In Reply Refer To: MS 5231

September 10, 1996

Chieftain International (U.S.) Inc.
Attention: Mr. Bill Theis
Plaza of the Americas
Suite 1000, LB 131
600 North Pearl Street
Dallas, Texas 75201

Gentlemen:

Reference is made to the following plan received August 27, 1996:

Type Plan - Initial Plan of Exploration
Leases - OCS-G 14401 and 15172
Blocks - 93 and 90
Area - Vermilion
Activities Proposed - Wells A through E

In accordance with 30 CFR 250.33, this plan is hereby deemed submitted and is now being considered for approval.

Your control number is N-5501 and should be referenced in your communication and correspondence concerning this plan.

Sincerely,

(Orig. Sgd.) Kent E. Stauffer

Donald C. Howard
Regional Supervisor
Field Operations

bcc: Lease OCS-G 14401 POD File (MS 5032)
Lease OCS-G 15172 POD File (MS 5032)
MS 5034 w/public info. copy of the plan
and accomp. info.

NOTED-SCHEXNAILDRE

MTolbert:cic:09/05/96:POECOM

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

AUGUST 1996

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

TABLE OF CONTENTS

* Contains Confidential Data

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

PROPOSED EXPLORATION ACTIVITIES AND SCHEDULE

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

PROPOSED EXPLORATION ACTIVITIES

Chieftain International (U.S.) Inc. proposes to drill FIVE (5) exploratory wells from five (5) surface locations in Vermilion Area Blocks 90 and 93, four of which will bottom hole in Vermilion Block 90, and one of which will bottom hole in Vermilion Block 93. Drilling operations are scheduled to begin on or about **October 1, 1996,** subject to approval of this Plan of Exploration and issuance of the required Permit to drill.

No new or unusual technology will be used to drill these wells.

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

ACTIVITY SCHEDULE

Drill, complete and TA Location "A" . . . . . .October 1, 1996 - December 29, 1996
Drill, complete and TA Location "B" . . . . . .December 30, 1996 - March 29, 1997
Drill, complete and TA Location "C". . . . . .March 30, 1997 - June 27, 1997
Drill, complete and TA Location "D" . . . . . June 29, 1997 - September 25, 1997
Drill, complete and TA Location "E" . . . . . September 26, 1997 - December 25, 1997

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

WELL LOCATIONS AND PLAT

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

WELL LOCATION AND DEPTH

WELL	SURFACE LOCATION		MD	TVD	WD
A	SL:	3800' FWL & 1900' FSL VR 90	11132'		18'
	X =	1,710,214.364	LAT:		29° 13' 03" N
	Y =	198.918.433	LONG:		92° 14' 30" W
B	SL:	3800' FWL & 650' FSL VR 90	10200'	10200'	18'
	X =	1,710,214.364	LAT:		29° 12' 51" N
	Y =	200,168.433	LONG:		92° 14' 30" W
C	SL:	3800' FWL & 3100' FSL VR 90	10200'	10200'	18'
	X =	1,710,214.364	LAT:		29° 13' 15" N
	Y =	202,618.433	LONG:		92° 14' 30" W
D	SL:	1350' FWL & 8100' FNL VR 90	4000'	4000'	18'
	X =	1,707,764.364	LAT:		29° 14' 04" N
	Y =	206,176.481	LONG:		92° 14' 59" W
E	SL:	3000' FSL & 4800' FEL VR 90	10200'	10200'	18'
	X =	1,716,372.412	LAT:		29° 13' 14" N
	Y =	202,518.433	LONG:		92° 13' 20" W

PUBLIC INFORMATION

90

OCS-G-15172

Proposed Locations:

"A" - 3800' FWL, 1900' FSL Blk. 90
X: 1,710,214.364'; Y: 201,418.433'

"B" - 3800' FWL, 650' FSL Blk. 90
X: 1,710,214.364'; Y: 200,168.433'

"C" - 3800' FWL, 3100' FSL Blk. 90
X: 1,710,214.364'; Y: 202,618.433'

"D" - 1350' FWL, 8100' FNL Blk. 90
X: 1,707,764.364'; Y: 206,176.481'

"E" - 3000 FSL, 4800' FEL Blk. 90
X: 1,716,372.412'; Y: 202,518.433'

"D"

"C"

"E"

"A"

"B"

93

OCS-G-14401

PUBLIC INFORMATION

CHIEFTAIN
INTERNATIONAL (U.S.) INC.
600 North Pearl Street Suite 1000 LB 131 Dallas, TX 75201

