MINUTE ITEM

This Calendar Item No. 37 was approved as Minute Item No. 37 by the State Lands Commission by a vote of 2 to 0 at its 6/23/83 meeting.

CALENDAR ITEM

37. A

6/23/83
W 40370
Todhunter/
Gaal/
Livenick/
Simmons

PRC 308
PRC 309
PRC 3120
PRC 3242

PROPOSED SOIL BORING PROGRAM ON STATE LEASES
PRC 308, 309, 3120 and 3242,
SANTA BARBARA COUNTY

OPERATOR: ARCO Oil and Gas Company
P. O. Box 147
Bakersfield, California 92302
Attention: J. B. Hundley

AREA, TYPE LANDS AND LOCATION:
Tide and submerged lands lying in the area of South Ellwood and Coal Oil Point Offshore Oil Fields near Goleta, Santa Barbara County.

PROPOSED PROJECT:
ARCO proposes to take samples of the sea floor by soil boring with a rotary drill rig from a floating vessel. The purpose of the program is to collect geotechnical information in order to design platforms for development of the Coal Oil Point Offshore Field and to determine soil stability for the use of a jackup rig in a well plug and abandonment program.

ARCO has proposed four borings to a maximum depth of 100 feet for the abandonment program and from four to ten borings with depths ranging from 100 to 300 feet below the sea floor for platform siting.

A 35
S 18

Because of the shallow depth (100-300 feet) and small diameter (six-inch) of the holes which will be drilled, the volume of cuttings will be very small, 15 to 40 cubic feet. The composition of the cuttings is expected to be the same as that of the strata exposed on the ocean floor at or near the drill site. This small volume of locally derived sediment is not expected to have a significant impact on the environment. Inasmuch as a drilling riser is not used the small volume of cuttings will be dispersed on the seafloor.

The drilling fluid, because of the shallow depth of the soil borings proposed, will consist principally of seawater with small amounts of clay and barite which, as described in the initial study, have undergone laboratory tests which have demonstrated them to be non-toxic to humans and to marine life.

Gas hazards are not expected within the range of the soil borings. The consolidated formations that the holes penetrate have been drilled through by numerous wells in the immediate area, and gas pressures in the bottom unconsolidated sediments are not great enough to be a problem. A shallow hazard survey of the area has been conducted, and data from this survey will be used to locate the core holes to ensure that shallow gas zones are avoided. Additionally, a contingency plan has been prepared to handle any unexpected gas entry.

The South Elwood and the Coal Oil Point fields have been extensively explored. The shallow formations to be penetrated during boring operation are known not to contain live oil. Therefore it is highly unlikely that an oil spill would occur at any of the boring locations. However, in the event a oil spill does occur, the ready-oil spill cleanup equipment will be deployed from nearby Platform Holly to contain and clean up the oil.

Proposed operations will be coordinated with the Santa Barbara County APCD to avoid operations at times when the ozone levels exceed the State one hour standard.

The vessel used to drill the core holes is totally self contained. The vessel used will be approximately 50 meters in length, with a two meter draft similar to the MV/Isabelle. This vessel will make only one trip to a harbor during the project duration. Although, the project area is normally not heavily fished ARCO will notify local fishing organizations of the time and location of the proposed activities.

ARCO has conducted a survey of the project area which will be used to identify potential cultural resources in the area. The results of this survey will be used in the selection of the final boring sites.

The shallow hazard and cultural resources survey will be submitted to State Lands Commission staff for review and approval prior to final site selection.

This project is situated on State land identified as possessing significant environmental values pursuant to P.R.C. 6370.1, and is classified in a use category, Class "B" which authorizes Limited Use. Staff has coordinated this project with those agencies and organizations who nominated the site as containing significant environmental values. They have found this project to be compatible with their nomination.

AB 884: N/A.

EXHIBITS:
A. Land Description.
B. Site Map.
C. Negative Declaration.

IT IS RECOMMENDED THAT THE COMMISSION:

1. CERTIFY THAT NEGATIVE DECLARATION NO. 338 HAS BEEN COMPLETED IN ACCORDANCE WITH CEQA, THE STATE CEQA GUIDELINES AND THE COMMISSION'S ADMINISTRATIVE REGULATIONS,

AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN PRIOR TO THE APPROVAL OF THE PROJECT.

