of fuel, while crew boats can carry 2,400 gallons. The draft of a supply boat is 10 to 16 feet, while the draft of a crew boat is approximately 10 feet. Both supply and crew boats are highly maneuverable; however, the possibility does exist that a supply or crew boat could have an engine or steering failure and drift onto the reef, resulting in a fuel spill. Although such an accident could be classified as having major consequences, this is categorized as unlikely.

To mitigate these potential impacts procedures should be established by Chevron to keep the supply and crew boats away from the reef. The crew should be briefed on the potential hazard. Procedures should establish that the boats approach and depart the drilling unit from the west or south side away from the reef. In addition, some consideration should be given to temporarily marking the extent of the reef by buoys. Support boats should not operate in severe weather.

The low probability for accident occurrence and the adoption of these mitigation measures largely reduces impacts due to a fuel spill at Carpinteria Reef.

SYSTEMS SAFETY AND RELIABILITY

IMPACT: Blowout

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Offshore oil and gas structure can and have been involved in various types of mishaps. These accidents can result in various types of impacts, with one of the most severe being a blowout.

A blowout is commonly defined as the uncontrolled discharge of oil or gas from a drillhole. Such an event could occur when the reservoir pressure exceeds the downward pressure of the mud column in a well. This can be caused by encountering abnormal reservoir pressure, loss of circulation, swabbing the well, or not keeping the hole filled with mud at all times. In addition, there must be a failure of the crew to operate the BOP equipment properly or a malfunction of the BOP equipment which will cause the loss of well control and allow it to blow out. Geologic conditions that could lead to blowouts have been identified in all lease tracts surveyed. All drilling units will be equipped with BOP equipment.

Most blowouts involve the release of gas; historically, only a small percentage have resulted in the discharge of oil to the environment. A large percentage stop flowing naturally and relatively quickly because of formation plugging or the collapse of the hole. Nevertheless, because of the potential for uncontrolled release of oil and the chance that large quantities of flammable and possibly toxic gases may be discharged, blowouts are considered the most spectacular, expensive, and feared operational hazard of offshore oil and gas activities. Consequences may include fires, explosions, casualties, serious property damage, cratering of the seafloor and localized sediment disruption, and both air and water pollution.

From 1970 through April 1983, after the 1969 Platform "A" blowout, it is estimated that approximately 1000 wells have been drilled in the Santa Barbara Channel (Chevron World, 1980; CCC, 1983). During this period, there have been no blowouts

resulting from drilling. This statistical data base does not indicate that the probability of a blowout resulting from drilling is zero, nor is the data base sufficiently large to demonstrate a particularly low probability of a blowout. Application of the Poisson probability distribution to the above statistics indicates that, at the 95% confidence level, the probability of a blowout per well is less than 3×10^{-3} , or less than one blowout per 333 wells. The actual probability indicated by local experience is less than this upper bound, but how much less cannot be derived from the data.

A fire or explosion from a blowout should not affect the general public on shore but could cause major damage to the drilling unit and injury or loss of life to workers. A crude oil fire could produce heavy smoke with soot being deposited downwind. This is classified as a rare occurrence with major consequences.

Exposure to H_2S from a blowout is a hazard that is treated under separate findings (see H_2S cloud - PRC 3150).

An oil spill resulting from a blowout is categorized as an unlikely event. The significance of impact would be classified as high for spills over 100,000 gallons. More specific probability and consequence information on oil spills, whether originating from blowouts or from other accidents, is contained in the Oil Spills - Overview and in the findings related to oil spill effects on particular resources. In brief, the shoreline impacts would be as follows:

PRC's 2199 and 2894

Conditions here would most likely cause landfall between El Capitan Beach and San Augustine, approximately 18 miles of coast.

PRC 3150

Conditions here would most likely cause a landfall between Rincon Pt. and Santa Barbara, approximately 20 miles of coast.

