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NOTED - SCHEXNAILDRE

UNITED STATES GOVERNMENT
MEMORANDUM

December 10, 2003

To: Public Information (MS 5034)
From: Plan Coordinator, FO, Plans Section (MS 5231)
Subject: Public Information copy of plan
Control # - N-07981
Type - Initial Exploration Plan
Lease(s) - OCS-G24782 Block - 625 West Cameron Area
Operator - LLOG Exploration Offshore, Inc.
Description - Wells A and B
Rig Type - JACKUP

Attached is a copy of the subject plan.

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



Elmo Cooper
Plan Coordinator

Site Type/Name	Botm Lse/Area/Blk	Surface Location	Surf Lse/Area/Blk
WP/A		2692 FNL, 5082 FEL	G24782/WC/625
WP/B		2692 FNL, 5082 FEL	G24782/WC/625
WELL/A	G24782/WC/625	2692 FNL, 5082 FEL	G24782/WC/625
WELL/B	G24782/WC/625	2692 FNL, 5082 FEL	G24782/WC/625

December 9, 2003

U.S. Department of the Interior
Minerals Management Service
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

Attention: Mr. Nick Wetzel
Plans Unit

RE: Initial Exploration Plan for Lease OCS-G 24782, West Cameron Block 625, OCS Federal Waters, Gulf of Mexico, Offshore, Louisiana

Gentlemen:

In accordance with the provisions of Title 30 CFR 250.203 and that certain Notice to Lessees (NTL 2003-G17), LLOG Exploration Offshore, Inc. (LLOG) hereby submits for your review and approval an Initial Exploration Plan (Plan) for Lease OCS-G 24782, West Cameron Block 625, Offshore, Louisiana. Excluded from the Public Information copies are certain geologic and geophysical discussions and attachments.

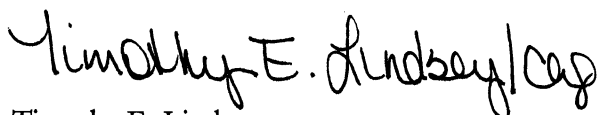
Enclosed are two Proprietary Information copies (one hard copy and one CD) and three Public Information copies (one hard copy and two CD's) of the Plan.

Contingent upon receiving regulatory approvals and based on equipment and personnel availability, LLOG anticipates operations under this Plan commencing as early as February 1, 2004.

Should additional information be required, please contact the undersigned, or our regulatory consultant, R.E.M. Solutions, Inc., Attention: Christine Groth at 281.492.8562.

Sincerely,

LLOG EXPLORATION OFFSHORE, INC.



Timothy E. Lindsey
Petroleum Engineer

TEL:CAG:kbh
Attachments

Public Information

LLOG EXPLORATION OFFSHORE, INC.

433 Metairie Road, Suite 600
Metairie, Louisiana 70005

Timothy E. Lindsey
timl@llog.com

INITIAL EXPLORATION PLAN

LEASE OCS-G 24782

WEST CAMERON BLOCK 625

PREPARED BY:

Christine Groth
R.E.M. Solutions, Inc.
17171 Park Row, Suite 390
Houston, Texas 77084
281.492.8562 (Phone)
281.492.6117 (Fax)
christine@remolutionsinc.com

DATED:

December 9, 2003

SECTION A

Contents of Plan

A. Description, Objectives and Schedule

Lease OCS-G 24782, West Cameron Block 625 was acquired by LLOG Exploration Offshore, Inc. at the Central Gulf of Mexico Lease Sale No. 185 held on March 19, 2003. The lease was issued with an effective date of May 1, 2003 and a primary term ending date of April 30, 2008.

The current lease operatorship and ownership are as follows:

Area/Block Lease No.	Operator	Ownership
West Cameron Block 625 Lease OCS-G 24782	LLOG Exploration Offshore, Inc.	LLOG Exploration Offshore, Inc.

LLOG proposes to drill, potentially complete, test and install minimal well protector structures over Well Locations A and B in West Cameron Block 625. Information pertaining to the geological targets, including a narrative of trapping features, is included as *Attachment A-1*.

B. Location

Included are the following attachments:

- Attachment A-2:* Form MMS-137 "OCS Plan Information Form"
- Attachment A-3:* Well Location Plat
- Attachment A-4:* Bathymetry Map with proposed well location surface disturbances
- Attachment A-5:* Well Protector Structure Elevation Drawing

C. Drilling Unit

LLOG will utilize a typical gorilla type jack-up drilling rig for the proposed drilling, and potential completion and testing operations provided for in this Plan along with the installation of the well protector structure. Actual rig specifications will be included with the Applications for Permit to Drill.

Safety of personnel and protection of the environment during the proposed operations is of primary concern with LLOG, and mandates regulatory compliance with the contractors and vendors associated with the proposed operations as follows:

SECTION A

Contents of Plan - Continued

Minerals Management Service regulations contained in Title 30 CFR Part 250, Subparts C, D, E, G and O mandate the operations comply with well control, pollution prevention, construction and welding procedures as described in Title 30 CFR Part 250, Subparts C, D, E, G and O; and as further clarified by MMS Notices to Lessees.

Minerals Management Service conducts periodic announced and unannounced onsite inspections of offshore facilities to confirm operators are complying with lease stipulations, operating regulations, approved plans, and other conditions; as well as to assure safety and pollution prevention requirements are being met. The National Potential Incident of Noncompliance (PINIC) List serves as the baseline for these inspections.

U. S. Coast Guard regulations contained in Title 33 CFR mandate the appropriate life rafts, life jackets, ring buoys, etc., be maintained on the facility at all times.

U. S. Environmental Protection Agency regulations contained in the NPDES General Permit GMG290000 mandate that supervisory and certain designated personnel on-board the facility be familiar with the effluent limitations and guidelines for overboard discharges into the receiving waters.

Geological Targets and Trapping Features

Attachment A-1
(Proprietary Information)

OCS Plan Information Form

**Attachment A-2
(Public Information)**

OCS PLAN INFORMATION FORM

General Information																			
Type of OCS Plan	<input checked="" type="checkbox"/>		Exploration Plan (EP)				Development Operations Coordination Document (DOCD)												
Company Name: LLOG Exploration Offshore, Inc.							MMS Operation Number: 02058												
Address: 433 Metairie Road, Suite 600							Contact Person: Christine Groth / R.E.M. Solutions, Inc.												
Metairie, Louisiana 70005							Phone Number: 281.492.8562												
							E-Mail Address: <u>Christine@remolutionsinc.com</u>												
Lease(s): G 24782				Area: WC		Block(s): 625		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, LA			Distance to Closes Land (Miles): 115						
Description of Proposed Activities (Mark all that apply)																			
<input checked="" type="checkbox"/>	Exploration drilling							Development drilling											
<input checked="" type="checkbox"/>	Well completion							Installation of production platform											
	Well test flaring (for more than 48 hours)							Installation of production facilities											
<input checked="" type="checkbox"/>	Installation of caisson or platform as well protection structure							Installation of satellite structure											
	Installation of subsea wellheads and/or manifolds							Commence production											
	Installation of lease term pipelines							Other (Specify and describe)											
Have you submitted or do you plan to submit a Conservation Information Document to accompany this plan?											Yes	<input checked="" type="checkbox"/>	No						
Do you propose to use new or unusual technology to conduct your activities?											Yes	<input checked="" type="checkbox"/>	No						
Do you propose any facility that will serve as a host facility for deepwater subsea development?											Yes	<input checked="" type="checkbox"/>	No						
Do you propose any activities that may disturb an MMS-designated high-probability archaeological area?											Yes	<input checked="" type="checkbox"/>	No						
Have all of the surface locations of your proposed activities been previously reviewed and approved by MMS?											Yes	<input checked="" type="checkbox"/>	No						
Tentative Schedule of Proposed Activities																			
Proposed Activity								Start Date		End Date		No. of Days							
Drill, complete, test & install well protector structure over Well Location A								02/01/2004		03/01/2004		30							
Drill, complete, test & install well protector structure over Well Location B								03/02/2004		04/02/2004		32							
Description of Drilling Rig								Description of Production Platform											
	Jackup					Drillship					Caisson					Tension Leg Platform			
<input checked="" type="checkbox"/>	Gorilla Jackup					Platform rig					Well protector					Compliant tower			
	Semi-submersible					Submersible					Fixed Platform					Guyed tower			
	DP Semi-submersible					Other (Attach description)					Subsea manifold					Floating production system			
Drilling Rig Name (if known):										Spar				Other (Attach Description)					
Description of Lease Term Pipelines																			
From (Facility/Area/Block)						To (Facility/Area/Block)						Diameter (Feet)				Length (Feet)			
N/A																			

