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 # - N-07912

Type - Initial Exploration Plan

Lease(s) - OCS-G17569 Block - 899 Alaminos Canyon Area
OCS-G17574 Block - 942 Alaminos Canyon Area
OCS-G17575 Block - 943 Alaminos Canyon Area

Operator - Shell Offshore Inc.

Description - Wells A, B, C, H, and J

Rig Type - DRILLSHIP

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
WELL/A	G17574/AC/942	2977 FSL, 5450 FWL	G17575/AC/943
WELL/B	G17574/AC/942	1538 FSL, 1567 FWL	G17575/AC/943
WELL/C	G17569/AC/899	3928 FNL, 5796 FEL	G17575/AC/943
WELL/H	G17574/AC/942	2295 FSL, 7822 FWL	G17574/AC/942
WELL/J	G17575/AC/943	4978 FNL, 594 FWL	G17575/AC/943

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United States of America
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September 22, 2003

Mr. Don Howard
Regional Supervisor
Office of Field Operations
Minerals Management Service
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

Dear Mr. Howard

SUBJECT: Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

In compliance with 30 CFR 250.204 and NTL 2003-G17 giving Exploration Plan guidelines, Shell Offshore Inc. (SOI) requests your approval of this Initial Plan of Exploration to drill Well Locations A, B, C, H & J. If the rig is available drilling could commence as early as December 15, 2003.

Three copies of the Shallow Hazards Report are included.

This Plan consists of a series of attachments, as detailed in Attachment 1, describing our intended operations. The attachments we desire to be exempted from disclosure under the Freedom of Information Act are marked "Confidential" and excluded from the Public Information Copies of this submittal.

Should you require additional information, please contact me as indicated above.

Kind regards

Sylvia Bellone

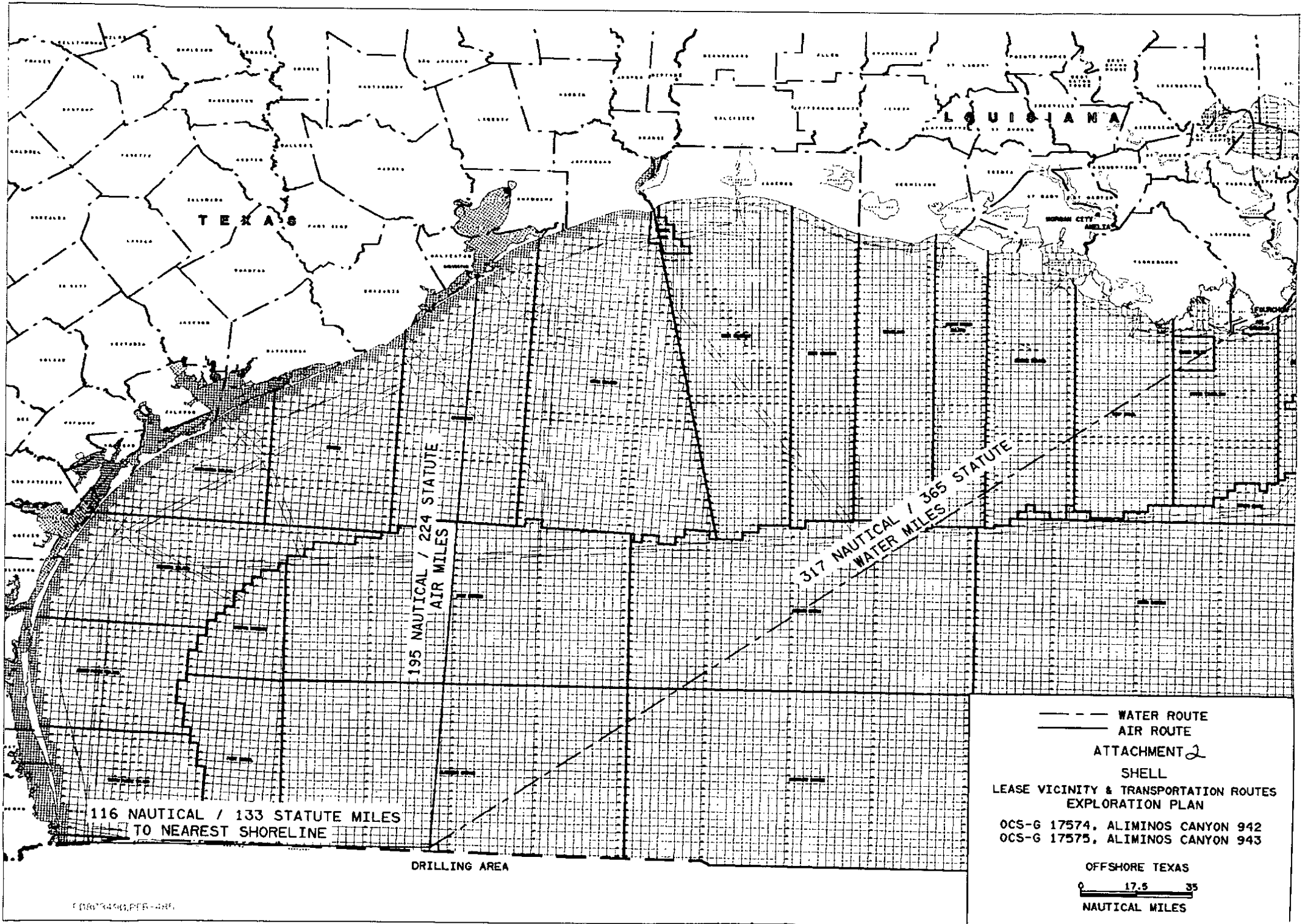
Sylvia A. Bellone

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

ATTACHMENT	DESCRIPTION
1	Index of Attachments
2	Plats, Lease Vicinity and Transportation Routes
3	Surface Location and Bathymetry Map
3A	Surface Location Table
4	General Information (Schedule of Activities, Safety Features, Pollution Prevention Features, Drilling Operations, Well Abandonment, Area Wide Bond Coverage, Lease Stipulations, Hydrogen Sulfide Determination, and Well testing and Storage)
5*	Bottom Hole Locations Plat
5A*	Bottom Hole Locations Table
6*	Geologic Description of Activities and New or Unusual Technology
7A, 7B & 7C*	Geologic Structure Maps
8A, 8B, 8C & 8D*	Geologic Cross Section
9*	Stratigraphic Column with Time vs Depth Table
10A, 10B, 10C & 10D*	Time Migration Seismic Line (Original only)
11* & 11A	Shallow Hazards Site Specific Comments
12	Enhanced Seafloor Rendering (Original only)
13	Waste Discharge Information
14	Description of Onshore Support Facility and Support Vessel Description and Travel Frequency
15	Oil Spill & Chemical Information
16	Projected Air Emissions
17A, 17B & 17C	Louisiana and Texas Certificates of Consistency, Consistency with State of Texas Statues
18	Environnemental Impact Analysis
19	ROV Survey Plan
20	Shell OSRP Appendix H

*Confidential (Original plus nine copies with five marked Public Information)

ATTACHMENT 1


TEXAS
LOUISIANA
195 NAUTICAL / 224 STATUTE AIR MILES
317 NAUTICAL / 365 STATUTE WATER MILES
116 NAUTICAL / 133 STATUTE MILES TO NEAREST SHORELINE
DRILLING AREA
WATER ROUTE
AIR ROUTE
ATTACHMENT 2
SHELL
LEASE VICINITY & TRANSPORTATION ROUTES
EXPLORATION PLAN
OCS-G 17574, ALIMINOS CANYON 942
OCS-G 17575, ALIMINOS CANYON 943
OFFSHORE TEXAS
0 17.5 35
NAUTICAL MILES

Initial Plan of Exploration
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Offshore Texas

OMB Control No. 1010-0049 Expiration Date: August 31, 2006

EXPLORATION PLAN	X	DEVELOPMENT OPERATIONS COORDINATION DOCUMENT		DEVELOPMENT & PRODUCTION PLAN	

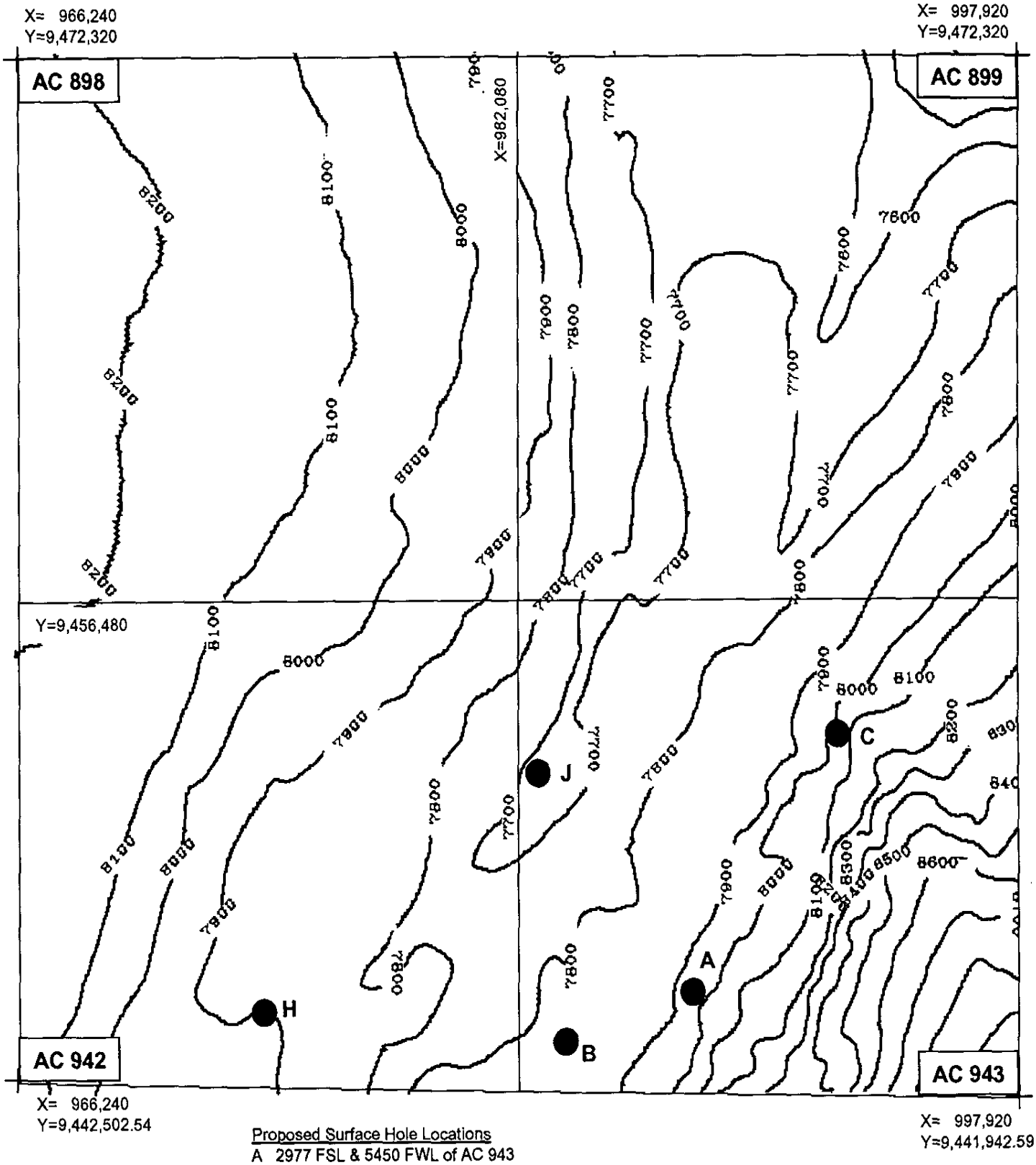
OPERATOR: Shell Offshore Inc.	ADDRESS: P.O. Box 61933
MMS OPERATOR NO.: 0689	New Orleans. Louisiana 70160
CONTACT PERSON: Sylvia Bellone	PHONE NO. 504-728-7215

PROPOSED START DATE: 12/15/03	RIG TYPE: DS	DISTANCE TO CLOSEST LAND (IN MILES): 133

NEW OR UNUSUAL TECHNOLOGY	YES	NO X	ONSHORE SUPPORT BASE (S): Water – Fourchon, LA Air- Galveston, TX

