In Reply Refer To: MS 5231

November 3, 1995

Murphy Exploration & Production
Company
Attention: Ms. Debra K. Ormsen
Post Office Box 61780
New Orleans, Louisiana 70161-1780

Gentlemen:

Reference is made to the following plan received October 16, 1995:

Type Plan - Supplemental Development Operations Coordination Document
Lease - OCS 0599
Block - 63
Area - South Timbalier
Activities Proposed - Well H-2

In accordance with 30 CFR 250.34, this plan is hereby deemed submitted and is now being considered for approval.

Your control number is S-3800 and should be referenced in your communication and correspondence concerning this plan.

Sincerely,

[Orig. Sgd.] Kent E. Stauffer

Donald C. Howard
Regional Supervisor
Field Operations

bcc: Lease OCS 0599 POD File (MS 5032)
MS 5034 w/public info. copy of the plan and accomp. info.

MTolbert:cic:11/03/95:DOCDCOM

NOTED-SCHEXNAILDRE
U. S. Department of the Interior
Minerals Management Service
Office of Field Operations
MS 5231
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

October 12, 1995

Attention: Mr. Donald C. Howard
Regional Supervisor - Field Operations

Regarding: Supplemental Development Operations
Coordination Document for
So. Timbalier Block 63, OCS-0599 #H-2
Anticipated Commencement Date: November 15, 1995

Gentlemen:

Enclosed herewith are nine (9) sets of the above referenced Supplemental D.O.C.D. We respectfully request that a speedy review be made to determine whether this document is complete. Should additional information be required, please advise us immediately.

Every effort you extend in order to affect an early approval of this Plan will be greatly appreciated.

Very truly yours,

Debra K. Ormson
Technical Assistant
Environment & Government Affairs
MURPHY EXPLORATION & PRODUCTION COMPANY

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

OCS-G-0599, WELLS NO. H-2
SO. TIMBALIER BLOCK 63
OFFSHORE, LOUISIANA

SUBMITTED BY: ________________________
Debra K. Ormsen
Technical Assistant
Environment & Government Affairs

DATE: ________________________
October 12, 1995
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<th>PAGE</th>
</tr>
</thead>
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MURPHY EXPLORATION & PRODUCTION COMPANY
SUPPLEMENTAL DEVELOPMENT
OPERATIONS COORDINATION DOCUMENT
OCS-0599, WELL NO. H-2
SO. TIMBALIER BLOCK 63
OFFSHORE, LOUISIANA

Murphy Exploration & Production Company, as designated Operator of the subject lease, hereby submits this proposed Supplemental D.O.C.D. in accordance with the regulations contained in Title 30 CFR 250.34 and more specifically defined in the Minerals Management Service Letters to Lessees and Operators Dated October 12, 1988 and September 5, 1989.

HISTORY OF LEASE

This lease is presently maintained by ongoing production from Murphy Exploration & Production Company's So. Timbalier Block 86 Field. This well will be drilled from the existing "CA" platform. There are no lease stipulations.

In accordance with Letter to Lessees and Operators dated November 5, 1993 which amends Title 30 CFR 256 Surety bond requirements applicable to OCS leases and operators, Murphy Exploration & Production Company's activities are covered by its Areawide Oil and Gas Lease Bond in the amount of $3,000,000.

SCHEDULE OF OPERATIONS

Under this Supplemental D.O.C.D., Murphy Exploration & Production Company proposes to drill, complete, and produce Well #H-2.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>COMMENCEMENT DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill</td>
<td>November 1, 1995</td>
</tr>
<tr>
<td>Complete</td>
<td>December 25-30, 1995</td>
</tr>
<tr>
<td>Initial production</td>
<td>December 31, 1995</td>
</tr>
</tbody>
</table>

PROPOSED LOCATION

Surface Location 5154' FSL & 7456' FWL of So. Timbalier Block 63
Water Depth 87'

PUBLIC INFORMATION
PRODUCTION FACILITIES

Should proposed well have no commercial production, it will be plugged and abandoned with casings removed to a minimum of 15' BML. If it proves successful, it will be produced via the existing 4" flowline to the "A" Platform in So. Timbalier Block 63.

Separation of liquids from gas takes place at the "A" platform in S. Timbalier 63. Oil/condensate is metered for sale at the "A" Platform in So. Timbalier Block 63 and delivered to Chevron's pipeline, then to terminal located at Fouchon, La. The gas is being sold at the "A" platform to Trunkline Gas' 12" trunkline in Block 63 which routes the gas to land.

No additional offshore or onshore personnel or additional facilities are anticipated as a result of these hookup activities.

DESCRIPTION OF DRILLING RIG

Offshore development activities are carried out from mobile drilling rigs. The five most common types of rigs used are jack-up, semi-submersible, submersible, drillship and drill barges.

The subject well will be drilled and completed with a typical jack-up rig. When a rig is selected, the rig specifications will be made part of the Application for Permit to Drill. Typical diverter and BOP schematics are included in attachments.
SAFETY STANDARDS AND PROGRAMS - DRILLING AND PRODUCTION OPERATIONS

The rig to be used will comply with all of the regulations of the American Bureau of Shipping, International Maritime Organization and the United States Coast Guard. All drilling operations will be conducted under the provisions of 30 CFR, part 250, Subpart D and other applicable regulations and notices, including those regarding the avoidance of potential drilling hazards and safety and pollution prevention control. Safety features will include well control and blowout prevention equipment as described in Title 30 CFR 250.50. The appropriate life rafts, life jackets, ring buoys, etc. as prescribed by the U.S. Coast Guard will be maintained on the facility at all times.

All production facilities are constructed and installed to meet M.M.S. and Coast Guard standards for safety and protection of the environment. Murphy Exploration & Production Company’s Safety and Training Department monitors and trains personnel in the conduct of safe operations and compliance with all safety and pollution prevention standards.

OIL SPILL CONTINGENCY PLAN

Refer to Murphy’s Plan filed with MMS, November 1994.

Murphy Exploration & Production Company fulfills its oil spill contingency plan by being a member of Clean Gulf Associates, P. O. Box 51239, New Orleans, LA 70151, an agency which handles clean up operations in the event of an oil spill. Fast Response Service can be obtained by calling Halliburton Services in Lafayette, LA, Tel. (318) 837-7400. Mr. Caro Louvier is in charge of administration of the equipment for Clean Gulf Associates.

