

UNITED STATES GOVERNMENT
MEMORANDUM

September 26, 2003

To: Public Information (MS 5034)
From: Plan Coordinator, FO, Plans Section (MS 5231)

Subject: Public Information copy of plan

Control #	-	S-06270
Type	-	Supplemental Development Operations Coordinations Document
Lease(s)	-	OCS-G17151 Block - 198 High Island Area
Operator	-	Virgin Offshore U.S.A., Inc.
Description	-	Caisson and Well No. 2
Rig Type	-	Not Found

Attached is a copy of the subject plan.

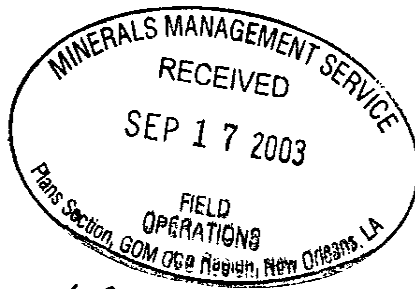
It has been deemed submitted as of this date and is under review for approval.


Michelle Griffitt
Plan Coordinator

Site Type/Name	Botm Lse/Area/Blk	Surface Location	Surf Lse/Area/Blk
CAIS/002		1906 FNL, 5892 FWL	G17151/HI/198
WELL/002	G17151/HI/198	1906 FNL, 5892 FWL	G17151/HI/198

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PUBLIC COPY

September 16, 2003

Supplemental

~~DEVELOPMENT~~ DEVELOPMENT OPERATIONS COORDINATION
DOCUMENT

Lease Number (s): OCS-G 17151
Area/Block: High Island Block 198
Prospect Name: Not applicable
Offshore: Texas

Submitted by: Virgin Offshore U.S. A., Inc.
909 Poydras Street
Suite 2200
New Orleans, LA 70122

J.T. (Todd) Collins
(504) 525-6909
tcollins@virginoil.net

Estimated start up date: *October 8,* ~~September 15,~~ 2003

CONTROL No. S-6270

REVIEWER: Michelle Griffitt

PHONE: (504) 736-2975

Authorized Representative:
Cheryl Murphy
J. Connor Consulting, Inc.
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No. Copies Being Submitted:

Proprietary: 5
Public Info: 4

For MMS:
Plan No. _____
Assigned to: _____

VIRGIN OFFSHORE U.S. A., INC.

INITIAL

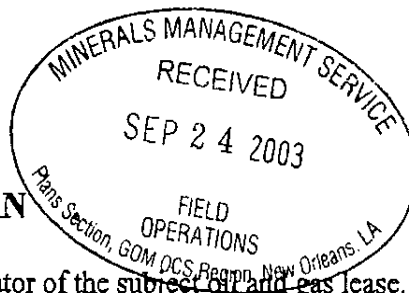
DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

LEASE OCS-G 17151

HIGH ISLAND BLOCK 198

APPENDIX A	<i>Contents of Plan</i>
APPENDIX B	<i>General Information</i>
APPENDIX C	<i>Geological, Geophysical & H₂S Information</i>
APPENDIX D	<i>Biological Information</i>
APPENDIX E	<i>Wastes and Discharge Information</i>
APPENDIX F	<i>Oil Spill Information</i>
APPENDIX G	<i>Air Emissions Information</i>
APPENDIX H	<i>Environmental Impact Analysis</i>
APPENDIX I	<i>Coastal Zone Management Consistency Information</i>
APPENDIX J	<i>Plan Information Form</i>

APPENDIX A CONTENTS OF PLAN



Virgin Offshore U.S. A., Inc. (Virgin) is the designated operator of the subject oil and gas lease.

(A) DESCRIPTION, OBJECTIVES AND SCHEDULE

This DOCD provides for installation of a ROW pipeline and commencement of production from the target sands as detailed in Appendix C of this DOCD. Well No. 002 was drilled and completed under a previously approved EP (Control No. S-5775).

Appendix J contains a Plan Information Form, which provides a description of proposed activities, and a tentative schedule.

(B) LOCATION

Included as *Attachment A-1* is a map showing the proposed location of the well and facility. Water depths are also indicated on the map. Additional well information is included in on the Well Information Form.

(C) DRILLING UNIT

Virgin does not propose any drilling operations in this DOCD.

(D) PRODUCTION FACILITIES

The subject well is protected by the existing temporary Caisson No. 002. Virgin will install a deck on the temporary Caisson No. 002 utilizing a jack-up lift boat and submit a permit to reclassify Caisson No. 002 as a permanent structure. A schematic of the structure is included as *Attachment A-2*.

Virgin anticipates installing minimal processing equipment on this structure. All hydrocarbon handling equipment installed for testing and production operations will be designed, installed and operated to prevent pollution.

A ROW pipeline will be installed to transport produced hydrocarbons from the subject structure to an existing platform within High Island Block 199. No new nearshore or onshore pipelines or facilities will be constructed.

The facility will be designed, installed and operated in accordance with current regulations, engineering documents incorporated by reference, and industry practice in order to ensure protection of personnel, environment and the facilities. When necessary, maintenance or repairs that are necessary to prevent pollution of offshore waters shall be undertaken immediately.

Y= 514800

SL

Virgin 198 #2

Virgin Offshore USA, Inc. OCS-G 17151 #2
 surface location X = 3513375.81 Y = 512899.56 LAT N 29
 09' 34.4032"; LONG W 94 15' 24.7377"
 1906.46' FNL & 5891.81' FWL

water depth approx 40'

Spinnaker 198 #1

197 #2

HOM 198 #1

198

OCS-G 17151

X=3507476

X=3523316

40 ft

Y=498960

PUBLIC INFORMATION



VIRGIN OFFSHORE USA, INC.

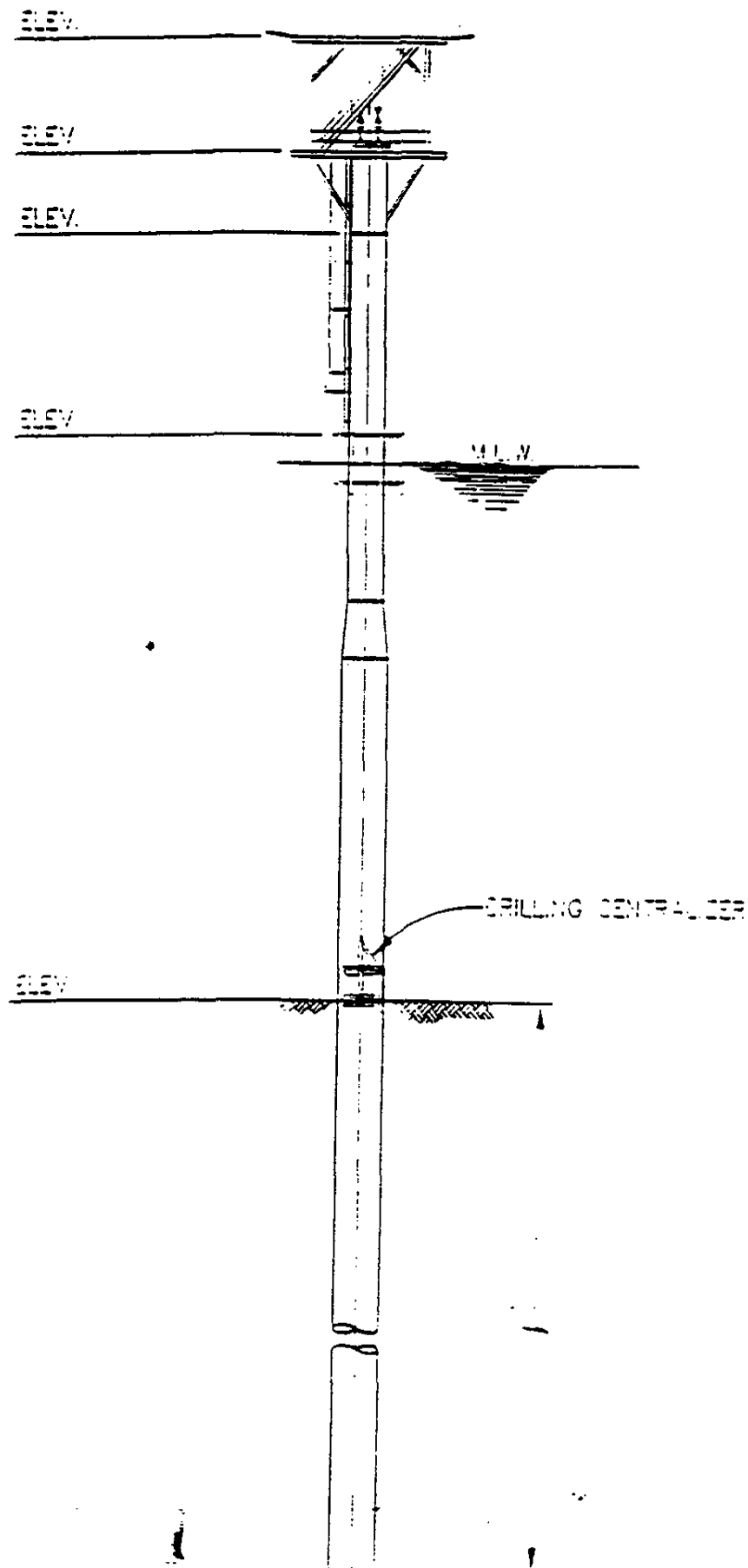
LOCATION PLAT WITH BATHYMETRY

High Island 198

Scale = 1:24000

0 2000 4000 6000 ft

TYPICAL WELL PROTECTOR CAISSON



APPENDIX B GENERAL INFORMATION

(A) CONTACT

Inquiries may be made to the following authorized representative:

Cheryl Murphy
J. Connor Consulting, Inc.
16225 Park Ten Place, Suite 700
Houston, Texas 77084
(281) 578-3388
E-mail address: cheryl.murphy@jccteam.com

(B) PROJECT NAME

Not applicable

(C) PRODUCTION RATES AND LIFE OF RESERVOIR

Type of Production	Average Estimated Rates	Estimated Peak
1) Crude Oil		
2) Gas		
3) Condensate		
Estimated Life of the Reservoir = PROPRIETARY DATA		

(D) NEW OR UNUSUAL TECHNOLOGY

Virgin does not propose to use any new or unusual technology to carry out the proposed development/production activities. New or unusual technology is defined as equipment and/or procedures that:

1. Function in a manner that potentially causes different impacts to the environment than the equipment or procedures did in the past;
2. Have not been used previously or extensively in an MMS OCS Region;
3. Have not been used previously under the anticipated operating conditions; or
4. Have operating characteristics that are outside the performance parameters established by 30 CFR 250.

(E) BONDING INFORMATION

The bond requirements for the activities and facilities proposed in this DOCD are satisfied by a \$500,000 development bond, furnished and maintained according to 30 CFR 256, subpart I; NTL No. N2000-G16, "Guidelines for General Lease Surety Bonds", dated September 7, 2000.

(F) ONSHORE BASE AND SUPPORT VESSELS

A Vicinity Map is included as **Attachment B-1** showing High Island Block 198 located approximately 28 miles from the nearest shoreline and approximately 73 miles from the onshore support base in Cameron, Louisiana.

The existing onshore base provides 24-hour service, a radio tower with a phone patch, dock space, equipment, and supply storage area, drinking and drill water, etc. The base serves as a loading point for tools, equipment, and machinery, and temporary storage for materials and equipment. The base also supports crew change activities. The proposed operations do not require expansion or major modifications to the base.

During the proposed activities, support vessels/helicopters and travel frequency are as follows:

Type	Weekly Estimate (No.) of Roundtrips	
	Drilling & Completion	Production Operations
Crew Boat	4	2
Supply Boat	4	0
Helicopter	2	3

The most practical, direct route from the shorebase as permitted by the weather and traffic conditions will be utilized.

(G) LEASE STIPULATIONS

The MMS did not invoke lease stipulations for Lease OCS-G 17151, High Island Block 198.

SPECIAL CONDITIONS

There are no related OCS facilities other than those proposed in this plan.

ARCHAEOLOGY SURVEY BLOCKS

High Island Block 198 has been determined as potentially containing prehistoric archaeological properties.

Review of the data obtained during the shallow hazard study does not indicate the presence of any historic period shipwrecks. •

(H) RELATED OCS FACILITIES AND OPERATIONS

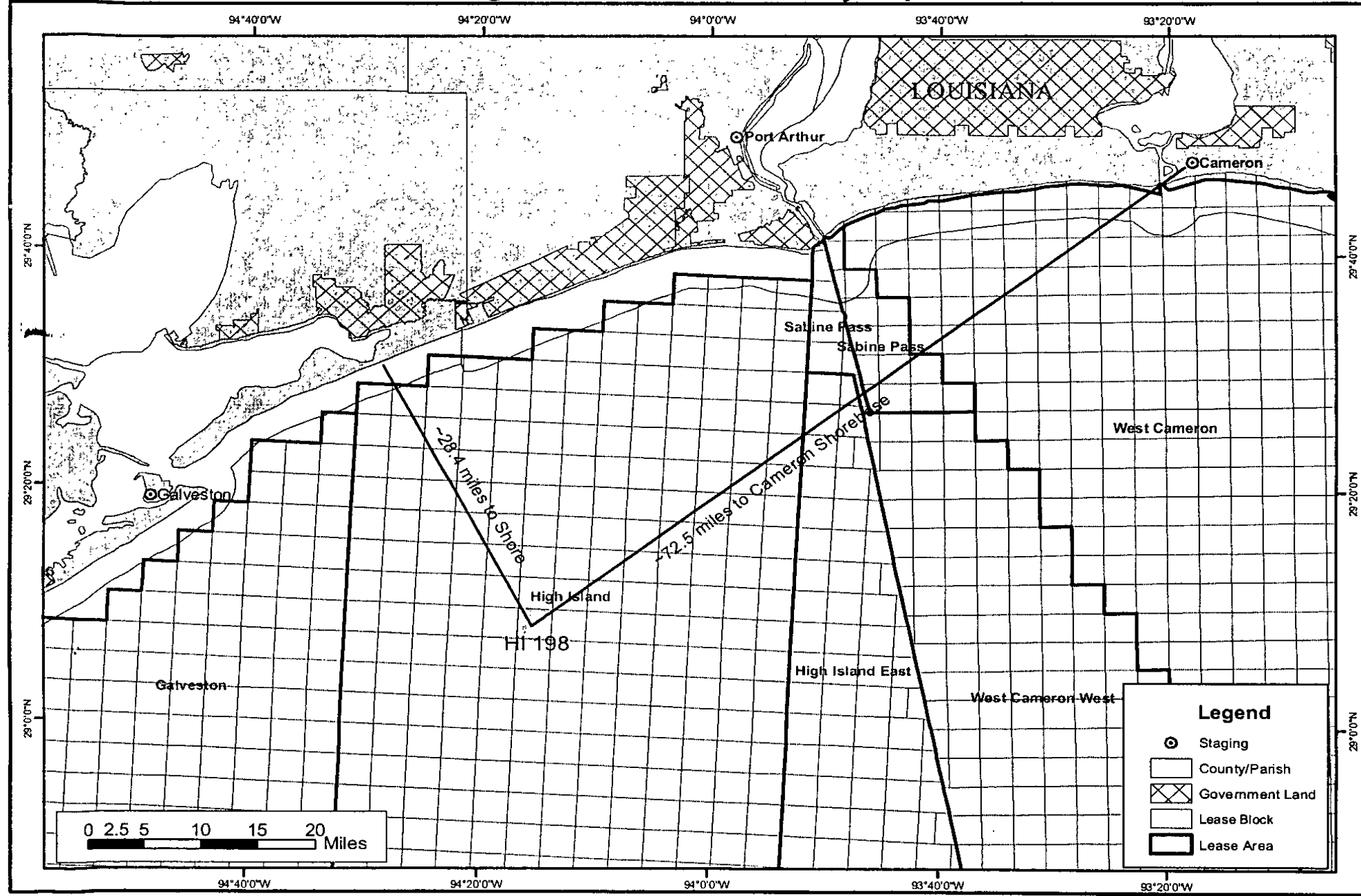
Virgin will be installing a 21,813', 6-5/8" gas/condensate ROW pipeline.

Maximum flow rates are anticipated to be 350 MCFD and 350 BOPD with a 15 second shut in time.

(I) TRANSPORTATION INFORMATION

The above mentioned pipeline will depart from High Island Block 198, Caisson No. 002 and flow full well stream to the A Platform in High Island Block 199 with the primary onshore terminal being located in Johnson Bayou, Louisiana.

High Island Block 198 Vicinity Map



APPENDIX C

GEOLOGICAL, GEOPHYSICAL, AND H₂S INFORMATION

(A) STRUCTURE CONTOUR MAPS

A current structure contour map drawn on the top of each productive hydrocarbon sand, showing the entire lease block the location of each proposed well, and the locations of geological cross-sections is included as *Attachment C-1*.