PRC 3184

Conditions here would most likely cause a landfall between Ventura and Summerland, approximately 20 miles of coast.

The project will conform to applicable regulations on blowout prevention equipment and oil spill response contained in State Lands Commission "Regulations for Oil and Gas Drilling and Production Operations on State Tide and Submerged Lands" (2 Cal. Admin. Code Sections 2125-2142).

Blowout prevention (BOP) equipment is used to maintain well-flow control throughout the project period. The system consists of three ram preventers rated at 10,000 psi and an annular preventer rated at 5,000 psi. When necessary, the ram preventers are hydraulically activated to close and seal around the drill pipe if needed. The annular preventer consists of a flexible rubber packer that can seal around drill pipe, Kelley's, or it can completely seal off the open hole.

The BOP equipment will be installed during various phases of the drilling process. A diverter system is installed immediately after the drilling unit is attached to the ocean floor with the conducted pipe. A second annular/diverter system is installed when drilling reaches 500 feet below the ocean floor. At 1,500 feet below the ocean floor and after a 13-3/8-in casing has been set and cemented in place, a 10,000-psi Class IV BOP system is installed. This procedure will be followed on all lease tracts except PRC 2894, where a 2,000-psi BOP system will be installed when the borehole reaches 1,500 feet below the ocean floor and another 10,000-psi BOP system will be installed when the hole reaches 2,960 feet below the ocean floor.

Upon installation of the BOP system, the equipment will be tested before drilling is continued. Installation, testing, and operation of the BOP system will comply with Chevron Operating Instructions and State Lands Commission and Division of Oil and Gas Regulations.

Refer to Oil Spills - Overview discussion for additional detail regarding State Lands Commission regulations on oil spill response.

The safety measures required by the State Lands Commission will reduce the likelihood of a blowout as well as lessen the consequences should one occur. The impacts due to blowout are therefore considered to be substantially avoided or lessened.

SYSTEMS SAFETY AND RELIABILITY

IMPACT: H₂S cloud reaching residences near PRC 3150

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

One hazard of a well blowout is the possibility of exposure to H₂S gas. This exposure risk is highest in the immediate vicinity of the drilling unit; however, because of the close proximity to shore of these wells, it is also possible, although unlikely, that the general public could be exposed.

The physiological response to breathing H₂S is governed by the ambient gas concentration and by the exposure duration; that is, the dose. Acute effects of H₂S will only occur above a threshold concentration value because of the body's ability to detoxify the gas. This threshold value varies among individuals. The U.S. Department of Health Services and U.S. Department of Labor (1978) call this the Immediately Dangerous to Life or Health (IDLH) level and specifically define it as the maximum level from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects. The IDLH level for H₂S is listed at 300 ppm.

A typical distance to the "safe" area (where concentrations are 400 ppm, the concentration where immediate fatalities may occur) would be about 1.6 km (1 mile). The distance to 300 ppm would be slightly greater.

For the two wells on PRC 3150, the hazard area would overlap the local shore community. People within the 400 ppm area would be susceptible to possible irreversible health effects or even death. Some people outside of this area could also have severe effects while others may only have minor symptoms such as those described above. The probability of an accident releasing H₂S which reaches the beach in IDLH concentrations would be extremely low.

A blowout would have to occur in a gas field with a high concentration of H₂S. The blowout would have to be of a duration to release enough gas to cause a problem, and the wind

would have to be blowing in the right direction. The likelihood of these happening concurrently is classified as rare with the consequences severe. Mitigation measures include:

1. Development of a risk management plan which exceeds current requirements, with particular emphasis on procedures to be followed during release of hazardous substances;
2. Review layout of drilling unit facilities in terms of safety consideration; and,
3. Training and notification of public.

