

In Reply Refer To: RP-2-1

JUN 10 1986

Sohio Petroleum Company
Attention: Mr. Cary W. Kerl
Post Office Box 51468
Lafayette, Louisiana 70505

Gentlemen:

Reference is made to your Initial Plan of Exploration and Environmental Report received May 27, 1986, for Lease OCS-G 5590, Block 368, Ship Shoal Area. This plan includes the activities proposed for Wells A through F.

In accordance with 30 CFR 250.34, revised December 13, 1979, and our letter dated January 29, 1979, this plan has been determined to be complete as of June 10, 1986, and is now being considered for approval.

Your plan control number is N-2478 and should be referenced in your communication and correspondence concerning this plan.

Sincerely yours,

(Orig. Sgd.) A. Donald Giroir

Deputy Regional Supervisor
Rules and Production

Lease OCS-G 5590 (OPS-3-2) (FILE ROOM)
OPS-3-4 w/Public Info. Copy of the plan and ER (PUBL.REC.)
DG-6

ADGobert:amw:5/29/86 Soh15590 Disk 1a

Office of
Program Services

JUN 16 1986

Information Services
Section



SOHIO PETROLEUM COMPANY

LAFAYETTE LOUISIANA 70505
P.O. BOX 51488
OIL CENTER STATION

May 22, 1986

MINERALS MANAGEMENT SERVICE

MAY 27 1986

PUBLIC
INFORMATION

RULES AND PRODUCTION

Mr. D. W. Solanas
Regional Supervisor
Offshore Operations Support
U.S. Department of the Interior
Minerals Management Service
P. O. Box 7944
Metairie, LA 70010-7944

Re: Plan of Exploration
Ship Shoal Block 368
OCS-G-5590, Wells A, B, C, D, E & F
Offshore Louisiana

Dear Mr. Solanas:

Please find enclosed five (5) Confidential and six (6) Public Information copies of the Plan of Exploration (POE) for the above referenced project. Accompanying this POE are one (1) set of processed seismic line data offsetting each well location, and two (2) copies of the Hazard Study by John Chance & Associates, Inc. for Ship Shoal Block 368.

If you have questions or require additional information, please call me at (318) 989-4200.

Sincerely,

Cary W. Kerlin
Regulatory Supervisor
Lafayette District

SFB/brg
Attachments

: Mr. W. D. Harris

PLAN OF EXPLORATION

OCS-G-5590

SHIP SHOAL BLOCK 368

OFFSHORE LOUISIANA

May 22, 1986

LIST OF ATTACHMENTS

- A. Description of Drilling Rig
- B. Letters from Sohio Petroleum Company's Regional Geophysicist
- C. Vicinity & Well Location Plats
- D. Geologic Cross Section & Structure Maps
- E. Drilling Mud Components
- F. Environmental Report and Coastal Zone Management Consistency Certification

SOHIO PETROLEUM COMPANY
SHIP SHOAL BLOCK 368
OCS-G-5590
OFFSHORE LOUISIANA

Pursuant to the requirements of 30 CFR 250.23.1, Sohio Petroleum Company submits the following Plan of Exploration (POE) for Ship Shoal Block 368.

(i) EXPLORATION ACTIVITY

The proposed exploration activity for Ship Shoal Block 368 consists of drilling Wells "A, B, C, D, E & F" from six (6) different locations. The "A, B, C, D & E" locations will be drilled as straight holes and the "F" location will be drilled as a directional hole. The estimated time to drill these six (6) exploratory wells is about five hundred forty (540) days, with a January 1, 1987 anticipated spudding date for the "A" location.

(ii) PROPOSED DRILLING RIG

Sohio presently does not have a rig under contract for location "A, B, C, D, E, or F"; however, the wells will be drilled with a semi-submersible drilling unit, similar to the "PACESETTER III" owned by Western Oceanic. This rig is capable of drilling to 25,000' in water depths of 1200'. The rig's specifications, BOP and Diverter systems are shown in Attachment A.

(iii) GEOPHYSICAL WORK

All of the geophysical work preparatory to initiation of exploratory operations has been completed. A velocity survey may be run on these wells when total depth has been reached. No other geophysical work is planned unless data obtained from drilling operations necessitates additional definition detail from conventional reflection seismic methods.

Two (2) copies of the shallow hazard report entitled, "Hazard Study Blocks 360 & 368, Ship Shoal Area", prepared by John Chance & Associates, Inc. are submitted with this POE.

The Ship Shoal Hazard Study has been reviewed by Mr. Jack Golden, Sohio's Regional Geophysicist. Letters from Mr. Golden in which he agrees with John Chance's conclusions and addresses shallow hazards at each well site, are included as Attachment B.

(iv) VICINITY AND LOCATION MAPS

Attachment C-1 is a vicinity map depicting the subject tract's position relative to the Louisiana shoreline. No new onshore facilities will be required for drilling these proposed exploratory wells. Existing service company facilities in the Fouchon Area have sufficient capacity to accommodate this project without modification or expansion.

Attachment C-2 shows the proposed surface locations for Wells "A, B, C, D & E". The Bottom Hole Location for the "F" well is shown on the Confidential copies only. The total depth, water depth and surface locations for each of these wells is as follows:

Well "A"	
TD:	10,000'
Water Depth:	452'
Surface Location:	2,500' FNL 2,500' FEL
Well "B"	
TD:	10,000'
Water Depth:	460'
Surface Location:	5,150' FNL 1,700' FEL

Well "C"	
TD:	10,000'
Water Depth:	446'
Surface Location:	1,000' FNL 700' FEL
Well "D"	
TD:	10,000'
Water Depth:	453'
Surface Location:	3,300' FNL 5,250' FEL
Well "E"	
TD:	10,000'
Water Depth:	446'
Surface Location:	3,000' FNL 8,900' FEL
Well "F"	
TD:	13,500'
Water Depth:	496'
Surface Location:	10,900' FNL 1,900' FEL

(v) STRUCTURE MAPS AND CROSS SECTIONS

Structure maps and cross-sections are included in the five (5) confidential copies of this Plan as Attachment D. Depths shown on cross-sections and structure maps are sub-sea measurements.

(vi) OTHER RELEVANT DATA

(A) Oil Spill Contingency Plan

Sohio Petroleum Company is a member of Clean Gulf Associates (CGA) and would utilize that organization's equipment to clean up an oil spill. The closest CGA bases are at Fouchon, Grand Isle and Houma, Louisiana, respectively. Response times for CGA Fast Response Units from these three (3)

locations would be 12, 13 and 13 hours, respectively. Manpower to operate the CGA's equipment would be provided by Peterson Maritime Services, Inc., whose personnel are trained for oil spill clean-up operations. Sohio's supervisory personnel would direct the clean-up operations until successfully completed. Additional details can be found in Sohio's 1985 Oil Spill Contingency Plan, which has been approved by the Minerals Management Service.

(B) List of Mud Components

Attachment E is a list of the proposed drilling mud components and additives, including the common and chemical trade name of each additive.

(C) Gaseous Emissions

Exploratory drilling operations will be conducted from the surface sites described in section (iv) using the mobile drilling unit described in Section (ii). Operations will be of a maximum duration of five hundred forty (540) days.

At the drill site, gaseous emissions will be generated by the rig engines, the attendant work boat, stand-by boat, crew boat, and helicopter, and the production testing of possible prospective reservoirs. Gaseous emissions at the dock site in Fouchon, Louisiana, will be generated by the work boat, crew boat and helicopter. Onshore staging for this operation will be from existing facilities, so there will be no significant increase in emissions for this activity. Projected emissions from this activity have been calculated and are presented in the environmental report as Attachment F.

