N-2946
OCS-G-8621

In Reply Refer To: FO-2-1

March 28, 1988

Tennoco Oil Exploration and Production
Attention: Mr. E. P. Clark
Post Office Box 39300
Lafayette, Louisiana 70503

Gentlemen:

Reference is made to your Initial Plan of Exploration and Environmental Report received March 9, 1988, for Lease OCS-G 8621, Block 137, West Cameron Area. This plan includes the activities proposed for Well No. 1.

In accordance with 30 CFR 250.34, revised December 13, 1979, and our letter dated January 29, 1979, this plan is hereby determined to be complete and is now being considered for approval.

Your plan control number is N-2946 and should be referenced in your communication and correspondence concerning this plan.

Sincerely yours,

(Orig. Sgd.) A. Donald Giroir

For D. J. Bourgeois
Regional Supervisor
Field Operations

bcc: Lease OCS-G 8621 (OPS-3-2) (FILE ROOM)
OPS-3-4 w/Public Info. Copy of the plan and ER (PUBLIC RECORDS)

ADGobert:cck:03/11/88:poecom

Tenneco Oil
Exploration and Production
A Tenneco Company

P.O. Box 39300
Lafayette, Louisiana 70503-9300
(318)981-7000

Western Gulf Division

February 12, 1988

United States Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, LA 70123

Attention: Regional Supervisor
Field Operations

RE: Plan of Exploration
Lease OCS-G-8621
West Cameron Block 137

Gentlemen:

Attached please find nine (9) copies of the Plan of Exploration, relative to Tenneco Oil Company's OCS-G-8621 lease in West Cameron Block 137.

The Well Information Attachment, Structure Maps and Schematic Cross Sections are considered proprietary data to be exempt from disclosure under the Freedom of Information Act and should therefore not be made available to the public or provided to any affected state or to the executive of any local government. In this respect, proprietary data has been removed from all but five (5) copies of the Plan of Exploration.

Should you require further information, please advise.

Yours very truly,

TENNECO OIL COMPANY

E. P. Clark

E. P. Clark
Staff Production Analyst
Western Gulf Division

bp

Attachments

PLAN OF EXPLORATION
WEST CAMERON AREA
BLOCK 137 (OCS-G-8621)

Tenneco Oil Company, the Operator of the above referenced lease, proposes to conduct exploratory drilling operations on said lease for evaluating the potential commercial quantities of oil and/or gas.

Plans are to commence drilling operations in June 1988 for the OCS-G-8621 Well #1, utilizing the "GA VII" jack-up rig and will take approximately 60 days to drill.

Attached are the drilling rig specifications of the "GA VII" indicating the important features thereof, including features pertaining to safety and pollution prevention and control. This rig will be equipped with typical pollution control equipment including, but not limited to, storage facilities, deck drains, sumps, drip pans, and sewage treatment facilities. Lifesaving appliances and firefighting equipment on the "GA VII" will be in accordance with United States Coast Guard regulations.

Tenneco Oil Company's Shallow Hazard Report for the OCS-G-8621 well #1 is attached. The Archaeological and Hazards Study conducted by John E. Chance and Associates on this lease for Tenneco was submitted to the Minerals Management Service for review. A copy of lines 4,10 and 11 of said report is attached.

Also attached is a location plat of the lease block relative to the shoreline - this plat depicts the proposed surface location for the well of 5800' FSL & 5600' FEL. A description of the onshore base facility is included. Water depth in this area is approximately 40'.

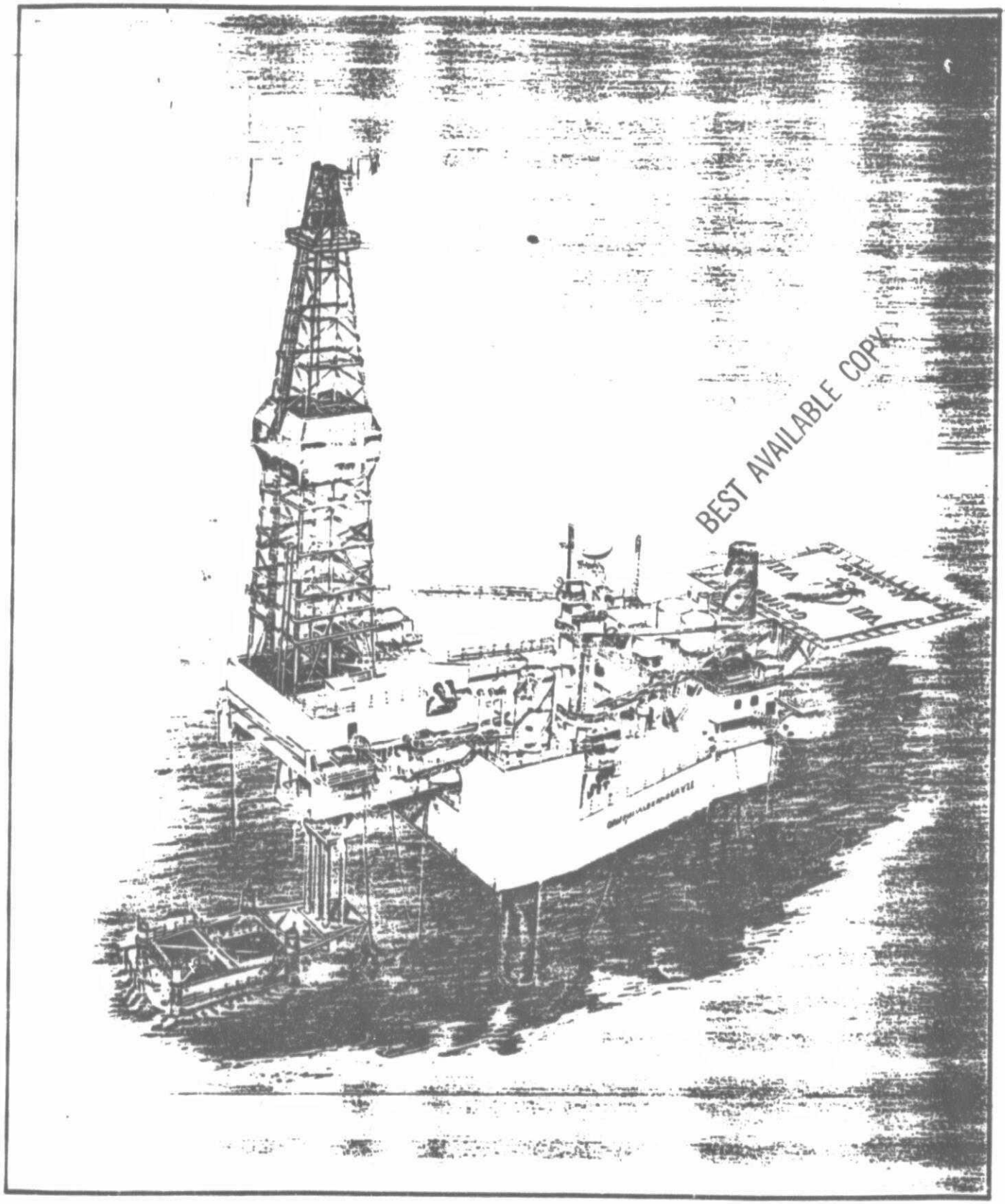
On the Well Information Attachment are the proposed surface location, bottom hole location, measured depth and total vertical depth for this well. Structure map and schematic cross section reflecting the most current geological/geophysical interpretation are attached for your review. These attachments are considered proprietary data and should be exempt from disclosure under the Freedom of Information Act (5 U.S.C. 552) and implementing regulations (43 CFR Part 2).

Please refer to the Air Emissions Section to comply with Air Quality Regulations 30 CFR 250.57.

