

In Reply Refer To: MS 5231

January 9, 1996

Enserch Exploration Inc.  
Attention: Ms. Suzy Younger  
4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186

Gentlemen:

Reference is made to the following plan received November 29, 1995:

Type Plan - Initial Plan of Exploration  
Lease - OCS-G 7066  
Block - 398  
Area - Green Canyon  
Activities Proposed - Wells A through D

In accordance with 30 CFR 250.33, this plan is hereby deemed submitted and is now being considered for approval.

Your control number is N-5255 and should be referenced in your communication and correspondence concerning this plan.

Sincerely,

Orig. Sgd. By: E. Stuffer

Donald C. Howard  
Regional Supervisor  
Field Operations

bcc: Lease OCS-G 7066 POD File (MS 5032)  
MS 5034 w/public info. copy of the plan  
and accomp. info.

BNewton:cic:01/09/96:POECOM

NOTED - SCHEXNAILDRE

INFORMATION SERVICE  
GOM DOS REGISTRATION  
JAN 16 1996  
RECEIVED

**ENSERCH  
EXPLORATION INC**

4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186  
Teletax: 214-987-7815

**Suzy Younger**

Regulatory Compliance Specialist  
Offshore/International Region  
Telephone: (214) 987-7850

**FEDERAL EXPRESS**

November 30, 1995

Minerals Management Service  
Gulf of Mexico - OCS Region  
1201 Elmwood Park Blvd.  
New Orleans, LA 70123-2394

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Attn: Mr. Bob Newton

RE: GREEN CANYON AREA  
BLOCK 398, OCS-G 7066  
PLAN OF EXPLORATION  
CONTROL #N-5255

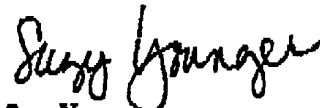
Gentlemen:

In accordance with our telephone conversation, enclosed is a copy of revised pages to be inserted into Section E of the above referenced Plan of Exploration recently submitted by Enserch Exploration, Inc.

The proposed wells will be drilled with a semi-submersible rig similar to the "Ocean Voyager". The anticipated anchor spread for the rig will be less than 8000'.

Please contact me at (214) 987-7850 should you have questions or require additional information.

Sincerely,



Suzy Younger  
Regulatory Compliance Specialist

Enclosures

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**ENSERCH EXPLORATION, INC.  
GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

All discharges associated with the drilling of the proposed wells will be in accordance with the EPA NPDES General Permit 290080 for the Gulf of Mexico.

A discussion of the quantity, rates of discharge and composition of solid and liquid wastes are attached.

Cuttings discharges are based on the average hole size for each section of hole. Mud may be discharged for purposes of dilution or at end of well. The fluid used for drilling will be a typical lignosulfonate mud unless otherwise noted in the drilling program. Concentrations of the chemicals in the mud can be estimated from the daily fluids chemical inventory. Other surveillance of the fluid is accomplished by the monthly and end-of-well LC50 toxicity tests required by EPA. Any drilling fluid contaminated with oil will be transported to shore for proper disposal at an authorized disposal site.

Sewage will be treated on location.

Solid domestic wastes will be transported to shore for proper disposal at an authorized disposal site.

Deck drainage will be estimated by amount of rainfall and wash water used.

**OIL SPILL TRAJECTORY ANALYSIS**

In the event a spill occurs from GREEN CANYON AREA BLOCK 398, Enserch Exploration, Inc. (EEI) has projected the trajectory of a spill utilizing information in the Environmental Impact Statement for OCS Lease Sale 152 and 155.

The EIS contains oil spill trajectory simulations using seasonal surface currents coupled with wind data, adjusted every 3 hours for 30 days or until a target is contacted.

Hypothetical spill trajectories were simulated for each of the potential launch sites across the entire Gulf. These simulations presume 500 spills occurring in each of the four seasons of the year. The results in the were presented as probabilities that an oil spill beginning from a particular launch site would contact a certain land segment within 3, 10, or 30 days. Utilizing the summary of the trajectory analysis (for 10 days), the probable projected land fall of an oil spill from GREEN CANYON AREA BLOCK 398 impacting a land segment is less than 1%.

Section V, Volume II of the CGA Manual containing maps as listed above, also includes equipment containment/cleanup protection response modes for the sensitive areas. Pollution response equipment available from CGA and its stockpile base is listed in the CGA Manual Volume I, Section III.

Section VI, Volume II of the CGA Operations Manual depicts the protection response modes that

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are applicable for oil spill clean-up operations. Each response mode is schematically represented to show optimum deployment and operation of the equipment in area of environmental concern. Implementation of the suggested procedures assures the most effective use of the equipment and will result in reduced adverse impact of oil spills on the environment. Supervisory personnel have the option to modify the deployment and operation of equipment to more effectively respond to site-specific circumstances.

Should a spill occur from the proposed locations, Enserch Exploration, Inc. would immediately activate its Oil Spill Response Team. Response equipment and response times will be suitable for anticipated environmental conditions in the area. In good weather conditions fast response with oil boom, skimmers, pump and storage tanks would require approximately 6 hours, including preparation time as indicated below. A heavy equipment system response would require approximately 24-36 hours, including 6 hours preparation time. The Clean Gulf Base in Grand Isle, LA will be utilized for this operation.

**PROCUREMENT AND DEPLOYMENT TIME**

	<u>Hours</u>
1) Procurement of boat capable of handling Oil Spill Containment equipment and deployment to nearest CGA base in Grand Isle, LA	2.0
2) Load out FRU	1.5
3) Travel to lease site from Shore Base *(3 miles to open water @ 6 mph) (147 miles to lease site @ 10 mph)	.5 14.7
<b>Estimated Total Time</b>	<b>18.7</b>

All necessary precautions will be undertaken to protect the sensitive areas including deployment of booms, skimmers, pumps, scare guns, etc. In the event a spill is projected to hit near shore sensitive areas, Enserch Exploration, Inc. (EEI) will immediately procure truck(s) (as per our approved Oil Spill Contingency Plan) to transport containment equipment to the staging area. Helicopters may be utilized to transport near-shore booms, scare guns, hand skimming systems, and sorbent pads.

**ENSERCH  
EXPLORATION** INC

4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186  
Telefax: 214-987-7815



**Suzy Younger**

Regulatory Compliance Specialist  
Offshore/International Region  
Telephone: (214) 987-7850

**FEDERAL EXPRESS**

November 27, 1995

Minerals Management Service  
Gulf of Mexico - OCS Region  
1201 Elmwood Park Blvd.  
New Orleans, LA 70123-2394

Attn: Mr. Don Howard, FO 2-1

RE: GREEN CANYON AREA  
BLOCK 398, OCS-G 7066  
PLAN OF EXPLORATION

Gentlemen:

In accordance with the guidelines set forth in 30 CFR 250.33, Enserch Exploration, Inc. (EEI) is submitting for your favorable review and approval a proposed Plan of Exploration for GREEN CANYON BLOCK 398.

Please be advised that Enserch Exploration, Inc. (EEI) obtained supplemental bonding, per revised regulations, in order to provide additional coverage to meet the \$3,000,000.00 requirement.

Enclosed you will find nine (9) copies of the subject plan; five (5) of which contain "CONFIDENTIAL DATA" that is exempt from disclosure under the Privacy Act (5 U.S.C. 552a) and the implementing regulations (43 CFR Part 2 Subpart D). Four (4) copies are considered "Public Information".

Drilling operations are expected to commence on or about June 1, 1996. Should you require any additional information, please contact me at (214) 987-7850.

Sincerely,



Suzy Younger  
Regulatory Compliance Specialist

Enclosures

# PLAN OF EXPLORATION

GREEN CANYON AREA  
BLOCK 398, OCS-G 7066



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- A Proposed Exploration Activities and Schedule
- B \*Well Location and Plat(s)
- C \*Geological Interpretation and Shallow Hazards, Cultural Resources Report and Structure Map(s)
- D Rig Description, Mud Components and Additives
- E Safety and Environmental Safeguards
- F Hydrogen Sulfide (H<sub>2</sub>S) Classification
- G Onshore Base Facilities, Vicinity Plat
- H Lease Stipulations
- I Air Quality Review
- J Environmental Report
- K Coastal Zone Management Consistency Certification and Public Notices
- L Company Contact

\* Contains Confidential Data

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**PROPOSED EXPLORATION ACTIVITIES AND SCHEDULE**

## **PLAN OF EXPLORATION**

### **GREEN CANYON AREA BLOCK 398, OCS-G 7066**

#### **PROPOSED EXPLORATION ACTIVITIES**

Enserch Exploration, Inc. (EEI) proposes to drill and complete FOUR (4) exploratory wells from two (2) surface locations in Green Canyon Area Block 398. Drilling operations are scheduled to begin on or about June 1, 1996, subject to approval of this Initial Plan of Exploration and issuance of the required Permits to drill.

No new or unusual technology will be used to drill these wells.



