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CALENDAR ITEM
25

01/23/86
W 40476 PRC 6941
Tanner

AWARD OF A NEGOTIATED OIL AND GAS LEASE,
SACRAMENTO AND CONTRA COSTA COUNTIES

APPLICANT: Russell H. Green, Jr.
Robert D. Reedy
(The Wolter Associates, Agent)
337 East San Antonio Drive, Suite 203
Long Beach, California 90807

AREA, TYPE LAND AND LOCATION:
807+ acres of tide and submerged land, located
in the San Joaquin River in Contra Costa and
Sacramento Counties, lying within portions of
projected sections 1, 2, 11, and 12, Township 2
North, Range 2 East, MDB&M.

PERTINENT INFORMATION:
1. P.R.C. Section 6815 provides that the
Commission may negotiate and enter into
leases for the development of State lands
where, among other things, it appears that
wells drilled upon private or public lands
are draining or may drain oil or gas from
lands owned by the State, where the
competitive bid provisions of P.R.C. *
Section 6827 are impracticable by reason of
the small size or irregular configuration
of the property, because of the property's
inaccessibility from surface drill sites
reasonably available or obtainable, or
where such lease agreement is in the best
interest of the State.

The staff believes that a negotiated lease
is appropriate here and in the best
interest of the State because of the

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CALENDAR ITEM NO. 25 (CONT'D)

property's potential for drainage from adjacent private lands and its inaccessibility from surface drill sites reasonably available or obtainable.

The State parcel is surrounded by lands under lease to the applicant (see Exhibits "A" and "B"). Surface drillsites on the State parcel are inaccessible because the land is beneath the San Joaquin River.

The Applicants propose to drill directionally one exploratory well from a site on Sherman Island adjacent to the State parcel, into or through the State parcel.

2. Under the proposed negotiated oil and gas lease, Russell H. Green, Jr. and Robert D. Reedy, the Applicants, agree to pay in money to the State annually in advance as rental the sum of \$25 per acre and as royalty, a fixed 30 percent of all oil and gas produced from the State lands, as specified in the lease on file in the offices of the State Lands Commission. A five percent pass through royalty will also be paid for non-State production passing through State lands.

The area is considered a natural gas prospect with little likelihood of encountering crude oil. The lease shall provide for a primary drilling term of two years with a possible extension of an additional one year at the State's discretion.

3. The proposed lease has been reviewed by Staff Counsel who has advised that the proposed negotiated lease will comply with the requirements of P.R.C. Section 6815, and other applicable provisions of law and the rules and regulations of the Commission.

CALENDAR ITEM NO. 25 (CONT'D)

4. The proposed lease was reviewed by the Office of the Attorney General in accordance with P.R.C. Section 6818, which has advised that the proposed lease complies with applicable provisions of law and the rules and regulations of the Commission.

ENVIRONMENTAL IMPACT:

The State Lands Commission staff, in accordance with Article 10, Section 2906(b) of the Cal. Adm. Code, has conducted an initial study and has concluded that the project will not have a significant effect on the environment. Therefore, in compliance with subsection (c) of Section 2906, a Negative Declaration was prepared and filed with the State Clearinghouse.

The project is situated beneath the San Joaquin River which has not been identified as possessing significant environmental values pursuant to P.R.C. Section 6370.1. In any case, as this lease involves a subsurface extractive activity from adjacent private property, environmental impacts at this location will be minimal.

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 prepared and circulated for public review a Proposed Negative Declaration identified as EIR ND 391, State Clearinghouse No. 85072203 pursuant to the provisions of the CEQA.

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

AB 884:

02/26/86.

CALENDAR ITEM NO. 25 (CONT'D)

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

IT IS RECOMMENDED THAT THE COMMISSION:

1. CERTIFY THAT A NEGATIVE DECLARATION, EIR ND 391, STATE CLEARINGHOUSE NO. 85072203, 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. DETERMINE THAT THE PROJECT, AS PROPOSED, WILL NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT.
3. FIND THAT, IN ACCORDANCE WITH SECTION 6815, OF THE P.R.C., AS TO THE 807 ACRES OF TIDE AND SUBMERGED LANDS, CONTRA COSTA AND SACRAMENTO COUNTIES, THE PROVISIONS OF SECTION 6827 ARE IMPRACTICAL BECAUSE OF POTENTIAL DRAINAGE FROM ADJACENT PRIVATE LANDS, AND INACCESSIBILITY FROM SURFACE DRILLSITES REASONABLY AVAILABLE OR OBTAINABLE AND THAT A NEGOTIATED LEASE IS IN THE BEST INTERESTS OF THE STATE.
4. AUTHORIZE THE ISSUANCE OF A SUBSURFACE OIL AND GAS LEASE ON 807± ACRES OF TIDE AND SUBMERGED LANDS DESCRIBED IN EXHIBIT "A" ATTACHED, AND BY REFERENCE MADE A PART THEREOF, PURSUANT TO DIVISION 6 OF THE P.R.C., TO RUSSELL H. GREEN, JR. AND ROBERT D. REEDY FOR CONSIDERATION OF AN ANNUAL RENTAL OF \$25 PER ACRE AND 30 PERCENT FLAT RATE ROYALTY OF ALL OIL AND GAS PRODUCED FROM THE LEASED LANDS AND FIVE PERCENT OF THE VALUE OF ALL OIL AND GAS PRODUCED FROM WELLS DRILLED THROUGH THE LEASED LANDS INTO ADJACENT PRIVATE LANDS WHICH HAVE NOT BEEN INCLUDED IN A POOLING OR UNITIZATION AGREEMENT APPROVED BY THE STATE.

EXHIBIT "A"

LAND DESCRIPTION

W 40476

A parcel of tide and submerged land in the San Joaquin River in Contra Costa and Sacramento Counties, California, lying within portions of projected Sections 1, 2, 11 and 12, T2N, R2E, MDM, and described as follows:

BEGINNING at the southwest corner of Lot No. 61, Jersey Islands Farm Tract, as shown on that certain map of Jersey Island Farms, filed in the office of the Recorder of Contra Costa County, California, in Book 18 of Maps at Pages 419 to 424, inclusive, on August 7, 1923, and its intersection with the ordinary high water mark along the left bank of the San Joaquin River, thence northeasterly along said ordinary high water mark to its intersection with the northeast corner of Lot No. 69 Jersey Island Farm Tract, recorded as aforesaid Lot No. 61, thence northwesterly in a straight line to the southeast corner of Swamp and Overflowed Lands Survey No. 549, also being the East line of the West half of projected Section 1, T2N, R2E, MDM, and its intersection with the ordinary high water mark along the right bank of the San Joaquin River, thence southwesterly along said ordinary high water mark to its intersection with the west line of the 75 acre L. Dei Chiaro property in projected Section 2, T2N, R2E, also being the east line of the 125 acre C. E. Upham property, said lines lying within a portion of Swamp Land Survey No. 554, thence southeasterly in a straight line to the point of beginning.

EXCEPTING THEREFROM Swamp and Overflowed Land Survey No. 1063 containing 20.54 acres, more or less, and recorded in Book 5 of Patents, Page 199 Sacramento County Records.

END OF DESCRIPTION

REVIEWED OCTOBER 31, 1985 BY BOUNDARY SERVICES UNIT, M. L. SHAFER,
SUPERVISOR.