VERMILION BLOCKS 90 & 93
OFFSHORE LOUISIANA

LOCATION PLAT

Scale: 1"=2000'

Date: August 8, 1996

GEOLOGICAL INTERPRETATION AND SHALLOW HAZARDS, AND STRUCTURE MAP

CONFIDENTIAL DATA

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

RIG DESCRIPTION, MUD COMPONENTS AND ADDITIVES

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

RIG DESCRIPTION

The proposed wells will be drilled and tested with a jack-up rig similar to the Ocean Tower. The specifications for the actual drilling vessel and safety equipment will be submitted with our Application for Permit to Drill. The drilling vessel used to drill the above mentioned well will contain and maintain various safety equipment in accordance with 30 CFR Part 250 Subpart D, such as Diverter system, blowout preventers, auxiliary equipment, and mud testing and monitoring devices. Drilling operations will be conducted in a manner so as to maximize pollution prevention in accordance with 30 CFR Part 250 Subpart C. All other safety and control equipment will be utilized in accordance with other applicable MMS guidelines.

A list of drilling mud components, and mud additives is included for your review.

DRILLING MUD COMPONENTS

COMMON CHEMICAL OR NAME	DESCRIPTION OF CHEMICAL TRADE MATERIAL
Aluminum Stearate	Aluminum Stearate
"AKTAFLO-S"	Nonionic Surfactant
Barite	Barium Sulfate (BaSO4)
Calcium Carbonate	Aragonite (CaCO3)
Calcium Chloride	Hydrophilite (CaC12)
Calcium Oxide	Lime (Quick)
Calcium Sulfate	Anhydrite (CaSO4)
Carboxymethyl Cellulose	Carboxymethyl Cellulose
Caustic Potash	Potassium Hydrate
Caustic Soda	Sodium Hydroxide (NaOH)
Chrome Lignite	Chrome Lignite
Chrome Lignosulfonate	Chrome Lignosulfonate
Drilling Detergent	Soap
"E-Pal"	Non-toxic, biodegradable defoamer
Ferrochrome Lignosulfonate	Derived from wood pulp
Gel	Sodium montmorillonite, bentonite, attapulgite
Gypsum	CaSO4.2H2O
Lignite	Lignite
Lignosulfonate	Lignosulfonate
"Mud-Sweep"	Cement Pre-Flush
"MOR-REX"	Hydrolyzed Cereal Solid
"Shale-Trol"	Organo-aluminum complex
Sapp	Sodium Acid Pyrophosphate
Soda Ash	Sodium Carbonate
Sodium Bicarbonate	NaHCO3
Sodium Carboxymethyl Cellulose	Sodium Carboxymethyl Cellulose
Sodium Chloride	NaC1
Sodium Chromate	NaCr04.10H2O
Starch	Corn Starch
"TX-9010"	Biodegradable drilling lubricant
"TORO-Trim"	Biodegradable drilling lubricant

MUD ADDITIVES

COMMON CHEMICAL OR CHEMICAL TRADE NAME	DESCRIPTION OF MATERIAL
"Black Magic	Oil base mud conc.
"Black Magic Supermix"	Sacked concentrated oil base mud
Diesel	Used to mix certain loss-circulation pills
"Jelflake"	Plastic foil, shredded cellophane
MICA	Loss-circulation material
"Pipe-Lax"	Surfactant mixed with diesel
"Wall-nut"	Ground walnut shells
Wood fibers	Loss-circulation material

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

SAFETY AND ENVIRONMENTAL SAFEGUARDS

POLLUTION CONTAINMENT AND CLEANUP EQUIPMENT,
DEPLOYMENT TIME
DISCUSSION OF DISCHARGED VOLUMES

(OIL SPILL CONTINGENCY PLAN)

SAFETY AND ENVIRONMENTAL SAFEGUARDS

Safety features during drilling operations will include well control and blowout prevention equipment that meets or exceeds the requirements of 30 CFR Part 250 Subpart D.

Oil in any form shall not be disposed of into the waters of the Gulf of Mexico.

Liquid waste materials containing substances which may be harmful to aquatic life or wildlife, or injurious in any manner to life or property shall be treated to avoid disposal of harmful substances into the waters of the Gulf.

Drilling muds containing oil are not disposed of into the Gulf. This type of material is loaded and barged to shore for proper disposal. Drilling muds containing toxic substances are neutralized prior to disposal.

Drill cuttings and solids containing oil are not disposed into the Gulf unless the oil has been removed.

Sand is not disposed into the Gulf. Sand is barged to shore for proper disposal.