NARRATIVE DESCRIPTION OF PROPOSED ACTIVITIES: Drill Wells A, B, C, H & J PROJECT NAME, IF APPLICABLE: N/A

WELL/ STRUCTURE NAME	SURFACE LOCATION		BOTTOM-HOLE LOCATION (FOR WELLS)
Platform __ or Well Name: A	CALLS: 2977 F S L and 5450 F W L OF LEASE OCS –G17575, Alaminos Canyon AREA, BLOCK 943		
	X: 987530 Y: 9445104		
	LAT: 26.01659 LONG: -94.98845		
	TVD(IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 7941
Platform __ or Well __ Name: B	CALLS: 1538 F S L and 1567 F W L OF LEASE OCS –G17575, Alaminos Canyon AREA, BLOCK 943		
	X: 983647 Y:9443733		
	LAT: 26.012656 LONG: -95.00021		
	TVD(IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 7848
Platform __ or Well __ Name: C	CALLS: 3928 F N L and 5796 F E L OF LEASE OCS –G17575, Alaminos Canyon AREA, BLOCK 943		
	X: 992124 Y: 9452552		
	LAT: 26.03727 LONG: -94.97481		
	TVD(IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 8018
Platform __ or Well __ Name: H	CALLS: 2295 F S L and 7822 F W L OF LEASE OCS –G17574, Alaminos Canyon AREA, BLOCK 942		
	X: 974062 Y: 9444660		
	LAT: -26.014800 LONG: -95.02943		
	TVD(IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 7897
Platform __ or Well Name: J	CALLS: 4978 F N L and 594 F W L OF LEASE OCS –G17575, Alaminos Canyon AREA, BLOCK 943		
	X: 982674 Y: 9451502		
	LAT: 26.033985 LONG: -95.00353		
	TVD(IN FEET):	MD (IN FEET):	WATER DEPTH (IN FEET): 7687



Proposed Surface Hole Locations

A 2977 FSL & 5450 FWL of AC 943
X=987,530 & Y=9,445,104

B 1538 FSL & 1567 FWL of AC 943
X=983,647 & Y=9,443,733

C 3928 FNL & 5796 FEL of AC 943
X=992,124 & Y=9,452,552

H 2295 FSL & 7822 FWL of AC 942
X=974,062 & Y=9,444,660

J 4978 FNL & 594 FWL of AC 943
X=982,674 & Y=9,451,502

1:48000
0 .5 1.0

Attachment 3
Proposed Surface Location and Bathymetry

AC-899 Shell, OCS-G 17569
AC-942 Shell, OCS-G 17574
AC-943 Shell, OCS-G 17575

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
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OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

GENERAL INFORMATION

SCHEDULE OF ACTIVITIES

Plans are to drill one to five wells, each well taking approximately 76 days to drill.

SAFETY FEATURES

A drillship similar to the Transocean Discoverer Spirit that we plan to use will comply with all of the regulations of the American Bureau of Shipping (ABS), International Maritime Organization (IMO) and the United States Coast Guard (USCG). Appendix A of the attached Environmental Impact Analysis (Attachment 18) contains detailed Rig Specifications for the Rig.

POLLUTION-PREVENTION FEATURES

All waste is collected and transported to shore for disposal. Sewage is treated prior to being discharged overboard. (See Attachment 13)

DRILLING OPERATIONS

All drilling operations will be conducted under the provisions of 30 CFR, Part 250, Subpart D, and other applicable regulations and notices, including those regarding the avoidance of potential drilling hazards and safety and pollution prevention control.

Inflow Detection and Well control

Wellbore and formation pressures are controlled by two methods described as primary, and secondary, which will be described in this text. Primary control is the proper use of the hydrostatic head of fluid to overbalance the formation pressure and prevent entry of foreign fluids into the wellbore. A "kick" is defined as an entry of formation fluid into the well bore which is sufficient to cause the well to flow. When a well kicks it means that primary control has been lost, at least temporarily and then secondary measures are the required. The primary methods for detecting an inflow to the wellbore are a gain in pit volume while drilling, flow from the annulus when the pumps are shut off and readings from the downhole MWD (measure while drilling) tool.

Once a well inflow has been determined, secondary well control operations are begun to regain primary control of the well. The steps that are taken in secondary control are:

1. Shut the well in by closing the BOP's and reading the increase in pressure on the drill string.
2. Determine the increase in mud weight that is required in order to offset the increase in bottom hole pressure and weight up the mud system to this mud weight.
3. Increase the bottom hole pressure by maintaining enough backpressure at the choke while circulating to prevent further fluid entry.
4. Circulate the foreign fluid out of the hole while maintaining choke pressure.
5. Circulate the weighted up mud into the well so that choking the well during circulation can be eliminated and primary control is regained.

Once primary control is regained the BOP's are opened, the well is checked for flow, and given no flow from the annulus drilling operations are resumed.

Loss of Circulation

Once loss of circulation due to annulus equivalent mud weight exceeding the fracture pressure of the formations drilled occurs, several methods of regaining returns can be considered. Initially, the annulus should be filled with fluid and the pipe kept moving to prevent differential sticking. Procedures that should be evaluated in view of the exiting loss of circulation based on well conditions and subsurface information are as follows:

1. Reduce the mud weight (if practicable), circulating rate or mud viscosity.
2. Mix a volume of mud containing a high concentration of various sized lost circulation materials design to plug fractures and flow paths and spot this fluid to seal the loss zones.
3. Mix a special lost circulation plug such as Diaseal-M and spot this plugging material to seal the loss zone.
4. Mix and pump cement down the drill string and spot the cement across the loss zone and then drill out the open hole section again and watch for loss circulation.

Seepage Loss

Seepage losses occur when the formations drilled have porosities and permabilies greater than the bridging capability of the solids in the drilling fluid (mud) system. This situation is usually detected by a slow decrease in pit volume while drilling in open hole section. The method used to control this situation is as follows:

1. Lost circulation materials that are sized smaller than those used to control lost circulation are added to the mud system.
2. The well is circulated and the pit volume is monitored for seepage loss. If seepage loss continues a higher concentration of loss circulation material is added to the system including larger sized materials.
3. Once the seepage is controlled drill operations are continued.

Casing Design

For some years the maximum burst pressure to be used in the design of casing strings has been taken as one third the bottom hole hydrostatic pressure anticipated for the next casing string. This is assumed to be the maximum pressure reached as the top of a kick "bubble" is circulated out of a well. Calculations show that in almost all situations that this would require a kick of over 100 barrels and a differential into the well of +500 psi and therefore the design is conservative. The pipe burst safety factor used in the casing design is 1.25 including "triaxial loading" conditions of internal pressure and axial load.

In designing the casing string for collapse the internal pressure profile to be used in the design calculations is full evacuation to 1/3 depth of the next casing point (max. 5000 ft. evacuation) and mud gradient from this point to the casing shoe. The collapse design safety factor used in the selection of the casing is 1.0.

The casing design for a given casing string must also be designed to accommodate axial loads as well as internal and external pressures. An axial load case of the weight of the casing string hanging from the wellhead in a full column of drilling fluid without applied pressure with a factor of safety of 1.5 is used.

WELL ABANDONMENT

The wells will be drilled, evaluated, and either temporarily or permanently abandoned in accordance with 30 CFR, Part 250, Subpart Q. If further exploration, development, or production activities are to be undertaken thereafter, appropriate plans will be submitted.

AREA WIDE BOND REQUIREMENT

SOI's area wide bond coverage is $3,000,000 and complies with the Letter to Lessees and Operators dated November 5, 1993. (30 CFR Part 256)

LEASE HISTORY/STIPULATIONS

Leases OCS-G 17569, OCS-G17574 & OCS-G 17575, AC 899, 942 & 943, were issued to Shell Offshore Inc. effective January 1, 1997 for a period of ten years.

AC Blocks 899, 942 & 943 are not a part of any Biological Sensitive Area, Shipping Fairway, or Archeological Area. They are located in Military Warning Area W-147 and W-602. Shell will enter into an agreement with the commander of that area prior to commencing water or air traffic.

HYDROGEN SULFIDE DETERMINATION

Shell has drilled five wells in the Aliminos Canyon protraction area of the Gulf of Mexico. The first was located in AC 600 in 1996, but this well was lost at 4000' below mudline before any of the equivalent stratigraphic objective section was reached.

The second well was drilled in adjacent AC 557 in 2001 and reached a depth of 19,164', That well penetrated the entire equivalent stratigraphic section as the proposed wells in this plan without encountering hydrogen sulphide (H_2S).

The third and fourth wells were drilled in block AC 857 in June 2001. AC 857 # 1 reached a TD of 17,900' and penetrated the entire same sequence as the wells in this plan, the other well AC 857 #2 penetrated only a similar shallow sequence as the wells in this plan. Neither of those wells encountered H_2S.

The fifth well was drilled in block AC 813 in January 2002. This well reached a depth of 15,035' and also penetrated the same sequence as the wells in this plan. No H_2S was encountered.

Three further offset wells have been drilled by Unocal (AC 903 #1, AC 903 #2 and AC 947 #1) and are interpreted to have penetrated the entire equivalent stratigraphic sequence without encountering H_2S.

Furthermore, the most likely temperature gradients generated for the prospect predict TD temperatures significantly less than 300 degrees Fahrenheit at all locations. Therefore, the presence of H_2S is not expected based on the aforementioned temperature predictions and analog well data.

Based on [CFR 250.67 (c)], SOI requests that the Regional Supervisor, Field Operations, determine the zones in the proposed drilling operations in this plan are classified as an area where the absence of H_2S has been confirmed.

WELL TESTING AND STORAGE

The purposed activities do not include well testing or storage of liquid hydrocarbons greater than 50,000 barrels.

Attachment 4

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

SHALLOW HAZARDS AND SITE SPECIFIC COMMENTS

History

Geoscience Earth & Marine Services, Inc. (GEMS) prepared a Geologic and Stratigraphic Assessment Report (Project Number 0403-642) for Shell on August 18, 2003. The report covers blocks 899, 842, and 943 in Alaminos Canyon of the Gulf of Mexico. Shell will use a yet to be determined drillship similar to the Transocean Discoverer Spirit at Proposed Locations A, B, C, H, and J in Alaminos Canyon Blocks 942 and 943.

Following are the previously drilled wells in the vicinity of Proposed Locations A, B, C, H and J. Unocal's Well # 1 in Alaminos Canyon Block 903, OCS-G 20876 has coordinates of X=1,056,051 and Y=9,460,001; Unocal Well # 2 has coordinates of X =1,060,315 and Y=9,465,239. Shell's Alaminos Canyon Block 857 Well # 1 has coordinates of X=1,016,891 and Y=9,474,095; Shell's Well # 2 in the same block has coordinates of X=1,017,051 and Y=9,474,215. Shell's Alaminos Canyon Block 813 Well # 1 has coordinates of X =1,017,235 and Y=9,494,616. None of these wells have reported water flow conditions due to over pressured sands. Based on offset well control, the near-surface interval is expected to be hydropressured, which makes the risk relatively low for shallow water flow.

Well Information

Alaminos Canyon 943, Proposed Location A:

X = 987,530	5,450 FWL
Y = 9,445,104	2,977 FSL

Alaminos Canyon 943, Proposed Location B:

X = 983,647	1,538 FWL
Y = 9,443,733	1,790 FSL

Alaminos Canyon 943, Proposed Location C:

X = 992,124	5,796 FEL
Y = 9,452,552	3,928 FNL

Proposed Wellsite H, Block 942, Alaminos Canyon

X = 974,062	7,822' FWL
Y = 9,444,660	2,295' FSL

Alaminos Canyon 943, Proposed Location J:

X = 982,674	594' FWL
Y = 9,451,502	4,978' FNL

Currently, there are no pipelines in the vicinity of Proposed Locations A, B, C, H, and, J in Blocks AC 942, and 943. None of the wells will be in the vicinity of any chemosynthetic communities.

Based on a high-resolution geophysical survey which consists of reprocessed 3-D seismic, Enhanced Surface Renderings, and Enhanced Surface Renderings with amplitudes applied, Proposed Locations A, B, C, H, and, J appear suitable for the planned activity.