## **PLAN OF EXPLORATION**

### **GREEN CANYON AREA BLOCK 398, OCS-G 7066**

#### **ACTIVITY SCHEDULE**

Drill and temporarily abandon Location "A" . . . . . June 1, 1996 - September 30, 1996  
Complete Location "A" . . . . . September 1, 1997 - September 30, 1997

Drill and temporarily abandon Location "B" . . . . . October 1, 1996 - December 31, 1996  
Complete Location "B" . . . . . October 1, 1997 - October 31, 1997

Drill and temporarily abandon Location "C" . . . . . January 1, 1997 - April 30, 1997  
Complete Location "C" . . . . . November 1, 1997 - November 30, 1997

Drill and temporarily abandon Location "D" . . . . . May 1, 1997 - August 31, 1997  
Complete Location "D" . . . . . December 1, 1997 - December 31, 1997

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**WELL LOCATION AND PLAT**

## WELL LOCATION AND DEPTH

<u>WELL</u>	<u>SURFACE LOCATION</u>	<u>MD</u>	<u>TVD</u>	<u>WD</u>
A	SL: 7350' FNL & 4180' FEL GC 398 X = 2,023,340 Y = 10,006,030	17420'	LAT: 27° 33' 43.5" LONG: 91° 49' 3.9"	2925'
B	SL: 7350' FNL & 4180' FEL GC 398 X = 2,023,340 Y = 10,006,030	18000'	LAT: 27° 33' 43.5" LONG: 91° 49' 3.9"	2925'
C	SL: 7350' FNL & 4180' FEL GC 398 X = 2,023,340 Y = 10,006,030	18000'	LAT: 27° 33' 43.5" LONG: 91° 49' 3.9"	2925'
D	SL: 6500' FNL & 4500' FEL GC 398 X = 2,023,020 Y = 10,004,380	18000'	LAT: 27° 33' 52" LONG: 91° 49' 7.4"	2925'

**PUBLIC INFORMATION**

OCS-G-7066

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398

X=2,023,020  
Y=10,004,380

LAT. 27° 33' 52"  
LONG. 91° 49' 7.4"

P.S.L. "D"

P.S.L. "A", "B", "C"

X=2,023,340 Y=10,003,530  
LAT. 27° 33' 43.5"  
LONG. 91° 49' 3.9"

6500'

7350'

4500'

4180'



REVISIONS

By	Date

**ENSERCH EXPLORATION** INC.  
OFFSHORE REGION

Green Canyon Block 398  
Gulf of Mexico

**LOCATION PLAT**  
Public Information Copy

Prepared for Suzy Younger  
Drafted by Kevin Gallath

C.I: NA  
Date: Oct. 27, 1995

**GEOLOGICAL INTERPRETATION AND SHALLOW HAZARDS,  
AND STRUCTURE MAP**

**CONFIDENTIAL DATA**

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**RIG DESCRIPTION, MUD COMPONENTS AND ADDITIVES**

## **PLAN OF EXPLORATION**

### **GREEN CANYON AREA BLOCK 398, OCS-G 7066**

#### **RIG DESCRIPTION**

The proposed wells will be drilled and tested with a semi-submersible rig similar to the Ocean Voyager. The specifications for the actual drilling vessel and safety equipment will be submitted with our Application for Permit to Drill. The drilling vessel used to drill the above mentioned wells will contain and maintain various safety equipment in accordance with 30 CFR Part 250 Subpart D, such as Diverter system, blowout preventers, auxiliary equipment, and mud testing and monitoring devices. Drilling operations will be conducted in a manner so as to maximize pollution prevention in accordance with 30 CFR Part 250 Subpart C. All other safety and control equipment will be utilized in accordance with other applicable MMS guidelines.

A list of drilling mud components, and mud additives is included for your review.

## DRILLING MUD COMPONENTS

### COMMON CHEMICAL OR NAME

### DESCRIPTION OF CHEMICAL TRADE MATERIAL

Aluminum Stearate	Aluminum Stearate
"AKTAFLO-S"	Nonionic Surfactant
Barite	Barium Sulfate (BaSO <sub>4</sub> )
Calcium Carbonate	Aragonite (CaCO <sub>3</sub> )
Calcium Chloride	Hydrophilite (CaCl <sub>2</sub> )
Calcium Oxide	Lime (Quick)
Calcium Sulfate	Anhydrite (CaSO <sub>4</sub> )
Carboxymethyl Cellulose	Carboxymethyl Cellulose
Caustic Potash	Potassium Hydrate
Caustic Soda	Sodium Hydroxide (NaOH)
Chrome Lignite	Chrome Lignite
Chrome Lignosulfonate	Chrome Lignosulfonate
Drilling Detergent	Soap
"E-Pal"	Non-toxic, biodegradable defoamer
Ferrochrome Lignosulfonate	Derived from wood pulp
Gel	Sodium montmorillonite, bentonite, attapulgite
Gypsum	CaSO <sub>4</sub> .2H <sub>2</sub> O
Lignite	Lignite
Lignosulfonate	Lignosulfonate
"Mud-Sweep"	Cement Pre-Flush
"MOR-REX"	Hydrolyzed Cereal Solid
"Shale-Trol"	Organo-aluminum complex
Sapp	Sodium Acid Pyrophosphate
Soda Ash	Sodium Carbonate
Sodium Bicarbonate	NaHCO <sub>3</sub>
Sodium Carboxymethyl Cellulose	Sodium Carboxymethyl Cellulose
Sodium Chloride	NaCl
Sodium Chromate	NaCrO <sub>4</sub> .10H <sub>2</sub> O
Starch	Corn Starch
"TX-9010"	Biodegradable drilling lubricant
"TORO-Trim"	Biodegradable drilling lubricant



## MUD ADDITIVES

### COMMON CHEMICAL OR CHEMICAL TRADE NAME

### DESCRIPTION OF MATERIAL

"Black Magic

Oil base mud conc.

"Black Magic Supermix"

Sacked concentrated oil  
base mud

Diesel

Used to mix certain loss-  
circulation pills

"Jelflake"

Plastic foil, shredded  
cellophane

MICA

Loss-circulation material

"Pipe-Lax"

Surfactant mixed with  
diesel

"Wall-nut"

Ground walnut shells

Wood fibers

Loss-circulation material

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**SAFETY AND ENVIRONMENTAL SAFEGUARDS**

**POLLUTION CONTAINMENT AND CLEANUP EQUIPMENT,  
DEPLOYMENT TIME  
DISCUSSION OF DISCHARGED VOLUMES**

**(OIL SPILL CONTINGENCY PLAN)**

## **SAFETY AND ENVIRONMENTAL SAFEGUARDS**

Safety features during drilling operations will include well control and blowout prevention equipment that meets or exceeds the requirements of 30 CFR Part 250 Subpart D.

Oil in any form shall not be disposed of into the waters of the Gulf of Mexico.

Liquid waste materials containing substances which may be harmful to aquatic life or wildlife, or injurious in any manner to life or property shall be treated to avoid disposal of harmful substances into the waters of the Gulf.

Drilling muds containing oil are not disposed of into the Gulf. This type of material is loaded and barged to shore for proper disposal. Drilling muds containing toxic substances are neutralized prior to disposal.

Drill cuttings, sand, and solids containing oil are not disposed into the Gulf unless the oil has been removed.

The subject offshore mobile drilling unit is equipped with drip pans under the rig floor. All oil from diesel engines is pumped to a sump and then pumped into barrels for return to an approved onshore disposal site.

Operator personnel are instructed in the techniques and methods necessary to prevent pollution. Non-operator personnel are instructed and supervised to insure that non-pollution practices are adhered to. The facilities are inspected daily.

**ENSERCH EXPLORATION, INC.**  
**GREEN CANYON AREA**  
**BLOCK 398, OCS-G 7066**

All discharges associated with the drilling of the proposed wells will be in accordance with the EPA NPDES General Permit 290080 for the Gulf of Mexico.

A discussion of the quantity, rates of discharge and composition of solid and liquid wastes are attached.

Cuttings discharges are based on the average hole size for each section of hole. Mud may be discharged for purposes of dilution or at end of well. The fluid used for drilling will be a typical lignosulfonate mud unless otherwise noted in the drilling program. Concentrations of the chemicals in the mud can be estimated from the daily fluids chemical inventory. Other surveillance of the fluid is accomplished by the monthly and end-of-well LC50 toxicity tests required by EPA. Any drilling fluid contaminated with oil will be transported to shore for proper disposal at an authorized disposal site.

Sewage will be treated on location.

Solid domestic wastes will be transported to shore for proper disposal at an authorized disposal site.

Deck drainage will be estimated by amount of rainfall and wash water used.

**OIL SPILL TRAJECTORY ANALYSIS**

In the event a spill occurs from GREEN CANYON AREA BLOCK 398, Enserch Exploration, Inc. (EEI) has projected the trajectory of a spill utilizing information in the Environmental Impact Statement for OCS Lease Sale 152 and 155.

The EIS contains oil spill trajectory simulations using seasonal surface currents coupled with wind data, adjusted every 3 hours for 30 days or until a target is contacted.

Hypothetical spill trajectories were simulated for each of the potential launch sites across the entire Gulf. These simulations presume 500 spills occurring in each of the four seasons of the year. The results in the were presented as probabilities that an oil spill beginning from a particular launch site would contact a certain land segment within 3, 10, or 30 days. Utilizing the summary of the trajectory analysis (for 10 days), the probable projected land fall of an oil spill from GREEN CANYON AREA BLOCK 398 impacting a land segment is less than 1%.

Section V, Volume II of the CGA Manual containing maps as listed above, also includes equipment containment/cleanup protection response modes for the sensitive areas. Pollution response equipment available from CGA and its stockpile base is listed in the CGA Manual Volume I, Section III.

Section VI, Volume II of the CGA Operations Manual depicts the protection response modes that

are applicable for oil spill clean-up operations. Each response mode is schematically represented to show optimum deployment and operation of the equipment in area of environmental concern. Implementation of the suggested procedures assures the most effective use of the equipment and will result in reduced adverse impact of oil spills on the environment. Supervisory personnel have the option to modify the deployment and operation of equipment to more effectively respond to site-specific circumstances.

Should a spill occur from the proposed locations, Enserch Exploration, Inc. would immediately activate its Oil Spill Response Team. Response equipment and response times will be suitable for anticipated environmental conditions in the area. In good weather conditions fast response with oil boom, skimmers, pump and storage tanks would require approximately 6 hours, including preparation time as indicated below. A heavy equipment system response would require approximately 24-36 hours, including 6 hours preparation time. The Clean Gulf Base in Grand Isle, LA will be utilized for this operation.

PROCUREMENT AND DEPLOYMENT TIME

	<u>Hours</u>
1) Procurement of boat capable of handling Oil Spill Containment equipment and deployment to nearest CGA base in Grand Isle, LA	2.0
2) Load out FRU	1.5
3) Travel to lease site from Shore Base *(3 miles to open water @ 6 mph) (94 miles to lease site @ 10 mph)	.5 9.5
<b>Estimated Total Time</b>	<b>13.5</b>

All necessary precautions will be undertaken to protect the sensitive areas including deployment of booms, skimmers, pumps, scare guns, etc. In the event a spill is projected to hit near shore sensitive areas, Enserch Exploration, Inc. (EEI) will immediately procure truck(s) (as per our approved Oil Spill Contingency Plan) to transport containment equipment to the staging area. Helicopters may be utilized to transport near-shore booms, scare guns, hand skimming systems, and sorbent pads.