OCS PLAN INFORMATION FORM (CONTINUED)
Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location					
Well or Structure Name/Number (If renaming well or structure, reference previous name): Well Location A					Subsea Completion
Anchor Radius (if applicable) in feet: NA					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> X <input type="checkbox"/> No
	Surface Location			Bottom-Hole Location (For Wells)	
Lease No.	OCS-G 24782			OCS-G 24782	
Area Name	West Cameron			West Cameron	
Block No.	625			625	
Blockline Departures (in feet)	N/S Departure	2692'	F N L	N/S Departure	
	E/W Departure	5082'	F E L	E/W Departure	
Lambert X-Y coordinates	X: 1,445,401.904			X:	
	Y: -228,739.776			Y:	
Latitude / Longitude	Latitude 28-01-34.775			Latitude	
	Longitude 93-03-05.301			Longitude	
	TVD (Feet):		MD (Feet):		Water Depth (Feet): 340'
Anchor Locations for Drilling Rig or Construction Barge (If anchor radius supplied above, not necessary)					
Anchor Name or No.	Area	Block	X Coordinate	Y Coordinate	Length of Anchor Chain on Seafloor
NA					
Paperwork Reduction Act of 1995 Statement: The Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires us to inform you that MMS collects this information as part of an applicant's Exploration Plan or Development Operations Coordination Document submitted for MMS approval. We use the information to facilitate our review and data entry for OCS plans. We will protect proprietary data according to the Freedom of Information Act and 30 CFR 250.196. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget Control Number. The use of this form is voluntary. The public reporting burden for this form is included in the burden for preparing Exploration Plans and Development Operations Coordination Documents. We estimate that burden to average 580 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Mail Stop 4230, Minerals Management Service, 1849 C Street, N.W., Washington, DC 20240.					

OCS PLAN INFORMATION FORM (CONTINUED)
Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location					
Well or Structure Name/Number (If renaming well or structure, reference previous name): Well Location B					Subsea Completion
Anchor Radius (if applicable) in feet: NA					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> X <input type="checkbox"/> No
	Surface Location			Bottom-Hole Location (For Wells)	
Lease No.	OCS-G 24782			OCS-G 24782	
Area Name	West Cameron			West Cameron	
Block No.	625			625	
Blockline Departures (in feet)	N/S Departure	2692'	F N L	N/S Departure:	
	E/W Departure	5082'	F E L	E/S Departure:	
Lambert X-Y coordinates	X: 1,445,401.904			X:	
	Y: -228,739.776			Y:	
Latitude / Longitude	Latitude 28-01-34.775			Latitude	
	Longitude 93-03-05.301			Longitude	
	TVD (Feet):		MD (Feet):		Water Depth (Feet): 340'
Anchor Locations for Drilling Rig or Construction Barge (If anchor radius supplied above, not necessary)					
Anchor Name or No.	Area	Block	X Coordinate	Y Coordinate	Length of Anchor Chain on Seafloor
NA					
Paperwork Reduction Act of 1995 Statement: The Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires us to inform you that MMS collects this information as part of an applicant's Exploration Plan or Development Operations Coordination Document submitted for MMS approval. We use the information to facilitate our review and data entry for OCS plans. We will protect proprietary data according to the Freedom of Information Act and 30 CFR 250.196. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget Control Number. The use of this form is voluntary. The public reporting burden for this form is included in the burden for preparing Exploration Plans and Development Operations Coordination Documents. We estimate that burden to average 580 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Mail Stop 4230, Minerals Management Service, 1849 C Street, N.W., Washington, DC 20240.					

Well Location Plat

**Attachment A-3
(Public Information)**

X = 1,435,725.856'

14,758.048'

X = 1,450,483.904'

621
626

622

623
624



Y = -226,047.776'

14,758.048'

N 12° 26' 36" E
582,618.83'

N.O.S. "CON"

X = 1,570,941.44

Y = 340,193.02

LAT. = 29° 35' 42.803"N

LONG. = 92° 41' 00.087"W

1 (OCS-G 2237)

2,692'

3-5 (OCS-G 2237)

5,082'

WELL "A"

X = 1,445,401.904

Y = -228,739.776

LAT. = 28° 01' 34.775"N

LONG. = 93° 03' 05.301"W

WATER DEPTH = 340'

6 (OCS-G 2237)

625
OCS-G 24782

2 (OCS-G 2237)

PUBLIC INFORMATION

14,758.048'

Y = -240,805.824'

1,000 0 1,000 2,000

SCALE IN FEET

641

642

643

I HEREBY CERTIFY THE ABOVE
PROPOSED WELL LOCATION IS
CORRECT.

Keith A. Codd

Keith A. Codd Tx. Reg. No. 4669

11/18/03

Date

DATUM: NAD 27

SPHEROID: CLARKE 1866

PROJECTION: LAMBERT

ZONE: LOUISIANA SOUTH

Thales GeoSolutions, Inc.

3624 Westchase Drive
Houston, Texas 77042
Tel: 713-784-4482 Fax: 713-784-8182

THALES

LLOG EXPLORATION
OFFSHORE, INC.

PROPOSED WELL LOCATION

WELL "A"

BLOCK 625

WEST CAMERON AREA, SOUTH ADDITION

DATE

11/17/03

DRAWN BY:

DLA

CHECKED BY:

KAC

DRAWING No.

100620PERA

REV. DATE

REV. No.:

SCALE: AS SHOWN

JOB No. 100620
DP No. 5600

621

622

626

X = 1,435,725.856'

14,758.048'



Y = -226,047.776'

14,758.048'

N 12° 26' 36" E
582,618.83'

N.O.S. "CON"

X = 1,570,941.44

Y = 340,193.02

LAT. = 29° 35' 42.803"N

LONG. = 92° 41' 00.087"W

1 (OCS-G 2237)

623

624

X = 1,450,483.904'

14,758.048'

WELL "B" (SL)

X = 1,445,401.904

Y = -228,739.776

LAT. = 28° 01' 34.775"N

LONG. = 93° 03' 05.301"W

WATER DEPTH = 340'

6 (OCS-G 2237)

3-5 (OCS-G 2237)

5,082'

2,692'

625
OCS-G 24782

2 (OCS-G 2237)

PUBLIC INFORMATION

14,758.048'

Y = -240,805.824'

1,000 0 1,000 2,000

SCALE IN FEET

641

642

643

I HEREBY CERTIFY THE ABOVE
PROPOSED WELL LOCATION IS
CORRECT.

Keith A. Codd

Keith A. Codd Tx. Reg. No. 4669

11/18/03

Date

DATUM: NAD 27

SPHEROID: CLARKE 1866

PROJECTION: LAMBERT

ZONE: LOUISIANA SOUTH

Thales GeoSolutions, Inc.

3624 Westchase Drive
Houston, Texas 77042
Tel: 713-784-4482 Fax: 713-784-8162

THALES

LLOG EXPLORATION
OFFSHORE, INC.

PROPOSED WELL LOCATION

WELL 'B'

BLOCK 625

WEST CAMERON AREA, SOUTH ADDITION

DATE

11/18/03

DRAWN BY:

DLA

CHECKED BY:

KAC

DRAWING No.

100620PERB

REV. DATE

REV. No.:

SCALE: AS SHOWN

JOB No. 100620

DP No. 5600

Bathymetry Map

**Attachment A-4
(Public Information)**

Structure Elevation Drawing

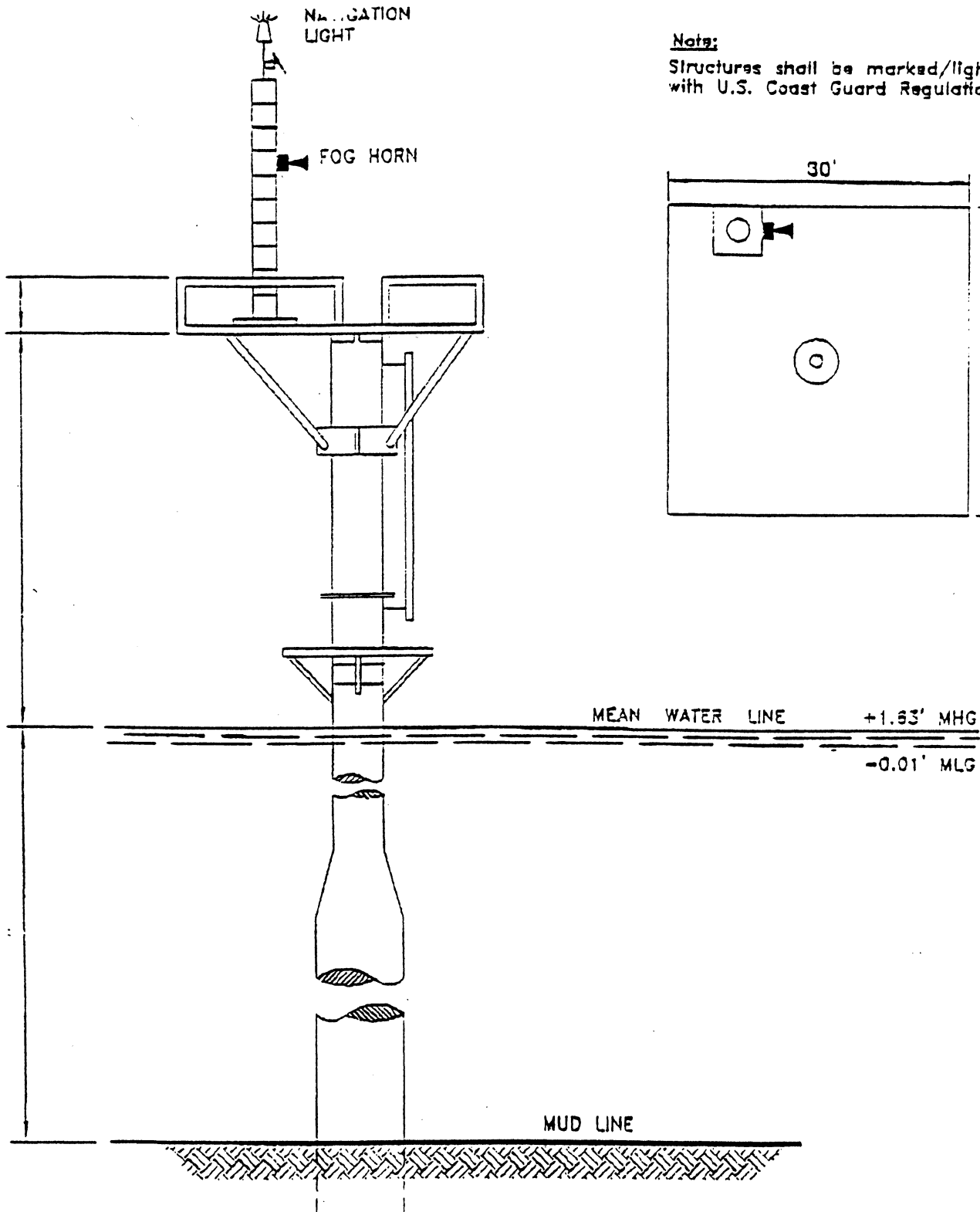
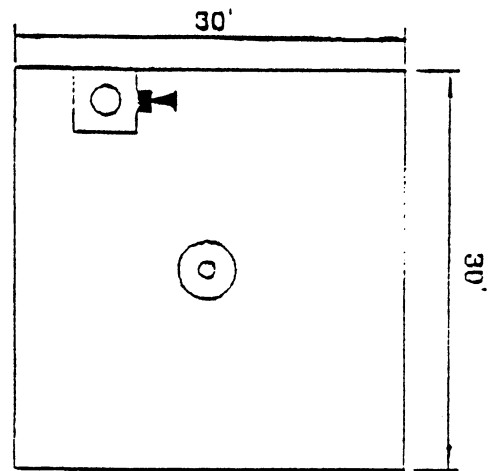
**Attachment A-5
(Public Information)**

NAVIGATION
LIGHT

FOG HORN

Note:

Structures shall be marked/lighted in accordance
with U.S. Coast Guard Regulations.



TYPICAL CAISSON WELL PROTECTOR

SECTION B

General Information

A. Contact

Questions or requests for additional information should be made to LLOG's authorized representative for this project:

Christine Groth
R.E.M. Solutions, Inc.
17171 Park Row, Suite 390
Houston, Texas 77084
281.492.8562 (Phone)
281.492.6117 (Fax)
christine@remsolutionsinc.com

B. Prospect Name

LLOG does not refer to prospect names for their exploratory activities.

C. New or Unusual Technology

LLOG does not propose using any new and/or unusual technology for the operations proposed in this Plan.

D. Bonding Information

In accordance with Title 30 CFR Part 256, Subpart I, LLOG elected and has on file with the Minerals Management Service Gulf of Mexico Regional Office a \$3,000,000 Areawide Development Bond.

As deemed warranted, Minerals Management Service will contact the designated operator in the event a supplemental bond is required for the proposed operations, as outlined in Notice to Lessees (NTL) 2003-N06 to cover plugging liability of the wellbores, removal of associated well protector structures and site clearance.

LLOG is on the exempt list with the Minerals Management Service for supplemental bonding.

E. Onshore Base and Support Vessels

The proposed surface disturbance in West Cameron Block 625 will be located approximately 115 miles from the nearest Louisiana shoreline, and approximately 120 miles from the onshore support base to be located in Cameron, Louisiana

SECTION B

General Information - Continued

LLOG will use an existing onshore base to accomplish the following routine operations:

- Loading/Offloading point for equipment supporting the offshore operations,
- Dispatching personnel and equipment, and does not anticipate the need for any expansion of the selected facilities as a result of the activities proposed in this Plan,
- Temporary storage for materials and equipment
- 24-Hour Dispatcher

Personnel involved in the proposed operations will typically use their own vehicles as transportation to and from the selected onshore base; whereas the selected vendors will transport the equipment by a combination of trucks, boats and/or helicopters to the onshore base. The personnel and equipment will then be transported to the drilling rig via the transportation methods and frequencies shown below, taking the most direct route feasible as mandated by weather and traffic conditions:

Support Vessel	Drilling and Completion Trips Per Week
Crew Boat	4
Supply Boat	2
Helicopter	2

The proposed operations are temporary in nature and do not require any immediate action to acquire additional land, expand existing base facilities.

A Vicinity Plat showing the surface location in West Cameron Block 625 relative to the shoreline and onshore base is included as *Attachment B-1*.

F. Lease Stipulations

Under the Outer Continental Shelf Lands Act, the Minerals Management Service is charged with the responsibility of managing and regulating the exploration and development on the OCS.

As part of the regulatory process, an Environmental Impact Statement (EIS) is prepared for each lease sale, at which time mitigation measures are addressed in the form of lease stipulations, which then become part of the oil and gas lease terms and are therefore enforceable as part of that lease.

As part of this process, the designated operator proposing to conduct related exploratory and development activities, must review the applicable lease stipulations, as well as other special conditions, which may be imposed by the Minerals Management Service, and other governing agencies.

SECTION B

General Information - Continued

Lease OCS-G 24782, West Cameron Block 625 is subject to the following such stipulation and conditions:

Military Warning Area

The hold and save harmless section of the Military Areas Stipulation serves to protect the U.S. Government from liability in the event of an accident involving the designated oil and gas lease operator and military activities.

The electromagnetic emissions section of the stipulation requires the operator and its agents to reduce and curtail the use of radio or other equipment emitting electromagnetic energy within some areas.

This serves to reduce the impact of oil and gas activity on the communications of military missions and reduces the possible effects of electromagnetic energy transmissions on missile testing, tracking, and detonation.

The operational section requires notification to the military of oil and gas activity to take place within a military use area. This allows the base commander to plan military missions and maneuvers that may avoid the areas where oil and gas activities are taking place or to schedule around these activities. Prior notification helps reduce the potential impacts associated with vessels and helicopters traveling unannounced through areas where military activities are underway.

The Military Areas Stipulation reduces potential impacts, particularly in regards to safety, but does not reduce or eliminate the actual physical presence of oil and gas operations in areas where military operations are conducted.

The reduction in potential impacts resulting from this stipulation makes multiple-use conflicts most unlikely. Without the stipulation, some potential conflict is likely. The best indicator of the overall effectiveness of the stipulation may be that there has never been an accident involving a conflict between military operations and oil and gas activities.

The proposed surface disturbance in West Cameron Block 625 is located within Military Warning Area W-147AB. Therefore, in accordance with the requirements of the referenced stipulation, LLOG will contact the 147th Fighter Wing in order to coordinate and control the electromagnetic emissions during the proposed operations.