(B) TRAPPING FEATURES

The trapping features were included with the previously approved EP (Control No. S-5775).

(C) DEPTH OF GEOPRESSURE

The depth of geopressure was included with the previously approved EP (Control No. S-5775).

(D) INTERPRETED 3-D SEISMIC LINES

Attached to one Proprietary Information copy of this plan (*Attachment C-2*) are interpreted 3-D seismic lines. These lines are migrated, annotated with depth scale, and are within 500' of the surface location of the proposed well.

(E) GEOLOGICAL STRUCTURE CROSS-SECTIONS

An interpreted geological structure cross-section showing the location and depth of the proposed well and at least one key horizon or objective sand, is included as *Attachment C-3*.

(F) SHALLOW HAZARDS REPORT

A Shallow Hazards Report was previously submitted to MMS.

(G) SHALLOW HAZARDS ASSESSMENT

The proposed operations will be conducted from a previously approved surface location in Exploration Plan (Control No. S-5775); therefore, a shallow hazards assessment is not being provided.

(H) HIGH-RESOLUTION SEISMIC LINES

The proposed operations will be conducted from a previously approved surface location in Exploration Plan (Control No. S-5775); therefore high-resolution seismic lines are not being submitted.

(I) HYDROGEN SULFIDE INFORMATION

In accordance with Title 30 CFR 250.417(c), Virgin requests that High Island Block 198 be classified by the MMS as H₂S absent.

APPENDIX D BIOLOGICAL INFORMATION

CHEMOSYNTHETIC INFORMATION

This DOCD does not proposed activities that could disturb seafloor areas in water depths of 400 meters (1312 feet) or greater, therefore chemosynthetic information is not required.

TOPOGRAPHIC FEATURES INFORMATION

The activities proposed in this plan will not take place within 500 feet of any identified topographic feature, therefore topographic features information is not required.

LIVE BOTTOM (PINNACLE TREND) INFORMATION

High Island Block 198 is not located within 100 feet of any pinnacle trend feature with vertical relief equal to or greater than 8 feet; therefore, live bottom information is not required.

APPENDIX E

WASTES AND DISCHARGES INFORMATION

DISCHARGES

All discharges associated with operations proposed in this Development Operation Coordination Document will be in accordance with regulations implemented by Minerals Management Service (MMS), U. S. Coast Guard (USCG) and the U.S. Environmental Protection Agency (EPA).

For disposed wastes, the type and general characteristics of the wastes, the amount to be disposed of (volume, rate, or weight), the daily rate, the name and location of the disposal facility, a description of any treatment or storage, and the methods for transporting and final disposal are provided in tabular format in *Attachment E-1*. For purposes of this Appendix, disposed wastes describes those wastes generated by the proposed activities that are disposed of by means other than by releasing them in to the waters of the Gulf of Mexico at the site where they are generated. These wastes can be disposed of by offsite release, injection, encapsulation, or placement at either onshore or offshore permitted locations for the purpose of returning them back to the environment.

Disposal Table Example (Wastes to be disposed of, not discharged)

Type of Waste Approximate Composition	Amount*	Rate per Day	Name/Location of Disposal Facility	Treatment and/or Storage, Transport and Disposal Method
Spent oil-based drilling fluids and cuttings	NA	NA	NA	NA
Spent synthetic- based drilling fluids and cuttings	NA	NA	NA	NA
Oil-contaminated produced sand	NA	NA	NA	NA
Waste Oil	NA	NA	NA	NA
Produced water	NA	NA	NA	NA
Produced water	NA	NA	NA	NA
Norm- contaminated wastes	NA	NA	NA	NA
Trash and debris	100 ft ³	10 ft ³ /day	Newpark Environmental Cameron, Louisiana	Transport in storage bins on crew boat to a landfill
Chemical product wastes	NA	NA	NA	NA
Chemical product wastes	NA	NA	NA	NA
Workover fluids	NA	NA	NA	NA

*can be expressed as a volume, weight, or rate

APPENDIX F OIL SPILL INFORMATION



1. SITE-SPECIFIC OSRP

N/A

2. REGIONAL OSRP INFORMATION

Virgin Offshore U.S. A., Inc. is the only entity covered in their Regional Oil Spill Response Plan (OSRP) approved on December, 2001 and most recently updated and approved on August 19, 2003. Activities proposed in this DOCD will be covered by the Regional OSRP.

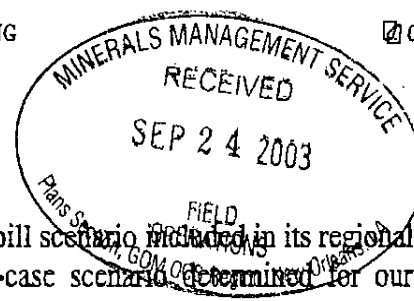
3. OSRO INFORMATION

Virgin's primary equipment provider is Clean Gulf Associates (CGA). The Marine Spill Response Corporation's (MSRC) STARS network will provide closest available personnel, as well as an MSRC supervisor to operate the equipment.

4. WORST-CASE SCENARIO COMPARISON

Category	Regional OSRP WCD	DOCD WCD
Type of Activity	Production	Caisson
Facility Location (Area/Block)	SM 152	HI 198
Facility Designation		Platform "A"
Distance to Nearest Shoreline (miles)	95	28
Volume		
Storage tanks (total)		0
Flowlines (on facility)		3
Lease pipelines	250	0
Uncontrolled blowout	250	40
Total Volume	500	43
Type of Oil(s) (crude, condensate, diesel)	Crude	Condensate
API Gravity	25°	40° - 45°

Virgin has determined that the worst-case scenario from the activities proposed in this DOCD does not supercede the worst-case scenario from our approved regional OSRP for far-shore activities.



Since Virgin has the capability to respond to the worst-case spill scenario included in its regional OSRP approved on December, 2001, and since the worst-case scenario determined for our DOCD does not replace the worst-case scenario in our regional OSRP, I hereby certify that Virgin has the capability to respond, to the maximum extent practicable, to a worst-case discharge, or a substantial threat of such a discharge, resulting from the activities proposed in our DOCD.

5. FACILITY TANKS, PRODUCTION VESSELS

There will be no facility tanks of 25 barrels or more associated with the proposed operations in this DOCD.

Type of Storage Tank	Type of Facility	Tank Capacity (bbls)	Number of Tanks	Total Capacity (bbls)	Fluid Gravity (API)
Fuel Oil (Marine Diesel)	NA	NA	NA	NA	NA
Production	NA	NA	NA	NA	NA

6. SPILL RESPONSE DISCUSSION FOR NEPA ANALYSIS

For the purpose of NEPA and Coastal Zone Management Act analysis, the largest spill response originating from the proposed activity would be a well blowout during drilling operations, estimated to be 43 BOPD of condensate with an API gravity of 42.5°.

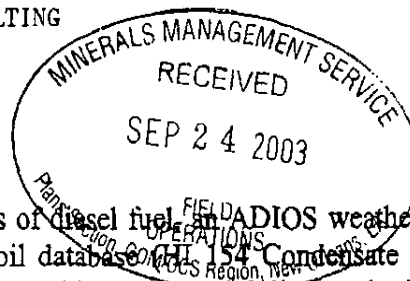
Land Segment and Resource Identification

Trajectories of a spill and the probability of it impacting a land segment have been projected utilizing information in MMS Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on MMS website. The results are shown in Figure F-1.

The MMS OSRAM identifies a ten percent probability of impact to the shorelines of Galveston County, Texas within ten days. Galveston County includes the Gulf Beach from the west end of Galveston Island at Texas Highway 3005 to the east coast of High Island at the Jefferson County line. Habitats include marshes at the west end of Seawall Boulevard and on the east end of the island and open beaches and avian feeding areas all along the coastline, including a National Audubon Society Sanctuary. The waters of Galveston Bay are classified as an EPA National Estuary. Additional discussion of protection strategies for potentially affected resources is included in Virgin Offshore's Regional Oil Spill Response Plan.

Response

Virgin Offshore will make every effort to respond to the Worst Case Discharge as effectively as possible. A description of the response equipment available to contain and recover the Worst Case Discharge is shown in Figure F-2.