(D) Coastal Zone Management (CZM) Consistency Certification

Proposed exploration activities for Ship Shoal Block 368 are consistent with Louisiana's approved CZM program. The Environmental Report and Consistency Certification are included as Attachment F.

Western Pacesetter III

Semi-Submersible

DRILLING & WORKOVER EQUIPMENT

Drawworks:

Continental Emsco C-3, type II, 1 1/2" drill line driven by two GE 800 HP electric motors.

Derrick:

Lee C. Moore 152' x 40' cantilever type mast. Nominal hook load capacity 1,300,000 lbs.

Substructure:

Offshore Systems 33' high with 40' x 51' base and 50' x 52'6" floor. Substructure capacity: simultaneous 1,000,000 lbs., setback 800,000 lbs.

Rotary & Traveling Equipment:

Continental Emsco 49 1/2" T-4950 rotary

Continental Emsco RA-60-6 six sheave block

B.J. "5,000" Dynaplex hook

Continental Emsco LB-500 swivel

Mud Pumps:

Two Continental Emsco FA-1600 7" x 12" triplex pumps each driven by 2 GE 800 HP motors.

Power:

Four EMD MD 16-645-E8 diesel power units rated at 2200 HP each.

Light Plant:

Four 1500 KW AC generators

One GM 8V71 diesel driving a 200 KW AC generator for emergency. Ross Hill SCR driven system

Drilling Equipment Motors:

Seven GE 752 DC motors

Blow Out Preventers:

Two Cameron type U double 18 3/4" 10,000 psi WP

Two Shaffer spherical 21 1/4" 5,000 psi WP

Choke Manifold:

Two Swaco 10,000 psi super chokes

Two Cameron 10,000 psi hand adjustable chokes

Two Cameron 10,000 psi positive chokes

All for H₂S Service

Tensioners:

Six Rucker 80,000 lb. riser tensioners

Six Rucker 16,000 lb. guideline tensioners

Mud Mixing:

Three Harrisburg 5" x 6" 1000 GPM pumps

Desilter/Desander:

One Demco model 414-H desilter with fourteen 4" H₂O cones

One Demco model 83 desander with three 8" cones

Air Compressors:

Three Ingersoll-Rand 1000 air compressors driven by 100 HP 1800 RPM electric motors

Drill Pipe:

10,000' of 5" O.D. X-hole grade E

5,000' of 5" O.D. H-hole grade S135

Drill Collars:

6-9 1/2" O.D. x 30', 18-8" O.D. x 30'

30-6 1/2" O.D. x 30', 30-5" O.D. Hevi-Wate by 30'

Miscellaneous:

Cementing unit Dowell

Power tongs Lamb hydraulic

Kelly Spinner Varco 6500 hydraulic

Logging unit Schlumberger

Wire Line Unit Mathey

Motion Compensator Rucker DSC-18-400-L-O-D

RIG EQUIPMENT

Cranes:

Two Bucyrus-Erie MK-60, 120' booms, 47 tons at 25 feet

One Bucyrus-Erie MK-60, 80' boom, 53 tons at 20 feet

Mooring System:

Four Skagit WEHG2W-48 double windless units each powered by a GE 800 HP electric motor and incorporating a Martin-Decker dynamic load tension indicating device. Each of the eight 30,000 lb. Baldt-LWT anchors is attached by 3500' 8 1/2" chain.

Propulsion Units:

Two 10" propellers in fixed Kort nozzles powered by eight GE 750 HP DC traction motors (4 on each shaft).

Crew Quarters:

Air conditioned crew quarters for 94 men

Winterizing Equipment:

Derrick floor shields, driller enclosure, derrickman wind-break, steam or electric tracing for pipelines, de-icing facilities, and steam or electric heating for all working space.

Diving Area:

Handling equipment for a diving bell. Diving basket. Space for landing divers; for decompression chamber and miscellaneous diving equipment storage.

Lifeboats:

Two rigid, fully enclosed, motorized, 64 person lifeboats

Four 25 man inflatable life rafts

Parts Warehouse:

Full complement of equipment part spares supervised by a full time parts warehouseman.

Heliport:

Approved helicopter refueling equipment and foam fire fighting equipment. Meets all 1973 government

Western Pacesetter III

Semi-Submersible

RIG STORAGE

Upper Deck:	
Pipe racks (6240 sq ft)	2,184,000 lbs
Open deck (4590 sq ft)	250 lbs/ft
Main Deck:	
Open deck (1,951 sq ft)	250 lbs/ft
Spider deck (1,951 sq ft)	250 lbs/ft plus 100 L.T.
Weight Material & Cement:	
Bulk	9,000 cu. ft
Sack	6,000 sacks
Liquids:	
Drilling Mud	1,700 barrels
Fuel Oil	214 barrels
Lube Oil	26 barrels
Potable Water	100 barrels
Galley Supplies:	
Refrigerated	1,260 cu. ft.
Dry storage	1,183 sq.ft.
Lower Hulls:	
Drill Water	12,176 barrels
Fuel Oil	6,744 barrels
Potable Water	1,227 barrels
Ballast	46,616 barrels
Caissons:	
Ballast	44,452 barrels

RIG DESCRIPTION

Vessel Dimensions:	
Overall length	260'-5 1/2"
Beam overall	217'-1"
Height, keel to top of main deck	111'
Lower hulls (2):	
Beam	50'
Length of hull	260'
Distance off center line to center of hull	75'
Depth of hull	20'
Caissons (6):	
Diameter	32'
Elevation of top above keel	111'
Overall trans. spcg. c-c	150'
Overall long' spcg. c-c	90'
Upper structure:	
Main deck length overall	231'-5 1/2"
Main deck beam overall (max.)	191'
Spider deck length	66'-6"
Spider deck width	34'

Substructure

Length	51'-6"
Width	40'
Design Operating Conditions:	
Maximum water depth	1580'
Drilling depth capacity	25,000'
Draft	19-22' 60' 45'
Displacement	13,550 S.T. 21,600 S.T. 19,130 S.T.
Variable deck	
Load	1,625 S.T. 2,240 S.T. 2,240 S.T.
Wind speed (one-min. av.)	100 knots
Wave height (maximum)	100 ft
Current speed	5 knots
Natural periods:	
Heave	19.4 19.4
Pitch	34.0 33.5
Roll	34.0 30.0
Caissons (6):	
Diameter	32'
Elevation of top above keel	111'
Overall trans. spcg. c-c	150'
Overall long' spcg. c-c	90'
Upper structure:	
Main deck length overall	231'-5 1/2"
Main deck beam overall (max.)	191'
Spider deck length	66'-6"
Spider deck width	34'
Substructure:	
Length	51'-6"
Width	40'
Design Operating Conditions:	
Maximum water depth	1,200'
Drilling depth capacity	25,000'
Draft	19-22' 60' 45'
Displacement	13,550 S.T. 21,600 S.T. 19,130 S.T.
Variable deck	
Load	1,625 S.T. 2,240 S.T. 2,240 S.T.
Wind speed (one-min. av.)	100 knots
Wave height (maximum)	100 ft.
Current speed	5 knots
Natural periods	
Heave	19.4 19.4
Pitch	34.0 33.5
Roll	34.0 30.0