A contingency plan for H₂S has been submitted to the State Lands Commission, as required by State Lands Commission "Regulations for Oil and Gas Drilling and Production Operations on State Tide and Submerged Lands." (2 Cal. Admin. Code Sections 2125-2142)

Chevron's H₂S Contingency Plan is contained as an appendix to the "Oil Spill and Emergency Contingency Plan for Santa Barbara Channel State Leases" which is on file with the State Lands Commission. The H₂S Contingency Plan includes a training program for all working personnel and supervisors in the proper procedures for responding to an emergency. Operating crews will undergo an H₂S drill each week in conjunction with other required drills. An alarm system activated by sensors will be present on the drilling unit to warn of H₂S concentrations of 10 ppm or more. Appropriate agencies will be notified immediately if concentrations exceed 10 ppm. Scott Air Paks and air capsules will be available to equip all personnel on the drilling unit in the event of an emergency. Equipment for retrieving and resuscitating incapacitated personnel will also be maintained on the drilling unit.

This plan would reduce the risks of exposure to H₂S, and has been incorporated into the project.

MARINE BIOLOGY
Intertidal Communities (Marshes)

IMPACT: Loss of primary and secondary productivity; loss of nesting, rearing, and feeding habitats for birds; and loss of spawning and rearing habitats for fishes and invertebrates from an oil spill near PRC 3150 [Carpinteria Marsh (Goleta Slough)] and PRC 3184 (Santa Clara River and Ventura River mouths)

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Oil spills which have occurred in nearshore areas have generally had their greatest impacts on intertidal environments and organisms. The significance and duration of impacts in these areas is generally a function of biological and geomorphologic characteristics of the habitat. Habitats with low energy regimes have large biological populations (e.g., salt marshes, sheltered tidal flats, sheltered rock coasts), high oil residence times, and are the most sensitive to oil pollution. Recovery of these areas from a spill is expected to occur slowly over many years. Gravel beaches and mixed sand and gravel beaches generally have small biological populations but oil which reaches these areas is resistant to cleaning due to sediment penetration.

Shoreline types in the area of the proposed drilling consist mainly of sandy beaches, sand-gravel-cobble beaches, and rocky intertidal areas. Areas of seawall and riprap are also fairly common in the vicinity of PRCs 3150 and 3184. Of these shoreline types, rocky intertidal areas are of most concern from a biological point of view. Other sensitive areas include marshes at such locations as Carpinteria and Goleta Sloughs.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These

protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

CALCULATED VALUE	152.86
MINUTE PAGE	2527

MARINE BIOLOGY

Intertidal Communities (Rocky Shorelines)

IMPACT: Smothering and death of shoreline communities from an oil spill

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Spills originating from PRCs 2199 and 2894 and moving in a westerly direction were projected to reach shore after approximately 3 to 4 h (depending upon spill size) along the coastal segment between San Augustine and El Capitan State Beach, part of the South Coast Intertidal Preserve. Due to the relatively undisturbed nature of the rocky intertidal zones present, oil coming ashore in these rocky coastal areas would result in significant impacts upon biota present. Sessile species such as barnacles may be smothered; mobile forms are likely to be trapped in the surface slicks of tidepools or immobilized by coated oil. Secondary impacts could alter community structure over the short term.

Oil released from PRC 3150 and moving in a west direction was projected to hit the shoreline between Goleta/Santa Barbara and the coast immediately west of Summerland. Unique marine environments in this area include Goleta Point, Goleta Slough, and the More Mesa area. The rocky intertidal areas of this region are of concern for reasons noted above.