SECTION B

General Information - Continued

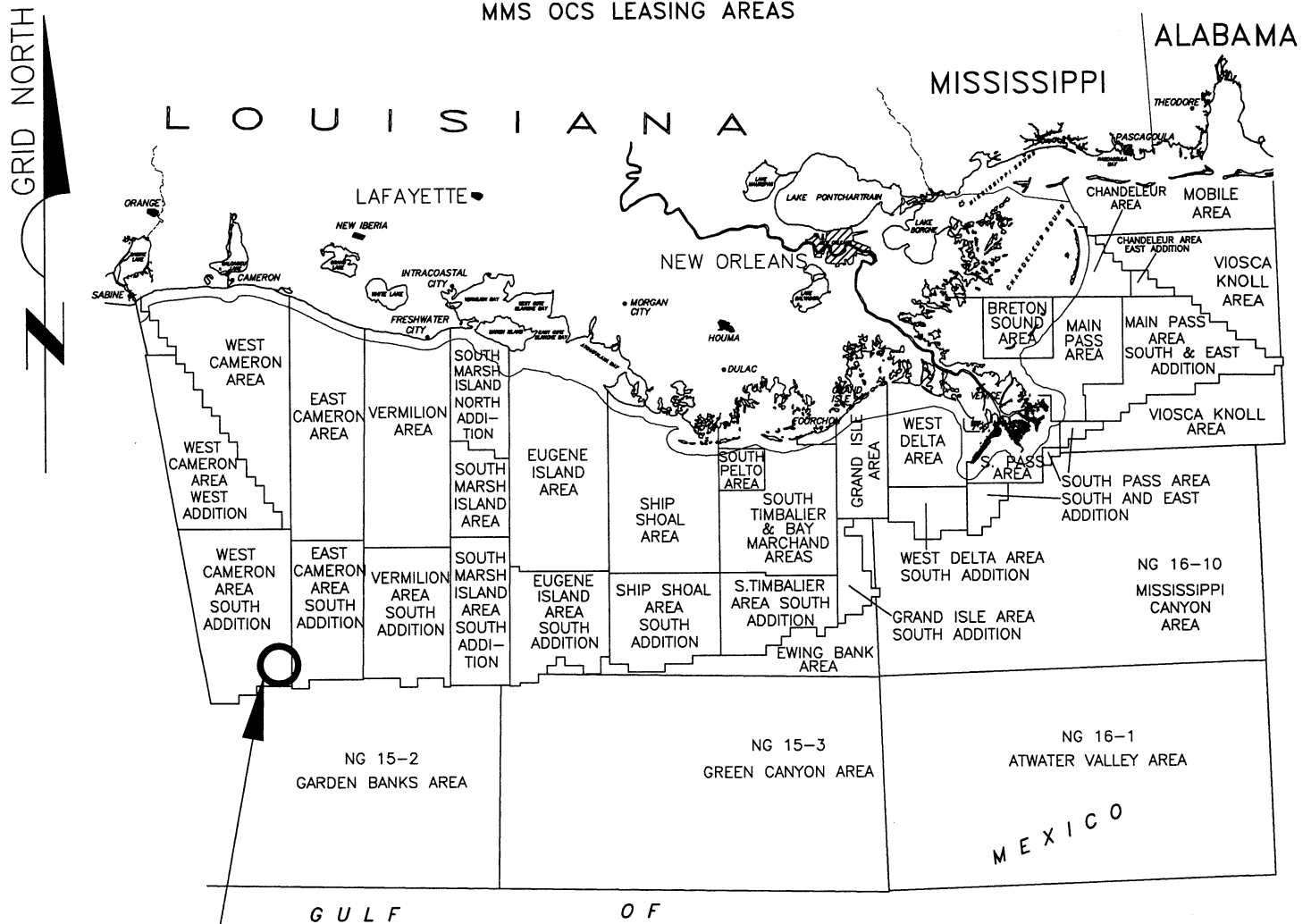
Special Conditions

The proposed surface disturbance activity in West Cameron Block 625 will not be affected by any special conditions and/or multiple uses, such as designated shipping/anchorage areas, military warning areas, lightering zones, rigs-to-reef zone, and ordnance disposal zones.

Vicinity Plat

**Attachment B-1
(Public Information)**

LOUISIANA GULF COAST INDEX
MMS OCS LEASING AREAS



VICINITY MAP

AREA OF INTEREST -
WEST CAMERON AREA, SOUTH ADDITION
BLOCK 625

	DATUM: NAD 27	LLOG EXPLORATION OFFSHORE, INC.			
	SPHEROID: CLARKE 1866	PROPOSED WELL LOCATION WELL "A" BLOCK 625 WEST CAMERON AREA, SOUTH ADDITION			
	PROJECTION: LAMBERT				
	ZONE: LOUISIANA SOUTH				
	Thales GeoSolutions, Inc. 3624 Westchase Drive Houston, Texas 77042 Tel: 713-784-4482 Fax: 713-784-8162 THALES	DATE 11/17/03	DRAWN BY: DLA	CHECKED BY: KAC	DRAWING No. 100620PERA
		REV. DATE	REV. No.:	SCALE: N.T.S.	JOB No. 100620 DP No. 5600

SECTION C

Geological, Geophysical & H2S Information

A. Structure Contour Maps

Included as *Attachment C-1* are current structure maps (depth base and expressed in feet subsea) depicting the entire lease coverage area; drawn on the top of each prospective hydrocarbon sand. The maps depict each proposed bottom hole location and applicable geological cross section.

B. Interpreted Deep Seismic Lines

Included as *Attachment C-2* of this Plan is a page size copy of the migrated and annotated (shot point, time lines, well paths) of the deep seismic line within 500 feet of the surface location.

C. Geological Structure Cross Sections

An interpreted geological cross section depicting the proposed well locations and depth of the proposed wells is included as *Attachment C-3*. Such cross section corresponds to each seismic line being submitted under separate cover.

D. Shallow Hazards Report

Thales GeoSolutions, Inc. conducted a high resolution geophysical survey in West Cameron Block 625 during November 2003 on behalf of LLOG Exploration Offshore, Inc. The purpose of the survey was to evaluate geologic conditions and inspect for potential hazards or constraints to lease development.

Three (3) copies of these reports are being submitted to the Minerals Management Service under separate cover.

E. Shallow Hazards Assessment

A shallow hazards analysis has been prepared for the proposed surface locations, evaluating seafloor and subsurface geologic and manmade features and conditions, and is included as *Attachment C-4*.

F. High Resolution Seismic Lines

Included, as *Attachment C-5* to the original copy only, is a copy of the annotated high resolution survey data lines for each surface location disturbance proposed in this Plan.

SECTION C

Geological, Geophysical & H2S Information-Continued

G. Stratigraphic Column

A generalized biostratigraphic/lithostratigraphic column from the seafloor to the total depth of the proposed wells is included as *Attachment C-6*.

H. Time Vs. Depth Tables

A time versus depth table is included as *Attachment C-7*.

I. Hydrogen Sulfide Classification

In accordance with Title 30 CFR 250.417, LLOG requests that West Cameron Block 625 be classified by the Minerals Management Service as an area where the absence of hydrogen sulfide has been confirmed based on the following wells which were drilled to the stratigraphic equivalent of the wells proposed in this Plan:

<i>Lease</i>	<i>Area/Block</i>	<i>Well No.</i>	<i>Stratigraphic Equivalent</i>
OCS-G 02237	WC 625	006	

Structure Maps

**Attachment C-1
(Proprietary Information)**

Deep Seismic Lines

**Attachment C-2
(Proprietary Information)**

Cross Section Maps

**Attachment C-3
(Proprietary Information)**

Shallow Hazards Assessment

**Attachment C-4
(Public Information)**

THALES

November 18, 2003

Minerals Management Service (MS 5230)
Gulf of Mexico OCS Region
1201 Elmwood Park Blvd.
New Orleans, LA 70123-2394

THALES GEOSOLUTIONS, INC.
3624 Westchase Drive
Houston, Texas 77042
USA
Tel: +1 713 784 4482
Fax: +1 713 784 8162
www.thales-geosolutions.com

**RE: LLOG Exploration Offshore, Inc.
Proposed OCS-G 24782 'A' Surface Location
Block 625, West Cameron Area
Shallow Hazard Analysis**

Dear Staff:

LLOG Exploration Offshore, Inc. proposes to drill from the OCS-G 24782 'A' surface location at:

- **2,692' FNL & 5,082' FEL of Block 625, West Cameron Area**

Thales GeoSolutions, Inc. surveyed the entire lease along a 300-meter by 900-meter grid in August and September 2003. LLOG Exploration Offshore, Inc. operates the lease and contracted Thales GeoSolutions, Inc. to provide this *shallow hazard analysis (NTL No. 98-20)* in accordance with the Minerals Management Service Gulf of Mexico OCS Region. Geophysical record copies are enclosed for the magnetometer, side scan sonar, subbottom profiler, echo sounder, and seismic sections from the survey line nearest the proposed well site as required by the MMS in *NTL No. 2003-G17 Appendix C, Paragraph F* for EP and DOCD submittals.

- **Water depth** is 340 feet surrounding the proposed drill site.
- **Seafloor soils** are primarily silty clays.
- **Identified Man-Made features** include the common surface location for the P&A #3, #4, and #5 wells approximately 2,470 feet east of the proposed well and the P&A #6 well location approximately 2,100 feet south of the proposed well site. The closest pipeline (Columbia Gulf 24-inch gas) is 8,150 feet southeast of the proposed well. These features will not hinder rig moves or drilling, and anchor arrays will avoid the seafloor installations by 500 feet.
- **Magnetic Anomalies** closest to the planned well site include #5 approximately 1,240 feet southwest of the proposed well site. The anomaly #5 dipolar signature combined an amplitude of 350 gammas along 250 feet of survey line, which reflects a very large ferromagnetic mass equivalent to at least a ton of iron. Sonar target #3 probably represents the ferrous mass causing the magnetic anomaly. The linear sonar image could be anchor chain or debris from mooring of a semi-submersible drilling rig. The sonar target will be avoided by 500 feet when deploying anchors. The source of the anomaly will not be disturbed by rig moves or drilling operations.
- **Subbottom Data** showed the upper 75 to 80 feet of moderately reflecting turbid silts and clays at the proposed well site. The proposed well site is 1,100 feet south of a near-seafloor fault that trends east/west across the survey grid. The fault is downthrown to the north and will not be intersected by the planned wellbore. The closest amplitude anomaly was noted at 360 milliseconds below sea level approximately 2,800 feet northwest of the proposed well. Proprietary 3-D data will be used to define deeper amplitude anomalies and faults relative to the planned wellbore.

