

MINUTE ITEM 28

W40547
PRC 1466
PRC 410
Griggs
Gonzales

APPROVE WORKOVER OF EXISTING OIL AND GAS WELLS,
STATE OIL AND GAS LEASES PRC 1466 PRC 410
VENTURA COUNTY

Calendar Item 28, attached, was pulled from the agenda prior to the meeting.

Attachment: Calendar Item 28

A 35

S 18

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CALENDAR ITEM

A 35

S 18

28

07/15/91
W 40547
PRC 1466
PRC 410
Griggs
Gonzalez

APPROVE WORKOVER OF EXISTING OIL AND GAS WELLS,
STATE OIL & GAS LEASES PRC 1466 AND PRC 410
VENTURA COUNTY

LESSEES:

Bush Oil Company (Operator)
Attn: Neil Nelson
P. O. Box 1538
Taft, California 93268

ARCO Oil and Gas Company
Attn: Paul Langland
P. O. Box 147
Bakersfield, California 93302

AREA, TYPE LAND AND LOCATION:

State oil and gas lease PRC 1466, issued on August 29, 1955, comprises 1,175 acres of submerged land at the westerly end of Rincon Field, Ventura County, located approximately ten miles north of the City of Ventura. A drilling and production island, Rincon Island, was constructed in 1958 by the Lessee and is located approximately 3,000 feet from shore in 45 feet of water. The island is connected to the mainland by a causeway.

State oil and gas lease 410 was issued in April 1949 and consists of 50 acres of partially filled tide and submerged lands in the Rincon area, Ventura County (see Exhibit "A").

PROPOSED PROJECT:

Bush Oil Company, Lessee of State oil and gas leases PRC 466 and PRC 410, is proposing a project to enhance production of oil and gas from the "A" sand reservoirs in the offshore Rincon area. The project includes sidetracking and deepening 22 existing wells into the AH to AZ sands of the Pico-Repetto formation. Twenty-

one of the wells are located in Lease PRC 1466 on Rincon Island. The other well is located on lease PRC 410 about one mile east of Rincon Island. Lease PRC 410 is developed through an existing well onshore on Bush Oil Company property at 5750 West Pacific Coast Highway located north of Highway 101.

AB 884:
09/12/91.

OTHER PERTINENT INFORMATION:

1. Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (14 Code Regs. 15025), an Initial Study was prepared by staff. Subsequent to preparation of the Initial Study, a Proposed Negative Declaration EIR ND 544, State Clearinghouse 91031041, was prepared. The Proposed Negative Declaration includes mitigation measures which were incorporated into the project, and which are the subject of the Mitigation Monitoring Plan, Exhibit "C".

The Proposed Negative Declaration was prepared and circulated for public review pursuant to the provisions of the CEQA. A copy of this environmental document is attached as Exhibit "B".

Based upon the Initial Study, the Proposed Negative Declaration, and the comments received in response thereto, there is no substantial evidence that the project, as proposed, will have a significant effect on the environment (14 Cal. Code Regs. 15074(b)).

2. This activity involves lands identified as possessing significant environmental values pursuant to P.R.C. 6370 et. seq. Based upon staff's consultation through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with the use classification.

EXHIBITS:

- A. Location Map.
- B. Proposed Negative Declaration ND 544.
- C. Mitigation Monitoring and Reporting Plan.

IT IS RECOMMENDED THAT THE COMMISSION:

1. CERTIFY THAT A PROPOSED NEGATIVE DECLARATION, EIR ND 544, STATE CLEARINGHOUSE 91031041, WAS PREPARED FOR THIS PROJECT PURSUANT TO THE PROVISIONS OF THE CEQA AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.
2. ADOPT THE PROPOSED NEGATIVE DECLARATION AND DETERMINE THAT THE PROJECT, AS PROPOSED, WILL NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT.
3. ADOPT, PURSUANT TO SECTION 21081.6 OF THE P.R.C., THE MONITORING PROGRAM CONTAINED IN EXHIBIT "C", FOR THE PROJECT TO ENSURE COMPLIANCE WITH THE REQUIRED MITIGATION MEASURES.
4. FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED FOR THE LAND PURSUANT TO P.R.C. 6370 ET. SEQ.
5. APPROVE THE PROPOSAL BY BUSH OIL COMPANY TO WORKOVER 22 OIL AND GAS WELLS UNDER STATE OIL AND GAS LEASES PRC 1466 AND PRC 410.