Oil released from PRC 3150 and moving in an east direction was projected to hit the shoreline between Carpinteria and Rincon Point. Unique marine environments in this segment of the coast include Carpinteria Marsh (El Estero Slough), Carpinteria Pier, and Carpinteria Reef. The rocky intertidal/subtidal habitat of Carpinteria Reef, considered as one of the most diverse intertidal areas in Santa Barbara County south of Point Arguello, would be impacted from oil contamination.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a

manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

MARINE BIOLOGY
Intertidal Communities (Sandy Beaches)

IMPACT: Coating of the beach by oil and incorporation into sediments, resulting in death of indigenous organisms

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Spills originating from PRCs 2199 and 2894 and moving in a westerly direction were projected to reach shore after approximately 3 to 4 h (depending upon spill size) along the coastal segment between San Augustine and El Capitan State Beach, part of the South Coast Intertidal Preserve. Due to the relatively undisturbed nature of the rocky intertidal zones present, oil coming ashore in these rocky coastal areas would result in significant impacts upon biota present. Sandy beaches within this coastal segment could also experience significant impact, but low population numbers and proposed cleanup methods would tend to minimize the deleterious effects normally associated with spilled oil.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

MARINE BIOLOGY
Intertidal Communities (Kelp Beds)

IMPACT: Loss of productivity of kelp beds from an oil spill;
near PRCs 2199 & 2894

FINDINGS: Changes or alterations have been required in, or
incorporated into, the project which avoid or
substantially lessen the significant environmental
effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

An episode event such as an oil spill could potentially
impact several unique marine environments in the Santa Barbara
Channel area, depending upon the size of the spill and the wind
and wave conditions present.

Spills originating from PRCs 2199 and 2894 and moving in
a westerly direction were projected to reach shore after
approximately 3 to 4 h (depending upon spill size) along the
coastal segment between San Augustine and El Capitan State
Beach, part of the South Coast Intertidal Preserve. In the
nearshore zone, the extensive kelp beds of this region are not
expected to have significant impacts, aside from a loss of
primary productivity due to the presence of a natural mucus
covering on blades and stipes.

Exploratory drilling is conducted according to
appropriate State and Federal rules and regulations including
all applicable safety and pollution standards. Thus, the
project has been designed and will be carried out in such a
manner as to greatly decrease the oil spill risk or the amount
of oil released in the event of an oil spill. These
protections substantially lessen the environmental impacts
which derive from the risk of an oil spill. Please refer to
"Oil Spills - Overview" section preceding for a thorough
discussion of this finding.

CALIFORNIA STATE	152.90
STATE PRINT	2531

MARINE BIOLOGY
Benthos

IMPACT: Lethal and sublethal effects on benthic infauna and epifauna from oil which reaches the sea bottom

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Spilled petroleum which does not evaporate or wash ashore, or is not recovered by mechanical means, is eventually incorporated into bottom sediments. Oil which reaches the benthos will be transported as nonbuoyant oil residues, through absorption into particulate matter, or through incorporation into the food chain and elimination as fecal pellets which sink to the bottom. Generally, the oils undergo extensive modification before sedimentation occurs.

Oil which is incorporated into sediments becomes a chronic source of pollution, unlike hydrocarbons in the water column which tend to be diluted and dispersed. Sediment hydrocarbons become available to benthic and demersal organisms through ingestion and/or incorporation across gill membranes. For organisms (e.g., molluscs) without the ability to metabolize hydrocarbons, concentrations can be reached in the tissues that possibly induce sublethal effects and possible mortality.

It is suspected that absorption onto particulate matter is one of the major pathways that oil spilled on the surface reaches the benthos. Hence, the amount of oil which is deposited in an area following a spill will be a function of the total concentration of suspended material in the water column, the depth of the water column, and current velocities.

The significance and types of impacts from oil on benthic communities will be a function of the degree of weathering of the oil. Oil which sinks before it has significantly weathered will contain toxic hydrocarbons which can be accumulated by benthic organisms; oil which is accumulated by demersal fishes and shellfishes can result in contamination of these species. Highly weathered oil will be a concern from the standpoint of coating and smothering; this is of particular concern in hard-bottom areas, especially around such features as Carpinteria Reef.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

MARINE BIOLOGY
Marine Birds

IMPACT: Coating of birds by oil can be fatal; hatching success can be reduced if eggs come in contact with oil; sublethal stress can also be induced through ingestion or coating of oil; see Unique Marine Environments: Endangered Species

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Oil spills pose a significant threat to marine and shore birds. Because of the migratory nature of many of these species, the significance of any immediate impacts from a spill will depend on the time of year that a spill occurs, the species present, and their numbers. These factors, in addition to the nature of the crude oil spilled during the Santa Barbara blowout in 1969, may have accounted for the fact that only 3,000 birds were killed in the incident.