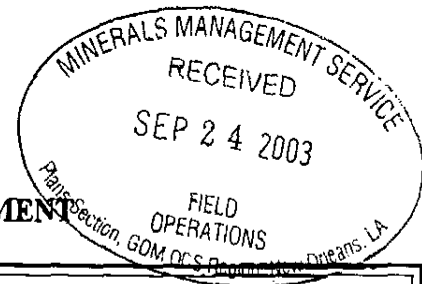


Using the estimated chemical and physical characteristics of diesel fuel, an ADIOS weathering model was run on a similar product from the ADIOS oil database (API gravity = 41.2°). The results indicate 69% of the product would be evaporated/dispersed within 12 hours, leaving approximately 13 barrels on the water.

Figure F-2 outlines equipment, personnel, materials and support vessels as well as temporary storage equipment to be considered in order to cope with an initial spill of 43 bbls. The list estimates individual times needed for procurement, load out, travel time to the site and deployment. If appropriate, 1 sortie (1,000 gallons) from the DC-3 should disperse approximately 429 barrels of oil.

Offshore response strategies may also include attempting to skim utilizing one (1) Fast Response Unit (FRU), and the Timbalier Bay spill response vessel, with a total derated skimming capacity of 8,400 barrels. Temporary storage associated with the identified skimming equipment equals 265 barrels. If additional temporary storage is needed, a temporary storage barge may be mobilized. **SAFETY IS FIRST PRIORITY. AIR MONITORING WILL BE ACCOMPLISHED AND OPERATIONS DEEMED SAFE PRIOR TO ANY CONTAINMENT/SKIMMING ATTEMPTS**

If the spill went unabated, shoreline impact in coastal environments would depend upon existing environmental conditions. Onshore response may include the deployment of shoreline boom on beach areas, or protection and sorbent boom in vegetated areas. Strategies would be based upon surveillance and real time trajectories that depict areas of potential impact given actual sea and weather conditions. Strategies from the Western Gulf Area Contingency Plans (ACP), and Unified Command would be consulted to ensure that environmental and special economic resources would be correctly identified and prioritized to ensure optimal protection. ACPs depict the protection response modes applicable for oil spill clean-up operations. Each response mode is schematically represented to show optimum deployment and operation of the equipment in areas of environmental concern. Supervisory personnel have the option to modify the deployment and operation of equipment allowing a more effective response to site-specific circumstances.



**FIGURE F-1
TRAJECTORY BY LAND SEGMENT**

Trajectory of a spill and the probability of it impacting a land segment have been projected utilizing Virgin Offshore's WCD and information in MMS Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on MMS website using ten (10) day impact. The results are tabulated below.

Area/Block	OCS-G	Launch Area	Land Segment and/or Resource	Conditional Probability (%) within 10 days
Drilling, Completion, Installation & Production 28 miles from shore High Island 198	17151	W14	Matagorda, TX	6
			Brazoria, TX	8
			Chambers, TX	33
			Galveston, TX	33
			Jefferson, TX	24
			Cameron, LA	4

WCD Scenario - Development Drilling - **BASED ON A SINGLE WELL BLOWOUT** (28 miles from shore)

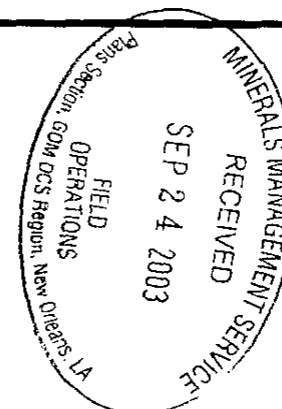
Jack-up Drilling Rig, High Island 198

43 bbls of condensate, API Gravity 42.5*

FIGURE F-2 Equipment Response Time to: High Island 198

EQUIPMENT				Owner/ Location	Initial Staging	Hours To Staging Area	TOTAL Time to Procure (1)	Time to Load Out (2)	Travel Time (Staging/ Spill) (3)	Time to Deploy (4)	TOTAL Estimated Response Time
TYPE	Rated Capacity (BBLs)	Storage (BBLs)	No. of Units								
A	DC 3 Spray Aircraft	--	--	1	ASI/HOUMA	HOUMA	0				
	Spotter Plane			1	ASI/HOUMA	HOUMA	0				
	Spotter Personnel			2	ASI/HOUMA	HOUMA	1				
	Dispersant				CGA/HOUMA	HOUMA	0	1	1	0	3
B	FRU/Expandi	3,400	200	1	CGA/LAKE CHARLES	CAMERON	0				
	Operators			6	STARS*	CAMERON	2				
	Utility Boat			1	Vessel of Opportunity	CAMERON	2	2	1	1	8.5
	Crew Boat			1	Vessel of Opportunity	CAMERON	2				
D	Bastian Bay Response Vessel	5,000	65	1	CGA/HOUMA	HOUMA	.5				
	Operators			3	STARS*	HOUMA	2	2	0.5	0	4.5
E	INITIAL SUPPORT										
	Spotter Helo	--	--	1	PHI/HOUMA	SPILL SITE	1	1	0.5	--	1.5
	Surveillance Helo	--	--	1	PHI/HOUMA	SPILL SITE	1	1	1.5	--	1.5
	Hand Held Radios	--	--		STARS*	HOUMA	1.5	1.5	1	--	2.5
TOTAL		8,400	265								

*STARS contractor called out by MSRC



Virgin Offshore U.S. A., Inc.

Initial DOCD

High Island Block 198 (OCS-G 17151)

Page F-5

September 24, 2003

APPENDIX G

AIR EMISSIONS INFORMATION

AIR EMISSIONS INFORMATION (If any of these answers are "yes" – the spreadsheets need to be submitted)

Screening Questions for DOCD's	Yes	No
Is any calculated Complex Total (CT) Emission amount (tons) associated with your proposed exploration activities more than 90% of the amounts calculated using the following formulas: $CT = 3400D^{2/3}$ for CO, and $CT = 33.3D$ for the other air pollutants (where D = distance to shore in miles)?		X
Do your emission calculations include any emission reduction measures or modified emission factors?		X
Does or will the facility complex associated with your proposed development and production activities process production from eight or more wells?		X
Do you expect to encounter H ₂ S at concentrations greater than 20 parts per million (ppm)?		X
Do you propose to flare or vent natural gas in excess of the criteria set forth under 250.1105(a)(2) and (3)?		X
Do you propose to burn produced hydrocarbon liquids?		X
Are your proposed development and production activities located within 25 miles from shore?		X
Are your proposed development and production activities located within 200 kilometers of the Breton Wilderness Area?		X

Summary Information

Summary information regarding the peak year emissions for Plan Emissions and Complex Total Emissions are provided in the table below.

Air Pollutant	Plan Emission Amounts ¹ (tons)	Calculated Exemption Amounts ² (tons)	Calculated Complex Total Emission Amounts ³ (tons)
Carbon Monoxide (CO)	0.00	31350.97	0.00
Particular matter (PM)	0.00	932.40	0.00
Sulphur dioxide (SO ₂)	0.00	932.40	0.00
Nitrogen oxides (NO _x)	0.00	932.40	0.00
Volatile organic compounds (VOC)	.21	932.40	.21

¹For activities proposed in your DOCD, list the projected emissions calculated from the worksheets.

²List the exemption amounts for your proposed activities calculated by using the formulas in 30 CFR 250.303(d).

³List the complex total emissions associated with your proposed activities calculated from the worksheets.

This information was calculated by: Cheryl Murphy
(281) 578-3388
cheryl.murphy@jccteam.com

Based on this data, emissions from the proposed activities will not cause any significant effect on onshore air quality.

APPENDIX H ENVIRONMENTAL IMPACT ANALYSIS (EIA)

(B) Analysis

Site-Specific at High Island Block 198

Proposed operations consist of the installing a 6 inch gas and condensate right-of-way pipeline.

1. Designated Topographic Features

Potential IPFs on topographic features include physical disturbances to the seafloor and accidents.

Physical disturbances to the seafloor and effluents: High Island Block 198 is 55 miles from the closest designated Topographic Features Stipulation Block (Claypile Bank), and therefore no adverse impacts are expected.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities (refer to statistics in **Item 5**, Water Quality). Oil spills cause damage to benthic organisms only if the oil contacts the organisms. Oil from a surface spill can be driven into the water column; measurable amounts have been documented down to a 10 m depth. At this depth, the oil is found only at concentrations several orders of magnitude lower than the amount shown to have an effect on corals. Because the crests of topographic features in the Northern Gulf of Mexico are found below 10 m, no oil from a surface spill could reach their sessile biota. Oil from a subsurface spill is not applicable due to the distance of these blocks from a topographic area. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

There are no other IPFs (including emissions, effluents and wastes sent to shore for disposal) from the proposed activities, which could impact topographic features.