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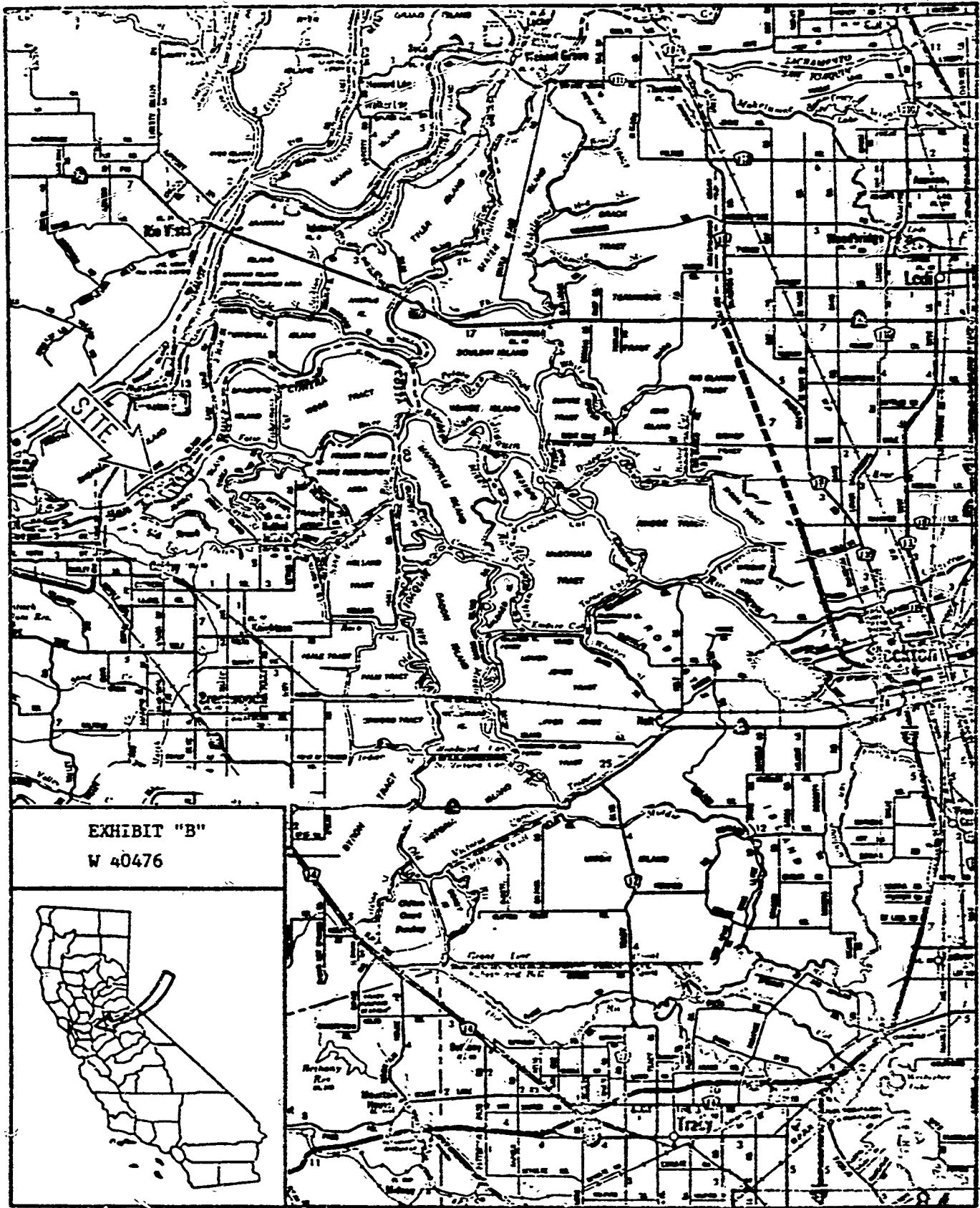


EXHIBIT "B"
W 40476



EXHIBIT "C"

File Ref.: W 40476
SCH# 85072203

January 2, 1985

RESPONSE TO COMMENTS
PROPOSED NEGATIVE DECLARATION
RUSSELL GREEN/ROBERT REEDY
Subsurface Oil and Gas Lease
Contra Costa and Sacramento Counties.

Department of Water Resources

Comment:

The State Lands Commission response to the last comment of the Department of Water Resources (DWR) on the Initial Study contains misinterpreted information. During the discussion of the application that occurred between Mr. Jim Tanner, State Lands Commission, and Mr. Carl Hauge, DWR, there was no intention on Mr. Hauge's part to change DWR's position on the need for an Environmental Impact Report (EIR). Based on the information contained in the applicant's "Description of Project and its Location", DWR still believes that an EIR is required for the proposed oil and gas lease.

Response:

The staff of the State Lands Commission believes that an EIR is not required and that a Negative Declaration is justified for this project. This belief is based on the fact that this project will have only minor impacts on the environment. The Applicants have agreed to monitor subsidence in the area if the exploratory well encounters a significant natural gas resource and developmental wells are drilled. Data from any subsidence monitoring done by the Applicants will be submitted to the staff of the State Lands Commission.

The drilling and operational requirements section of the standard oil and gas lease form of the State Lands Commission contains a provision for suspension of operations under the lease upon receipt of evidence of subsidence of the surface of the leased or adjacent lands.

The United States Geological Survey Professional Paper 437-D by Ben E. Lofgren describes the reasons for land subsidence as: (1) heavy pumping of ground (meteoric) water and (2) hydrocompaction of moisture-deficient deposits when water is first applied. Lofgren notes that oil field subsidence is of secondary significance.

Rob Hauser, Oil and Gas Engineer, with the Woodlands office of the Division of Oil and Gas indicated that the DOG did a study in the proposed lease area and found that subsidence caused by gas extraction was miniscule. The majority of subsidence was caused by ground water withdrawal due to farming.

The main objective of the Applicant's one exploratory well is to determine if an economic deposit of natural gas exists beneath the subject parcel. The probability of discovering crude oil is very unlikely based on the geology of the area. This fact further decreases the possibility of the project causing any significant subsidence in the area.

The Reclamation Board

Comment:

The proposed project would slant drill for gas under the levee on Sherman Island along the San Joaquin River. Should this levee fail, the resultant flooding of Sherman Island may adversely affect the Sacramento River Flood Control Project levees on the Sacramento River and on Threemile Slough that border Sherman Island to the east and north. Therefore, in order to protect the integrity of the levees, the Board prohibits drilling within 250 feet of the centerline of the San Joaquin River levee.

Response:

The Applicants surface drillsite will be 300 feet from the centerline of the San Joaquin River levee. The Applicants will directionally drill from this location, going beneath the levee, to a target depth below the bed of the San Joaquin River. Furthermore, all well heads will be set well above the level of the flood plain.

Memorandum

To : Gordon F. Snow, Ph.D.
Assistant Secretary for Resources

Date DEC 16 1985

2. James J. Tanner
State Lands Commission
245 West Broadway, Suite 425
Long Beach, CA 90802

File No.:

Subject: SCH 85072203, Proposed
Negative Declaration, State Lands
Commission for an Oil and Gas Lease

From : Department of Water Resources

We have reviewed the subject Proposed Negative Declaration which was transmitted by the State Clearinghouse on November 16, 1985, and have the following comments and recommendations:

The State Lands Commission response to the last comment of the Department of Water Resources (DWR) on the Initial Study contains misinterpreted information. During the discussion of the application that occurred between Mr. Jim Tanner, State Lands Commission, and Mr. Carl Hauge, DWR, there was no intention on Mr. Hauge's part to change DWR's position on the need for an Environmental Impact Report (EIR). Based on the information contained in the applicant's "Description of Project and its Location", DWR still believes that an EIR is required for the proposed oil and gas lease.