ATTACHMENT 11A

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

Waste and Discharge Information

Type of Waste	Composition	Projected Amount	Discharge/Disposal Method	Discharge Rate	Treatment Method	Comments
Drilling Fluids – WBM	Water-based drilling muds	27,323 bbls/well	Discharged overboard	1000 bbls/hour	Minimization – Enhanced Solids Control Process	Includes seafloor discharge prior to marine riser installation.
Drilling Fluids – SBM	Synthetic-based drilling muds	8000 bbls/well*	Transport to shore base	N/A	Recycled	No Discharge
Drill Cuttings – WBM	Formation cuttings containing water-based mud	1,750 bbls/well	Discharged overboard	300 bbls/day	Enhanced Solids Control Process	
Drill Cuttings – SBM	Formation cuttings containing synthetic-based mud	2,083 bbls/well	Discharged overboard	40 bbls/day	Cuttings Dryer treatment to average ROC of 2.4%	Includes about 160 bbls of SBM retained on cuttings
Excess Cement	Portland cement including additives and washdown water	240 bbls/well	Discharged overboard	N/A	N/A	
Well Treatment, Completion, or Workover Fluids	N/A	N/A	N/A	N/A	N/A	
Sanitary Waste	Human body waste from toilets	25 gal/day/person	Discharge overboard	4,125gal/day	USCG-approved MSD with chlorination	
Domestic Waste	Discharge from galley, showers, sinks	75 gal/day/person	Discharge overboard	12,000 gal/day	Food grinder	

*Based on total synthetic base mud volume for riser and surface tanks; no whole synthetic based mud will be discharged, only what is retained on the cuttings

Type of Waste	Composition	Projected Amount	Discharge/Disposal Method	Discharge Rate	Treatment Method	Comments
Deck Drainage	Platform washings and rainwater	Dependent on rainfall	Discharge overboard	15 bbls/hour (Maximum separator discharge)	Oily water is treated in Oily Water Separator	
Uncontaminated Seawater	Seawater without the addition of chemicals	163,242 bbls/day cooling 130,594 bbls/day firewater bypass	Discharged overboard	N/A	N/A	
Desalination Unit Water	Concentrated brine from the process of producing freshwater from seawater	0 bbls/day	No Saltwater Discharged overboard	N/A	N/A	
Uncontaminated Ballast Water	Seawater used to maintain proper draft	413,610 bbls	Discharged overboard	4308 bbls/hour		
Uncontaminated Freshwater	Freshwater without the addition of chemicals	N/A	N/A	N/A		
Boiler Blowdown	Discharged from boilers to minimize solids buildup	N/A	N/A	N/A		
Diatomaceous Earth Filter Media	N/A	N/A	N/A	N/A		
Seawater or Freshwater to which chemicals have been added	N/A	N/A	N/A	N/A		
Trash	Plastic, Paper, Aluminum, Glass, Food, and other refuse	120 cubic meters	Transport to shore base	N/A	Sorting and recycling	Disposal in Avondale, LA
Blowout Preventer Fluid	Stackmagic200/0.5 % glycol based on 2% mixture w/potable water	80 bbls	Discharged at seafloor	40 gals/day		

Attachment 13

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

ONSHORE SUPPORT FACILITY

The onshore support base for air transportation will be the existing PHI Galveston terminal located at 2215 Terminal Drive, Galveston, TX. The onshore support base for water transportation will be the existing C-Port at Fourchon Terminal, 106 9th Street, Golden Meadow, LA.

No expansion of the terminals will be required for the planned activity.

SUPPORT VESSELS

ITEM	SIZE OR MODEL	USE	TRIPS PER WEEK
Boats	240 ±	Crew/work	5/1
Helicopter	Bell 214 or 412 Boelkow 105 Sikorsky S-76	Crew Change and Misc.	8

Attachment 14

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

OIL SPILL AND CHEMICAL INFORMATION

Regional OSRP Information:

A. Shell Offshore Companies Oil Spill Response Plan (OSRP) was approved by the MMS on November 26, 2001. A biannual update was submitted to the MMS for the OSRP on May 30, 2003 and is pending approval. Activities proposed in this plan will be covered by this OSRP. Copies of the OSRP are available for review in the Shell Offshore Inc's Regulatory Affairs Library in New Orleans and at the MMS Field Operations, Gulf of Mexico OCS Region, office.

B. OSRO Information:

The names of SOI's OSROs are: O'Brein (OOPS), Marine Spill Response Corporation (MSRC), and National Response Corporation (NRC).

C. Worst case scenario comparison:

Category	Regional OSRP	EP
Type of Activity[1]	Platform (TLP)	Drillship
Facility Location (area/block)	MC 809	AC 942, 943
Facility Designation[2]	A Platform	NA
Distance to Nearest Shoreline (miles)	56	133
Volume[3]		
Storage tanks (total)	NA	NA
Flowlines (on facility)	NA	NA
Lease term pipelines	NA	NA
Uncontrolled blowout (volume per day)	116,000 BOPD	22,500 BOPD
Total Volume	116,000	22,500
Type of Oil(s) - (crude oil, condensate, diesel)	Crude oil	Crude Oil
API Gravity(s)[4]	28°	32-40°

Footnotes:

1. Types of activities include pipeline, platform, caisson, subsea completion or manifold, and mobile drilling rig.
2. E.g., Well No. 2, Platform JA, Pipeline Segment No. 6373.
3. Your regional OSRP worst-case scenario volume must be taken from the appropriate section of your regional OSRP. For EP's, the worst-case scenario volume must be determined by using the daily worst-case discharge volume determined using the guidance at 30 CFR 254.47(b). For DOCD's, the daily worst-case discharge volume must be determined by using the guidance at 30 CFR 254.47 (a) and/or (b), as appropriate.
4. Provide API gravity of all oils given under "Type of Oil(s)" above. Estimate for EP's.

Since SOI has the capability to respond to the worst-case spill scenario included in its approved regional OSRP approved on November 26, 2001, and since the worst-case scenario determined for this plan does not replace the worst case scenario in our approved regional OSRP, I hereby certify that SOI has the capability to respond, the maximum extent practicable, to a worst-case discharge, or a substantial threat of such a discharge, resulting from the activities proposed in our plan.

A. Facility tanks, production vessels. Provide information on tanks and/or production vessels at the facility (including barges, drilling rigs, platform, etc.) that will store oil, as defined at 30 CFR 254.6. List only those tanks with a capacity of 25 barrels or more.

Type of Storage Tank	Type of Facility	Tank Capacity (Bbls)	Number of Tanks	Total Capacity (Bbls)	Fluid Gravity (API)
Main Diesel Storage Tank	Drillship	16,569 bbls	2	33,138 bbls	Marine Diesel (0.87 SG)
Diesel Settling Tank	Drillship	837 bbls	2	1,674 bbls	Marine Diesel (0.87 SG)
Diesel Day Tank	Drillship	837 bbls	2	1,674 bbls	Marine Diesel (0.87 SG)
Emergency Diesel Generator Tank	Drillship	101 bbls	1	101 bbls	Marine Diesel (0.87 SG)
Lube Oil Tank Aft	Drillship	182 bbls	1	182 bbls	Lube Oil (0.93 SG)
Lube Oil Tank Fwd	Drillship	182 bbls	1	182 bbls	Lube Oil (0.93 SG)
Hyd. Oil Tank Aft	Drillship	63 bbls	1	63 bbls	Hydraulic Oil (0.93 SG)
Synthetic Drilling Base Fluid	Drillship	9,190 bbls	2	18,380 bbls	Synthetic Base Oil
Active Port Mud Tanks	Drillship	500 bbls	6	3,000 bbls	Drilling Mud
Active Stb Mud Tanks	Drillship	500 bbls	6	3,000 bbls	Drilling Mud
Process Pit Tanks	Drillship	34 bbls	12	408 bbls	Drilling Mud
Trip Tanks	Drillship	100 bbls	3	300 bbls	Drilling Mud
Reserve Mud Tanks	Drillship	1,500 bbls	6	9,000 bbls	Drilling Mud
Slug Tanks	Drillship	100 bbls	4	400 bbls	Drilling Mud
Crude oil storage*	Drillship	25,000 bbls*	4	100,000 bbls*	Crude

*NOTE: Available on the drill ship but will not be utilized during the proposed operations.

B. Spill response Sites;

See Appendix H of Shell Offshore Companies Oil Spill Response Plan (OSRP) approved by the MMS on November 26, 2001. Copy of Appendix H is attached as Attachment 20.

E. Produced liquid hydrocarbons transportation vessels. If liquid hydrocarbons (including well test fluids) will be transported by means other than a pipeline, provide the transportation method, a description of the method to be used to transfer the liquid hydrocarbons to the transporting vessel, the capacity of the transporting vessel(s), the expected average volume of liquid hydrocarbons that will be loaded onto the transporting vessel, and the average number of transfers that will take place each year.

Not applicable – no produced liquid hydrocarbons proposed.

F. Oil- and synthetic-based drilling fluids. Show the components, chemical composition, and projected amounts and rates of usage of each oil- or synthetic-based drilling fluid you will use to drill your proposed wells.

Type of Drilling Fluid	Estimated Volume of Mud Used per Well	Mud Disposal Method	Estimated Volume of Cuttings Generated per Well	Cuttings Disposal Method
Internal Olefin/Ester	8,000 Bbls	Recycled	2,083	Discharge/Onshore Disposal

I. Spill Response Discussion:

See Appendix H of Shell Offshore Companies Oil Spill Response Plan (OSRP) approved by the MMS on November 26, 2001. Copy of Appendix H is attached as Attachment 20.

Shell Offshore Inc. (MMS No. 0689) has the financial capability to drill a relief well and conduct other emergency well control operations. Should a relief well be necessary, there are presently 19 deepwater rigs rated and equipped to drill in water depth of 7500' or greater. Since most of these rigs are MODUs, the time necessary to get to the location is minimal. The estimated time to drill a relief well once the rig has arrived on location is approximately 30 to 90 days depending on the well interception depth.

J. Pollution Prevention Measures

I. DRAIN SYSTEM

Drains are provided on the rig in all spaces and on all decks where water or oil can accumulate. The drains are divided into two categories, non-contaminated and contaminated. All deck drains are fitted with a removable strainer plate to prevent debris entering the system.

1.) Non-contaminated Drains

Non-contaminated drains are designated as drains that do not contain hydrocarbons and can be discharged directly overboard. The salt water from the discharge of the fresh water makers and engine coolers is routed to the cuttings chute to provide a flush to keep the chute clear. All other non-contaminated drains are, where feasible, routed to the starboard caisson.

2.) Contaminated Drains

Contaminated drains are designated as drains that contain hydrocarbons and cannot be discharged overboard. When oil-based mud is used for drilling it will have to be collected in portable tanks and sent to shore for processing. Two headers are routed for the contaminated drains, one for oily water, which is routed to the separator tanks, and one for waste oil, which is routed to the waste oil tanks. In the areas where a spillage of oily water or hydrocarbon is possible, two foot valves are supplied, one for each header. The operator will make the decision on where to route the spillage. Separation and waste oil tanks are supplied in each of the aft columns. The headers in each of the decks are sealed from one another by using seal pots to prevent gas migration throughout the rig.

3.) Mud Drain System

A separate drain system is furnished for the mud handling areas. Sumps are provided in the following areas to collect mud spills:

- Mud Pump Rooms
- Auxiliary Machinery Room
- Sack Storage Room
- Shale Shaker Room

The drains are pumped by two pneumatic mud drain pumps, which can route the drains either to overboard in the case of water-based muds, or to the main deck for collection into drums in the case of oil-based muds.

4.) Oily Water Processing

The oily water is initially routed to the Separator Tanks. One tank is located in the 28.5 m flat in each of the aft columns. The tank has sufficient residence time to allow for natural separation of oil and water. The oil is manually drained to the Waste Oil Holding Tank located in the 28.5 m flat in each of the aft columns from where it is pumped to the International Shore Connection for collection into drums. The residual water in the separator is routed to the Oily Water Separator for further processing.