2. FIND THAT THE PROJECT AS PROPOSED WILL NOT HAVE ANY POTENTIALLY SIGNIFICANT ENVIRONMENTAL EFFECTS.

3. FIND THAT APPROVAL OF THIS PROJECT AS PROPOSED WILL HAVE NO SIGNIFICANT EFFECT UPON THE ENVIRONMENTAL CHARACTERISTICS AS IDENTIFIED PURSUANT TO P.R.C. 6370.1.

4. AUTHORIZE THE APPROVAL OF THE SOIL BORING PROGRAM AS PROPOSED BY ARCO OIL AND GAS COMPANY ON STATE OIL AND GAS LEASES PRCs 308, 309, 3120, AND 3242, COAL OIL POINT OFFSHORE FIELD, SANTA BARBARA COUNTY. ANY SOIL BORING SHALL BE UNDERTAKEN ONLY AFTER ALL APPROPRIATE PERMITS ARE OBTAINED FROM OTHER PUBLIC AGENCIES.

EXHIBIT A

LEGAL LAND DESCRIPTIONS

W 40370

PRC 3[illegible]

A PARCEL OF TIDE AND SUBMERGED LAND IN SANTA BARBARA CHANNEL, NEAR ELWOOD, IN SANTA BARBARA COUNTY, CALIFORNIA, BEING FURTHER DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE MEAN HIGH TIDE LINE OF ABOVE-MENTIONED SANTA BARBARA CHANNEL AT THE INTERSECTION WITH A NORTH-SOUTH GRID LINE HAVING A ZONE 5 CALIFORNIA "X" COORDINATE OF 1,424,750; THENCE EASTERLY ALONG SAID MEAN HIGH TIDE LINE TO ITS INTERSECTION WITH THE WESTERN BOUNDARY OF STATE OIL AND GAS LEASE P.R.C. 308.1; THENCE SOUTHERLY ALONG SAID WESTERN BOUNDARY OF OIL AND GAS LEASE P.R.C. 308.1 AND ITS SEAWARD PROLONGATION TO AN INTERSECTION WITH AN ENVELOPE LINE EVERY POINT OF WHICH IS AT A DISTANCE OF 3 GEOGRAPHICAL MILES FROM THE NEAREST POINT ON THE MEAN HIGH TIDE LINE OF SANTA BARBARA CHANNEL; THENCE WESTERLY ALONG SAID ENVELOPE LINE TO ITS INTERSECTION WITH ABOVE-MENTIONED NORTH-SOUTH GRID LINE HAVING A ZONE 5 CALIFORNIA "X" COORDINATE OF 1,424,750; THENCE NORTH ALONG SAID GRID LINE TO THE POINT OF BEGINNING.

EXCEPTING FROM THE ABOVE-DESCRIBED PARCEL, STATE OIL AND GAS LEASE P.R.C. 424.1 AND ANY PORTION OF STATE OIL AND GAS LEASE P.R.C. 421.1 LYING WITHIN SAID PARCEL.

SAID PARCEL CONTAINING APPROXIMATELY 4,290 ACRES EXCLUDING THE EXCEPTIONS.

COORDINATES AND BEARINGS CONFORM TO CALIFORNIA COORDINATE SYSTEM ZONE 5.

