

OCS-G-2607 + 2317
S-2112

In Reply Refer To: FO-2-1

April 28, 1988

Pennzoil Company
Attention: Mr. F. W. Broussard
Post Office Box 51843
Lafayette, Louisiana 70505-1843

Gentlemen:

Reference is made to your Supplemental Development Operations Coordination Document (DOCD) received April 14, 1988, for Leases OCS-G 2607 and 2317, Blocks 312 and 333, respectively, Eugene Island Area. This DOCD includes the activities proposed for Wells A through D.

In accordance with 30 CFR 250.34, revised December 13, 1979, and Notice to Lessees and Operators No. 24-1, this DOCD is hereby determined to be complete and is now being considered for approval.

Your control number is S-2112 and should be referenced in your communication and correspondence concerning this DOCD.

Sincerely yours,

(Orig. Sgd.) A. Donald Giroir

For D. J. Bourgeois
Regional Supervisor
Field Operations

bcc: Lease OCS-G 2607 (OPS-3-2) (FILE ROOM)
Lease OCS-G 2317 (OPS-3-2) (FILE ROOM)
(OPS-3-4 w/Public info. Copy of the DOCD (PUBLIC RECORDS))

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PI

SUPPLEMENTAL PLAN OF DEVELOPMENT

OCS G-2607; EUGENE ISLAND BLOCK 312

OCS G-2317; EUGENE ISLAND BLOCK 333

PENNZOIL COMPANY

Date of Preparation: February 9, 1988

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- II. PLAN OF DEVELOPMENT



CONTACT

Mr. F. W. Broussard
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PENNZOIL COMPANY

POST OFFICE BOX 51843 • LAFAYETTE, LOUISIANA 70505-1843 • (318) 269-4200

February 9, 1988

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

Re: Supplemental Plan of Development
OCS G-2607; Eugene Island Block 312
OCS G-2317; Eugene Island Block 333

Gentlemen:

Pennzoil Company submits herewith for your approval our plan for continued development of the two subject leases. To date two drilling/production platforms have been set on Eugene Island Block 333. Sixteen wells have been drilled as producers from the "A" Platform and eight wells have been drilled as producers from the "B" Platform. Five of the twenty-four producers were completed in the adjacent (to the north) Eugene Island Block 312.

Future plans call for our drilling four additional development wells from Eugene Island Block 333 "A" Platform. Two of these wells will be drilled to locations within Eugene Island Block 333 and two wells will be drilled to Eugene Island Block 312.

In accordance with the Rules and Regulations for Oil and Gas Operations in the Outer Continental Shelf, 30 CFR 250.34, the following information is included in the Supplemental Plan of Development:

- 1) Structure Map of the "H-1" and "H-2" Sands, showing a spider diagram of the well proposed for this sand.
- 2) Structure Map of the "N" Sand, showing a spider diagram of the well proposed for this sand.
- 3) Structure Map of the "B-1" Sand, showing a spider diagram of the well proposed for this sand.
- 4) Vicinity Map showing Eugene Island Blocks 312 and 333.
- 5) List of Proposed Development Wells, showing well designation, TVD, bottom hole location and projected reservoir for each well. Surface location will be that of Platform "A", or 1950' FWL and 2700' FEL of Eugene Island Block 333.

Supplemental Plan of Development
OCS G-2607; Eugene Island Block 312
OCS G-2317; Eugene Island Block 333
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- 6) Shallow Hazards Report for subject location.
- 7) Plat of Eugene Island Blocks 312/333 showing locations of Platforms "A" and "B".
- 8) Facility Maps, showing the sales pipeline from "A" Platform and location of the Pennzoil shore base facility.
- 9) Specifications for the cantilevered jack-up rig "Vanguard", typical of the type proposed for drilling additional development wells from "A" Platform.

We do not anticipate the need for laying additional sales pipelines from the field area with which this plan is concerned. Gas from this field is transported by the Sea Robin Pipeline to the Sea Robin plant located in Vermilion Parish for processing. Liquid hydrocarbons are transported through the Eugene Island Pipeline System (20") and Texas Pipeline System (16" and 18" lines) to St. James terminal. We anticipate no additional impact on either pipelines or onshore facilities. Production facilities presently in place on "A" Platform are adequate to handle the increased production from this development project.

Attached are 11 copies of this document. Five copies are complete with geological information for MMS use only. The other copies do not contain the information which Pennzoil company considers confidential and exempt from disclosure under the Freedom of Information Act (5 U.S.C. 552) and Implementing Regulations (43 CFR Part 2).

Each of the eleven copies contains a Certificate of Coastal Zone Consistency for the State of Louisiana.

Yours very truly,



F. W. Broussard
District Petroleum Engineer
U. S. Offshore Division

FIM/FWE/jga

Enclosures (11)

PLAN OF DEVELOPMENT
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A. Description

1. General

Blocks 312 and 333 of the Eugene Island Area, Gulf of Mexico, was acquired in December, 1972, as a joint interest exploration/development project by 5 major oil companies. Mobil Oil Corporation was originally designated as operator. Three exploratory wells were drilled and two platforms were later installed in the Eugene Island Block 333. The "A" Platform was installed over the #1 exploratory well location in August, 1973 and the "B" Platform over the #2 exploratory well location in July of 1974. Drilling operations on "A" Platform were initiated in September 1973 and on "B" Platform in August, 1974 with initial production on both platforms beginning in July, 1977. Sixteen wells were drilled as producers from the "A" Platform and eight wells were drilled as producers from the "B" Platform. Five of the sixteen producers drilled from the "A" Platform were completed in Eugene Island Block 312, directly to the North of Eugene Island Block 333. Pennzoil Company took over as operator of Eugene Island Blocks 312 and 333 from Mobil Oil Corporation in May of 1986. This change in operator was made in the interest of economic efficiency, as Pennzoil operates numerous other platforms in the Eugene Island 330 Field.