ATTACHMENT A

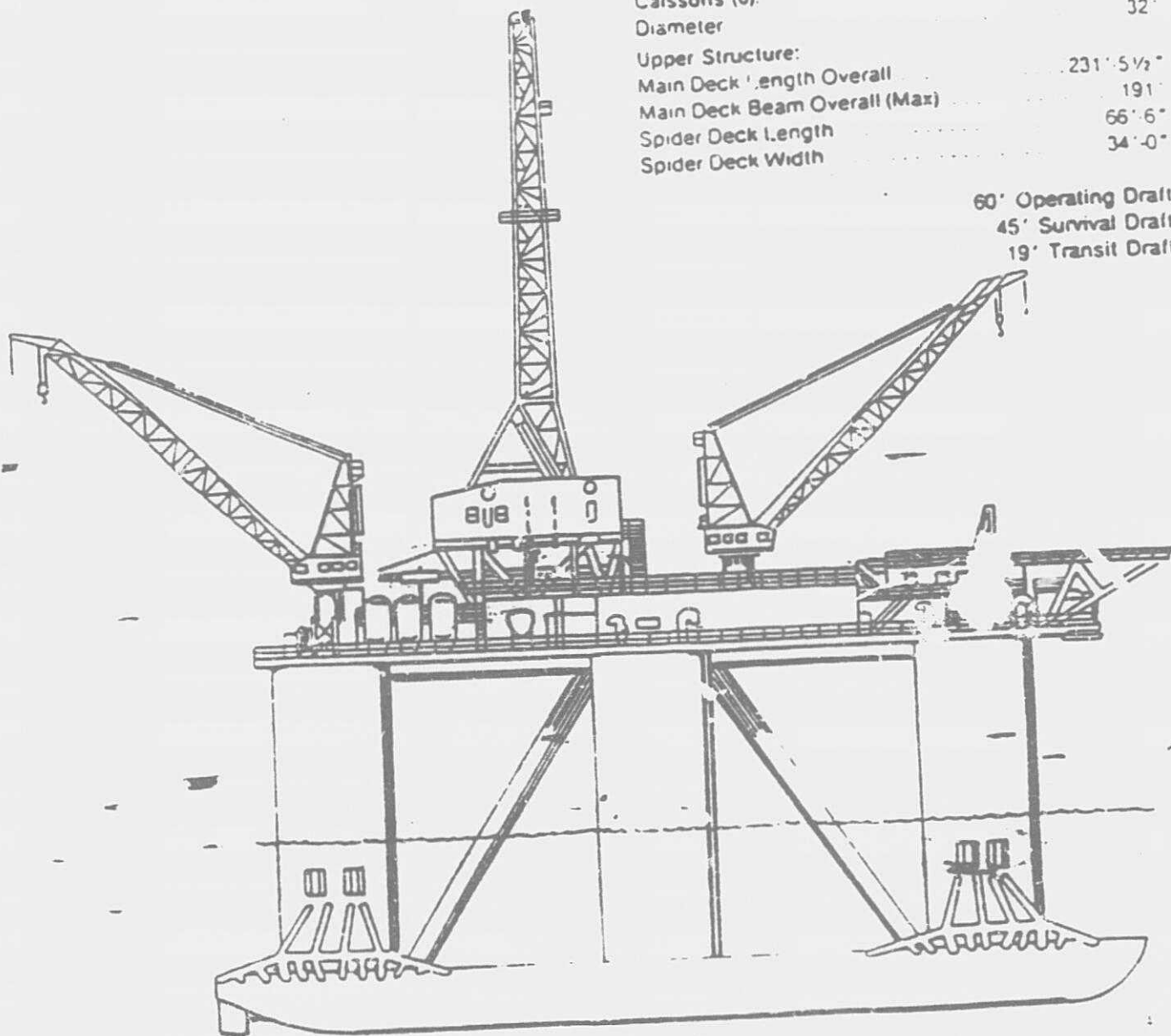
Western Pacesetter III

Semi-Submersible

RIG DESCRIPTION

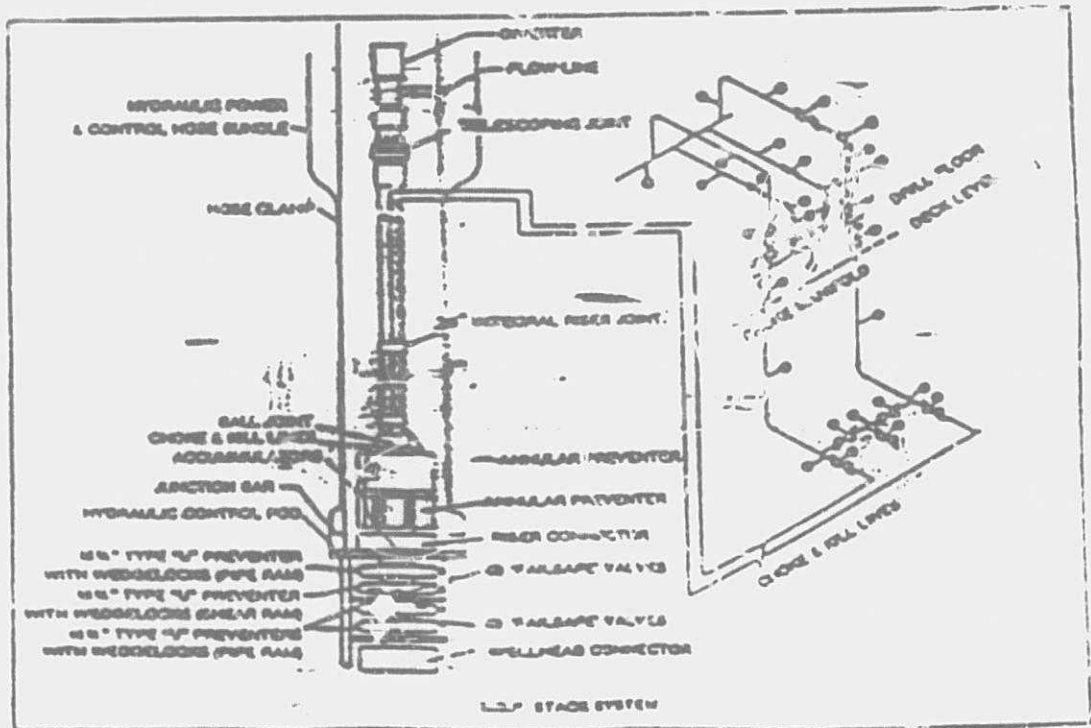
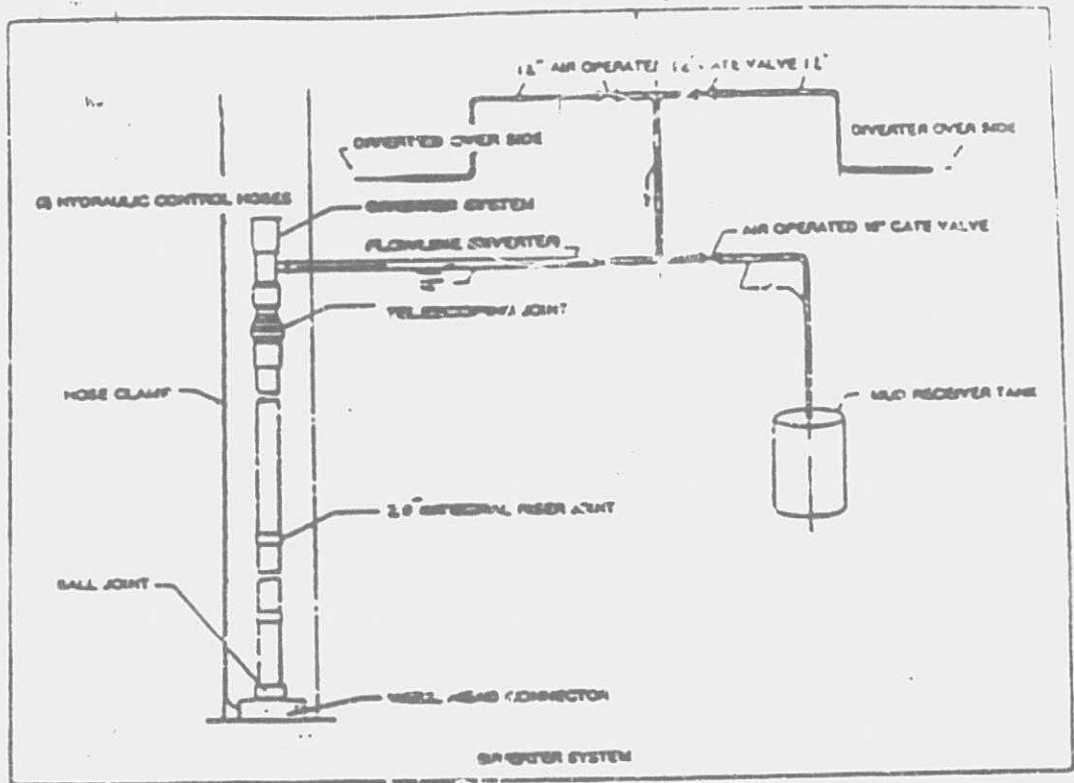
Lower Hulls (2):	50'
Beam	260'
Length of Hull	20'
Depth of Hull	
Caissons (6):	32'
Diameter	
Upper Structure:	
Main Deck Length Overall	231'-5 1/2"
Main Deck Beam Overall (Max)	191'
Spider Deck Length	66'-6"
Spider Deck Width	34'-0"