The subject offshore mobile drilling unit is equipped with drip pans under the rig floor. All oil from diesel engines is pumped to a sump and then pumped into barrels for return to an approved onshore disposal site.

Operator personnel are instructed in the techniques and methods necessary to prevent pollution. Non-operator personnel are instructed and supervised to insure that non-pollution practices are adhered to. The facilities are inspected daily.

CHIEFTAIN INTERNATIONAL (U.S.) INC.
VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

All discharges associated with the drilling of the proposed wells will be in accordance with the EPA NPDES General Permit 290000 for the Gulf of Mexico.

A discussion of the quantity, rates of discharge, and composition of solid and liquid wastes are attached.

Cuttings discharges are based on the average hole size for each section of hole. Mud may be discharged for purposes of dilution or at end of well. The fluid used for drilling will be a typical lignosulfonate mud unless otherwise noted in the drilling program. Concentrations of the chemicals in the mud can be estimated from the daily fluids chemical inventory. Other surveillance of the fluid is accomplished by the monthly and end-of-well LC50 toxicity tests required by EPA. Any drilling fluid contaminated with oil will be transported to shore for proper disposal at an authorized disposal site.

Sewage will be treated on location.

Solid domestic wastes will be transported to shore for proper disposal at an authorized disposal site.

Deck drainage will be estimated by amount of rainfall and wash water used.

OIL SPILL TRAJECTORY ANALYSIS

In the event a spill occurs from any of the surface locations in VERMILION AREA BLOCK 90, Chieftain International (U.S.) Inc. has projected the trajectory of a spill utilizing information in the Oil Spill Risk Analysis Report in the Environmental Impact Statement for OCS Lease Sales 157 and 161.

The EIS contains oil spill trajectory simulations using seasonal surface currents coupled with wind data, adjusted every 3 hours for 30 days or until a target is contacted.

Hypothetical spill trajectories were simulated for each of the potential launch sites across the entire Gulf. These simulations presume 500 spills occurring in each of the four seasons of the year. The results in the oil spill risk analysis were presented as probabilities that an oil spill beginning from a particular launch site would contact a certain land segment within 3, 10, or 30 days. Utilizing the summary of the trajectory analysis (for 10 days), the probable projected land fall of an oil spill from VERMILION AREA BLOCKs 90 and 93 impacting a land segment is as follows:

Area	Land Segment Contact	%
Vermilion 90/93	Galveston County, TX	1%
	Chambers County, TX	1%
	Jefferson County, TX	3%
	Cameron Parish, LA	26%
	Vermilion Parish, LA	26%
	New Iberia Parish, LA	4%

The CGA Response Specification Manual includes equipment containment/cleanup protection response modes for the sensitive areas. Pollution response equipment available from CGA and its stockpile base is listed in the CGA Equipment Operations Manual.

The CGA Response Specification Manual depicts the protection response modes that are applicable for oil spill clean-up operations. Each response mode is schematically represented to show optimum deployment and operation of the equipment in area of environmental concern. Implementation of the suggested procedures assures the most effective use of the equipment and will result in reduced adverse impact of oil spills on the environment. Supervisory personnel have the option to modify the deployment and operation of equipment to more effectively respond to site-specific circumstances.

Should a spill occur from the proposed locations, Chieftain International (U.S.) Inc. would immediately activate its Oil Spill Response Team . Response equipment and response times will be suitable for anticipated environmental conditions in the area. In good weather conditions fast response with oil boom, skimmers, pump and storage tanks would require approximately 15 hours, including preparation time as indicated below. A heavy equipment system response would require approximately 24-36 hours, including 6 hours preparation time. The Clean Gulf Base in Intracoastal City, LA will be utilized for this operation.

PROCUREMENT AND DEPLOYMENT TIME

		Hours
1)	Procurement of boat capable of handling Oil Spill Containment equipment and deployment to nearest CGA base in Intracoastal City, LA	1.50 Hours
2)	Load out FRU	1.00 Hours
3)	Travel to lease site from Shore Base (18.6 miles to lease sight @ 10 mph)	1.86 Hours
	Estimated Total Time	**4.36 Hours**

All necessary precautions will be undertaken to protect the sensitive areas including deployment of booms, skimmers, pumps, scare guns, etc. In the event a spill is projected to hit near shore sensitive areas, Chieftain International (U.S.) Inc. will immediately procure truck(s) (as per our approved Oil Spill Contingency Plan) to transport containment equipment to the staging area. Helicopters may be utilized to transport near-shore booms, scare guns, hand skimming systems, and sorbent pads.