LLOG Exploration Offshore, Inc.
Proposed OCS-G 24782 'A' Surface Location
Block 625, West Cameron Area
Shallow Hazard Analysis
Page 2

The operator has identified the primary hazards to rig movements, anchor deployments, and drilling. The proposed well site, P&A well sites, existing pipelines, sonar contact, and magnetic anomalies will be marked with appropriate marine survey equipment to comply with the **MMS On-Site Requirements specified in NTL No. 98-20, Section IV, Item B.** In lieu of using buoys as stipulated in Item B-1, the operator may request MMS approval to mark potential hazards with best available technology using computer graphic screens that are integrated to DGPS positioning units aboard the drilling rig and all support vessels.

In further compliance with **Item B-2**, a map at a scale of 1:12,000 will be provided to key personnel on the drilling rig and anchor handling vessels. The field map will depict the location of the proposed drilling site, all anchor patterns, side scan sonar and magnetic anomaly avoidance patterns, pipelines, and P&A well sites in the area.

LLOG Exploration Offshore, Inc. will apply the safest and best available technologies during drilling and installation of future platforms.

Yours truly,



Robert J. Floyd
Shallow Hazard Analyst

THALES

November 18, 2003

Minerals Management Service (MS 5230)
Gulf of Mexico OCS Region
1201 Elmwood Park Blvd.
New Orleans, LA 70123-2394

THALES GEOSOLUTIONS, INC.
3624 Westchase Drive
Houston, Texas 77042
USA
Tel: +1 713 784 4482
Fax: +1 713 784 8162
www.thales-geosolutions.com

**RE: LLOG Exploration Offshore, Inc.
Proposed OCS-G 24782 'B' Surface Location
Block 625, West Cameron Area
Shallow Hazard Analysis**

Dear Staff:

LLOG Exploration Offshore, Inc. proposes to drill from the OCS-G 24782 'B' surface location at:

- **2,692' FNL & 5,082' FEL of Block 625, West Cameron Area**

Thales GeoSolutions, Inc. surveyed the entire lease along a 300-meter by 900-meter grid in August and September 2003. LLOG Exploration Offshore, Inc. operates the lease and contracted Thales GeoSolutions, Inc. to provide this *shallow hazard analysis (NTL No. 98-20)* in accordance with the Minerals Management Service Gulf of Mexico OCS Region. Geophysical record copies are enclosed for the magnetometer, side scan sonar, subbottom profiler, echo sounder, and seismic sections from the survey line nearest the proposed well site as required by the MMS in *NTL No. 2003-G17 Appendix C, Paragraph F* for EP and DOCD submittals.

- **Water depth** is 340 feet surrounding the proposed drill site.
- **Seafloor soils** are primarily silty clays.
- **Identified Man-Made features** include the common surface location for the P&A #3, #4, and #5 wells approximately 2,470 feet east of the proposed well and the P&A #6 well location approximately 2,100 feet south of the proposed well site. The closest pipeline (Columbia Gulf 24-inch gas) is 8,150 feet southeast of the proposed well. These features will not hinder rig moves or drilling, and anchor arrays will avoid the seafloor installations by at least 500 feet.
- **Magnetic Anomalies** closest to the planned well site include #5 approximately 1,240 feet southwest of the proposed well site. The anomaly #5 dipolar signature combined an amplitude of 350 gammas along 250 feet of survey line, which reflects a very large ferromagnetic mass equivalent to at least a ton of iron. Sonar target #3 probably represents the ferrous mass causing the magnetic anomaly. The linear sonar image could be anchor chain or debris from mooring of a semi-submersible drilling rig. The sonar target will be avoided by 500 feet when deploying anchors. The source of the anomaly will not be disturbed by rig moves or drilling operations.
- **Subbottom Data** showed the upper 75 to 80 feet of moderately reflecting turbid silts and clays at the proposed well site. The proposed well site is 1,100 feet south of a near-seafloor fault that trends east/west across the survey grid. The fault is downthrown to the north and will not be intersected by the planned wellbore. The closest amplitude anomaly was noted at 360 milliseconds below sea level approximately 2,800 feet northwest of the proposed well. Proprietary 3-D data will be used to define deeper amplitude anomalies and faults relative to the planned wellbore.

LLOG Exploration Offshore, Inc.
Proposed OCS-G 24782 'B' Surface Location
Block 625, West Cameron Area
Shallow Hazard Analysis
Page 2

The operator has identified the primary hazards to rig movements, anchor deployments, and drilling. The proposed well site, P&A well sites, existing pipelines, sonar contact, and magnetic anomalies will be marked with appropriate marine survey equipment to comply with the **MMS On-Site Requirements specified in NTL No. 98-20, Section IV, Item B.** In lieu of using buoys as stipulated in Item B-1, the operator may request MMS approval to mark potential hazards with best available technology using computer graphic screens that are integrated to DGPS positioning units aboard the drilling rig and all support vessels.

In further compliance with **Item B-2**, a map at a scale of 1:12,000 will be provided to key personnel on the drilling rig and anchor handling vessels. The field map will depict the location of the proposed drilling site, all anchor patterns, side scan sonar and magnetic anomaly avoidance patterns, pipelines, and P&A well sites in the area.

LLOG Exploration Offshore, Inc. will apply the safest and best available technologies during drilling and installation of future platforms.

Yours truly,



Robert J. Floyd
Shallow Hazard Analyst

Shallow Hazards Lines

**Attachment C-5
(Proprietary Information)**

Original Copy Only

Stratigraphic Column

**Attachment C-6
(Proprietary Information)**

Time v. Depth Table

**Attachment C-7
(Proprietary Information)**

SECTION D

Biological and Physical Information

A. Chemosynthetic Information

The proposed seafloor disturbing activities are in water depths less than 400 meters (1312 feet); therefore, this section of the Plan is not applicable.

B. Topographic Features Information

MMS and the National Marine Fisheries Service (NMFS) have entered into a programmatic consultation agreement for Essential Fish Habitat that requires that no bottom disturbing activities, including anchors or cables from a semi-submersible drilling rig, may occur within 500 feet of the no-activity zone of a topographic feature. If such proposed bottom disturbing activities are within 500 feet of a no activity zone, the MMS is required to consult with the NMFS.

The activities proposed in this Plan are not affected by a topographic feature.

C. Live Bottom (Pinnacle Trend) Information

Certain leases are located in areas characterized by the existence of live bottoms. Live bottom areas are defined as seagrass communities; those areas that contain biological assemblages consisting of sessile invertebrates living upon and attached to naturally occurring hard or rocky formations with rough, broken, or smooth topography; and areas where the lithotope favors the accumulation of turtles, fishes, or other fauna. These leases contain a Live Bottom Stipulation to ensure that impacts from nearby oil and gas activities on these live bottom areas are mitigated to the greatest extent possible.

For each affected lease, the Live Bottom Stipulation requires that you prepare a live bottom survey report containing a bathymetry map prepared by using remote sensing techniques. This report must be submitted to the Gulf of Mexico OCS Region (GOMR) before you may conduct any drilling activities or install any structure, including lease term pipelines in accordance with NTL 99-G16.

West Cameron Block 625 is not located within the vicinity of a proposed live bottom area.

D. Remotely Operated Vehicle (ROV Surveys)

Pursuant to NTL No. 2003-G03, operators may be required to conduct remote operated vehicle (ROV) surveys during pre-spudding and post-drilling operations for the purpose of biological and physical observations.

SECTION D

Biological and Physical Information-Continued

West Cameron Block 625 is not located within an area where ROV Surveys are required.

E. Archaeological Reports

West Cameron Block 625 is not located within a high probability historic or high probability pre-historic area for potential archaeological resources.

Therefore, in accordance with NTL 2002-G01, an archaeological survey and report are not required.

SECTION E

Wastes and Discharge/Disposal Information

The Minerals Management Service (MMS), U. S. Coast Guard (USCG) and the U.S. Environmental Protection Agency (EPA) regulate the overboard discharge and/or disposal of operational waste associated with drilling, completing, testing and/or production operations from oil and gas exploration and production activities.

Minerals Management Service regulations contained in Title 30 CFR 250.300 require operators to "prevent the unauthorized discharge of pollutants into offshore waters". These same regulations prohibit the intentional disposal of "equipment, cables, chains, containers, or other materials" offshore. Small items must be stored and transported in clearly marked containers and large objects must be individually marked. Additionally, items lost overboard must be recorded in the facility's daily log and reported to MMS as appropriate.