DESCRIPTION OF CLEAN UP EQUIPMENT AVAILABLE IN VARIOUS LOCATIONS

1. Fast Response System Model I consists of:
   a. Primary & auxiliary skid with 180 bbl. tank on each skid
   b. One "Don Wilson" skimmer
   c. One basket and one lot of Bennet oil boom section
   d. Fire extinguisher skid

2. Fast Response Model II consists of:
   a. Section of floating oil boom
   b. Skimmer
   c. Outrigger
   d. Pump
   e. Two skid-mounted storage tanks of 180 bbls. each


4. Shallow water skimmer system.

5. Auxiliary shallow water skimmer and booms.

6. Helicopter spray system (HUSS Units).

7. Waterfowl rehabilitation units.


9. Miscellaneous material.

10. Radio systems.

Estimated deployment time - see "Oil Spill Trajectory Simulation" Section.
OIL SPILL TRAJECTORY SIMULATION

Taken from Final Environmental Impact Statement Gulf of Mexico Sales 142 and 143, Central and Western Planning Area. The below listed are percent chance that an oil spill starting in any areas within So. Timbalier Block 63 will contact certain land segments within 3, 10 or 30 days. Potential launch sites are identified in Figure IV-1 of Final EIS are within the Central Planning area of C1. Percent chance of spill reaching land - taken from Table IV-20. Hypothetical spill location C39:

<table>
<thead>
<tr>
<th>Land Segment</th>
<th>Percent Chance</th>
<th>Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>n%</td>
<td>St Mary, LA</td>
</tr>
<tr>
<td>16</td>
<td>3%</td>
<td>Terrebonne, LA</td>
</tr>
<tr>
<td>17</td>
<td>5%</td>
<td>Lafourche, LA</td>
</tr>
<tr>
<td>18</td>
<td>1%</td>
<td>Jefferson, LA</td>
</tr>
<tr>
<td>19</td>
<td>n%</td>
<td>Plaquemines, LA</td>
</tr>
</tbody>
</table>

n = Less than 0.5% probability.

Probabilities (expressed as percent chance) that one or more spills and number of probable spills occurring and contacting Central Gulf archeological sites within 10 days of a spill. Taken from Table IV-21:

<table>
<thead>
<tr>
<th>Land Segment ID</th>
<th>B Scenario</th>
<th>H Scenario</th>
<th>Average B Scenario</th>
<th>Average H Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>n%</td>
<td>n%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>16</td>
<td>1%</td>
<td>2%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>17</td>
<td>n%</td>
<td>n%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>18</td>
<td>0%</td>
<td>0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>19</td>
<td>1%</td>
<td>1%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

n = Less than 0.5% probability.

Probabilities (expressed as percent chance) that one or more spills and number of probable spills occurring and contacting Central Gulf archeological sites within 10 days of a spill over the expected production life of the lease. Taken from Table IV-21:

<table>
<thead>
<tr>
<th>Archeological Sites</th>
<th>Percent B Scenario</th>
<th>Average B Scenario</th>
<th>Percent H Scenario</th>
<th>Average H Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timbalier Bay</td>
<td>1%</td>
<td>0.0%</td>
<td>2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Barataria Bay</td>
<td>n%</td>
<td>0.0%</td>
<td>n%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Caminada Headlands</td>
<td>n%</td>
<td>0.0%</td>
<td>7%</td>
<td>0.0%</td>
</tr>
<tr>
<td>W. Plaquemines Coastal Barrier</td>
<td>n%</td>
<td>0.0%</td>
<td>1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>East Deltic Plain Marshes</td>
<td>1%</td>
<td>0.0%</td>
<td>2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>W. Winter Menhaden Spawning Grounds</td>
<td>n%</td>
<td>0.0%</td>
<td>1%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

n = Less than 0.5% probability

Identification of Biologically Sensitive Areas: These are set forth in Clean Gulf Associates Operations Manual, Volume II, Section V. Louisiana Map #6, V-123.0a and Louisiana Map #7, V-113.0a.

The Protection Response Modes for Biologically Sensitive Areas: These are set forth in Clean Gulf Associates Operations Manual, Volume II, Section V. Louisiana Map #6, V-109.0a to V-112.2a and Louisiana Map #7, V-119.0a to V-122.1
EQUIPMENT LOCATION AND RESPONSE TIME

Grand Isle, LA
All equipment listed on Page 3 (Items 1 through 10) of this Plan.

Venice, LA
a. Fast Response Model I (Item 1)
b. Fast Response Model III (Item 3)
c. Items 4, 5, 8, and 9
d. Boat Sprayer system

Intracoastal City, LA
a. Fast Response Model I (Item 1)
b. Items 4, 5, 6, 8, and 9

Cameron, LA
a. Fast Response Model II (Item 2)
b. Fire extinguishers, storage boxes

Houma, LA
a. Fast Response Model II (Item 2) trailer loaded
b. Item 4
c. Dispersants
d. Sorbents
e. Drums, collectant

Theodore, AL
a. Fast Response Model II (Item 2)

Response Time - It takes approximately one hour to load Fast Response Model I onto vessel and approximately one and one half hours to load Model II, and approximately 3 hours to load Model III.

Vessels under contract to Murphy Exploration & Production Company’s South Pelto Block 19 are to be used. In the event of a spill, the Fast Response Unit II that is located in Houma, LA would be deployed. This would take approximately one and one half hours to accomplish. It will take approximately two and one half hours to round up crew from various areas and transport to Cocodrie, LA. Deployment of fast response unit, crew operations and vessel travel will be conducted simultaneously. Vessel travel time from Cocodrie to So. Timbalier Block 63 is approximately five hours.

Initial Response - Fast Response Model II from Houma, LA to So. Timbalier Block 63:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement and assembly of Unit</td>
<td>1.5 hrs.</td>
</tr>
<tr>
<td>Waiting on crew</td>
<td>1.0 hrs.</td>
</tr>
<tr>
<td>Loading time</td>
<td>1.5 hrs.</td>
</tr>
<tr>
<td>Travel from Cocodrie to So. Timbalier Block 63</td>
<td>5.0 hrs.</td>
</tr>
</tbody>
</table>

Total Response Time: 9.0 hrs.

(30 miles open water @ 10 MPH, 12 miles inland water @ 6 MPH)
TRANSPORTATION ROUTES (WATER AND AIR)

The most direct routes from So. Timbalier Block 63 to shore base for supplies and personnel will be used.

BASE OF OPERATIONS

Marine service to drill this well will be provided from Dulac, LA, a distance of approximately 55 miles. A crew boat will make approximately 45 round trips of 6 hours duration. A supply boat will make approximately 20 round trips of 8 hours duration.

Air service (helicopter) will be provided from Houma, LA. The helicopter will make approximately 8 round trips of 2 hours duration.