2. Plan of Development

The Eugene Island Blocks 312 and 333 are in the later stages of depletion. A complete review of geological and engineering data has been made by Pennzoil Company and a development plan devised for the purpose of maximizing hydrocarbon recovery from the subject lease.

This supplemental development proposal calls for utilizing a cantilevered type jack-up rig to drill four additional wells. Two wells will be drilled to recover up-dip "attic" oil and gas unrecoverable by present completions. Two wells will be drilled to seismic targets in untested fault blocks.

3. Schedule of Activities

Pennzoil Company proposed to commence with the development activities July 15, 1988. Timing for each phase is as follows:

<u>Activity</u>	<u>Start Date</u>	<u>Days to Finish</u>
RU Jack-Up on EI 333 "A"	July 15, 1988	7
Drill Well "A"	July 22, 1988	30
Drill Well "B"	August 20, 1988	20
Drill Well "C"	September 10, 1988	40
Drill Well "D"	October 20, 1988	30
Complete Well A	November 20, 1988	12
Complete Well B	December 2, 1988	9
Complete Well C	December 11, 1988	14
Complete Well D	December 25, 1988	10

4. Platform Description

The "A" Platform consists of an eight pile jacket supporting a double deck structure approximately 70' x 130'. Detailed drawing, design calculations and material specifications are on file in Pennzoil's office in Lafayette and are available for inspection upon request. The platform structure is protected from corrosion with a three coat epoxy paint system. The jacket structure permanently under water is protected by a cathodic protection system, consisting of sacrificial anodes designed for a service life of 20 years.

5. Production Facilities

Production facilities presently operating on the "A" Platform include separation and dehydration equipment with the capacity to handle 15,000 barrels of oil, 75 MMCF of gas and 5,000 barrels of water per day. Complete test facilities are present to provide accurate record of well performance. Produced water will pass through four states of hydrocarbon recovery (primary separation, skimmer, sump pile and water polisher) prior to discharge into the Gulf.

Discharge of gas will not occur under normal conditions. Only in case of emergency will gas be vented to protect operating personnel and the equipment. Gas is vented through a vent boom system with upstream scrubber to catch liquids.

All processing systems are protected against malfunction and possible pollution that may result from mechanical damage by a safety shutdown system as required by the regulations of OCS Order Number 5.

6. Environmental Safeguards

a. General

The goal of the development of the lease area is the recovery of hydrocarbons from the reservoir, in a safe manner, with minimal disruption of the environment. Various rules, regulations, codes, laws, and practices have been developed over the years, which will assist the operator in the development of the lease in this manner. OCS Order Number 7 specifically deals with the environmental safeguards of the drilling and production operations and these regulations are strictly adhered to by Pennzoil. Environmental safeguards are built into the operations in several ways: In the original design of equipment and the system of operations, in the training of personnel, in the preparation of procedures for operations and also in the procedures and availability of equipment for remedial actions in cases of emergencies.

b. Platform Design

The platform deck structure are designed to prevent pollution to the Gulf of Mexico by utilizing a system of curbs, gutters and surface drains which direct all drained fluids to a containment system. This system recovers all hydrocarbons before water is discharged into the Gulf of Mexico.

c. Drilling Operations

Drilling operations will be conducted under Pennzoil Company's supervision. Particular care is exercised to minimize disruption of the environment. Drilling mud additives are selected to minimize impact on the surroundings. Mud and drill cuttings will be treated to remove oil particles prior to discharge into the Gulf of Mexico. Items that cannot be properly treated will be transported to shore for disposal.

d. Training of Personnel

Regular training of operations personnel is a necessary complement to the pollution prevention features in the design of equipment and operations. Operator awareness is achieved by regular training sessions and enforcement of procedures. Inspections at irregular intervals are conducted in order to keep operations personnel alert.

7. Safety Standards and Features

As is the case with environmental safeguards, safety aspects must be a combination of design, operator awareness and the availability of suitable equipment. Over the years, the oil industry and the Federal Government have issued a considerable number of standards, recommended practices, and laws governing minimum requirements. Pennzoil Company is an active participant in the effort to increase the safety of oil and gas producing operations and adheres strictly to the guidelines developed for this purpose.

Design of equipment for Pennzoil Company operations requires the application of all available standards in the strictest manner. The most important of these are listed below:

- ... OSHA
- ... OSC Orders of Minerals Management Service
- ... API Standard and Recommended Practices
- ... ASME Codes
- ... ASTM Standards
- ... ANSI Standards
- ... AISC
- ... American Welding Society
- ... NFPA (NEC)

In addition to these requirements, Pennzoil requires experienced personnel, supervised by experienced engineers, to be assigned to the design, fabrication and installation of equipment.

Safety systems are incorporated in the design of the equipment as required by the OCS Orders of the Minerals Management Service. During drilling, operations are continuously monitored to watch for possible kicks or blowouts and facilities are included to warn and protect personnel. During production of the reservoir, the facilities are protected by safety systems in several ways. Individual process units shut down upon detection of an upset condition. In cases where upset process conditions present danger to platform personnel and equipment, all inflow from the wells will be stopped automatically with a final act of closing the subsurface safety valves which are located in the production string below the seafloor. These safety systems are provided in accordance with the requirements of OCS Order Number 5.