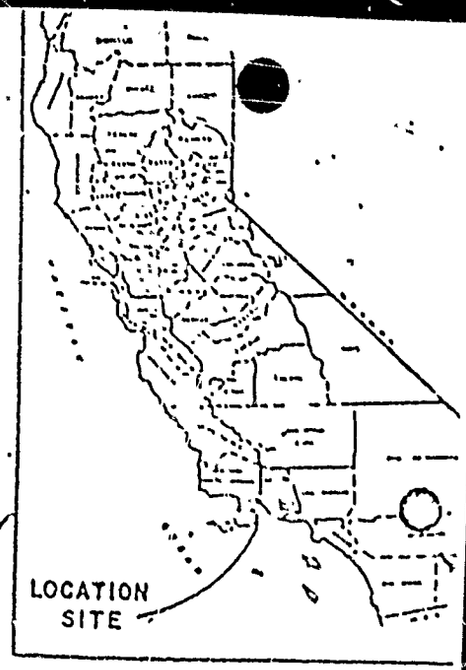
PRC 308.1

BEGINNING AT THE POINT OF INTERSECTION OF THE ORDINARY HIGH WATER MARK OF THE PACIFIC OCEAN WITH A LINE PARALLEL TO AND 300.00 FEET EASTERLY AT A RIGHT ANGLE FROM THE CENTER LINE OF THE CAMINO DEL SUR, AS SAID CAMINO IS SHOWN AND DESIGNATED ON A MAP RECORDED IN MAP BOOK 15, PAGE 81,RECORDS OF THE COUNTY OF SANTA BARBARA; THENCE FROM SAID POINT OF BEGINNING SOUTH 15,840 FEET INTO THE PACIFIC OCEAN; THENCE WEST 5,280 FEET; THENCE NORTH TO THE ORDINARY HIGH WATER MARK; THENCE EASTERLY ALONG THE ORDINARY HIGH WATER MARK TO THE POINT OF BEGINNING, CONTAINING 1,920 ACRES MORE OR LESS.

PRC 309.1

BEGINNING AT THE POINT OF INTERSECTION OF THE ORDINARY HIGH WATER MARK OF THE PACIFIC OCEAN WITH A LINE PARALLEL TO AND 300.00 FEET EASTERLY AT A RIGHT ANGLE FROM THE CENTER LINE OF THE CAMINO DEL SUR, AS SAID CAMINO IS SHOWN AND DESIGNATED ON A MAP RECORDED IN MAP BOOK 15, PAGE 81, RECORDS OF THE COUNTY OF SANTA BARBARA; THENCE FROM SAID POINT OF BEGINNING SOUTH 15,840 FEET INTO THE PACIFIC OCEAN; THENCE WEST 5,280 FEET; THENCE NORTH TO THE ORDINARY HIGH WATER MARK; THENCE WESTERLY ALONG THE ORDINARY HIGH WATER MARK TO THE POINT OF BEGINNING, CONTAINING 1,920 ACRES MORE OR LESS.

PROJECT AREA MAP



ELLWOOD

PROJECT AREA

208.1

3120.1

3242.1

COAL OIL POINT

308.1

309.1

GOLETA POINT

CORE HOLE

CORE HOLE

PLATFORM HOLLY

CORE HOLE

CORE HOLE

CORE HOLE

CORE HOLE

CORE HOLE

CORE HOLE

CORE HOLE

3498.1

SANTA BARBARA SANCTUARY

SANTA BARBARA CHANNEL

EXHIBIT "B"

W 40370

257
1388

EXHIBIT "C"

STATE OF CALIFORNIA
STATE LANDS COMMISSION

EXECUTIVE OFFICE
1807 - 13th Street
Sacramento, California 95814

PROPOSED NEGATIVE DECLARATION

EIR ND 338

File Ref.: W 40370

SCH#: 83053104

Project Title: Soil Boring Plan

Project Location: State Oil and Gas Leases PRCs 308, 309 and 3242, lying offshore of Goleta, Santa Barbara County.

Project Description: Soil borings, to provide geotechnical information for platform design and for jackup rig stability, will be taken by rotary drilling from a marine vessel.

This NEGATIVE DECLARATION is prepared pursuant to the requirements of the California Environmental Quality Act (Section 21000 et seq. of the Public Resources Code), the State CEQA Guidelines (Section 15000 et seq., Title 14, of the California Administrative Code), and the State Lands Commission regulations (Section 2901 et seq., Title 2 of the California Administrative Code).

Based upon the attached Initial Study, it has been found that:

☒ the project will not have a significant effect on the environment.

☐ the attached mitigation measures will avoid potentially significant effects.

Contact Person: Ted T. Fukushima
State Lands Commission
1807 - 13th Street
Sacramento, California 95814

Telephone: 916/322-7813

[illegible] 238
[illegible] 1389

Form 13.17 (2/82)

W 40370
Proposed Soil Boring
Program

SUMMARY OF INITIAL STUDY COMMENTS AND RESPONSE

I. Department of the Army
L.A. District, Corps of Engineers
Letter of May 12, 1983

COMMENT

An environmental assessment estimating the magnitude and impacts of dispersion of drill cuttings on the marine environment should be performed.