CHIEFTAIN INTERNATIONAL (U.S.) INC.
VERMILION AREA
BLOCK 90, OCS-G-15172

LOCATION "A"
DISCHARGES

DEPTH	HOLE SIZE	QUANTITY (BBLS)	DISCHARGE RATE
665	30"	328	Max. 1000 BPH
1100	20"	853	Max. 1000 BPH
2500'	13 1/2"	705	Max. 1000 BPH
11,132'	9 7/8"	280	Max. 1000 BPH

Total discharges estimated to be: 2166 Bbls.

CHIEFTAIN INTERNATIONAL (U.S.) INC.
VERMILION AREA
BLOCK 90, OCS-G-15172

LOCATION "B"
DISCHARGES

DEPTH	HOLE SIZE	QUANTITY (BBLS)	DISCHARGE RATE
665	30"	328	Max. 1000 BPH
1100	20"	853	Max. 1000 BPH
2500'	13 1/2"	705	Max. 1000 BPH
10,200	9 7/8"	280	Max. 1000 BPH

Total discharges estimated to be: 2166 Bbls.

CHIEFTAIN INTERNATIONAL (U.S.) INC.
VERMILION AREA
BLOCK 90, OCS-G-15172

LOCATION "C"
DISCHARGES

DEPTH	HOLE SIZE	QUANTITY (BBLS)	DISCHARGE RATE
665	30"	328	Max. 1000 BPH
1100	20"	853	Max. 1000 BPH
2500'	13 1/2"	705	Max. 1000 BPH
10,200	9 7/8"	280	Max. 1000 BPH

Total discharges estimated to be: 2166 Bbls.

CHIEFTAIN INTERNATIONAL (U.S.) INC.
VERMILION AREA
BLOCK 90, OCS-G-15172

LOCATION "D"
DISCHARGES

DEPTH	HOLE SIZE	QUANTITY (BBLS)	DISCHARGE RATE
665	30"	328	Max. 1000 BPH
1100	20"	853	Max. 1000 BPH
2500	13 1/2"	705	Max. 1000 BPH
4000	9 7/8"	280	Max. 1000 BPH

Total discharges estimated to be: 2166 Bbls.

CHIEFTAIN INTERNATIONAL (U.S.) INC.
VERMILION AREA
BLOCK 90, OCS-G-15172

LOCATION "E"
DISCHARGES

DEPTH	HOLE SIZE	QUANTITY (BBLS)	DISCHARGE RATE
665	30"	328	Max. 1000 BPH
1100	20"	853	Max. 1000 BPH
2500'	13 1/2"	705	Max. 1000 BPH
10,200	9 7/8"	280	Max. 1000 BPH

Total discharges estimated to be: 2166 Bbls.

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

REQUEST FOR CLASSIFICATION OF PROBABILITY OF ENCOUNTERING H_2S DURING OPERATIONS

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93
OCS-G-15172 AND OCS-G-14401

Hydrogen Sulfide (H_2S)

In accordance with 30 CFR 250.67, Chieftain International (U.S.) Inc. requests that Vermilion Area Blocks 90 and 93, OCS-G-15172 and OCS-G 14401 be classified as being in a "Zone Where The Absence Of H_2S Has Been Confirmed".

Hydrogen Sulfide was not encountered or detected in any of the wells drilled in this area by Adobe, Corpus or Superior. Chieftain International (U.S.) Inc. does not anticipate encountering H_2S in any of the target sands.

OPERATOR	BLOCK	WELL	DEPTH
Adobe	90	#1	11,384' MD
Corpus	73	#1	10,227' MD (10,001' TVD)
Corpus	73	#1 ST	10,048' MD (9,798' TVD)
Superior	73	#2	14,185' MD
Superior	73	#1	12,652' MD