In addition to the fail-safe features of the equipment, support systems are installed on the platform which alert personnel in cases of hazardous conditions. In this category are systems which detect combustible gas mixtures, excessive heat, and smoke. These systems are installed strategically around the facilities. Audible alarms are generated, and in some cases safety systems are automatically triggered (deluge fire water, dry chemical, Halon, etc.). These systems are frequently checked for proper functioning in order to provide maximum safety on the platform.

The last complement to safety systems is the provision of adequate equipment to deal with emergencies. Fire fighting equipment (fire water, dry chemical, light water, Halon, CO₂) is located throughout the platform to overcome emergency conditions. Life saving equipment (rafts and bouys), is provided in adequate quantities for all operations personnel. Prior to installation of the production facilities, a detailed scheme of the safety systems on the platform will be submitted for Minerals Management Service approval in accordance with the requirements of OCS Order Number 5.

B. LOCATION

1. Location Map

A vicinity map showing the lease block relative to the shoreline is attached.

2. Description of Onshore Support Base Facility

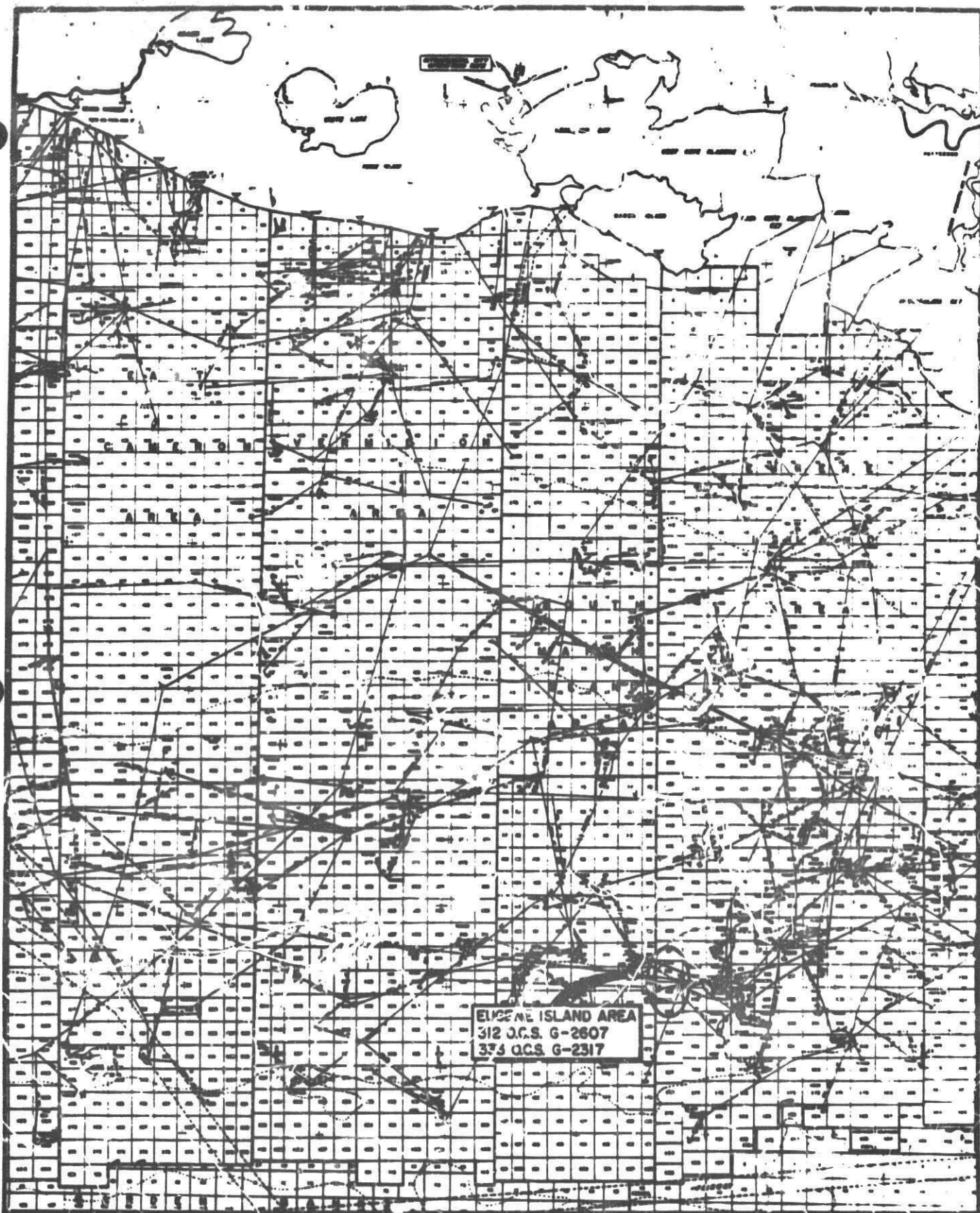
Onshore support for the offshore drilling and production operations will be provided from Pennzoil's base in Intracoastal City, Louisiana, where transportation of supplies and personnel will be coordinated. Technical and operational support for the drilling and production operations will be provided by Pennzoil's Lafayette office. The supporting staff in Lafayette consists of approximately 100 persons covering all disciplines for conducting oil and gas operations; exploration, drilling, production, construction, and administration. A layout of the shorebase is attached.

3. Platform Location Map

The location map showing the proposed platform location is attached.

4. Pipeline Location Map

The existing pipelines have been described in the "Letter of Application" of this document. A pipeline plat is attached.