DRILL MUD AND CHEMICAL COMPONENTS

<table>
<thead>
<tr>
<th>MUD</th>
<th>COMPONENT</th>
<th>MUD</th>
<th>COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Chloride</td>
<td>Calcium Chloride</td>
<td>Caustic Potash</td>
<td>Potassium Hydroxide</td>
</tr>
<tr>
<td>Caustic Soda</td>
<td>Sodium Hydroxide</td>
<td>Congor 303 A</td>
<td>Morpholine Process Res.</td>
</tr>
<tr>
<td>D-D</td>
<td>Surfactant Blend</td>
<td>Defoam-X</td>
<td>Defoamer</td>
</tr>
<tr>
<td>Desco</td>
<td>Sulfoxymethylated Tannin</td>
<td>Drispac</td>
<td>Polyamionic Cellulose</td>
</tr>
<tr>
<td>Fer-ox</td>
<td>Hematite, Iron Oxide</td>
<td>Gel Supreme</td>
<td>Bentonite (Natural Clay)</td>
</tr>
<tr>
<td>HEC</td>
<td>Hydroxyethyl Cellulose</td>
<td>K-17</td>
<td>Potassium Salt</td>
</tr>
<tr>
<td>K-52</td>
<td>Potassium Acetate</td>
<td>Kleen up</td>
<td>Surfactant Blend</td>
</tr>
<tr>
<td>Kwik Seal</td>
<td>Nut Hulls, Wood Fiber</td>
<td>Lime</td>
<td>Calcium Hydroxide</td>
</tr>
<tr>
<td>Lo-Wate</td>
<td>Calcium Carbonate</td>
<td>Lube 167</td>
<td>Lubricant</td>
</tr>
<tr>
<td>M-I Bar</td>
<td>Barium Sulfate</td>
<td>M-I CMC</td>
<td>Sodium Carboxymethyl</td>
</tr>
<tr>
<td>M-I Gel</td>
<td>Bentonite</td>
<td>M-I Mica</td>
<td>Mica</td>
</tr>
<tr>
<td>M-I-X II</td>
<td>Pulverized Cellulose</td>
<td>My-Lo-Jel</td>
<td>Pre-gelatized Starch</td>
</tr>
<tr>
<td>Nut Plug</td>
<td>Ground Nut Shells</td>
<td>Pipe-Lax ENV</td>
<td>Pipe Lax ENV</td>
</tr>
<tr>
<td>Poly Plus RD</td>
<td>Acrylic Copolymer</td>
<td>Polypac</td>
<td>Cellulose</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>Sodium Chloride</td>
<td>Resinex</td>
<td>Lignite Resin Blend</td>
</tr>
<tr>
<td>Salt</td>
<td>Sodium Pyrophosphate</td>
<td>Salt Gel</td>
<td>Attapulgite Clay</td>
</tr>
<tr>
<td>SAPP</td>
<td>Sodium Carbonate</td>
<td>Shale Chek</td>
<td>Anionic Polymer</td>
</tr>
<tr>
<td>Soda Ash</td>
<td>Sodium Asphalt Sulfonate</td>
<td>Sodium Bicarbonate</td>
<td></td>
</tr>
<tr>
<td>SolTEX</td>
<td>Chrome-Free Lignosulf.</td>
<td>Spersene</td>
<td>ChromeLignosulfonate</td>
</tr>
<tr>
<td>Sperocene CF</td>
<td>Lignite (Leonardite)</td>
<td>Sulf-X</td>
<td>Zinc Oxide</td>
</tr>
<tr>
<td>Tannatin</td>
<td>Sodium Carboxymethyl</td>
<td>Thermex</td>
<td>Phenol-Formaldehyde</td>
</tr>
<tr>
<td>Thermapac U/L</td>
<td>Chrome Lignite</td>
<td>XCD Polymer</td>
<td>Polysaccharide</td>
</tr>
<tr>
<td>XP-20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The rig will contain approximately 1000 sacks of barite and 200 sacks of gel.
DISCHARGE OF POLLUTANTS

This well will be drilled using a water based nondispersed unweighted mud system. Drill cuttings with a small amount of drilling fluid adhering to the shale and sand particles will be discharged at the well site during drilling operations. The maximum discharge rate of drill cuttings will be while drilling from the cemented conductor casing to the surface casing setting depth and should not exceed 600 bbls/day in any one day. This discharge rate of cuttings is based on drilling this section of the hole at a rate of 1,700 feet per 24 hour period and allowing for two (2) inches of hole enlargement due to erosion. The discharge rate of cuttings for the remainder of the well should average less than 100 bbls./day based on an average drilling rate of 2000 feet per day from surface casing to total depth and a two (2") hole enlargement due to erosion. The total discharge of cuttings for this well is estimated to be 4100 bbls. allowing for a 2" hole enlargement from the mud line to total depth.

Total discharge of drilling fluids for this well is estimated to be 5000 bbls. Data from wells drilled in this area indicate that an average of 140 bbls/day of drilling fluid is discharged from the time a rig moves on location until drilling ceases. Upon setting casing and before moving the drilling rig, an additional 1000 bbls of mud can be expected to be discharged, thus on our well we anticipate discharging approximately 6000 total bbls.

No oil will be added to the drilling mud or discharged at any time. In the event it becomes necessary to add oil to the drilling mud or "spot" an oil base lubricate around a stuck drill string, all mud and cuttings will be transported to shore for proper disposal. All mud discharged will be tested for toxicity as required by EPA's NPDES discharge permit.

Sanitary waste is treated by a waste treatment facility and discharged overboard in compliance with EPA's NPDES discharge permit. Treated waste discharged normally averages 25 gallons per day per man on the rig. A rig will discharge 750 to 1,000 gallons per day depending on the number of personnel on the rig.

All metal, steel, cables, etc. are stored on the rig until sufficient quantity accumulates. This material is then transported to our shore base for recycling. Paper, bags, plastics, etc. are compacted in a container by an onboard compactor then transported to shore for disposal.

All vessels used in our operations are equipped with Marine Sanitation Devices or holding tanks in compliance with DOT regulations. Drilling rigs are constructed with drip pans and or/drainage under the floor and other machinery to maintain oil spills during operations. All used oil from machinery will be collected and stored and later transferred to shore base.

HYDROGEN SULPHIDE PLAN

This well will be drilled in an area which is known to be free of hydrogen sulphide. In the unlikely event that hydrogen sulphide would be encountered, all operations would cease until the rig could be equipped and personnel trained for operations in a hydrogen sulphide environment. See letter regarding absence of hydrogen sulphide on attached geological program.
GASEOUS EMISSION DATA

Emissions:

See Attachment "E".

Exemptions: Distance from shore = 21 statute miles.

1. Hydrocarbons, NO₃, SO₂, Particles:
   \[
   33.3 \times 21 = 699.3 \text{ tons/year}
   \]

2. CO 3400 \times (21)^{3/3} \text{ or } 26,143.63 \text{ tons/year.}

NEW OR UNUSUAL TECHNOLOGY

No new or unusual technology will be employed during hookup and production activities.