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

ONSHORE BASE FACILITIES, VICINITY PLAT

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

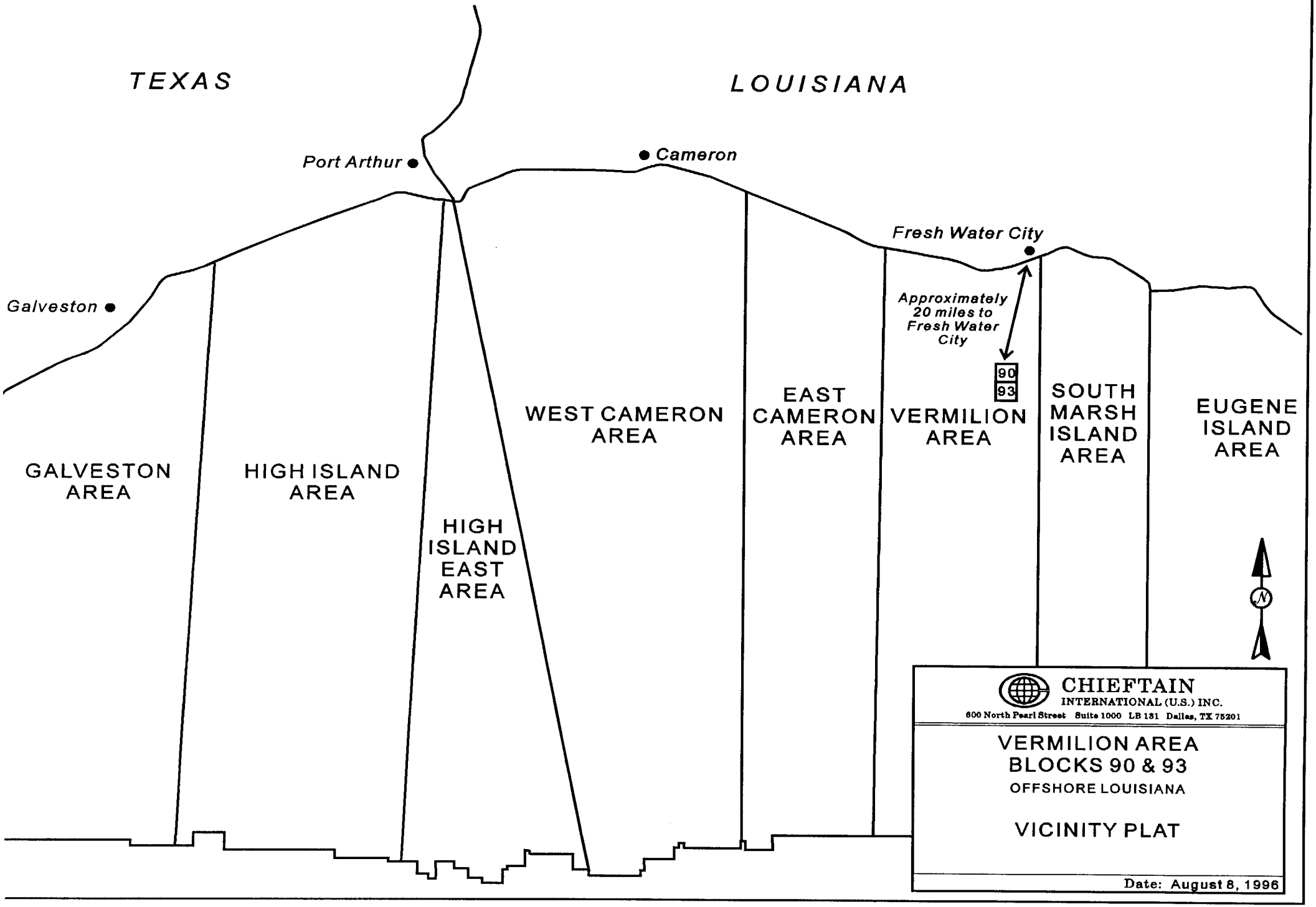
ONSHORE BASE FACILITIES, VICINITY PLAT

FRESH WATER CITY TERMINAL

No expansion of the existing facilities is planned for this operation. The proposed operations will not require the hiring of any additional personnel. Typical supply and crew boats will be utilized throughout the drilling and completion operations. Personnel and equipment will be transported by boat and helicopter over the most direct routes to and from the site.

FREQUENCY OF TRAVEL

Crew boats	-	seven trips/week
Supply boats	-	three trips/week
Helicopters	-	five trips/week


TEXAS
LOUISIANA
Port Arthur
Cameron
Fresh Water City
Galveston
Approximately 20 miles to Fresh Water City
90
93
GALVESTON AREA
HIGH ISLAND AREA
HIGH ISLAND EAST AREA
WEST CAMERON AREA
EAST CAMERON AREA
VERMILION AREA
SOUTH MARSH ISLAND AREA
EUGENE ISLAND AREA
CHIEFTAIN
INTERNATIONAL (U.S.) INC.
600 North Pearl Street Suite 1000 LB 131 Dallas, TX 75201
VERMILION AREA
BLOCKS 90 & 93
OFFSHORE LOUISIANA
VICINITY PLAT
Date: August 8, 1996

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

LEASE STIPULATION(S)

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

Chieftain International (U.S.) Inc. completed a Shallow Hazards Survey of Vermilion Area Blocks 90 and 93 during August and September, 1995. KC Offshore, L.L.C. conducted the survey and prepared the report in accordance with the guidelines established by the MMS in their Notices to Lessees regarding cultural resources and geohazard surveys and reports (NTL-75-3 and subsequent NTL's).