The Oily Water Separator is a compact, single stage, gravity-type vessel using a coalescer plate pack principle of separation. The oily water is drawn into the separator where the majority of the oil separates in the gravity stage below the oil chamber into which it rises and collects. The water pump draws the liquid through a multi-stage plate pack, which encourages the remaining oil droplets to coalesce and rise through the pack to the oil chamber. Clean water is drawn from the rear end of the unit by the water pump to an overboard discharge connection. Capacitance probes are fitted to detect the oil level in the oil chamber, controlling the pump to give fully automatic operation. A 15 ppm oil content meter is installed on the water outlet to prevent oil discharges to the sea if any of the separation or monitoring systems should fail.

When oil/air covers the lower probe, the water pump stops, the oily water inlet valve closes, and the water inlet and oil/air discharge valves open to discharge the oil to the Waste Oil Holding Tank. When the top probe again senses water, the inlet oily water valve opens, the oil/air and water inlet valves close, and the pump again starts.

Attachment 15

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

AIR EMISSIONS

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 .3400$D^{2/3}$ 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
Are your proposed exploration activities located east of 87.5° W longitude?		X
Do you expect to encounter H_2S 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

(1) If you answer *no* to all of the above screening questions from the appropriate table, provide:

(a) Summary information regarding the peak year emissions for both Plan Emissions and Complex Total Emissions, if applicable. This information is compiled on the summary form of the two sets of worksheets. You can submit either these summary forms or use the format below. You do not need to include the entire set of worksheets.

Air Pollutant		Plan Emission[1] Amounts(tons)	Calculated Exemption[2] Amounts (tons)		Calculated Complex Total Emission Amounts[3] (tons)
Carbon monoxide CO		**753.16**	**88589.04**		**753.16**
Particulate matter (PM)		**100.42**	**4428.90**		**100.42**
Sulphur dioxide (SO_2)		**460.68**	**4428.90**		**460.68**
Nitrogen oxides (NO_x)		**3452.00**	**4428.90**		**3452.00**
Volatile organic compounds (VOC)		**103.59**	**4428.90**		**103.56**

[1] For activities proposed in your EP or DOCD, list the projected emissions calculated from the worksheets
[2] List the exemption amounts for your proposed activities calculated by using the formulas in 30 CFR 250 303(d).
[3] List the complex total emissions associated with your proposed activities calculated from the worksheets

Attachment 16

TEXAS
COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION

INITIAL EXPLORATION PLAN
Type of Plan

Alaminos Canyon Block 899
Alaminos Canyon Block 942
Alaminos Canyon Block 943

Area and Blocks

OCS-G 17569
OCS- G 17574
OCS- G 17575

Lease Numbers

The proposed activities described in detail in this OCS Plan comply with Texas' approved Coastal Management Program and will be conducted in a manner consistent with such Program.

SHELL OFFSHORE INC. (SOI)
Operator

Sylvia A. Bellone
Certifying Official

9/22/03
Date

ATTACHMENT 17A

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

Attachment to Appendix I
Coastal Zone Management Consistency Information
For the State of Texas

In accordance with Subpart E of 15 CFR 903 "Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities" and as required by 15 CFR 930.58, Shell Offshore, Inc. is hereby providing the following information in support of the Environmental Impact Analysis submitted as Appendix H of our Initial Exploration Plan (EP) for Alaminos Canyon Blocks 899, 942 and 943. 15 CFR 930.58 identifies necessary data and information to be furnished to the State agency. The information is as follows:

(a) CONSISTENCY CERTIFICATION

A Coastal Zone Consistency Certification for activities that affect the State of Texas is provided in Appendix "I" of the above-mentioned EP.

(b) OTHER INFORMATION

(1) A detailed description of the proposed activities, coastal effects, and comprehensive information sufficient to support this Consistency Certification is presented in Attachment "H" of the above-mentioned EP. As per Attachment 1 to Appendix I of NTL 2003-G17, the following items have been identified as being required:

- A discussion of the method of disposal of wastes and discharges is provided in Appendix "E" of the above-mentioned Exploration Plan.

- Oil Spill Information is provided in Appendix "F" of the above-mentioned Exploration Plan. All operations are covered by Shell Offshore, Inc.'s Regional Oil Spill Response Plan, which has been approved by MMS. The Plan is available upon request.

(2) Following is an evaluation that includes findings relating the coastal effects of the proposed activities and associated facilities to the relevant enforceable policies of the Texas' Coastal Management Program (TCMP), Title 31, Part 16, Chapter 501, Subchapter B:

(Category 2)
Construction, Operation & Maintenance of Oil & Gas Exploration & Production Facilities

No operations are proposed in or near any critical areas. The proposed activities are of an exploratory nature, therefore no facility construction is proposed. The proposed activities are located approximately 133 miles from the Texas shoreline; therefore we expect no adverse impacts to CNRAs or beach access and use rights of the public. All activities shall be conducted in a manner that minimizes significant impacts to coastal resources. No adverse effects to Texas' coastal area are expected in association with the proposed activities.

(Category 3)
Discharges of Wastewater and Disposal of Waste from Oil and Gas Exploration and Production Activities

No discharge of wastewater or disposal of waste from the proposed activities will occur in the Texas' coastal zone, therefore no impact to Texas' coastal waters is expected.

(Category 4)
Construction and Operation of Solid Waste Treatment, Storage, and Disposal Facilities

No construction of solid waste facilities or expansion of existing facilities in the coastal zone are proposed in the attached plan, therefore, no adverse effects on any features of Texas' coastal cone are expected.

(Category 5)
Prevention, Response, and Remediation of Oil Spills

The proposed activities will be covered under an approved Regional Oil Spill Response Plan. The plan is in place, practiced, and updated as necessary. The best practical techniques shall be utilized to prevent the release of pollutants or toxic substances into the environment. All involved vessels and facilities are designed to be capable of prompt response and adequate removal of accidental discharges of oil. In addition, the proposed activities are 133 miles from shore; therefore no damages to natural resources are expected as the result of an unauthorized discharge of oil into coastal waters.

(Category 6)
Discharge of Municipal and Industrial Waster Water to Coastal Waters

No discharges from the proposed activities will occur in coastal waters. The proposed activities are 133 miles from shore, therefore there will be no effect on coastal waters.

(Category 8)
Development in Critical Areas

None of the proposed activities will occur in a critical area; therefore no effects to Texas' coastal zone are expected. The activity will not jeopardize the continued existence of species listed as endangered or threatened, and will not result in likelihood of the destruction or adverse modification of a habitat determined to be a critical habitat under the Endangered Species Act. The activity will not cause or contribute to violation of any applicable surface water quality standards. The activity will not violate any requirement imposed to protect a marine sanctuary.

(Category 9)
Construction of Waterfront Facilities and Other Structures on Submerged lands

No waterfront facilities or other structures are proposed on submerged lands in the Texas coastal zone, therefore the proposed activities are not expected to have any adverse impacts on submerged lands.

(Category 10)
Dredging and Dredged Material Disposal and Placement

No dredging or disposal/placement of dredged material is proposed, therefore no adverse effects to coastal waters, submerged lands, critical areas, coastal shore areas, or Gulf beaches are expected.

(Category 11)
Construction in the Beach / Dune System

The proposed activities do not include any construction projects in critical dune areas or areas adjacent to or on Gulf beaches, therefore, no impact to Texas' beach or dune systems are expected.

(Category 15)
Alteration of Coastal Historic Areas

The proposed activities do not include any alteration or disturbance of a coastal historic area, therefore, no impacts to are expected to adversely affect any historical, architectural, or archaeological site in Texas' coastal zone.

(Category 16)
Transportation

The proposed activities do not include any transportation construction projects within the coastal zone; therefore, no impacts to Texas' coastal zone are expected.

(Category 17)
Emission of Air Pollutants

The proposed activities shall be carried out in conformance with applicable air quality laws, standards, and regulations. Emissions from the proposed activities are not expected to have significant impacts on onshore air quality because of the prevailing atmospheric conditions, emission heights, emission rates, and the distance of these emissions from the coastline. The proposed activities will occur approximately 133 miles from shore and will be within the exemption limits set by MMS, therefore, no impacts to Texas' coastal zone is expected.

(Category 18)
Appropriations of Water

The proposed activities do not include the impoundment or diversion of state water, therefore, no impacts to Texas' coastal zone is expected.

(Category 20)
Marine Fishery Management

The proposed activities are located approximately 133 miles from shore and are not expected to have any effect on marine fishery management or fishery migratory patterns within waters in the coastal zone of Texas.

(Category 22)
Administrative Policies

The necessary information for applicable agencies to make an informed decision on the proposed activities has been provided

In conclusion, all activities shall be consistent with Texas' coastal management program and shall comply with all relevant rules and regulations. No activities are planned within any critical areas. Activities will be carried out avoid unnecessary conflicts with other uses of the vicinity.

LOUISIANA
COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION

INITIAL EXPLORATION PLAN
Type of Plan

Alaminos Canyon Block 899
Alaminos Canyon Block 942
Alaminos Canyon Block 943

Area and Blocks

OCS-G 17569
OCS- G 17574
OCS- G 17575

Lease Numbers

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

SOI has considered all of Louisiana's enforceable policies and determined the proposed activity to be consistent with them.

SHELL OFFSHORE INC. (SOI)
Operator

Sylvia A. Bellone
Certifying Official

9/22/03
Date

ATTACHMENT 17C

ENVIRONMENTAL IMPACT ANALYSIS

APPENDIX H
EXPLORATION PLAN

ALAMINOS CANYON BLOCK 899, LEASE OCS-G 17569
ALAMINOS CANYON BLOCK 942, LEASE OCS-G 17574
ALAMINOS CANYON BLOCK 943, LEASE OCS-G 17575

GULF OF MEXICO
OFFSHORE, TEXAS
AREA I

PREPARED FOR

SHELL OFFSHORE, INC.

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August 25, 2003

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ATTACHMENT 18

TABLE OF CONTENTS

DESCRIPTION OF THE PROPOSED ACTION

This Environmental Impact Analysis addresses the exploratory activities proposed by Shell Offshore, Inc. (SOI) for Alaminos Canyon Blocks 899, 942 and 943. The proposed activities will be located approximately 133 miles from the Texas shoreline in water depths from 7750 to 8000 feet. As proposed, the Exploration Plan (EP) provides for the drilling of five (5) wells from a rig similar to the Transocean Discoverer Spirit Drillship. The wells will be drilled beginning November 1, 2003. The drilling is expected to take 76 days per well.

An existing shorebase in Galveston, Texas will be utilized to support the proposed air activities and an existing shorebase in Fourchon, LA will support boat traffic. Eight (8) helicopter trips and five (5) crewboat trips and one (1) workboat trip per week will be required for the proposed activities.

This base is capable of providing all necessary support functions. The proposed activities will help to maintain the bases at their present level of activity. No expansion of the physical facilities is expected to result from the work planned in conjunction with this block. Support vessels will normally move to the blocks via the most direct route, however, vessels operating in the field may travel from other facilities nearby. To ensure that activities in support of OCS operations do not adversely impact endangered or threatened species, all helicopter flights over national parks and wildlife refuges will adhere to a minimum altitude of 2000 feet as required by the Federal Aviation Administration.

The proposed activities will be carried out and completed with the guarantee that:

- The best available and safest technologies will be utilized throughout the project. This includes meeting all applicable requirements for equipment types, general project layout, safety systems, and equipment and monitoring systems.
- All operations will be covered by an approved Oil Spill Response Plan.
- All applicable Federal, State, and Local requirements regarding air emissions and water quality and discharge for the proposed activities, as well as any other permit conditions, will be complied with.
- The proposed activities described in detail in the EP comply with the enforceable policies of Texas's approved Coastal Management Program and will be conducted in a manner consistent with such program.

(A) Environmental Impact Analysis Worksheet

Impact Producing Factors (IPFs) that have the potential to cause impacts to the listed environmental resources are identified by an "x" in the space under each IPF category associated with the proposed activities. If it was determined an IPF would not impact a particular environmental resource, the space was left blank. For those cells that are noted by an "X", a statement is provided as to the applicability to the proposed operations, and, where there may be an effect, an analysis of the effect is provided. If other environmental resources at or near the activity's site that are not included on the worksheet are identified, they are addressed, as well.