ATTACHMENTS

A. Location plat.

B. Vicinity map with transportation route plotted.

C. Schematic of standard single well caisson jacket.

D. Schematics of drill barge and of diverter.

E. Air emission calculations.

F. Geological program with structure map, bathymetry map, top of pressure map, top of salt map, shallow hazards letter with seismic map, and letter of request to determine status of \( \text{H}_2\text{S} \).
GENERAL NOTES

1. DESIGN WAVE 100 YEAR STORM IN GULF WATERS.
2. STRUCTURAL STEEL DESIGN IS IN ACCORDANCE W/APL BPX LATEST EDITION AND WITH AISI SPECIFICATIONS- ALLOWABLE STRESS DESIGN LATEST EDITION.
3. DESIGN LOAD ON PRODUCTION DECK
   A. IDEAL LOAD 30 PSF
   B. LIVELoad 200 PSF
4. ALL GRATING & HANDRAILS TO BE HOT DIP GALVANIZED AFTER FABRICATION TO CONFORM TO THE LATEST REVISION OF ASTM A123.
5. ALL MEMBERS HAVE AN INTERACTION RATIO OF 0.85 OR LESS.

MURPHY EXPLORATION & PRODUCTION CO.

STANDARD SINGLE WELL CAISSON JACKET

<table>
<thead>
<tr>
<th>DRAWN</th>
<th>DATE</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FJR</td>
<td>6-14-95</td>
<td>NONE</td>
</tr>
</tbody>
</table>
OCEAN TOWER

GENERAL DESCRIPTION AND EQUIPMENT LIST

A. GENERAL DESCRIPTION

The OCEAN TOWER is a Marathon LeTourneau, Class 53 independent leg slot type jackup drilling unit designed to operate in water depths from twenty-two feet (22') to three hundred fifty feet (350') and for drilling to a nominal well depth of 25,000 feet.

PRINCIPAL CHARACTERISTICS AND DIMENSIONS:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall</td>
<td>230' 1'</td>
</tr>
<tr>
<td>Width of hull</td>
<td>200' 6'</td>
</tr>
<tr>
<td>Depth of hull</td>
<td>26' 0'</td>
</tr>
<tr>
<td>Slot length</td>
<td>41' 0'</td>
</tr>
<tr>
<td>Slot width</td>
<td>50' 0'</td>
</tr>
<tr>
<td>Number of legs</td>
<td>3</td>
</tr>
<tr>
<td>Overall length of legs and spud cans</td>
<td>466' 3-1/2'</td>
</tr>
<tr>
<td>Longitudinal leg centers</td>
<td>123' 0'</td>
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<td>Transverse leg centers</td>
<td>142' 0'</td>
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<tr>
<td>Spud tank diameter (across flats)</td>
<td>46' 0'</td>
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<tr>
<td>Spud tank height</td>
<td>12' 10'</td>
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<td>Preload per spud can load</td>
<td>6,400 lbs/ft²</td>
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<tr>
<td>Spud tank area</td>
<td>1,600 sq ft</td>
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<tr>
<td>Loadline draft</td>
<td>16' 7-7/8'</td>
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<tr>
<td>Jack house leg length requirement</td>
<td>51' 0'</td>
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<td>Water tower length (flange to bottom)</td>
<td>130' 0'</td>
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<tr>
<td>Top of rotary table to bottom of barge</td>
<td>46' 0'</td>
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NOMINAL VARIABLE DECK LOAD (MAXIMUM):

- Operating: 4,717 kips
- Storm: 3,467 kips
- Jacking: 3,485 kips
- Transit: 3,485 kips

WATER DEPTH RATING:

- Minimum (depending on loading): 22'
- Maximum-Non Hurricane season: 350'
  - Hurricane season (87 kt. wind and 42' wave): 260'

- 1 -
The D/B OCEAN TOWER was constructed with certain features which were incorporated specifically to stop any pollutant likely to be found during normal drilling operations. It is equipped with drip pans and/or drips under floor and other machinery to retain all oil spills.

Provisions have been made for the collection, storage, and later transfer to shore base of all used oil from machinery on the drilling platform.

Containers have been provided to transfer solid waste, such as boxes, cartons, cans, etc., which cannot be incinerated to a shore base.

Copies of OCS Order Nos. 1 through 10 which are applicable to the contract drilling operations have been furnished the toolpushers. Rig supervisory personnel have been shown the seriousness of control of pollutants.

Should it come to your attention that any liquids or solids have escaped into the Gulf without our knowledge, I sincerely ask that you bring this to my attention.

W. J. Wilkinson

WJW/ggt
## Air Emission Calculations

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<th>LONGITUDE</th>
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### Operations

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### Exemption Calculations

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Page 1
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**OPERATIONS**

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<th>ACT FUEL</th>
<th>RUN TIME</th>
<th>POUNDS PER HOUR</th>
<th>TONS PER YEAR</th>
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<td>Natural Gas Engines</td>
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<td>SO/HR</td>
<td>SO/FO</td>
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<td>SC/FO</td>
<td>SC/FO</td>
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<td>Prime mover &gt; 600 hp diesel</td>
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<td>2260.44</td>
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<td>202.86</td>
<td>6.0 0</td>
<td>0.39 0.36 5.40 0.43</td>
</tr>
<tr>
<td>Auxiliary equipment &gt; 600 hp diesel - Cement Unit</td>
<td>240</td>
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<td>0.95 5.91 43.61 1.31</td>
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**PIPELINE**

| PIPELINE LAY & BURY BARGE diesel | 6700   | 323.61   | 7760.64  | 24.0 0          | 3.54 21.99 152.33 4.87 | 35.42 0.00 0.00 0.00 |
| FACILITY                  | 0       | 0.00     | 0.00     | 0.00            | 0.00 0.00 0.00 0.00 |
| SUPPORT VESSEL diesel    | 2100   | 101.43   | 2434.32  | 24.0 0          | 1.11 6.89 50.88 1.53 | 11.10 0.00 0.00 0.00 |
| MATERIAL TUG diesel       | 0       | 0.00     | 0.00     | 0.00            | 0.00 0.00 0.00 0.00 |
| **PRODUCTS**              |         |          |          |                 |               |
| Recip < 900 hp diesel - Crane | 120   | 5.80     | 136.10   | 4.0 355         | 0.25 0.25 3.79 0.30 | 0.80 0.18 0.00 0.00 |
| Recip > 600 hp Diesel     | 0       | 0.00     | 0.00     | 0.00            | 0.00 0.00 0.00 0.00 |
| Support Vessel diesel     | 1800   | 86.94    | 2086.56  | 4.0 355         | 0.85 5.91 43.61 1.21 | 3.82 0.59 31.84 0.55 |
| Turbine                              | 0       | 0.00     | 0.00     | 0.00            | 0.00 0.00 0.00 0.00 |
| Recip cycle lean gas          | 0       | 0.00     | 0.00     | 0.00            | 0.00 0.00 0.00 0.00 |
| Recip cycle lean gas - Generator | 144   | 1028.59  | 24865.21 | 24.0 355        | 0.00 3.17 0.04 2.73 | 0.00 13.89 0.19 11.95 |
| Recip cycle lean gas - Generator | 144   | 1028.59  | 24865.21 | 24.0 355        | 0.00 3.17 0.04 2.73 | 0.00 13.89 0.19 11.95 |
| Bunkert fuel gas = GLYCOL REBOIL | 0.7    | 666.67   | 18000.00 | 24.0 355        | 0.00 0.00 0.00 0.00 |

**MISC**

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**1999 YEAR TOTAL**

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<td>82.73</td>
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Public Notice of Federal Consistency review of a Proposed Supplemental D.O.C.D. by the Coastal Management Section/Louisiana Department of Natural Resources of the Plan's consistency with the Louisiana Coastal Resources Program.