**ENSERCH EXPLORATION, INC.**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**LOCATION "A"  
DISCHARGES**

<u>DEPTH</u>	<u>HOLE SIZE</u>	<u>QUANTITY(BBLS)</u>	<u>DISCHARGE RATE</u>
3010	30"	245	Max. 1000 BPH
3290	26"	984	Max. 1000 BPH
4790	22"	804	Max. 1000 BPH
6500	17-1/2"	892	Max. 1000 BPH
9500	12-1/4"	728	Max. 1000 BPH
14500	9-7/8"	142	Max. 1000 BPH
16000	6-1/2"	58	Max. 1000 BPH

**Total discharges estimated to be: 3853 Bbls.**

**ENSERCH EXPLORATION, INC.  
GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**LOCATION "B"  
DISCHARGES**

<u>DEPTH</u>	<u>HOLE SIZE</u>	<u>QUANTITY(BBLS)</u>	<u>DISCHARGE RATE</u>
3010	30"	245	Max. 1000 BPH
3290	26"	984	Max. 1000 BPH
4790	22"	804	Max. 1000 BPH
6500	17-1/2"	981	Max. 1000 BPH
9800	12-1/4"	728	Max. 1000 BPH
14800	9-7/8"	142	Max. 1000 BPH
16300	6-1/2"	70	Max. 1000 BPH

**Total discharges estimated to be:**

**3954 Bbls.**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**LOCATION "C"  
DISCHARGES**

<u>DEPTH</u>	<u>HOLE SIZE</u>	<u>QUANTITY(BBLS)</u>	<u>DISCHARGE RATE</u>
3010	30"	245	Max. 1000BPH
3290	26"	984	Max. 1000BPH
4790	22"	804	Max. 1000BPH
6500	17-1/2"	981	Max. 1000BPH
9800	12-1/4"	728	Max. 1000BPH
14800	9-7/8"	142	Max. 1000BPH
16300	6-1/2"	70	Max. 1000BPH

**Total discharges estimated to be:                    3954 Bbls.**



**ENSERCH EXPLORATION, INC.  
GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**LOCATION "D"  
DISCHARGES**

<u>DEPTH</u>	<u>HOLE SIZE</u>	<u>QUANTITY(BBLS)</u>	<u>DISCHARGE RATE</u>
3010	30"	245	Max. 1000 BPH
3290	26"	984	Max. 1000 BPH
4790	22"	804	Max. 1000 BPH
6500	17-1/2"	981	Max. 1000 BPH
9800	12-1/4"	728	Max. 1000 BPH
14800	9-7/8"	142	Max. 1000 BPH
16300	6-1/2"	70	Max. 1000 BPH

**Total discharges estimated to be:**

**3954 Bbls.**

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**REQUEST FOR CLASSIFICATION OF PROBABILITY OF ENCOUNTERING H<sub>2</sub>S DURING  
OPERATIONS**

## **PLAN OF EXPLORATION**

### **GREEN CANYON AREA BLOCK 398, OCS-G 7066**

#### **Hydrogen Sulfide (H<sub>2</sub>S)**

In accordance with 30 CFR 250.67, Enserch Exploration, Inc. (EEI) requests that Green Canyon Block 398, OCS-G 7066 be classified as being in a "Zone Where The Absence Of H<sub>2</sub>S Has Been Confirmed".

Hydrogen Sulfide was not encountered or detected in any of the wells drilled in this area by Amerada Hess, Exxon or Tenneco. Enserch Exploration, Inc. (EEI) does not anticipate encountering H<sub>2</sub>S in any of the target sands.

<u>OPERATOR</u>	<u>BLOCK</u>	<u>WELL</u>	<u>DEPTH</u>	
Amerada Hess	GB 260	#1	18,322'	MD (18,322' TVD)
Exxon	GC 134	#2	18,444'	MD (18,444' TVD)
Tenneco	GC 135	#1	18,639'	MD (18,067' TVD)
Exxon	GB 344	#1	16,612'	MD (14,695' TVD)

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**ONSHORE BASE FACILITIES, VICINITY PLAT**

## **PLAN OF EXPLORATION**

### **GREEN CANYON AREA BLOCK 398, OCS-G 7066**

#### **ONSHORE BASE FACILITIES, VICINITY PLAT**

##### **BAROID DRILLING FLUIDS DOCK FOURCHON, LOUISIANA**

No expansion of the existing facilities is planned for this operation. The proposed operations will not require the hiring of any additional personnel. Typical supply and crew boats will be utilized throughout the drilling and completion operations. Personnel and equipment will be transported by boat and helicopter over the most direct routes to and from the site.

##### **FREQUENCY OF TRAVEL**

Crew boats	-	three trips/week
Supply boats	-	two trips/week
Helicopters	-	four trips/week

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LOUISIANA

SOUTH MARSH ISLAND NORTH

SOUTH MARSH ISLAND

EUGENE ISLAND

SHIP SHOAL

SOUTH PELTO

GRAND ISLAND

SOUTH TIMBALIER

SOUTH MARSH ISLAND SOUTH

EUGENE ISLAND SOUTH

SHIP SHOAL SOUTH

SOUTH TIMBALIER SOUTH

EWING BANK

117 MILES TO NEAREST SHORELINE

147 MILES TO FOURCHON



Green Canyon Block 398

GREEN CANYON

REVISIONS

By	Date



**ENBERCH EXPLORATION INC**  
OFFSHORE REGION

Green Canyon Block 398  
Gulf of Mexico

**VICINITY PLAT**

PREPARED FOR SUZY YOUNGER  
DRAFTING BY J. REITER

DRWG: GC398VIC.FCD

CJ: N/A  
DATE: 11/95

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**LEASE STIPULATION(S)**

## **PLAN OF EXPLORATION**

### **GREEN CANYON AREA BLOCK 398, OCS-G 7066**

Placid Oil Company contracted Intersea Research to provide a Shallow Hazards Survey of Green Canyon Area Block 398 October, 1984. The reports of this survey was prepared in accordance with the guidelines established by the MMS in their Notices to Lessees regarding cultural resources and geohazard surveys and reports (NTL-75-3 and subsequent NTL's).

This survey and subsequent report satisfies the requirements of Stipulation "1" (Protection of Archaeological Resources) in the lease agreement.



**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**AIR QUALITY REVIEW**

COMPANY	ENSERCH EXPLORATION , INC.
AREA	GREEN CANYON
BLOCK	398
LEASE	OCS G 7066
PLATFORM	
WELL	
LATITUDE	
LONGITUDE	
COMPANY CONTACT	JAMES J. WEISMAN JR.
TELEPHONE NO.	214-6924383
REMARKS	

AIR EMISSION CALCULATIONS

COMPANY ENSERCH EXPLORAT OPERATIONS	AREA GREEN CANYON	BLOCK 398	LEASE 7066	PLATFORM	WELL	LATITUDE	LONGITUDE	CONTACT JAMES J. WEISMAN JR.	PHONE 214-692-4383	REMARKS	TONS PER YEAR										
											TSP	SOX	NOX	VOC	CO	TSP	SOX	NOX	VOC	CO	
EQUIPMENT												POUNDS PER HOUR									
Diesel Engines												TSP	SOX	NOX	VOC	CO					
Nat. Gas Engines												TSP	SOX	NOX	VOC	CO					
Burners												TSP	SOX	NOX	VOC	CO					
DRILLING	MMBTU/HR	HP	SCF/HR	SCF/D	HR/D	DAYS	TSP	SOX	NOX	VOC	CO	TSP	SOX	NOX	VOC	CO					
PRIME MOVER>600hp diesel	4610		144.9	3477.60	24	213	2.44	15.13	111.70	3.35	24.37	6.23	38.67	285.50	8.58	62.29					
PRIME MOVER>600hp diesel	5850		144.9	3477.60	24	213	3.09	19.20	141.74	4.25	30.93	7.90	49.07	362.29	10.87	79.04					
PRIME MOVER>600hp diesel	0		144.9	3477.60	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
AUXILIARY EQUIP<600hp diesel	80		3.864	92.74	24	213	0.18	0.16	2.47	0.20	0.53	0.45	0.42	6.31	0.50	1.36					
VESSELS>600hp diesel	3400		134.4	3225.60	7	93	1.80	11.16	82.38	2.47	17.97	0.59	3.63	26.81	0.80	5.85					
VESSELS>600 HP DIESEL	6100		134.4	3225.60	12	62	3.22	20.02	147.80	4.43	32.25	1.20	7.45	54.98	1.65	12.00					
PIPELINE INSTALLATION	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
SUPPORT VESSEL diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
PIPELINE BURY BARGE diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
SUPPORT VESSEL diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
FACILITY INSTALLATION	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
DERRICK BARGE diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
MATERIAL TUG diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
PRODUCTION	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
RECIP. <600hp diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
RECIP. >600hp diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
SUPPORT VESSEL diesel	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
TURBINE nat gas	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
RECIP. 2 cycle lean nat gas	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
RECIP. 4 cycle lean nat gas	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
RECIP. 4 cycle rich nat gas	0		0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
BURNER nat gas	0		0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
MISC.	BPD		SCF/HR	COUNT																	
TANK-	0		0	0	0	0															
FLARE-	0		0	0	0	0															
PROCESS VENT-	0		0	0	0	0															
FUGITIVES-	0		0	0	0	0															
GLYCOL STILL VENT-	0		0	0	0	0															
OIL BURN	0		0	0	0	0															
GAS FLARE	0		0	0	0	0															
1996 YEAR TOTAL							10.73	65.67	486.08	14.71	106.05	16.37	95.24	735.88	22.39	160.55					
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES	117.0					3896.10	3896.10	3896.10	3896.10	3896.10	3896.10	3896.10	3896.10	3896.10	3896.10	82634.89				