In addition to the immediate dangers from coating by oil, birds are also subject to chronic, long-term effects from oil that remains in the environment (e.g., in marshes). For example, small amounts of oil on a bird's plumage which is transferred to the eggs during incubation has been shown to kill developing embryos. Birds can also accumulate oil in the diet and through preening.

An oil spill that impacts prime bird habitat (e.g., in marshes), even during periods of low use, may pose future problems. Birds have been observed to leave an area that has been impacted by a spill. The EIR notes that such movements would be most severe during the breeding season or in winter, although the significance of such impacts is unknown.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These

protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

CALENDAR DATE	152.94
MINUTE PAGE	2535

MARINE BIOLOGY
Marine Mammals

IMPACT: Lethal and sublethal effects on marine mammals by coating or ingestion of oil;/Haul-out areas

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

Marine mammals that could be potentially affected by an oil spill from the proposed project locations include pinnipeds, cetaceans, and transient Sea Otter. Marine mammals unable to avoid contact with oil could suffer from mechanical fouling, inhalation, or ingestion problems that could result in sublethal or lethal effects.

Sea Otter is by far the marine mammal most susceptible to impact from oil spills, but this marine mammal is transient in the region. If an otter is unable to avoid contact with a slick and its pelage is heavily oiled, it could die of exposure within hours. Unlike other marine mammals, Sea Otters lack a protective blubber layer and rely only on dense fur for insulation. If the fur is soiled or matted by oil, it loses its thermoregulative properties. However, cleaning activity may also jeopardize the otter. If the oil has large amounts of light aromatic hydrocarbons, the otter may ingest levels toxic enough to induce illness or death. Because the present breeding range of Sea Otter is kilometers north of Point Conception and Sea Otter traveling and inhabiting areas south of this point are rare, it is unlikely that perpetuation of the California Sea Otter population would be threatened by the unlikely event of a massive oil spill from exploratory drilling operations within the proposed lease tracts.

The species of pinnipeds most likely to be impacted by a potential oil spill because of their expected overall abundance within the vicinity of the proposed drillsites are Sea Lion and Harbor Seal. An important Harbor Seal haul-out area exists at the Chevron pier at Carpinteria. It is likely that Harbor Seal in this area would be oiled if a spill occurred in PRC 3150.

All seals have the ability to detect and avoid oil slicks. However, it has been found that breeding male and female seals swam through oil to reach rookery beaches during the breeding season.

Surface contact with oil has a much greater impact on seals than absorption of the petroleum. Controlled experiments in which seals were exposed to floating oil resulted in reversible eye damage. Fur Seals, which rely in part on their pelage for insulation, would be subject to an increase in metabolism if their pelts became fouled with oil. This increase in metabolic rate could cause enough additional stress to already stressed or weak animals to cause death. Physical stress could also be caused by the ingestion or respiration of toxic hydrocarbons..

Secondary impacts to seals could result from man's response activities following a spill. The EIR notes that seals disturbed on San Miguel Island retreated into the sea and did not return for from one to several days. Such impacts could be significant behavioral disturbances during the breeding season.