APPLICANT: Murphy Exploration & Production Company
Post Office Box 61780
New Orleans, Louisiana 70161

LOCATION: So. Timbalier Block 63
OCS-0599

DESCRIPTION: Proposed Development Plan for the above area provides for the exploration of oil and gas as well as installation of flowlines should producible amounts of hydrocarbons be found. Exploration activities shall include drilling from a jack-up drilling rig and transport of drilling crews and equipment by helicopter from the onshore base of Houma, Louisiana and/or cargo vessel from the onshore base of Dulac, Louisiana. No ecologically sensitive species or habitats are expected to be located near or affected by these activities.

A copy of the Plan described above is available for inspection at the Coastal Management Section Office located on the 10th floor of the State Lands and Natural Resources Building, 625 North 4th Street, Baton Rouge, Louisiana (Office hours: 8:00 AM to 5:00 PM, Monday through Friday). The public is requested to submit comments to the Coastal Management Section, Attention: OCS Plans, Post Office Box 44396, Baton Rouge, Louisiana 70804. Comments must be received within 15 days after Coastal Management Section obtains a copy of the Plan and it is available for public inspection. The Public Notice is provided to meet the requirements of the NOAA regulations on Federal Consistency with approved Coastal Management Programs.
ENVIRONMENTAL REPORT
FOR COASTAL MANAGEMENT CONSISTENCY DETERMINATION
DEVELOPMENT OPERATIONS COORDINATION DOCUMENT
GULF OF MEXICO

FOR
SOUTH TIMBALIER AREA BLOCK 63 (OCS-G-0599)

SUBMITTED TO:
MS. DEBRA K. ORMSON
TECHNICAL ASSISTANT
MURPHY EXPLORATION & PRODUCTION COMPANY
P. O. BOX 1780
NEW ORLEANS, LOUISIANA  70161
(504/561-2409)

OCTOBER 27, 1995

PREPARED BY:
TIM MORTON & ASSOCIATES, INC.
REGULATORY & ENVIRONMENTAL CONSULTANTS
PROJECT NO. 95-281
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1 -- Vicinity Map of South Timbalier Area Block 63 ............... 2
II. DESCRIPTION OF THE PROPOSED ACTION

This environmental report addresses the activity proposed by Murphy Exploration & Production Company for South Timbalier Area Block 63 (OCS-G-0599). The approximate location of the activity is presented on a general vicinity map of the Outer Continental Shelf (OCS) lease areas off the coast of Louisiana (Figure 1).

Murphy Exploration & Production Company proposes to utilize a jack-up rig to drill three wells (H-2, H-3, and H-4) in South Timbalier Area Block 63. If commercial quantities of hydrocarbons are discovered, Murphy Exploration & Production Company proposes to install 4-inch flowlines from the H-2 well to the existing South Timbalier Area Block 63 "A" Platform, from the H-3 well to a subsea tie-in on the existing 4-inch pipeline for Well No. 13, and from the H-4 well to a subsea tie-in on the existing 4-inch pipeline for Well No. 14. Hydrocarbons will be transported to shore via an existing pipeline gathering system. More specific information can be found in the attached Development Operations Coordination Document.

The proposed activities will be carried out by Murphy Exploration & 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 a 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.

A. Travel Modes, Routes, and Frequencies

Murphy Exploration & Production Company will operate out of their service base facilities established in Houma, Louisiana and Dulac, Louisiana. Murphy Exploration & Production Company anticipates using one helicopter, one supply boat, and one crew boat to support their South Timbalier Area Block 63 activities.

The helicopter will travel to the location a total of twenty-eight times. The crew boat will travel to the location a total of one hundred sixty-five times, and the supply boat will travel to the location a total of eighty times.

Transportation vessels will utilize the most direct route from the Houma, Louisiana and Dulac, Louisiana service bases. However, because a vessel supporting the South Timbalier Area Block 63 production activities, as outlined in the Development Operations Coordination Document, 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

Murphy Exploration & Production Company will utilize support base facilities established in Houma, Louisiana and Dulac, Louisiana. The Houma, Louisiana support base is located approximately sixty-one miles from the block, and the Dulac, Louisiana support base is located approximately forty-eight miles from the block.

Helicopter and marine facilities are currently available at the service bases and are presently and continuously manned, therefore, 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 Murphy Exploration & Production Company will be prepared for submission upon issuance of the specific parameters to be established by the DOI/MMS.

C. New Support Facilities

Production activities for South Timbalier Area Block 63 will not require the development of any new support facilities.

D. New or Unusual Technology

Production activities for South Timbalier Area Block 63 will not warrant utilizing any new or unusual technology that may affect coastal waters.
E. Location of the Proposed Activities

South Timbalier Area Block 63 is located approximately sixty-one miles from Houma, Louisiana, approximately forty-eight miles from Dulac, Louisiana, and approximately seventeen miles from the shore of Lafourche Parish, Louisiana. Figure 1 presents the location of the block in relation to the Louisiana coast, as well as the geographic relationship between other OCS lease areas and South Timbalier Area Block 63.

F. Proposed Means of Transporting Oil and Gas

If commercial quantities of hydrocarbons are discovered, Murphy Exploration & Production Company proposes to install 4-inch flowlines from the H-2 well to the existing South Timbalier Area Block 63 "A" Platform, from the H-3 well to a subsea tie-in on the existing 4-inch pipeline for Well No. 13, and from the H-4 well to a subsea tie-in on the existing 4-inch pipeline for Well No. 14. Hydrocarbons will be transported to shore via an existing pipeline gathering system.
III. DESCRIPTION OF THE AFFECTED ENVIRONMENT AND IMPACTS

A. Physical and Environmental

1. Commercial Fishing

Louisiana is traditionally one of the top states in the nation in terms of commercial fisheries. In 1993, Louisiana's commercial landings amounted to 1,242,811,935 pounds worth $243,262,266 (USDC, NMFS, 1994). Nine families of finfish and shellfish represented 95 percent of the dockside value (dollars) of Louisiana's marine and estuarine commercial fishery landings.