For further information, you may wish to contact Mr. Carl Hauge of my staff at (916) 322-7164. Thank you for the opportunity to review and comment.

James U. McDaniel
Chief, Central District
ATSS 485-5631

RECEIVED
DEC 11 1985
State Clearinghouse

Memorandum

1. A-38
 Gordon F. Snow
 Assistant Secretary for Resources
 The Resources Agency

Date : NOV 25 1985

File No.:

2. Ted Fukushima
 State Lands Commission
 1807 - 13th Street
 Sacramento, CA

Subject: Proposed Oil
 and Gas Lease
 (SCH 85072203)

From : THE RECLAMATION BOARD
 Department of Water Resources

Staff for The Reclamation Board has reviewed the proposed Negative Declaration for the subject project and has the following comments.

The proposed project would slant drill for gas under the levee on Sherman Island along the San Joaquin River. Should this levee fail, the resultant flooding of Sherman Island may adversely affect the Sacramento River Flood Control Project levees on the Sacramento River and on Threemile Slough that border Sherman Island to the east and north. Therefore, in order to protect the integrity of the levees, the Board prohibits drilling within 250 feet of the centerline of the San Joaquin River levee.

For additional information, the project proponent should contact Ted Allen, Encroachment Control Section, Department of Water Resources, 1416 Ninth Street, Room 455-8, Sacramento, CA 95814, telephone (916) 445-9225.

Thank you for the opportunity to comment.



RAYMOND E. BARSCH
 General Manager

RECEIVED
 DEC 1 1985
 State Clearinghouse

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Date: November 6, 1985

File Ref.: W 40476

SCH No.: 85072203

TO: J. Tanner - L.B.

SUBJECT: Review of Negative Declaration Pursuant to Section 15073 of the State CEQA Guidelines (14 Cal. Adm. Code)

An application is currently being processed by the staff of the State Lands Commission for the following described project:

Project Title: Proposed Oil and Gas Lease

Project Proponent: Russell H. Green, Jr. and Robert D. Ready

Project Location: The lands which underlie the San Joaquin River adjacent to Jersey Island and Sherman Island, Contra Costa and Sacramento Counties.

Project Description: The exploration for oil and gas resources by the slant drilling method from adjacent private lands and associated development should economic resources be found.

A Negative Declaration has been prepared for the project pursuant to the requirements of Section 15070 of the State CEQA Guidelines and is attached for your review. Your comments are requested by December 9, 1985. Please address your comments to the State Lands Commission office shown above, with attention to the undersigned. Should you have any questions, you may call me at (916) 322-7813. Your cooperation in this matter is greatly appreciated.

ATTACHMENT

Ted T. Fukushima
TED T. FUKUSHIMA
Division of Research &
Planning

STATE LANDS COMMISSION
1807 13TH STREET
SACRAMENTO, CALIFORNIA 95814



PROPOSED NEGATIVE DECLARATION

EIR MD 391

File Ref.: W 40476

SC# : 85072203

Project Title: Proposed Oil and Gas Lease

Project Proponent: Russell H. Green, Jr. and Robert D. Reedy

Project Location: The lands which underlie the San Joaquin River adjacent to Jersey Island and Sherman Island, Contra Costa and Sacramento Counties.

Project Description: The exploration for oil and gas resources by the slant drilling method from adjacent private lands and associated development should economic resources be found.

Contact Person: Ted T. Fukushima

Telephone: (916)322-7813

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 Administrative Code), and the State Lands Commission regulations (Section 2901 et seq., Title 2, 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.

mitigation measures included in the project will avoid potentially significant effects.

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File Ref.: W 40476
SCH# 85072203

October 16, 1985

COMMENTS RECEIVED ON INITIAL STUDY AND RESPONSE

1. Contra Costa County, Community Development Department:

Comment:

Applicants should participate in the California Department of Water Resources (DWR) proposed 1986-1987 Delta Subsidence Studies.

Response:

The DWR is a responsible agency for CEQA purposes and has been sent a copy of the Initial Study for the proposed project. All DWR comments will be carefully considered when received and the State lessee will be urged to cooperate with any future Delta Studies.

Comment:

The project, with proposed mitigations, should cause no significant environmental impact. An EIR is not warranted.

Response:

No reply is needed.

2. Wolter and Associates, Inc.

Comment:

A Negative Declaration is sufficient for this project. The project will not have a significant effect on the environment.

Response:

No reply is needed.

(NON-SUBSTANTIVE REVISION 01/24/86)

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3. County of Sacramento, Planning and Community Development Department.

Comment:

Applicants must secure a Conditional Use Permit before beginning any drilling.

Response:

State Lands Commission lease terms require that a lessee comply with all applicable State, Federal and local laws and ordinances.

Department of Water Resources

Comment:

The discussion of subsidence in the Initial Study needs to state whether the subsidence rate to be determined is deep subsidence, shallow subsidence, or a sum of the two.

Response:

Any shallow subsidence that would occur because of the project would be a result of the compaction of peat due to the weight of drilling equipment. Subsidence measurements would include this component and any deeper subsidence caused by gas extraction.

Comment:

In the Environmental Impact checklist, Numbers 1 through 3 and Number 7 in the "Earth" Section should be changed from "No" to Maybe.

Response:

We disagree. The impacts addressed in these items would not occur from the drilling of one exploratory well. These would be regional impacts beyond the scope of the project described in the Initial Study. All leases issued by the State Lands Commission requires the lessee to comply with Divisions 3 and 6 of the Public Resources Code, Title 2 of the California Administrative Code, and all applicable

laws, rules and regulations of the State of California and the various State and local agencies such as the Department of Water Resources, the Division of Oil and Gas, Department of Fish and Game, Division of Industrial Safety, Air Resources Board, State Water Resources Control Board, Regional Water Quality Control Boards and County Planning Departments. In addition to the Commission requirement that the lessee post a bond and provide liability insurance, the Commission staff constantly monitors all lease operations to ensure compliance with all terms and conditions of the lease.

Comment:

Finally, the following information should be included in any report:

1. The potential for induced fault movement due to gas extraction and water drive.
2. The potential for Delta levee failure and flooding as a result of gas withdrawal.
3. The potential effect on Delta levees and lands should gas withdrawal cause subsidence.
4. A discussion of seismicity and its relation to gas withdrawal.
5. Whether added improvements will cause a change in allocation of emergency funds by the Office of Emergency Services or FEMA after a flood or emergency declaration.
6. How subsidence from gas withdrawal would be mitigated if it were detected. Such subsidence may not occur until long after the gas is removed and pumping has stopped.
7. Criteria should be given for a maximum allowable rate or total amount of subsidence.
8. The cumulative effect of this lease and other gas extraction activities should be addressed.

Response:

The potential impacts described above are not expected to be induced by the limited drilling in the State lease area. Regional studies may discern the long range effects from gas extraction. See following response.

Comment:

We believe an Environmental Impact Report (EIR) is required for the proposed oil and gas lease.

Response:

Following a discussion with Mr. Carl Hague, Engineer with Department of Water Resources, Mr. Hague stated that an EIR would not be required a Negative Declaration (ND) will suffice, because of the limited scope of this project and Applicant's willingness to coordinate activities with DWR.