This survey and report satisfies the MMS requirement for an archaeological report, as detailed in the LTL dated September 5, 1995. The resources report for this survey contains an analysis of the potential for prehistoric archaeological resources. An interpretation of the survey data indicated no drilling hazards or significant cultural remains at the proposed surface locations.

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

AIR QUALITY REVIEW

AIR EMISSION CALCULATIONS

COMPANY	Chieftain International (U.S.) Inc.
AREA	Vermilion Area
BLOCK	90/93
LEASE	OCS-G 15172 / OCS-G 14401
PLATFORM	
WELL	A-E
LATITUDE	29° 13' 03"
LONGITUDE	92° 14' 30"
COMPANY CONTACT	Bill Theis
TELEPHONE NO.	214-754-7104
REMARKS	

AIR EMISSION CALCULATIONS

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

Equipment/Emission Factors	units	TSP	SOx	NOx	VOC	CO	REF.	DATE
NG Turbines	gms/hp-hr		0.00247	1.3	0.01	0.83	AP42 3.2-2	4/93
NG 2-cycle lean	gms/hp-hr		0.00185	11	0.43	1.5	AP42 3.2-2	4/93
NG 4-cycle lean	gms/hp-hr		0.00185	12	0.72	1.6	AP42 3.2-2	4/93
NG 4-cycle rich	gms/hp-hr		0.00185	10	0.14	8.6	AP42 3.2-2	4/93
Diesel Recip. < 600 hp.	gms/hp-hr	1	0.931	14	1.12	3.03	AP42 3.3-1	4/93
Diesel Recip. > 600 hp.	gms/hp-hr	0.24	1.49	11	0.33	2.4	AP42 3.4-1	4/93
NG Heaters/Boilers/Burners	lbs/mmscf	5	0.6	140	2.8	35	AP42 1.4-1	4/93
NG Flares	lbs/mmscf		0.57	71.4	60.3	388.5	AP42 11.5-1	9/91
Liquid Flaring	lbs/bbls	0.42	6.6	2.3	0.01	0.21	AP421.3-1	4/93
Tank Vapors	lbs/bbl				0.03		E&P Forum	1/93
Fugitives	lbs/hr/comp.				0.000025		API Study	12/93
Glycol Dehydrator Vent	lbs/mmscf				6.6		La. DEQ	1991
Gas Venting	lbs/scf				0.0034			

AIR EMISSION CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL	LATITUDE	LONGITUDE	CONTACT	PHONE	REMARKS
Chieftain International (U.S.) Inc	Vermilion Area	90/93	OCS-G 15172	0	A-E	29° 13' 03"	92° 14' 30"	Bill Theis	214-754-7104	0

OPERATIONS	EQUIPMENT		MAX. FUEL	ACT. FUEL	RUN TIME		POUNDS PER HOUR					TONS PER YEAR				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	TSP	SOx	NOx	VOC	CO	TSP	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	1650	79.70	1912.68	24	90	0.87	5.42	39.98	1.20	8.72	0.94	5.85	43.18	1.30	9.42
	PRIME MOVER>600hp diesel	1650	79.70	1912.68	24	90	0.87	5.42	39.98	1.20	8.72	0.94	5.85	43.18	1.30	9.42
	PRIME MOVER>600hp diesel	1650	79.70	1912.68	24	90	0.87	5.42	39.98	1.20	8.72	0.94	5.85	43.18	1.30	9.42
	AUXILIARY EQUIP<600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel	2065	99.74	2393.75	6	39	1.09	6.78	50.03	1.50	10.92	0.14	0.85	6.25	0.19	1.36
		2065	99.74	2393.75	3	90	1.09	6.78	50.03	1.50	10.92	0.17	1.06	7.85	0.24	1.71
PIPELINE	PIPELINE LAY BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP.>600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TURBINE nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.2 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle rich nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	BPD	SCF/HR	COUNT												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			0.0		0				0.00					0.00	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		416666		24	1		0.24	29.75	25.12	161.87		0.00	0.36	0.30	1.94
1996	YEAR TOTAL						**4.80**	**30.04**	**249.75**	**31.72**	**209.87**	**3.13**	**19.46**	**143.99**	**4.61**	**33.28**
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											619.38	619.38	619.38	619.38	24101.97
	18.6															