PENNZOIL COMPANY

VICINITY MAP

SCALE: 1" 80,000'

SECTION 07 TOWNSHIP 14 SOUTH, RANGE 3 EAST

GREEN AND ROOT INC

DATE 06/06/2011 11:23:00

UNITED OIL CO OF CALIFORNIA

[illegible][illegible]

INTRACOASTAL CITY OPERATIONS BASE.

105-8444

BLK. 333

***A* PLATFORM □**

□ *B* PLATFORM

**PENNZOIL COMPANY
PLATFORM LOCATION
EUGENE ISLAND AREA BLOCK 333
O.C.S. G-2517
SCALE: 1" = 1000'**

SOUTH MARSH ISLAND AREA

POREY
BLK. 142
BLK. 143
POREY

EUGENE ISLAND AREA

WOOD
BLK. 312
BLK. 333
WOOD

TERAZO
BLK. 313
BLK. 332
TERAZO

BLK. 334
MARE

**PENNZOIL COMPANY
EUGENE ISLAND AREA
BLOCK 333**

SCALE: 1" = 3000'

C. RESULTS OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

1. Archaeological Survey

Eugene Island Blocks 312/333 lie outside the Cultural Resource Sensitivity Demarcation line; therefore no Archaeological Survey is required.

2. TVD and BHL

TVD and BHL information is attached.

Pennzoil Company considers this information CONFIDENTIAL, and exempt from disclosure. This information is included in the five Minerals Management Service copies of this Development/Production Plan only.

3. Shallow Hazards Report

Pennzoil's geophysicists have reviewed surveys of the area and have concluded that no unusual shallow drilling hazards exist for the proposed activities. A Shallow Hazards Report is on file at the Minerals Management Service.

4. Spider Map

A spider map for the proposed wells is attached.

Pennzoil Company considers this information CONFIDENTIAL, and exempt from disclosure. This information is included in the five Minerals Management Service copies of this Development/Production Plan only.

5. Structure Maps

The appropriate structure maps are attached.

Pennzoil Company considers this information CONFIDENTIAL, and exempt from disclosure. This information is included in the five Minerals Management Service copies of this Development/Production Plan only.

D. OIL SPILL CLEAN-UP INFORMATION

Pennzoil has a Disaster Contingency Plan which has been approved by the Area Supervisor of the Minerals Management Service. The Plan describes in detail procedures for action in dealing with any major disasters, such as oil spills, fires, blowouts, etc. It describes in detail:

- ... Duties to be performed when a disaster occurs, with an indication of priority.
- ... Assignment of duty and a designation of authority.
- ... Communication and reporting requirements (company and outside agencies).

As a member of the Clean Gulf Associates, Pennzoil has access to the equipment this association keeps on standby in the various areas of the Gulf of Mexico. An inventory of the available equipment along with deployment times is attached.

E. ADDITIONAL INFORMATION

1. List of Mud Additives

A list of commonly used mud additives utilized by Pennzoil is attached. Particular care is exercised by Pennzoil to minimize disruption of the environment. These drilling mud additives are selected to prevent a lasting impact on the surroundings.

CLEAN GULF ASSOCIATES

Clean Gulf Associates is a non-profit organization formed by companies operating in the Outer Continental Shelf. Their purpose is to provide a stockpile of oil spill containment and clean-up equipment for use by member (and non-member) companies.

Clean Gulf Associates has contracted with Halliburton Services in Harvey, Louisiana, to supply equipment, materials, and personnel needed to contain and clean up spills in the Gulf of Mexico. At the present time clean-up systems are maintained at five bases located at Grand Isle, Venice, Intracoastal City, Cameron, and Morgan City. These systems include: fast response open sea/bay, high volume open sea, shallow water and auxiliary shallow water skimmer systems, beach cleanup equipment, and helicopter spray systems. Also available are waterfowl rehabilitation units, bird scarers, and communications systems. In addition, offshore operators from the upper Texas Coast to the Mississippi Delta region, maintain a large inventory of 177 boats, 64 helicopters and 103 fixed-wing aircraft that can be put to use on short notice. A more detailed inventory of available equipment and materials follows.

CLEAN GULF ASSOCIATES

Available Equipment and Materials

		<u>Response Time</u>
1. Barge-Mounted, High Volume, Open Sea Skimmer System (HOSS Barge)	Grand Isle	3 days
2. Fast Response, Skid Mounted, Skimmer System	Venice, Intracoastal City, Galveston, Cameron	12 hours
3. Shallow Water Skimmer (Scoop, Jr.)	Morgan City	48 hours
4. Shallow Water Skimmer (CGA-50)	Morgan City	18 hours
5. 50 bbl. Oil Storage Barge	Venice, Grand Isle, Intracoastal City	24 hours
6. 36" Bennett or Uniroyal Boom pr 100' with Baskets and Anchoring Systems	Venice, Grand Isle, Intracoastal City	14 hours
7. Mini Fast Response, Skid-Mounted, Skimmer System (for standby on platform and drilling vessels) whether skimming or not		24 hours
8. Saucer Type Skimmer	Venice, Grand Isle, Intracoastal City	24 hours
9. 200 GPM Centrifugal, Portable Pump 3"	Venice, Grand Isle, Intracoastal City	12 hours
10. 100 GPM Air Diaphragm Pump 2"	Venice, Grand Isle, Intracoastal City	12 hours
11. Helicopter Spray System	Venice, Grand Isle, Intracoastal City	3 hours
12. Bird Scarers - Set of 24	Venice, Grand Isle, Intracoastal City	3 hours
13. Waterfowl Rehabilitation Station w/20 kw Generator	Grand Isle	Applicable Only to shallow water