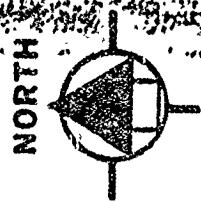
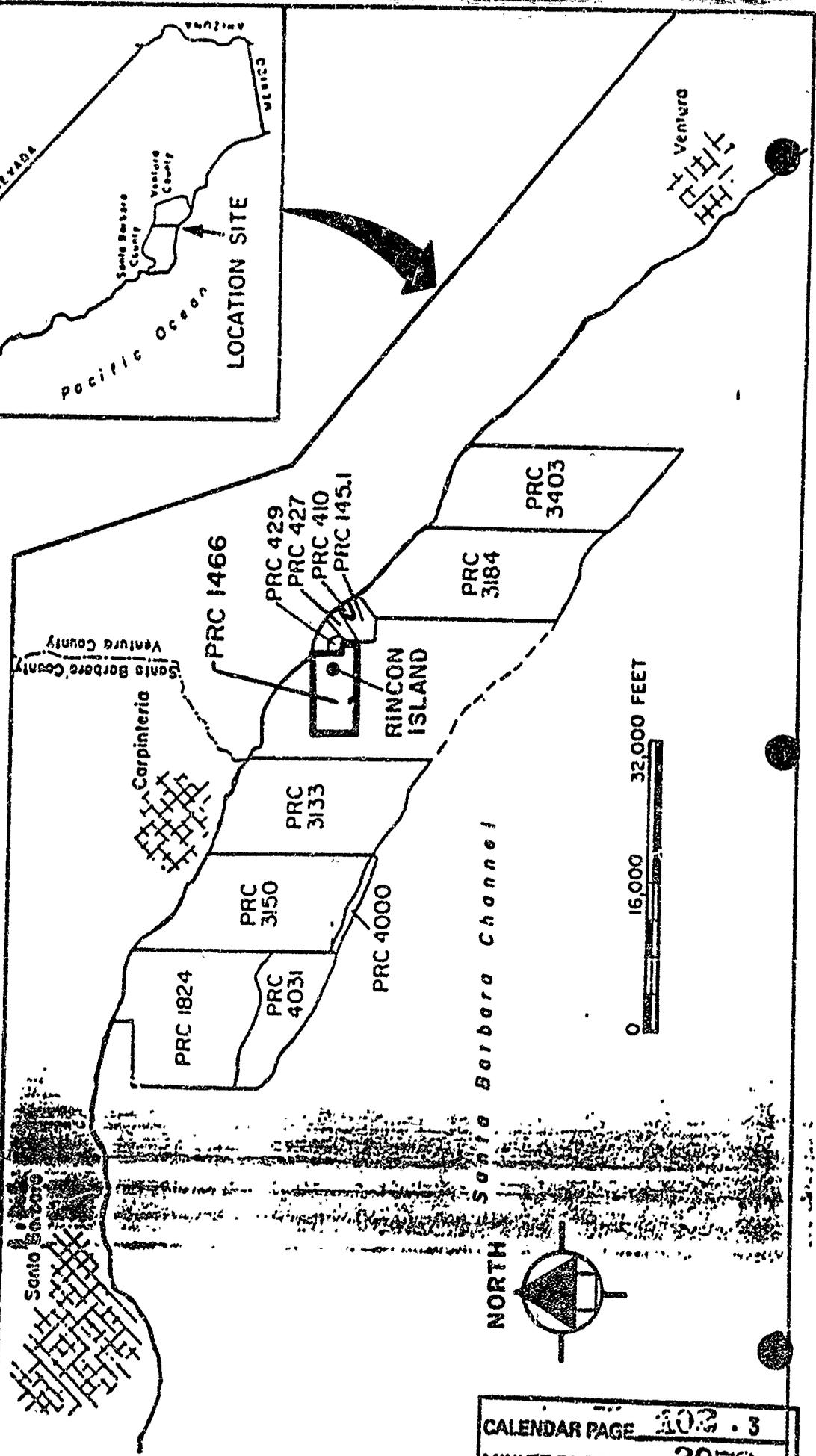
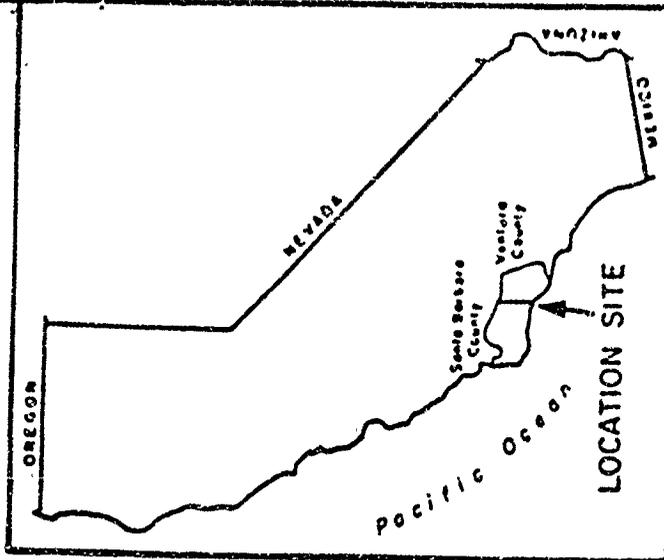
EXHIBIT "A"

WORKOVER PROJECT

RINCON ISLAND

BUSH OIL CO.

W40547, PRC 1466, 410



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STATE LANDS COMMISSION

JO T. McCARTHY, Lieutenant Governor
RAY DAVIS, Controller
THOMAS W. HAYES, Director of Finance

EXECUTIVE OFFICE
1807 - 13th Street
Sacramento, CA 95814

CHARLES WARREN
Executive Officer

March 11, 1991
File Ref.: W 40547
EIR ND: 544

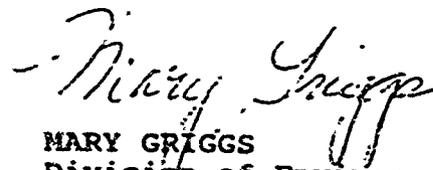
EXHIBIT B

NOTICE OF PUBLIC REVIEW OF A NEGATIVE DECLARATION
(SECTION 15073 CFR)

A Negative Declaration has been prepared pursuant to the requirements of the California Environmental Quality Act (Section 21000 et seq., Public Resources Code), the State CEQA guidelines (Section 15000 et seq., Title 14, California Code Regulations), and the State Lands Commission Regulations (Section 2901 et seq., Title 2, California Code Regulations) for a project currently being processed by the staff of the State Lands Commission.

The document is attached for your review. Comments should be addressed to the State Lands Commission office shown above, with attention to the undersigned. All comments must be received by April 11, 1991.

Should you have any questions or need additional information, please call the undersigned at (916) 322-0354.



MARY GRIGGS
Division of Environmental
Planning and Management

Attachment

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STATE LANDS COMMISSION

LEO T. McCARTHY, *Lieutenant Governor*
 GRAY DAVIS, *Controller*
 THOMAS W. HAYES, *Director of Finance*

EXECUTIVE OFFICE
 1807 - 13th Street
 Sacramento, CA 95831

CHARLES WARREN
 Executive Officer

PROPOSED NEGATIVE DECLARATION

EIR ND: 544
 File: W 40547
 SCH No.: 91031041

Project Title: Bush Oil Company Workover Project

Proponent: Bush Oil Company

Project Location: Rincon Island and 5750 Pacific Coast Highway, Ventura County.

Project Description: Workover of 21 existing oil and gas wells on Rincon Island and one at 5750 Pacific Coast Highway.

Contact Person: Mary Griggs Telephone: 916/322-0354

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

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

- this project will not have a significant effect on the environment.
- mitigation measures included in the project will avoid potentially significant effects.