RESPONSE

Because of the shallow depth (100-300 feet) and small (six inch) diameter of the holes which will be drilled, the volume of cuttings will be very small, 15 to 40 cubic feet. The composition of the cuttings is expected to be the same as that of the strata exposed on the ocean floor at or near the drill site. This small volume of locally derived sediment is not expected to have a significant impact on the environment.

COMMENT

An environmental assessment of the impact of potential leaks and spills on the marine environment should be performed.

RESPONSE

Because of the shallow depth of the soil borings proposed, drilling fluids will consist principally of seawater with small amounts of clay and brite which, as described in the initial study, have undergone laboratory tests which have demonstrated them non-toxic to humans and to marine life.

COMMENT

Potential cultural resources should be identified in order to develop mitigation measures in case of significant impacts.

RESPONSE

ARCO has conducted a geohazard survey of the project area which will be used to identify potential cultural resources in the area. Final soil boring site selection will be based on the geohazard survey.

COMMENT

Impacts associated with potential encounters of shallow gas should be addressed.

RESPONSE

Gas hazards are not expected within the range of the soil borings. The consolidated formations that the holes will penetrate have been drilled through by numerous wells in the immediate area, and gas pressures in the bottom unconsolidated sediments are not great enough to be a problem. A shallow hazard survey of the area has been conducted, and data from this survey will be used to ensure that shallow pressurized gas zones are not entered. Additionally, a contingency plan has been prepared to handle any unexpected gas entry.

COMMENT

Secondary impacts associated with oil exploration and drilling should be addressed.

RESPONSE

The proposed project is an information gathering activity, not a development project. An examination of secondary or cumulative impacts is not appropriate until a development project is proposed.

II. County of Santa Barbara Health Care Services
Air Pollution Control District
Letter of May 11, 1983

COMMENT

The project should be conditioned so that the proposed operations are not conducted on days when ozone levels in the district exceed the State one-hour standard.

RESPONSE

Approval of the project will contain a condition requiring ARCO to cooperate with the APCD in avoiding conducting operations at times when the District may be exceeding the ozone standard.

III. Santa Barbara County Resource Management Department
Letter of May 13, 1983

COMMENT

Negative Declaration is an appropriate document as long as seep-related problems have been given thorough consideration.

RESPONSE

A geohazard survey of the project area has been conducted in order

to identify potential shallow hazards. Data from this survey will be used for final core hole locations in order to ensure that no shallow hazards, such as potential seeps, are encountered.

IV. State of California
California Coastal Commission
Letter of May 13, 1983

COMMENT

The map accompaning the initial study shows locations for eight core holes, however, the document states that up to ten could be drilled. The analysis should include locations for all the potential core hole sites.

RESPONSE

ARCO needs a minimum of 8 soil borings, four for platform design and four for jack-up rig stability studies. If, however, any of the 8 borings are unacceptable for analysis (i.e. damaged) or if any indicate that the bottom is not sufficiently competent to support a structure, ARCO will need to take additional borings. Any additional borings will be done (taken) within a 150 foot radius of the locations shown in the initial study. Up to six additional cores (for a total not to exceed 14) may be taken if needed.

COMMENT

In the area where this proposed activity will take place, support boat traffic could interfere with commercial fishing gear, such as traps, buoys and set gill nets.

RESPONSE

The vessel used to drill the core holes is totally self contained and will require no support boat. The vessel used will be no larger (50 meters length, 2 meter draft) than fishing boats normally used in the Santa Barbara Channel. This vessel will make only one trip to a harbor during the project duration immediately. Moreover, the project vicinity is normally not heavily fished because of the naturally occurring gas seeps. ARCO will be required to notify local fisherperson organizations of the time and location of the proposed activities.

V. State of California
Department of Fish and Game
Letter of May 10, 1983

COMMENT

The proposed project will not have significant impacts on fish and wildlife resources. The soil boring operations will not interfere with commercial fishing activities if fishermen are given a reasonable opportunity to relocate gear or if the proposed activity is scheduled during times of little fishing activity.

RESPONSE

ARCO will be required to notify local fishing organization, several days in advance, of its intended location and schedule.