2. Pinnacle Trend Area Live Bottoms

Potential IPFs on pinnacle trend area live bottoms include physical disturbances to the seafloor and accidents.

Physical disturbances to the seafloor and effluents: High Island Block 198 is greater than 100 miles from the closest live bottom (pinnacle trend) area, and therefore no adverse impacts are expected.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities (refer to statistics in **Item 5, Water Quality**). Oil spills have the potential to foul benthic communities and cause lethal and sublethal effects on live bottom organisms. Oil from a surface spill can be driven into the water column; measurable amounts have been documented down to a 10 m depth. At this depth, the oil is found only at concentrations several orders of magnitude lower than the amount shown to have an effect on marine organisms. Oil from a subsurface spill is not applicable due to the distance of these blocks from a live bottom (pinnacle trend) area. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

There are no other IPFs (including emissions, effluents and wastes sent to shore for disposal) from the proposed activities which could impact a live bottom (pinnacle trend) area.

3. Eastern Gulf Live Bottoms

Potential IPFs on Eastern Gulf live bottoms include physical disturbances to the seafloor and accidents.

Physical disturbances to the seafloor and effluents: High Island Block 198 is not located in an area characterized by the existence of live bottoms, and this lease does not contain a Live-Bottom Stipulation requiring a photo documentation survey and survey report.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities (refer to statistics in **Item 5, Water Quality**). Oil spills cause damage to live bottom organisms only if the oil contacts the organisms. Oil from a surface spill can be driven into the water column; measurable amounts have been documented down to a 10 m depth. At this depth, the oil is found only at concentrations several orders of magnitude lower than the amount shown to have an effect on marine invertebrates. Oil from a subsurface spill is not applicable due to the distance of these blocks from a live bottom area. The activities proposed in this plan will be covered by Virgin's Regional OSRP (refer to information submitted in **Appendix F**).

There are no other IPFs (including emissions, effluents and wastes sent to shore for disposal) from the proposed activities which could impact an Eastern Gulf live bottom area.

4. Chemosynthetic Communities

There are no IPFs (including emissions, physical disturbances to the seafloor, wastes sent to shore for disposal, or accidents) from the proposed activities that could cause impacts to chemosynthetic communities.

Operations proposed in this plan are in water depths of 40 feet. High-density chemosynthetic communities are found only in water depths greater than 400 m, therefore Virgin's proposed operations in High Island Block 198 would not cause impacts to chemosynthetic communities.

5. Water Quality

IPFs that could result in water quality degradation from the proposed operations in High Island Block 198 include disturbances to the seafloor, and accidents.

Physical disturbances to the seafloor: Bottom area disturbances resulting from the emplacement of drill rigs, the drilling of wells, and the installation of platforms and pipelines, would increase water-column turbidity and re-suspension of any accumulated pollutants, such as trace metals and excess nutrients. This would cause short-lived impacts on water quality conditions in the immediate vicinity of the emplacement operations.

Accidents: Oil spills have the potential to alter offshore water quality; however, it is unlikely that an accidental surface or subsurface spill would occur from the proposed activities. Between 1980 and 2000, OCS operations produced 4.7 billion barrels of oil and spilled only 0.001 percent of this oil, or 1 bbl for every 81,000 bbl produced. The spill risk related to a diesel spill from drilling operations is even less. Between 1976 and 1985, (years for which data were collected), there were 80 reported diesel spills greater than one barrel associated with drilling activities. Considering that there were 11,944 wells drilled, this is a 0.7 percent probability of an occurrence. If a spill were to occur, the water quality of marine waters would be temporarily affected by the dissolved components and small oil droplets. Dispersion by currents and microbial degradation would remove the oil from the water column and dilute the constituents to background levels. Historically, changes in offshore water quality from oil spills have only been detected during the life of the spill and up to several months afterwards. Most of the components of oil are insoluble in water and therefore float. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

There are no other IPFs (including emissions, physical disturbances to the seafloor, effluents and wastes sent to shore for disposal) from the proposed activities which could cause impacts to water quality.

6. Fisheries

IPFs that could cause impacts to fisheries as a result of the proposed operations in High Island Block 198 include physical disturbances to the seafloor, and accidents.

Physical disturbances to the seafloor: The emplacement of a structure or drilling rig results in minimal loss of bottom trawling area to commercial fishermen. Pipelines cause gear conflicts which result in losses of trawls and shrimp catch, business downtime, and vessel damage. Most

financial losses from gear conflicts are covered by the Fishermen's Contingency Fund (FCF). The emplacement and removal of facilities are not expected to cause significant adverse impacts to fisheries.

Accidents: An accidental oil spill has the potential to cause some detrimental effects on fisheries, however, it is unlikely that such an event would occur from the proposed activities (refer to **Item 5**, Water Quality). The effects of oil on mobile adult finfish or shellfish would likely be sublethal and the extent of damage would be reduced to the capacity of adult fish and shell fish to avoid the spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

There are no IPFs from emissions, effluents or wastes sent to shore for disposal from the proposed activities which could cause impacts to fisheries.

7. Marine Mammals

GulfCet II studies revealed that cetaceans of the continental shelf and shelf-edge were almost exclusively bottlenose dolphin and Atlantic spotted dolphin. Squid eaters, including dwarf and pygmy killer whale, Risso's dolphin, rough-toothed dolphin, and Cuvier's beaked whale, occurred most frequently along the upper slope in areas outside of anticyclones. IPFs that could cause impacts to marine mammals as a result of the proposed operations in High Island Block 198 include emissions, discarded trash and debris, and accidents.

Emissions: Noises from drilling activities, support vessels and helicopters may elicit a startle reaction from marine mammals. This reaction may lead to disruption of marine mammals' normal activities. Stress may make them more vulnerable to parasites, disease, environmental contaminants, and/or predation (Majors and Myrick, 1990). There is little conclusive evidence for long-term displacements and population trends for marine mammals relative to noise.

Discarded trash and debris: Both entanglement in, and ingestion of, debris have caused the death or serious injury of marine mammals (Laist, 1997; MMC, 1999). The limited amount of marine debris, if any, resulting from the proposed activities is not expected to substantially harm marine mammals. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V and the Marine Plastic Pollution Research and Control Act, and regulations imposed by various agencies including the United States Coast Guard (USCG) and the Environmental Protection Agency (EPA).

Virgin will operate in accordance with the regulations and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. Special caution will be exercised when handling and disposing of small items and packaging

materials, particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video, "All Washed Up: The Beach Litter Problem". Thereafter, all personnel will view the marine trash and debris training video annually.

Accidents: Collisions between support vessels and cetaceans would be unusual events, however should one occur, death or injury to marine mammals is possible. Contract vessel operators can avoid marine mammals and reduce potential deaths by maintaining a vigilant watch for marine mammals and maintaining a safe distance when they are sighted. Vessel crews should use a reference guide to help identify the twenty-eight species of whales and dolphins, and the single species of manatee that may be encountered in the Gulf of Mexico OCS. Vessel crews must report sightings of any injured or dead protected marine mammal species immediately, regardless of whether the injury or death is caused by their vessel, to the Marine Mammal and Sea Turtle Stranding Hotline at (800) 799-6637, or the Marine Mammal Stranding Network at (305) 862-2850. In addition, if the injury or death was caused by a collision with a contract vessel, the MMS must be notified within 24 hours of the strike by email to protectedspecies@mms.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

Oil spills have the potential to cause sublethal oil-related injuries and spill-related deaths to marine mammals. However, it is unlikely that an accidental oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). Oil spill response activities may increase vessel traffic in the area, which could add to changes in cetacean behavior and/or distribution, thereby causing additional stress to the animals. The effect of oil dispersants on cetaceans is not known. The acute toxicity of oil dispersant chemicals included in Virgin's OSRP is considered to be low when compared with the constituents and fractions of crude oils and diesel products. The activities proposed in this plan will be covered by Virgin's Oil Spill Response Plan (refer to information submitted in accordance with **Appendix F**).

There are no other IPFs (including physical disturbances to the seafloor and effluents) from the proposed activities which could impact marine mammals.

8. Sea Turtles

IPFs that could cause impacts to sea turtles as a result of the proposed operations include emissions, discarded trash and debris, and accidents. GulfCet II studies sighted most loggerhead, Kemp's ridley, and leatherback sea turtles over shelf waters. Historically these species have been sighted up to the shelf's edge. They appear to be more abundant east of the Mississippi

River than they are west of the river (Fritts et al., 1983b; Lohoefer et al., 1990). Deep waters may be used by all species as a transitory habitat.