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ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST - PART II

Form 13.20 (7/82)

File Ref.: WP 1466, WP 410

I. BACKGROUND INFORMATION

A. Applicant Bush Oil Company

P.O. Box 1538

Taft, CA 93268

B. Checklist Date: 9 / 21 / 90

C. Contact Person: Mary Griggs

Telephone: (916) 322-0354

D. Purpose: Rehabilitate and redrill 22 existing oil and gas wells in order to drain "A" sands.

E. Location: Rincon Island and 5750 Pacific Coast Highway, Ventura County.

F. Description: Workover of 21 existing oil and gas wells on Rincon Island, and one at 5750 Pacific Coast Highway.

G. Persons Contacted:

II. ENVIRONMENTAL IMPACTS. (Explain all "yes" and "maybe" answers)

A. Earth. Will the proposal result in:

- | | Yes | Maybe | No |
|--|--------------------------|--------------------------|-------------------------------------|
| 1. Unstable earth conditions or changes in geologic substructures? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Disruptions, displacements, compaction, or overcovering of the soil? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Change in topography or ground surface relief features? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. The destruction, covering, or modification of any unique geologic or physical features? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Any increase in wind or water erosion of soils, either on or off the site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet, or lake? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Exposure of all people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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	Yes	Maybe	No
B. Air Will the proposal result in			X
1 Substantial air emissions or deterioration of ambient air quality?			X
2 The creation of objectionable odors?			X
3 Alteration of air movement, moisture or temperature or any change in climate, either locally or regionally?			X
C. Water Will the proposal result in			X
1 Changes in the currents, or the course or direction of water movements, in either marine or fresh waters?			X
2 Changes in absorption rates, drainage patterns or the rate and amount of surface water runoff?			X
3 Alterations to the course or flow of flood waters?			X
4 Change in the amount of surface water in any water body?			X
5 Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?			X
6 Alteration of the direction or rate of flow of ground waters?			X
7 Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?		X	
8 Substantial reduction in the amount of water otherwise available for public water supplies?			X
9 Exposure of people or property to water-related hazards such as flooding or tidal waves?			X
10 Significant changes in the temperature, flow or chemical content of surface thermal springs?			X
D. Plant Life Will the proposal result in:			X
1 Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?			X
2 Reduction of the numbers of any unique, rare or endangered species of plants?			X
3 Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?			X
4 Reduction in acreage of any agricultural crop?			X
E. Animal Life Will the proposal result in			X
1 Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects)?			X
2 Reduction of the numbers of any unique, rare or endangered species of animals?			X
3 Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?			X
4 Deterioration to existing fish or wildlife habitat?			X
F. Noise Will the proposal result in:			X
1 Increase in existing noise levels?			X
2 Exposure of people to severe noise levels?			X
G. Light and Glare Will the proposal result in			X
1 The production of new light or glare?			X
H. Land Use Will the proposal result in			X
1 A substantial alteration of the present or planned land use of an area?			X
I. Natural Resources Will the proposal result in			X
1 Increase in the rate of use of any natural resources?			X
2 Substantial depletion of any nonrenewable resources?			X

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- J. Risk of Upset.** Does the proposal result in:
1. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions? Yes Maybe No
2. Possible interference with emergency response plan or an emergency evacuation plan?
- K. Population.** Will the proposal result in:
1. The alteration, distribution, density, or growth rate of the human population of the area?
- L. Housing.** Will the proposal result in:
1. Affecting existing housing, or create a demand for additional housing?
- M. Transportation/Circulation.** Will the proposal result in:
1. Generation of substantial additional vehicular movement?
2. Affecting existing parking facilities, or create a demand for new parking?
3. Substantial impact upon existing transportation systems?
4. Alterations to present patterns of circulation or movement of people and/or goods?
5. Alterations to waterborne, rail, or air traffic?
6. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?
- N. Public Services.** Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:
1. Fire protection?
2. Police protection?
3. Schools?
4. Parks and other recreational facilities?
5. Maintenance of public facilities, including roads?
6. Other governmental services?
- O. Energy.** Will the proposal result in:
1. Use of substantial amounts of fuel or energy?
2. Substantial increase in demand upon existing sources of energy, or require the development of new sources?
- P. Utilities.** Will the proposal result in a need for new systems, or substantial alterations to the following utilities:
1. Power or natural gas?
2. Communication systems?
3. Water?
4. Sewer or septic tanks?
5. Storm water drainage?
6. Solid waste and disposal?
- Q. Human Health.** Will the proposal result in:
1. Creation of any health hazard or potential health hazard (excluding mental health)?
2. Exposure of people to potential health hazards?
- R. Aesthetics.** Will the proposal result in:
1. The obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?
- S. Recreation.** Will the proposal result in:
1. An impact upon the quality or quantity of existing recreational opportunities?

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T Cultural Resources

Yes Maybe No

- 1. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archeological site? Yes: Maybe: No:
- 2. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object? Yes: Maybe: No:
- 3. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values? Yes: Maybe: No:
- 4. Will the proposal restrict existing religious or sacred uses within the potential impact area? Yes: Maybe: No:

U Mandatory Findings of Significance

- 1. Does the project have the potential to degrade the quality of the environment, reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? Yes: Maybe: No:
- 2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? Yes: Maybe: No:
- 3. Does the project have impacts which are individually limited, but cumulatively considerable? Yes: Maybe: No:
- 4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes: Maybe: No:

III. DISCUSSION OF ENVIRONMENTAL EVALUATION (See Comments Attached)

Please refer to the pages as indicated for those items requiring further discussion:

- II.A.7. pp. 9-12 and p. 34
- II.C.7. pp. 16-17 and p. 36
- II.G.1. pp. 19-22 and p. 36
- II.I. 2 p. 22
- II.J.1. p. 22 and pp. 34-38

IV. PRELIMINARY DETERMINATION

On the basis of this initial evaluation:

- I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.
- I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date: 01 / 16 / 91

2073
 For the State Lands Commission
 CALENDAR PAGE 2073
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STATE OF CALIFORNIA
STATE LANDS COMMISSION
INITIAL STUDY FOR A REMEDIAL AND
WORKOVER PROJECT
ON
STATE OIL AND GAS LEASES
PRC 1466 AND PRC 410
OFFSHORE PUNTA GORDA
VENTURA COUNTY

1. THE PROJECT AND ITS LOCATION

Bush Oil Company, lessee of State Oil and Gas Leases PRC 1466 and PRC 410, is planning a project to enhance production of oil and gas from the "A" sand reservoirs in the offshore Rincon area. The enhancement is planned by sidetracking and deepening 22 existing wells into the AH to AZ sands. The location of the project in the area offshore Punta Gorda in Ventura County is shown in Exhibit A.

The plan provides for sidetracking and deepening twenty-two specific wells as listed in Table 1. Twenty-one of the specific wells planned for deepening are located in Lease PRC 1466 on Rincon Island, which was constructed in 1958 and is located at the end of a 3000 feet long trestle extending southward from shore at Punta Gorda. Sidetracking and deepening of these wells into the AS sand are planned.

One of the specific wells is planned for sidetracking and deepening into lease PRC 410 about one mile east of Rincon Island. Access to lease PRC 410 is made through an existing well on the Bush Oil Company property at 5750 West Pacific Coast Highway located north of Highway 101 and South of the old Rincon Highway between the Fire Station at the Seacliff off ramp and the underpass to the Mobil Piers. The well in Lease PRC 410 is planned for deepening into the AZ sands.

The general extent of redrilling will vary from about 1600 feet to 3200 feet reaching a maximum depth of about 4800 feet.