Environmental Resources	**Impact Producing Factors (IPFs) Categories and Examples**					
	Emissions (air, noise, light, etc.)	Effluents (muds, cuttings, other discharges to water column or seafloor)	Physical disturbances to seafloor (rig/anchor emplacements, etc.)	Wastes sent to shore (for treatment or disposal	Accidents (oil spills, chemical spills, H2S releases)	Discarded trash and debris
Site-specific at Offshore Location						
Designated topographic features						
Pinnacle Trend area live bottoms						
Eastern Gulf live bottoms						
Chemosynthetic communities		X	X			
Water quality		X			X	
Fisheries					X	
Marine mammals	X				X	X
Sea turtles	X				X	X
Air quality	X					
Shipwreck sites (known or potential)						
Prehistoric archaeological sites						
Vicinity of Offshore Location						
Essential fish habitat					X	
Marine and pelagic birds					X	X
Public health and safety						
Coastal and Offshore						
Beaches					X	X
Wetlands					X	
Shore birds and coastal nesting birds					X	
Coastal wildlife refuges					X	
Wilderness areas					X	
Other Resources Identified						

(B) Analysis

Site-specific at Offshore Location:

Accidents: It is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. As per the MMS, the volume of spill incidents in U.S. waters has been on a steady downward trend since 1973, and there has been a general downward trend in the number of spills over 1,000 barrels. The majority of spills since 1973 involved discharges of between 1 and 100 gallons. The total volume of oil spilled per year is significantly declining and the total volume spilled in 2000 is at the lowest amount in over 25 years. In addition, spills from tank vessels account for the majority of volume of oil spilled and the rates for spills ≥1,000 bbls from OCS platforms, tankers and barges continues to decline. The decline in oil spill volume represents the combined effects of an increasingly effective campaign of positive prevention and preparedness to protect U.S. waters from oil pollution.

Large oil spills associated with OCS activities are low-probability events. There was an 89% decline in the volume of oil spilled per billion barrels produced from OCS operations during 1980 through the present, a period when oil production has been increasing. The MMS attributes this improvement to MMS operational requirements, ongoing efforts by the oil and gas industry to enhance safety and pollution prevention, and the evolution and improvement of offshore technology. (OCS EIS/EA MMS 2002-052, page 4-57 & page 4-195)

The activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

1. Designated topographic features

Potential Impact Producing Factors: Effluents, physical disturbances to the seafloor, accidents.

There are no IPF's from the proposed activities that are expected to cause impacts to topographic features. The distance from the site-specific offshore location of the proposed activities to the closest designated topographic feature Banks is as follows: Approximately 140 miles from Applebaum Bank and approximately 147 miles from West Flower Garden Bank.

Accidents: Oil from a subsurface spill is not an issue due to the distance of these blocks from a designated topographic area. In addition, since the crests of designated topographic features in the northern Gulf are found below 10 m, concentrated oil from a surface spill is not expected to reach their sessile biota. It is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

2. Pinnacle trend area live bottoms

Potential Impact Producing Factors: Effluents, physical disturbances to the seafloor, accidents.

There are no IPF's from the proposed activities that could cause impacts to pinnacle trend area live bottoms. The site-specific offshore location of the proposed activities is over 480 miles away from the closest pinnacle trend live bottom stipulated block.

Accidents: It is unlikely that an accidental oil spill would occur from the proposed activities. (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

Even if any surface oil spill resulting from the proposed activities were to reach any live bottom areas, it would likely have no impact on the biota of the pinnacle trend because the crests of these features are much deeper than 20 m. Oil from a subsurface

spill is not an issue due to the distance of these blocks from a designated live bottom area.

3. Eastern Gulf live bottoms

Potential Impact Producing Factors: Effluents, physical disturbances to the seafloor, accidents.

There are no IPF's from the proposed activities that could cause impacts to Eastern Gulf live bottoms. The site-specific offshore location of the proposed activities is located in the Central Gulf off of the coast of Texas.

Accidents: It is unlikely that an accidental oil spill would occur from the proposed activities. Any surface or subsurface oil spill resulting from the proposed action would not be expected to cause adverse impacts to eastern gulf live bottoms because of the depth of the features and dilution of spills (by currents and/or quickly rising oil). (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

4. Chemosynthetic communities

Potential Impact Producing Factors: Effluents, physical disturbances to the seafloor.

IPF's from the proposed activities do have the possibility to cause impacts to chemosynthetic communities because the potential for chemosynthetic communities does exist in Alaminos Canyon Blocks 942 and 943, which are in water depths over 400 meters. The proposed activity is located at least 35 miles from Alaminos Canyon Block 645, in which known chemosynthetic community sites are located.

Effluents: Because of the great water depths, discharges of drilling fluids and cuttings at the surface are spread across broader areas of the seafloor in thin accumulations, with low impact expected.

Physical Disturbances to the Seafloor: Chemosynthetic communities are susceptible to physical impacts from anchoring and pipeline installation, however any potential impacts will be prevented by following the guidance in **NTL No. 2000-G20**, "Deepwater Chemosynthetic Communities."

5. Water quality

Potential Impact Producing Factors: Effluents and accidents.

Effluents: All discharges will be made in accordance with a general National Pollutant Discharge Elimination System (NPDES) permit issued by U.S. Environmental Protection Agency (USEPA), therefore operational discharges are not expected to cause significant adverse impacts to water quality.

Accidents: If a spill were to occur, the dissolved components and small oil droplets would temporarily affect the water quality of marine waters. Dispersion by currents and microbial degradation would remove the oil from the water column or dilute the constituents to background levels, although it is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

6. Fisheries

Potential Impact Producing Factors: Effluents, accidents.

Effluents: Discharges are diluted and dispersed to very near background levels at a distance of 1000 m and are undetectable at a distance of 3000 m from the discharge point, therefore having little effect on fisheries.

Accidents: If an accidental oil spill were to occur as a result of the proposed action, it would possibly have the potential to cause some detrimental effects to fisheries. If a spill were to occur in open waters of the OCS proximate to mobile adult 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. However, it is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

7. Marine mammals

Potential Impact Producing Factors: Effluents, noise, and accidents (including accidental oil spills, vessel traffic, and loss of trash and debris)

Effluents: All discharges will be made in accordance with a general National Pollutant Discharge Elimination System (NPDES) permit issued by U.S. Environmental Protection Agency (USEPA), therefore operational discharges are diluted and unlikely to cause any direct effects.

Noise: All phases of offshore petroleum exploration and production produce an acoustically wide range of sounds at frequencies and intensities that can be detected by cetaceans. Underwater strong noise levels may often be low, steady, and not very disturbing. Some sounds could mask their reception of sounds produced for echolocation and communication. Noise from service-vessel traffic may also produce a startle and/or avoidance reaction from cetaceans. These sounds may frighten, annoy or distract marine mammals and lead to physiological and behavioral disturbances. Tolerance for noise is often demonstrated, but this does not prove that the animals are unaffected by noise; for example, they may become stressed, making them more vulnerable to parasites, disease, environmental contaminants, and/or predation. Of animals responding to noise, females in late pregnancy or lactating would probably be most affected. Temporary disturbances to cetaceans may occur on occasion as helicopters approach or depart OCS facilities, if animals are near the facility. Such disturbance is believed negligible.

An FAA advisory encourages pilots to maintain higher than minimum altitudes over noise-sensitive areas. Corporate helicopter policy states that helicopters should maintain a minimum altitude of 700 feet while in transit offshore and 500 feet while working between platforms. In addition, under the authority of the Marine Mammal Protection Act, NOAA fisheries guidelines and regulations include provisions specifying helicopters to maintain an altitude of 1000 ft within 100 yards of marine mammals. It is unlikely that cetaceans would be affected by routine OCS helicopter traffic operating at these altitudes, provided pilots do not alter their flight patterns to more closely observe marine mammals they see. Occasional overflights probably have no long-term consequences on cetaceans.

Accidents: It is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (refer to information submitted in Appendix F).

Disturbances such as noise may stress animals, weaken their immune systems, and make them more vulnerable to parasites and diseases that normally would not be fatal. Collisions between cetaceans and ships 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 accordance with **NTL No. 2003-G10** - Vessel Strike Avoidance and Injured/Dead Protected Species Reporting, to reduce the potential taking of marine protected species, SOI shall follow the guidelines specified in the NTL.

Protected Species Identification Training - Vessel crews shall continue to use a Gulf of Mexico reference guide that includes and helps identify the 28 species of whales and dolphins, 5 species of sea turtles and the single species of manatee that might be encountered in the Gulf of Mexico OCS.

Vessel Strike Avoidance

- Vessel operators and crews shall maintain a vigilant watch for marine mammals and slow down or stop the vessel to avoid striking protected species.
- When whales are sighted, a distance of 90 meters or greater from the whale shall be maintained
- When small cetaceans are sighted, a distance of 45 meters or greater shall be maintained whenever possible.
- When cetaceans are sighted while a vessel is underway, an attempt to remain parallel to the animal's course shall be made. Excessive speed or abrupt changes in direction shall be avoided until the cetacean has left the area.
- When pods or large assemblages of cetaceans are observed near an underway vessel, speed shall be reduced to 10 knots or less, since cetaceans at the surface may indicate the presence of submerged animals near the vessel.
- Whales may surface in unpredictable locations or approach slowly moving vessels. When animals are sighted in the vessel's path or in close proximity to a moving vessel, speed shall be reduced and the engine shifted to neutral. The engines will not be engaged until the animals are clear of the area.

Injured/Dead Protected Species Reporting

Vessel crews shall report sightings of any injured or dead marine mammals immediately, regardless of whether the injury or death is caused by our vessel, to either of phone numbers referenced in the NTL. If the injury or death was caused by a collision with our vessel, SOI will notify MMS within 24 hours of the strike and provide the information specified in the NTL.

In accordance with **NTL No. 2003-G11** - Marine Trash and Debris Awareness and Elimination, to reduce the threat of marine mammals being exposed to marine trash and debris, SOI's workers and contractors shall exercise special caution when handling and disposing of small items and packaging materials. Placards with specified language shall be posted in the manner described in the NTL. Annual training and certification for SOI's offshore employees and contractors will be carried out as described in the NTL.

8. Sea turtles

Potential Impact Producing Factors: Effluents, noise, brightly lit platforms and accidents, (including accidental oil spills, vessel traffic, noise, and loss of trash and debris)

Effluents: All discharges will be made in accordance with a general National Pollutant Discharge Elimination System (NPDES) permit issued by U.S. Environmental Protection Agency (USEPA), therefore operational discharges are diluted and considered to have sublethal effects.

Noise: All phases of offshore petroleum exploration and production produce an acoustically wide range of sounds at frequencies and intensities that could possibly be detected by sea turtles. It is assumed that aircraft noise could be heard by a sea turtle at or near the surface and cause the animal to alter its normal behavior pattern. Noise may cause a startle response and produce temporary sublethal stress.

Brightly Lit Platforms: Brightly lit offshore facilities present a potential danger to hatchlings. Hatchlings are known to be attracted to light and may orient toward lighted

offshore structures. If this occurs, hatchling predation may increase since large birds and predatory fishes also congregate around structures.

Accidents: It is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. (Please refer to the data under the heading "Accidents" at the beginning of Section "B".) In addition, the activities proposed in this plan will be covered by our regional OSRP (refer to information submitted in Appendix F).

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 drill rigs, production facilities, and service vessels. Drilling rigs and project vessels produce noise that could disrupt normal behavior patterns and create some stress potentially making sea turtles more susceptible to disease. Oil spills and oil-spill-response activities are potential threats that could have lethal effects on turtles. Contact with oil, consumption of oil particles, and oil-contaminated prey could seriously affect individual sea turtles. Oil-spill-response planning and the habitat protection requirements of the Oil Pollution Act of 1990 should mitigate these threats.

Most OCS-related impacts on sea turtles are expected to be sublethal. Chronic sublethal effects (e.g., stress) resulting in persistent physiological or behavioral changes and/or avoidance of effected areas could cause declines in survival or productivity, resulting in gradual population declines.