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INITIAL STUDY FOR PROPOSED SUBSURFACE OIL AND GAS LEASE
OF STATE LANDS UNDERLYING THE SAN JOAQUIN RIVER,
ADJACENT TO JERSEY ISLAND AND SHERMAN ISLAND,
CONTRA COSTA AND SACRAMENTO COUNTIES, CALIFORNIA

INTRODUCTION

The State Lands Commission has received an application from Emmet Wolter and Associates, agent for Russel H. Green, Jr. and Robert D. Reedy, for a negotiated subsurface oil and gas lease of State owned lands that underlie a portion of the San Joaquin River, adjacent to Jersey Island and Sherman Island in Contra Costa and Sacramento Counties, California. Pursuant to Sections 6871, 6873, 6876 and 6877 of the California Public Resources Code the State Lands Commission may enter into a subsurface oil and gas lease involving the bed of a navigable river provided that the development of State lands is made by slant or directional drilling from drillsites located on adjacent lands under lease to the Applicants. Under the terms of the proposed oil and gas lease, the State Lands Commission requires that: (1) all development of the State lands be conducted via slant drilling from surface locations adjacent to the river bed; (2) lessee must demonstrate compliance with all applicable rules, regulations and requirements of the State Lands Commission, California Division of Oil and Gas, and other existing State and local permitting agencies; and (3) prior to any drilling operation, the State Lands Commission shall approve all drilling programs for wells drilled into or through the leased lands. The Staff of the State Lands Commission intends to adopt a Negative Declaration for the proposed leasing.

DESCRIPTION OF PROJECT AND ITS LOCATION

The proposed project involves the subsurface leasing and associated development of any oil and gas resources that may underlie 800 acres of state owned lands controlled by the State Lands Commission and which underlie the bed of the San Joaquin River adjacent to Jersey Island and Sherman Island in Contra Costa and Sacramento Counties respectively. The project area is located in the northeast corner of Township 2 North, Range 2 East, lying within portions of projected Sections 1, 2, 11 and 12, MDB&M. (See Exhibit "A").

The Applicants propose to initially drill one exploratory well from an upland location on Sherman Island (See Exhibit "A"), with possible re-drills, if necessary. In the event of a discovery, follow-up developmental wells will be drilled to determine the boundaries of the resource. Drilling the exploratory well will be done from a drill site on Sherman Island, under lease from the Reclamation District #341, and bottoming in State owned lands under the bed of the San Joaquin River. In the event of a discovery, developmental wells, possibly numbering a total of eight, could be drilled through and into the river bottom from the Applicant's drill sites on both sides of the river.

Russell H. Green, Jr. and Robert D. Reedy hold oil and gas leases on approximately 2,125 acres of land contiguous and adjacent to the San Joaquin River, on both banks of the river. (See Exhibit "A"). The Applicants are also the Lessees under nine drillsite Leases and Agreements on both banks of the river covering the project drillsites. The initial drillsite with existing private access roads will occupy approximately two acres and can be used for both exploratory and development drilling, if the latter is required. The proposed locations are so situated as to occupy a minimum of land presently used for pasture or equipment storage. Depending on the areal extent of the accumulation, additional development drillsites can be located on either Jersey Island or Sherman Island.

The well(s) will be drilled one at a time with a single conventional drilling rig. Each well will take from 20 to 30 days to drill and, in the event of a discovery, the entire drilling program should be completed within 24 months. If production is obtained, the wells will be free-flowing natural gas wells and will require no lifting equipment and only a minor amount of production equipment. Christmas trees (production valves) will be installed above the high tide level. The produced gas will be removed from the site by pipeline. Existing pipeline systems will be utilized to the maximum extent feasible and any new pipeline design will meet all safety standards of the Office of Pipeline Safety Operations of the State of California and other regulatory agencies. The drilling equipment will be removed following development, the drilling mud sumps will be vacuumed out and covered over and all traces of the drilling phase removed. If a discovery is made, the gas reservoir may be depleted in approximately 10 to 15 years. At depletion, the wells will be abandoned in accordance with California Division of Oil and Gas and State Lands Commission regulations. The production equipment will be removed and the sites will be restored as closely as possible to their original condition.

ENVIRONMENTAL SETTING

See Exhibit "B" for description of the environmental setting.

IDENTIFICATION OF ENVIRONMENTAL EFFECTS

See Exhibit "C": Environmental Impact Assessment Checklist.

MITIGATION OF SIGNIFICANT EFFECTS

Since there will not be any surface use of the State owned lands, no mitigation measures have been identified. However; the drilling of all wells will be conducted in strict compliance with the regulations of the State Lands Commission and the California Division of Oil and Gas. Surface casing will be set as prescribed to protect ground water and approved blowout prevention equipment will be used during drilling operations. Drilling fluids and cuttings will be tanked to a public licensed disposal site. After the field is abandoned, the drill site will be restored to as closely as possible to its former condition. If a producible gas discovery is found, the gas will be moved from the drillsite by pipeline and there will be no venting or release of gas to the atmosphere during the production phase.

The San Joaquin River is well protected from the drillsite area by the levee, which stands 25 to 30 feet above ground level between the river and the area of proposed drilling. In the event of a natural disaster such as a flood, the Applicants would be required to suspend all drilling operations. Operations could not be resumed until authorization was obtained from the State Lands Commission. Even though the chances of discovering crude oil are slight, the Applicants will be required to maintain a current oil spill contingency plan for initiating corrective action to control and recover oil spilled on any waters or land.

The Applicants, upon discovery of natural gas or oil, will be required to determine a recent subsidence rate before volumes of gas are produced from the lease. This will be accomplished by precision level surveys of bench marks in the area that are part of the existing U.S. Coast and Geodetic Survey first order survey network. The Applicants will also be required to establish bench marks in the area to effectively monitor subsidence which will be tied by precise levelling into the control network. Such bench marks set by the Applicants shall be surveyed each year and the control network surveyed once every two years.

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Many gas sands in the delta region are repressured with a partial or full waterdrive mechanism. If the reservoir has a natural waterdrive, then water encroachment or replacement as the reservoir is depleted of gas would sustain formation pressures. This condition could negate any subsidence attributed to gas production.

COMPATIBILITY WITH EXISTING ZONING AND PLANS

All drilling will be done from upland drillsites and bottoming in the State lands beneath the bed of the San Joaquin River. In addition, any production facilities will be located on the upland areas adjacent to the San Joaquin River. These lands are not under the jurisdiction of the State Lands Commission. However, the proposed oil and gas lease will require the Applicants to comply with all permitting agencies rules and regulations and to be consistent with existing zoning ordinances, general plans and other applicable land use controls.

PERSONS WHO PREPARED AND PARTICIPATED IN THIS INITIAL STUDY

James Tanner, Associate Mineral Resources Engineer
Alex Gonzalez, Supervising Mineral Resources Engineer
California State Lands Commission
245 W. Broadway, Suite 425
Long Beach, California 90802-4471
(213) 590-5201 or (ATSS) 635-5201

This Initial Study will be circulated for review pursuant to the California Environmental Quality Act to those agencies and individuals listed in Exhibit "D".

In addition to the above discussion, this Initial Study consists of Exhibits:

- "A" - Project Location
- "B" - Application Form
- "C" - Environmental Assessment Checklist
- "D" - Mailing/Distribution List



SHERMAN ISLAND

T.3N.-R.2E

206747 AC
 CHAS E. & JOS E Upham

INITIAL DRILLSITE

Douglas McCormack & Janet Lamerson Trs

3412 AC
 L McCormack et al

41104 AC

C Upham
 Nakama & Nakama
 3-13-82

L Del Chaise et al 75 AC
 J Del Chaise
 J Del Chaise
 J Del Chaise

W. Verjornst

M. Camm et al
 L Del Chaise
 222 AC

SAN JOAQUIN RIVER

800 Acres

SACRAMENTO CONTRA COSTA

JERSEY ISLAND FARM TR.