The most valuable commercial species in Louisiana are the brown shrimp (*Penaeus aztecs*) and white shrimp (*P. setiferus*), which together produce by far the greatest shrimp harvest in the Gulf of Mexico. Louisiana fishermen harvested 78,070,808 pounds (heads-on) of shrimp worth $110,816,447 in 1993 (USDC, NMFS, 1994). 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 the white shrimp and the brown shrimp are estuarine dependent and have similar life histories, with the major differences being the time and location that the various life stages begin and reach their maximum levels. Generally, spawning occurs offshore with the resulting larvae migrating inshore to develop in estuaries. Brown shrimp spawn from November to April in 30 to 120 meters of water, while white shrimp spawn from March to October in 8 to 34 meters (Benson, 1982). Juvenile and adult brown shrimp
migrate offshore from May to July, and white shrimp migrate between June and November (Benson, 1982).

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

The Gulf menhaden (Brevoortia patronus) or "pogy" fish constitutes Louisiana's second most valuable fishery, accounting for 1,058,398,657 pounds worth $51,190,652 in 1993 (USDC, NMFS, 1994). 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). 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). Adults 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, 1983a).
The activities as proposed are unlikely to have any adverse effect on the
menhaden fishing as South Timbalier Area Block 63 lies outside the "Principle
Menhaden Harvest Area" (USDOI, MMS, 1986, Visual No. 2).

Blue crabs (Callinectes sapidus) range from Nova Scotia to Uruguay and
support the largest crab fishery in the United States (Marine Experiment
Station, 1973). In 1993, 45,945,372 pounds of crabs worth $24,465,305 were
landed in Louisiana (USDC, NMFS, 1994). 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 blue crab fishery will not be
significantly affected by production activities in this block because these
activities will be conducted offshore of the coastal and estuarine waters in
which this fishery occurs.

The Eastern oyster (Crassostrea virginica) is most abundant in the Gulf
of Mexico from Aransas Bay, Texas to Apalachicola Bay, Florida (Beccasio et
al., 1982). Louisiana oystermen landed 10,314,823 pounds of oysters worth
$17,143,973 in 1993, making oysters Louisiana’s fourth most valuable fishery
(USDC, NMFS, 1994). Optimum conditions for oysters are found at salinities
between 5 and 15 parts per thousand and water depths of 2.5 to 8 meters
(Beccasio et al., 1982). Oysters spawn during the summer, and the free-
swimming larvae attach and develop in the same estuarine habitat. The
activities proposed in South Timbalier Area Block 63 are not expected to have any impact on the oyster fishery in Louisiana.

In 1993, Louisiana landed a total of 6,071,695 pounds of tuna (Scombroidae) worth $14,869,966 (USDC, NMFS, 1994). Six species of tuna were commercially important to Louisiana. These included albacore (Thunnus alalunga), bluefin tuna (T. thynnus), little tunny (Euthynnus alletteratus), yellowfin tuna (T. albacares), bigeye tuna (T. obesus), and blackfin tuna (T. atlanticus).

Most species of tuna travel in schools and feed on smaller fish or squid. Most are highly regarded both as game fish and as food fish, with some species supporting extensive commercial fisheries (Hoese and Moore, 1977).

Tunas are mass spawners, so that the details of spawning behavior are difficult to observe. These fishes do not protect their eggs and young after spawning, but leave them scattered over the bottom, on aquatic plants, or drifting in the water (Moyle, 1993).

Scombroid fishes range around the world in tropical, temperate, and even cold seas (Herald, 1972). Tuna are sometimes found in shallow water, especially in places where deep water is immediately adjacent. The presence of tuna at the surface or at greater depths is determined by the water temperature as well as by the composition of the pelagic community (Herald, 1972). The activities proposed in South Timbalier Area Block 63 are not expected to have any impact on the tuna fishery in Louisiana.
Red snapper (*Lutjanus campechanus*) and Vermilion snapper (*Rhomboiplites aurorubens*) accounted for the majority of the snapper landings in Louisiana which amounted to 2,406,526 pounds worth $4,358,039 in 1993 (USDC, NMFS, 1994). Snappers are common over or near banks, coral reefs and outcrops, submarine ridges, rocks, and man-made structures such as shipwrecks and offshore drilling platforms, especially offshore Louisiana (Benson, 1982; Hardy, 1978). Red snapper spawn in the Gulf of Mexico from June to Mid-September, in water depths of 16-37 meters, over bottoms of hard sand and shell with rocky reef areas; spawning may actually take place at the surface (Hardy, 1978). Little or no information is available about larval red snapper, but juveniles are typically found inshore in high salinity (24 to 40 ppt) water 9-91 meters in depth (Benson, 1982). The vermilion snapper has a life history and habits similar to the red snapper. The proposed activities should create a suitable habitat for snapper.

Louisiana harvested 7,992,820 pounds of striped mullet (*Mugil cephalus*) worth $3,730,185 in 1993 (USDC, NMFS, 1994). Mullets are one of the most abundant fishes in the Gulf of Mexico (Hoese and Moore, 1977). Mullet have been observed in Alabama inland as far as 607 kilometers from the Gulf, and offshore as far as 80 kilometers and as deep as 1,385 meters (Benson, 1982). Mullet spawn from October to May, and some females spawn more than once in a season (Benson, 1982). Larvae move inshore in the spring and the juveniles are found in the shallow areas of the estuaries. Offshore movement from the estuaries occurs during the fall (Beccasio et al., 1982). No impacts to mullets are anticipated as a result of the proposed activities.
The drums (Sciaenidae) 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 (Pogonias cromis), spotted seatrout (Cynoscion nebulosus), and sand seatrout (C. arenarius). In 1993, Louisiana landed a total of 4,455,212 pounds of drums worth $3,318,964 (USDC, NMFS, 1994).

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

Black drum spawn from February to April in or near tidal passes and in open bays and estuaries (Benson, 1982). The larvae are transported to shallow estuarine marshes, but may move to deeper estuarine waters or shallow waters off sandy beaches as large juveniles (Johnson, 1978). Adult migration is largely restricted to spring and fall movement through the passes between estuaries and nearshore environments (Beccasio et al., 1982).
Sand seatrout spawn from March to September offshore near passes and inlets to estuaries. Larvae migrate into shallow areas of the upper estuaries. Adults apparently move farther offshore than most members of the family (Benson, 1982). In the fall most adults and juveniles migrate to offshore waters (Benson, 1982). The activities proposed are not expected to have any impact on the drums in Louisiana.