In accordance with **NTL No. 2003-G10** - Vessel Strike Avoidance and Injured/Dead Protected Species Reporting, to reduce the potential taking of marine protected species, SOI shall follow the guidelines specified in the NTL.

Protected Species Identification Training - Vessel crews shall continue to use a Gulf of Mexico reference guide that includes and helps identify the 28 species of whales and dolphins, 5 species of sea turtles and the single species of manatee that might be encountered in the Gulf of Mexico OCS.

Vessel Strike Avoidance

- Vessel operators and crews shall maintain a vigilant watch for sea turtles and slow down or stop the vessel to avoid striking protected species.

Injured/Dead Protected Species Reporting

Vessel crews shall report sightings of any injured or dead marine mammals immediately, regardless of whether the injury or death is caused by our vessel, to either of phone numbers referenced in the NTL. If the injury or death was caused by a collision with our vessel, SOI will notify MMS within 24 hours of the strike and provide the information specified in the NTL.

In accordance with **NTL No. 2003-G11** - Marine Trash and Debris Awareness and Elimination, to reduce the threat of sea turtles being exposed to marine trash and debris, SOI's workers and contractors shall exercise special caution when handling and disposing of small items and packaging materials. Placards with specified language shall be posted in the manner described in the NTL. Annual training and certification for SOI's offshore employees and contractors will be carried out as described in the NTL.

9. Air quality

Potential Impact Producing Factors: Emissions.

Emissions: There would be a limited degree of air quality degradation in the immediate vicinity of the proposed activities. Air quality analysis of the proposed activities indicated that the emissions are well below the MMS exemption level. (Refer to information submitted in Appendix G of the EP).

10. Shipwreck sites (known or potential)

Potential Impact Producing Factors: Physical disturbances to the seafloor.

There are no IPF's from the proposed activities that could cause impacts to known or potential shipwreck sites. As per MMS's list of Archaeological Survey blocks referenced in NTL 2002-G01, the proposed activities are not in a block that has been determined to have a high potential for containing archaeological properties.

11. Prehistoric archaeological sites

Potential Impact Producing Factors: Physical disturbances to the seafloor.

There are no IPF's from the proposed activities that could cause impacts to prehistoric archaeological sites. As per MMS's list of Archaeological Survey blocks referenced in NTL 2002-G01, the proposed activities are not in a block that has been determined to have a high potential for containing archaeological properties.

Vicinity of Offshore Location:

1. Essential fish habitat

Potential Impact Producing Factors: Effluents, physical disturbances to the seafloor, and accidents.

Effluents: All discharges will be made in accordance with a general National Pollutant Discharge Elimination System (NPDES) permit issued by U.S. Environmental Protection Agency (USEPA), therefore operational discharges are diluted and will not deleteriously effect essential fish habitat.

Physical Disturbances to the Seafloor: Offshore essential fish habitat includes pinnacles and topographic features. No impacts to these features will result from the proposed activities.

Accidents: An accidental oil spill that may occur as a result of the proposed action has the potential to cause some detrimental effects on essential fish habitat. However, it is unlikely that an accidental surface or subsurface oil spill would occur from the proposed activities. If a spill were to occur in open waters of the OCS proximate to mobile adult 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. The activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

2. Marine and pelagic birds

Potential Impact Producing Factors: Noise, emissions, effluents, accidental oil spills and discarded trash and debris.

Noise: Disturbances from helicopter or service-vessel traffic can result from the mechanical noise or physical presence of the vehicle. To alleviate this, the FAA and corporate helicopter policies advise pilots to maintain minimum altitudes when in transit and while working between platforms. Compliance with the specified minimum altitude requirements greatly reduces the effects of aircraft disturbance on birds.

Emissions: Emissions of pollutants into the atmosphere shall be at concentrations far below those that could harm marine and pelagic birds.

Effluents: Operational discharges could affect seabirds that remain and feed in the vicinity of offshore OCS structures.

Accidents: An accidental oil spill that may occur as a result of the proposed action has the potential to impact marine and pelagic birds—birds could become oiled. However, it is unlikely that an accidental oil spill would occur from the proposed activities. The activities proposed in this plan will be covered by our regional OSRP (refer to information submitted in accordance with NTL 2002-G08 Appendix F).

Birds are susceptible to entanglement in floating, submerged, and beached marine debris. In accordance with **NTL No. 2003-G11** - Marine Trash and Debris Awareness and Elimination, to reduce the threat of marine mammals being exposed to marine trash and debris, SOI's workers and contractors shall exercise special caution when handling and disposing of small items and packaging materials. Placards with specified language shall be posted in the manner described in the NTL. Annual training and certification for SOI's offshore employees and contractors will be carried out as described in the NTL.

3. Public health and safety due to accidents

Potential Impact Producing Factors: Accidental H_2S releases

There are no IPF's from the proposed activities that could cause impacts to public health and safety. In accordance with 30 CFR 250.417(c) and NTL 2002-G08 (Appendix C) we have submitted sufficient information to justify our request that the area of our proposed activities be classified by MMS as H_2S absent.

Coastal and Onshore:

1. Beaches

Potential Impact Producing Factors: Accidents, discarded trash and debris.

Accidents: An accidental oil spill from the proposed activities could cause impacts to beaches. However, due to the distance from shore (130 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both the historical spill data and the combined trajectory/risk calculations referenced in the publication OCS EIS/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources. The activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

In accordance with **NTL No. 2003-G11** - Marine Trash and Debris Awareness and Elimination, to reduce the threat of beached marine trash and debris, SOI's workers and contractors shall exercise special caution when handling and disposing of small items and packaging materials. Placards with specified language shall be posted in the manner described in the NTL. Annual training and certification for SOI's offshore employees and contractors will be carried out as described in the NTL.

2. Wetlands

Potential Impact Producing Factors: Accidents.

Accidents: An accidental oil spill from the proposed activities could cause impacts to wetlands. However, due to the distance from shore (130 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both the historical spill data and the combined trajectory/risk calculations referenced in the publication OCS EIS/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources. The activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

3. Shore birds and coastal nesting birds

Potential Impact Producing Factors: Accidents.

Accidents: An accidental oil spill from the proposed activities could cause impacts to shore birds and coastal nesting birds. However, due to the distance from shore (130 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both the historical spill data and the combined trajectory/risk calculations referenced in the publication OCS EIS/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources. The activities proposed in this plan will be covered by our regional OSRP (refer to information submitted in Appendix F of the EP).

4. Coastal wildlife refuges

Potential Impact Producing Factors: Accidents.

Accidents: An accidental oil spill from the proposed activities could cause impacts to coastal wildlife refuges. However, due to the distance from shore (130 miles) and the response capabilities that would be implemented, no significant adverse impacts are

expected. Both the historical spill data and the combined trajectory/risk calculations referenced in the publication OCS EIS/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources. The activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

5. Wilderness areas

Potential Impact Producing Factors: Accidents.

Accidents: An accidental oil spill from the proposed activities could cause impacts to wilderness areas. However, due to the distance from shore (130 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both the historical spill data and the combined trajectory/risk calculations referenced in the publication OCS EIS/EA MMS 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources. The activities proposed in this plan will be covered by our regional OSRP (Refer to information submitted in Appendix F of the EP).

Other Environmental Resources Identified:

No other environmental resources were identified.

(C) Impacts on 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.

A Shallow Hazards Assessment of any seafloor and subsurface geological and manmade features and conditions that may adversely affect operations was submitted in accordance with **NTL 98-20** (See Appendix C of the EP).

(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:

Although not always cited, the following were utilized in preparing the EJA:

MMS NTL No. 2002-G08
MMS NTL No. 98-20
MMS NTL No. 2000-G20
MMS NTL No. 2003-G10
MMS NTL No. 2003-G11
Shallow Hazard Assessment Survey Report
MMS OCS EIS/EA MMS 2002-052
Authors: Geraci and St. Aubin, 1980
Laist et al., 2001

Initial Plan of Exploration
OCS-G 17569, Alaminos Canyon Block 899
OCS-G 17574, Alaminos Canyon Block 942
OCS-G 17575, Alaminos Canyon Block 943
Offshore Texas

ROV SURVEY PLAN

In accordance with the provisions of NTL No. 2003-G03, Remotely Operated Vehicle Surveys in Deepwater, the following surveys will be conducted at the site of AC 942, 943 :

The Survey #1 will be conducted using the Rig based ROV equipped with video imaging capabilities prior to commencing operations on the well. The survey pattern will consist of six transects centered on the existing well with tracks extending 100 meters away from the well on bearings of 30°, 90°, 150°, 210°, 270°, and 330°. The seafloor will be videotaped continuously along each track and close-up footage recorded of any animals or features as per NTL No. 2003-G03. An identical survey will be conducted following drilling operations but prior to moving the rig off location. During both surveys, all biological and physical observations will be documented in accordance with NTL No. 2003-G03 using Form MMS-141. Complete documentation, including videotapes, of both surveys will be submitted to the GOMR within 60 days of the final survey.

ATTACHMENT 19

ATTACHMENT 20

APPENDIX H - WORST CASE DISCHARGE SCENARIOS

A. Facility Information

1. WCD < 10 Miles Seaward of the Coastline (if applicable).

Type of Operation	Facility Name/ID No. or Pipeline Segment/ID No.	Area/ Block No. Where the Spill Originates	Distance in Miles from the Shore
Pipeline	West Delta 143 to Fourchon Terminal at shoreline. Segment 10553	Onshore	0
Factors Considered: Volume and proximity to shore			

2. WCD > 10 Miles Seaward of the Coastline (if applicable).

Type of Operation	Facility Name/ID No. or Pipeline Segment/ID No.	Area/ Block No. Where the Spill Originates	Distance in Miles from the Shore
Production	Mississippi Canyon 809 OCSG #5868	MC 809	56
Factors Considered: Volume, gravity and proximity to shore.			

3. If WCD involves an Exploratory Well from a Mobile Offshore Drilling Unit, only fill in the following information:

Type of Operation	Facility Name/ID No. or Pipeline Segment/ID No.	Area/ Block No. Where the Spill Originates	Distance in Miles from the Shore
	N/A		

B. Volume

The volume of the worst case discharge scenario for production operations (<10 miles = 10,104 bbls >10 miles = 120,421 bbls) was determined using criteria in CFR 30, Section 254.47. Calculations are shown in **FIGURE H.1**.

C. Land Segment Identification

Trajectories of a spill and the probability of it impacting a land segment have been projected utilizing information in the MMS Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on the MMS website using 30 day impact. The results are shown in **FIGURE H.2**.

D. Resource Identification

Environmental Sensitivities

TERREBONNE PARISH, LOUISIANA

This includes the eastern portion of Atchafalaya Bay Wildlife Management Area across to Timbalier Bay; along the Gulf Coast including Caillou Bay, Isles Derieres and Terrebonne Bay. The entire parish is classified as an EPA National Estuary. This area is primarily marshland, broken up by numerous small bays and freshwater lakes. The list of contacts in this section will be updated every 2 years.