U. S. Coast Guard regulations implement the Marine Pollution Research and Control Act (MARPOL) of 1987 requiring manned offshore rigs, platforms and associated vessels prohibit the dumping of all forms of solid waste at sea with the single exception of ground food wastes, which can be discharged if the facility is beyond 12 nautical miles from the nearest shore. This disposal ban covers all forms of solid waste including plastics, packing material, paper, glass, metal, and other refuse. These regulations also require preparation, monitoring and record keeping requirements for garbage generated on board these facilities. The drilling contractor must maintain a Waste Management Plan, in addition to preparation of a Daily Garbage Log for the handling of these types of waste. MODU's are equipped with bins for temporary storage of certain garbage. Other types of waste, such as food, may be discharged overboard if the discharge can pass through 25-millimeter type mesh screen. Prior to off loading and/or overboard disposal, an entry will be made in the Daily Garbage Log stating the approximate volume, the date of action, name of the vessel, and destination point.

U. S. Environmental Protection Agency regulations address the disposal of oil and gas operational wastes under three Federal Acts. The Resource Conservation and Recovery Act (RCRA) which provides a framework for the safe disposal of discarded materials, regulating the management of solid and hazardous wastes. The direct disposal of operational wastes into offshore waters is limited under the authority of the Clean Water Act. And, when injected underground, oil and gas operational wastes are regulated by the Underground Injection Control program. If any wastes are classified as hazardous, they are to be properly transported using a uniform hazardous waste manifest, documented, and disposed at an approved hazardous waste facility.

A National Pollutant Discharge Elimination System (NPDES) permit, based on effluent limitation guidelines, is required for any discharges into offshore waters. LLOG has requested coverage under the Region VI NPDES General Permit GMG290000 for discharges associated with exploration and development activities in West Cameron Block 625 and will take applicable steps to ensure all offshore discharges associated with the proposed operations will be conducted in accordance with the permit.

SECTION E

Wastes and Discharge/Disposal Information-Continued

A. Composition of Solid and Liquid Wastes

The major operational solid waste in the largest quantities generated from the proposed operations will be the drill cuttings, drilling and/or completion fluids. Other associated wastes include waste chemicals, cement wastes, sanitary and domestic waste, trash and debris, ballast water, storage displacement water, rig wash and deck drainage, hydraulic fluids, used oil, oily water and filters, and other miscellaneous minor discharges.

These wastes are generated into categories, being solid waste (trash and debris), nonhazardous oilfield waste (drilling fluids, nonhazardous waste including cement and oil filters), and hazardous wastes (waste paint or thinners).

The type of discharges included in this permit application allow for the following effluents to be discharged overboard, subject to certain limitations, prohibitions and recordkeeping requirements.

Overboard Discharges

In accordance with NTL 2003-G17, overboard discharges generated by the activities are not required for submittal in this Plan.

Disposed Wastes

The wastes detailed in *Attachment E-1* are those wastes generated by our proposed activities that are disposed of by means of offsite release, injection, encapsulation, or placement at either onshore or offshore permitted locations for the purpose of returning them back to the environment.

LLOG will manifest these wastes prior to being offloaded from the MODU, and transported to shore for disposal at approved sites regulated by the applicable State. Additionally, LLOG will comply with any approvals or reporting and recordkeeping requirements imposed by the State where ultimate disposal will occur.

Waste & Discharge Tables

**Attachment E-1
(Public Information)**

LLOG Exploration Offshore, Inc.
West Cameron Block 625
Examples of Wastes and Discharges Information

Table 1. Disposal Table (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
Norm – contaminated wastes	1 ton	Not applicable	West Cameron Block 625	Transport to a transfer station via dedicated barge
Trash and debris	1,000 ft ³	3 ft ³ /day	Newpark Environmental Cameron, LA	Transport in storage bins on crew boat to disposal facility
Chemical product wastes	50 bbl/yr	2 bbl/day	Newpark Environmental Cameron, LA	Transport in containers to shore location
Chemical product wastes	100 bbl	2 bbl/day	Newpark Environmental Cameron, LA	Transport in barrels on crew boat to shore location

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

SECTION F

Oil Spill Response and Chemical Information

A. Regional Oil Spill Response Plan (OSRP) Information

Effective September 15, 2003, Minerals Management Service approved LLOG Exploration Offshore, Inc.'s (LLOG's) Regional Oil Spill Response Plan (OSRP). LLOG Exploration Offshore, Inc. is the only entity covered under this OSRP. Activities proposed in this Initial Exploration Plan will be covered by the Regional OSRP.

B. Oil Spill Removal Organizations (OSRO)

LLOG utilizes Clean Gulf Associates (CGA) as its primary provider for equipment, which is an industry cooperative owning an inventory of oil spill clean-up equipment. CGA is supported by the Marine Spill Response Corporation's (MSRC), which is responsible for storing, inspecting, maintaining and dispatching CGA's equipment. The MSRC STARS network provides for the closest available personnel, as well as an MSRC supervisor to operate the equipment.

C. Worst-Case Scenario Comparison (WCD)

<i>Category</i>	<i>Current Regional OSRP WCD</i>	<i>Proposed Exploration Plan WCD</i>
Type of Activity	Drilling/Completion/Testing	Drilling/Completion/Testing
Facility Surface Location	High Island A-347	West Cameron Block 625
Facility Description	MODU	Jack-Up Rig
Distance to Nearest Shoreline (Miles)	119	115
Volume: Storage Tanks (total) Facility Piping (total) Lease Term Pipeline Uncontrolled Blowout (day) Potential 24 Hour Volume (Bbls.)	60,000 bbls	300 bbls
Type of Liquid Hydrocarbon	Crude	Condensate
API Gravity	33.3°	44°

SECTION F

Oil Spill Response and Chemical Information-Continued

Due to the estimated flow rates from an exploratory well blowout are speculative and temporary in nature, LLOG will not modify their Regional OSRP to change the WCD.

Since LLOG has the capability to respond to the worst-case discharge (WCD) spill scenario included in its Regional OSRP approved on September 15, 2003 and since the worst-case scenario determined for our EP does not replace the worst-case scenario in our Regional OSRP, I hereby certify that LLOG 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 EP.

D. Facility Tanks, Production Vessels

The following table details the *tanks* (capacity greater than 25 bbls. or more) to be used to support the proposed activities (MODU and barges):

Type of Storage Tank	Type of Facility	Tank Capacity (bbls)	Number of Tanks	Total Capacity (bbls)	Fluid Gravity (API)
Fuel Oil	MODU	250	2	500	38° (Diesel)

E. Spill Response Sites

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

F. Diesel Oil Supply Vessels

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

G. Support Vessel Fuel Tanks

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

H. Produced Liquid Hydrocarbon Transportation Vessels

LLOG is proposing to conduct well testing operations on the proposed well locations. This process will include flaring the produced gas hydrocarbons and burning the liquid hydrocarbons.

SECTION F

Oil Spill Response and Chemical Information (Continued)

I. Oil and Synthetic-Based Drilling Fluids

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

J. Oil Characteristics

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

I. Blowout Scenario

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

L. Spill Discussion for NEPA Analysis

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

M. Pollution Prevention Measures

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

N. FGBNMS Monitoring Plans

According to NTL G2003-G17, this section of the Plan is not applicable to the proposed operations.

SECTION G

Air Emissions Information

The primary air pollutants associated with OCS exploration activities are:

- Carbon Monoxide
- Particulate Matter
- Sulphur Oxides
- Nitrogen Oxides
- Volatile Organic Compounds

These offshore air emissions result mainly from the drilling rig operations, helicopters, and support vessels. These emissions occur mainly from combustion or burning of fuels and natural gas and from venting or evaporation of hydrocarbons. The combustion of fuels occurs primarily on diesel-powered generators, pumps or motors and from lighter fuel motors. Other air emissions can result from catastrophic events such as oil spills or blowouts.

A. Calculating Emissions

Included as *Attachment G-1* is the Projected Air Quality Emissions Report (Form MMS-138) for (Plan Emissions, Complex Total Emissions) addressing drilling, potential completion and testing operations utilizing a typical gorilla jack-up type drilling unit, with related support vessels and construction barge information.

B. Screening Questions

As evidenced by Attachment G-1, the worksheets were completed based on the proposed operations to burn liquid hydrocarbons.

C. Emission Reduction Measures

The projected air emissions are within the exemption level; therefore, no emission reduction measures are being proposed.

D. Verification of Non-Default Emissions Factors

LLOG has elected to use the default emission factors as provided in *Attachment G-1*.

E. Non-Exempt Activities

The proposed activities are within the exemption amount as provided in *Attachment G-1*.

SECTION G

Air Emissions Information-Continued

F. Review of Activities with Emissions Below the Exemption Level

The proposed activities are below the exemption amount and should not affect the air quality of an onshore area, as provided in *Attachment G-1*.

G. Modeling Report

The proposed activities are below the exemption amount and should not affect the air quality of an onshore area.