14. 20 kw Generator	Grand Isle	12 hours
15. Polyethylene Foam Generation System	Venice, Grand Isle Intracoastal City	12 hours
16. Incinerator, w/Compressor and 2" Air Pump	Grand Isle	12 hours
17. 175 CFM Air Compressor	Grand Isle	12 hours
18. 40 CFM Air Compressor	Venice, Grand Isle, Intracoastal City	12 hours
19. Incinerator (w/Foam System Use Only)	Grand Isle	12 hours
20. Foam Pad Forms - Set of 4	Venice, Grand Isle Intracoastal City	12 hours
21. Hand Skimmers - Set of 5, w/manifold		12 hours

COMMONLY USED MUD ADDITIVES

Drilling Mud Components That May Be Utilized Offshore

<u>Product Trade Name</u>	<u>Common Name</u>	<u>Chemical Trade Name</u>
I. Weight Materials and Viscosifiers		
MIL-BAR ^R	barite	barium sulfate
MIL-GEL ^R	bentonite	bentonite
SALT WATER GEL ^R	attapulgate	attapulgate clay
II. Dispersants (Thinners)		
UNI-CAL ^R	lignosulfonate	sodium lignosulfonate
III. Filtration Control Additives		
LIGCON ^R	causticized lignite	NaOH treated lignite
CHEMTROL ^R -X	polymer-treated lignite	polymer-treated lignite
IV. Chemicals		
Caustic Soda	caustic	sodium hydroxide
Soda Ash	soda ash	sodium carbonate
Bicarb of Soda	bicarb	sodium bicarbonate
MIL-LIME	lime	calcium hydroxide
V. Specialty Additives		
LD-8 ^R	defoamer	non-hydrocarbon defoamer
Aluminum Stearate	defoamer	aluminum stearate
NOXYGEN TM	oxygen scavenger	catalized, sodium sulfite pw
NOXYGEN TM L	oxygen scavenger	catalized ammonium bisulfite solution
LUBRI-SAL TM	lubricant	biodegradable, non- polluting vegetable oil

SUPER SHALE-TROL^R 202

Shale-Trol

Aluminum organic
acid complete

MILCHEM^R MD

drilling detergent

drilling fluid detergent

VI. Loss of Circulation Additives

MIL-PLUG^R

LCM

ground nut shells

MILMICA^R

LCM

flame mica

Kwik-Seal

LCM

combination of granules,
flakes, and fibers

2. Production Rate

The expected initial production rate for the development will be 10 MMSCF/D of natural gas, 400 BOPD and 300 BCPD.

3. Water Depth

Average water depth in this block is 231 feet.

4. Description of Drilling Rig

a. General

Drilling operations will be conducted by a contractor under supervision of the staff of Pennzoil's Lafayette District. The contractor will supply the personnel required for the operations and a self-contained jack-up drilling unit, complete with living quarters. The drilling contract requires the contractor to perform the operations in accordance with Pennzoil's standards for safety and protection of the environment. A Pennzoil representative will supervise all activities.

The general arrangement of a jack-up drilling unit and complete inventory of equipment provided by the contractor are attached.

b. Environmental Safeguards

... General

The goal of this Development/Production Plan is the gathering of more information on the geology of the lease area, in a safe manner, with minimal disruption of the environment. Various rules, regulations, laws and practices have been developed over the years which will assist the operator to conduct operations in this manner. OCS Order Number 7 specifically deals with the environmental safeguards and safety of the drilling and production operations. These regulations are strictly adhered to by Pennzoil.

Environmental safeguards are built into the operations in several ways: in the original design of equipment and system of operations, in the training of personnel, in the preparation of procedures for operations and also in the procedures and availability of equipment for remedial actions in cases of emergencies.

Operations will be conducted under the conditions described on the "Application for Permit to Discharge" on file with the Minerals Management Service. Pennzoil conducts monthly tests to ensure that liquid wastes discharged into the Gulf of Mexico comply with E.P.A. regulations.

... Environmental Safeguards in the Design

The drilling unit is built to prevent pollution of the Gulf of Mexico by utilizing a system of curbs, gutters and surface drains which direct all fluids to a containment system. This system recovers hydrocarbons before water is discharged into the Gulf of Mexico.

Liquid waste material, including sewage from the living quarters will be treated in a sewage plant which adheres to Minerals Management Service standards on the drilling unit prior to discharge into the ocean. Solid waste materials are compacted and transported to shore for disposal.

Drilling operations are monitored by the Pennzoil representative on board. Mud and drill cuttings will be treated to remove oil prior to discharge into the Gulf of Mexico. Items that cannot be treated properly will be transported to shore for disposal.

... Training of Personnel and Procedures

Regular training of operations personnel is a necessary complement to the pollution prevention features in the design of equipment and operations. Operator awareness is achieved by regular training and enforcement of procedures. The drilling unit is inspected daily. A procedure for the reporting of and dealing with oil spills has been established by Pennzoil Company in accordance with the requirements of OCS Order Number 7, which is incorporated in Pennzoil's "Disaster Contingency Plan".

c. Safety Features

As is the case with the environmental safeguards, safety aspects must be a combination of design, operator awareness and the availability of suitable emergency equipment. Over the years, the Oil Industry and the Federal Government have issued a considerable number of standards, recommended practices and laws governing minimum requirements. Design of equipment for Pennzoil's operations requires the application of all available standards in the strictest manner. The most important of these are listed below:

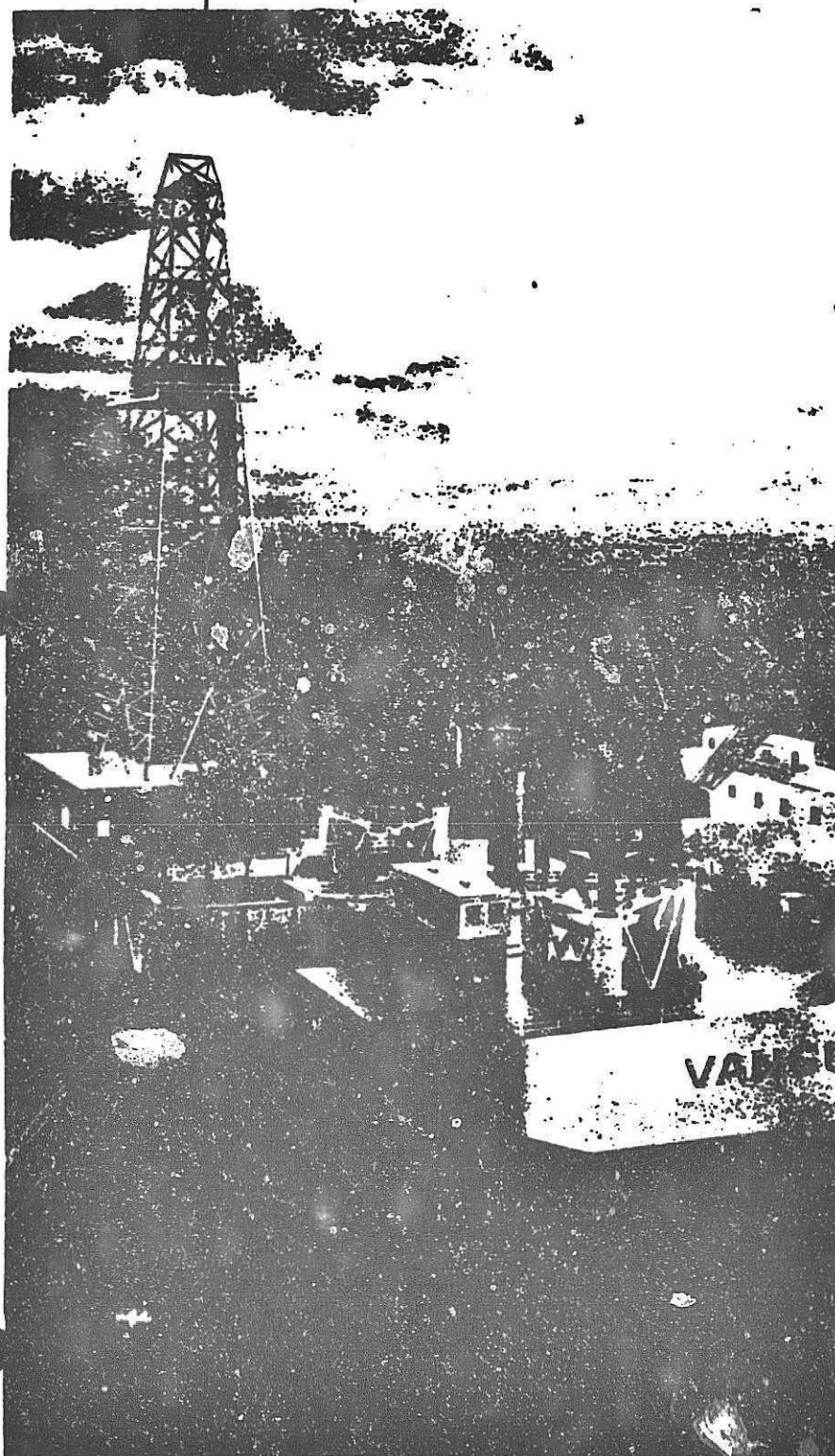
- ... OSHA
- ... OCS Orders of the Minerals Management Service
- ... API Standards and Recommended Practices
- ... ASME Codes
- ... ANSI Standards
- ... AISC
- ... American Welding Society
- ... NFPA (NEC)

Safety systems are incorporated in the design of equipment and operational procedures as required by the OCS Orders of the Minerals Management Service. OCS Order Number 2 specifically provides detailed information on the drilling operations and Pennzoil adheres strictly to these rules and regulations.

Automatic gas and fire detection systems are incorporated in the unit to alert operations personnel in case of emergencies. Equipment to deal with emergencies (life vests, rafts, buoys, fire extinguishing equipment, life boats, etc.) is located strategically on the drilling unit. Frequent training sessions are held to keep operations personnel alert and familiar with procedures and operating instructions for equipment.

5. Emissions Report

An Emissions Report for the proposed activity is attached. The results of this report show that the amount of emissions expected for this activity are below the exemption amount and that further review is not required for the proposed development.



Designed by Friede & Goldman Ltd. and constructed by Ingalls Shipbuilding Division, Union Systems, Inc. in accordance with the rules of the American Bureau of Shipping, the Unit is ABS classed as an A-1 self-elevating Mobile Drilling Unit, and has three independent truss legs raised and lowered by means of a rack and pinion electric drive.

VESSEL:

Dimensions:

180' length, 175' beam, 25' deck containing complete rig, and a working and living areas 70' x 70' heliport. Draft while afloat under tow: 15'.

Legs: Three 32' 6" (center to center of cord) triangular truss legs, 395' long, terminating in 30' diameter spud cans.

Jacks: National Supply Company and pinion type electric jacking system.

Load Capacity: Variable load capacity is defined as the sum of materials not permanently fixed as part of "light weight of rig" and includes drilling hook load.

7,000,000 lb. variable load capacity while jacking.

5,200,000 lb. variable load capacity while drilling.

4,000,000 lb. while afloat with 15' hull draft.

2,500,000 lb. for survival during hurricane conditions.