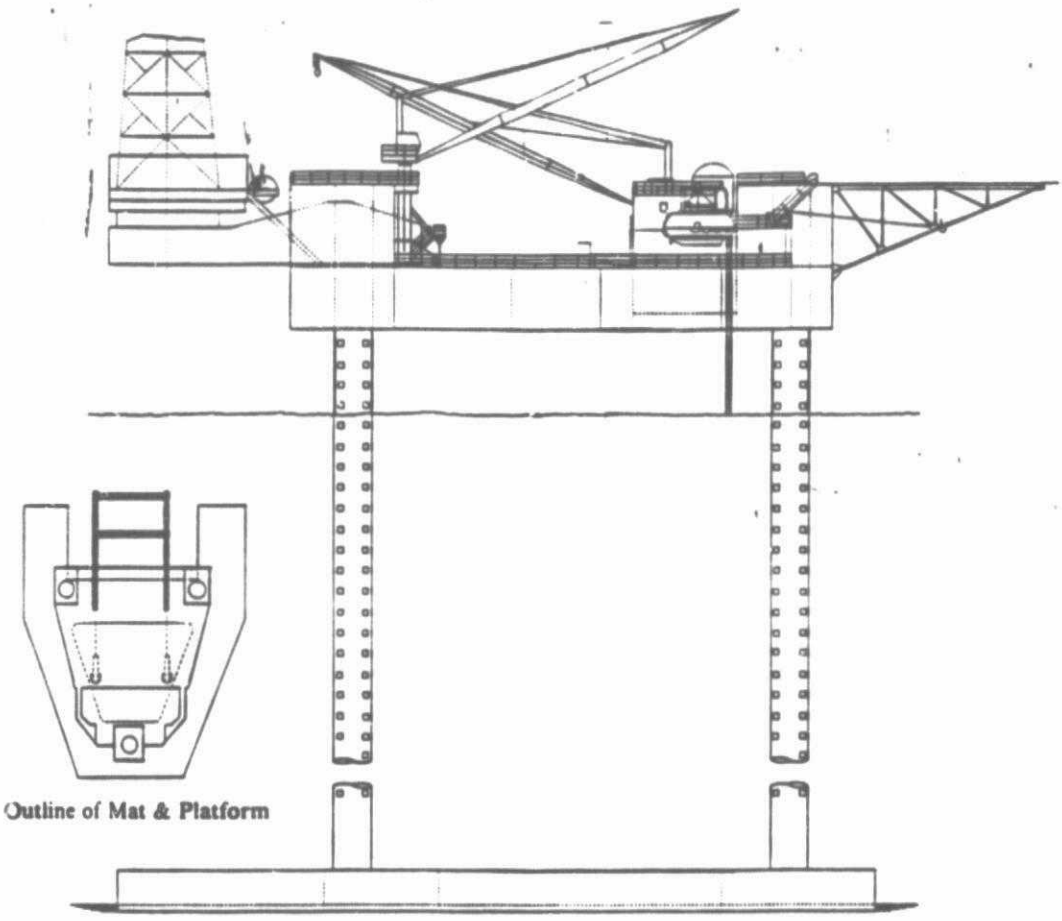
A brief description of equipment, personnel and procedures to be employed for preventing, reporting, and cleaning up a pollution spill, including equipment and deployment and travel time is attached.

See the attached list of mud components to be used during the drilling of these wells.

Please refer to the Certificate of Coastal Zone Consistency and the Environmental Report to comply with 30 CFR Part 250 and 15 CFR Part 930.

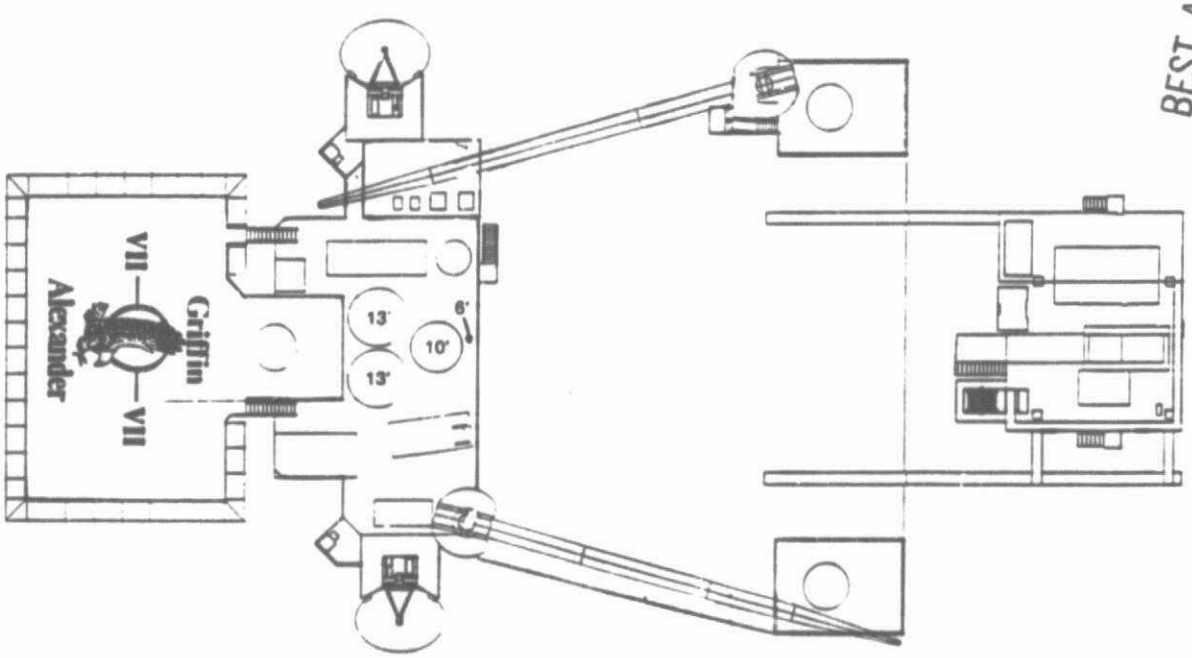


Griffin Alexander VII



Outline of Mat & Platform

Outboard Profile



House Top & Derrick Flow Arrangement

Owner: G & A Limited V

Rig Name: Griffin-Alexander VII

Certification: American Bureau of Shipping and The United States Coast Guard

Maximum Water Depth: 250 Feet

Minimum Water Depth: 13 Feet

Drilling Capacity: 25,000 Feet

MAJOR EQUIPMENT:

Drawworks	Mid Continent U-1220 EB Electra-Flow Drawworks
Derrick	Branham Universal 147' high with 30 x 30 Base. Nominal Capacity 1,392,000 LBS.
Rotary	Gardner Denver 37½ in. powered by D79 Electric Motor thru 2 speed Gardner Denver Transmission
Traveling Block	McKissick Type RP NO684 rated for 550 tons
Hook	Byron-Jackson Model 5500 rated for 500 tons.
Swivel	Oilwell No. PC500 rated for 500 tons.
Kelly	Baash-Ross Tri-Kelly 5¼ in. model ITP-6
Master Bushing	Varco MPCH Pin Drive Hinged
Main Power	3 EMD Diesel SR12EW rated at 1650 H.P. each pulling 2 D79 generators each plus one generator each skid with a thru shaft pulling a Columbia 600KW generator.
Emergency Power	1 Caterpillar D353 Turbo Charged engine with a 300 KW Columbia generator.
Blowout Preventers	2 Cameron 13⅝ in. Type U double 10,000 PSI W.P. 1 Cameron 13⅝ in. Type U double 10,000 PSI W.P. 1 Shaffer 13⅝ in. Annular 5000 PSI W.P. 1-30 in. Regan KFL-3 Annular Preventer.
Choke and Kill Manifold	10,000 PSI W.P.

All Blowout Preventers and manifolds treated for H_2S service.

Mud Pumps	2 Gardner Denver PZ-11 triplex 1600 H.P. powered by 2 D79 EMD motors per pump.
Mud System Equipment	1 — Brandt Dual Tandem Shaker 1 — Swaco Mud Degasser 6 — Harrisburg Mud Agitators 1 — Brandt SR3 Desander 1500 GPM 1 — Brandt Dual Mud Cleaner 800 GPM capacity 1 — Swaco Mud Gas Separator
Cranes	2 — Sea King model 1400 Marine Crane with 100 ft. Booms. ABS certified for cargo handling.
Distillation Plant	1 MECO PEE 300 M3B Water Maker
Safety Equipment	2 Whittaker 54 Man Survival Capsules.

Capacities:

Bulk Mud & Cement Storage	10,310 Cu. Ft.
Bag Storage	3600 S x S
Active Mud	1500 BBLS.
Machinery Space Below Deck	5440 Sq. Ft.
Quarters & Office Space	5800 Sq. Ft.
Drilling Water Storage	6150 BBLS.
Potable Water	1100 BBLS.
Fuel Oil	2150 BBLS.
Salt Water	4250 BBLS.
Heliport Area	4200 Sq. Ft.
Pipe Rack Area	3500 Sq. Ft.
Storerooms	1150 Sq. Ft.

Total Variable Loads — Moving 2500 kips
Drilling 4500 kips

Hook & Set Back Loads — 1 MM lbs. @ 35' @ center line
750 M lbs. @ 45' @ center line

DIMENSIONS:

Barge — 166' long x 145' wide x 20' deep
Mat — 236' long x 205' wide x 11' deep + 2' skirt
Slot in Mat — 62' long x 121' wide
Columns — 13' O.D. x 321' long
Skid Unit — 40' long x 50' wide x 25' deep
Helicopter Deck - 70' x 70' (Designed for S-61)

Quarters — 54 persons

Griffin-Alexander DRILLING COMPANY

DRAWWORKS AND ACCESSORIES

1 - Mid Continent U-1220-EB divided skid electra flow drawworks powered by two EMD D-79 electric motors

1 - Elmagco Model 78496 auxiliary brake

1 - Sand reel assembly with a line capacity of 20,300 ft. of 9/16" line

1 - Sand line guide, Coastal model 54

1 - Crown safety device, Mid Continent

1 - Brake cooling water system with 30 bbl. tank

DERRICK AND ACCESSORIES

1 - Branham 147 ft. derrick with a dogleg of 98 ft. elevation, 30 ft. x 30 ft. base, 10 ft. x 10 ft. top, 1,392,000 lb. gross nominal load with a static hook load capacity of 1,044,000 lb. per API standard 4E with 12 lines strung to the traveling block

1 - Rig-A-Lite explosion proof floresoent and mercury vapor lighting system

1 - Dual standpipe manifold 6" 10,000# test and dual standpipes

1 - Block Guide for wind only

ROTARY AND TRAVELING EQUIPMENT

1 - Oilwell independently powered rotary table with two speed transmission, 37-1/2 in. full opening and powered by one D-79 EMD electric motor

1 - Hydril upper Kelly guard ball valve 15,000 lb. test 10,000 lb. W.P.