Emissions: Noise from drilling activities, support vessels, and helicopters may elicit a startle reaction from sea turtles, but this is a temporary disturbance.

Discarded trash and debris: Both entanglement in, and ingestion of, debris have caused the death or serious injury of sea turtles (Balazs, 1985). The limited amount of marine debris, if any, resulting from the proposed activities is not expected to substantially harm sea turtles. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V and the Marine Plastic Pollution Research and Control Act, and regulations imposed by various agencies including the United States Coast Guard (USCG) and the Environmental Protection Agency (EPA). Virgin will operate in accordance with the regulations and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. Special caution will be exercised when handling and disposing of small items and packaging materials, particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video, "All Washed Up: The Beach Litter Problem". Thereafter, all personnel will view the marine trash and debris training video annually.

Accidents: Collisions between support vessels and sea turtles would be unusual events, however should one occur, death or injury to sea turtles is possible. Contract vessel operators can avoid sea turtles and reduce potential deaths by maintaining a vigilant watch for sea turtles and maintaining a safe distance when they are sighted. Vessel crews should use a reference guide to help identify the five species of sea turtles that may be encountered in the Gulf of Mexico OCS. Vessel crews must report sightings of any injured or dead protected sea turtle species immediately, regardless of whether the injury or death is caused by their vessel, to the Marine Mammal and Sea Turtle Stranding Hotline at (800) 799-6637, or the Marine Mammal Stranding Network at (305) 862-2850. In addition, if the injury or death was caused by a collision with a contract vessel, the MMS must be notified within 24 hours of the strike by email to protectedspecies@mms.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

All sea turtle species and their life stages are vulnerable to the harmful effects of oil through direct contact or by fouling of their food. Exposure to oil can be fatal, particularly to juveniles and hatchlings. However, it is unlikely that an accidental oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). Oil spill response activities may increase vessel traffic in the area, which could add to the possibility of collisions with sea turtles. The activities

proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in accordance with **Appendix F**).

There are no other IPFs (including physical disturbances to the seafloor and effluents) from the proposed activities which could impact sea turtles.

9. Air Quality

There would be a limited degree of air quality degradation in the immediate vicinity of the proposed activities. Plan Emissions (Complex Total Emissions are the same as Plan Emissions) for the proposed activities do not exceed the annual exemption levels as set forth by MMS. There are no other IPFs (including effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or accidents) from the proposed activities which could impact air quality.

10. Shipwreck Sites (known or potential)

IPFs that could impact known or unknown shipwreck sites as a result of the proposed operations in High Island Block 198 include disturbances to the seafloor. High Island Block 198 is not located in an OCS block designated by MMS as having a high probability for occurrence of shipwrecks. Virgin will report to MMS the discovery of any evidence of a shipwreck and make every reasonable effort to preserve and protect that cultural resource. There are no other IPFs (including emissions, effluents, wastes sent to shore for treatment or disposal, or accidents) from the proposed activities which could impact shipwreck sites.

11. Prehistoric Archaeological Sites

IPFs that could cause impacts to prehistoric archaeological sites as a result of the proposed operations in High Island Block 198 are disturbances to the seafloor and accidents (oil spills).

Disturbances to the seafloor: High Island Block 198 is located inside the Archaeological Prehistoric high probability lines. Virgin will report to MMS the discovery of any object of prehistoric archaeological significance and make every reasonable effort to preserve and protect that cultural resource.

Accidents: An accidental oil spill has the potential to cause some detrimental effects to prehistoric archaeological sites if the release were to occur subsea. However, it is unlikely that an accidental oil spill would occur from the proposed activities (refer to **Item 5, Water Quality**). The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in accordance with **Appendix F**).

There are no other IPFs (including emissions, effluents, wastes sent to shore for treatment or disposal) from the proposed activities that could cause impacts to prehistoric archaeological sites.

Vicinity of Offshore Location

1. Essential Fish Habitat (EFH)

IPFs that could cause impacts to EFH as a result of the proposed operations in High Island Block 198 include physical disturbances to the seafloor, and accidents. EFH includes all estuarine and marine waters and substrates in the Gulf of Mexico.

Physical disturbances to the seafloor: The Live Bottom Low Relief Stipulation, the Live Bottom (Pinnacle Trend) Stipulation, and the Eastern Gulf Pinnacle Trend Stipulation would prevent most of the potential impacts on live-bottom communities and EFH from bottom disturbing activities (e.g., anchoring, structure emplacement and removal).

Accidents: An accidental oil spill has the potential to cause some detrimental effects on EFH. Oil spills that contact coastal bays and estuaries, as well as OCS waters when pelagic eggs and larvae are present, have the greatest potential to affect fisheries. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

There are no other IPFs (including emissions, effluents or wastes sent to shore for treatment or disposal) from the proposed activities which could impact essential fish habitat.

2. Marine and Pelagic Birds

IPFs that could impact marine birds as a result of the proposed activities include air emissions, accidental oil spills, and discarded trash and debris from vessels and the facilities.

Emissions: Emissions of pollutants into the atmosphere from the proposed activities are far below concentrations which could harm coastal and marine birds.

Accidents: An oil spill would cause localized, low-level petroleum hydrocarbon contamination. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). Marine and pelagic birds feeding at the spill location may experience chronic, nonfatal, physiological stress. It is expected that few, if any, coastal and marine birds would actually be affected to that extent. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan P (refer to information submitted in **Appendix F**).

Discarded trash and debris: Marine and pelagic birds could become entangled and snared in discarded trash and debris, or ingest small plastic debris, which can cause permanent injuries and death. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V and the Marine Plastic Pollution Research and Control Act, and regulations imposed by

various agencies including the United States Coast Guard (USCG) and the Environmental Protection Agency (EPA). Virgin will operate in accordance with the regulations and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. Special caution will be exercised when handling and disposing of small items and packaging materials, particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass. Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video, "All Washed Up: The Beach Litter Problem". Thereafter, all personnel will view the marine trash and debris training video annually. Debris, if any, from these proposed activities will seldom interact with marine and pelagic birds, and therefore, the effects will be negligible.

There are no other IPFs (including effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities which could impact marine and pelagic birds.

3. Public Health and Safety Due to Accidents.

There are no IPFs (emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or accidents, including an accidental H₂S release) from the proposed activities which could cause impacts to public health and safety. In accordance with 30 CFR 250.417(c) and 2002-G08, sufficient information is included in **Appendix C** to justify our request that our proposed activities be classified by MMS as H₂S absent.

Coastal and Onshore

1. Beaches

IPFs from the proposed activities that could cause impacts to beaches include accidents (oil spills) and discarded trash and debris.

Accidents: Oil spills contacting beaches would have impacts on the use of recreational beaches and associated resources. Due to the distance from shore (28 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. The activities proposed in this plan will be covered by Virgin's Regional OSRP (refer to information submitted in **Appendix F**).

Discarded trash and debris: Trash on the beach is recognized as a major threat to the enjoyment and use of beaches. There will only be a limited amount of marine debris, if any, resulting from the proposed activities. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V and the Marine Plastic Pollution Research and

Control Act, and regulations imposed by various agencies including the United States Coast Guard (USCG) and the Environmental Protection Agency (EPA). Virgin will operate in accordance with the regulations and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. Special caution will be exercised when handling and disposing of small items and packaging materials, particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video, "All Washed Up: The Beach Litter Problem". Thereafter, all personnel will view the marine trash and debris training video annually.

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities which could impact beaches.

2. Wetlands

Salt marshes and seagrass beds fringe the coastal areas of the Gulf of Mexico. Due to the distance from shore (28 miles), accidents (oil spills) represent an IPF which could impact these resources.

Accidents: Level of impact from an oil spill will depend on oil concentrations contacting vegetation, kind of oil spilled, types of vegetation affected, season of the year, pre-existing stress level of the vegetation, soil types, and numerous other factors. Light-oiling impacts will cause plant die-back with recovery within two growing seasons without artificial replanting. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water quality). If a spill were to occur, response capabilities as outlined in Virgin's Regional Oil Spill Response Plan (refer to information submitted in Appendix F) would be implemented.

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities that could cause impacts to wetlands.