2. PURPOSE OF THE PROJECT AND EXPECTED RECOVERY

The purpose of the project is to recover additional hydrocarbon reserves in the AH to AZ sands within leases PRC 1466 and PRC 410. The wellbores currently available from the "A" sand reservoirs in the offshore Rincon area are not located in the most

EXHIBIT A
PROJECT AREA

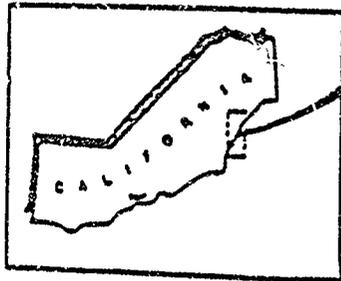
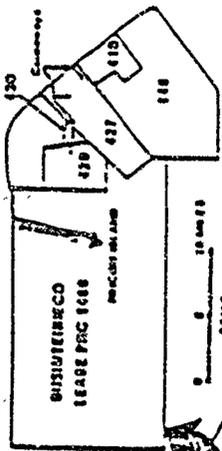
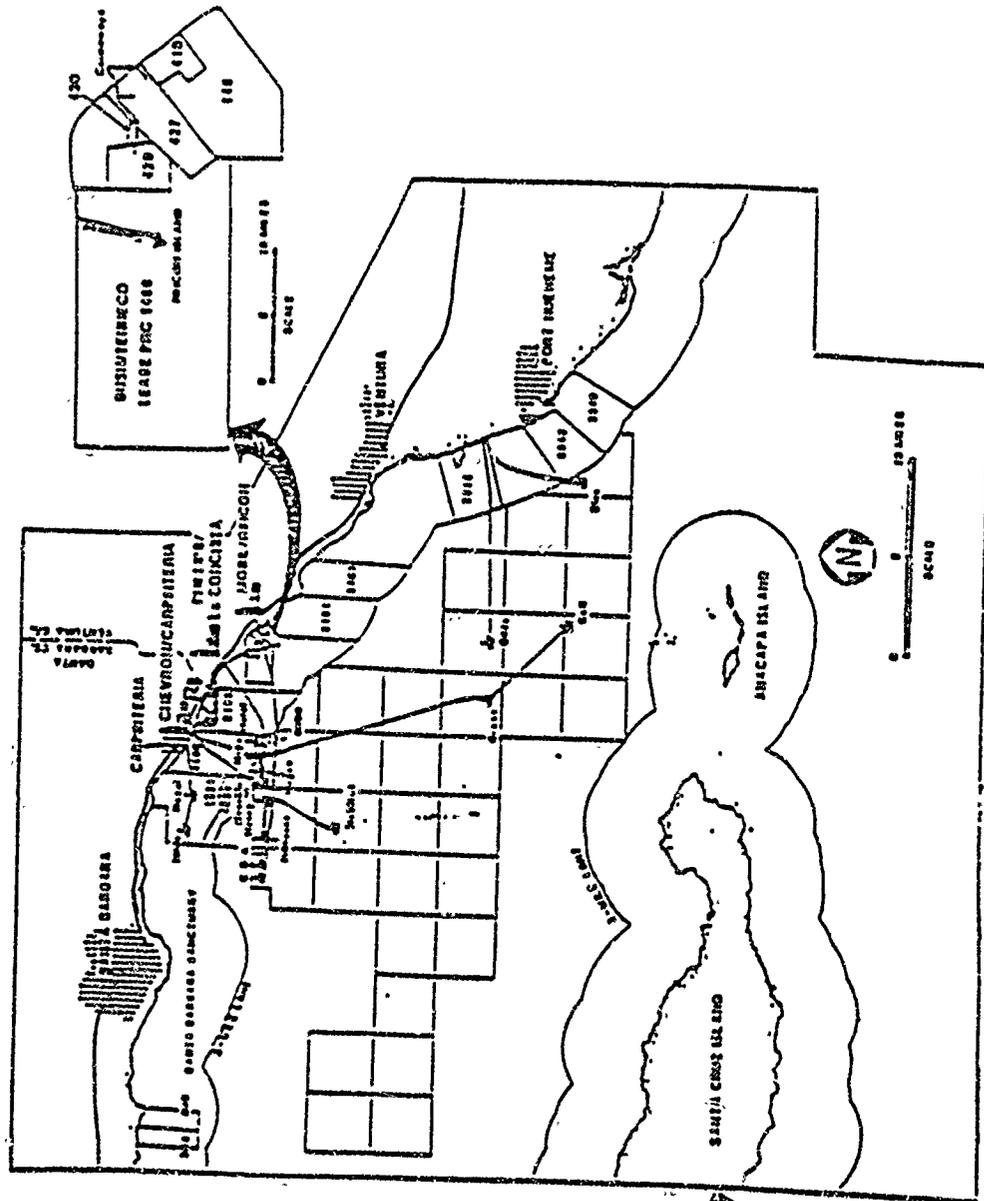


TABLE 1
 ESTIMATED RESERVES TO BE RECOVERED
 IN RINCON REDRILL PROGRAM

WELL	EXPECTED NET PAY	ESTIMATED RECOVERABLE RESERVES	
		OIL	GAS
1466 - 9R			
10	195'		
17	226'	164M BbLS	33MMCF
19	248'	190M BbLS	38MMCF
21R	250'	280M BbLS	42MMCF
22	250'	210M BbLS	42MMCF
27	225'	210M BbLS	42MMCF
28	220'	189M BbLS	38MMCF
40	260'	185M BbLS	37MMCF
42	215'	218M BbLS	44MMCF
44	240'	183M BbLS	37MMCF
45	230'	202M BbLS	40MMCF
46	225'	193M BbLS	39MMCF
48	190'	189M BbLS	38MMCF
54	195'	160M BbLS	32MMCF
57	260'	164M BbLS	33MMCF
60	220'	218M BbLS	44MMCF
61	190'	185M BbLS	37MMCF
62	180'	160M BbLS	32MMCF
63	190'	151M BbLS	30MMCF
66	228'	160M BbLS	32MMCF
410-8	215'	192M BbLS	38MMCF
	205'	181M BbLS	36MMCF
		172M BbLS	34MMCF
		4,084M BbLS	818MMCF

* Assume 1400 BAF OOIP
 3 Acre Drainage Area
 20% Ultimate Recovery

strategic locations and are generally not drilled deep enough to recover the hydrocarbons that are known to exist in the AH through AZ sands. Sidetracking of the existing wells to reach more strategic areas and deepening into the sands containing the additional known reservoirs are therefore necessary to fulfill the purpose of the project.