2 - Hydril lower Kelly guard ball valve 15,000 lb. test 10,000 lb. W.P.

1 - McKissick type RP Fig. 684 traveling block

1 - B.J. 500 ton hook

1 - Oilwell 500 ton swivel

2 - Rotary hoses 3-1/2" x 65', 10,000 psi

1 - Tri kelly bushing Baush Ross

1 - 5-1/4" x 43' tri kelly

1 - King Circ. head for drill pipe

POWER EQUIPMENT

3 - Diesel engine generator sets SR12EW EMD power units consisting of the following:

Model 12-645EI EMD engine
2 D-79GB EMD generators with gear box
1 D-79EB EMD generator equipped with thru shaft to drive 600 KW AC Columbia generator each skid for a total of 3 - 600 KW AC generators

1 - AC switchboard

1 - D353 caterpillar engine with 300 KW AC generator Columbia as emergency stand by generator

MUD PUMPS AND ACCESSORIES

2 - Gardner-Denver Model PZ-11 Triplex single acting mud pumps 1600 HP driven by 2 - D-79 EMD electric motors per pump

Piston Diameter	Capacity	Discharge Pressure	SPM
5-1/2 in.	407 gpm	6059 psi	120
6-1/2 in.	568 gpm	4339 psi	120
7 in.	659 gpm	3741 psi	120

2 - 6 x 8 x 13 Harrisburg hard iron charging pumps complete with 75 HP, 1200 RPM motors

2 - Hydril K-20-5000 pulsation dampeners

2 - Suction pulsation dampeners, Larkin

2 - Safety valves 3" type "B" reset safety relief valves

MUD SYSTEM EQUIPMENT

1 - Brandt Dual tandem high speed shale shaker with screens up to 80 x 80 mesh

1 - Brandt 3 cone 1500 gpm desander complete with 75 HP 6 x 8 x 13 Harrisburg pump

1 - Brandt 16 cone mud cleaner outfitted so it can be used as a desilter when not needed as mud cleaner with screens 120 x 120 mesh and 150 x 150 mesh

1 - Swaco Mud Degasser

6 - 10 HP Brandt mud agitators

1 - 30 barrel trip tank

1 - 200 barrel tank for lost circulation or black magic isolated from other active mud tanks

HANDLING TOOLS

1 - Foster Air Power kelly spinner Type 77-02

1 - Lamb Spinning Wrench

2 - BJ Type DB rotary tongs 3-1/2 in. through 17 in.

2 - BJ Type GG center latch elevators

2 - Varco Type SDXL rotary slips

2 - Sets drill collar slips

1 - Varco safety clamp

2 - BJ 350 Ton - 2-3/4" x 132" welders elevators

2 - Gray inside blowout preventers with release tool

DRILL STRING

500 - Joints 5 in. 19.5 lb./ft. Grade E with 5 in. X-Hole 6-3/8 in. x 3-3/4 in. 18° taper tool joints, Range 2

150 - Joints 5 in. 19.5 lb./ft. Grade G 105 with 5 in. X-Hole 6-1/2 in. x 3-1/2 in. tool joints, Range 2

12 - 8" x 2-13/16" x 30' long drill collars with zip lock connections with 6-5/8" API reg. connections

12 - 6-1/2" x 2-13/16" x 30' long drill collars with zip lock connections with 4-1/2" X-Hole connections

8 - 7-1/4" x 2-13/16" x 30' long drill collars with zip lock connections with 5-1/2" API reg. connections

1 - Set of fishing tools for contractor-furnished down hole equipment

Subs necessary such as kelly sub, bit sub and cross over subs for contractor-furnished pipe

BLOWOUT PREVENTERS

1 - 13-5/8 in. 5000 lb. w.p. Shaffer spherical blowout preventer with 13-5/8 in. 10,000 lb. w.p. BX-159 flange bottom and 13-5/8 in. 5,000 lb. w.p. flange top

2 - Double Cameron Type "U" blowout preventer 13-5/8 in. vertical bore 10,000 lb. w.p. with 13-5/8 in. 10,000 lb. flange top and bottom. All outlets 4-1/16 in. flanged H2S trim

BLOWOUT PREVENTERS, Continued

1 - Choke manifold 10,000 lb. w.p. H2S trim, two positive chokes and one Swaco Super Choke (Operator Furnished)

1 - Cameron 240 gallon 3,000 psi w.p. air and electric motor driven automatic pump accumulator unit with seven station remote control panel

1 - Regan KFL-3 30" 2,000 psi w.p. annular diverter

INSTRUMENTATION AND TEST EQUIPMENT

1 - Geolograph drillers control panel with weight indicator, pressure guage, rotary RPM, tong torque guage, pump strokers, rotary torque guage

1 - Geolograph-Medaris mud sentry to record mud volume on three tanks, mud flow and pump stroke, pump rate complete with 12 in. gain and loss guage, both audio and visual alarm full hole automatic shut off with 2 pen circular recorders

1 - Geolograph-Medaris bit sentry automatic driller

1 - Air purge system

1 - Geolograph-Medaris 7 pen drill sentry recorder

1 - Patso hydraulic operated wire line survey unit with capacity of 20,000 ft. of .092 line

1 - No. 821 Baroid mud testing lab

2 - Marine Equipment Sea King 1400 50 ton cranes with 100' booms

DRY MUD AND CEMENT PACKAGE

4 - 1250 cu. ft., 13 ft. 1 in. high x 12 ft. x 6" O.D. bulk tanks

2 - 2230 cu. ft. 19 ft. 8 in. high x 13 ft. O.D. bulk tanks

1 - 850 cu. bulk tank - 10 ft. diameter x 13 ft. 1 in. tall

1 - 70 cu. ft. surge tanks

MISCELLANEOUS RIG EQUIPMENT

2 - 8 in. deep well pumps, 1200 gpm at 180' TDH pumps

3 - Harrisburg 3 x 4 x 7-3/4, each with 50 HP, 460 volt, 3600 RPM, TEFC motor

MISCELLANEOUS RIG EQUIPMENT, Continued

2 - Harrisburg pumps 2 x 3 x 12 each with 30 HP, 460 volt, AC 1800 RPM TEFC motor for drilling water

1 - Sewage treatment unit for 50 persons

1 - Air compressor unit with 2 air compressors driven by 125 HP electric motors - 984 C.F.M. @ 125 psi

1 - Diesel cold start up compressor

2 - Mud mixing pumps, Harrisburg 6 x 8 x 3 with 75 HP, 460 volt AC, 1200 RPM TEFC motor

2 - Mud charging pumps, Harrisburg 6 x 8 x 3 with 75 HP motor

2 - Pumps for desanding, desilting and mud cleaning

2 - Pressure sets, one for sanitary water and one for potable water

2 - Welding machines

1 - Fuel oil transfer system

2 - Ingersoll-Rand air hoists 4,560 lb. line pull at 100 psi on rig floor

1 - Meco Model PEE 300 M3B vapor compressor distillation plant

QUARTERS

Air conditioned quarters for personnel plus a hospital room with three bunk capacity. The galley is equipped with modern electric appliances.

A large recreation room is equipped with color television, card table and comfortable chairs for off duty personnel.

The laundry is equipped with a commercial type washer and dryer for conveniences of the crews.

COMMUNICATION

A gaitronic telephone system is installed to provide communication throughout the platform.

1 - Ship-to-shore radio

1 - Single side band radio

SAFETY EQUIPMENT

2 - Whittaker 54 man survival capsules

SAFETY EQUIPMENT, Continued

3 - 10 Man life floats

67 - Life preservers

1 - General Alarm System

14 - 15# CO_2 Type B-C portable fire extinguishers

12 - 5# Chemical Type A-B-C portable fire extinguishers

4 - 50# Dry chemical type fire extinguishers on heliport

1 - Fixed gas type fire extinguishing system in main AC generator room

1 - Fog signal

1 - Set obstruction lights

2 - First aid kits

1 - Litter

2 - Steel escape ladders

2 - Fireman outfits

8 - Ring buoys

12 - Hand held, rocket propelled parachutes, red flare distress signals

1 - Shoulder type line throwing gun

RENTAL EQUIPMENT

1 - Cementing unit

1 - Electric logging unit

TENNECO

TOC EXPLORATION & PRODUCTION

(COMPANY)

INTEROFFICE COMMUNICATION

TO: WESTERN GULF DIVISION

DATE: JULY 30, 1987

FOR: ERROL CLARK

FROM: J. E. SIXTA

RE: SHALLOW HAZARD REPORT FOR
WC 137 TOC #1 WELL LOCATION

Based on the Archeological and Hazard Study conducted by John E. Chance and Associates over the southern half of West Cameron Block 137, the location chosen for the WC 137 #1 well is clear of any potential geohazards.