60' Operating Draft
45' Survival Draft
19' Transit Draft

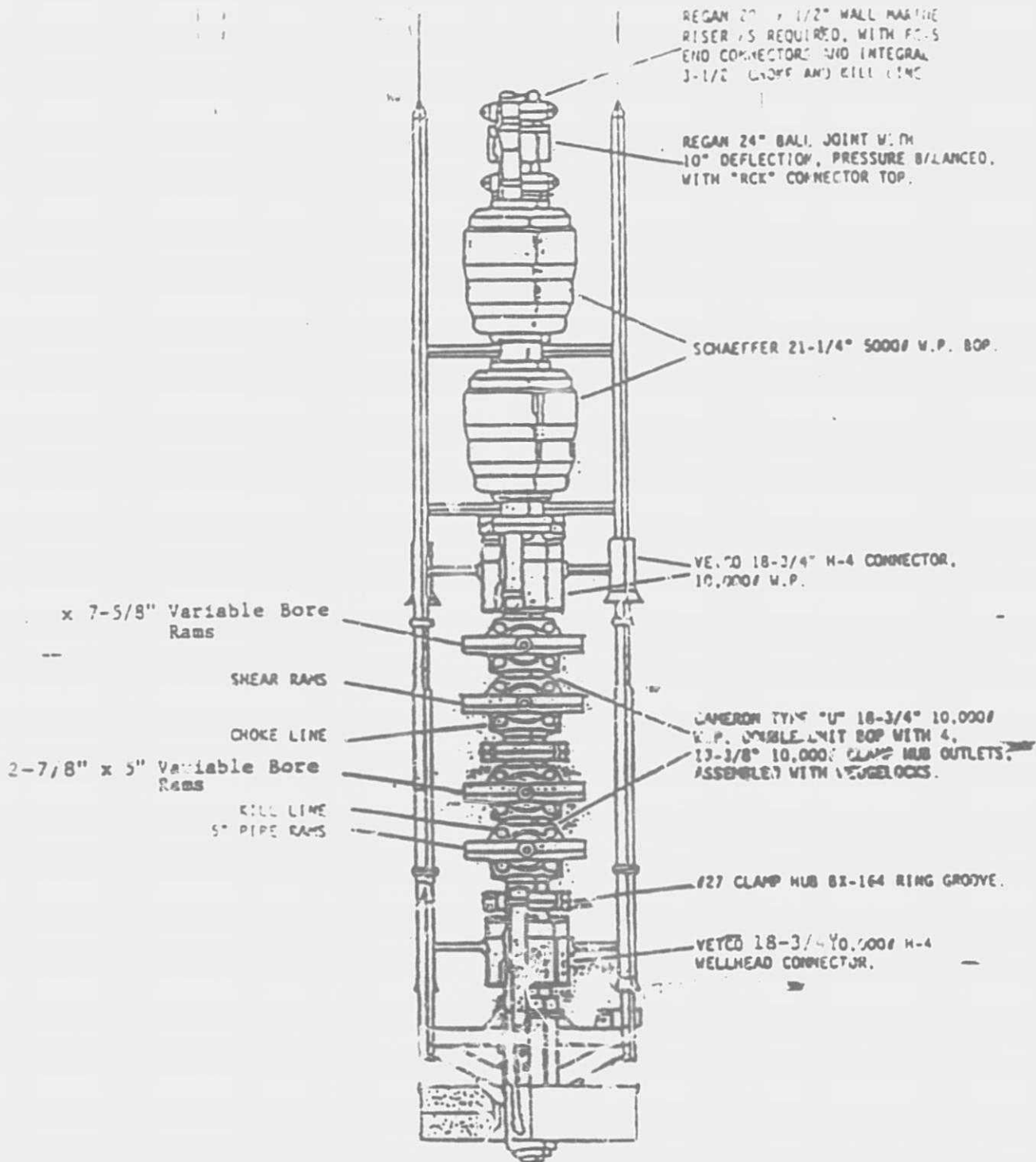


ATTACHMENT A

BRIDGE SYSTEM
PAGE 57



S O P SYSTEM



BLOWOUT PREVENTER ARRANGEMENT & SPECIFICATIONS

STANDARD OIL PRODUCING COMPANY

Site Clearance Letter
Ship Shoal 368 (OCS-5590)

DATE: April 25, 1986

Gulf Coast Division Geophysicists conclude that no significant shallow drilling hazards exist within 500 feet of the Ship Shoal 368 proposed 'A' well location (2,500' FNL', 2,500' FEL; W.D. 452).

The original records and summary report of a shallow hazard survey conducted by John E. Chance and Associates for Standard Oil Producing Company over Ship Shoal Block 368 have been reviewed. We are in agreement with their findings and conclude that:

- 1) No obstructions are observed on the sea floor within 500 feet of the proposed location. The sea floor dips south-southeast at a rate of 25 feet per mile.
- 2) Seismic data indicate a thick sequence of semi-parallel bedded sediments (over 1,500 feet) that dip to the southeast. The rate of dip at 1,000 feet below mudline is 125 feet per mile.
- 3) No gas accumulations or faults are observed at the proposed well location within the upper 1,000 feet below mudline (1,452 feet below sea level) or within 500 feet of the proposed sea bottom location.

Attachments include annotated copies of the pinger, analog wireline exploder, side scan sonar, and magnetometer records for lines 12 and 30 of the hazard survey.

Approved by:


J. Golden

Concurred:


J. L. Strasen

Prepared by:


J. L. Strasen

cc: J. Golden
R. Boyce

ATTACHMENT B

STANDARD OIL PRODUCING COMPANY

Site Clearance Letter
Ship Shoal 368 (OCS-5590)

DATE: April 25, 1986

Gulf Coast Division Geophysicists conclude that no significant shallow drilling hazards exist within 500 feet of the Ship Shoal 368 proposed 'B' well location (5,150' FNL, 1,700' FEL; W.D. 460').

The original records and summary report of a shallow hazard survey conducted by John E. Chance and Associates for Standard Oil Producing Company over Ship Shoal Block 368 have been reviewed. We are in agreement with their findings and conclude that:


- 1) No obstructions are observed on the sea floor within 500 feet of the proposed location. The sea floor dips south at a rate of 25 feet per mile.
- 2) Seismic data indicate a thick sequence of semi-parallel bedded sediments (over 1,500 feet) that dip to the southeast. The rate of dip on the hazard structure map is 265 feet per mile.
- 3) No gas accumulations or faults are observed at the proposed well location within the upper 1,000 feet below mudline (1,460 feet below sea level) or within 500 feet of the proposed sea bottom location.