BEST AVAILABLE COPY

AIR EMISSION CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL	LATITUDE	LONGITUDE	CONTACT	PHONE	REMARKS
Chieftain International (U.S.) Inc	Vermilion Area	90/93	OCS-G 15172	0	A-E	29° 13' 03"	92° 14' 30"	Bill Theis	214-754-7104	0

OPERATIONS	EQUIPMENT		MAX. FUEL	ACT. FUEL	RUN TIME		POUNDS PER HOUR					TONS PER YEAR				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	TSP	SOx	NOx	VOC	CO	TSP	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	1650	79.70	79.70	24	360	0.87	5.42	39.98	1.20	8.72	0.16	0.97	7.20	0.22	1.57
	PRIME MOVER>600hp diesel	1650	79.70	1912.68	24	360	0.87	5.42	39.98	1.20	8.72	3.77	23.39	172.70	5.18	37.68
	PRIME MOVER>600hp diesel	1650	79.70	1912.68	24	360	0.87	5.42	39.98	1.20	8.72	3.77	23.39	172.70	5.18	37.68
	AUXILIARY EQUIP<600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel	2065	99.74	2393.75	6	154	1.09	6.78	50.03	1.50	10.92	0.55	3.39	25.01	0.75	5.46
		2065	99.74	2393.75	3	360	1.09	6.78	50.03	1.50	10.92	0.69	4.25	31.41	0.94	6.85
PIPELINE	PIPELINE LAY BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP.>600hp diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TURBINE nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.2 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle lean nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle rich nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	MISC.	BPD	SCF/HR	COUNT			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TANK-	0			0	0										
	FLARE-		0		0	0				0.00					0.00	
	PROCESS VENT-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	FUGITIVES-			0.0		0				0.00					0.00	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		416666		24	4		0.24	29.75	25.12	161.87		0.01	1.43	1.21	7.77
1997	YEAR TOTAL						**4.80**	**30.04**	**249.75**	**31.72**	**209.87**	**8.92**	**55.42**	**410.46**	**13.48**	**97.01**
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											619.38	619.38	619.38	619.38	24101.97
	18.6															

AIR EMISSION CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
Chieftain Inter	Vermilion Are	90/93	OCS-G 15172	0	A-E

Year	Emitted Substance				
	TSP	SOx	NOx	HC	CO
1996	3.13	19.46	143.99	4.61	33.28
1997	8.92	55.42	410.46	13.48	97.01
1998	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00
Allowable	619.38	619.38	619.38	619.38	24101.97

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

ENVIRONMENTAL REPORT

ENVIRONMENTAL REPORT

FOR

VERMILION BLOCKS 90 AND 93

OCS-G 15172 AND 14401

CHIEFTAIN INTERNATIONAL (U.S.) INC.

Plaza of the Americas
Suite 1000, LB 131, 600 N. Pearl Street
Dallas, Texas 75201

AUGUST 1996

TABLE OF CONTENTS

I. DESCRIPTION OF PROPOSED ACTION

Chieftain International (U.S.) Inc. proposes to conduct exploration activities within Vermilion Blocks 90 and 93, Lease OCS-G 15172 and 14401, Offshore Louisiana.

As proposed, the Plan of Exploration for Vermilion 90 and 93 provides for the drilling, completion and temporary abandonment of five (5) exploratory wells from five (5) surface locations in Vermilion Blocks 90 and 93, four of which will bottom hole in Vermilion Block 90, and one of which will bottom hole in Vermilion Block 93, utilizing a jack-up rig.

At this time, the planned commencement date for the proposed activities is October 1, 1996.

A. DESCRIPTION OF PROPOSED TRAVEL MODES, ROUTES AND FREQUENCY

Support vessels will be dispatched from the Baroid Dock located in Fresh Water City, Louisiana. The boats will normally move to the block via the most direct route from Fresh Water City, Louisiana; however, boats operating in the field may travel from other facilities nearby. Following is an estimate of trips to the proposed operation:

	DRILLING COMPLETION OPERATIONS
Supply Boat	3 trips per week
Crew Boat	7 trips per week
Helicopter	5 trips per week

B. ONSHORE SUPPORT BASE

The proposed activities will utilize a support base located at the Baroid Dock in Fresh Water City, Louisiana. This base provides 24-hour service, a radio tower with phone patch, dock space, office space, parking lot, equipment and supply storage space, drinking and drill water, etc. The proposed development activities will help to maintain this base at its present level of activity. No expansion of the physical facilities or the creation of new jobs is expected to result from the work planned in conjunction with this block.