Discussion

The hazard study was used to evaluate the #1 location (5600' FEL and 5800' FSL of 137). There are no faults that reach the surface within the survey area. Several isolated gas plumes were noted in the area though there is no evidence of active gas percolating into the water column, therefore these isolated features are presumed to be in a state of low pressure equilibrium. The closest of these gas plumes is 1300' south of the proposed #1 location.

The survey also indicates numerous possible buried channels represented by gas saturated sediments that extend to the mudline. The #1 well location is at least 1000'-1500' from these areas of gas saturated sediments that extend to the mudline.

There are three (3) pipelines within the survey area: (ANR--30-inch pipeline; T.G.P.--16-inch pipeline; SOHIO--6-inch pipeline). Magnetometer and pinger data were used to verify the locations of the three pipelines. The closest of these pipelines is the T.G.P. (16-inch pipeline) and is 3000' south of the #1 location.

Furthermore, no archeological sites were noted by magnetometer or side scan sonar near the #1 location. Also, the #1 location is at least 1000' from any possible buried channels to avoid potential paleocultural sites that may have existed along these channels.

Conclusion

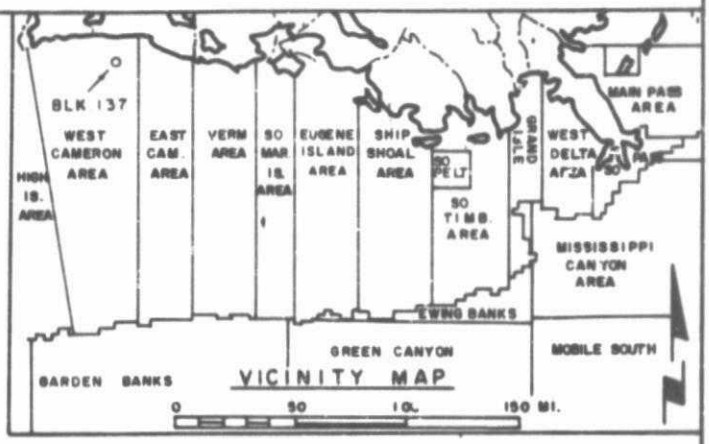
After reviewing all the data, the #1 well location in West Cameron Block 137 can be drilled free of any geohazards.

Joanna E Sixta

Joanna E. Sixta

cc: R. D. Christie
G. K. Huxford
Blaine Dinger
S. Curran
W. Schneider
A. Wambsgans
P. Haynes
Shallow Hazard File

LTEN 200A 3/86



108

EXXON
01

20 MILES TO SHORE

136

BLK. 137

138

No 1 Prop. Loc'n

TENNECO OIL CO.
OCS-G-8621

144

VICINITY PLAT

0 3000 6000 FT.
SCALE

PROPOSED MINERAL DEVELOPMENT
WEST CAMERON AREA
GULF OF MEXICO

APPLICATION BY TENNECO OIL COMPANY
MARCH 7, 1988 LAFAYETTE, LA.

TENNECO OIL COMPANY
ONSHORE FACILITY
SABINE PASS, TEXAS

Tenneco Oil Company has located an Office Building for our dispatcher in Sabine Pass, Texas. We are in 24-hour contact with our drilling rigs by use of radio and telephone communications.

On the dock we have berthing space for three (3) large supply vessels. We have cranes, forklifts and storage areas to load the vessels. Diesel fuel and potable water are piped onto the facility by GRASSO MARINE, permitting the loading of fuel and water at the same berth where loading is accomplished. At present two (2) 185' supply boats, one (1) 125' crew boat and two (2) 100' standby boats are working out of Sabine Pass.

A heliport of sufficient size for our S-76 crew change helicopter is available. We also have a Bell-206 and a Bell-212 based in Sabine Pass. PHI provides and operates the helicopters.

This facility serves wells in High Island, West Cameron and Sabine Pass.

ENVIRONMENTAL REPORT

FOR COASTAL MANAGEMENT CONSISTENCY DETERMINATION

PLAN OF EXPLORATION

AND

AIR QUALITY REVIEW

GULF OF MEXICO

FOR

WEST CAMERON AREA BLOCK 137 (OCS-G-8621)

SUBMITTED TO:

ERROL CLARK

STAFF PRODUCTION SPECIALIST

TENNECO OIL COMPANY

P. O. BOX 39300

LAFAYETTE, LOUISIANA 70503

(318/269-7314)

MARCH 1, 1988

PREPARED BY:

JOHN E. CHANCE & ASSOCIATES, INC.

REGULATORY & ENVIRONMENTAL DIVISION

PROJECT #88-8031

Table of Contents

ENVIRONMENTAL REPORT

AIR QUALITY REVIEW

LIST OF FIGURES

FIGURE | Page

II. Description of the Proposed Action

This report addresses the activity proposed by Tenneco Oil Company for West Cameron Area Block 137 (OCS-G-8621). The approximate location of the activity is presented in Figure 1, a general vicinity map of the Outer Continental Shelf (OCS) lease areas off the coast of Louisiana.

It is anticipated that a jack-up type rig will be utilized to drill one well. The activities proposed by Tenneco Oil Company for this block are addressed in the attached Plan of Exploration.

The proposed activities will be carried out by Tenneco Oil Company with a guarantee of the following:

1. 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, equipment and monitoring systems.
2. All operations will be covered by M.M.S. approved Oil Spill Contingency Plan.
3. 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.