Air Quality Emissions Report

**Attachment G-1
(Public Information)**

EXPLORATION PLAN (EP)**OMB Control No. 1010-0049****AIR QUALITY SCREENING CHECKLIST****OMB Approval Expires: September 30, 2003**

COMPANY	LLOG Exploration Offshore, Inc.
AREA	West Cameron
BLOCK	625
LEASE	OCS-G 24782
RIG	Gorilla Jack-Up
WELL	A and B
COMPANY CONTACT	Christine Groth / R.E.M. Solutions, Inc.
TELEPHONE NO.	281.492.8562
REMARKS	To drill, potentially complete and test Well Locations A and B.

EMISSIONS FACTORS

Fuel Usage Conversion Factors	Natural Gas Turbines		Natural Gas Engines		Diesel Recip. Engine		REF.	DATE
	SCF/hp-hr	9.524	SCF/hp-hr	7.143	GAL/hp-hr	0.0483	AP42 3.2-1	4/76 & 8/84

Equipment/Emission Factors	units	PM	SOx	NOx	VOC	CO	REF.	DATE
NG Turbines	gms/hp-hr		0.00247	1.3	0.01	0.83	AP42 3.2-1& 3.1-1	10/96
NG 2-cycle lean	gms/hp-hr		0.00185	10.9	0.43	1.5	AP42 3.2-1	10/96
NG 4-cycle lean	gms/hp-hr		0.00185	11.8	0.72	1.6	AP42 3.2-1	10/96
NG 4-cycle rich	gms/hp-hr		0.00185	10	0.14	8.6	AP42 3.2-1	10/96
Diesel Recip. < 600 hp.	gms/hp-hr	1	1.468	14	1.12	3.03	AP42 3.3-1	10/96
Diesel Recip. > 600 hp.	gms/hp-hr	0.32	1.468	11	0.33	2.4	AP42 3.4-1	10/96
Diesel Boiler	lbs/bbl	0.084	2.42	0.84	0.008	0.21	AP42 1.3-12,14	9/98
NG Heaters/Boilers/Burners	lbs/mmescf	7.6	0.593	100	5.5	84	AP42 1.4-1, 14-2, & 14	7/98
NG Flares	lbs/mmescf		0.593	71.4	60.3	388.5	AP42 11.5-1	9/91
Liquid Flaring	lbs/bbl	0.42	6.83	2	0.01	0.21	AP42 1.3-1 & 1.3-3	9/98
Tank Vapors	lbs/bbl				0.03		E&P Forum	1/93
Fugitives	lbs/hr/comp.				0.0005		API Study	12/93
Glycol Dehydrator Vent	lbs/mmescf				6.6		La. DEQ	1991
Gas Venting	lbs/scf				0.0034			

Sulfur Content Source	Value	Units
Fuel Gas	3.33	ppm
Diesel Fuel	0.4	% weight
Produced Gas(Flares)	3.33	ppm
Produced Oil (Liquid Flaring)	1	% weight

Screening Questions for EP's	Yes	No
Is any calculated Complex Total (CT) Emission amount (in 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
Does your emission calculations include any emission reduction measures or modified emission factors?		X
Are your proposed exploration activities located east of 87.5° W longitude?		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 for more than 48 continuous hours from any proposed well?		X
Do you propose to burn produced hydrocarbon liquids?	X	

Air Pollutant	Plan Emission Amounts ¹ (tons)	Calculated Exemption Amounts ² (tons)	Calculated Complex Total Emission Amounts ³ (tons)
Carbon monoxide (CO)	71.85	80403.97	NA
Particulate matter (PM)	9.42	3829.5	NA
Sulphur dioxide (SO ₂)	44.44	3829.5	NA
Nitrogen oxides (NO _x)	321.01	3829.5	NA
Volatile organic compounds (VOC)	9.91	3829.5	NA

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

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

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

EMISSIONS CALCULATIONS 1ST YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT			PHONE	REMARKS						
LLOG Exploration Offshore	West Cameron	625	OCS-G 24782	Gorilla Jack-Up	A and B		Christine Groth / R.E.M. Solutions			281.492.8562							
OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS					
	Diesel Engines	HP	GAL/HR	GAL/D													
	Nat. Gas Engines	HP	SCF/HR	SCF/D													
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO	
DRILLING	PRIME MOVER>600hp diesel	16975	819.8925	19677.42	24	62	11.96	54.89	411.29	12.34	89.74	8.90	40.84	306.00	9.18	66.76	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	2065	99.7395	2393.75	8	36	1.46	6.68	50.03	1.50	10.92	0.21	0.96	7.20	0.22	1.57	
	VESSELS>600hp diesel(supply)	2065	99.7395	2393.75	10	18	1.46	6.68	50.03	1.50	10.92	0.13	0.60	4.50	0.14	0.98	
VESSELS>600hp diesel(tugs)	4200	202.86	4868.64	12	4	2.96	13.58	101.76	3.05	22.20	0.07	0.33	2.44	0.07	0.53		
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MISC.	BPD	SCF/HR	COUNT													
	TANK-	0			0	0				0.00					0.00		
DRILLING WELL TEST	OIL BURN	250			24	2	4.38	71.15	20.83	0.10	2.19	0.11	1.71	0.50	0.00	0.05	
	GAS FLARE		208333.33		24	2		0.12	14.87	12.56	80.94		0.00	0.36	0.30	1.94	
2004 YEAR TOTAL							22.21	153.09	648.83	31.06	216.90	9.42	44.44	321.01	9.91	71.85	
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											3829.50	3829.50	3829.50	3829.50	80403.97	
	115.0																

SUMMARY

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
LLOG Exploration Offshore, Inc.	West Cameron	625	OCS-G 24782	Gorilla Jack-Up	A and B
Year	Emitted Substance				
	PM	SOx	NOx	VOC	CO
2004	9.42	44.44	321.01	9.91	71.85
Allowable	3829.50	3829.50	3829.50	3829.50	80403.97

SECTION H

Environmental Impact Analysis

A. IMPACT PRODUCING FACTORS (IPF'S)

The following matrix is utilized to identify the environmental resources that could be impacted by these IPF's. An "x" has been marked for each IPF category that LLOG has determined may impact a particular environmental resource as a result of the proposed activities. For those cells which are footnoted, a statement is provided as to the applicability of the proposed activities, and where there may be an effect, an analysis of the effect is provided.

Environmental Resources	Emissions (air, noise, light, etc.)	Effluents (muds, cuttings, other discharges to the water column or seafloor	Physical Disturbances To the seafloor (rig or anchor emplacement, etc.)	Wastes Sent to Shore for Treatment Or disposal	Accidents (e.g. oil spills, chemical spills, H2S releases)	Other IPF's identified
Site Specific at Offshore Location						
Designated topographic feature						
Pinnacle Trend area live bottoms						
Eastern Gulf live bottoms						
Chemosynthetic communities						
Water quality		X			X	
Fisheries		X			X	
Marine mammals	X	X			X	
Sea turtles	X	X			X	
Air quality						
Shipwreck sites (known or potential)						
Prehistoric archaeological sites						
Vicinity of Offshore Location						
Essential fish habitat					X	
Marine and pelagic birds					X	
Public health and safety						
Coastal and Onshore						
Beaches					X	
Wetlands					X	
Shorebirds and coastal nesting birds					X	
Coastal wildlife refuges					X	
Wilderness areas					X	
Other Resources						

SECTION H

Environmental Impact Analysis-Continued

B. VICINITY OF OFFSHORE LOCATION ANALYSES

1. Designated Topographic Features

There are no anticipated effluents, physical disturbances to the seafloor, and accidents from the proposed activities that could cause impacts to topographic features. The proposed surface disturbances within West Cameron Block 625 are located approximately 6 miles away from the closest designated topographic feature (Elvers Bank). The crests of designated topographic features in the northern Gulf are found below 10 m. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by the currents moving around the bank; thereby avoiding the sessile biota.

2. Pinnacle Trend Live Bottoms

There are no anticipated effluents, physical disturbances to the seafloor, and accidents from the proposed activities that could cause impacts to a pinnacle trend area. The proposed surface disturbances within West Cameron Block 625 are located a significant distance (> 100 miles) from the closest pinnacle trend live bottom stipulated block. The crests of the pinnacle trend area are much deeper than 20 m. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by currents moving around the bank; and thus not impacting the pinnacles.

3. Eastern Gulf Live Bottoms

There are no anticipated effluents, physical disturbances to the seafloor, and accidents from the proposed activities that could cause impacts to Eastern Gulf live bottoms. The proposed surface disturbances within West Cameron Block 625 are located a significant distance (>100 miles) from the closest pinnacle Eastern Gulf live bottom stipulated block. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by currents moving around the bank; and would not be expected to cause adverse impacts to Eastern Gulf live bottoms because of the depth of the features and dilutions of spills.

4. Chemosynthetic Communities

Water depths in West Cameron Block 625 range from 320 feet to 360 feet. Therefore, the proposed activities are not located within the vicinity of any known chemosynthetic communities, which typically occur in water depths greater than 400 meters.