Attachments include annotated copies of the pinger, analog minisleeve explorer, side scan sonar, and magnetometer records for lines 12 and 33 of the hazard survey.


Approved by:


J. Golden

Concurred:


J. E. Stran

Prepared by:


J. C. Branca

cc: J. Golden
R. Boyce

STANDARD OIL PRODUCING COMPANY

Site Clearance Letter
Ship Shoal 368 (CCS-5590)

DATE: April 25, 1980

Gulf Coast Division Geophysicists conclude that no significant shallow drilling hazards exist within 500 feet of the Ship Shoal 368 proposed 'C' well location (1,000' FNL, 700' FEL; W.D. 446').

The original records and summary report of a shallow hazard survey conducted by John E. Chance and Associates for Standard Oil Producing Company over Ship Shoal Block 368 have been reviewed. We are in agreement with their findings and conclude that:

- 1) No obstructions are observed on the sea floor within 500 feet of the proposed location. The sea floor dips south at a rate of 20 feet per mile.
- 2) Seismic data indicate a thick sequence of parallel bedded sediments (over 1,500 feet) that dip to the southeast. The rate of dip at 1,000 feet below mudline is 125 feet per mile.
- 3) No gas accumulations or faults are observed at the proposed well location within the upper 1,000 feet below mudline (1,446 feet below sea level) or within 500 feet of the proposed well location.

Attachments include annotated copies of the pinger, analog minisleeve exploder, side scan sonar, and magnetometer records for lines 13 and 29 of the hazard survey.

Approved by: 

J. Golden

Concurred: 

J. L. Strasen

Prepared by: 

J. C. Branca

cc: J. Golden
R. Boyce

ATTACHMENT B

STANDARD OIL PRODUCING COMPANY

Site Clearance Letter
Ship Shoal 368 (OCS-5590)

DATE: April 25, 1986

Gulf Coast Division Geophysicists conclude that no significant shallow drilling hazards exist within 500 feet of the Ship Shoal 368 proposed 'D' well location (3,300' FNL', 5,250' FEL; W.D. 453').

The original records and summary report of a shallow hazard survey conducted by John E. Chance and Associates for Standard Oil Producing Company over Ship Shoal Block 368 have been reviewed. We are in agreement with their findings and conclude that:

- 1) No obstructions are observed on the sea floor within 500 feet of the proposed location. The sea floor dips southeast at a rate of 50 feet per mile.
- 2) Seismic data indicate a thick sequence of semi-parallel bedded sediments (over 1,500 feet) that dip to the southeast. The rate of dip at 1,000 feet below mudline is 100 feet per mile.
- 3) No gas accumulations or faults are observed at the proposed well location within the upper 1,000 feet below mudline (1,453 feet below sea level) or within 500 feet of the proposed sea bottom location.

Attachments include annotated copies of the pinger, analog minisleeve exploder, side scan sonar, and magnetometer records for lines 11 and 31 of the hazard survey.

Approved by:


J. Golden

Concurred:


J. E. Strasen

Prepared by:


J. C. Branca

cc: J. Golden
R. Boyce

STANDARD OIL PRODUCING COMPANY

Site Clearance Letter
Ship Shoal 368 (OCS-5590)

DATE: April 25, 1986


Gulf Coast Division Geophysicists conclude that no significant shallow drilling hazards exist within 500 feet of the Ship Shoal 368 proposed 'E' well location (3,000' FNL', 8,900' FEL; W.D. 446').

The original records and summary report of a shallow hazard survey conducted by John E. Chance and Associates for Standard Oil Producing Company over Ship Shoal Block 368 have been reviewed. We are in agreement with their findings and conclude that:


- 1) No obstructions are observed on the sea floor within 500 feet of the proposed location. The sea floor dips southeast at a rate of 20 feet per mile.
- 2) Seismic data indicate a thick sequence of semi-parallel bedded sediments (over 1,500 feet) that dip to the southeast. The rate of dip at 1,000 feet below mudline is 160 feet per mile.
- 3) No gas accumulations or faults are observed at the proposed well location within the upper 1,000 feet below mudline (1,446 feet below sea level) or within 500 feet of the proposed sea bottom location.

Attachments include annotated copies of the pinger, analog minisleeve exploder, side scan sonar, and magnetometer records for lines 10 and 31 of the hazard survey.

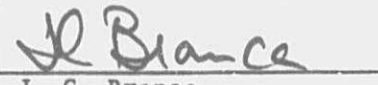
Approved by:


J. Golden

Concurred:


J. L. Strasen

Prepared by:


J. C. Branca

cc: J. Golden
R. Boyce

ATTACHMENT B

STANDARD OIL PRODUCING COMPANY

Site Clearance Letter
Ship Shoal 368 (OCS-5590)

DATE: April 25, 1986

Gulf Coast Division Geophysicists conclude that no significant shallow drilling hazards exist within 500 feet of the Ship Shoal 368 proposed 'F' well surface location (10,900' FNL', 1,900' FEL; W.D. 496').

The original records and summary report of a shallow hazard survey conducted by John E. Chance and Associates for Standard Oil Producing Company over Ship Shoal Block 368 have been reviewed. We are in agreement with their findings and conclude that:

- 1) No obstructions are observed on the sea floor within 500 feet of the proposed location. The sea floor dips southeast at a rate of 55 feet per mile.
- 2) Seismic data indicate a thick sequence of semi-parallel bedded sediments (over 1,500 feet) that dip to the southeast. The rate of dip on the hazard structure map is 250 feet per mile.
- 3) No gas accumulations or faults are observed at the proposed well location within the upper 1,000 feet below mudline (1,496 feet below sea level) or within 500 feet of the proposed sea bottom location.

Attachments include annotated copies of the pinger, analog minisleeve exploder, side scan sonar, and magnetometer records for lines 12 and 39 of the hazard survey.