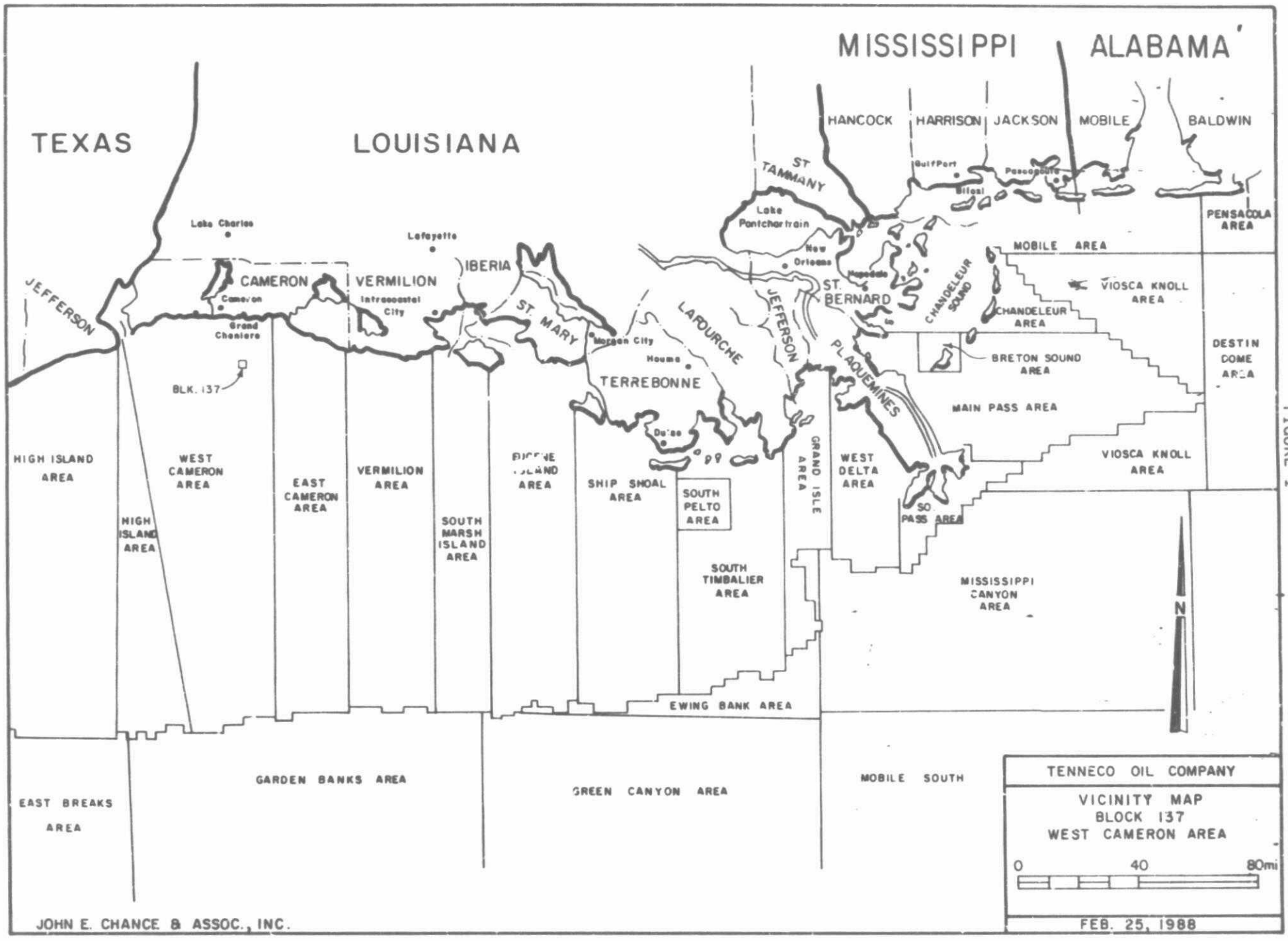

TEXAS
LOUISIANA
MISSISSIPPI
ALABAMA
HANCOCK
HARRISON
JACKSON
MOBILE
BALDWIN
ST TAMMANY
Lake Pontchartrain
Gulfport
Biloxi
Pascagoula
PENSACOLA AREA
MOBILE AREA
Lake Charles
Lafayette
JEFFERSON
CAMERON
VERMILION
IBERIA
ST MARY
LAFOURCHE
TERREBONNE
JEFFERSON
PLAQUEMINES
ST BERNARD
CHANDELEUR SOUND
VIOSCA KNOLL AREA
CHANDELEUR AREA
BRETON SOUND AREA
DESTIN DOME AREA
MAIN PASS AREA
BLK. 137
HIGH ISLAND AREA
WEST CAMERON AREA
EAST CAMERON AREA
VERMILION AREA
SOUTH MARSH ISLAND AREA
SHIP SHOAL AREA
SOUTH PELTO AREA
GRAND ISLE AREA
WEST DELTA AREA
SO PASS AREA
SOUTH TIMBALIER AREA
MISSISSIPPI CANYON AREA
EWING BANK AREA
EAST BREAKS AREA
GARDEN BANKS AREA
GREEN CANYON AREA
MOBILE SOUTH
N
TENNECO OIL COMPANY
VICINITY MAP
BLOCK 137
WEST CAMERON AREA
0
40
80mi
FEB. 25, 1988
JOHN E. CHANCE & ASSOC., INC.

FIGURE 1

A. Travel Modes, Routes, and Frequencies

Tenneco Oil Company will operate out of their service base facilities established in Sabine Pass, Texas. Tenneco Oil Company anticipates using one helicopter, one supply boat, one crew boat, and one stand-by boat to support their West Cameron Area Block 137 activities.

The helicopter will travel to the location a total of fourteen times per week, the crew boat will travel to the location a total of seven times per week, and and the supply boat will travel to the location a total of two times per week. It is anticipated that the transportation vessels will utilize the most direct route from the Sabine Pass, Texas service base. Because a vessel supporting the West Cameron Area Block 137 exploration activities, the Plan of Exploration, may be scheduled for other stops in the area, the exact route for each vessel on each particular trip cannot be predetermined.

B. Support Base and New Personnel

Tenneco Oil Company will utilize support base facilities established in Sabine Pass, Texas. The Sabine Pass, Texas support base is located approximately forty-six miles from the block.

Because helicopter and marine facilities are currently available at the service base and are presently and continuously manned, no additional

onshore employment is expected to be generated as a result of these activities.

The initial OCS Socio-Economic Data Base Report for the service base facilities utilized by Tenneco Oil Company will be prepared for submission pursuant to the specific parameters to be established by the DOI/MMS and scheduled to be issued at a later date.

C. New Support Facilities

The proposed exploration activities for West Cameron Area Block 137 will not require the development of any new support facilities.

D. New or Unusual Technology

The exploration activities for West Cameron Area Block 137 will not warrant utilizing any new or unusual technology that may affect coastal waters.

E. Location of the Proposed Activities

West Cameron Area Block 137 is located approximately forty-six miles from Sabine Pass, Texas and approximately twenty miles from the Louisiana coast of Cameron Parish. Figure 1 presents the location of the block in relation to the Louisiana and Texas coasts, as well as the geographic

relationship between West Cameron Area Block 137 and the other OCS lease areas.

III. DESCRIPTION OF THE AFFECTED ENVIRONMENT AND IMPACTS

A. Physical and Environmental

1. Commercial Fishing

The Mississippi Delta area is known as the "Fertile Fisheries Crescent" because it is one of the most productive commercial fishery grounds in the world. As a result, Louisiana is traditionally one of the top states in the nation in terms of commercial fisheries, which amounted to 1,834,884,407 pounds worth $118,754,742 in 1984 and 1,822,321,060 pounds worth $109,765,223 in 1983 (USDC, NMFS, 1985). Ten species of finfish and shellfish represent 99 percent of Louisiana's commercial fishery landings: brown shrimp (Penaeus aztecus), white shrimp (P. setiferus), blue crab (Callinectes sapidus), oysters (Crassostrea virginica), Gulf menhaden (Brevoortia patronus), red snapper (Lutjanus campechanus), black drum (Pogonias cromis), red drum (Scianops ocellatus), spotted seatrout (Cynoscion nebulosus), and striped mullet (Mugil cephalus). All but one of these species are estuarine dependent.

The most valuable species to Louisiana are the brown shrimp and white shrimp, which together produce by far the greatest shrimp harvest in the Gulf of Mexico. Louisiana shrimp fishermen harvested 106,681,071 pounds (heads-on) of shrimp worth $143,116,739 in 1984 (USDC, NMFS, 1985). Although harvest data for these species are not separated for statistical purposes, the brown shrimp dominates the Louisiana shrimp harvest, as it is

the most abundant species in that region of the gulf (White and Boudreaux, 1977). Both of these shrimp are estuarine dependent and have similar life histories, with the major differences being the time and location that the various life stages begin and reach their maximum levels. Generally, spawning occurs offshore with the resulting larvae migrating inshore to develop in estuaries. Brown shrimp spawn from November to April in 30 to 120 meters of water, while white shrimp spawn from March to October in 8 to 34 meters (Benson, 1982). Juvenile and adult brown shrimp migrate offshore from May to July, and white shrimp migrate between June and November (Benson, 1982).

The West Cameron Area under consideration falls within the "high to moderate brown shrimp productivity area" (USDOI, MMS, 1986, Visual No. 2) wherein the possibility of shrimp fishing activity exists. Some documented impacts of petroleum exploration and production on the shrimp fishery include the removal of trawling space during the drilling and exploration phases and the possibility of fishing gear conflicts with existing well heads. These conflicts could result in loss of catch, loss of or damage to nets, vessel damage, and/or fishing downtime losses. Additional discussion of the impacts on the commercial fishing industry is contained in the Final Regional Environmental Impact Statement, Gulf of Mexico, Volume 1, pages 327 to 332 (USDOI, MMS, 1983).

The Gulf menhaden or "pogy" fishery is Louisiana's second most valuable fishery, accounting for 1,756,285,058 pounds worth $68,801,156 in 1984 (USDC, NMFS, 1985). Gulf menhaden spawn offshore from mid-October through

March in 40 to 140 meters of water, with the larvae subsequently moving into shallow, low salinity estuaries from February to May (Benson, 1982). Here in the shallow estuaries, the larvae metamorphose into juveniles and change from being carnivores to filter-feeding omnivores. The juveniles and subadults migrate from the estuaries into offshore waters from December through February (Benson, 1982). The adults only rarely venture far offshore (Hoese and Moore, 1977); indeed, about 93 percent of the commercial fishing effort occurs within ten miles of shore (USDOI, MMS, 1983).

The activities as proposed are unlikely to have any adverse effect on the menhaden fishing as West Cameron Area Block 137 lies outside the "Principle Menhaden Harvest Area" (USDOI, MMS, 1986, Visual No. 2).

The Eastern oyster is most abundant in the Gulf of Mexico from Aransas Bay, Texas, to Apalachicola Bay, Florida (Beccasio et al., 1982). Louisiana oystermen landed 13,488,274 pounds of oysters worth $24,476,569 in 1984, making oysters Louisiana's third most valuable fishery (USDC, NMFS, 1985). Oysters thrive at salinities between 5 and 15 parts per thousand and water depths of 2.5 to 8 meters (Beccasio et al., 1982). Oysters spawn inshore during the summer, and the free-swimming larvae attach and develop in the same estuarine habitat. The proposed activities in West Cameron Area Block 137 are not expected to have any impact on the oyster fishery in Louisiana.

The blue crab ranges from Nova Scotia to Uruguay and supports the largest crab fishery in the United States (Marine Experiment Station, 1973). In 1984, 29,692,067 pounds of crabs worth $8,395,002 were landed in

Louisiana (USDC, NMFS, 1985). Blue crabs inhabit shallow water and can be found in high salinity sounds, bays, and channels where they spawn from March through November, with a peak from May to September (Benson, 1982). The resulting planktonic larvae pass through several molts and stages before the juveniles drop to the bottom of the estuarine nurseries, where they remain throughout the year (Benson, 1982). The fishery for blue crabs is unlikely to be significantly affected by exploration activities as this block is located offshore of the coastal and estuarine waters in which this fishery occurs.

Red snapper landings in Louisiana amounted to 1,487,456 pounds worth $2,479,817 in 1984 (USDC, NMFS, 1985). Snappers are demersal predatory fish that are common over or near banks, coral reefs and outcrops, submarine ridges, rocks, and man-made structures such as shipwrecks and offshore drilling platforms, especially offshore Louisiana (Benson, 1982; Hardy, 1978). Red snapper spawn in the Gulf of Mexico from June to Mid-September, in water depths of 16-37 meters, over bottoms of hard sand and shell with rocky reef areas; spawning may actually take place at the surface (Hardy, 1978). Little or no information is available about larval red snapper, but juveniles are typically found inshore in high salinity (24 to 40 ppt) water 9-91 meters in depth (Benson, 1982). The proposed activities should create a suitable habitat for red snapper.