With derrick/drawworks skid cantilevered 35' from center of well to transom of vessel, drilling hook load is 1,000,000 lb. at 725,000 lb. at 40'.

OPERATING CONDITIONS:

This unit is designed to work in various conditions and at varying water depths as per the following chart:

Vanguard I

Water Depth (ft)	200	250	300
Maximum Wave Height (ft)	61	57	50
Corresponding Wave Period	13.5 seconds		
Sustained Wind Velocity (MPH)	15	115	115
Air Gap (ft)	2	44	37
Leg Penetration (ft)	10	10	10

Capacities:

Potable Water:	1200 bbls.
Fuel oil:	1900 bbls.
Drill water:	4800 bbls.
Pipe rack area:	
(on cantilevered beam)	2200 sq. ft.
(on main deck)	7500 sq. ft.
(combined)	9700 sq. ft.
Liquid mud system:	1995 bbls.
Sack storage:	3400 sacks
Bulk mud/cement:	7200 cu. ft.

DRILLING EQUIPMENT

Blowout Preventers:

One 21 1/4" Hydril, 2000 MSP "special" annular BOP

One 13 1/2" Shaffer, 5000 MSP annular BOP.

Two 13 1/2" Cameron Type "U" Double ram BOPs, 10,000 MSP with 4 1/2" outlets below each set of rams.

Blowout Preventer Control Unit:

One Ross-Hill Controls Corporation BOP control system, model C-225-1E30-2AG. This is a 225 gallon system with a 500 gallon fluid reservoir. The triplex pump is powered by a 30 HP motor and provides 14.2 GPM at 3000 psi. Two air operated remote control panels will be provided.

Drawworks:

Mid-Continent U-1220-EB drawworks, 2000 rated HP, complete

with Baylor model 6032 eddy current brake, two G.E. 752 drilling motors, and sandline assembly with 15,000 ft. of 3/16" wire rope.

Pumps:

Two Gardner-Denver model PZ-10 triplex mud pumps, 1350 IHP 7" maximum bore by 10" stroke, each powered by two GE 752 DC electric motors. Each pump is complete with pulsation dampener and mud charging pump.

Diesel-Electric Power:

Five engine generator sets each consisting of Caterpillar model D-398 turbocharged and after cooled engine driving a KATO double bearing generator rated at 1000 KVA, 0.8 power factor, 60 Hz., 1200 rpm, 3 phase, 600 volt. All engines and generator sets are built to Marine Society specifications. One engine/generator set is equipped for radiator cooling, and has full ABS inspection and certification for emergency use. SCR power system for control of five Cat. D-398 engines will consist of four Ross-Hill model 1605 SCR cubicles rated at 1800 amps. The entire electrical distribution system, including transformers, switchboards, and motor control centers, is manufactured and supplied by Ross-Hill Corporation and is mounted in a self-contained, air-conditioned enclosure.

Derrick and Substructure:

Standard Derrick, 147' high with a 30' x 30' base, 1,000,000# static hook load with 12 lines. Oilwell Crown block rated 583 tons with seven 60" sheaves grooved for 1 1/2" drill line.

24' high substructure having a 750,000 lb. casing capacity, and a setback capacity of 500,000 lb. Two HSMC 125 ton 27" stroke hydraulic jacks.

Cranes:

Two Baker Marine Corporation series 900 hydraulic "king post" type cranes with 100' boom length rated 40,000 lbs. at a radius of 40'. Each is powered by a GMC 6V-72 diesel engine.

Rotary & Traveling Equipment

Gardner-Denver Supply Model RT 37 1/2 rotary table with 37 1/2" opening independently driven by one GE 752-R DC electric motor, 800 HP, thru a two-speed transmission. 550 ton McKissick Type RP traveling block with six 60" x 1 3/8" sheaves; 500 ton Byron-Jackson 5500 Dynaplex hook; One 500 ton Oilwell swivel; 46' x 5 1/4" hex kelly.

Drill Pipe and Drill Collars

8,000' of 5" 19.50# Grade E Range two drill pipe with 5" X-Hole tool joints.

7,000' of 5" 19.50# Grade G Range two drill pipe with 5" X-Hole tool joints.

Nine — 7 1/4" OD x 2 1/16" ID x 30' long drill collars with 6 5/8" API Reg. connections.

Nine — 6 1/2" OD x 2 1/16" ID x 30' long drill collars with 5" H-90 connections.

Crew Quarters:

Air conditioned, weatherized accommodations for 56 men, including galley, sleeping quarters, bath facilities, recreation area and laundry. Heliport suitable for Sikorsky S-61.

Rental Equipment:

Halliburton cementing skid comprised of two 4" x 8" Halliburton HT-400 triplex cementing pumps (12,000 psi maximum pressure) each powered by GM model 8V-71, diesel engines (280 HP) with 44-L mixing unit.

Automatic gas and fire detection systems are incorporated in the unit to alert operations personnel in case of emergencies. Equipment to deal with emergencies (life vests, rafts, buoys, fire extinguishing equipment, life boats, etc.) is located strategically on the drilling unit. Frequent training sessions are held to keep operations personnel alert and familiar with procedures and operating instructions for equipment.

5. Emissions Report

An Emissions Report for the proposed activity is attached. The results of this report show that the amount of emissions expected for this activity are below the exemption amount and that further review is not required for the proposed development.

PENNZOIL COMPANY

EMISSIONS REPORT

E.I. BLOCKS 312/333

A. General

Pennzoil Company has filed an application for a "Permit to Discharge" in accordance with the requirements of the Environmental Protection Agency.