VI. State of California
California Division of Oil and Gas
Letter of May 5, 1983

COMMENT

The proposed soil borings are shallow and no impacts are expected. A Negative Declaration is appropriate.

RESPONSE

None required.

VII. State of California
Department of Boating and Waterways
Letter received May 20, 1983

COMMENT

The Department has no comment or concerns relative to the proposed project.

RESPONSE

None required.

VIII. Department of Transportation
United States Coast Guard
Letter of May 20, 1983

COMMENT

A Negative Declaration is appropriate. The applicant must contact the Eleventh District Aids to Navigation Branch, at least two weeks prior to any initiating operations.

RESPONSE

The applicant has been notified of this Coast Guard requirement.

April 25, 1983

File Ref. W 40370

INITIAL STUDY
PROJECT LOCATION AND DESCRIPTION

Arco Oil and Gas Company (ARCO) proposes to conduct a soil boring program on State Leases PRC 308.1, 309.1 and 3242.1 located off Goleta Pt. in the Santa Barbara Channel, Santa Barbara County, California (see attached map).

The purpose of the program is to collect geotechnical information in order to:

1) design platforms for the development of Coal Oil Point (COP) Offshore Field on leases 308.1 and 309.1.

2) determine soil stability for the use of a jackup rig in a well plug and abandonment program on leases 308, 3242 and 3120.

SOIL BORING PLAN - COP PLATFORM SITES

In order to properly design the platforms required for the development of the Coal Oil Point Offshore Field, extensive geotechnical analysis of the seafloor must be completed. This analysis requires site specific soil borings to be taken and extensively analyzed in the laboratory. The information gained from these borings will be used to develop the required foundation design parameters for the platforms. A detailed shallow hazards geophysical survey will be performed prior to taking the borings. The results of the survey will, among other things, determine the exact location for the borings.

Soil borings for platform sites will be taken in water depths ranging from 200 to 250 feet. Each of the borings will penetrate to a depth of 100 to 300 feet (depending on soil strengths encountered) below the seafloor and should only take about one day each. Onboard testing will determine the required penetration depths. The work will be conducted by a qualified area contractor, using a marine vessel equipped with a Failing 1500 or 2000 type drill rig. The scope of the work to be accomplished is as follows:

Sampling shall be semi-continuous from 0 to 40 feet below seafloor, every five feet or each change of layer from 40 to 80 feet, and every ten feet or at each change of layer from 80 to 300 feet. Core holes will be 6 inches in diameter with a 2½ inch diameter core sample being taken.

The core holes will be rotary drilled to sampling depths as described above. Soil samples will be taken with a push-type

sampler. This wireline sampler consists of several spring loaded digging claws and a shelby tube to contain the soil samples. The digging claws are activated by lowering the drill string and applying weight. The tool and soil sample are then retrieved by wireline.

Soil samples will be examined and visually classified by the onboard engineer. Onboard testing will be performed to yield preliminary sheer strength versus depth and axial capacity versus depth. Onboard testing will include, but not be limited to, miniature vane, pocket penetrometer, and unconfined compression tests.

Sufficient laboratory testing will be performed to yield sheer strength versus depth, water content, liquid and plastic limits, and soil classification versus depth. Laboratory testing will also include: sieve and hydrometer, unconfined compression test, dynamic load (earthquake) testing, lateral load versus deflection curves, static axial load capacity versus depth of both tension and compression, mud mat bearing capacity, dynamic soil capacities. In addition, investigation for soil-liquification under earthquake conditions will be performed.

Although there is not a riser to recover drill cuttings, because of the shallow depth and small 6 inch hole size, the volume of cuttings dispersed on the seafloor will be very small. The drilling fluid will be basically seawater with small amounts of attapulgite clay and barite added as conditions warrant. Each core hole will be plugged with cement.

Sufficient seismic engineering will be performed to yield earthquake magnitude and seismic response spectrum. This data will be used in conjunction with the soil engineering.

ARCO will furnish State Lands Commission with a copy of the soil stability report when it becomes available.