The drums (Scianidae) are one of the three most abundant families of fishes in the Gulf of Mexico in terms of biomass, and they outnumber all other families in the number of species (Hoese and Moore, 1977). Three

species of drums are commercially important to Louisiana. These include black drum, red drum, and spotted seatrout. In 1984, Louisiana landed a total of 5,557,259 pounds of drums worth $4,200,068 (USDC, NMFS, 1985). The red drum fishery is the most valuable, accounting for 51 percent of the total drum catch while the spotted seatrout and black drum account for equal amounts of the remainder.

Typically, scianids are euryhaline species that spawn in shallow nearshore Gulf waters, producing larvae that enter coastal estuaries for development (Benson, 1982; Johnson, 1978; Hoese and Moore, 1977). Spotted seatrout spawn at night in deep channels and depressions adjacent to shallow flats, grass beds, and bayous in the estuary, from March to September with a peak from April through July (Benson, 1982). The larvae associate with bottom vegetation (predominantly sea grasses) or shell rubble in channel bottoms (Johnson, 1978). The juveniles spend at least their first 6 to 8 weeks on the nursery grounds, usually within 50 meters of the shoreline, until late fall when they move into the deeper parts of the estuary (Benson, 1982). Adult spotted seatrout rarely leave the estuaries (Benson, 1982).

Black drum spawn from February to April in or near tidal passes and in open bays and estuaries (Benson, 1982). The larvae are transported to shallow estuarine marshes, but may move to deeper estuarine waters or shallow waters off sandy beaches as large juveniles (Johnson, 1978). Adult migration is largely restricted to spring and fall movement through the passes between estuaries and nearshore environments (Beccasio et al., 1982).

Red drum inhabit estuaries and coastal waters out to 22 kilometers from shore, at depths up to 40 meters (Becassio et al., 1982). Spawning occurs in the fall and winter, primarily from September to November, and the larvae are carried by currents into shallow estuaries and bays where they tend to associate with seagrasses and marshes (Johnson, 1978). They usually remain in or near estuaries until they are three years old, but some leave at the end of their first year, migrating into the Gulf in the fall (Benson, 1982).

Louisiana harvested 3,157,215 pounds of mullet worth $999,936 in 1984 (USDC, NMFS, 1985). Mullets are one of the most abundant fishes in the Gulf of Mexico (Hoese and Moore, 1977). Mullet have been observed in Alabama inland as far as 607 kilometers from the Gulf, and offshore as far as 80 kilometers and as deep as 1,385 meters (Benson, 1982). Mullet spawn from October to May, and some females spawn more than once in a season (Benson, 1982). Larvae move inshore in the spring and the juveniles are found in the shallow areas of the estuaries. Offshore movement from the estuaries occurs during the fall (Beccasio et al., 1982).

Overall, commercial fishermen have benefited from the growth of the petroleum industry in the OCS waters of the Gulf of Mexico. While technological improvements have enabled commercial fishermen to increase the volume of landings, development of the petroleum industry has also had a positive impact on fishing. Because OCS petroleum development is dependent on extensive marine vessel utilization, harbors and ports have been improved, port access waterways have been expanded and improved, and the availability and quality of marine vessel maintenance and repair facilities

have increased significantly. These improvements have definitely had a positive effect on fishermen (Lassiter, 1980).

2. Shipping

A designated shipping fairway is located in adjacent West Cameron Area Block 136. It is likely that marine vessels supporting activities in West Cameron Area Block 137 will utilize the shipping fairway to gain access to the support base; however, it is unlikely that the marine vessels will have a significant effect on fairway traffic. The drilling rig and each of the marine vessels will be equipped with all U. S. Coast Guard required navigational safety aids.

3. Recreation

The open Gulf encompasses a broad expanse of saltwater which is utilized by numerous sports fishermen and a small but rapidly increasing number of SCUBA divers. Many fishermen charter boats to deep-sea fish and sport dive in the northern Gulf. The states of Alabama, Mississippi, and Louisiana support approximately 120 charter boats which conduct a majority of their fishing activities in the waters of the OCS (USDOI, MMS, 1983). Petroleum platforms in the northern Gulf provide recreation for fishermen and scuba divers because they act as artificial reefs attracting and establishing aquatic communities including highly sought after food and sport fishes. The reef effect created by petroleum platforms is well known

and is evidenced by the numerous private boat owners who regularly visit offshore facilities to harvest food and sport fishes.

Frequently, offshore rigs and platforms serve as navigation points for small commercial and recreational marine craft. Manned drilling rigs and platforms can also provide a haven for small craft operators forced to abandon their vessels during storms or following boat accidents. The installation and use of navigational aids, lifesaving equipment, and other safety requirements pursuant to Coast Guard regulations are standard procedure for drilling rigs and marine vessels utilized by Tenneco Oil Company.

4. Cultural Resources

Visual No. 4 from the Final Environmental Impact Statement (USDOI, MMS, 1986) indicates that West Cameron Area Block 137 falls within the zone designated as an area with a high probability of historic and pre-historical cultural resources. An Archeological and Hazard Study of the South half of West Cameron Area Block 137 was performed by John E. Chance & Associates, Inc. (1987) and the following has been extracted from that report.

The near-surface strata underlying the upper 3 feet of clayey sands exhibit evidence of repetitive fluvial entrenchment. Data presented by Berryhill, Owen, and Suter (1984) indicate that the numerous river channel cuts associated with a Late Wisconsin or Early Holocene time period are present across this region of the Gulf of Mexico. These researchers

determined from regional seismic profiles that sequential generations of river channels cut across this region during the Early Wisconsin, Late Wisconsin, and Early Holocene ages. Early Wisconsin river channels were cut approximately 70,000 years B.P., although this estimate is not tightly controlled by absolute dating techniques. It is generally assumed, however, that the Early Wisconsin exposure and riverine entrenchment of the continental shelf occurred before prehistoric man had reached North America.

The lowering of sea level during the Late Wisconsin was a response to expansion of the glacial ice sheets in the polar regions of the continents. By the time of maximum glaciation, the storage of water in the glaciers resulted in a lowering of sea level to about 400 feet below the present high stand. This maximum Late Wisconsin sea level recession occurred between 20,000 and 18,000 years ago, and most of the continental shelf was exposed as dry land at this time. The drop in sea level led to a progressive lowering of the stream base level, and rivers entrenched channels and valley streams into the upper Pleistocene strata. The upper channel banks are within 3 feet below the present seafloor, and these alluvial margins offer the highest probability for the preservation of prehistoric cultural remains.

It was during the Late Pleistocene period that Asiatic peoples migrated to North America across the exposed land mass of Beringia which is presently drowned beneath the Bering and Chukchi seas. By 19,000 years B.P., small hunting bands apparently had made their way below the southern extent of the ice into what is now Pennsylvania (Adovasio, 1977). Excavations at Avery

Island, Louisiana, indicate that man had reached the Gulf of Mexico region approximately 12,000 years B.P. These Paleo-Indian hunters migrated across the continent, and presumably onto the exposed continental shelf, concentrating their subsistence activities on hunting megafauna. Eventually climatic conditions warmed, and the meltwater runoff from the polar ice caps gradually raised sea level. During this Holocene transgression, there was a gradual reduction in the gradients of the rivers entering the Gulf of Mexico, and the associated reduction in capacity of the rivers brought on a progressive infilling of channels and entrenched valleys. These environmental changes in post-Pleistocene times forced prehistoric human groups to adapt to newly defined resource bases, and this adaptation is generally referred to as the Archaic tradition which probably began about 9,000 years B.P. in North America and ended approximately 3,000 years ago.

Prior to the final inundation of West Cameron Area Block 137 approximately 6,500 years ago, the buried Pleistocene surface may have been inhabited by Paleo-Indians and Archaic groups during the last low sea level cycle, and the channel margins and interior valley slopes are the most likely areas for preservation of prehistoric archeological material. It is logical to suspect that the majority of archeological sites from the Late Pleistocene and early Holocene periods were associated with shorelines and river banks where exploitation of the widest variety of plant and animal species could have been accomplished with the least effort and highest degree of success. Hunters and foragers could have occupied the channel banks, point bars, and interior terraces during low water stages. Alluvial deposits could have buried camp sites during seasonal floods and protected

the sites from destruction by the higher energy environmental forces of marine transgression. Living sites or animal gathering stations along the open Pleistocene plain and transitional Gulf marshlines would presumably have been scattered by marine wave action, but it is unlikely any in situ prehistoric cultural material would be preserved outside the zones of alluvial deposition. Specific prehistoric cultural remains cannot be pinpointed from the pinger profile records, and most prehistoric sites of Paleo-Indian (12,000 to 9,000 years B.P.) or Early Archaic groups (9,000 to 6,500 years B.P.) lack the vertical relief necessary for detection with seismic equipment. The buried alluvial deposits in Block 137 represent the zones of highest probability for the preservation of prehistoric cultural remains which could date to periods prior to 6,500 years B.P.

There are no specific reports of shipwrecks for this lease area, and the geophysical data do not represent any clear indications of wrecks. The overall distribution of anomalies are not indicative of a shipwreck, and the relatively deep water depths preclude the possibility of any historic vessel having run aground.