Expected recovery of oil from 22 specific well workovers is 4,084,000 barrels as shown in Table 1. The anticipated recovery is thus about 185,600 barrels of oil per well workover.

Natural gas recovery is anticipated at the Gas-Oil-Ratio of about 200 cubic feet per barrel. Thus about 818 million cubic feet of gas is expected from the 22 specific workovers listed in Table 1. Commercial production from the project is expected to continue over a 10-year period with approximately 10% depletion per year.

3. DESCRIPTION OF THE PROPOSED WORK

Bush Oil Company plans to conduct the remedial and workover project on one well at a time sequentially until all the work is completed. The average workover time per well is estimated to be 10 days, and completion of the entire project is expected within one year. Work on each well is planned for daylight hours only except when a hole is open, during which time the work is planned to continue on a 24 hour per day basis in order to ensure that critical operations are under constant attendance of the work crew. The normal workover crew will consist of 5 men.

A conventional drive-up type, mobile, well-servicing rig with conventional mud motors, and survey and directional equipment will be used for the workovers. A Diesel engine will power the rig. The mobile rig will be moved over each existing well for re-work. The strata already drained in the well will be plugged; then sidetracking and deepening will be accomplished using a 7 3/4 inch bit. The extent of the sidetracking and redrilling will vary between about 1600 feet and 3200 feet for each of the 22 wells, averaging about 2200 feet per well. Each hole will be cased with conventional pipe and cemented as necessary.

A high-quality, water-based mud will be used for the deepening. Produced water will be used for the mud mixture; no additional water from municipal sources will be required for the mud. The mud will be contained in interconnected steel tank mud pits, and the same mud used on the first well workover will be used on the following sequential workovers. Make-up mud will be added as necessary. As the mobile rig is moved between Rincon Island and the Bush Oil Company property ashore, the mud will be transported between the sites also in order to minimize the total quantity of mud needed for the project.

Cuttings will be separated from the mud mixture, temporarily stored in sand bins, and then hauled to approved Class II-I or Class I dumpsites as non-hazardous waste. Upon completion of the entire project, the mud will also be transported in a vacuum truck to a similar dumpsite as non-hazardous waste. A total of about 700 cubic yards of mud and cuttings is expected to be generated for disposal. As production is enhanced during the project, the oil, water, and gas will be processed through the existing Bush Oil Company facilities on Rincon Island, and on the Bush Oil Company property ashore. The existing production facilities are used to separate the produced fluid from the wells into crude oil, water, and natural gas streams. The produced fluid flows to a master trap in which separation into oil, water, and gas occurs. The stream containing primarily oil flows from the master trap to the wash tank and thence to the shipping tank. It is then sold to the Mobil Oil Company and is transported through an existing pipeline to Mobil's facilities north of Rincon Island, where it is treated further into pipeline-quality oil. Water from the master trap flows to a water tank where it is re-injected into the producing formation. All natural gas separated at the master trap, wash tank, and shipping tank is collected and sold to Southern California Gas Company through an existing 6 inch pipeline.

No new facilities will be necessary to carry out the project, and none will be constructed for the project. The existing facilities on and offshore are also sufficient for reception and temporary storage of all materials and equipment needed for the project.

Upon completion of the project the mobile rig, all the equipment used, mud, and cuttings will be removed from the project area.

4. PRESENT ENVIRONMENT

A. GENERAL ENVIRONMENT

The local vicinity of the project work is shown in Exhibit B. The local environment within about 3 miles of the project area includes the coastal communities and beaches between Rincon Beach State Park and Hobson County Park, the offshore oil development facilities within the leases PRC 1466, 429, 427, 410, and 145 as shown in Exhibit A, onshore oil wells and oil treatment facilities north of Highway 101 roughly between Punta Gorda and the Seacliff offramp to the old Rincon Highway or Highway 1, a coastal bluff rising about 500 feet above the sea and paralleling the coast within about 1500 feet of the shore, and the Pacific Ocean generally south of the proposed remedial and workover project. Highway 101 and a single track railroad parallel the coast through the local area. To the north of the bluff lie sparsely occupied ranches and an area of oil wells east of Los Sauces Creek. The beaches within 3 miles of the project area are popular surfing and swimming

areas. The land between Highway 101 and old Highway 1 southeast of the Seacliff offramp is used for agriculture.

Rincon Island in State Lease PRC 1466 is a man-made, sand-filled core surrounded by protective outer rock. The island covers approximately six acres on the ocean floor and 2.5 acres at sea level. It provides a useful work area of about one acre, and it is connected to Punta Gorda ashore by a 3000 foot long trestle. The residences nearest to the project are on Punta Gorda, and the Cliff Hotel at Mussel Shoal is also located on Punta Gorda. The only access to Rincon Island from land is from Highway 101 through the Punta Gorda beach community. The island and the trestle connecting the island to shore are visible to residents of the beach homes and hotel, some residents of La Conchita, motorists traveling on Highway 101, and from vantage points along the local coastline. The trestle is the structure that initially attracts viewer attention because of the distance it extends across the ocean surface. The trestle directs viewer attention toward the island, which appears as a relatively small rocky structure visually dominated by tall, scattered palm trees. These palm trees provide partial visual screening for the oil production facilities, which are situated within the depressed interior portion of the island. The existing production rig, when the mast is elevated, extends above the height of the palm trees and is visible from most local onshore vantage points.

The Bush Oil Company offices and yard lie north of Highway 101, and they are visible from Highway 101 but not from the nearby beach communities since the yard lies in an area lower than the Highway.

B. GEOLOGICAL ENVIRONMENT

Rincon Island and the rest of the project area are located on the modern wave-cut bench which extends inland past U.S. Highway 101 to the base of the coastal bluff. The face of the bluff is about 500 feet in height, and an elevated coastal terrace extends inland beyond its edge.

Surficial sediments in the area include scattered recent alluvial, colluvial, and beach material and Pleistocene terrace deposits which cap the elevated coastal terrace. These surficial deposits are unconformably underlain by tilted beds of the Pliocene Pico Formation which are well exposed in the face of the bluff. These beds are chiefly composed of silt/stone and conglomerate. Underlying the Pico Formation are the Pliocene Rapetto Formation (conglomerate, sandstone, and silty shale), the upper Miocene Santa Margarita Formation (massive diatomaceous mudstone), and the middle Miocene Monterey Formation (siliceous shale). Beneath the Monterey Formation is a thick sequence of lower Miocene, Oligocene, Eocene, and pre-

Tertiary sedimentary rocks which rest on a basement of crystalline or Franciscan sedimentary rocks.