SECTION H

Environmental Impact Analysis-Continued

5. Water Quality

Accidental oil spill releases from the proposed activities, and cumulative similar discharge activity within the vicinity could potentially cause impacts to water quality. It is unlikely that an accidental oil spill release would occur from the proposed activities. In the event of such a release, the water quality would be temporarily affected by the dissolved components and small droplets. Currents and microbial degradation would remove the oil from the water column or dilute the constituents to background levels.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. LLOG will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

6. Fisheries

Accidental oil spill releases from the proposed activities, and cumulative similar discharge activity within the vicinity may potentially cause some detrimental effects on fisheries. It is unlikely a spill would occur; however, such a release in open waters closed to mobile adult finfish or shellfish would likely be sublethal and the extent of damage would be reduced to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. LLOG will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

7. Marine Mammals

As a result of the proposed activities, marine mammals may be adversely impacted by traffic, noise, accidental oil spills, cumulative similar discharge activity, and loss of trash and debris. Chronic and sporadic sublethal effects could occur that may stress and/or weaken individuals of a local group or population and make them more susceptible to infection from

SECTION H

Environmental Impact Analysis-Continued

natural or anthropogenic sources. Few lethal effects are expected from accidental oil spill, chance collisions with service vessels and ingestion of plastic material.

The net results of any disturbance would depend on the size and percentage of the population affected, ecological importance of the disturbed area, environmental and biological parameters that influence an animal's sensitivity to disturbance and stress, and the accommodation time in response to prolonged disturbance (Geraci and St. Aubin), 1980). Collisions between cetaceans and ship could cause serious injury or death (Laist et al., 2001). Sperm whales are one of 11 whale species that are hit commonly by ships (Laist et al., 2001). Collisions between OCS vessels and cetaceans within the project area are expected to be unusual events.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. LLOG will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality. Additionally, LLOG and its contractors will conduct the proposed activities under the additional criteria addressed by MMS in Notice to Lessee's (NTL's) 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protective Species" and NTL 2003-G11 "Marine Trash & Debris Awareness & Elimination".

8. Sea Turtles

As a result of the proposed activities, sea turtles may be adversely impacted by traffic, noise, accidental oil spills, cumulative similar discharges, and loss of trash and debris. Small numbers of turtles could be killed or injured by chance collision with service vessels or by eating indigestible trash, particularly plastic items accidentally lost from drilling rigs, production facilities and service vessels. Drilling rigs and project vessels (construction barges) produce noise that could disrupt normal behavior patterns and crease some stress to sea turtles, making them more susceptible to disease. Accidental oil spill releases are potential threats which could have lethal effects on turtles. Contact and/or consumption of this released material could seriously affect individual sea turtles. Most OCS related impacts on sea turtles are expected to be sublethal. Chronic and/or avoidance of effected areas could cause declines in survival or productivity, resulting in gradual population declines.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which

SECTION H

Environmental Impact Analysis-Continued

address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill. LLOG will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements.

As such, it is not anticipated these discharges will cause significant adverse impacts to water quality. Additionally, LLOG and its contractors will conduct the proposed activities under the additional criteria addressed by MMS in Notice to Lessee's (NTL's) 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protective Species" and NTL 2003-G11 "Marine Trash & Debris Awareness & Elimination".

9. Air Quality

The proposed activities are located approximately 115 miles to the nearest shoreline. There would be a limited degree of air quality degradation in the immediate vicinity of the proposed activities. Air quality analyses of the proposed activities are below the MMS exemption level.

10. Shipwreck Site (Known or Potential)

There are no physical disturbances to the seafloor which could impact known or potential shipwreck sites, as the review of high resolution shallow hazards data indicate there are no known or potential shipwreck sites located within the surveyed area.

11. Prehistoric Archaeological Sites

There are no physical disturbances to the seafloor which could cause impacts to prehistoric archaeological sites, as the review of high resolution shallow hazards data and supporting studies did not reflect the occurrence of prehistoric archaeological sites.

Site Specific Offshore Location Analyses

1. Essential Fish Habitat

An accidental oil spill that may occur as a result of the proposed activities has potential to cause some detrimental effects on essential fish habitat. It is unlikely that an accidental oil spill release would occur; however, if a spill were to occur in close proximity to finfish or shellfish, the effects would likely be sublethal and the extent of damage would be reduced to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

SECTION H

Environmental Impact Analysis-Continued

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

2. Marine and Pelagic Birds

An accidental oil spill that may occur as a result of the proposed activities has potential to impact marine and pelagic birds, by the birds coming into contact with the released oil. It is unlikely that an accidental oil spill release would occur.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

3. Public Health and Safety Due to Accidents

There are no anticipated IPF's from the proposed activities that could impact the public health and safety. LLOG has requested MMS approval to classify the proposed objective area as absent of hydrogen sulfide.

Coastal and Onshore Analyses

1. Beaches

An accidental oil spill release from the proposed activities could cause impacts to beaches. However, due to the distance from shore (approximately 115 miles), and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

SECTION H

Environmental Impact Analysis-Continued

2. Wetlands

An accidental oil spill release from the proposed activities could cause impacts to wetlands. However, due to the distance from shore (approximately 115 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

3. Shore Birds and Coastal Nesting Birds

An accidental oil spill release from the proposed activities could cause impacts to shore birds and coastal nesting birds. However, due to the distance from shore (approximately 115 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

4. Coastal Wildlife Refuges

An accidental oil spill release from the proposed activities could cause impacts to coastal wildlife refuges. However, due to the distance from shore (approximately 115 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which

SECTION H

Environmental Impact Analysis-Continued

address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

5. Wilderness Areas

An accidental oil spill release from the proposed activities could cause impacts to wilderness areas. However, due to the distance from shore (approximately 115 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of LLOG's Regional Oil Spill Response Plan which address available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

Other Identified Environmental Resources

LLOG has not identified any other environmental resources other than those addressed above.

Impacts on Proposed Activities

No impacts are expected on the proposed activities as a result of taking into consideration the site specific environmental conditions.

A High Resolution Shallow Hazards Survey was conducted, a report prepared in accordance with NTL 2002-G01 and NTL 98-20.

Based on the analysis of the referenced data, there are no surface or subsurface geological and manmade features and conditions that may adversely affect the proposed activities. LLOG will institute procedures to avoid pipelines and abandoned wells within the vicinity of the proposed operations.

Alternatives

LLOG did not consider any alternatives to reduce environmental impacts as a result of the proposed activities.

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Environmental Impact Analysis-Continued

Mitigation Measures

LLOG will not implement any mitigation measures to avoid, diminish, or eliminate potential environmental resources, other than those required by regulation and policy.

Consultation

LLOG has not contacted any agencies or persons for consultation regarding potential impacts associated with the proposed activities. Therefore, a list of such entities is not being provided.

References

The following documents were utilized in preparing the Environmental Impact Assessment:

<i>Document</i>	<i>Author</i>	<i>Dated</i>
Shallow Hazards Survey	Thales GeoSolutions, Inc.	2003
MMS Environmental Impact Statement Report No. 2002-15	Minerals Management Service	2002
NIL 2003-G10 "Vessel Strike Avoidance and Injured/Dead Protective Species"	Minerals Management Service	2003
NIL 2003-G11 "Marine Trash & Debris Awareness & Elimination"	Minerals Management Service	2003
NIL 2002-G09 "Regional and Subregional Oil Spill Response Plans"	Minerals Management Service	2002
NIL 2003-G17 "Guidance for Submitting Exploration Plans and Development Operations Coordination Documents"	Minerals Management Service	2003
NIL 2002-G01 "Archaeological Resource Surveys and Reports"	Minerals Management Service	2002
NIL 2000-G16 "Guidelines for General Lease Surety Bonds"	Minerals Management Service	2000
NIL 98-20 "Shallow Hazards Survey Requirements"	Minerals Management Service	1998
NIL 2003-N06 "Supplemental Bond Procedures"	Minerals Management Service	2003
NIL 98-16 "Hydrogen Sulfide Requirements"	Minerals Management Service	1998
NPDES General Permit GMG290000	EPA - Region VI	1998
Regional Oil Spill Response Plan	LLOG Exploration Offshore, Inc.	2003

SECTION I

CZM Consistency

Under direction of the Coastal Zone Management Act (CMZA), the States of Alabama, Florida, Louisiana, Mississippi and Texas developed Coastal Zone Management Programs (CZMP) to allow for the supervision of significant land and water use activities that take place within or that could significantly impact their respective coastal zones.

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

LLOG Exploration Offshore, Inc. has considered all of Louisiana's enforceable policies and certifies the consistency for the proposed operations.

COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATION**INITIAL EXPLORATION PLAN****WEST CAMERON BLOCK 625****LEASE OCS-G 24782**

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

By: **LLOG Exploration Offshore, Inc.**

Signed By: Carol Sator

Dated: 12/9/03