The tentative locations of the soil borings are as follows:

x = 1,434,439'E Y = 326,195'N (309.1) in Lambert Grid 5

x = 1,440,509'E Y = 324,482'N (308.1) in Lambert Grid 5

x = 1,436,230'E Y = 325,662'N (309.1) in Lambert Grid 5

x = 1,439,013'E Y = 324,710'N (308.1) in Lambert Grid 5

A minimum total of four cores and a maximum of ten are projected from the above locations.

general

SOIL BORING PLAN - PLUG AND ABANDONMENT

ARCO is currently evaluating the plugging and abandonment of four wells on leases PRC 3120.1 and 3242.1.

Soil borings are required for each of the locations to determine the soil stability for the support of a jackup rig.

Each of the borings will penetrate to a maximum depth of 100' below the seafloor and should only take about one day each. The work will be conducted by a qualified consultant using a rig which will be equipped with a Failing 1500 or 2000 type drill rig. The scope of the work will be accomplished in the same general manner described above except for the following:

Sampling shall be semi-continuous from 0 to 20 feet below seafloor, every five feet or each change of layer from 20 to 50 feet, and every ten feet or at each change of layer from 50 to 100 feet or maximum depth reached, whichever is less.

The core holes will be rotary drilled to sampling depths as described above. Soil samples will be taken by a wireline percussion sampler. This sampler consists of a lower tubular section to which the soil sampler is attached, a rod which telescopes within the tubular section and an upper hammer section. Samples are obtained by raising the drill string and lowering the sampler through the drill string and open hole bit. Sampler penetration is obtained by alternately raising and dropping the hammer section. The sample is retrieved by simply pulling up on the wireline.

Soil samples shall be examined and visually classified by the onboard contract engineer. Onboard testing shall be performed to yield preliminary sheer strength versus depth and jackup leg penetrations and stability tests. Onboard testing shall include, but not be limited to, miniature vane, pocket penetrometer, and unconfined compression tests.

Sufficient laboratory testing will be performed to yield sheer strength versus depth, water content, liquid and plastic limits, and soil classification versus depth. Laboratory testing will include: water content, liquid and plastic limits, sieve and hydrometer, and unconfined compression test.

Engineering will be performed to yield expected jack-up leg penetration versus load for both drained and undrained cases, scour effects, potential layer punch-through and earthquake stability of soil with jack-up loadings.

Although there is not a riser to recover drill cuttings, because of the shallow depth and small 6 inch hole size, the volume of cuttings dispersed on the seafloor will be extremely small.

ARCO will furnish the State Lands Commission with a copy of the soil stability report.

The locations for plug and abandonment soil borings are:

x = 1,427,650'E Y = 328,423'N (3242.1) in Lambert Grid 5

x = 1,422,722'E Y = 330,097'N (3120.1) in Lambert Grid 5

x = 1,430,156'E Y = 327,083'N (3242.1) in Lambert Grid 5

x = 1,419,256'E Y = 331,080'N (3120.2) in Lambert Grid 5

ENVIRONMENTAL SETTING

ARCO State Leases PRC 308.1 309.1 3120.1 and 3242.1 are located along the northern edge of the Santa Barbara Channel extending three miles offshore between Goleta Point and Naples reef. The area is within the Transverse Range Geomorphic Province, an east-west trending province that is characterized by extensive faulting, folds, mountain ranges, and valleys (or basins).

The leases are specifically located on the Mainland shelf, a subsea terrace that extends from the shoreline roughly four or five miles offshore where it drops steeply into the Santa Barbara Basin. Water depths at the edge of the shelf range from 250 to 300 feet. The shelf gradient is relatively gentle averaging 3-6% with some irregular topography near the southern boundary of the leases. The shelf is underlain by thick sequence of folded and faulted tertiary sedimentary strata. Rocks of the Monterey and Sisquoc Formations (Miocene) and Pico and Repeto Formations (Pliocene) underlie surficial sediments. The bottom sedimentary sequence consists of a surface layer of unconsolidated sediments overlaying bedrock. The contact is an erosional unconformity. Surfical sediments vary in thickness from less than a few feet to nearly fifty feet. Sediments are generally thickest in the central portions of the lease and become thinner seaward and shoreward.

The shelf has a number of gasified near-surface sediments and oil seeps, including the "Holly Seep" which has two devices installed for containment of the seep.