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COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL	LATITUDE	LONGITUDE	CONTACT	PHONE	REMARKS	TONS PER YEAR						
											TSP	SOX	NOX	VOC	CO	TSP	SOX
OPERATIONS	EQUIPMENT	MMBTU/HR	GAL/HR	SCF/HR	HR/D	DAYS	POUNDS PER HOUR										
							TSP	SOX	NOX	VOC	CO	TSP	SOX	NOX	VOC	CO	
DRILLING	Diesel Engines	4610	144.9	3477.60	24	365	2.44	15.13	111.70	3.35	24.37	10.67	66.27	489.23	14.68	106.74	
		5850	144.9	3477.60	24	365	3.09	19.20	141.74	4.25	30.93	13.55	84.09	620.82	18.62	135.45	
		0	144.9	3477.60	24	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		80	3.864	92.74	24	365	0.18	0.16	2.47	0.20	0.53	0.77	0.72	10.81	0.86	2.34	
		3400	134.4	3225.60	7	156	1.80	11.16	82.38	2.47	17.97	0.98	6.09	44.98	1.35	9.81	
		6100	134.4	3225.60	12	104	3.22	20.02	147.80	4.43	32.25	2.01	12.49	92.23	2.77	20.12	
PIPELINE INSTALLATION	Nat. Gas Engines	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP <600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
DRILLING WELL TEST	MISC.	BPD	SCF/HR	COUNT													
		0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
DRILLING WELL TEST	PROCESS VENT-FUGITIVES-	0	0	200.0	0	122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0	416867	0	24	4	0.00	0.24	29.75	25.13	161.88	0.00	0.01	1.43	1.21	7.77	
		0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1997 YEAR TOTAL											27.98	169.68	1259.49	39.50	267.92	282.24	
EXEMPTION CALCULATION											3896.10	3896.10	3896.10	3896.10	3896.10	82634.89	

**AIR EMISSION CALCULATIONS**

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
ENSERCH EX	GREEN CANYON	398	OCS G 7066		
Emitted					
Year	Substance				
	TSP	SOX	NOX	HC	CO
1996	16.37	99.24	735.88	22.39	160.55
1997	27.98	169.68	1259.49	39.50	282.24
1998	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00
Allowable	3896.10	3896.10	3896.10	3896.10	82634.89

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**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**ENVIRONMENTAL REPORT**

**ENVIRONMENTAL REPORT**

**FOR**

**GREEN CANYON BLOCK 398**

**OCS-G 7066**

**ENSERCH EXPLORATION, INC.**

**4849 Greenville Avenue  
Suite 1200  
Dallas, Texas 75206-4186**

**NOVEMBER 1995**

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## **I. DESCRIPTION OF PROPOSED ACTION**

Enserch Exploration, Inc. proposes to conduct exploration activities within Green Canyon Block 398, Lease OCS-G 7066, Offshore Louisiana.

As proposed, the Initial Plan of Exploration for Green Canyon Block 398 provides for the drilling of four (4) exploratory wells utilizing a semi-submersible rig.

At this time, the planned commencement date for the proposed activities is June , 1996.

### **A. DESCRIPTION OF PROPOSED TRAVEL MODES, ROUTES AND FREQUENCY**

Support vessels will be dispatched from the Baroid Dock located in Fourchon, Louisiana. The boats will normally move to the block via the most direct route from Fourchon, Louisiana; however, boats operating in the field may travel from other facilities nearby. Following is an estimate of trips to the proposed operation:

	<u>DRILLING COMPLETION OPERATIONS</u>
Supply Boat	2 trips per week
Crew Boat	3 trips per week
Helicopter	4 trips per week

### **B. ONSHORE SUPPORT BASE**

The proposed activities will utilize a support base located at the Baroid Dock in Fourchon, Louisiana. This base provides 24-hour service, a radio tower with phone patch, dock space, office space, parking lot, equipment and supply storage space, drinking and drill water, etc. The proposed development activities will help to maintain this base at its present level of activity. No expansion of the physical facilities or the creation of new jobs is expected to result from the work planned in conjunction with this block.

The first socioeconomic data base report will be submitted when the MMS and the States of Alabama, Louisiana and Mississippi identify the specific parameters to be addressed in these semi-annual reports.

### **C. NEW OR UNUSUAL TECHNOLOGY**

No new or unusual technology will be required for this operation.

### **D. VICINITY MAP**

The location for the proposed activity is in Green Canyon Block 398, OCS-G 7066, which is located approximately one hundred and seventeen (117) statute miles from the nearest Louisiana shoreline. The water depth at this location is approximately 2925 feet. Figure 1 represents the location of the block in relation to the Louisiana Coast, as well as the geographic relationship between other OCS lease areas and Green Canyon Block 398.

## **II. DESCRIPTION OF AFFECTED ENVIRONMENT**

### **A. COMMERCIAL FISHING**

The Gulf of Mexico provides nearly 20% of the commercial fish landings in the continental United States. During 1992, commercial landings of all fisheries in the Gulf totaled nearly 1.4 billion pounds values at about \$634 million.

Menhaden, with landings of 0.8 billion pounds, values at \$42 million, was the most important Gulf species in quantity landed during 1992. Shrimp, with landings of 222 million pounds, valued at \$389 million, was the most important Gulf species in value landed during 1992. The 1992 Gulf oyster fishery accounted for 51% of the national total with landings of 18.7 million pounds of meat, valued at about \$40.5 million. The Gulf blue crab fishery accounted for 34% of the national total with landings of 66 million pounds, valued at \$35.6 million.

Alabama ranked last among Central and Western Gulf states in total commercial landings for 1992 with 23.7 million pounds landed, valued at \$35.6 million. Shrimp was the most important fishery landed, with 5.8 million pounds, valued at \$12.8 million. In addition, during 1992, the following six species each accounted for landings valued at over \$125,000: blue crab, shark, black mullet, red snapper, flounder and the American oyster. Alabama had about 3,470 and 2,515 commercial saltwater, licensed fishermen during 1991 and 1992, respectively.

Mississippi ranked second among Central and Western Gulf states in total commercial fishery landings for 1992, with approximately 187.6 million pounds landed, valued at approximately \$31.3 million. Shrimp was the most important fishery, with 10.1 million

pounds landed, valued at about \$19.8 million. In addition, during 1992, the following four species each accounted for landings valued at over \$150,000: red snapper, blue crab, American oyster and black mullet. Mississippi had about 3,329 and 2,515 commercial saltwater licensed fishermen during 1991 and 1992, respectively.

Louisiana ranked first among Central and Western Gulf states in total commercial fishery landings for 1992, with nearly 0.98 billion pounds landed, valued at \$276.4 million. Menhaden was the highest quantity finfish, with 0.79 billion pounds landed, valued at \$40 million. Shrimp was the highest value shellfish, with 97.4 million pounds landed, valued at \$144 million. In addition, during 1992, the following nine species each accounted for landings valued at over \$1 million: king mackerel, red mullet roe, shark, red snapper, spotted sea trout, swordfish, yellowfin tuna, blue crab and the American oyster. In 1991 and 1992, Louisiana had about 19,923 and 19,241 commercial saltwater licensed fishermen, respectively.

Texas ranked third among Central and Western Gulf states in total commercial fishery landings for 1992 with nearly 92.1 million pounds landed, valued at \$181.3 million. In quantity and value, shrimp ranked first, with about 85 million pounds, valued at \$167 million. In addition, during 1992, the following five species each accounted for landings valued at over \$500,000: red snapper, swordfish, yellowfin tuna, blue crab and American oyster. In 1991 and 1992, respectively, Texas had about 17,483 and 14,519 commercial saltwater licensed fishermen.

The Gulf of Mexico yielded the nation's second largest regional commercial fishery by weight in 1992. The Gulf fisheries landings were nearly 20% of the national total by weight and 20% by value. Most commercial species harvested from Federal waters of the Gulf of Mexico are considered to be at or near an overfished condition. Continued fishing at the present levels may result in rapid declines in commercial landings and eventual failure of certain fisheries. Commercial landings of traditional fisheries such as shrimp, red snapper and spiny lobster, have declined over the past decade despite substantial increases in fishing effort. Commercial landings of recent fisheries, such as shark, black drum and tuna have increased exponentially over the past five years and those fisheries are thought to be in need of conservation.

The Gulf of Mexico shrimp fishery is the most valuable in the United States accounting for 71.5% of the total domestic production. Three species of shrimp (brown, white and pink) dominate the landings. The status of the stock are as follows: (1) brown shrimp yields are at or near the maximum sustainable levels; (2) white shrimp yields are beyond maximum sustainable levels with signs of overfishing occurring; and (3) pink shrimp yields are at or beyond maximum sustainable levels.

## **B. SHIPPING**

The establishment of a series of safety fairways or traffic separation schemes (TSS's), and anchorage areas provide unobstructed approach for vessels using U.S. ports. Shipping safety fairways are lanes or corridors in which no fixed structure, whether temporary or permanent, is permitted. TSS's increase navigation safety by separating opposing lanes of vessel traffic. Fairway anchorages are areas contiguous to and associated with a fairway, in which fixed structures may be permitted within certain spacing limitations.

Fairways play an important role in the avoidance of collisions on the OCS, particularly in the case of the larger oceangoing vessels, but not all vessels stay within the fairways. Many others, such as fishing boats and OCS support vessels, travel through areas with high concentrations of fixed structures. In such cases the most important mitigation factor is the requirement for adequate marking and lighting of structures. After a structure has been in place for a while, it often becomes a landmark and an aid to navigation for vessels that operate in the area on a regular basis. Most oceangoing vessels are equipped with radar capable of aiding navigation in all weather conditions. This has contributed to safe navigation on the OCS.

Green Canyon Block 398, is clear of all shipping fairways and anchorage areas. The drilling rig and each of the marine vessels servicing these operations will be equipped with all U.S. Coast Guard required navigational safety aids to alert ships of their presence in all weather conditions.

## **C. PLEASURE BOATING, SPORT FISHING AND RECREATION**

The northern Gulf of Mexico coastal zone is one of the major recreational regions of the United States, particularly for marine fishing and beach activities. Gulf Coast shorelines offer a diversity of natural and developed landscapes and seascapes. Major recreational resources include coastal beaches, barrier island, estuarine bays and sounds, river deltas and tidal marshes. Other resources include publicly owned and administered areas such as national seashores, parks, beaches and wildlife lands, as well as designated preservation areas, such as historic and natural sites, landmarks, wilderness areas, wildlife sanctuaries and scenic rivers. Gulf Coastal residents and tourists from throughout the nation, as well as from foreign countries, use these resources extensively and intensively for recreation activity. Commercial and private recreational facilities and establishments such as resorts, marinas, amusement parks and ornamental gardens also serve as primary-interest areas.