T.2N.-R.2E

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EXHIBIT A
 STATE LANDS COMMISSION
 W-40476
 JERSEY ISLAND POINT PROSPECT
 R. GREEN, R. REEDY: APPLICANTS

GREEN-REEDY O. S. G. LEASES

8 OPTIONAL 2 ACRE DRILLSITES

" EXHIBIT "B"

File Ref.: W40476

TO: STATE LANDS COMMISSION
STATE OF CALIFORNIA

PROJECT DESCRIPTION AND ENVIRONMENTAL
INFORMATION STUDY (EIF) FOR THE ISSUANCE
OF A SUBSURFACE OIL AND GAS LEASE AND
PASS-THROUGH EASEMENTS COVERING A PORTION
OF THE SAN JOAQUIN RIVER, CONTRA COSTA
AND SACRAMENTO COUNTIES, CALIFORNIA

1. PROJECT AND ITS LOCATION

This project, identified as the Jersey Island Point Prospect (Exploratory Natural Gas Project), is an effort by Applicants, Russell H. Green, Jr. and Robert D. Reedy, to explore for, discover and develop new natural gas reserves in the San Joaquin River adjacent to Jersey Island in Contra Costa County and Sherman Island in Sacramento County. The project is located in the northeast corner of Township 2 North, Range 2 East, M.D.B. & M. Said project may, if successful, encompass portions of the water bottoms of above named and hereinafter described river. To enable this exploration program and possible resultant development, Applicants are requesting that a subsurface oil and gas lease with pass-through easements be issued to them covering a portion of the aforementioned river bottoms as described below and as shown on Exhibit "A" had.

A parcel of tide and submerged land in the San Joaquin River in Contra Costa and Sacramento Counties, California, lying within portions of projected Sections 1, 2, 11 and 12, T. 2 N., R. 2 E., M.D.B. & M. and described as follows:

Beginning at the Southwest corner of Lot No. 61 Jersey Island Farms Tract, as shown on that certain map of Jersey Island Farms, filed in the office of the Recorder of Contra Costa County, California, in Book 18 of Maps at Pages 419 to 424, inclusive, on August 7, 1923, and its intersection with the Ordinary High Water Mark of the San Joaquin River, thence Northeasterly along said

Ordinary High Water Mark to its intersection with the Northeast corner of Lot No. 69 Jersey Island Farms Tract, recorded as aforesaid Lot No. 51, thence Northwesterly in a straight line to the Southeast corner of Swamp and Overflowed Lands Survey No. 549, also being the East line of the West half of projected Section 1, T. 2 N., R. 2 E. and its intersection with the Ordinary High Water Mark of the San Joaquin River, thence Southwesterly along the Ordinary High Water Mark to its intersection with the West line of the 75 acre L. Del Chiaro property in Projected Section 2, T. 2 N., R. 2 E., also being the East line of the 125 acre C. E. Upham property and, also, being a portion of Swamp Land Survey No. 55, thence Southeasterly in a straight line to the said point of beginning.

EXCEPTING therefrom Swamp and Overflowed Land Survey No. 1063 containing 20.54 acres, more or less, and recorded in Book 5 of Patents, Page 199 Sacramento County Records.

Containing 800 acres more or less.

2. PURPOSE OF THE PROJECT

The purpose of the request for the issuance of the aforesaid lease is to facilitate the continuance of an exploratory program by the Applicants, resulting in the drilling of an exploratory well and possible redrills and, in the event of a discovery, of follow-up development wells. The project involves drilling an exploratory well from surface drillsites either on Jersey Island or Sherman Island and bottoming in State owned land under the San Joaquin River. In the event of a discovery, development wells, possibly numbering a total of eight, could be drilled through and into the applied for State lease from Applicants' drillsites on both sides of the river.

3. GENERAL DESCRIPTION

Applicants hold oil and gas leases on approximately 2125 plus acres of lands contiguous and adjacent (on both banks of the San Joaquin River) to the portion of State

lands which are the subject of this application. Applicants are also the Lessees under eight Drillsite Leases and Agreements (likewise located on both sides of the river) covering the project drillsites. Applicants' leases are colored in yellow on the land map which is attached and labeled Exhibit "A". Copies of Applicants' Oil and Gas Leases and Drillsite Leases and Agreements have heretofore been deposited with the State Lands Commission on June 27, 1985.

Geologic data developed by Applicant, Robert D. Reedy, a professional Registered Geologist (State of California License #00864), indicates that a gas accumulation could occur in this area. (See Exhibit "B", Geological Data, attached to this application.) The project will consist of the drilling of an exploratory well with possible redrills and possibly as many as eight development wells.

The proposed work will be done from either a drillsite selected on the Delta Properties, Inc.'s pasture (agricultural) land on Jersey Island or a similar location (agricultural) on Sherman Island. These initial drillsites with existing private access roads will occupy approximately two acres and can be used for both exploratory and development drilling if the latter is required. The proposed locations, as agreed to, and leased to Applicants by the landowners, is so situated as to occupy a minimum of land presently used for pasture or equipment storage yard. Depending on the areal extent of the accumulation, additional development drillsites have been leased and are available to the Applicants on both Jersey Island and on leased lands across the river on Sherman Island.

The well(s) will be drilled one at a time with a single conventional drilling rig. Each well will take from 20 to 30 days to drill and, in the event of a discovery, the entire drilling program should be completed within

24 months. If production is obtained, the wells will be free-flowing natural gas wells and will require no lifting equipment and only a minor amount of production gear; christmas trees will be installed above high tide level. The produced gas will be removed from the site by pipeline. Existing pipeline systems will be utilized to the maximum extent feasible and pipeline design will meet all safety standards of the Office of Pipeline Safety Operations (OPSO) or other regulatory agencies. The drilling equipment will be removed following development, the sumps vacuumed out and cleaned up, and virtually all traces of the drilling phase removed. If a discovery is made, the gas reservoir will be exhausted in 10 to 15 years, and the wells will be abandoned in accordance with State regulations. The production equipment will then be removed and the site restored to its original condition. No evidence of the project will remain at that time.

4. PRESENT ENVIRONMENT

The character and use of all adjoining private lands are rural agricultural. Jersey Island is presently mostly pasture with small areas for field crops and Applicants' lessor currently grazes 700 head of cattle.

The lands on Sherman Island which are leased to Applicants are presently fallow fields and used alternatively for grazing and field crops. (See Exhibit "C", photographs of drillsites and surrounding lands for evidence of the character of the environment.) Individual properties range in size from 6 plus acres to 1000 acres, with several large parcels of 170, 300, 400 and 1000 acres. The land is essentially level with an elevation of approximately (-)5 to (-)10 feet below sea level and the levees containing the river stand about 32 feet above sea level. An unimproved dirt road runs along the levee on Jersey Island and a rural paved highway runs along the levee on Sherman Island.

The paved rural Jersey Island County road connects Jersey Island with the landward area of Contra Costa County.

The closest commercial activity in the vicinity is the town of Antioch some 3 miles to the west as the "crow flies" and 9-10 miles by county road. There are no public facilities such as schools, parks, playgrounds, etc., in the vicinity of the proposed operations.