Rincon Island and the project area are located slightly north of the axis of the Rincon anticline, part of the trend that includes the Rincon, Carpinteria offshore, and Dos Cuadras oil fields. In the immediate vicinity of the project area, the Rincon anticline is cut by several subsurface faults, including the Rincon field fault. Most of these faults do not extend to the surface. Several east-west trending surface or near-surface faults have been mapped in the general area. These are discussed in the following section.

5. ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT

A. EARTH

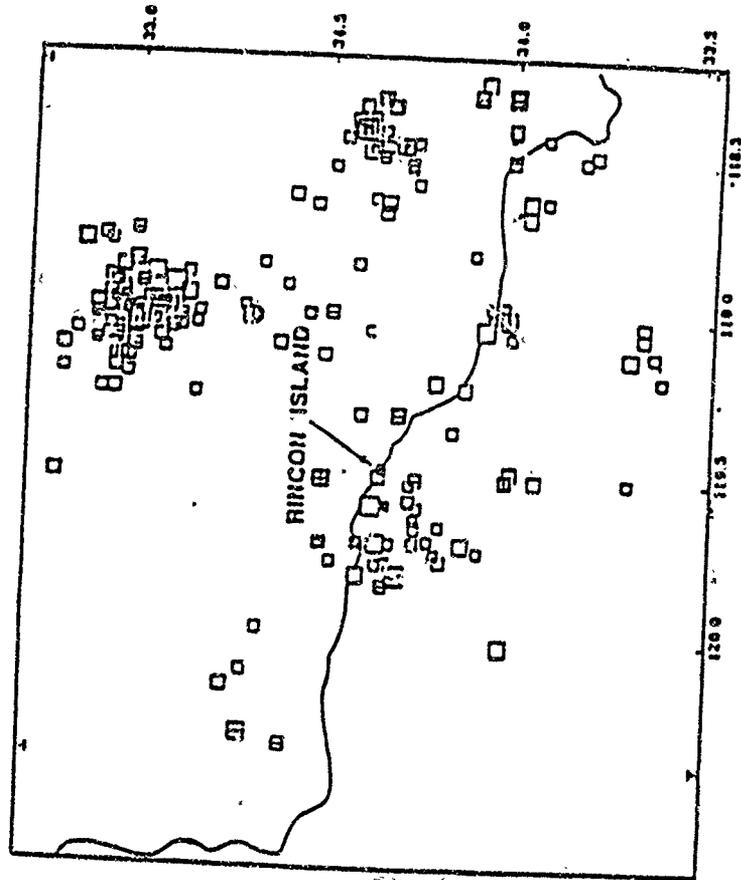
Rincon Island is a man-made structure that was built specifically to accommodate facilities for well drilling and oil and gas production. The proposed project would involve no changes to the island other than the introduction of temporary equipment within the production area. Consequently, there would be no changes in existing topography, soils, wind or water erosion, unique geologic features, siltation, or beach sand transport processes. The well reworked ashore on the Bush Oil Company property would also cause no changes to these features of the environment.

The proposed project facilities would be subject to potential adverse effects of various geologic phenomena, including earthquake ground motion, fault rupture, subsidence, and tsunami. These are briefly discussed below.

Earthquake Ground Motion: The major faults in the vicinity of Rincon Island are predominantly east-west trending reverse faults as illustrated in Exhibit C. The principal faults or fault zones thought to be seismically active and identified in the Rincon Island area are the Arroyo Parida - Santa Ana, the Red Mountain, the Pitas Point, and the Oak Ridge faults. The Arroyo Parida - Santa Ana and the Red Mountain faults are located approximately 4 1/2 and 1 mile northeast of the project area, respectively. The Pitas Point and the Oak Ridge faults are located approximately 3 and 7 1/2 miles south of the project area, respectively.

Instrumentally recorded seismicity in the Rincon Island region from 1902 to 1985 is shown on Exhibit D. It can be seen from this exhibit that seismic activity has occurred in a diffuse pattern throughout the region as well as in a few distinct clusters.

EXHIBIT D
 HISTORIC SEISMICITY OF SITE REGION
 JULY 1902 - APRIL 1985



EXPLANATION
 MAGNITUDE
 1 2 3 4 5 6
 MULTIPLE SQUARES OF SAME MAGNITUDE AT SAME LOCATION

Historically, the eastern Santa Barbara Channel has experienced a moderate level of seismicity. Much of this seismicity occurred as an earthquake swarm in 1968. Other moderate to large events occurred in the offshore Santa Barbara area in 1925, 1941, and 1978. Several other moderate magnitude events have occurred in the vicinity of the northern Channel Islands. Studies of earthquake focal mechanisms reveals that most events within the channel can be associated with the east-west trending reverse or left-slip faults.

Some level of earthquake ground shaking during the year-long project and during the 10 years of expected production are probable. Proper adherence to applicable State Lands Commission (SLC) and Division of Oil and Gas (DOG) regulations, as described in Section 7, would minimize the potential for significant environmental effects to occur as a result of the occurrence of ground shaking.

Fault Rupture: It is considered unlikely that any of the deepened well boreholes would penetrate the plain of one of the subsurface faults; however, should a fault experience movement that would damage well casing, proper adherence to applicable SLC and DOG regulations, as described in Section 7, would minimize the potential for significant environmental effects to occur as a result.

Subsidence: As production is enhanced during and after the remedial work, removal of fluids could potentially result in ground surface subsidence. Based on field history, occurrence of subsidence is considered unlikely. However, should it occur, SLC and DOG would be notified so that any appropriate mitigative measure could be instituted. Such mitigation typically consists of a program of controlled fluid injection.

Tsunami: It is highly unlikely that Rincon Island would experience a tsunami during the lifetime of the proposed wells. Adherence to applicable SLC and DOG regulations, as described in Section 7, should ensure against significant damage occurring in the event of a tsunami.