The two major recreational areas most directly associated with offshore leasing and potentially affected by it are the offshore marine environment and the coastal shorefront of the adjoining states. The major recreational activity occurring on the OCS is offshore marine recreational fishing and diving. Studies, reports and conference proceedings published by MMS and others have documented a substantial recreational fishery, including scuba diving directly associated with oil and gas structures which stems from their function as high profile artificial fishing reefs.

The coastal shorelines of the Central and Western Planning Areas contain extensive public park and recreation areas, private resorts and commercial lodging. Most of the outdoor recreational activity focused on the Gulf shorefront is associated with accessible beach areas. Beaches are a major inducement for coastal tourism, as well as a primary resource for resident recreational activity. However, recreational resources, activities and expenditures are not constant along the Gulf of Mexico shorefront, but are focused where public beaches are close to major urban centers. Beach use is a major economic factor for many Gulf coastal communities, especially during peak-use seasons in the spring and summer.

#### **D. POTENTIAL OR KNOWN ARCHAEOLOGICAL RESOURCES**

Archaeological resources are any prehistoric or historic site, building, structure, object or feature that is manmade or modified by human activity. Significant archaeological resources are defined in 36 CFR 800, Section 60.6. The MMS has previously contacted the State Historic Preservation Officers for all Gulf Coast States and requested them to provide a list of those National Register of Historic Places that are in their State's coastal zones and that could potentially be affected by OCS leasing activities.

With the exception of the Ship Shoal Lighthouse, historic archaeological resources on the OCS consist of shipwrecks. Management of this resource was accomplished by establishing a high-probability zone for the occurrence of historic shipwrecks. An MMS-funded study updated the shipwreck database. Statistical analysis of over 4,000 potential shipwrecks in the northern Gulf indicated that many of the OCS shipwrecks occur in clustered patterns related mainly to navigation hazards and port entrances.

Geomorphic features that have a high probability for associated prehistoric archaeological resources in the Central and Western Gulf include barrier islands and back-barrier embayments, river channels and associated floodplains and terraces, and salt dome features.

Minerals Management Service has orally advised that Lease Stipulation No. 1, requiring

an archaeological survey, would not be invoked for Lease OCS-G 7066.

## **E. ECOLOGICALLY SENSITIVE FEATURES**

Coastal barriers of the Western and Central Gulf Coast consist of relatively low land masses that can be divided into several interrelated environments. The beach itself consists of the foreshore and backshore. The nonvegetated foreshore slopes up from the ocean to the beach berm-crest. The backshore may occasionally be absent due to storm activity. If present, the backshore is found between the beach berm-crest and the dunes and may be sparsely vegetated. The dune zone of a barrier landform can consist of a single dune ridge, several parallel dune ridges, or a number of curving dune lines that are stabilized by vegetation. These elongated, narrow landforms are composed of sand and other unconsolidated, predominantly coarse sediments that have been transported and deposited by waves, currents, storm surges and winds.

When Gulf water levels are elevated by storms, water will overwash a coastal barrier. This action will create overwash fans or terraces behind and between the dunes. With time, these terraces will be vegetated by opportunistic species. Along more stable barriers, the area behind the dunes consists of broad flats that support scrubby woody vegetation. Saline or freshwater ponds may be found among the dunes or landward flats. Landward, these flats may grade into wetlands and intertidal mud flats that fringe the shore of lagoons, islands and embayments. In other areas, these barriers may grade into scrub or forest habitat of the mainland, with no bay or lagoon separating the two landforms. Habitats found among the coastal barrier landforms provide a variety of niches that support many avian, terrestrial, aquatic and amphibious species, some of which are endangered or threatened.

Stability of these habitats is primarily dependent upon the rates of geodynamic change for each coastal vicinity. The major sources of pressure that cause barrier landforms to change are storms, subsidence, delta abandonment and human activity.

From east to west, the barrier coasts of the Western and Central Gulf include Baldwin County Headland in Alabama, the barrier islands of Mississippi Sound, the Chandeleur Islands, the Modern Mississippi River Delta and its developing barrier islands, the Bayou Lafourche Headland and accompanying barrier islands, Isles Dernieres, the Chenier Plain of Louisiana and Texas, Trinity River Delta, Brazos-Colorado River Delta and its accompanying barrier islands, barrier islands of Espiritu Santo Bay and Laguna Madre and the Rio Grande Delta.

Louisiana has the most rapidly retreating beaches in the nation. The statewide average

for 1956-1978 was 8.29 m/yr. The sand beach formed between the Gulf and Bay Marchand retreated landward at rates of 18 to 23 m/yr. between 1887 and 1978. The average retreat rate for Fourchon Beach over the last 100 years has been 10 to 20 m/yr. Beaches along the deltaic plain in Louisiana fit into one of three categories, depending on the stage of the deltaic cycle of the nearby landmass. When a major distributary of the Mississippi River is abandoned, submergence due to subsidence and sea-level rise transforms the abandoned delta into an erosional headland with flanking barriers. The Bayou Lafourche Headland is an example of an eroding and subsiding delta that transgressively generates a barrier island arc, the ends of which are separated from the mainland. Isles Dernieres is an example of a barrier arc of islands that separated from its headland due to subsidence. With continued subsidence and no source of sediment, Isles Dernieres will eventually submerge and form a submarine inner-shelf shoal.

The coast of the Chenier Plain is fronted by sand beaches and coastal mudflats. The source of the mud is the discharge of the Mississippi and Atchafalaya Rivers, which tends to drift westward due to prevailing winds and associated near shore currents.

From the Texas-Louisiana border to Rollover Pass, Texas, the Texas coast is a physiographic continuation of the Chenier Plain. Here, thin accumulations of sand, shell and caliche nodules make up beaches that are migrating landward over tidal marshes. These beaches are narrow and have numerous overwash features and local, poorly developed sand dunes.

The rest of the Texas coast is a continuous barrier shoreline. The barrier islands and spits were formed from sediments supplied from the three previously listed deltaic headlands: the Trinity delta, which is immediately west of the Sabine River in Jefferson County; the Brazos-Colorado Rivers delta complex in Brazoria and Matagorda Counties; and the Rio Grande delta in southernmost Cameron County.

The Central and Western Gulf Coast includes barrier islands that are part of the National Park System. These are the Padre Island National Seashore along the Texas coast and Gulf Islands National Seashore offshore Mississippi.

The importance of coastal wetlands to the coastal environment has been well documented. Coastal wetlands are characterized by high organic productivity, high detritus production and efficient nutrient recycling. They provide habitat for a great number and wide diversity of invertebrates, fish, reptiles, birds, and mammals. Wetlands are particularly important as nursery grounds for juvenile forms of many important fish species. The Louisiana coastal wetlands support over two-thirds of the Mississippi Flyway wintering waterfowl population and the largest fur harvest in North

America.

Louisiana contains most of the Gulf coastal wetlands. The deterioration of coastal wetlands, particularly in Louisiana, is an issue of concern. In Louisiana, the annual rate of wetlands loss has been measured at 130 km<sup>2</sup> for the period 1955-1978. A recent study has shown that the current rate of land loss on the Deltaic Plain area of the Louisiana coast has decreased to about 90 km<sup>2</sup> per year. Several factors contribute to wetlands loss in coastal Louisiana. Sediment deprivation is a result of a 50% decrease in the suspended-sediment load of the river since the 1950's, channelization of the river, and, the primary cause, which was levee construction. Subsidence and sea level rise have caused submergence of lower wetland areas. Construction of ring levees have allowed drainage and development of extensive wetlands. Development activities in low areas, outside leveed areas, have caused the filling in of wetlands. Construction of canals converts wetlands to open water and upland spoil banks. Canals and subsidence have also contributed to increased tidal influence and salinities in freshwater and low-salinity wetlands, which in turn increase erosion and sediment export.

In Mississippi and Alabama, the mainland marshes behind Mississippi Sound occur as discontinuous wetlands associated with estuarine environments. The most extensive wetland areas in Mississippi occur east of the Pearl River delta near the western border of the state and the Pascagoula River delta area near the eastern border of the state. The wetlands of Mississippi seem to be more stable than those in Louisiana, perhaps reflecting the more stable substrate and more active sedimentation per unit of wetland area. Also, there have been only minor amounts of canal dredging in the Mississippi wetlands.

Most of the wetlands in Alabama occur on the Mobile River delta or along northern Mississippi Sound. Between 1955 and 1979, fresh marshes and estuarine marshes declined in these areas by 69% and 29%, respectively. Major causes of non-fresh wetland losses were industrial development and navigation, residential and commercial development, natural succession and erosion/subsidence. The loss of fresh marsh was mainly attributable to commercial and residential development and silviculture.

In Texas, coastal marshes occur along the inshore side of barrier islands and bays and on river deltas. Salt marshes consisting primarily of smooth cordgrass occur at lower elevations and at higher salinities. Brackish marshes occur in transition areas landward of salt marshes on slightly higher elevations and at greater distances from saltwater bodies. Freshwater marshes of the region occur primarily along the major rivers and tributaries. Sparse banks of black mangroves are also found in the region. Broad expanses of emergent wetland vegetation do not commonly occur south of the arid



climate and hyper saline waters to the south. Dominant salt-marsh plants here include more salt tolerant species such as *Batis maritima* and *Salicornia sp.*

Wetland changes observed in Texas during the past several decades appear to be driven by subsidence and sea-level increases. Open-water areas are appearing in wetlands along their seaward margins, while new wetlands are encroaching onto previously non-wetland habitat along the landward margin of wetland areas on the mainland, on the back side of barrier islands, and onto spoil banks. In addition, wetlands are being affected by human activities including canal dredging, impoundments, and accelerated subsidence caused by fluid withdrawals. The magnitudes of these wetland acreage changes in most of Texas have not been determined at the present time. In the Freeport, Texas area, along the Louisiana border, wetlands loss is occurring at rates similar to those occurring in adjacent parts of the Louisiana Chenier Plain.

Offshore sea grasses are not conspicuous in the Central and Western Gulf; however, fairly extensive beds may be found in estuarine areas behind the barrier islands throughout the Gulf. Sea grasses would be continuous around the entire periphery of the Gulf if it were not for the adverse effects of turbidity and low salinity of the Mississippi effluent from the delta to Galveston. In general, the vast majority of the benthos of the Central and Western Gulf consists of soft, muddy bottom dominated by polychaetes. Benthic habitats that are at the most risk to potential impacts from oil and gas operations are those of the topographic features, and the pinnacle trend live bottom.