In preparation of the estimated emissions during the drilling and production phase, extensive use has been made of the EPA publications AP-42 and "Atmosphere Emissions from Offshore Oil and Gas Development and Production".

B. Drilling Operations

Emissions discharged into the ocean will be primarily completion fluid, washed well cuttings, cooling water and sewage effluent. All these wastes will be treated prior to discharge into the sea to ensure a minimal impact on the environment. In cases where satisfactory treating cannot be accomplished, wastes will be collected and brought to shore for disposal. The following figures show approximate quantities for wastes in this category (for a typical 10,000 foot well):

... Drill Cuttings	800 tons per well
... Drilling Fluid	7,000 barrels per well
... Sanitary/Sewage Effluent	4,000 gallons per day
... Cooling Water	1,000,000 gallons per day

Emissions discharged into the air during the drilling and completion phases will be primarily associated with power generation. The following table lists emissions during the drilling operations (based upon Table 7.3.3-1 of EPA Publication AP-42):

<u>Emission Factor in g/hp-hr</u>				
NO _x	SO _x	HC	CO	Particulates
14.0	0.95	1.12	3.03	1.0

Total emissions can be found utilizing the formula presented in EPA Publication PB-272-268:

"Emission Rate = Emission Factor x Total Well Footage x 60 hp-hr/ft"

The schedule calls for the drilling and completion of 4 wells in 1988 for a total footage of 57,700'. The following overall emissions estimate (tons/yr) applies for the drilling and completion of the proposed development wells:

YEAR	ACTIVITY	NO _x	SO _x	HC	CO	Particulates
1988	Drilling & Completion	48.29	3.21	3.86	10.45	3.45

In section D below, the total emissions per year will be shown for the expected period of completion and production.

C. Production Operations

Emissions discharged into the ocean during production operations are produced formation water. The waste product is treated to tightly controlled standards prior to discharge into the ocean.

Emissions discharged into the air during the production phase will primarily be associated with power generation.

Venting of gas will only happen in emergency conditions to protect human lives and equipment.

Tables 5.1 in the EPA publication "Atmospheric Emissions from Offshore Oil and Gas Development and Production" shows emission factors as presented below:

SOURCE:	NO _X	SO _X	HC	CO	Particulates
Power Generation Gas Prod. Mg/SCF	8.1	0.4	0.8	2.2	0.3
Value Seals Mg/10 ⁹ SCF (gas)	neg.	neg.	1	neg.	neg.
Value Seals Mg/10 ⁶ bbl (oil)	neg.	neg.	0.04	neg.	neg.

For an anticipated production of 10 MMSCF/D, 400 BOPD, and 200 BCPD, the total expected emissions into the air during production can be summarized as follows:

TOTAL EMISSIONS/TONS PER YEAR

SOURCE:	NO _X	SO _X	HC	CO	Particulates
Power Generation	32.56	1.6	3.21	8.84	1.20
Value Seals (gas)	neg.	neg.	4.01	neg.	neg.
Value Seals (oil)	neg.	neg.	neg.	neg.	neg.
TOTAL:	32.56	1.6	7.22	8.84	1.20

D. Total Emissions into the Air from Drilling and Production

The tabulation below shows total expected emissions into the air for each year of this plan. Construction and completion activities have been estimated to result in the same emissions into the air as drilling.

YEAR	ACTIVITY	NO _X	SO _X	HC	CO	Particulates
1988	Drilling & Completion	48.29	3.21	3.86	10.45	3.45
1989-1995	Production	32.56	1.6	7.22	8.84	1.20

E. Exemption Test

The Rules and Regulations defined in the Federal Register 250.57 of March 7, 1980 require testing against the emission exemption amount as follows:

$$E = 3,400 (D^{2/3}) \text{ for CO}$$

and

$$E = 33.3D \text{ for total suspended particulates}$$

For this location a distance of 58 miles applies. This makes the exemption amounts as follows:

$$E = 50,806 \text{ ton/yr. for CO}$$

and

$$E = 1931 \text{ ton/yr. for SO}_x, \text{ NO}_x, \text{ HC and Particulates}$$

The calculated amounts for both CO and the total suspended particulates are below the exemption amount. Therefore, further air quality review is not required for the proposed development and production activities in the lease area.

F. Transportation

Since transportation requirements are combined for operations in the various blocks in the vicinity, it is difficult to quantify the exact contribution to the total emissions as a result of this development.

Typical figures for emission from crew boats and supply boats, based on using approximately 1000 gallons per day of fuel, are as follows (based on EPA figures):

	<u>Crew Boats</u>	<u>Supply Boats</u>
... NO _x	575 lbs/day	270 lbs/day
... SO _x	35 lbs/day	27 lbs/day
... CO	110 lbs/day	110 lbs/day
... HC	40 lbs/day	50 lbs/day
... Particulates	35 lbs/day	unknown

Typical fuel consumption for helicopters is as follows:

... Small Helicopter	30 gallons per hour flying
	10 gallons per landing and take-off cycle
... Large Helicopter	100 gallons per hour flying
	25 gallons per landing and take-off cycle

Assuming 1 landing and take-off cycle per hour of flying, the following emissions would result per hour:

	<u>Small Helicopter</u>	<u>Large Helicopter</u>
... NO _x	1 lb/hour	3 lbs/hour
... SO _x	1.5 lbs/hour	5 lbs/hour
... CO	10 lbs/hour	30 lbs/hour
... HC	1 lb/hour	3 lbs/hour
... Particulates	5 lbs/hour	15 lbs/hour

G. Onshore Base

The additional level of emissions from this area that results from this development will be negligible based on the fact that the number of personnel and services required for this activity will not increase significantly.