The project is located within the Sacramento-San Joaquin Delta groundwater basin, an 1100 square mile area divided into over 60 islands and tracts by 700 miles of waterways. The land is flat; much of it is between 5 feet above and 20 feet below sea level. Two deep channels now serve as passageways for commercial ships passing between the ports of Sacramento (Sacramento River) and Stockton (San Joaquin River). All the unused runoff, reservoir releases and return flows from the Central Valley streams pass through the Delta on their way to the ocean. The Delta is the principal source of water uses and for export by the state (SWP) and federal water projects (USBR and CVP).

Because the Delta is open to the San Francisco Bay complex and the Pacific Ocean and its channels are below sea level it never has a shortage of water. If the inflow from the Central Valley is insufficient to meet the consumptive needs of the Delta, saline water from the bay fills the Delta from the west. Thus, the local water supply problem in the Delta becomes one of poor water quality, not insufficient quantity.

Applicants' Lessors (landowners of the optional project drillsites), irrigate their forage crops (grasses) by siphoning the necessary water for irrigation from the river. Potable water for the residents of the leased parcels is obtained from shallow (150'-200') private water wells.

The town of Oakley, a small community (less than 1000 residents) about 3 miles south of the project, obtains its domestic water supply from the Contra Costa Canal (after treatment by District). A single water well (CCCWD) is available for stand-by purposes.

(Reference: Delta Water Facilities, Bulletin 76, July 1973, Department of Water Resources.)

5. ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT

The only long-term environmental impact of the proposed project will be the production of natural gas, if a discovery is made, that otherwise might not be produced at all. Thus, one beneficial effect of the proposal might be to provide much needed gas to meet the energy needs of the State. Because of the limited and temporary nature of the project, the short-term environmental impacts require more consideration than the long-term impacts. Short-term environmental impacts will have two possibilities; the first, would be the drilling or possible re-drilling of an exploratory well which failed to find a producible gas accumulation; and the second, would be the discovery of a commercial gas pool by exploratory drilling. In the first possibility, above, the environmental impacts would have a duration of 30 to 60 days, depending on whether one or two re-drills of the initial exploratory well were required. The environmental impacts would consist of the following:

- A. A moderate increase in traffic on the Jersey Island County Road and on the River Road on Sherman Island and other access routes, resulting from the transport of equipment, crew personnel and drilling material.
- B. A local increase in noise level above that of normal farm equipment operation to a level of about 70 decibels at 1000 feet from the drillsites. This noise should be totally unnoticed by anyone.

C. A minor amount of temporary air pollution from the operation of diesel engines supplying power for the drilling activity (see Exhibit 1 attached).

In the second possibility above, the environmental impacts will be the same as for the first possibility (A, B and C above), except that their duration may extend, intermittently, over a period of about two years, during which the development wells would be drilled. For the ensuing 10 to 15 years, the productive life of the gas pool, there would continue to be a very minor degree of similar impacts as the producing wells are serviced periodically in the course of routine maintenance. Drilling operations in the area are expected to yield natural gas only, as ninety-nine fields in the Sacramento Valley are gas producers and only one produced oil. The pollution potential in the development of a natural gas field is minimal.

Another impact that could occur is subsidence. An analysis of subsidence possibilities in the project area of the San Joaquin River follows:

General Comment

Variations in land level (including subsidence) in the San Joaquin and Sacramento River delta region are generally attributed to three causes:

- (1) Ground water withdrawal.
- (2) Oxidation and compaction of peat and related organic sediments.
- (3) Tidal fluctuations.

The extraction of natural gas is not a significant cause of subsidence in the region because:

- (1) The gas-bearing sands are generally quite thin, ranging from 10 to 50 feet in thickness, and can only compact a small amount.
- (2) The sands are relatively competent and resist compaction.

- (3) The water drive commonly fills the sand interstices as the gas is withdrawn.
- (4) Water is not extracted with the gas.
- (5) The volume of gas withdrawn is very small relative to the rock column involved.

Site-Specific Observations

With respect to the location of the proposed project, causes (1), (2) and (3) will not be affected or temporarily and minimally affected. There will be no ground water withdrawal resulting from Applicants' operations (cause 1). The drillsites will be located on a mixture of peat and organic soils (cause 2 - approximately 10% to 20%), hence temporarily, during drilling operations, there could be slight localized compaction due to weight of the drilling rig. This would only be for short intermittent periods of time (30 to 60 days) over a one and a half year period of time. Cause (3) results in very small elevation changes (measured in tenths of a foot or less) which are cyclical in nature and can be discounted in respect to this operation.

One of the best sources of historic information in the vicinity of the proposed project is the recurrent survey data of the National Geodetic Survey. Their readings record first-order bench mark elevations over a considerable time span, up to 28 years in this instant case. 1964 recordings are the most recent for this project. The earliest recording available was 1936. Along the river from Antioch past the Antioch-Sherman Island Bridge to the south side of Twitchell Island and to the northeast corner of Sherman Island (south corner of the Sherman Island Bridge over Three Mile Slough), including an area of approximately two miles on either side of the river, the maximum subsidence over the period 1939 to 1964 has been 1.568 feet. This was recorded at a bench mark on the southeast side of Twitchell Island on the northwest

bank of the San Joaquin River. The minimum subsidence during this period (1939 to 1964) was recorded at the Antioch Sewage Disposal Plant in the southwest quarter of Section 18, Township 2 North, Range 2 East, and amounted to .010 feet. The maximum for the period 1949 to 1964 was .922 feet at a bench mark 2.5 miles north along State Highway 24 from the north end of the Antioch-Sherman Island Bridge over the San Joaquin River 0.2 of a mile south of Emmaton. The minimum from 1949 to 1964 was recorded 0.5 of a mile south along State Highway 24 from the south end of the Antioch-Sherman Island Bridge over the San Joaquin River, at the "T" junction of Wilbur Avenue leading west, and amounted to .020 feet. An analysis of these recordings by the National Geodetic Survey indicates the following conclusions:

- (1) Maximum avg. subsidence 1939-64 = .049 ft/yr
or 0.58 inch per year.
- (2) Minimum avg. subsidence 1939-64 = .018 ft/yr
or 0.22 inch per year.
- (3) Maximum avg. subsidence 1949-64 = .043 ft/yr
or .052 inch per year.
- (4) Minimum avg. subsidence 1949-64 = .010 ft/yr
or .12 inch per year.

50 first-order bench mark station recordings were examined. The highest recordings were mainly located in the neighborhood of Twitchell Island. The lowest recordings were encountered in Antioch and at both ends (north and south) of the Antioch-Sherman Island Bridge. The consistently low and uniform changes suggest that the project area is a region of low to moderate subsidence. The highest long-term (25 years) subsidence averages about .6 inch per year and the lowest about .22 inch per year. Shorter term (15 years) subsidence averages are slightly lower, i.e., .5 inch and .12 inch, high-low range, respectively.

6. ADVERSE ENVIRONMENTAL IMPACTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

The short-term impacts cited in paragraph 5, although of minor adverse character, cannot be avoided if this project is implemented.

7. MITIGATING MEASURES PROPOSED TO MINIMIZE THE IMPACT

The drilling of the wells will be conducted in strict accordance with the regulations of the State Lands Division and State Division of Oil and Gas. Surface casing will be set as prescribed by the regulations to protect the ground water, and approved blowout prevention equipment will be used during drilling operations. Drilling fluids and drill cuttings will be sumped or tanked to a public licensed disposal site and subsequently the site will be cleaned up and restored as nearly as practicable to its former condition. If a producible gas accumulation is discovered, the gas will be moved from the drillsite by pipeline and there will be no venting or release of gas to the atmosphere during the production phase.