Sensitive Areas	Descriptions	Access	Wildlife	Contact
1) **BARATARIA TERREBONNE NATIONAL ESTUARY PROGRAM**	Protects the approximately 735 species of birds, finfish, shellfish, reptiles, amphibians and mammals that frequent the Terrebonne Bay area. Includes the Terrebonne Barrier Island Refuge.	N/A	**RTE:** **Brown pelican, pallid sturgeon, Kemp's ridley sea turtle, West Indian manatee** **Others:** Waterfowl (winter), shore birds, wading birds, finfish, shellfish, small mammals, reptiles, amphibians	Kerry St. Pé, Director 300 Audubon Dr. North Babington Hall, Rm 105 Nicholls State Univeristy Thibodaux, LA 70301 (800) 259-0869 (504) 447-0868
2) **TERREBONNE BAY AREA**	Covers the western side of Terrebonne Bay to the east side of Timbalier Bay, extending south to the Barrier Islands (including Lake Barre, Tambour, Felicity, Raccourci, and Lake Pelto). Tidal range is 1-3 feet and max currents are 0.5 knots. Winter winds are from the NE at 11.4 knots, spring winds are from the SE at 9.5 knots and summer winds are from the S at 6.8 knots. Black mangroves can be found in the coastal regions.	By boat only.	**RTE:** **Bald eagle, piping plover, brown pelican, pallid sturgeon, Kemp's ridley sea turtle, West Indian manatee, Louisiana black bear** **Others:** Waterfowl (winter), shorebirds, seabirds diving birds, eastern oyster, redfish, speckled trout, spotted sea trout, tarpon, red drum, marine mammals	N/A
3) **CAILLOU BAY AREA**	Includes Lake Pelto, Caillou Bay, Caillou Lake, Lake Mercahant, Lost Lake and Four League Bay. Tidal range is 1-3 feet and the max currents are 0.5 knots. Winter winds are from the NE at 11.4 knots, spring winds are from the SE at 9.5 knots and summer winds are from the S at 6.8 knots. Black mangroves can be found in the coastal regions.	By boat only.	**RTE:** **Bald eagle, least tern** (spring)**, brown pelican, piping plover, pallid sturgeon, Kemp's ridley sea turtle, West Indian manatee, Louisiana black bear** **Others:** Shorebirds and seabirds, shrimp and blue crab (fall-spring), redfish, speckled trout, Gulf menhaden and southern flounder (fall-spring), drum (spring, fall), marine mammals	Louisiana SWR New Iberia, LA (337) 369-3807

Sensitive Areas	Descriptions	Access	Wildlife	Contact
4) **ATCHAFALAYA DELTA WILDLIFE MANAGEMENT AREA**	137,000 acres of marshland. Bound by Atchafalaya Bay to the north, the GOM on the South, Wax Lake Outlet on the east and East Cote Blanche Bay on the west.	By boat only.	**RTE:** **Brown pelican, pallid sturgeon, bald eagle, American alligator, Kemp's ridley sea turtle, West Indian manatee** **Others:** Peregrine falcon, roseate spoonbill, hooded mergansers, wood ducks and other waterfowl (winter), songbirds (spring), wading and shorebirds, finfish and shellfish (nursery), furbearers, white-tailed deer	Atchafalaya Delta WMA P.O. Box 127 Krotz Springs, LA 70091 Manager: Michael Carlos (337) 373-0174 (337) 373-0181 (fax)

Areas of Socio-Economic Concern in Terrebonne Parish:

- Southwest Pass is a high use waterway
- Vermillion Bay has a high number of oil facilities
- Private oyster beds throughout the shoreline marsh areas
- Private oyster beds in Terrebonne Bay

Protection Priorities for Terrebonne Parish:

- Caillou Bay area
- Atchafalaya Delta Wildlife Management Area
- Terrebonne Bay area
- Other shoreline marshes

Environmental Sensitivities
LAFOURCHE PARISH, LOUISIANA

LaFourche Parish includes Timbalier Bay and Bayou LaFourche east to Bay Tambour and Caminada Bay. The Timbalier Bay area contains rookeries, mangroves, oyster beds and finfish and shellfish nursery grounds. Seven rookeries are located northwest of Grand Isle in Bay Tambour and Caminada Bay. Open beaches are located along the Gulf Coast. This area is a part of the Barataria Basin, a unique fishery habitat which has shallow estuarine waters, sandbars, small barrier and coastal islands and coastal wetlands. This area is also a nesting ground for the brown pelican, an endangered species.

Sensitive Areas	Descriptions	Access	Wildlife	Contact
1) **WISNER STATE WILDLIFE MANAGEMENT AREA**	21,621 acres of marshland. Consists mostly of a low sub-delta saline marsh with a number of lake and oil canals present. Major marsh vegetation is oyster grass and salt grass. Numerous finfish and crustaceans are present in the waterways.	By boat only. Public launches available along LA Hwy 1 and commercial ramps are located at Leeville, Caminada Bay and Grand Isle.	**RTE:** **Brown pelican** **Others:** Waterfowl (winter), peregrine falcon, speckled trout, red fish, flounder, black drum, sheepshead, croaker, blue crab, shrimp, nutria, muskrat, mink, raccoon, other small mammals	Wisner WMA LA Dept of Wildlife and Fish P.O. Box 98000 Baton Rouge, LA 70898-9000 (225) 765-2360
2) **TIMBALIER BAY AREA**	Bay Courant south to the Barrier Islands, including Timbalier Bay, Devils Bay, Pierle Bay and Little Lake. Tidal range is 1-3 feet and max currents are 0.5 knots. Winter wind direction and velocity is from NE at 11.4 knots, spring is from the SE at 9.5 knots and summer is from the S at 6.8 knots.	By boat only.	**RTE:** **Reddish egret, least tern** **Others:** Great egret, royal tern, black-crowned night heron, eastern oyster, red drum, spotted sea trout, tarpon	N/A
3) **POINTE AU CHIEN WILDLIFE MANAGEMENT AREA**	28,244 acres of protected marshland. Provides a refuge for migratory birds and various other wildlife.	By boat only.	**RTE:** **American alligator, bald eagle** **Others:** Waterfowl (winter), wading birds, snipe, finfish small mammals	Pointe Au Chien WMA 1197 Hwy 665 Montigut, LA 70377 Manager: Mark Castille (936) 594-5494

Areas of Socio-Economic Concern in LaFourche Parish:

- Fourchon Beach
- Private oyster beds are throughout the shoreline marsh areas

Protection Priorities for LaFourche Parish:

- Wisner State Wildlife Management Area
- Timbalier Bay Area
- Pointe Au Chein Wildlife Management Area
- Other shoreline marshes and private oyster beds

E. <u>Response</u>

Shell Offshore, Inc. 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 in adverse weather conditions is shown in **FIGURE H.3.**

In selecting the worst case discharge scenarios, Shell Offshore, Inc. considered potential spill volumes, types of product and proximity to the shoreline. Area Contingency Plans were also reviewed for shoreline sensitivities.

Within ten miles of the coastline, Shell Offshore, Inc.'s (Equilon's) pipeline segment 10553 from West Delta 143 to their Fouchon Terminal at LaFourche Parish, Louisiana was selected due to the WCD volume (based on criteria in 30 CFR 254.47) of 10,104 barrels of crude oil with an API gravity of 29.1°. Utilizing the MMS OSRAM, the trajectory indicates a 100% probability of impact to the shoreline in LaFourche Parish, Louisiana. The Timbalier Bay area contains rookeries, mangroves, oyster beds and finfish and shellfish nursery grounds. Seven rookeries are located northwest of Grand Isle in Bay Tambour and Caminada Bay. Open beaches are located along the Gulf Coast. This area is a part of the Barataria Basin, a unique fishery habitat which has shallow estuarine waters, sandbars, small barrier and coastal islands and coastal wetlands. This area is also a nesting ground for the brown pelican, an endangered species.

An Adios model was run on a similar product. The results indicate 16.1% of the product would be evaporated/dispersed within 12 hours, leaving approximately 8,474 barrels on the water.

FIGURE H.3 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 10,104 bbls. The list estimates individual times needed for procurement, load out, travel time to the site and deployment. **FIGURE H.3** also indicates how operations will be supported. Depending on proximity to shore and water depth, disposals may be a viable response option. If appropriate, 5 sorties (10,000 gallons) from the DC-4 and 10 sorties (10,000 gallons) from the DC-3 should disperse approximately 8,571 barrels of product.

Offshore response strategies may also include attempting to skim utilizing the *Louisiana Responder* oil spill response vessel (OSRV), one ID Response Vessel, 3 vessel-of-opportunity skimming systems (VOSS) and 2 shallow water skimming packages with a total derated skimming capacity of 57,814 barrels. Temporary storage associated with the identified skimming and temporary storage equipment equals 11,901 barrels. **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 Lafourche Parish, Louisiana would depend upon existing environmental conditions. Onshore response may include the deployment of shoreline boom on beach areas, or protection and sorbent boom on vegetated areas. Strategies would be based upon surveillance and real time trajectories provided by SpillNet that depict areas of potential impact given actual sea and weather conditions. Strategies from the Morgan City, Louisiana Area Contingency Plan, SpillNet and Unified Command would be consulted to ensure that environmental and special economic resources would be correctly identified and prioritized to ensure optimal protection. SpillNet database depicts 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.

Beyond ten miles of the coastline, Shell Offshore, Inc.'s Production platform at Mississippi Canyon Block 809 was selected due to the WCD volume (based on criteria in 30 CFR 254.47) of 120,420 barrels of crude oil with an API gravity of 28°. Utilizing the MMS OSRAM, the trajectory indicates a 11% probability of impact to the shoreline in Terrebonne Parish, Louisiana. The Terrebonne Barrier Island Refuge surrounds the Isle Dernieres chain. Brown Pelican breeding grounds are located all along these islands. Mangroves are found along the northern side of the interior islands. Private Oyster beds are throughout the shoreline marsh areas from Lake Pelto to Bay Chaland (adjacent to Cocodrie), at northern end of Lake Barre (Lake Tamour & Bay la Peur), Lake Chien and Grand Cut, Bay Counant, and Little Lake south to Devils Bay. The area is a prime shrimping area.

An Adios model was run on a similar product. The results indicate 9.8% of the product would be evaporated/dispersed within 12 hours, leaving approximately 108,596 barrels on the water.

FIGURE H.3 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 120,420 bbls. The list estimates individual times needed for procurement, load out, travel time to the site and deployment. **FIGURE H.3** also indicates how operations will be supported. If appropriate, 5 sorties (10,000 gallons) from the DC-4 and 10 sorties (10,000 gallons) from the DC-3 should disperse approximately 8,571 barrels of product in one day. For continuing dispersant operations the CCC's Aerial Dispersant Delivery System (ADDS) would be mobilized. The ADDS has a dispersant spray capability of 5,000 gallons pr sortiel

Primary offshore response strategies would also include four (4) Oil Spill Response Vessels (*Responder* class), three (3) Oil Spill Response Barges, seven (7) Vessel-of-Opportunity Skimming Systems, one (1) ID Response Vessel, and two (2) shallow water barge skimming systems. The total derated skimming capacity of these resources is 128,290 barrels per day; the associated temporary storage volume is 169,801 barrels. The attached **FIGURE H.3** shows the equipment that would be mobilized for a response, with derated recovery capacity and response times. These resources would be utilized wherever adequate slick thickness' are located, and weather permitting. Under adverse weather conditions, the primary MSRC equipment (major response vessels and Transrec skimmers) is still effective and safe in sea states of 6-8 ft. If sea conditions prohibit safe mechanical recovery efforts, then natural dispersion and airborne chemical dispersant application (visibility & wind conditions permitting) may be the only viable recovery option. Primary storage equipment for each day's recovered oil is listed in the attachment as MSRC's major Oil Spill Response Vessels and offshore storage barges situated in their respective recovery zones, totaling approximately 195,000 bbls. The strategy for transferring, storing and disposing of oil collected in these recovery zones would be to utilize two 150,000-160,000 ton (dead weight) tankers mobilized by Equiva Trading Company (or any other tanker immediately available). The recovered oil would be transferred to Motiva's Norco, La. Storage and refining facility, or would be stored at Delta

Commodities, Inc. Harvey, LA facility. **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 Terrebonne Parish, LA would depend upon existing environmental conditions. Onshore response may include the deployment of shoreline boom on beach areas, or protection and sorbent boom on vegetated areas. Strategies would be based upon surveillance and real time trajectories provided by SpillNet that depict areas of potential impact given actual sea and weather conditions. Strategies from the Morgan City, Louisiana Area Contingency Plan, SpillNet and Unified Command would be consulted to ensure that environmental and special economic resources would be correctly identified and prioritized to ensure optimal protection. SpillNet database depicts 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 H.1

WORST CASE DISCHARGE SCENARIO

1B.	**Calculations for Production Facility (> 10 miles from shore) with Departing Lease Pipelines (or DOCD):**	**BLOCK MC 809**
i.	Storage Tanks Enter the maximum estimated quantity (bbls) of all storage tanks on the facility.	3,321
ii.	Facility Piping Enter the total static capacity (bbls) of all flowlines (piping) on the facility.	100
iii.	Break in Departing Lease Pipeline Add the volume of oil calculated to leak from a break in lease pipelines departing the facility considering: • Time to shutdown (multiply by highest measured oil flow rate over the preceding 12 month period). • Add the total volume of oil that would leak from the pipeline after it is shut-in (consider effects of hydrostatic pressure, gravity, frictional wall forces, length of pipeline segment, tie-ins with other pipelines, etc.) • Methodology used and assumptions made: _____	1,000
iv.	Uncontrolled Blowout Enter the highest daily volume possible from an uncontrolled blowout of the highest capacity well associated with the facility, considering reservoir characteristics, casing/production tubing sizes, historical production and reservoir pressure data. • Methodology used and assumptions made: _____	116,000
v.	**WCD Total for Production Operations (> 10 miles from shore) =**	**120,421 bbls**

FIGURE H.1

WORST CASE DISCHARGE SCENARIO

2. Calculations for ROW pipelines:

2a. < 10 Miles from the Shoreline

	Segment 10553, from WD 143 to Onshore	Calculations (BBLS)
i.	Add the pipeline system detection time to the shutdown response time assuming automatic shutdown (enter hours in decimals).	
ii.	Multiply by the highest measured oil flow rate over the preceding 12 month period (for new pipelines use predicted oil flow rate).	
iii.	Add the total volume of oil that would leak from the pipeline after it is shut in (consider effects of hydrostatic pressure, gravity, frictional wall forces, length of pipeline segment, tie-ins with other pipelines, etc.)	
	TOTAL	**10,104 bbls**

FIGURE H.2

TRAJECTORY BY LAND SEGMENT

Trajectory of a spill and the probability of it impacting a land segment have been projected utilizing Shell Offshore, Inc.'s WCD and information in the MMS Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on the MMS website using 30 day impact. The results are tabulated below.