Chemical oceanography of the site is typical of sea water throughout the Santa Barbara Channel with variations due to season, conditions, and depth. Mean surface temperature is 58°F, at 200 feet 54°F. Salinity has a mean of 33.5 parts per thousand. Nutrients range from 0.3 - 1.6 PO_4 grams-atoms/liter (surface to 200 feet) and 5 - 26.7 SiO_2 grams-atoms/liter (surface to 200 feet). Dissolved oxygen ranges from 5.17 - 3.44 milligrams/liter (surface to 200 feet). Heavy metal and hydrocarbon specifications have not been measured in the area but are expected not to depart significantly from world values, except in areas of natural seep activity.

The leases are located at the northern most boundary of the Southern California Bight, and resident biota are represented by both northern and southern species. Soft bottom substrates (cobble or rock outcrops) are found in the project area. Invertebrate, planktonic, fish and mammalian species commonly associated with these habitats are found within the project area.

No significant cultural resources are known to occur within the immediate area where soil borings will be taken. Previous cultural resource surveys on the leases have noted some potential for the presence of underwater sites, but to date no significant sites have been identified. Several prehistoric artifacts (bowls) have been located in shallow water on leases 308 and 309 but these seem to be isolated occurrences, and are in areas that will not be impacted by core holes.

Vessel activity in the Santa Barbara Channel includes commercial shipping, crew and supply boats for offshore petroleum development, commercial and sport fishing, and recreational power and sail boats. In the immediate project vicinity, recreational use and crew boats for platforms are the most common usage. ARCO and Exxon crew boats average four or five trips per day from the Ellwood Pier to Platforms Holly (ARCO) and Hondo (Exxon). Recreational boats occasionally frequent the area.

ENVIRONMENTAL IMPACTS

Environmental impacts from the soil boring program as a result of coring, discharging core hole sediments, noise and air contaminants, and general offshore marine vessel activity are, expected to be very small and of short duration.

Approximately 15 to 40 cubic feet of sediment and unconsolidated material may be excavated with each core hole. Depending upon ocean currents, the deposition of excavated material will be greatest within a few feet of the core hole. Slight mounds of material several feet in height may be temporarily built up, slightly altering seafloor topography and overcovering sediments until currents redistribute it.

Turbidity levels in the immediate area of excavation and discharge may increase slightly. Coarser grain material will settle out within a relatively short distance of excavation and discharge, finer grain material may be suspended for somewhat greater distances. Increases above background levels of hydrocarbon and other elements may also occur depending upon the sediment composition. However, all impacts to water quality are expected to be very local and of short duration.

Impacts to existing biota are expected to be very small. The habitats to be impacted will be those substrates immediately surrounding core holes. In these areas invertebrate and planktonic communities will be effected, but the overall effect upon area ecology will be negligible.

Ambient noise levels in close proximity to the vessel will increase as a result of drilling. However, since drilling will occur several miles offshore, on-shore receptors should not be impacted to any noticeable extent.

The drilling vessel will release small amounts of air pollutants into the atmosphere, primarily oxides of nitrogen and some reactive hydrocarbons. Impact to the area's overall air quality is expected to be negligible. The project does not require a permit from the Santa Barbara County Air Pollution Control District.

Impacts to navigation and traffic in the Santa Barbara Channel are expected to be negligible. Adequate safeguards currently exist to notify marine traffic in the area of drilling activity.

CONTINGENCY PLAN FOR SHALLOW GAS

In order to be thoroughly prepared to handle potential problems associated with shallow gas, outlined below is a contingency plan that will be incorporated into the offshore coring program.

1. Drilling fluid will consist of a weighted mud system of a non-toxic nature (see Attachment #1). Additionally, 80 pcf mud will be readily available in sufficient storage tanks onsite.

2. Cement, with all necessary associated equipment for mixing and pumping, will be on hand and will be utilized if deemed necessary.

3. Experienced drilling personnel will be on board the coring vessel at all times. Their responsibilities will include direct supervision and enforcement of sound drilling practices (i.e., making sure the hole is kept full of mud.)

4. A pre-spud meeting will be held prior to coring. The purpose of the meeting will be to inform all coring personnel of the potential gas problem and prepare them for possible contingencies. Information will include preventive measures that will be incorporated into the coring program, as well as insuring that every individual understands his specific duties and stations in an emergency.