Approved by: J. Golden

J. Golden

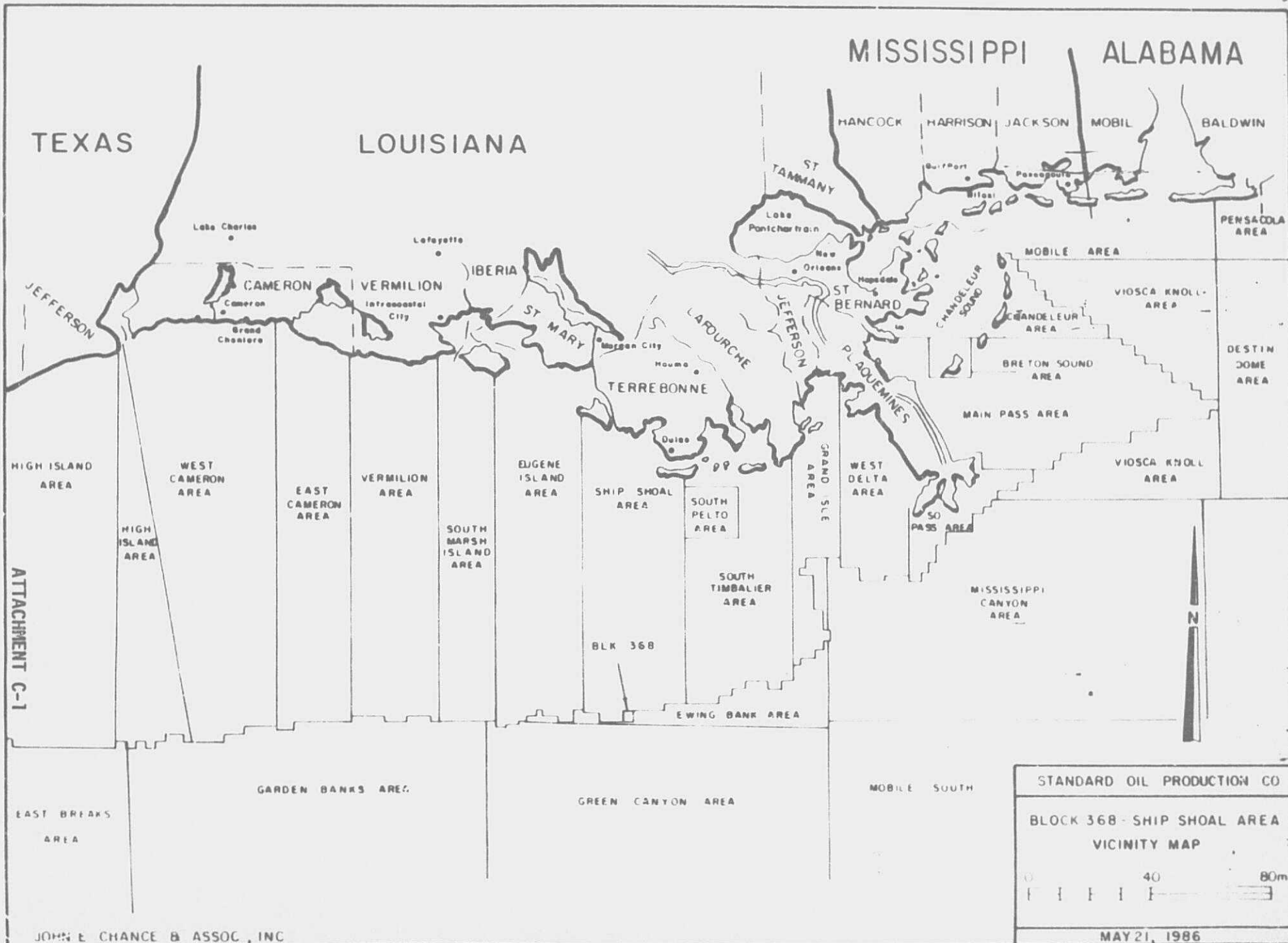
Concurred: J. L. Strasen

J. L. Strasen

Prepared by: J. C. Branca

J. C. Branca

cc: J. Golden
R. Boyce



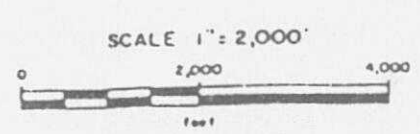
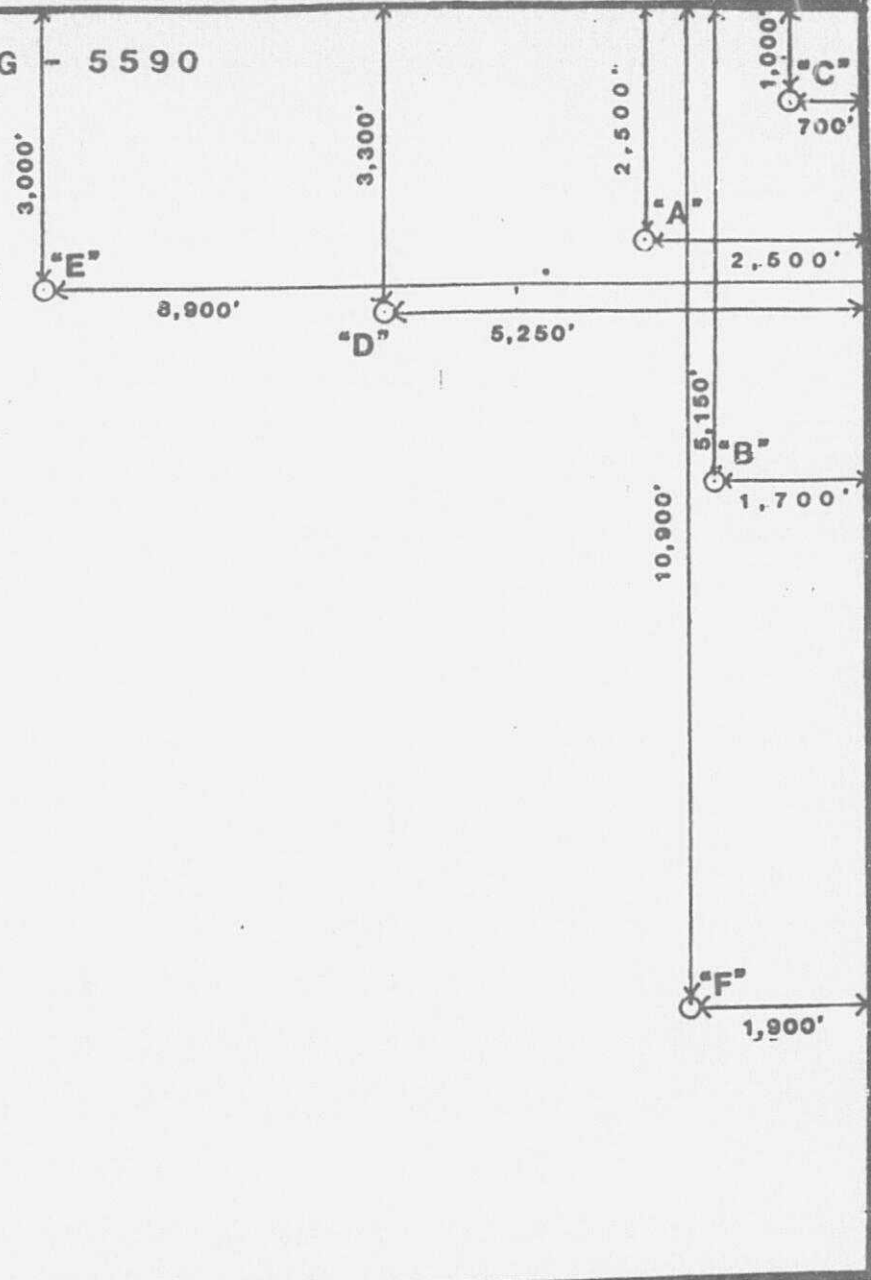
ATTACHMENT C-1



STANDARD OIL PRODUCTION CO		
BLOCK 368 - SHIP SHOAL AREA		
VICINITY MAP		
0	40	80mi
----- ----- ----- ----- -----		
MAY 21, 1986		

368

OCS - G - 5590



		SOMIO PETROLEUM COMPANY	
GULF COAST OFFSHORE LA.			
BLOCK 368			
SHIP SHOAL AREA			
PROPOSED WELL LOCATIONS			
"A", "B", "C", "D", "E" & "F"			
Author	BRANCA	Date	
Drawn		Scale	
Dr. V. SEARS		Dr. No.	
Checked			

SOHIO PETROLEUM COMPANY

DRILLING MUD COMPONENTS

Products of IMCO Services and Sun Drilling Products are listed in this program for illustration purposes. Equivalent or comparable products are available from other service companies such as NL Baroid, Magco-bar, and Milchem.