3. Shore Birds and Coastal Nesting Birds

McFaddin NWR (31 miles from High Island Block 198) is a highly productive habitat for wildlife. Thousands of shore birds use the refuge as a wintering area. Wading birds nest on the refuge. The NWR provides habitat for colonies of nesting wading birds and seabirds as well as wintering shorebirds and waterfowl. The most abundant nesters are brown pelicans, laughing gulls, and royal, Caspian, and sandwich terns. IPFs from the proposed activities that could cause impacts to shore birds and coastal nesting birds are accidents (oil spills) and discarded trash and debris.

Accidents: Oil spills could cause impacts to shore birds and coastal nesting birds. The birds most vulnerable to direct effects of oiling include those species that spend most of their time swimming on and under the sea surface, and often aggregate in dense flocks (Piatt et al., 1990; Vauk et al., 1989). Coastal birds, including shorebirds, waders, marsh birds, and certain water fowl, may be the hardest hit indirectly through destruction of their feeding habitat and/or food source (Hansen, 1981; Vermeer and Vermeer, 1975). Direct oiling of coastal birds and certain seabirds is usually minor; many of these birds are merely stained as a result of their foraging behaviors. Birds can ingest oil when feeding on contaminated food items or drinking contaminated water.

Oil-spill cleanup operations will result in additional disturbance of coastal birds after a spill. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water quality). Due to the distance from shore being 28 miles, Virgin would immediately implement the response capabilities outlined in their Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

Discarded trash and debris: Coastal and marine birds are highly susceptible to entanglement in floating, submerged, and beached marine debris: specifically plastics. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V and the Marine Plastic Pollution Research and Control Act, and regulations imposed by various agencies including the United States Coast Guard (USCG) and the Environmental Protection Agency (EPA). Virgin will operate in accordance with the regulations and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. Special caution will be exercised when handling and disposing of small items and packaging materials, particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass.

Informational placards will be posted on vessels and every facility that has sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video, "All Washed Up" "The Beach Litter Problem." Thereafter, all personnel will view the marine trash and debris training video annually.

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities that could cause impacts to shore birds and coastal nesting birds.

4. Coastal Wildlife Refuges

High Island Block 198 is approximately 31 miles from the McFaddin NWR. Management goals of the NWR are waterfowl habitat management, marsh restoration, providing sanctuary for nesting and wintering seabirds, and providing sandy beach habitat for a variety of wildlife species. IPFs from the proposed activities that could cause impacts to this coastal wildlife refuge are accidents (oil spills) and discarded trash and debris.

Impacts to shore birds and coastal nesting birds and to the beach, was covered in previous sections. Other wildlife species found on the refuges include nutria, rabbits, raccoons, alligators, and loggerhead turtles. Impacts to loggerhead turtles were also covered under a previous section.

It is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water quality). Response capabilities would be implemented, no impacts are expected. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities that could cause impacts to coastal wildlife refuges.

5. Wilderness Areas

An accidental oil spill from the proposed activities could cause impacts to wilderness areas. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). Due to the distance from the nearest designated wilderness area (greater than 100 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. The activities proposed in this plan will be covered by Virgin's Regional Oil Spill Response Plan (refer to information submitted in **Appendix F**).

6. Other Environmental Resources Identified

None

(C) Impacts on your proposed activities.

The site-specific environmental conditions have been taken into account for the proposed activities. No impacts are expected on the proposed activities from site-specific environmental conditions.

(D) Alternatives

No alternatives to the proposed activities were considered to reduce environmental impacts.

(E) Mitigation Measures

No mitigation measures other than those required by regulation will be employed to avoid, diminish, or eliminate potential impacts on environmental resources.

(F) Consultation

No agencies or persons were consulted regarding potential impacts associated with the proposed activities. Therefore, a list of such entities has not been provided.

(G) References

Authors:

- American Petroleum Institute (API). 1989. Effects of offshore petroleum operations on cold water marine mammals: a literature review. Washington, DC: American Petroleum Institute. 385 pp.
- Balazs, G.H. 1985. Impact of ocean debris on marine turtles: entanglement and ingestion. In: Shomura, R.S. and H.O. Yoshida, eds. Proceedings, Workshop on the Fate and Impact of Marine Debris, 26-29 November 1984, Honolulu, HI. U.S. Dept. of Commerce. NOAA Tech. Memo. NOAA-TM-NMFS-SWFC-54. Pp 387-429.
- Burke, C.J. and J.A. Veil. 1995. Potential benefits from regulatory consideration of synthetic drilling muds. Environmental Assessment Division, Argonne National Laboratory, ANL/EAD/TM-43
- Daly, J.M. 1997. Controlling the discharge of synthetic-based drilling fluid contaminated cuttings in waters of the United States. U.S. Environmental Protection Agency, Office of Water. Work Plan, June 24, 1997.
- Hansen, D.J. 1981. The relative sensitivity of seabird populations in Alaska to oil pollution. U.S. Dept. of the Interior, Bureau of Land Management, Alaska OCS Region, Anchorage. BLM-YK-ES-81-006-1792.
- Laist, D.W. 1997. Impacts of marine debris: entanglement of marine life in marine debris including a comprehensive list of species with entanglement and ingestion records. In: Coe, J.M. and D.B. Rogers, eds. Marine debris: sources, impacts, and solutions. New York, NY: Springer-Verlag. Pp. 99-139
- Majors, A.P. and A.C. Myrick, Jr. 1990. Effects of noise on animals: implications for dolphins exposed to seal bombs in the eastern tropical Pacific purse-seine fishery—an annotated bibliography. NOAA Administrative Report LJ-90-06.
- Marine Mammal Commission. 1999. Annual report to Congress – 1998
- Piatt, J.F., C.J. Lensink, W. Butler, M. Kendziorek, and D.R. Nysewander. 1990. Immediate impact of the Exxon Valdez oil spill on marine birds. *The Auk*. 107 (2): 387-397
- Vauk, G., E. Hartwig, B. Reineking, and E. Vauk-Hentzelt. 1989. Losses of seabirds by oil pollution at the German North Sea coast. *Topics in Marine Biology*. Ros, J.D, ed. *Scient. Mar.* 53 (2-3): 749-754
- Vermeer, K. and R. Vermeer, 1975. Oil threat to birds on the Canadian west coast. *The Canadian Field-Naturalist*. 89:278-298.

Although not cited, the following were utilized in preparing this EIA:

- Hazard Surveys
- MMS EIS's:
 - GOM Deepwater Operations and Activities. Environmental Assessment. MMS 2000-001
 - GOM Central and Western Planning Areas Sales 166 and 168 Final Environmental Impact Statement. MMS 96-0058

(A) Impact Producing Factors**ENVIRONMENTAL IMPACT ANALYSIS WORKSHEET**

Environment Resources	Impact Producing Factors (IPFs) Categories and Examples Refer to recent GOM OCS Lease Sale EIS for a more complete list of IPFs					
	Emissions (air, noise, light, etc.)	Effluents (muds, cutting, other discharges to the water column or seafloor)	Physical disturbances to the seafloor (rig or anchor emplacements, etc.)	Wastes sent to shore for treatment or disposal	Accidents (e.g., oil spills, chemical spills, H ₂ S releases)	Discarded Trash & Debris
Site-specific at Offshore Location						
Designated topographic features		(1)	(1)		(1)	
Pinnacle Trend area live bottoms		(2)	(2)		(2)	
Eastern Gulf live bottoms		(3)	(3)		(3)	
Chemosynthetic communities			(4)			
Water quality			X		X	
Fisheries			X		X	
Marine Mammals	X(8)				X(8)	X
Sea Turtles	X(8)				X(8)	X
Air quality	X(9)					
Shipwreck sites (known or potential)			(7)			
Prehistoric archaeological sites			X(7)		X	
Vicinity of Offshore Location						
Essential fish habitat			X		X(6)	
Marine and pelagic birds	X				X	X
Public health and safety					(5)	
Coastal and Onshore						
Beaches					X(6)	X
Wetlands					X(6)	
Shore birds and coastal nesting birds					X(6)	
Coastal wildlife refuges					X	
Wilderness areas						