It is unlikely that oil spills will substantially threaten cetaceans. A massive oil spill could result in mechanical fouling of the baleen, oil toxicity from ingestion, respiratory difficulties, and irritation of the eyes, skin, and mucous membranes. However, unless a cetacean were absolutely confined within an oil spill area, it would sustain only minor impacts from oil contact and would generally recover from these effects. Observations suggest that either cetaceans avoid surfacing in oil slicks or change their respiratory pattern by taking shorter breaths and staying submerged longer when traveling through oil slicks. Oil does not tend to cling to and foul cetacean skin. Studies indicate that the levels of oil fouling by skin contact and accidental ingestion would not reach toxic levels and any irritation would likely be only temporary. The only baleen whale likely to transit the area in significant numbers is the Gray Whale; mechanical fouling of the baleen resulting in feeding interruption is not a major concern because Gray Whale do not generally feed during their migration past the proposed lease tracts.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

MARINE BIOLOGY
Endangered Species

IMPACT: Loss of foraging and nesting habitats for endangered inhabitants (Light-Footed Clapper Rail, Belding's Savannah Sparrow, California Least Tern) of marshes and tidal estuaries from an oil spill; oiling of Salt Marsh Bird's Beak; coating of endangered avifauna resulting in diminished hatching success, sublethal stress, or fatality.

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

An oil spill from PRC 3150 would impact the shoreline between Goleta/Santa Barbara and the coast immediately west of Summerland.

Oil released from PRC 3150 and moving in a west direction was projected to hit the shoreline between Goleta/Santa Barbara and the coast immediately west of Summerland. Unique marine environments in this area include Goleta Point, Goleta Slough, and the More Mesa area. The extensive marsh and estuarine habitat of Goleta Slough would be seriously damaged by the entry of spilled oil. In addition to providing habitat for numerous resident and migrant species, Goleta Slough is also prime habitat for two endangered species--Salt Marsh Bird's Beak and Belding's Savannah Sparrow. Impacts associated with habitat fouling by oil would pose a serious threat to the continued existence of these species within the slough.

Oil released from PRC 3150 and moving in an east direction was projected to hit the shoreline between Carpinteria and Rincon Point. Unique marine environments in this segment of the coast include Carpinteria Marsh (El Estero Slough), Carpinteria Pier, and Carpinteria Reef. Nesting and foraging habitat for two endangered avian species--Light-Footed Clapper Rail and Belding's Savannah Sparrow. Salt Marsh Bird's Beak also occurs here.

Oil released from PRC 3184 is expected to move to the east. Landfall would occur between Ventura and Pitas Point. The unique marine environments in this portion of the coast

include the Ventura and Santa Clara River mouths. The Santa Clara River estuary experiences extensive avifaunal utilization from resident and migrant species, including California Least Tern and Belding's Savannah Sparrow. Salt Marsh Bird's Beak is also found here. Oil entering these areas would result in serious impacts upon indigenous species.

The Brown Pelican and the California Least Tern, two species of endangered avifauna, may suffer some mortality in the event of an oil spill. As an offshore forager, Brown Pelican is highly susceptible to oil ingestion and fouling. Effects of oil contamination on the population could be significant as the population is still recovering from the effects of DDT contamination, the species is sensitive to disturbance, and the breeding success of the species is highly variable. The California Least Tern, as a coastal inhabitant, is less likely to be affected by an oil spill than the Brown Pelican. Should a spill reach the tern's coastal marsh habitat, however, significant mortality could be realized. This would also be evident for the endangered Belding's Savannah Sparrow, another marsh inhabitant. Little or no impacts are expected on the terrestrial avian fauna currently listed as endangered.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

SOCIOECONOMICS
Commercial and Recreational Fisheries

IMPACT: Lethal and sublethal effects on commercial and recreational species from an oil spill

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

An oil spill may have direct effects on adults and larvae of important commercial and recreational species by damaging habitat, breeding, and nursery areas as well as causing mortality which may reduce the total available catch. An oil spill may adversely affect commercial and recreational fisheries by excluding contaminated areas from fishing. A major spill could cause temporary closure of harbors, marinas, and beaches associated with fishing activities. Contaminated areas would be avoided because oil has potential adverse effects on the quality of any organism coming into contact with it; fishes may be affected by direct coating or ingestion of hydrocarbons. Oil could also foul fishing equipment, requiring cleaning of vessels and either cleaning or replacement of gear. Avoidance of areas by fisherman due to an oil spill would last at least for the duration of the spill and probably longer.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