B. AIR

The proposed project is located in Ventura County's Ojai Valley Airshed. The airshed is in the south zone of Ventura County which is considered to be a non-attainment area for ozone (O₃). The area is considered in attainment with respect to other pollutants. This airshed is currently designated as a non-growth area for Ventura County Air Pollution Control District (VCAPCD) planning purposes. The proposed project area is located near the southern portion of the South Coast region of Santa Barbara County (Region 1). This region, known as the Air Quality Management Area (AQMA) for Santa

EXHIBIT E
 AIR MONITORING SITES LOCATED NEAR PROJECTED AREA

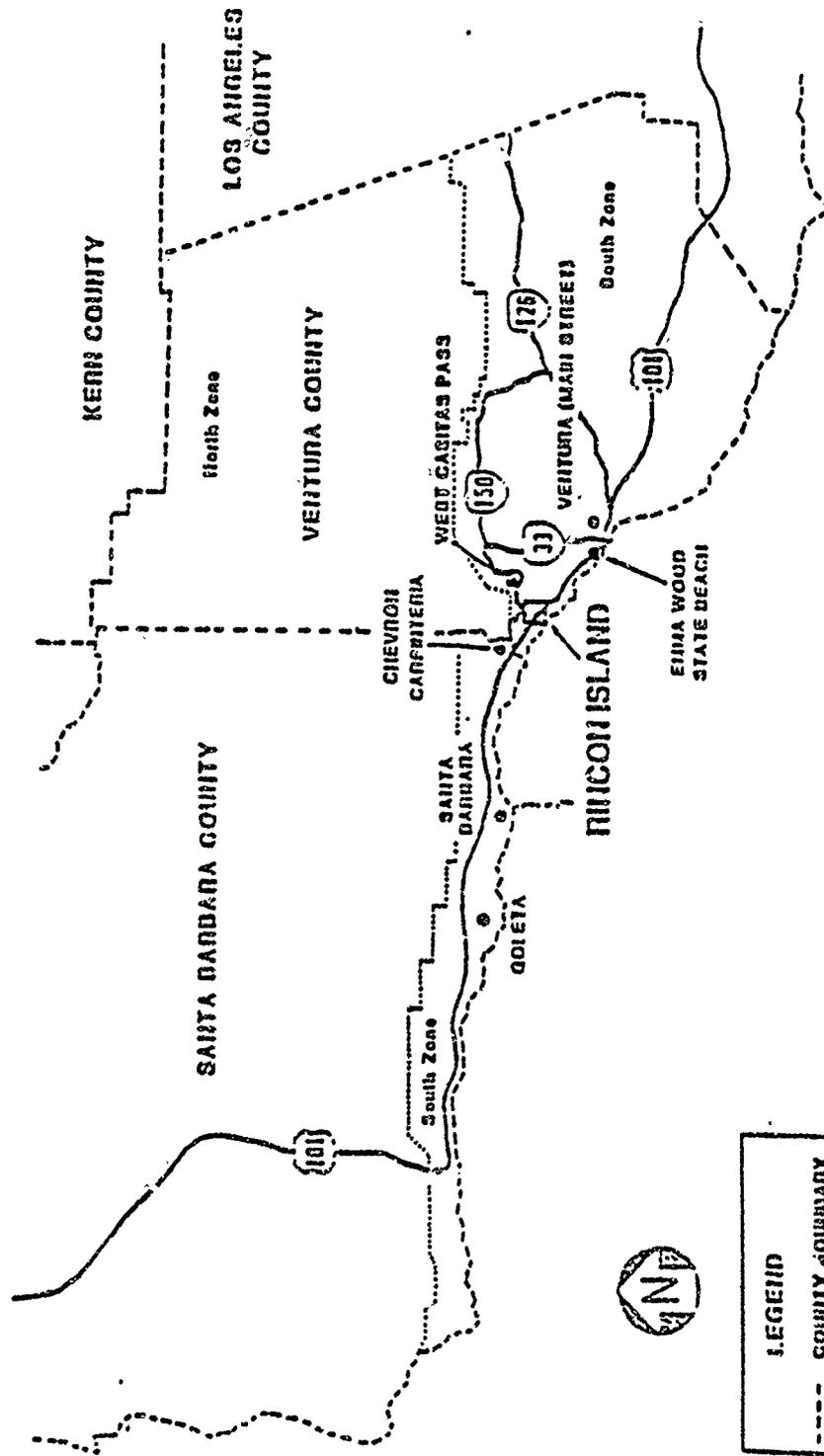


TABLE 2
 MAXIMUM MEASURED POLLUTANT CONCENTRATIONS DURING 1983-1986 IN THE
 SOUTHERN HALF OF THE SANTA BARBARA COUNTY SOUTH COAST
 AREA AND THE SOUTH ZONE OF VENTURA COUNTY

POLLUTANT/ AVERAGING TIME	SANTA BARBARA	WEST CAGITAS PASS	OJAI	EMMA WOOD STATE BEACH	AMBIENT AIR MILRO	QUALITY STANDARDS NATIONAL CALIFORNIA
O ₃ (ppm) 1-hour	0.16	0.16	0.16	0.18	0.18	0.12 0.09(b)
NO ₂ (ppm) 1-hour Annual	0.16	0.08	-	0.13	0.13	N/A
	0.019	0.031	0.013	0.017	(0.037) (a)	0.05 N/A
CO (ppm) 1-hour 8-hour	18	- (c)	-	-	6	35
	8.6	-	-	-	3.4	9
SO ₂ (ppm) 1-hour 24-hour Annual	0.04	-	-	-	-	N/A
	0.01	0.04	-	-	-	0.14
	0.003	-	-	-	-	0.03 N/A
PM ₁₀ (ug/m ³) 24-hour Annual	-	-	66	-	64	150
	-	-	30.9	-	33.5	100
PM _{2.5} (ug/m ³) 30-day Quarterly	0.10	-	-	-	-	N/A
	0.14	-	-	-	-	1.5 ug/m ³ N/A
SO ₂ (ug/m ³) 24-hour	15.0	-	-	-	-	N/A
	-	-	-	-	-	25 ug/m ³

(a) Values in parentheses are valid, but data set is incomplete in that insufficient number of data points were collected to meet EPA and/or ARB criteria for representativeness.

(b) On August 1, 1986, California Air Resources Board lowered the standard to 0.09 ppm. The previous standard was 0.10 ppm.

(c) Dashes indicate that pollutant is not measured at that particular site.