Area/Block	OCS-G	Launch Area	Land Segment Contact	%
< 10 Miles from Shoreline Shoreline (WD 143 to Fourchon Terminal)	10553	37	100% land impact in LAFOURCHE PARISH, LA	**100**
> 10 Miles from Shoreline MC 809	?	58	GALVESTON, TX CHAMBERS, TX JEFFERSON CAMERON, LA VERMILION, LA IBERIA, LA ST MARY, LA **TERREBONNE, LA** LA FOURCHE JEFFERSON, LA PLAQUEMINES, LA	1 1 1 5 2 2 1 **11** 9 2 9

WCD Scenario < 10 Miles from the Shoreline
Pipeline, WD 143 to Onshore at Fourchon, LA
10,104 bbls of crude oil
Gravity 29.1°

FIGURE H.3 - Equipment Response Time to: Onshore, Lafourche Parish, Louisiana

	EQUIPMENT TYPE	Derated Capacity (BBLS)	Storage (BBLS)	No. of Units	Owner/ Location	Staging*	PROCUREMENT TIME (Hours) Assemble Equipment	Personnel	Vessel	TOTAL Time to Procure (1)	Time to Load Out (2)	TOTAL Travel Time (3)	Time to Deploy (4)	TOTAL Estimated Response Time
A	ID Boat Edison "G" w/ AP Drum Skimmer	1,956	101	1	NRC/WD86	WD 86		3	1	3	0	3	1	7
B	Louisiana Responder OSRV	10,567	4,000	1	MSRC/Ft. Jackson	Venice	1	2	1	2	0	8	1	11
C	VOSS w/Vikoma 3 skimmer	5,657	200	1	MSRC/Ft. Jackson	Fourchon*		4	1					
	Vessel	--	--	1	Otto Candies/NOLA	Fourchon*		1	1	3	.5	8	.5	12
	Portable Tanks	--	--	2	CGA/Ft. Jackson	Fourchon*	1	2	3					
D	VOSS w/Stress 1 skimmer	15,840	--	1	MSRC/Ft. Jackson	Fourchon*	1	4	1					
	Vessel	--	--		MSRC/Ft. Jackson	Fourchon*	1	2	1					
	Towable Bladder	--	3,000	1	Otto Candies/NOLA	Fourchon*	1	2	3	3	.5	6	.5	12
				1	MSRC/Ft. Jackson	Fourchon*	1	2	1					
E	VOSS w/Foilex 250 skimmer	3,977	--	1	MSRC/LK. Charles	Fourchon*	1	4	1					
	Vessel	--	--	1	Otto Candies/NOLA	Fourchon*	0	2	4	4	.5	8	.5	13
	Towable Bladder	--	3,000	1	MSRC/LK. Charles	Fourchon*	1	0	1					
F	Shallow water barge (2)	3,977	800	2	MSRC/Ft. Jackson	Fourchon*	1	1	1					
	W/Foilex 250 skimmer			1	MSRC/Ft. Jackson	Fourchon*	1	4	1	4	.5	11.5	1	17
	Pushboat			1	MSRC/Ft. Jackson	Fourchon*	1	1	1					
G	Shallow water barge (2)	--	800	2	MSRC/LK. Charles	Fourchon*	1	2	1					
	w/Stress 1 skimmer	15,840		1	MSRC/LK. Charles	Fourchon*	1	4	1	4	.5	16	1	21.5
	TOTAL	57,814	11,901											

* NOTE: Initial staging out of Venice for equipment assembly; continued operations would be staged out of Fourchon.

WCD Scenario > 10 Miles from the Shoreline
Platform, MC 809 A
120,420 bbls of crude oil
API Gravity 28°

FIGURE H.3 - Equipment Response Time to: MC 809 A

	EQUIPMENT TYPE	Derated Capacity (BBLS)	Storage (BBLS)	No. of Units	Owner/ Location	Staging [NOTE: Staging for initial load-out at nearest port, response staging via Venice]	PROCUREMENT TIME (Hours) Assemble Equipment	Personnel	Vessel	TOTAL Time to Procure (1)	Time to Load Out (2)	TOTAL Travel Time (3)	Time to Deploy (4)	TOTAL Estimated Response Time
A	ID Boat Edison "G" w/ AP Drum Skimmer	1,956	101	1	NRC/WD86	WD 86	0	3	1	3	0	4	1	8
B	LA Responder OSRV	10,567	4,000	1	MSRC/Ft.Jackson	Ft.Jackson	0	2	0					
	OSR Barge w/Desmi skimmer	3,017	44,700	1	MSRC/Ft.Jackson	Ft.Jackson	0	4	0					
	Tug			1	Otto Candies/NOLA			4	4	4	0	9	1	14
C	Gulf Coast Responder OSRV	10,567	4,000	1	MSRC/Lake Charles	Cameron/Venice	0	2	0	2	0	24	1	27
D	MS Responder OSRV	15,840	4,000	1	MSRC/Pascagoula	Pascagoula / Venice	0	2	0	2	0	13	1	16
	OSR Barge w/Wilson skimmer	3,400	40,300	1	MSRC/Pascagoula		2	2	8	8	1	20	1	30
	Tug	--		1	Otto Candies/NOLA									
E	TX Responder OSRV	10,567	4,000	1	MSRC/Galveston	Galveston/Venice	0	2	0					
	OSR Barge 2/ Stress I skimmer	15,840	56,900	1	MSRC/Galveston	Galveston/Venice	1	2	-					
	Tug	--	--	1	Otto Candies/NOLA		0	2	8	8	1	44	1	54
F	VOSS w/AardVac Skimmer	3,840	--	1	MSRC/Pascagoula	Pascagoula / Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Pascagoula / Venice	1	2	6					
	Towable Bladder (500 BBL)	--	1,000	2	MSRC/Lake Charles	Pascagoula / Venice	5	1	1	6	1	13	1	21
G	VOSS w/Stress 1 Skimmer	15,840	--	1	MSRC/Ft. Jackson	Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Venice	1	2	3					
	Towable Bladder (3,000 BBL)	--	3,000	1	MSRC/Ft. Jackson	Venice	1	1	1	3	1	9	1	14
H	VOSS w/Vikoma 3 Skimmer	5,657	--	1	MSRC/Ft. Jackson	Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Venice	1	2	3					
	100-BBL Storage Tanks	--	200	2	MSRC-CGA/Ft. Jackson	Venice	1	1	1	3	1	9	1	14
I	VOSS w/Walosep skimmer	3,017	--	1	MSRC/Ft. Jackson	Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Venice	1	2	3					
	Towable Bladder (500 BBL)	--	1,000	2	MSRC/Lake Charles	Venice	1	1	4	4	1	9	1	15
J	VOSS w/GT-185 skimmer	1,371	--	1	MSRC/Ft. Jackson	Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Venice	1	2	3					
	Towable Bladder (500 BBL)	--	1,000	2	MSRC/Lake Charles	Venice	1	1	4	4	1	9	1	15
K	VOSS w/Stress 1 Skimmer	15,840	--	1	MSRC/Lake Charles	Cameron/Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Cameron/Venice	1	2	3					
	Towable Bladder (3,000 BBL)	--	3,000	1	MSRC/Lake Charles	Cameron/Venice	1	1	1	3	1	30	1	35
L	VOSS w/Foilex Skimmer	3,977	--	1	MSRC/Lake Charles	Cameron/Venice	1	2	1					
	Vessel	--	--	1	Otto Candies/NOLA	Cameron/Venice	1	2	3					
	Towable Bladder (500 BBL)	--	1,000	2	MSRC/Lake Charles	Cameron/Venice	1	1	1	3	1	30	1	35
M	Shallow Water Barge (2) w/	--	800	2	MSRC/Lake Charles	Cameron/Venice	1	0						
	Foilex skimmer	3,977	--	1	MSRC/Galveston	Cameron/Venice	4	2						
	Push Boat	--	--	1	MSRC/Lake Charles	Cameron/Venice	1	2		4	1	45	1	51

WCD Scenario > 10 Miles from the Shoreline
Platform, MC 809 A
120,420 bbls of crude oil
API Gravity 28°

FIGURE H.3 - Equipment Response Time to: **MC 809 A**

	EQUIPMENT TYPE	Derated Capacity (BBLS)	Storage (BBLS)	No. of Units	Owner/ Location	Staging [NOTE: Staging for initial load-out at nearest port; response staging via Venice]	PROCUREMENT TIME (Hours) Assemble Equipment	Personnel	Vessel	TOTAL Time to Procure (1)	Time to Load Out (2)	TOTAL Travel Time (3)	Time to Deploy (4)	TOTAL Estimated Response Time
N	Shallow Water Barge (2) w/	--	800	2	MSRC/Ft. Jackson	Venice	1	0	0					
	Desmi skimmer	3,017	--	1	MSRC/Ft. Jackson	Venice	1	2	0					
	Push Boat	--	--	1	MSRC/Ft. Jackson	Venice	1	2	0	2	1	8	1	12
O	DC 3 Spray Aircraft	--	--	2	ASI/HOUMA	HOUMA	1	2						
	DC 4 Spray Aircraft	--	--	1	ASI/HOUMA	HOUMA	1	2						
	Spotter Plane	--	--	1	ASI/HOUMA	HOUMA	1	2						
	Spotter Personnel	--	--	2	ASI/HOUMA	HOUMA	1	2						
	Dispersant	--	--		ASI/HOUMA	HOUMA	1	2		2	0	1.5	.5	4
	TOTALS	128,290	169,801											

FIGURE H.3 (Continued)

OPERATIONAL LIMITATIONS OF RESPONSE EQUIPMENT	
MSRC OSRV	8 foot seas
FRU	4 foot seas
Expandi Boom	6 foot seas, 20 knot winds
Dispersants	Winds more than 25 knots, Visibility less than 3 nautical miles, or Ceiling less than 1,000 feet.

Additional Support for a Blowout lasting 30 days:

1) Ocean Barge to transport recovered oil from offshore skimming systems and temporary storage barges to onshore disposal sites (identified in Area Contingency Plans and approved by the State)

2) Additional OSRO personnel to relieve equipment operators

3) Vessels for supporting offshore operations

4) Field safety personnel

5) Continued surveillance and monitoring of oil movement

6) Helicopter, video cameras

7) Infra red (night time spill tracking) capabilities

8) Logistics needed to support equipment:

- Parts trailers and mechanics to maintain skimmers and boom
- Staging areas
- Fueling facilities
- Decontamination stations
- Dispersant stockpile transported from Houston to Houma
- Communications equipment and technicians

9) Logistics needed to support responder personnel:

- Food
- Berthing
- Additional clothing/safety supplies
- Decontamination stations
- Medical aid stations
- Safety personnel