The northeastern portion of the Central Gulf of Mexico exhibits a region of topographic relief, the "pinnacle trend," found at the outer edge of the Mississippi-Alabama shelf between the Mississippi River and DeSoto Canyon. The pinnacles appear to be carbonate reefal structures in an intermediate stage between growth and fossilization. The region contains a variety of features from low to major pinnacles, as well as ridges, scraps, and relict patch reefs. The heavily indurated pinnacles provide a surprising amount of surface area for the growth of sessile invertebrates and attract large numbers of fish.

With the exception of the region defined as the pinnacle-trend areas, the substrate in waters shallower than 67 m of the Central Gulf is a mixture of mud and/or sand. The live-bottom surveys required by MMS and conducted in the eastern portions of the area have also revealed sand or mud substrate. These areas are not conducive to "live-bottom" community growth since a hard substrate is needed for epifaunal attachment. As the substrate grades to carbonate sand in the Eastern Gulf, the potential for "live-bottoms" increases.

Chemosynthetic clams, mussels, and tube worms similar to the hydrothermal vent communities of the eastern Pacific have been discovered in the deep waters of the Gulf. These col-water communities are primarily associated with seismic wipe-out zones and hydrocarbon and H<sub>2</sub>S seep areas in water depths greater than 400 m. Chemosynthetic communities have been a source of controversy over the past few years, in part because of the unusual environmental requirements and hypothesized sensitivity of the communities to oil and gas activities. In this part of the Green Canyon area, with water depths in excess of 2,000 feet, Enserch Exploration, Inc. may expect to encounter various phenomena unique to deep water environments. Such features may include gas hydrate (a frozen gas and water mixture) layers and mounds, and active hydrocarbon seeps. Such seeps may create environments able to support chemosynthetic communities similar to those seen in approximately 1,770 feet of water at Bush Hill in Green Canyon, Blocks 184/185. These chemosynthetic communities are reported to contain macrofaunal assemblages of tubeworms, clams and microfaunal bacterial mats, all of which may feed off active hydrocarbon seeps.

The MMS requires site-specific surveys of bottom-disturbing actions in water depths greater than 400 m in order to judge the potential of the region for supporting chemosynthetic organisms. In accordance with NTL 88-11, Enserch Exploration, Inc. will review this block for any site-specific activities.

The shelf and shelf edge of the Central and Western Gulf are characterized by topographic features which are inhabited by benthic communities. The habitat created by the topographic features is important because they support hard-bottom communities of high biomass, high diversity, and high numbers of plant and animal species; they support, either as shelter, food, or both, large numbers of commercially and recreationally important fishes; they are unique to the extent that they are small isolated areas of communities in the vast Gulf of Mexico; they provide a relatively pristine area suitable for scientific research; and they have an aesthetically attractive intrinsic value.

Seven distinct biotic zones on the banks of the Gulf have been identified. None of the banks contain all of the seven zones. The zones are divided into four categories dependent upon the degree of reef-building activity in each zone. The Central Gulf of Mexico lists 16 topographic features and the western Gulf of Mexico lists 23 topographic features. None of those listed are in or near the vicinity of the proposed operations in Green Canyon Block 398.

## **F. PIPELINES AND CABLES**

As a prudent operator, Enserch Exploration, Inc. will conduct its operations in

accordance with the provisions specified in Minerals Management Service Notice to Lessees 83-03 in order to avoid all pipelines and/or cables in the vicinity of the proposed operations. Enserch Exploration, Inc. is not aware of any pipelines or cables located in this block.

#### **G. OTHER MINERAL USES**

The activities proposed for Green Canyon Block 398 will have no direct or indirect impact on other mineral uses.

#### **H. OCEAN DUMPING**

The Marine Pollution Research and Control Act of 1987 implements Annex V of the International Convention for the Prevention of Pollution from Ships. Most of the law's regulatory provisions became effective on December 31, 1988. Under provisions of the law, all ships and watercraft, including all commercial and recreational fishing vessels, are prohibited from dumping plastics at sea. The law also severely restricts the legality of dumping other vessel-generated garbage and solid waste items both at sea and in U.S. navigable waters. The USCG is responsible for enforcing the provisions of this law and has developed final rules for its implementation, calling for adequate trash reception facilities at all ports, docks, marinas, and boat launching facilities.

Interim final rules published May 2, 1990 explicitly stated that fixed and floating platforms and all drilling rigs, manned production platforms and support vessels operating under a Federal oil and gas lease are required to develop Waste Management Plans and to post placards reflecting MARPOL, Annex V dumping restrictions. Waste Management Plans will require oil and gas operators to describe procedures for collection, processing, storing, and discharging garbage and to designate the person who is in charge of carrying out the plan. These rules apply to ships of 40 feet or more in length that are documented under the laws of the U.S. or numbered by a State and that are equipped with a galley and berthing. Placards noting discharge limitations and restrictions, as well as penalties for noncompliance, apply to all boats and ships 26 feet or more in length. Furthermore, the Shore Protection Act of 1988 requires ships transporting garbage and refuse to assure that the garbage and refuse is properly contained on board so that it will not be lost in the water from inclement wind or water conditions.

The disposal of oil and gas operational wastes is managed by US EPA through regulations established under three Federal Acts. The Resource Conservation and Recovery Act (RCRA) provides a framework for the safe disposal of discarded materials, regulating the management of solid and hazardous wastes. The US EPA has

exempted many oil and gas wastes from coverage under hazardous wastes regulations under Subtitle C of RCRA. If covered, such wastes would be more stringently regulated under hazardous waste rules; i.e., industry would be responsible for the wastes from their generation to their final disposal. Exempt wastes include those generally coming from an activity directly associated with the drilling, production, or processing of a hydrocarbon product. Nonexempt oil and gas wastes include those not unique to the oil and gas industry and used in the maintenance of equipment.

The direct disposal of operational wastes into offshore waters is limited by US EPA under the authority of the Clean Water Act., and when injected underground, oil and gas operational wastes are regulated by US EPA's third program, the Underground Injection Control program.

A general NPDES permit, based on effluent limitation guidelines, is required for direct disposal of operational wastes into offshore waters. The major discharges from offshore oil and gas exploration and production activities include produced water, drilling fluids and cuttings, ballast water, and storage displacement water. Minor discharges from the offshore oil and gas industry include drilling-waste chemicals, fracturing and acidizing fluids, and well completion and workover fluids; and from production operations, deck drainage, and miscellaneous well fluids (cement, BOP fluid); and other sanitary and domestic wastes, gas and oil processing wastes, and miscellaneous discharges. Produced sand is no longer allowed to be discharged under NPDES General Permit GMG 290000.

## **I. ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT**

Twenty-nine species of cetaceans, one sirenian, and one exotic pinniped (California sea lion) have been sighted in the northern Gulf of Mexico. Seven species of baleen whales have been reported in the Gulf of Mexico. These include the northern right whale and six species of balaenopterid whales (blue, fin, sei, Bryde's, minke, and humpback). Sightings and strandings of these species in this area are uncommon; however, historical sightings and strandings census data suggest that they more often frequent the north-central Gulf region in comparison to the other areas of the Gulf. Twenty-two species of toothed whales and dolphins have been reported in the Gulf of Mexico. These include the great sperm whale, pygmy and dwarf sperm whales, four species of beaked whales (Cuvier's, Gervais', Blainville's and Sowerby's), killer whale, false and pygmy killer whale, short-finned pilot whale, grampus (Risso's dolphin), melon-headed whale, and nine other species of delphinid dolphins (bottlenose, Atlantic spotted, pantropical spotted, spinner, clymene, striped, common, Fraser's and rough-toothed). Many of

these species are distributed in warm temperate to tropical waters throughout the world.

Five species of baleen whales (northern right, blue, fin, sei and humpback) and one species of toothed whale (great sperm whale) found within the Gulf of Mexico are currently listed as endangered species under the provisions of the Endangered Species Act of 1973. All are uncommon to rare in the Gulf except for the great sperm whale.

The Alabama, Choctawhatchee, and Perdido Key beach mice, subspecies of the old field mouse, occupy restricted habitats in the mature coastal dunes of Florida and Alabama. The beach mice feed nocturnally on the lee side of the dunes and remain in burrows during the day. Their diet consists mainly of beach grass and sea oats.

The green turtle population in the Gulf once supported a commercial harvest in Texas and Florida, but the population has not completely recovered since the collapse of the fishery around the turn of the century. Green turtles prefer depths of less than 20m, where sea grasses and algae are plentiful. Leatherbacks, the largest and most oceanic of the marine turtles, seasonally enter coastal and estuarine habitats where jellyfish are plentiful. Their nesting is concentrated on coarse-grain beaches in the tropical latitudes. The hawksbill is the least commonly reported marine turtle in the Gulf. Stranded turtles are regularly reported in Texas and, recently in Louisiana, these tend to be either hatchlings or yearlings. The Kemp's ridley sea turtle is the most imperiled of the world's marine turtles. Nesting primarily occurs on a stretch of beach in Rancho Nuevo, Vera Cruz, Mexico. Nesting in the United States occurs infrequently on Padre and Mustang Islands in south Texas from May to August. In the Gulf Kemp's ridleys appear to inhabit near shore areas and congregations of Kemp's have been recorded off the mouth of the Mississippi River. The loggerhead sea turtle occurs worldwide in habitats ranging from estuaries to the continental shelf. In the Gulf of Mexico, recent surveys indicate that the Florida Panhandle accounts for approximately one-third of the nesting on the Florida Gulf Coast. In the Central Gulf, loggerhead nesting has been reported on Gulf Shores and Dauphin Island, Alabama, Ship Island, Mississippi, and the Chandeleur Islands, Louisiana. The banks off of the central Louisiana coast and near the Mississippi Delta are also important marine turtle feeding areas. Hatchlings have a pelagic phase followed by movement inshore.