The San Joaquin River is well protected from the drillsite area by the levee, which stands 25 to 30 feet above ground level between the river and the area of proposed drilling. However, the lessee will be required to suspend all drilling and production operations, except those which are corrective, protective, or mitigative, immediately in the event of any disaster or contamination or pollution resulting from operations under its lease. Such drilling and production operations will not be resumed until adequate corrective measures have been taken and authorization for resumption of operations has been made by the Commission. Corrective measures will be taken immediately whenever pollution has occurred. Residuary products of oil, drilling fluid, sanitary wastes and other refuse shall be disposed of in approved dumping areas. None of these products

will be permitted to enter the San Joaquin River or any slough or marsh land connected therewith.

The lessee will be required to comply with the Commission's applicable Procedures for Drilling and Production Operations on tide and submerged lands. The drilling procedures contain detailed engineering requirements on well programming, blowout prevention equipment, testing procedures, drilling procedures, and supervisor and training as related to the safety aspects of drilling. The production procedures cover well completion, remedial and well-maintenance work, subsurface injection projects, waste disposal, safety equipment procedures related to production facility operation and the operation and maintenance of pipelines. It is the responsibility of the Division of Oil and Gas and the State Lands Commission to see that the procedures are followed, and that a system of inspections and reports are required to insure that this is being done.

Certain operations performed in drilling and production work are considered critical with respect to well control, fire, explosion, oil spills, and other discharge or emissions. The critical operations may occur during drilling, well completion and recompletion well maintenance and stimulation wireline service, facility maintenance and construction. The lessee will be required to submit and have approved by the State Lands Commission a Critical Operations and Curtailment Plan, setting forth critical well operations which will be curtailed when adverse conditions exist.

Even though the chances of discovering oil are slight, the lessee will be required to maintain a current oil-spill contingency plan for initiating corrective action to control and recover oil spilled on any waters or land. The plan will cover both minor and major oil spills associated

with lease operations. An integral part of the required contingency plan will be the availability of the services of Clean Bay, Inc., a nonprofit organization formed by the oil industry in the San Francisco area to combat oil spills by preventative and cleanup equipment. This equipment is located at Concord and Martinez, and available for quick response under emergency conditions.

The lessee, upon discovery of natural gas or oil, will be required to determine a more recent subsidence rate before volumes of gas are produced from the lease. This will be accomplished by precision level surveys of bench marks in the area that are part of the U. S. Coast and Geodetic Survey first order survey network. The lessee will also be required to establish bench marks in the area to effectively monitor subsidence which will be tied by precise leveling into the control network. Such bench marks set by the lessee shall be surveyed each year and the control network surveyed once every two years.

If a sufficient number of drillsites and resultant bench marks are located, a minimum of three (preferably one on each side of the lease area) will be surveyed for horizontal as well as vertical control. Since it has been established that during subsidence (due to the removal of subsurface elements) bench marks will move toward the center or toward the area of deepest subsidence, such procedure could serve to effectively detect areal subsidence.

After discovery, a well may be drilled and programmed to include a casing joint survey. A "casing joint survey" is a procedure in which a magnetic tool is lowered into the well and, as it is withdrawn, records the magnetic density of the casing. Lengths of casing can be accurately determined by such technique and comparisons with later surveys, or "runs" may indicate casing deformation, a possible result of subsidence. While a casing joint survey

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may not reveal a total subsidence rate, it will permit the operator to determine if casings opposite the producing sands are undergoing deformation. These surveys would be run about every two years as part of the subsidence monitoring procedure.

Many gas sands in the delta region are repressured with a partial or full waterdrive mechanism. If the reservoir has a natural waterdrive, then water encroachment or replacement as the reservoir is depleted of gas would sustain formation pressures. This condition could negate any subsidence attributed to gas production.

8. ALTERNATIVES TO THE PROPOSED ACTION

The proposed action is the issuance of an oil and gas lease by the State Lands Commission to facilitate the exploration and possible development of a natural gas resource by Applicants. The only alternative to this action would be for the Commission to not issue the lease. In this case, the Applicants' efforts to perform the proposed exploration and possible development would be severely impaired or precluded. This could result in a failure to evaluate a potential source of new natural gas reserves which are sorely needed to supply California's energy requirements.

9. THE RELATION BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed project as outlined above should have no cumulative or long-term adverse effects. The proposal will neither enhance the state of the physical environment nor will it reduce it over the long term. It may add to the supply of a clean-burning energy source for a period of 10 to 15 years at the expense of minor local adverse

impacts over a period of 24 months. The incremental costs and benefits are small in either case, and of quite short duration. At the conclusion of the project there will be no residual impact on man's environment.

10. IRREVOCABLE ENVIRONMENTAL CHANGES THAT WOULD BE INVOLVED IF THE PROPOSED ACTION SHOULD BE IMPLEMENTED

There will be no irretrievable commitment of resources other than production and use of natural gas. As indicated above, without issuance of the lease in question it may not be possible for the Applicants to continue the exploratory program and the potential gas resource will remain unevaluated.

11. GROWTH-INDUCING IMPACT OF THE PROPOSED ACTION

Because no new permanent employees will move into the area as a result of this temporary work, and because any new facilities (i.e., pipelines, wellhead assemblies, etc.) will not require permanent attendees, there would be no growth-inducing impact from this project.

12. WATER USE

Approximately 5000 barrels of water will be used over a period of 20 days to drill each well. A maximum of three wells will be drilled into State land. The source of the water used in drilling operations will probably be from a water well in the area purchased from one of the local property owners or the CCC Water District in Oakley.

13. ECONOMIC AND SOCIAL FACTORS

As indicated above, there will be no growth-inducing impact from this project. If a discovery is made, then a modest increment of additional clean-burning energy source will be available to fuel the State's economy, and the State will derive a royalty income from the lease in question. The overall social impact will be negligible.

EXHIBIT "1"

DIESEL POWERED INDUSTRIAL ENGINE
EMISSION FACTORS AND RATES

750 H.P.¹

	<u>g/hp.hr.²</u>	<u>at 75%³ load factor</u>	<u>g/sec.</u>	<u>ton/mo.</u>
Carbon Monoxide (CO)	3.030	2.27	0.47	1.37
Exhaust Hydrocarbons (HC)	1.120	0.84	0.17	.51
Evaporative Hydrocarbons	None	-	-	-
Crankcase Hydrocarbons	None	-	-	-
Nitrogen Oxides (NO _x)	14.000	10.50	2.18	6.32
Aldehydes	0.210	0.16	0.03	.12
Sulfur Oxides (SO _x)	0.931	0.70	0.15	.42
Particulate (Part)	1.000	0.75	0.16	.45

1. Total H.P. - two engines of approximately 350 hp. and 400 hp. will be used.
2. Data obtained from EPA, AP-42 Supplement 5; December 1975, p. 3.3.3-1.
3. Hoisting operations will require 675 hp. for approximately 6 hours/day and drilling operation will require 525 hp. 18 hours/day.

$$\text{load factor 1} = 675/750 = 90\%$$

$$\text{load factor 2} = 525/750 = 70\%$$

$$\text{Average load factor} = \frac{(0.90)(6) + (0.70)(18)}{24} = 75\%$$

EXHIBIT "B"

JERSEY ISLAND POINT PROSPECT
CONTRA COSTA AND SACRAMENTO COUNTIES

The Jersey Point Prospect is located approximately 50 miles southwest of the city of Sacramento and more definitively 6 miles northeasterly from the city of Antioch, California. The prospect is bisected by a portion of the San Joaquin River and includes privately-owned lands located in both Sacramento and Contra Costa Counties. The area has been the subject of a great deal of drilling activity and, although the majority of wells have resulted in dry holes, many encouraging showings of gas continue to present a viable objective for further exploration.