SOCIOECONOMICS
Commercial and Recreational Fisheries

IMPACT: Fouling of fishing equipment with oil

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

An oil spill may have direct effects on adults and larvae of important commercial and recreational species by damaging habitat, breeding, and nursery areas as well as causing mortality which may reduce the total available catch. An oil spill may adversely affect commercial and recreational fisheries by excluding contaminated areas from fishing. A major spill could cause temporary closure of harbors, marinas, and beaches associated with fishing activities. Contaminated areas would be avoided because oil has potential adverse effects on the quality of any organism coming into contact with it; fishes may be affected by direct coating or ingestion of hydrocarbons. Oil could also foul fishing equipment, requiring cleaning of vessels and either cleaning or replacement of gear. Avoidance of areas by fisherman due to an oil spill would last at least for the duration of the spill and probably longer.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

SOCIOECONOMICS
Commercial and Recreational Fisheries

IMPACT: Exclusion of oil-contaminated areas from fishing

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

An oil spill may have direct effects on adults and larvae of important commercial and recreational species by damaging habitat, breeding, and nursery areas as well as causing mortality which may reduce the total available catch. An oil spill may adversely affect commercial and recreational fisheries by excluding contaminated areas from fishing. A major spill could cause temporary closure of harbors, marinas, and beaches associated with fishing activities. Contaminated areas would be avoided because oil has potential adverse effects on the quality of any organism coming into contact with it; fishes may be affected by direct coating or ingestion of hydrocarbons. Oil could also foul fishing equipment, requiring cleaning of vessels and either cleaning or replacement of gear. Avoidance of areas by fisherman due to an oil spill would last at least for the duration of the spill and probably longer.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

SOCIOECONOMICS
Tourism

IMPACT: Reduced access to park and beach areas from oil spills resulting in loss of tourist revenues

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

The effect of an oil spill upon tourism levels in the potentially affected communities depends upon the severity of the spill and whether the spill occurs during peak tourism months (typically the summer months) or during off-seasons. Much of what can be understood about the effect of oil spills upon tourism levels are case studies performed for spills which have occurred in the past and which have affected local tourism-dependent communities. Of the several oil spills which have affected local tourism-dependent communities, the effects of the 1969 Santa Barbara oil spill are of most interest.

In the Santa Barbara case study, bed tax receipts of potentially affected jurisdictions along the south coast and monthly attendance records at local beaches in periods immediately before and after the spill were examined. These results were inconclusive, however in that the changes in visitor levels and beach attendance were attributable to other changes such as entrance fees and facilities quality. Survey data also were analyzed which indicated that the mean number of visits to the beach per Santa Barbara area resident in the previous 12 months before the spill declined approximately 25% in the 12-month period immediately following the spill. Again, however, these results remain inconclusive as to the effect the spill had upon the economy in that the decline in local residents' visits to beach areas, in terms of dollars spent in the local economy, is not as significant as dollars spent by visitors to the area.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These

protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

SOCIOECONOMICS
Noise

IMPACT: Increased noise levels from oil spill cleanup equipment

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDINGS:

The incidents that could result in oil spills (equipment failures, accidental damage, etc.) are not expected to produce significant noise levels. Similarly, the noise associated with a spill, including most blowouts, would not normally be high (explosions would be a rare exception). However, the use of boats and heavy equipment in minimizing the impact of a spill and in rehabilitating impacted areas is a potential source of noise impact. In this case, it is the impact of the mitigation measure, rather than of the primary impact itself, that should be considered.

For all but the smallest spills, two noise sources can be expected to be present for some time adjacent to populated areas:

- Boats working day or night and inshore as closely as feasible when necessary, considering safety with respect to surf and tide conditions; and
- Heavy earthmoving equipment working principally during daylight hours along the beach.