The offshore waters, coastal beaches, and contiguous wetlands of the northern Gulf of Mexico are populated by both resident and migratory species of coastal and marine birds. They are herein separated into five major groups: seabirds, shorebirds, wading birds, marsh birds, and waterfowl. Many species are strongly pelagic, and therefore rarely seen from shore. The remaining species, which are most susceptible to potential deleterious effects resulting from OCS-related activities, are found within coastal and

inshore habitats. Recent surveys indicate that Louisiana and Texas are among the most important states in the south and southeastern U.S. in terms of nesting colony sites and total number of nesting coastal and marine birds. Fidelity to these nesting sites varies from year to year along the Gulf Coast, with site abandonment along the northern Gulf Coast often attributed to habitat alteration and excessive human disturbance. Feeding habitats include the waters and coastal shores of the open Gulf, bays and estuaries, brackish and freshwater wetlands, as well as coastal farmlands and landfills.

The following coastal and marine bird species, which inhabit or frequent the north-central and western Gulf of Mexico coastal areas, are recognized by the FWS as either endangered or threatened: piping plover, whooping crane, eskimo curlew, bald eagle, peregrine falcon, eastern brown pelican, and interior least tern.

The piping plover is a distinctive ringed plover of central and eastern North America. It nests on sandy beaches along coasts or inland lakeshores, preferring areas with scant vegetation and cover. Uncontrolled hunting in the early 1900's brought the species close to extinction. Its historic populations have remained depressed because of losses to their specific nesting and wintering habitat requirements. Preliminary information indicates that Texas is the most important wintering area, in the extensive sand flats of Laguna Madre and sand flats associated with barrier island passes and river mouths. In Louisiana, barrier islands appear to provide the most suitable habitat. Unfortunately, some of these sites are experiencing dramatic rates of land loss via erosion.

Wild whooping cranes presently occur in two migratory populations. The first nests in Canada and migrates to wintering grounds along the Texas coast on salt flats and islands in and around Aransas National Wildlife Refuge (ANWR). The second population was established in southeastern Idaho. Results from the 1991 winter census indicated only 132 whooping cranes in the peak ANWR population, representing a drop in the previous year's census of 146 birds (USDOJ, FWS, 1992). Cranes feed during the winter months on a wide variety of foods gathered from the coastal environment.

The bald eagle is the only species of sea eagle regularly occurring on the North American continent. The bulk of the bald eagle's diet is fish, combined with opportunistic capture of a variety of vertebrate species. The bald eagle requires a large area for hunting and is sensitive to chemical contaminants in the food chain. The historical nesting range of the bald eagle in the southeast U.S. included the entire coastal plain and along major rivers and lakes.

The peregrine falcon of North America has been separated into three subspecies: the Arctic peregrine, American peregrine, and Peale's peregrine. The Arctic peregrine nests

in tundra areas of North American and Greenland, and migrates south to the Gulf Coast, West Indies, and Central and South America. Coastal areas along the Gulf Coast are well known as foci for migrant peregrines, where beaches, flats, and wetlands are used for hunting and resting.

The eastern brown pelican is a colonial nesting species that feeds entirely upon fishes captured by plunge diving in coastal waters. It rarely ventures beyond 20 miles from the coast. A severe reduction in its population occurred during the late 1950's and is attributed to the toxic effects of DDT. Subsequent to the 1972 U.S. ban on the use of DDT, there has been a marked increase in populations of the brown pelican along its entire former range.

The least tern is the smallest North American tern. Populations occurring within the Mississippi basin have been eliminated as a result of destruction and alteration of nesting habitat along the Mississippi River and its tributaries. Least terns are the only nesting tern species in Louisiana to use mainland beaches, and they will use human made and managed spoil sites as well.

## **J. SOCIOECONOMIC**

In relation to oil and gas activity in the Gulf of Mexico, the exploration and production of crude oil and gas is classified as a primary industry. Classified as secondary industries are activities associated with the processing of crude oil and gas in refineries, natural gas plants, and petrochemical plants.

The production of OCS oil and gas, particularly offshore Louisiana, has been a major source of revenue in the study area since 1954. Data from the 1988 Census show that the average annual payroll associated with oil and gas activities amounts to approximately \$1.7 billion for the Gulf of Mexico Region (\$1.4 billion for the Central Gulf and \$0.3 billion for the Western Gulf). Average annual tax dollars generated per employee in the offshore oil and gas program are estimated at 8% of payroll revenues. Thus, State and local taxes generated annually by the Federal Offshore oil and gas program are estimated at \$114.9 million from the Central Gulf and \$20.9 million from the Western Gulf.

Job estimates as of December 1992 show that 31,800 jobs are directly or indirectly dependent on the offshore program. Approximately 84% of these jobs are associated with activity in the Central Gulf and 16% are related to the Western Gulf. Nearly all offshore related employment in the Central Gulf is due to activity offshore Louisiana. In addition, offshore activity in other areas of the Gulf also generates employment in

Louisiana. Estimates of direct employment offshore are 26,600 workers in the Central Gulf, and 5,200 workers in the Western Gulf.

The offshore oil exploration industry including oil companies, drilling contractors, and oilfield suppliers provide a major input to Louisiana's economy. A number of ports in the Central and Western Gulf have developed into important centers for offshore support. The most active of these in Louisiana are (from east to west) Venice, Morgan City, Intracoastal City, and Cameron, Louisiana. The onshore support base for Enserch Exploration, Inc.'s operations in Green Canyon Block 398 (OCS-G 7066) is the Baroid Dock in Fourchon, Louisiana.

### **III. UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS**

#### **A. WATER QUALITY**

Routine operational discharges (drilling muds and cuttings, produced waters, deck drainage, and sanitary and domestic wastes) or accidental spills may temporarily degrade some measures of water quality adjacent to the proposed surface location. However, these impacts decrease to very low with distance from the source. Therefore, the impact from these factors is considered to be low.

#### **B. EFFECTS ON MARINE ORGANISMS**

Some organisms will be killed and some will be temporarily functionally impaired as a result of operational discharges. The most affected groups will be plankton and benthos immediately around the proposed surface locations. Damage will be both mechanical and toxicological. These communities are widespread throughout the deep-water areas of the Gulf. These impacts are considered to be localized, short term and reversible at the population level.

An oil spill could affect a broad spectrum of marine organisms. However, most effects would be localized and short term. Any effects on mammals and turtles would be significant.

#### **C. EFFECTS ON THREATENED OR ENDANGERED SPECIES**

Activities resulting from the proposed action have a potential to cause detrimental effects on endangered cetaceans. These cetaceans could be impacted by operational discharges, helicopter and vessel traffic, platform noise, explosive platform removals,



seismic surveys, oil spills, and oil-spill response activities. The effects of the majority of these activities are estimated to be sublethal, and expected impact levels range from low to very low. Sale-related oil spills of any size are expected to seldom contact endangered and threatened cetaceans.

Activities resulting from the proposed action have a potential to affect Alabama, Choctawhatchee, and Perdido Key beach mice detrimentally; however, due to the location of the block, the potential for spills or related activities impacting their habitat is minimal.

Activities resulting from the proposed action have a potential to affect marine turtles detrimentally. Marine turtles could be impacted by anchoring, structure installation, pipeline placement, dredging, blowouts, operational discharges, OCS-related trash and debris, vessel traffic, explosive platform removals, oil-spill response activities, oil spills, and habitat and water quality degradation. The effects of the majority of these activities are expected to be sublethal. Sale-related oil spills of any size are seldom expected to contact marine turtles.

Activities resulting from the proposed action have the potential to affect Central Gulf coastal and marine birds detrimentally. It is expected that the effects from the major impact-producing factors on coastal and marine birds are negligible and of nominal occurrence. As a result, there will be no discernible disturbance of Gulf coastal and marine birds.

The brown pelican, Arctic peregrine falcon, bald eagle, piping plover, and least tern may be impacted by helicopter and service-vessel traffic, offshore pipeline landfalls, entanglement in and ingestion of offshore oil and gas related plastic debris, and oil spills. The effects of these activities are expected to be sublethal. Sale-related oil spills of any size are expected to seldom contact threatened and endangered birds or their critical feeding, resting, or nesting habitats.

The Gulf sturgeon can be impacted by oil spills resulting from the proposed action. The impact is expected to result in sublethal effects and cause short-term physiological or behavioral changes.

#### **D. WETLANDS AND BEACH**

The major impact-producing factors associated with the proposed action that could affect barrier beaches include oil spills, pipeline emplacements, navigation canal dredging and maintenance dredging, and support infrastructure (pipeline landfalls, navigation channels, service bases, platform yards, etc.) Are not expected to occur, because no new infrastructure construction is anticipated as a result of the proposed action. Although some maintenance dredging is expected to occur, this activity has not been shown to have a negative impact on barriers, and the need for dredging cannot be attributed to the small percentage of vessel traffic in these channels.

Deepening of the channel to Port Fourchon is not expected to affect nearby barrier features.

The proposed activity is not expected to result in permanent alterations of barrier beach configurations, except in localized areas downdrift from navigation channels that have been dredged and deepened. Strategic placement of dredged material resulting from these actions can mitigate adverse impacts upon those localized areas.

Wetlands include forested wetlands (bottomland and swamp), tidal marshes, and seagrasses. Swamps and marshes occur throughout the coastal zone. Seagrasses are restricted in distribution to small areas behind barrier islands in Mississippi and Chandeleur Sounds. Impact-producing factors resulting from OCS oil and gas activities that could adversely affect wetlands include oil spills, pipeline construction and remaining canals, dredging of new navigation channels, maintenance dredging and vessel usage of existing navigation channels, and construction and maintenance of onshore facilities in wetland areas.

The proposed activity is expected to result in a small amount of dieback and mortality of wetlands vegetation as a result of contacts from oil spills. Most of these wetlands will recover within 10 years and the remaining will be converted to open water. Some wetlands are projected to be eroded along channel margins as a result of OCS vessel wake erosion, and some wetlands are projected to be created as a result of beneficial disposal of dredged material from channel-deepening projects.

## **E. AIR QUALITY**

The potential degrading effects on air quality from onshore and offshore operational activities are platform emissions; drilling activities during exploration, delineation and development; service vessel operations; evaporation of volatile hydrocarbons from surface oil slicks; and fugitive emissions during hydrocarbon venting and offloading.