<u>Trade Name</u>	<u>Composition</u>	<u>Purpose</u>
IMCO GEL	Western Bentonite; A natural occurring element containing plates of Silica & alumina (Inert)	Primary wall building, filtrate control, & suspending agent for water based drilling fluid
IMCO SURLIFT	Preshaped, wet processed, high density chrysotile asbestos (a native calcium magnesium silicate)	Viscosifier for upperhole fluids
IMCO GELEX	Co-polymer of polyvinyl acetate & maleic anhydride	Bentonite extender
IMCO LOYD	Pregelatinized Starch	Fluid loss control
IMCO PLUG	Crushed walnut hulls	Lost circulation & bit balling
IMCO MENTOR-28	Mineral Oil	Lubricant/Fluid loss control
IMCO RD-111	A proprietary blend containing modified lignosulfonates, modified lignite and chromate	Thinner and filtrate control for water base drilling fluid
IMCO C-COR	An organic filming amine	Corrosion inhibitor and oxygen scavenger
IMCO XO ₂	An inorganic compound of the bisulfite family	Oxygen scavenger
IMCO BAR	Mined barite (Ground barium sulfate)	Weighting agent
CAUSTIC SODA	Sodium hydroxide	Alkalinity control
IMCO LIG	Lignite, ground & refined	Thinner & water loss control
SODA ASH	Sodium carbonate	Removing hardness (calcium) from drilling fluid
SUN LUBRA-GLIDE	Stirene, divinylbenzene copolymer spherical beads	Reduces torque & drag
SUN LUBRA-SEAL	Micronized cellulose fiber cotton seed hairs	Improve wall cake

ENVIRONMENTAL REPORT
FOR COASTAL MANAGEMENT CONSISTENCY DETERMINATION
PLAN OF EXPLORATION
AND
AND AIR QUALITY REVIEW
GULF OF MEXICO

FOR
SHIP SHOAL AREA BLOCK 368 (OCS-G-5590)

SUBMITTED TO:
CARY KERLIN
REGULATORY SUPERVISOR
STANDARD OIL PRODUCTION COMPANY
3639 AMBASSADOR CAFFERY PARKWAY
LAFAYETTE, LOUISIANA 70503

MAY 20, 1986

PREPARED BY:
JOHN F. CHANCE & ASSOCIATES, INC.
REGULATORY & ENVIRONMENTAL DIVISION
PROJECT #86-8099

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II. Description of the Proposed Action

This report addresses the activity proposed by Standard Oil Production Company for Ship Shoal Area Block 368 (OCS-G-6590). 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 semi-submersible type rig will be moved on location and six wells will be drilled. The activities proposed by Standard Oil Production Company for this block are included in the attached Plan of Exploration.

The proposed activities will be carried out by Standard Oil Production 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.

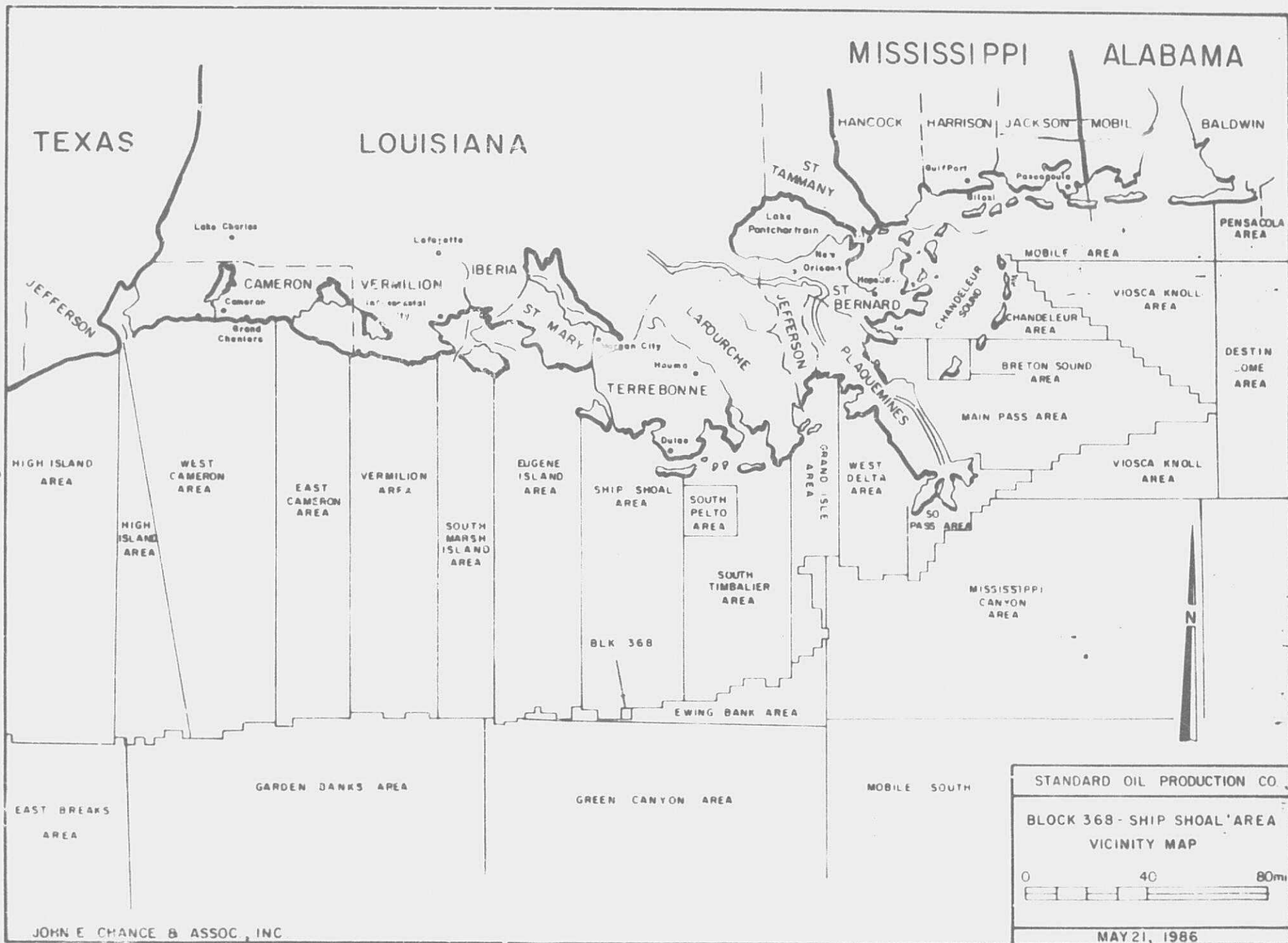


FIGURE 1

STANDARD OIL PRODUCTION CO.

BLOCK 368 - SHIP SHOAL AREA
VICINITY MAP

0 40 80mi

MAY 21, 1986

A. Travel Modes, Routes, and Frequencies

Standard Oil Production Company will operate out of their service base facilities established in Fourchon, Louisiana. Standard Oil Production Company anticipates using one helicopter, one supply boat, one crew boat, and one stand-by boat to support their Ship Shoal Area Block 368 activities.

The helicopter will travel to the location a total of ten times per week. The crew boat will travel to the location a total of fourteen times per week. The supply boat will travel to the location a total of four times per week, and the stand-by boat will travel to the location one time per week.

It is anticipated that the transportation vessels will utilize the most direct route from the Fourchon, Louisiana service base. Because a vessel supporting the Ship Shoal Area Block 368 exploration activities, as outlined in 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

Standard Oil Production Company will utilize support base facilities established in Fourchon, Louisiana. The Fourchon, Louisiana support base is located approximately ninety-five 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 Standard Oil Production 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 Ship Shoal Area Block 368 will not require the development of any new support facilities.

D. New or Unusual Technology

The exploration activities for Ship Shoal Area Block 368 will not warrant utilizing any new or unusual technology that may affect coastal waters.

E. Location of the Proposed Activities

Ship Shoal Area Block 368 is located approximately ninety-five miles from Fourchon, Louisiana and seventy-three miles from the Louisiana coast of

Terrebonne Parish. Figure 1 presents the location of the block in relation to the Louisiana coast, as well as the geographic relationship between Ship Shoal Area Block 368 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 dependant.