Footnotes for Environmental Impact Analysis Matrix

- 1) Activities that may affect a marine sanctuary or topographic feature. Specifically, if the well or platform site or any anchors will be on the seafloor within the:
 - o 4-mile zone of the Flower Garden Banks, or the 3-mile zone of Stetson Bank;
 - o 1000-m, 1-mile or 3-mile zone of any topographic feature (submarine bank) protected by the Topographic Features Stipulation attached to an OCS lease;
 - o Essential Fish Habitat (EFH) criteria of 500 ft. from any no-activity zone; or
 - o Proximity of any submarine bank (500 ft. buffer zone) with relief greater than 2 meters that is not protected by the Topographic Features Stipulation attached to an OCS lease.
- 2) Activities with any bottom disturbance within an OCS lease block protected through the Live Bottom (Pinnacle Trend) Stipulation attached to an OCS lease.
- 3) Activities within any Eastern Gulf OCS block where seafloor habitats are protected by the Live Bottom (Low-Relief) Stipulation attached to an OCS lease.
- 4) Activities on blocks designated by the MMS as being in water depths 400 meters or greater.
- 5) Exploration or production activities where H₂S concentrations greater than 500 ppm might be encountered.
- 6) All activities that could result in an accidental spill of produced liquid hydrocarbons or diesel fuel that you determine would impact these environmental resources. If the proposed action is located a sufficient distance from a resource that no impact would occur, the EIA can note that in a sentence or two.
- 7) All activities that involve seafloor disturbances, including anchor emplacements, in any OCS block designated by the MMS as having high-probability for the occurrence of shipwrecks or prehistoric sites, including such blocks that will be affected that are adjacent to the lease block in which your planned activity will occur. If the proposed activities are located a sufficient distance from a shipwreck or a prehistoric site that no impact would occur, the EIA can note that in a sentence or two.
- 8) All activities that you determine might have an adverse effect on endangered or threatened marine mammals or sea turtles or their critical habitats.
- 9) Production activities that involve transportation of produced fluids to shore using shuttle tankers or barges.

For Texas:

As authorized by the Federal Coastal Zone Management Act (CZMA), the State of Texas developed a Coastal Management Program (CMP) to allow for the review of proposed Federal license and permit activities affecting any coastal use or resource, in or outside of the Texas Coastal Zone.

The OCS related oil and gas exploratory and development activities having potential impact on the Texas Coastal Zone are based on the location of the proposed facilities, access to those sites, best practical techniques for drilling locations, drilling equipment guidelines for the prevention of adverse environmental effects, effective environmental protection, emergency plans and contingency plans.

Below are topics found in other sections of the plan and have been cross referenced for ease in locating:

Topic	Cross Reference	Comments
Construction, Operation and Maintenance of Oil and Gas Exploration and Production Facilities	APPENDIX A and B	
Discharges of Wastewater and Disposal of Waste from Oil and Gas Exploration and Production Activities	APPENDIX E and H	
Construction and Operation of Solid Waster Treatment, Storage, and Disposal Facilities	APPENDIX G	
Prevention, Response, and Remediation of Oil Spills	APPENDIX F	
Discharge of Municipal and Industrial Waste Water to Coastal Waters	APPENDIX B and E	
Development in Critical Areas	APPENDIX H	
Construction of Waterfront Facilities and Other Structures on Submerge lands	APPENDIX B and H	
Dredging and Dredged Material Disposal and Placement	APPENDIX H	
Construction in the Beach / Dune System	APPENDIX H	
Alteration of Coastal Historic Areas	APPENDIX H	
Transportation	APPENDICES B	
Emission of Air Pollutants	APPENDIX G	
Appropriations of Water		There will be no fresh water appropriations as a result of our operations
Marine Fishery Management	APPENDIX B and H	
Administrative Policies		Proposed operations are 28 miles offshore, therefore, not subject to Section 501.15 regarding major actions

A certificate of Coastal Management Consistency for the State of Texas is enclosed as ***Attachment I-1.***

PLAN INFORMATION FORM

GENERAL INFORMATION

Type of OCS Plan:		Exploration Plan (EP)	X	Development Operations Coordination Document (DOCD)
Company Name:	Virgin Offshore U.S.A., Inc.			MMS Operator Number: 02427
Address:	909 Poydras Street		Contact Person: Cheryl Murphy	
	Suite 2200		Phone Number: (281) 578-3388	
	New Orleans, LA 70112		Email Address: cheryl.murphy@jccteam.com	
Lease:	G17151	Area:	High Island	Block: 198
Project Name (If Applicable): NA				
Objective(s):	<input type="checkbox"/> Oil	<input checked="" type="checkbox"/> Gas	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Salt
			Onshore Base:	Cameron, Louisiana
			Distance to Closest Land (Miles):	28

Description of Proposed Activities (Mark all that apply)

<input type="checkbox"/> Exploration drilling	<input type="checkbox"/> Development drilling			
<input type="checkbox"/> Well completion	<input type="checkbox"/> Installation of production platform			
<input type="checkbox"/> Well test flaring	<input type="checkbox"/> Installation of production facilities			
<input type="checkbox"/> Installation of well protection structure	<input type="checkbox"/> Installation of satellite structure			
<input type="checkbox"/> Installation of subsea wellheads and/or manifolds	<input type="checkbox"/> Installation of lease term pipelines			
<input type="checkbox"/> Temporary well abandonment	<input checked="" type="checkbox"/> Commence production			
<input type="checkbox"/> Other (specify and describe)				
Do you propose to use new or unusual technology to conduct your activities?		Yes	X	No
Do you propose any facility that will serve as a host facility for deepwater subsea development?		Yes	X	No
Do you propose any activities that may disturb an MMS-designated high-probability archaeological area?		Yes	X	No

Tentative Schedule of Proposed Activities

Proposed Activity	Start Date	End Date	No. of Days
Install ROW Pipeline	10/08/03	10/11/03	4
Install Permanent Caisson No. 002	10/12/03	10/13/03	2
Commence Production	10/14/03		

Description of Drilling Rig

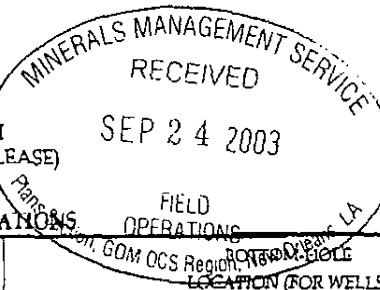
<input type="checkbox"/> Jackup	<input type="checkbox"/> Drillship	<input checked="" type="checkbox"/> Caisson	<input type="checkbox"/> Tension leg platform
<input type="checkbox"/> Gorilla Jackup	<input type="checkbox"/> Platform rig	<input type="checkbox"/> Well protector	<input type="checkbox"/> Compliant tower
<input type="checkbox"/> Semisubmersible	<input type="checkbox"/> Submersible	<input type="checkbox"/> Fixed platform	<input type="checkbox"/> Guyed tower
<input type="checkbox"/> DP Semisubmersible	<input type="checkbox"/> Other (Attach Description)	<input type="checkbox"/> Subsea manifold	<input type="checkbox"/> Floating production system
<input type="checkbox"/> Drilling Rig Name (If Known):		<input type="checkbox"/> Spar	<input type="checkbox"/> Other (Attach description)

Description of Production Platform

Description of Lease Term Pipelines

From (Facility/Area/Block)	To (Facility/Area/Block)	Diameter (inches)	Length (Feet)	Product

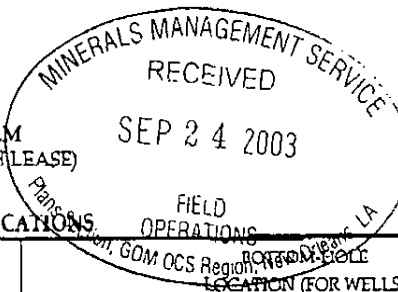
WELL INFORMATION FORM
(USE SEPARATE FORM FOR EACH LEASE)



PROPOSED WELL/STRUCTURE LOCATIONS

WELL / STRUCTURE NAME	SURFACE LOCATION		LOCATION (FOR WELLS)
Platform _ or Well <u>X</u>	CALLS: 1906.44' F N Land 5891.81' F W L OF		
	LEASE OCS-G 17151 , HIGH ISLAND AREA		
	BLOCK 198		
Name: No. 002	X: 3,513,367.62'		
	Y: 512,893.56'		
	LAT: 29° 09' 34.403"		
	LONG: 94° 15' 24.738"		
	TVD (IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 47

WELL INFORMATION FORM
(USE SEPARATE FORM FOR EACH LEASE)



PROPOSED WELL/STRUCTURE LOCATIONS

WELL / STRUCTURE NAME	SURFACE LOCATION		FIELD OPERATIONS LOCATION (FOR WELLS)
Platform_ or Well X	CALLS: 1906.44' F N Land 5891.81' F W LOF		
Name: No. 002	LEASE OCS-G 17151 HIGH ISLAND AREA		
	BLOCK 198		
	X: 3,513,367.62'		
	Y: 512,893.56'		
	LAT: 29° 09' 34.403"		
	LONG: 94° 15' 24.738"		
	TVD (IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 47'