The most common species of sharks found in the Gulf of Mexico include the tiger shark (*Galeocerdo cuvier*), blacknose shark (*Carcharinus acronotus*), spinner shark (*C. brevifina*), blacktip shark (*C. limbatus*), sandbar shark (*C. plumbeus*), Atlantic sharpnose shark (*Rhizoprionodon terraenovae*), and scalloped hammerhead (*Sphyrina lewini*) (Branstetter, 1981). A total of 2,698,050 pounds of shark worth $1,105,605 were landed offshore Louisiana in 1993 (USDC, NMFS, 1994).

The following discussion is summarized from Castro (1983). Shark reproduction is achieved through internal fertilization, usually during the months of June and July. Many species migrate to specific mating areas for this purpose. After a gestation period of ten to twelve months, sharks migrate to the nursery areas for the birth of small litters of large pups. These nursery areas are typically highly productive coastal or estuarine waters able to provide ample food for the growing pups.

Sharks are cold blooded and their body temperature usually corresponds to the temperature of the surrounding water. Each species lives within a relatively narrow temperature range determined by its metabolism. Many species
migrate to remain within their temperature tolerance limits. In general these migrations are directed northward and inshore during the summer and southward and offshore in the winter months. No impacts to sharks are expected as a result of the proposed activities.

2. Shipping

A designated shipping fairway is located approximately nine miles northeast of South Timbalier Area Block 63. It is unlikely that marine vessels supporting this block will utilize the shipping fairway to gain access to the support bases. The production platform 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. Many fishermen charter boats to fish and sport dive in the northern Gulf. The states of Alabama, Mississippi, and Louisiana support approximately 120 charter boats which conduct fishing activities in the waters of the OCS (USDOI, MMS, 1983a). Petroleum platforms 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 fish at offshore facilities.
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. The installation and use of navigational aids, lifesaving equipment, and other safety requirements pursuant to Coast Guard regulations are standard procedure for production platforms and marine vessels utilized by Murphy Exploration & Production Company.

4. Cultural Resources

Visual No. 4 from the Final Environmental Impact Statement (USDOI, MMS, 1986) indicates that South Timbalier Area Block 63 falls within the zone designated as an area with a high probability of pre-historic cultural resources. Allen R. Saltus, Jr. prepared An Evaluation of the Remote Sensing Data for Prehistoric Archaeological Resources (1995), and the following has been extracted from that evaluation.

A shallow sediment structure appears to dip to the northwest culminating in what appears to be a back slope of an embayment off a remnant barrier island ridge or a deeply incised cut and filled fluvial channel. This remnant barrier island ridge which seems to lie between the 84 to 88 foot contours trending in a northeast-southwest direction has potential for significant cultural material. Using Coastal's Sea Level Curve, this area would have been inundated around 9,750 years B.P. with a sea level reversal reexposing this land surface or possibly creating this land feature around 7,500 years B.P. again being inundated around 6,500 years B.P. This would have realistically made this land
form available to human occupation during the Early Archaic Periods and possibly during and before the Paleo Indian Period.

Based on these data, published research and interpretations, the probability of locating the presence of significant prehistoric cultural resources in the survey of Block 63, South Timbalier Area, is assessed as probable. High probability areas for archaeological sites can not be ascertained from the subbottom data with its level of resolution. However, it would be prudent to avoid this remnant ridge area until archaeological site potential can be further defined.

5. Ecologically Sensitive Features

South Timbalier Area Block 63 is located approximately nineteen miles south of Wisner Wildlife Management Area (USDOI, MMS, 1986, Visual No. 4). There are no other known ecologically sensitive areas near South Timbalier Area Block 63.

The Houma, Louisiana support base which will be utilized as an operations base for the South Timbalier Area Block 63 development activities is located approximately forty-two miles northwest of the Wisner Wildlife Management Area and approximately fifty-seven miles east-northeast of Marsh Island Wildlife Refuge (USDOI, MMS, 1986, Visual No. 3). The Dulac, Louisiana support base which will also be utilized as an operations base for the South Timbalier Area Block 63 development activities is located approximately eleven miles west-southwest of Point Au Chien Wildlife Management Area (USDOI, MMS, 1986, Visual
No. 3). In general, if all activities are executed as planned, the environmentally sensitive areas will not be affected.

The following discussion of wetlands is summarized from the Final Environmental Impact Statement for Proposed Gulf of Mexico OCS Lease Sales 147 and 150 (USDOI, MMS, 1993). Wetland habitat types occurring along the Gulf coast include fresh, brackish, and saline marshes; forested wetlands; and small areas of mangroves. Wetland habitats may occur along narrow bands or across broad expanses. They can support sharply delineated zones of different species, monotonous stands of a single species, or mixed communities of plant species.

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

Louisiana contains most of the Gulf coastal wetlands. These wetlands occur in two physiographic settings -- the Mississippi River Deltaic Plain and the Chenier Plain. Wetlands on the deltaic plain are situated on a series of overlapping riverine deltas that have extended onto the continental shelf during the past 6,000 years. The alluvial and organic-rich sediments found on these areas are subject to high, natural-subsidence rates. The effects of
subsidence are compounded by sea-level rise. Under natural conditions, sedimentation encourages vertical accretion of wetland areas and may offset the submergence and inundation that result from subsidence and sea-level rise. Historically, areas of the deltaic plain that were located near an active channel of the Mississippi River tended to build outward, and marsh areas tended to expand. At the same time, areas located near inactive, abandoned channels tended to deteriorate and erode as a result of the lack of sediment. Today, the Mississippi River is leveed, which greatly reduces the once natural formation of deltaic wetlands.

The Chenier Plain, located to the west of the Atchafalaya Bay in the western part of coastal Louisiana, is a series of separate ridges of shell and sand, oriented parallel or oblique to the Gulf Coast. These ridges are separated by progradational mudflats that are now marshes or open water. The mudflats were built during times when the Mississippi River channel was located on the western side of the deltaic plain or when minor changes in localized hydrologic and sedimentation patterns favored deposition in the Chenier Plain.

The deterioration of coastal wetlands, particularly in Louisiana, is an issue of concern. Several factors contribute to wetlands loss in coastal Louisiana. Sediment deprivation is a result of a 50 percent decrease in the suspended-sediment load of the river since the 1950's, the channelization of the river, and the primary cause, the construction of the flood protection levees. Subsidence and sea level rise have caused submergence of lower wetland areas. Construction of ring levees have allowed drainage and development of extensive wetlands. Development activities in low areas, outside leveed areas,
have caused the filling of wetlands. Construction of canals have converted wetlands to open water and upland spoilbanks. Canals and subsidence have also contributed to increased tidal influence and salinities in freshwater and low-salinity wetlands, which in turn has increased erosion and sediment export.

Wetlands and estuaries could be affected by OCS-related activities. These activities include construction of new onshore facilities in wetland areas; pipeline placement in wetland areas; vessel usage of navigation channels and access canals; maintenance of navigation channels; onshore disposal of OCS-generated oil-field wastes; and oil and chemical spills from both onshore and offshore OCS support activities. No direct wetland losses are anticipated as a result of the proposed activities.