The closest production lies several miles to the north in the Sherman Island Gas Field, which was discovered in 1966. This field is nearly depleted and has produced approximately 30 b.c.f. from Anderson Sands of lower Eocene age. This field is highly faulted by a large northwesterly trending normal fault (Sherman Island Fault), indicating a vertical displacement of over 600 feet. This faulting associated with anticlinal structure provides the necessary closure for natural gas entrapment. The productive interval is found at a depth of 6200'± below sea level.

The Jersey Point Prospect is predicated on the faulting continuing in a southerly direction from the Sherman Island Field. We have mapped a small closure against this fault in the form of structural nosing that appears to be dipping primarily to the northwest. It is our intention to intersect the fault at critical depth and evaluate stratigraphic objectives somewhat deeper than the aforementioned Anderson Sand. Our primary target will be the First Massive Sand which produces gas in the Dutch Slough Field 5 miles southeast of Jersey Point. This field, discovered in 1963 and now nearly depleted, has produced in excess of 100 b.c.f.

We are planning to drill a 7500'± test well from our Sherman Island leases as soon as the necessary permits can be obtained. This area is essentially rural and surface locations do not present any particular problem, as long as weather conditions and farming operations are satisfactorily provided for. Drilling operations are usually postponed during wet months, as costs accelerate and efficiency decreases. These efforts are to be conducted in good gas field "workmanlike practice" and with adherence to Division of Oil and Gas, plus other County and local requirements.

We have prepared a geologic contour map and two cross sections for inclusion with this report.

Robert D. Reed

June, 1985

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EXHIBIT "C"

ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST - PART II
Form 13.20 (7/82)

File Ref.: N 40476

SCH# 85072203

I. BACKGROUND INFORMATION

- A. Applicant: Russell H. Green, Jr. and Robert D. Feedy
c/o The Wolter Associates ATTN: Emmet Wolter (Agent)
337 E. San Antonio Drive, Suite 203
Long Beach, CA 90807
- B. Checklist Date: 7 / 25 / 85
- C. Contact Person: Jim Tanner
Telephone: (213) 590-5201 or (ATSS) 635-5214
- D. Purpose: Subsurface leasing of State owned lands for oil and gas exploration and development.
- E. Location: Portions of projected Sections 1, 2, 11 and 12, Township 2 North, Range 7 East, MDBEM, Sacramento and Contra Costa Counties.
- F. Description: Applicants propose to drill one exploratory well, and ten to eight development wells from upland drill sites to a location underlying the bed of the San Joaquin River.
- G. Persons Contacted: Emmet Wolter, Agent for Applicants
Contra Costa County Community Development Department
Sacramento County Environmental Coordinator

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 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 type="checkbox"/> |

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B. *Air*. Will the proposal result in:

- | | Yes | Maybe | No |
|---|--------------------------|--------------------------|-------------------------------------|
| 1. Substantial air emissions or deterioration of ambient air quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. The creation of objectionable odors? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

C. *Water*. Will the proposal result in:

- | | | | |
|---|--------------------------|--------------------------|-------------------------------------|
| 1. Changes in the currents, or the course or direction of water movements, in either marine or fresh waters? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Alterations to the course or flow of flood waters? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Change in the amount of surface water in any water body? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Alteration of the direction or rate of flow of ground waters? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Substantial reduction in the amount of water otherwise available for public water supplies? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Exposure of people or property to water-related hazards such as flooding or tidal waves? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Significant changes in the temperature, flow or chemical content of surface thermal springs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

D. *Plant Life*. Will the proposal result in:

- | | | | |
|--|-------------------------------------|--------------------------|-------------------------------------|
| 1. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Reduction of the numbers of any unique, rare or endangered species of plants? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Reduction in acreage of any agricultural crop? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

E. *Animal Life*. Will the proposal result in:

- | | | | |
|--|--------------------------|--------------------------|-------------------------------------|
| 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Reduction of the numbers of any unique, rare or endangered species of animals? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Deterioration to existing fish or wildlife habitat? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

F. *Noise*. Will the proposal result in: ---

- | | | | |
|---|-------------------------------------|--------------------------|-------------------------------------|
| 1. Increase in existing noise levels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Exposure of people to severe noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

G. *Light and Glare*. Will the proposal result in:

- | | | | |
|--|-------------------------------------|--------------------------|--------------------------|
| 1. The production of new light or glare? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|-------------------------------------|--------------------------|--------------------------|

H. *Land Use*. Will the proposal result in:

- | | | | |
|--|-------------------------------------|--------------------------|--------------------------|
| 1. A substantial alteration of the present or planned land use of an area? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|-------------------------------------|--------------------------|--------------------------|

I. *Natural Resources*. Will the proposal result in:

- | | | | |
|--|--------------------------|-------------------------------------|-------------------------------------|
| 1. Increase in the rate of use of any natural resources? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Substantial depletion of any nonrenewable resources? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Risk of Impact. Does the proposal result in:

Yes Maybe No

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?

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?

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?
- 2. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?
- 3. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?
- 4. Will the proposal restrict existing religious or sacred uses within the potential impact area?

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?
- 2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?
- 3. Does the project have impacts which are individually limited, but cumulatively considerable?
- 4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

III. DISCUSSION OF ENVIRONMENTAL EVALUATION (See Comments Attached)

See Attached Sheets

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.

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COMMENTS

ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST

PART III

II.D.4 PLANT LIFE:

Since the project area is primarily rural agricultural, drilling activity would temporarily reduce the acreage that could be used for farming and grazing cattle. As soon as the drilling phase is completed, the sites would be restored as closely as possible to the original condition.

II.F.1 NOISE:

Drilling activity would temporarily increase noise levels. In the event of a discovery of oil and gas, permanent production facilities would be needed, which might cause increased noise levels.

II.G.1 LIGHT AND GLARE:

During the drilling phase, operations will continue on a 24 hour basis. For safety reasons at night, this will entail mounting lights on the drilling mast and derrick floor. After the drilling phase is completed, most of the lights will be removed except for those needed for security reasons near the production equipment.

II.H.1 LAND USE:

The area is zoned as rural agricultural. Drilling and production operations would preclude the use of the land for agricultural and grazing purposes. After drilling and/or production, the land would be reclaimed as closely as possible to its original condition and use.

II.I.1 NATURAL RESOURCES:

Should production of hydrocarbons be established and development of a new field occurs, an increase in fossil fuel consumption is possible due to power needed for production equipment. Resources would also

be depleted by the amount of hydrocarbons extracted from the ground.

II.J.1 RISK OF UPSET:

State Lands Commission regulations require trained personnel who have been prepared to handle blow-outs or other critical situations to be on a drillsite at all times. If proper drilling and safety procedures are followed, the chances of a blow-out are minimal. All drilling operations must be approved by the California Division of Oil and Gas before drilling can begin and all drilling programs for State lands must be approved by SLC engineers.

EXHIBIT "D"

File Ref.: W 40476
SCH#: 85072203

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File Ref.: W 40476
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