By adhering to this contingency plan, the potential of shallow gas should pose no threat to the soil boring project.

SAFETY AND ENVIRONMENTAL TECHNICAL BULLETIN

Date Issued 9/17/76

ISSUED BY THE SAFETY AND ENVIRONMENTAL CONTROL DEPARTMENT

TOXICITY DATA

A BIOASSAY – MAGCOBAR A DRILLING FLUID ADDITIVE

INTRODUCTION

Magcobar is a water insoluble, naturally occurring ore consisting of barium sulfate and commonly known as barite. It is chemically inert, non-abrasive weighting material that will not react with the various other mud additives or contaminants encountered in a drilling fluid. It is a drilling fluid weighting material used to increase the density of all drilling fluids up to 22 lbs/gal.

It is considered non-toxic to man as it is used as a contrast medium in roentgenography of the upper and lower digestive tract. The toxic effects of barite on aquatic life (both marine and freshwater) are of great importance, and the following tests were conducted to determine the acute fish toxicity of Magcobar.

PROCEDURE

Fish kill studies using the Acute Fish Toxicity Test of the American Public Health Association were conducted using a current production sample of Magcobar. All tests were conducted by an independent testing laboratory.

TEST RESULTS AND CONCLUSIONS

Test results are listed as TLm (Median Tolerance Limit) which represents the concentration of the material tested that causes fatalities in 50% of the test organisms (Mollienisias latipinna-Sailfin Molly) for a specified period of time.

Magcobar is normally used in concentrations of 0 – 700 pounds/barrel which corresponds to approximately 0 – 494,000 ppm.

This product is a very fine particle-size mineral powder that wets readily and disperses easily. However, due to its high bulk density, Magcobar will not remain dispersed at the extremely high concentrations tested. Being water insoluble and chemically inert, contact with aquatic life would have no detrimental effects.

FRESHWATER	SEAWATER
• 24 – 96 hour TLM = > 100,000 ppm	• 24 – 96 hour TLM = > 100,000 ppm

- No fatalities occurred at 100,000 ppm. This concentration was considered to exceed the practical limits of the test.

SAFETY AND ENVIRONMENTAL

TECHNICAL BULLETIN

Date Issued

Attachment 1

ISSUED BY THE SAFETY AND ENVIRONMENTAL CONTROL DEPARTMENT

TOXICITY DATA

A BIOASSAY – MAGCOGEL A DRILLING FLUID ADDITIVE

INTRODUCTION

Magcogel is a naturally occurring ore consisting of a sodium montmorillonite, colloidal clay commonly known as bentonite. It is water insoluble, however, it is a hydrophilic clay. It is used as an additive to develop controlled viscosity, gel strengths, and filtration rates of water base drilling fluids. It may be dehydrated in freshwater for use as a viscosifying and fluid loss control agent in certain brine systems.

- It is considered to be non-toxic to man as it can be used as a bulk laxative and a base for preparations which may be used on the skin. The toxic effects of bentonite on aquatic life (both marine and freshwater species) are of great importance and the following tests were conducted to determine the acute fish toxicity of Magcogel.

PROCEDURE

- Fish kill studies applying the Acute Fish Toxicity Test of the American Public Health Association were conducted by an independent testing laboratory.

TEST RESULTS AND CONCLUSIONS

Test results are listed as TLm (Median Tolerance Limit) which represents the concentrations of the material tested that causes fatalities in 50% of the test organisms (Mollienisias latipinna-Sailfin Molly) for a specified period of time.

Magcogel is normally used in concentrations of 5 – 35 pounds/barrel which corresponds approximately to 5,770 – 40,384 ppm. This product is a fine particle-sized, high yield clay that wets fairly readily and disperses well in a seawater media. It forms an extremely viscous gel at high concentrations which increases with time in a freshwater media, and it virtually restricts any mobility of the test organisms.

FRESHWATER

24 – 96 hour TLm = 14,500 ppm

SEAWATER

24 – 96 hour TLm = > 100,000 ppm

Any higher concentrations would exceed the practical limits of the test method.

- Due to the formation of an extremely viscous gel in freshwater, a loss of viability in the test organisms occurred, and thus obscures the standard to mechanical blockage of gill function.

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PROJECT AREA MAP