6. Existing Pipelines and Cables

Fifteen pipelines were detected during the Hazard Study of South Timbalier Area Block 63 performed by John E. Chance & Associates, Inc. (1981). Murphy Exploration & Production Company is aware of their locations and will exercise caution when conducting operations in the vicinity of the existing pipelines.

7. Other Mineral Uses

There are no other known mineral resources located in or near South Timbalier Area Block 63.
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 drilling and completion activities in South Timbalier Area Block 63 are completed, Murphy Exploration & Production Company does anticipate dumping their excess water-based drilling fluids. 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.

The major sources of ocean dumping related to the proposed production activity will be the discharge of produced water and treated domestic wastes. 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 South Timbalier Area Block 63 are right whale (Eubalaena glacialis), finback whale (Balaenoptera physalus), humpback whale (Megaptera novaeangliae), sei whale (B. borealis), sperm whale (Physeter catodon), Kemp's ridley turtle (Lepidochelys kempii), green turtle (Chelonia mydas), hawksbill turtle (Eretmochelys
imbricata), leatherback turtle (Dermochelys coriacea), and loggerhead turtle (Caretta caretta) (USDOI, Region IV Endangered Species Notebook).

Endangered or threatened species expected to occur in the vicinity of the Dulac, Louisiana and Houma, Louisiana service bases are bald eagle (Haliaeetus leucocephalus) and American alligator (Alligator mississippiensis) (USDOI, Region IV Endangered Species Notebook). Bald eagle nesting areas occur between Morgan City and Houma (Beccasio et al., 1982). The American alligator is classified as threatened in Louisiana due to similarity of appearance. This species is neither endangered nor threatened biologically in Louisiana and a regulated harvest is permitted under State Law (USDOI, Region IV Endangered Species Notebook). 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 South Timbalier Area Block 63 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 Murphy Exploration & 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 Murphy Exploration & Production Company. Murphy Exploration & 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 clean-up 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 impacts that will occur as a result of drilling, discharging of drilling fluids and treated sewage, and platform installation and production are few in number and temporary in nature. The primary adverse impacts as a result of drilling activity 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. As with the drilling activity, the primary adverse impacts that will occur as a result of platform installation and production include a localized degradation of water quality in the vicinity of the production platform during disposal of produced water, domestic wastes and sewage; the potential
obstruction to commercial and recreational fishing vessels; and the disruption and/or killing of benthic and/or pelagic organisms.

Discharging is inevitable during OCS exploration and production operations. 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 discharges to be disposed overboard as a result of production activity will include produced water and domestic waste and sewage that is treated on the platform.

The environmental fate and effects of drilling muds and cuttings has been extensively addressed in a 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.

The following discussion of produced waters was summarized from the Draft Environmental Impact Statement for the Gulf of Mexico, Lease Sales 131, 135.

Produced waters discharged from production platforms into offshore waters are briny waters separated from produced hydrocarbons. The volume of produced waters is a variable dependent upon the formation and time.

The concentrations of most trace minerals found in produced waters are comparable to those in seawater. Studies of produced waters seem to indicate that the levels of the six elements most toxic to the marine environment (mercury, cadmium, silver, nickel, selenium, and lead) are not normally higher than the levels found in seawater and that no damage is caused by their presence.

Other contents and properties of produced waters which may have environmental effects are dissolved oxygen, non-hydrocarbon organic compounds, temperature, and salinity. The effects of these have been shown to be minimal and are localized near the discharge site.

Also found in produced waters are radionuclides, products of naturally occurring minerals found in shales and sandstones. The levels of these radionuclides may be up to four times greater than the concentrations found in open ocean surface waters. These higher levels seem to cause no apparent problems as there is a rapid dilution of formation waters when discharged offshore.
In offshore waters, diffusion and dispersion limit the effects of produced waters to a few meter radius of the discharge site (Harper, 1986). Few impacts have been documented in several large investigations (Boesch and Rabalais, 1985).

The following discussion of pipelines and associated impacts is summarized from the Regional Environmental Assessment, Gulf of Mexico, Pipeline Activities (USDOI, MMS, 1983b). Unavoidable impacts associated with pipeline installation include destruction of organisms and habitat by lay barge anchors and by jetting during trench excavation. Biota may also be smothered by the overburden suspended by the jetting operation. About 20 acres of sea bottom are affected by each linear nautical mile of trenched pipeline installed. The magnitude of the impact diminishes with distance from the pipeline (with decreasing sediment deposited, impacts are less severe). Currents eventually fill the trench and level the mounds essentially returning the area to pre-pipeline conditions. Suspension of sediments associated with jetting is considered a short-term impact as dilution occurs rapidly and background conditions are generally reached within 300 feet of the operation. Turbidity would have a nominal impact on phytoplankton productivity. Impacts on fish and invertebrate larvae are considered insignificant when the limited extent of the turbidity plume and its relatively short duration are considered in view of the vast numbers of such larvae and the limited time they are in any one location.

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 production activity site and are rapidly dissipated by the atmosphere depending upon climatic conditions. An Air Quality Review Report has been prepared for South Timbalier Area Block 63 and is included as an attachment to the Development Operations Coordination Document.

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 affected, 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 production operations. Visual No. 3 from the Final Environmental Impact Statement (USDOI, MMS, 1986) indicates that no archeological, cultural, or historic areas are in the vicinity of South Timbalier Area Block 63. Murphy Exploration & Production Company will make every effort to avoid disturbing any historically, culturally, or biologically significant feature.
V. LITERATURE CITED

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COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATE
DEVELOPMENT OPERATIONS COORDINATION DOCUMENT
GULF OF MEXICO

FOR
SOUTH TIMBALIER AREA BLOCK 63

SUBMITTED TO:
MS. DEBRA K. ORMSON
TECHNICAL ASSISTANT
MURPHY EXPLORATION & PRODUCTION COMPANY
P. O. BOX 1780
NEW ORLEANS, LOUISIANA 70161
(504/561-2409)

OCTOBER 27, 1995

PREPARED BY:
TIM MORTON & ASSOCIATES, INC.
REGULATORY & ENVIRONMENTAL CONSULTANTS
PROJECT NO. 95-281
COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION

DEVELOPMENT/PRODUCTION

Type of Plan

SOUTH TIMBALIER AREA BLOCK 63

Area and Block

OCS-G-0599

Lease Number

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

Arrangements have been made to publish Public Notices regarding the proposed activity no later than \text{11.2.95} \ldots \text{with THE ADVOCATE, the official journal of Louisiana, and with the HOUMA DAILY COURIER, the official journal of Terrebonne Parish.}

MURPHY EXPLORATION & PRODUCTION COMPANY

Lessee or Operator

\text{Charles A. Bedell}

Certifying Official

\text{10.30.95}

Date