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 dependant 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 proposed petroleum activities in Ship Shoal Area Block 368 are expected to have no impact on the harvest of brown or white shrimp since Ship Shoal Area Block 368 is beyond the outer limits of the harvest area for these species. (USDOl, MMS, 1983 Visual No. 4-I.).

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 Ship Shoal Area Block 368 lies outside the "Principle Menhaden Harvest Area" (USDOI, MMS, 1983, Visual No. 4-1).

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 Ship Shoal Area Block 368 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). 29,692,067 pounds of crabs worth \$8,395,002 were landed in Louisiana in 1984 (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 fisheries for blue crabs is unlikely to be significantly affected by exploration activities in this block as it is offshore of the coastal and estuarine waters in which this fishery operates.

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, especially offshore Louisiana, man-made structures such as shipwrecks and offshore drilling platforms (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 \$4,290,068 (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 bays in the estuary, from March to September with a peak from April through July (Johnson, 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 (Beccasio 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). Mullet 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 S 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 approximately three miles south of Ship Shoal Area Block 368. It is unlikely that the marine vessels supporting this block will utilize the shipping fairway to gain access to the support base; therefore, it is unlikely that the marine vessels will

have an 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 (USDOJ, 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 Standard Oil

Production Company.

4. Cultural Resources

Visual No. 11 from the Regional Environmental Impact Statement (USDOI, MMS, 1983) indicates that Ship Shoal Area Block 368 fall outside the zones designated as areas with a high probability of historical or pre-historical cultural resources. John E. Chance & Associates, Inc. (1984) performed a hazard survey in Block 368 and detected a large topographic high that ranges in depth from -406 feet on its crest to -534 feet in the southeast corner of the block. An apparent subsurface intrusion has resulted in the observed uplift across the area, which is characterized by a complex fault system in the north and west portions of the block (JECA, 1984). Mapping of the structure horizon was not possible within the fault zone because of the complexity of the strata and attenuation of the transmitted seismic pulse within potential biogenic gas deposits. Calcareous outcrops were noted on the crest of the topographic high (JECA, 1984). The area is presently clear of man-made structures, and no unidentified magnetic anomalies were detected during the hazard survey.

5. Ecologically Sensitive Features

Ship Shoal Area Block 368 is located approximately six miles southwest of Ewing Bank. There are no other known ecologically sensitive areas near Ship Shoal Area Block 368.

The Fourchon, Louisiana support base which will be utilized as the operations base for the Ship Shoal Area Block 368 exploration activities is located approximately fifteen miles northwest of the Wisner Wildlife Management Area (USDOI, MMS, 1983, Visual No. 11).

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 hazard survey was performed for Standard Oil Production Company by John E. Chance & Associates, Inc., and is included as an attachment to the Plan of Exploration. No pipelines or man-made features were detected during the hazard survey.

7. Other Mineral Uses

There are no other known mineral resources located in or near Ship Shoal Area Block 368.

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 Ship Shoal Area Block 368 is completed, Standard Oil Production Company does anticipate dumping their excess water-based drilling fluids (approximately 800 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 Ship Shoal Area Block 368 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 kempfi), 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), brown pelican (Pelecanus occidentalis), and American alligator (Alligator

mississippiensis)' (USDI, Region IV Endangered Species Notebook). The brown pelican was a common resident of Louisiana but this species became virtually extinct in the late 1950's (Fritts et al., 1983). By 1960, the estimated population of brown pelicans was four birds (NFWL, 1980). Re-establishment of a breeding population in Louisiana has met with varying success (Fritts et al., 1983). 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 biologically in Louisiana and a regulated harvest is permitted under State Law (USDI, Region IV Endangered Species Notebook). No impacts on American alligators are expected. The presence of marine mammals in coastal Louisiana is considered sporadic and probably no resident populations exist. It is unlikely that onshore or exploration activities related to Ship Shoal Area Block 368 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 Standard Oil Production 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 Standard Oil Production Company. Standard Oil Production 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 Ship Shoal Area Block 368 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. 11 from the Regional Environmental Impact Statement (USDOI, MMS, 1983) indicates that no archeological, cultural, or historic areas are in the vicinity of Ship Shoal Area. Standard Oil Production 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

SHIP SHOAL AREA BLOCK 368 (OCS-G-5590)
.....
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 JUNE 6, 1986.

STANDARD OIL PRODUCTION COMPANY
.....
Lessee or Operator

Cary W. Kerlin
.....
Certifying Official

MAY 22, 1986
Date

Air Quality Review
For
Ship Shoal Area Block 368
OCS-G-5590

Standard Oil Production Company
3639 Ambassador Caffery Parkway
Lafayette, Louisiana 70503

Submitted To
Cary Kerlin
Regulatory Supervisor

May 20, 1986

Prepared by:
John E. Chance & Associates, Inc.
Regulatory and Environmental Division
Lafayette, Louisiana
Project No. 86-8099

Projected Air Emission Schedule for Exploration Project

General Information

Location of Facility - Ship Shoal Area Block 368
 Name of Rig/Platform - Semi-submersible

Owner/Operator - Standard Oil Production Company
 3639 Ambassador Caffery Parkway
 Lafayette, Louisiana 70503

Contact Person - Cary Kerlin
 Regulatory Supervisor

Project Start Date - January 1, 1987
 Project End Date - June 24, 1988

63,500 feet to be drilled
 73 miles Offshore

II. Total Emissions at Rig/Platform, Drilling (years 1 - 2)

Emitted Substance	Allowable Emissions (tons/yr)	Projected Emissions (tons/yr)	Emission Status (OK/NG)
CO	59387.38	35.87	OK
SO ₂	2430.90	1.90	OK
NO _x	2430.90	229.81	OK
VOC	2430.90	12.10	OK
TSP	2430.90	.13	OK

A. Transportation Emissions, Drilling

Emitted Substance	Crew Boat (tons/yr)	Supply Boat (tons/yr)	Helicopter (tons/yr)
CO	15.57	13.34	2.96
SO ₂	*	*	.09
NO _x	109.22	93.62	.30
VOC	5.88	5.04	.27
TSP	*	*	.13

Crew boat horsepower of 2500
 Port of Fourchon, Louisiana
 Waiting Time 4 hour(s) per trip
 14 Trip(s) per Week

Supply boat horsepower of 3000
 Port of Fourchon, Louisiana
 Waiting Time 10 hour(s) per trip
 4 Trip(s) per Week

Helicopters
 Port of Fourchon, Louisiana
 10 Trip(s) per Week

III. 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.

IV. Factors Used in Calculations

A. Emission Factors for Power Generation

Emitted Substance(s)	Drilling (lb/hp-hr)	Production (lb/hp-hr)
CO	.004200	00084
SO ₂	.001900	.00013
NO _x	.028000	.0031
VOC	.000950	.00031
TSP	*	.00011

B. Emission Factors for Transportation

Emitted Substance(s)	Helicopters (lb/engine-LTO)	Boats (lb/gal)
CO	5.7000	.0598
SO ₂	.1800	*
NO _x	.5700	.4196
VOC	.5200	.0226
TSP	.2500	*

Drilling Power Generation 60 hp-hr/ft

Fuel-Consumption .0959 hp-hr/ft by Boats

V. Methodology

Rig/Platform - horsepower-hour method
Boats - horsepower-hour method
Helicopters - landing/takeoff (LTO) cycle method

VI. References

"Atmospheric Emissions from Offshore Oil Development and Production" Drilling - EPA-450/3-77-026 (June 1977) pp. 81-92.

"Compilation of Air Pollutant Emission Factors", Boats and Helicopters - EPA Report AP-42 - (August 1977), 3rd edition, pp. 116, 125, 1287.

* The EPA does not provide SO₂ and TSP emission factors for boats, nor does it provide TSP emission factors for drilling.