Emissions of pollutants in the atmosphere for these activities are likely to have minimum impact on offshore air quality because of prevailing atmospheric conditions, emissions from OCS activities is estimated to be negligible because of the atmospheric regime, the emission rates, and distance of these emissions from the coastline. The above discussion is based on average conditions; however, there will be days of low mixing heights and wind speeds that could increase impact levels. These conditions are characterized by fog formation, which in the Gulf occurs 35 days a year, mostly during winter. Impact from these conditions is reduced in winter because the onshore winds have the smallest frequency (37%) and rain removal is greatest. Summer is the worst time, with onshore winds having a frequency of 61%. Emissions of pollutants into the atmosphere are expected to have concentrations that would not change the onshore air quality classifications.

## **F. COMMERCIAL FISHING**

The major impact producing factors on fishing activities from the proposed operations are coastal environmental degradation, structure placement, oil spills, production platform removals, seismic surveys, subsurface blowouts, pipeline trenching, and OCS discharges of drilling muds, produced waters and NORM, and underwater OCS obstructions.

The effects on and the extent of damage from an oil spill to Gulf commercial fisheries is restricted by time and location. Oil spills that contact coastal bays, estuaries, and waters of the OCS when high concentrations of pelagic eggs and larvae are present have the greatest potential to damage commercial fishery resources. Migratory species, such as mackerel, cobia, and crevalle could be impacted if oil spills contact nearshore open waters. An oil spill contacting a low-energy inshore area would affect localized populations of commercial fishery resources such as menhaden, shrimp, and blue crabs. Chronic oiling in an inshore area would affect all life stages of a localized population of a sessile fishery resource such as oysters.

The emplacement of a structure, with a surrounding 100 m navigational safety zone, in water depths less than 152 m, results in the loss of approximately 6 ha of bottom

trawling area to commercial fishermen and causes space-use conflicts. Gear conflicts from underwater OCS obstructions result in losses of trawl and shrimp catch, business downtime, and vessel damage.

Commercial fishery resources may also be affected by the discharge of drilling muds which may contain material toxic to marine fishes; however, this is only at concentrations four or five orders of magnitude higher than those found more than a few meters from the discharge point. Further dilution is extremely rapid in offshore waters.

The fate and effects of NORM from the discharge of produced water on seafood available for commercial harvest has become an issue of environmental concern. However, the likelihood of consuming seafood containing higher than normal radium for a sufficient period of time to present a risk is minimal. The prospect that NORM discharged in offshore produced water will affect commercial fishery species and subsequently increase man's intake of radium is virtually zero.

Activities resulting from the proposed action have the potential to cause detrimental effects to Central Gulf commercial fisheries. It is expected that the effects from the major impact-producing factors on commercial fisheries in the CPA are inconsequential and of nominal occurrence. As a result, there will be little discernible disturbance to Gulf commercial fisheries.

#### **G. SHIP NAVIGATION**

Very little interference can be expected between drilling/completion rig, platform, and vessels utilized during development operations and ships that use established fairways.

Approved aids to navigation will be installed on the drilling rig and all marine vessels servicing these operations in accordance with USCG regulations.

#### **H. ARCHAEOLOGICAL RESOURCES**

The greatest potential impact to an historic and/or prehistoric archaeological resource as a result of the proposed action would result from a contact between OCS offshore activity (platform installation, drilling rig emplacement, dredging or pipeline project) and a historic shipwreck.

The OCS activity could contact a shipwreck because of incomplete knowledge on the location of shipwrecks in the Gulf. Although this occurrence is not probable, such an event would result in the disturbance or destruction of important historic archaeological

information. Other factors associated with the proposed action are not expected to affect historic archaeological resources.

The archaeological surveys required prior to an operator beginning oil and gas activities in a lease block are estimated to be 90% effective at identifying possible sites.

Minerals Management Service has orally advised that Lease Stipulation No. 1, requiring an archaeological survey, would not be invoked for Lease OCS-G 7066.

Enserch Exploration, Inc., as a prudent operator, agrees that should any site, structure or object of historical or archaeological significance be discovered during drilling and exploration activities within these lease, such finds would immediately be reported to the Director, Gulf of Mexico OCS Region, and every reasonable effort would be made to preserve and protect the archaeological resources from damage until said Director has given directions as to its preservation.

## **I. RECREATION AND AESTHETIC VALUES**

The drilling rig and marine vessels may represent an obstacle to some sport fishermen, but such effect is expected to be negligible and not permanent. However, due to the water depth ( $\pm$  3,225 feet) in Green Canyon Block 398 (OCS-G 7066) and the distance of the block offshore, the likelihood of interference with sport fishermen is remote.

Even though existing regulations and orders prohibit indiscriminate littering of the marine environment with trash, offshore oil and gas operations involving men, machines, equipment and supplies is bound to result in some littering of the ocean. Human nature and accidents associated with offshore operations will contribute some floatable debris to the ocean environment which will eventually come ashore on major recreational beaches.

The effects that normal operations or a minor oil spill would have on any fish stocks important to sport fishermen are also considered to be negligible.

A few oil spills greater than 1 and less than or equal to 50 bbls are assumed to affect portions of CPA beaches, with little disruption of recreational activities. Marine debris will be lost from time to time. However, the impact from resulting intermittent pollution wash-up on Louisiana and Texas beaches should be very low (less than 0.5%). Helicopter and vessel traffic will add very little additional noise pollution likely to affect wilderness beach users.

The proposed action is expected to result in minor pollution events and near shore operations that may adversely affect the enjoyment of some beach users on Texas and Louisiana beaches.

#### **IV. SUMMARY**

The proposed activity will be carried out and completed with the guarantee of the following items:

- A. The best available and safest technologies will be utilized throughout the project. This includes meeting all applicable requirements for equipment types, general project layout, safety systems, and equipment and monitoring systems.
- B. All operations are covered by a Minerals Management Service approved Oil Spill Contingency Plan.
- C. All applicable Federal, State, and Local requirements regarding air emissions, water quality, and discharge for the proposed activities, as well as any other permit conditions, will be complied with.
- D. The proposed activities described in detail in the Initial Plan of Exploration will comply with Louisiana's Coastal Management Program and will be conducted in a manner consistent with such program.

## BIBLIOGRAPHY

1. U.S. Department of the Interior, Minerals Management Service, 1992. Gulf of Mexico Sales 142 and 143: Central and Western Planning Areas Final Environmental Impact Statement. Washington, D.C. OCS EIS/EA MMS 92-0054 Volumes I & II
2. U.S. Department of the Interior, Minerals Management Service, 1993. Gulf of Mexico Sales 147 and 150: Central and Western Planning Areas Final Environmental Impact Statement. Washington, D.C. OCS EIS/EA MMS 93-0065 Volumes I & II
3. U.S. Department of the Interior, Minerals Management Service, 1994. Gulf of Mexico Sales 152 and 155: Central and Western Planning Areas Final Environmental Impact Statement. Washington, D.C. OCS EIS/EA MMS 94-0058 Volumes I & II

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

**COASTAL ZONE MANAGEMENT CONSISTENCY  
CERTIFICATION AND PUBLIC NOTICES**



**ENSERCH  
EXPLORATION** INC

4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186  
Telefax: 214-987-7815

**VIA FACSIMILE #(504) 693-8282**

November 27, 1995

Lafourche Gazette  
P. O. Box 1450  
Larose, LA 70373

**Attn: Gail Hendrix  
Public Notices**

**RE: GREEN CANYON AREA BLOCK 398, OCS-G 7066  
PUBLIC NOTICE OF PROPOSED PLAN OF EXPLORATION**


Ladies/Gentlemen:

Please publish the attached legal notice in the *Lafourche Gazette* on or about December 13, 1995. Send the proof of publication and invoice to:

Enserch Exploration, Inc. (EEI)  
Attention: Ms. Suzy Younger  
4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186

Should you require any additional information, please contact me at (214) 987-7850 .

Sincerely,



Suzy Younger  
Regulatory Compliance Specialist

Attachment

**ENSERCH  
EXPLORATION** INC

4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186  
Telefax: 214-987-7815

**VIA FACSIMILE # (504) 388-0129**

November 27, 1995

Morning Advocate  
LEGAL AD DEPARTMENT  
525 Lafayette Street  
Baton Rouge, Louisiana 70802

**Attn: Vickie Thompson  
Public Notices**

**RE: GREEN CANYON AREA BLOCK 398, OCS-G 7066  
PUBLIC NOTICE OF PROPOSED PLAN OF EXPLORATION**

Ladies/Gentlemen:

Please publish the attached legal notice in the *Morning Advocate* on or about December 13, 1995. Send the proof of publication and invoice to:

Enserch Exploration, Inc. (EEI)  
Attention: Ms. Suzy Younger  
4849 Greenville Avenue, Suite 1200  
Dallas, Texas 75206-4186

Should you require any additional information, please contact me at (214) 987-7850 .

Sincerely,



Suzy Younger  
Regulatory Compliance Specialist

Attachment

**PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

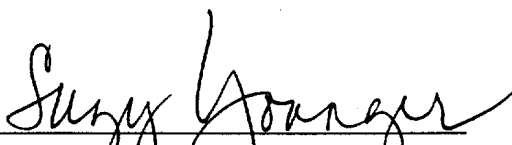
**COASTAL ZONE MANAGEMENT  
CONSISTENCY CERTIFICATION**

The proposed activities described in detail in this Plan comply with Louisiana's approved Coastal Management Program and will be conducted in a manner consistent with such Program.

Arrangements have been made with the *Morning Advocate* in Baton Rouge, Louisiana to publish a Public Notice of the proposed activities no later than December 13, 1995. Additionally, arrangements have been made with the *Lafourche Gazette* in Lafourche Parish to publish a Public Notice of the proposed activities no later than December 13, 1995.

Enserch Exploration, Inc. (EEI)

Lessee or Operator

  
\_\_\_\_\_  
Certifying Official (Suzy Younger)

November 27, 1995  
Date



**ENSERCH EXPLORATION, INC.  
PLAN OF EXPLORATION**

**GREEN CANYON AREA  
BLOCK 398, OCS-G 7066**

COMPANY CONTACT

**ENSERCH EXPLORATION, INC. (EEI)**

**COMPANY CONTACT:**

**Suzy Younger  
4849 Greenville Avenue  
Suite 1200  
Dallas, Texas 75206-4186**

**(214) 987-7850**