TABLE 3
WORKOVER RIG EMISSIONS*

POLLUTANT	EMISSION FACTOR ^b (g/hp-hr)	lb/hr ^c	tons/well	TOTAL TONS (22 wells)
Nitrogen Oxides	14	7.6	0.48	10.6
Sulfur Dioxide	0.93	0.5	0.03	0.7
Carbon Monoxide	3.03	1.6	0.10	2.2
Particulate Matter	1.0	0.5	0.03	0.7

a. Emissions based on a 350 hp engine operating at an average load of 70 percent for 128 hours per well.

b. Emission factors are from the EPA publication - Compilation of Air Pollutant Emission Factors (AP-42).

c. 1 lb = 453.6 grams

TABLE 3a
MUD PUMP EMISSIONS*

POLLUTANT	EMISSION FACTOR ^b (g/hp-hr)	lb/hr ^c	tons/well	TOTAL TONS (22 wells)
Nitrogen Oxides	14	3.6	0.14	3.0
Sulfur Dioxide	0.93	0.6	0.01	0.2
Carbon Monoxide	3.03	1.9	0.03	0.7
Particulate Matter	1.0	0.6	0.01	0.2

a. Emissions based on a 400 hp engine operating at an average load of 70 percent for 32 hours per well (25% of workover rig operating time).

b. Emission factors are from the EPA publication - Compilation of Air Pollutant Emission Factors (AP-42).

c. 1 lb = 453.6 grams

Barbara County, is currently classified as a non-attainment area for ozone (O₃). The South Coast Region is in attainment with National Ambient Air Quality Standards (NAAQS) for all other criteria pollutants.

The air quality monitoring network in the project region consists of six monitoring stations located in Ventura and Santa Barbara Counties (Exhibit E). The sites are located at: (1) Ventura Main Street, 14 miles southeast of the project site; (2) Emma Wood State Beach, 13 miles southeast of the project site; (3) West Casitas Pass, 4 1/2 miles northeast of the project site; (4) Chevron Carpenteria, 4 1/2 miles northwest of the project site; (5) Santa Barbara Canon Perdido Street, 14 miles northwest of the project site; and, (6) Goleta, 22 miles northwest of the project site. Maximum concentrations of pollutants measured in the project region at these monitoring stations are presented in Table 2. For comparison, NAAQS and California Ambient Air Quality Standards (CAAQS) are also shown in Table 2.

During the remedial and workover project, a 350 horsepower Detroit Diesel mobile workover rig would be used. Work on each of the 22 wells will take approximately 10 days. Work will be conducted during daylight hours only (10 hours per day) except when the hole is open (about 2 days per well) when work will continue 24 hours per day. Thus, each well will require about 128 rig hours. Air pollutant emissions estimates are shown in Table 3 and 3a.

Produced fluids would be commingled with existing Bush Oil Company production. Fluids would be processed using existing treating facilities; no new facilities would be added. Produced crude oil and natural gas would be transported via existing pipeline distribution systems.

The principal sources of possible emission increases during the enhanced production phase would be hydrocarbon tankage and equipment seals. Fugitive hydrocarbon emissions from tankage are not anticipated because all hydrocarbon vapors from tankage are collected and used onsite as fuel or sold offsite. Existing fugitive hydrocarbon emissions from equipment seals would not change as a result of additional production. In summary, enhanced production from the AH to AZ sands is not expected to increase existing emissions from production facilities, and therefore would not result in any significant impacts on air quality.

The Mobil facility is permitted to handle 1.5 million barrels of oil per month and they are currently handling approximately 422,000 barrels per month. they will not need to modify their current Ventura County APCD permit in order to process this additional oil.

The proposed workover will involve deepening the wells within the known

reservoir. No new zones will be penetrated, since no H₂S has been detected in any wells currently producing on the Island, Bush does not expect to encounter any in these wells.

Vehicular traffic associated with the proposed workovers will be the equivalent of normal well maintenance activity and will therefore no result in any appreciable increase in emissions. A single crew truck carrying a four-man crew will travel to and from the Island three times a day.

The rig used for the workover project is exempt from permit requirements of the Ventura County Air Pollution Control District under its Rule 23.D.5. Notwithstanding the exemption, the project would not be considered a major source because emissions of each pollutant are less than 25 tons per year.

C. WATER

Rincon Island has an external berm height of 30 feet above sea level on the southerly or weather side of the Island. The other exterior sides of the Island are of lesser height since wave action is less likely to broach these walls. On the Island is a spill containment system of containment walls around the tank battery and well cellar areas with drainage and return channels and berms to direct any spill back to the well cellar.

Surface water runoff on Rincon Island is contained and handled by an existing drainage system. The drainage system is connected to existing tankage where runoff water can be accumulated. The fluid is treated to separate out any oil, and the water is then disposed of through a system of existing injection wells. The proposed project would not alter this system or cause an increase in the rate and amount of surface water runoff. It is possible that ground water aquifers may be penetrated during the well deepening operations. Contamination of ground water would be prevented as described in Section 7.

The Island is visited regularly by a State Lands Commission inspector and all equipment is inspected for proper operating condition.

Produced water would be reinjected into a producing formation, rather than discharged to the ocean, through a system of existing injection wells. This system had a historic peak injection rate of 8,300 BWPD. The rate of reinjection for the proposed project is not known at this time; however, it would be significantly less than the historic peak injection rate.

Fresh water requirements for the project would be minimal and would be met through the existing municipal system. The only fresh water requirement

would be that for personal use of the work crew and sanitation since cement operations would use seawater and mud mixtures would use produced water.

In summary, implementation of the proposed project would not result in significant effects on hydrologic resources. There would be no alteration in the drainage pattern, quantity, or quality of existing surface water flow. No significant impacts on ground water aquifers are anticipated. The proposed project would not result in a significant long-term increase in fresh water use. The project activities would not involve discharges to the ocean or cause changes in the existing character of marine waters. There would be no increase in risk of exposure to potential hydrologic hazards.

D. PLANT LIFE

Commercial kelp beds grow along the coast between Ventura and Santa Barbara principally on rocky bottom areas. The beds are harvested to a maximum depth of 4 feet (Dames and Moore, 1988). The project is not expected to have any effect on these kelp beds nor on their commercial exploitation.

Vegetation around the project well on the Bush property ashore has been cleared. Vegetation on Rincon Island primarily consists of introduced palm trees, planted to shield onshore views of oil production facilities. No native vegetation types occur. The palms are situated on the perimeter of the island in planters and do not occur within the existing production facilities area. Because no new facilities would be constructed, no existing plant life would be disturbed or eliminated if the proposed project were implemented. No new species of plants would be introduced during the project, and the existing limited plant diversity would remain unchanged.

E. ANIMAL LIFE

There is no native terrestrial wildlife habitat present on Rincon Island. Consequently no use is made of the island by native terrestrial amphibian, reptile, or mammal species. The island may be used by terrestrial and marine birds for resting. Shorebirds do occur there regularly, primarily during resting periods. Some foraging by these shorebirds may occur on the rocky, outer portions of the island. No breeding by any native terrestrial wildlife species is expected to occur on the island.

Construction of Rincon Island resulted in the creation of a hard substrate intertidal and subtidal habitat in a marine environment predominantly characterized by soft bottom subtidal habitat. As a consequence, there was an associated increase in the abundance and diversity of marine biota at and