5. Ecologically Sensitive Features

West Cameron Area Block 137 is located approximately twenty-three miles southwest of Rockefeller Refuge (USDOI, MMS, 1986, Visual No. 4). There are no other known ecologically sensitive areas near West Cameron Area Block 137.

The Sabine Pass, Texas support base which will be utilized as the operations base for the West Cameron Area Block 137 exploration activities

is located approximately ten miles southwest of Sabine National Wildlife Refuge and approximately forty miles east-northeast of Anahuac National Wildlife Refuge (USDOI, MMS, 1986, Visual No. 3).

In general if all activities are executed as planned, encountering no unusual circumstances, the environmentally sensitive areas will not be affected.

6. Existing Pipelines and Cables

A review of company file data indicated that a T.G.P. 16-inch pipeline runs through the south half of West Cameron Area Block 137. Tenneco Oil Company is not aware of any other pipelines or cables in West Cameron Area Block 137.

7. Other Mineral Uses

There are no other known mineral resources located in or near West Cameron Area Block 137.

8. Ocean Dumping

The major sources of ocean dumping related to OCS petroleum exploration activity are drilling fluids, or "muds," and drill cuttings. After the exploratory drilling in West Cameron Area Block 137 is completed, Tenneco Oil Company does anticipate dumping their excess water-based drilling fluids (approximately 1,200 bbls). If any oil-based mud is used in the drilling

operations, it will be transported to shore for proper disposal.

Drill cuttings are brought up by the drilling mud and range in size from grains of sand to pebbles. These cuttings are separated and sifted and then disposed overboard. Treated domestic wastes and drill waters will also be disposed at the proposed drilling site. There will be no intentional discharge of any oily or hazardous materials in violation of DOI or EPA regulations.

9. Endangered or Threatened Species

Endangered or threatened species which might occur in West Cameron Area Block 137 are blue whale (Balaenoptera musculus), finback whale (Balaenoptera physalus), humpback whale (Megaptera novaeangliae), sei whale (Balaenoptera borealis), sperm whale (Physeter catodon), Kemp's ridley turtle (Lepidochelys kempii), green turtle (Chelonia mydas), hawksbill turtle (Eretmochelys imbricata), leatherback turtle (Dermochelys coriacea) and loggerhead turtle (Caretta caretta) (USDOI, Region IV Endangered Species Notebook).

Endangered and threatened species expected to occur in the vicinity of the onshore base are Arctic peregrine falcon (Falco peregrinus tundrius) and American alligator (Alligator mississippiensis). Arctic peregrine falcons are migrants through the area and are not considered a component of the resident bird population. The American alligator is classified as threatened due to similarity of appearance in Texas. No impacts on Artic peregrine falcons or American alligators are expected. The presence of

marine mammals in coastal Texas is considered sporadic and probably no resident populations exist. It is unlikely that onshore or exploration activities related to West Cameron Area Block 137 will have any effect on the previously named species.

B. Socio-Economic Impacts

In accordance with DOI/MMS guidelines (OS-7-01), dated November 20, 1980, the initial OCS Data Base Report will be developed for submission on or before the prescribed due date. Subsequent Environmental Reports provided by Tenneco Oil Company will address this data and related activity impacts as required.

IV. UNAVOIDABLE ADVERSE IMPACTS

The greatest threat to the natural environment is caused by inadequate operational safeguards that may cause or contribute to an oil spill or well blowout. These accidents can be greatly reduced in number by utilizing trained operational personnel and employing all available safety and pollution control systems. These measures are standard operating procedure for Tenneco Oil Company. Tenneco Oil Company has an approved Oil Spill Contingency Plan.

It should be noted that most large crude oil and refined products spills have occurred during transportation and not during drilling or production operations. Furthermore, the probability of an oil spill occurring during exploratory drilling operations is low (Danenberger, 1976). Transportation and river runoff contribute an estimated 34.9 percent and 26.2 percent, respectively, to the hydrocarbon contamination of the world's oceans while offshore production activities account for only 1.3 percent (National Academy of Sciences, 1975). Natural seeps of petroleum and natural gas, which occur throughout the northern Gulf of Mexico (Zo Bell, 1954; Geyer, 1979), contribute an estimated 9.8 percent to the contamination of the world's oceans (National Academy of Sciences, 1975). Additionally, it was noted in the executive summary of a recent study of petroleum production platforms in the central Gulf of Mexico (Bedinger, 1981), that natural disturbances (i.e. river flooding and storms) can more greatly affect normal biological communities than the current industrial development of the Louisiana OCS. The preceding discussion is not intended to minimize the significance of major oil spills resulting from petroleum exploration

and production activities but is provided to establish a perspective relative to their probable occurrence.

Thirteen of the forty-six blow-outs on the OCS between 1971 and 1978 were associated with exploratory drilling activities, none of which released any oil to the marine environment (Danenberger, 1980). The IXTOC I spill of 1979, however, demonstrates that advanced drilling technology and available safety and pollution control systems are not infallible. Most spills are subjected to immediate containment and cleanup efforts. The ultimate fate of oil spilled in the marine environment is generally considered to be one or a combination of the following: evaporation and decomposition in the atmosphere, dispersal in the water column, incorporation into sediments, and oxidation by chemical or biological means (National Academy of Sciences, 1975).

The unavoidable adverse impacts that will occur as a result of the exploratory drilling and discharging of drilling fluids, and treated sewage will be few in number and temporary in nature. The primary adverse impacts include a localized degradation of water and air quality in the vicinity of the drilling site, the potential obstruction to commercial and recreational fishing vessels, and the disruption and/or killing of benthic and/or pelagic organisms during location of the drilling rig and during disposal of muds, cuttings, and domestic wastes and sewage.

Discharging from the drill site is inevitable during OCS operations, particularly during exploration. Any materials that may contain oil or other hazardous materials, and therefore would have a much greater adverse

impact on the environment, will not be discharged intentionally. Any discharging will be done pursuant to all DOI and EPA regulations. The discharges to be disposed overboard as a result of the exploration activity will include domestic waste and sewage that is treated on the rig before discharging, drill cuttings, and excess water-based mud.

The environmental fate and effects of drilling muds and cuttings has been extensively addressed in a recent symposium (See Ayers et al., 1980 for detailed discussions). The discharging of drill cuttings and water-based mud will result in an increase in water turbidity, burial of benthic organisms, and possible toxic effects on marine organisms in the immediate vicinity of the drilling rig. A reduction in photosynthetic activity and plankton populations can also be expected as a result of discharging. It is expected, however, that pelagic and benthic organisms will repopulate the area rapidly after discharging if the effects are minimal and intermittent as expected.

Offshore activities generate a small but significant amount of air pollutants due to the emissions of diesel engines; therefore, the deterioration of air quality is unavoidable in an OCS operation area. In most instances, these emissions affect only the immediate exploration activity site and are rapidly dissipated by the atmosphere depending upon climatic conditions. An Air Quality Review Report has been prepared for West Cameron Area Block 137 and is included as an attachment to the Environmental Report.

Commercial and recreational fishing would be affected by OCS development, but primarily in terms of inconvenience and interference. Although the unavoidable adverse impacts could include some smothering of shellfish, snagging of trawl nets, reduction of area presently used for unrestricted fishing, and minimal finfish killing, commercial fishing activities would not be significantly effected, except in the unlikely event of an oil spill. An oil spill would result in serious economic losses due to the contamination of commercial fish species over a large area.

There is a remote possibility that offshore areas of historical, cultural, or biological significance could be damaged or destroyed by OCS exploration operations. Visual No. 3 from the Final Environmental Impact Statement (USDOI, MMS, 1986) indicates that no archeological, cultural, or historic areas are in the vicinity of West Cameron Area Block 137. Tenneco Oil Company will make every effort to avoid disturbing any historically, culturally, or biologically significant feature.

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APPENDIX 1

COASTAL ZONE MANAGEMENT

CONSISTENCY CERTIFICATE

COASTAL ZONE MANAGEMENT

CONSISTENCY CERTIFICATION

EXPLORATION

.....

Type of Plan

WEST CAMERON AREA BLOCK 137 (OCS-G-6281)

.....

Area and Block

The proposed activities described in detail in the attached Plan of Exploration 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 State Times in Baton Rouge, Louisiana to publish a Public Notice of the proposed activity no later than March 24, 1988 ...

TENNECO OIL COMPANY

.....

Lessee or Operator

EAC ..... RGA

Certifying Official

R. A. Bowie

Attorney-in-Fact

March 7, 1988

.....