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

CALENDAR PAGE	152.104
MINUTE PAGE	2545

SOCIOECONOMICS
Visual

IMPACT: Fouling of beaches with oil and discoloration of ocean surface water within the viewshed

FINDINGS: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects identified in the Final EIS

FACTS SUPPORTING FINDINGS:

Minor oil spills which never reach the shore would have negligible impact on visual resources. Major oil spills which fail to reach the shoreline would have a moderate impact on the viewing public. This would be due to discoloration of the water surface from high vantage points, and the interruption of the seascape by cleanup vessels and equipment. Oil spills that reach the shoreline would have moderate to severe impacts upon visual resources, depending upon the extent of beach contamination and the location.

The most significant visual impacts would be to persons who live or recreate along contaminated shorelines. The shoreline nearest Pitas Point (PRC 3184) has over 300 residences that could be directly impacted by shoreline contamination of oil. In the vicinity of Carpinteria, there are about 150 such residences, but they are much closer to the drill sites in PRC 3150.

Regarding recreational areas, the areas in the vicinity of Carpinteria (PRC 3150) are projected to have over a half million visitors in 1986. The Pitas Point (PRC 3184) parks may have over a quarter million, and those in the vicinity of Gaviota about 216,000 visitors. As was shown after the 1969 Santa Barbara oil spill, visitors went to uncontaminated beaches until the contaminated beaches were cleaned.

In many areas, such as along the Gaviota coast, the shoreline is not within view of the traveling public on U.S. Highway 101, although it is very close, because of the bluffs above the shoreline. Beaches are most visible to U.S. Highway 101 travelers in the vicinity of Pitas Point.

CALENDAR PAGE	152.105
MINUTE PAGE	25.46

Exploratory drilling is conducted according to appropriate State and Federal rules and regulations including all applicable safety and pollution standards. Thus, the project has been designed and will be carried out in such a manner as to greatly decrease the oil spill risk or the amount of oil released in the event of an oil spill. These protections substantially lessen the environmental impacts which derive from the risk of an oil spill. Please refer to "Oil Spills - Overview" section preceding for a thorough discussion of this finding.

CALENDAR PAGE 152 .106
MINUTE PAGE 2547

III. CUMULATIVE IMPACT

SOCIOECONOMICS

Air Quality

IMPACT: Incremental increase in ozone concentration.

- FINDINGS:
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding (Santa Barbara and Ventura County Air Pollution Control Districts). Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING FINDING:

The cumulative incremental increase in ozone concentration downwind of the coincidental projects is 10 to 15 percent of the maximum baseline levels. This increase would be sufficient to produce exceedances of the Federal 1-hour ozone standard when baseline concentrations are 0.11 ppm or more.

This proposed exploratory project will be of relatively short period (59 months maximum). In the event that development is pursued by Chevron, such development will be reassessed for its cumulative impact on air quality.

Mitigations have been proposed which will substantially lessen the impacts resulting from this project. (See "Air Quality" impact discussion)

CALENDAR PAGE	152.107
MINUTE PAGE	2548

SOCIOECONOMICS
Visual

IMPACT: Decrease in visual quality of ocean views.

FINDING: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect identified in the Final EIR.

FACTS SUPPORTING FINDING:

Overall, oil development poses the principal threat to visual quality in the area. The public may perceive the coast and inland agricultural areas as becoming increasingly industrialized, particularly given the proliferation of offshore platforms along the southern and central coast...In time there will be no stretch of coastline from Point Sal south that will not be exposed to views of offshore platforms.

Because of its relative nearness to shore, the Chevron exploratory drilling project will contribute to this impression. However, it should be noted that the drilling activity will not be conducted simultaneously but over a period of 59 months.

Mitigations have been proposed which will lessen the impacts resulting from this project. (See "Socioeconomics - Visual" impact discussion)