Date

Air Quality Review
For
West Cameron Area Block 137
OCS-G-8621

Tennaco Oil Company
P. O. Box 39300
Lafayette, Louisiana 70503

Submitted to
Errol Clark
Staff Production Specialist

March 1, 1988

Prepared by
John E. Chance & Associates, Inc.
Regulatory & Environmental Division
Project No. 88-8031

Projected Emissions Schedule for Project

I. General Information

Location of Facility - West Cameron Area Block 137
Name of Rig/Platform - Jack-up

Owner/Operator - Tenneco Oil Company
P. O. Box 39300
Lafayette, Louisiana 70503

Contact Person - Errol Clark
Staff Production Specialist

Project Start Date - June 1, 1988
Project End Date - August 1, 1988

11,400 Feet to be Drilled
20 Miles Offshore

II. Total Emissions for Drilling

Total Time for Drilling 1 well: 2 months

Projected Emissions
(Tons/Month of Drilling)

Emitted Substance	CO	SO_2	NO_X	VOC	TSP
Drilling Operations	5.17	0.72	23.06	1.62	0.47

A. Transportation Emissions, Drilling

Projected Emissions
(Tons/Month of Drilling)

Emitted Substance	CO	SO_2	NO_X	VOC	TSP
Crewboat	0.32	*	2.28	0.12	*
Supply Boat	0.04	0.04	0.20	0.03	*
Stand-by Boat	0.14	0.14	0.72	0.09	
Helicopter	0.18	0.01	0.02	0.02	0.01

B. Miscellaneous, Drilling

Projected Emissions
(Total Tons)

Emitted Substance	CO	SO_2	NO_X	VOC	TSP
Tow/Tugboat(s)	6.49	*	29.97	2.40	*
Cementing Skid	0.06	0.02	0.30	0.02	0.02

Crewboat horsepower of 2,500
Sabine Pass, Texas
Waiting Time 2 hour(s) per trip
7 trip(s) per week

Supply Boat with 200 kw generator
Sabine Pass, Texas
Waiting Time 24 hours(s) per trip
2 trip(s) per week

Stand-by Boat
Generator rating 200 kilowatts
Running 24 hours per day

Helicopter
Sabine Pass, Texas
14 trip(s) per week

Towing Tugboat horsepower of 4,500
Working for 6 day(s)

Cementing Skid horsepower of 800
Working for 1 day(s) per well

III. Project Summary, Total Emissions

Emitted Substance	CO	SO_2	NO_X	VOC	TSP
Allowable (tons/yr)	2501	666	666	666	666
	Projected Emissions (Tons/Year)				
Year 1	10.34	1.45	46.11	3.24	0.95

Total Emissions are comprised of all Drilling Emissions.

III. Project Summary, Total Emissions (cont'd.)

This may include the following which are not specified in each section:

- Welding machines and cranes utilized during construction and drilling operations.
- Crane(s), Generator(s), Heater Treater, and Compressor utilized during production.

IV. Findings of Air Quality Review

As per DOI-MMS regulations, this facility is exempt from further air quality review as it has been determined that its operation will not have a significant adverse environmental impact on air quality. Calculated emissions are for a worst case condition. Actual emissions from this project will probably be lower.

V. Methodology

Drilling	- horsepower-hour/ft drilled method
Boats	- horsepower-hour method
Helicopters	- landing/takeoff (LTO) cycle method
All Others	- horsepower-hour method

VI. References

ATMOSPHERIC EMISSIONS FROM OFFSHORE OIL DEVELOPMENT AND PRODUCTION, EPA-450/3-77-026 (June, 1977).

COMPILATION OF AIR POLLUTANT EMISSIONS FACTORS, EPA Report AP-42 (September, 1985), 4th Edition.

* The EPA does not provide SO_2 and TSP emission factors for boat engines or TSP emissions for diesel powered electrical generators.

The government agency assistant will report all spills of a minor nature (less than 6.3 barrels) during working hours. Our Intracoastal City facility will report minor spills (less than 3 barrels) to the U.S.G.S. on weekends and holidays. The production manager operations, or in his absence, the government agency assistant, will report all spills involving 6.3 or more barrels.

EQUIPMENT

Tenneco Oil Company is a member of Clean Gulf Associates and will call upon them in the event of a spill. Also, we are a member of the Offshore Operator's Committee. This Committee maintains an inventory of member companies' equipment that is available for use by other members.

Clean Gulf Associates has a major base at Grand Isle, Louisiana with a sub-base at Cameron, Louisiana and Galveston, Texas.

All procedures and equipment are designed to be in compliance with OCS ORDER NO. 7 (Pollution and Waste Control). Equipment to be used would mainly include the following:

I. Fast Response, Skid-Mounted, Skimmer System

   A. Nearest Location - Cameron, La.
   B. Response Time - 2 hours loadout, 2 hours travel = 4 hours
   C. Personnel Required - 4 men per shift

II. Barge-Mounted, High Volume, Open Sea Skimmer System

   A. Nearest Location - Grand Isle, Louisiana
   B. Response Time - 2 hours loadout, 20 hours travel = 22 hours
   C. Personnel Required - 13 men per shift

III. Helicopter Spray System

   A. Nearest Location - Intracoastal City, La.
   B. Response Time - 1 hour loadout, 1.50 hours travel = 2.50 hours
   C. Personnel Required - 2 men per shift

ALERT PROCEDURE

This Alert Procedure will become effective immediately upon the observance of an oil or hazardous material spill from a company installation of any kind which could possibly pollute shorelines, coastal or inland waters, or the open sea, or which could damage, foul or endanger any property or wildlife onshore or offshore.

INTERNAL ALERT PROCEDURE:

(1) Any Company employee observing an oil or hazardous material spill of any quantity must immediately notify his supervisor (MANDATORY NOTIFICATION).

(2) The supervisor will confirm the spill, its cause and basic nature, and notify the area engineer responsible for the area concerned. All of the information required on the "Report of Oil or Hazardous Material" is to be provided (MANDATORY NOTIFICATION).

(3) The area engineer will make a preliminary determination of the seriousness of the spill and notify the division production superintendent, and the production manager operations. The area engineer will make an information report to his supervisor.

(4) The production manager operations, and in his absence the division production superintendent, will assess the seriousness of the spill and if the situation requires it, he will notify the division production manager and appropriate members of the contingency task force. Calling the contingency task force into operation is under the authority of the production manager operations and in his absence the division production superintendent.

Situations requiring activation of the contingency task force are to be reported to the Houston office by the person activating the contingency task force and providing at least the spill report information.

EXTERNAL ALERT PROCEDURE:

The responsibility for the notification of an oil or hazardous material spill rests with any company employee observing a spill. The employee must immediately notify his supervisor who will follow procedures in this manual to notify the appropriate governmental agencies (MANDATORY NOTIFICATION).

Any person other than an employee (visitor, contractor personnel, or third party) must immediately notify a company representative. The employee will then use the External Alert Procedure (MANDATORY NOTIFICATION).

Procedures defined in the following memorandums are to be followed in reporting spills.

REPORTING OF OIL SPILLS OR SPILLS OF HAZARDOUS MATERIALS

OCS LEASES

The following governmental agencies will be notified depending on the amount spilled: (ALL SPILLS WILL BE REPORTED)

LESS THAN 6.3 BARRELS:

U. S. Coast Guard immediately, U. S. G. S. orally within twelve (12) hours and orally the Louisiana Department of Conservation if spill endangers the coast line. Confirm oral reports in writing on spill report form.

OVER 6.3 BARRELS:

U. S. Coast Guard, U.S.G.S. Oil and Gas Supervisor, U.S.G.S. District Supervisor immediately and orally. Orally to the EPA Regional Administrator, Louisiana Department of Conservation, and Louisiana Stream Control Commission. Confirm all oral reports in writing on spill report form.

All spills shall be reported to the U. S. Coast Guard immediately. Spills less than 6.3 barrels shall be reported to the appropriate U.S.G.S. District Office in the following manner:

If the spill occurs during the daylight hours of 7:00 A.M. through 5:00 P.M. Monday through Sunday, call their office and report spill to the radio operator. If the spill occurs at night, report spill the following day.

If the spill is 6.3 or more barrels, notify the appropriate District Supervisor immediately. Their answering service will give you their number.

The information required by the governmental agencies is:

Location of spill, date and time spill occurred, amount and type material lost, cause of incident and corrective action taken, size of slick, coloration, direction of movement, and weather conditions.

If spill is a direct result of a load-out incident, the additional information will be required:

Name of Captain, his home address and telephone number, Z Card Name, call sign and agent.

Chemical dispersents will not be used on spills prior to obtaining approval from the appropriate governmental agencies.

BAROID

DRILLING MUD COMPONENTS

1. The surface hole will be drilled with a fresh water-Milgel-caustic soda mud. Products used include:

TRADE NAME	GENERIC NAME
Aquagel	Wyoming Bentonite
Caustic Soda	NaOH
Q-Broxin	Lignosulfonate

2. A seawater-lignosulfonate mud will be used to drill below surface casing. Products to be used include:

TRADE NAME	GENERIC NAME
Aquagel	Wyoming Bentonite
Caustic Soda	NaOH
Q-Broxin	Lignosulfonate
Carbonox	Western Lignite
Baroid	Barite
Drispac	Carboxymethyl Cellulose
Soltex	Sulfonated Asphaltic Residuum
Wallnut	Wall Nut Hulls
Aluminum Stearate	Aluminum Stearate
Soda Ash	Na_2CO_3
Lime	$Ca(OH)_2$
Potassium Hydroxide	Potassium Hydroxide
Sulfurized Fatty Acid and Modified Parrafin	Tenneco Mud Lube

LIQUID DISPOSAL

This mud is a non-oil base mud and will be treated prior to disposal into the Gulf.