The first socioeconomic data base report will be submitted when the MMS and the States of Alabama, Louisiana and Mississippi identify the specific parameters to be addressed in these semi-annual reports.

C. NEW OR UNUSUAL TECHNOLOGY

No new or unusual technology will be required for this operation.

D. VICINITY MAP

The location for the proposed activity is in Vermilion Blocks 90 and 93, OCS-G 15172 and OCS-G 14401, which is located approximately eighteen and 6/10 (18.6) statute miles offshore south southeast of the Fresh Water City, Louisiana coastline in a water depth of approximately 18'.

II. DESCRIPTION OF AFFECTED ENVIRONMENT

A. COMMERCIAL FISHING

The Gulf of Mexico provides nearly 20% of the commercial fish landings in the continental United States. During 1992, commercial landings of all fisheries in the Gulf totaled nearly 1.4 billion pounds values at about $634 million.

Menhaden, with landings of 0.8 billion pounds, values at $42 million, was the most important Gulf species in quantity landed during 1992. Shrimp, with landings of 222 million pounds, valued at $389 million, was the most important Gulf species in value landed during 1992. The 1992 Gulf oyster fishery accounted for 51% of the national total with landings of 18.7 million pounds of meat, valued at about $40.5 million. The Gulf blue crab fishery accounted for 34% of the national total with landings of 66 million pounds, valued at $35.6 million.

Alabama ranked last among Central and Western Gulf states in total commercial landings for 1992 with 23.7 million pounds landed, valued at $35.6 million. Shrimp was the most important fishery landed, with 5.8 million pounds, valued at $12.8 million. In addition, during 1992, the following six species each accounted for landings valued at over $125,000: blue crab, shark, black mullet, red snapper, flounder and the American oyster. Alabama had about 3,470 and 2,515 commercial saltwater, licensed fishermen during 1991 and 1992, respectively.

Mississippi ranked second among Central and Western Gulf states in total commercial

fishery landings for 1992, with approximately 187.6 million pounds landed, valued at approximately $31.3 million. Shrimp was the most important fishery, with 10.1 million pounds landed, valued at about $19.8 million. In addition, during 1992, the following four species each accounted for landings valued at over $150,000: red snapper, blue crab, American oyster and black mullet. Mississippi had about 3,329 and 2,515 commercial saltwater, licensed fishermen during 1991 and 1992, respectively.

Louisiana ranked first among Central and Western Gulf states in total commercial fishery landings for 1992, with nearly 0.98 billion pounds landed, valued at $276.4 million. Menhaden was the highest quantity finfish, with 0.79 billion pounds landed, valued at $40 million. Shrimp was the highest value shellfish, with 97.4 million pounds landed, valued at $144 million. In addition, during 1992, the following nine species each accounted for landings valued at over $1 million: king mackerel, red mullet roe, shark, red snapper, spotted sea trout, swordfish, yellowfin tuna, blue crab and the American oyster. In 1991 and 1992, Louisiana had about 19,923 and 19,241 commercial saltwater, licensed fishermen, respectively.

Texas ranked third among Central and Western Gulf states in total commercial fishery landings for 1992 with nearly 92.1 million pounds landed, valued at $181.3 million. In quantity and value, shrimp ranked first, with about 85 million pounds, valued at $167 million. In addition, during 1992, the following five species each accounted for landings valued at over $500,000: red snapper, swordfish, yellowfin tuna, blue crab and American oyster. In 1991 and 1992, respectively, Texas had about 17,483 and 14,519 commercial saltwater, licensed fishermen.

The Gulf of Mexico yielded the nation's second largest regional commercial fishery by weight in 1992. The Gulf fisheries landings were nearly 20% of the national total by weight and 20% by value. Most commercial species harvested from Federal waters of the Gulf of Mexico are considered to be at or near an overfished condition. Continued fishing at the present levels may result in rapid declines in commercial landings and eventual failure of certain fisheries. Commercial landings of traditional fisheries such as shrimp, red snapper and spiny lobster, have declined over the past decade despite substantial increases in fishing effort. Commercial landings of recent fisheries, such as shark, black drum and tuna have increased exponentially over the past five years and those fisheries are thought to be in need of conservation.

The Gulf of Mexico shrimp fishery is the most valuable in the United States accounting for 71.5% of the total domestic production. Three species of shrimp (brown, white and pink) dominate the landings. The status of the stock are as follows: (1) brown shrimp yields are at or near the maximum sustainable levels; (2) white shrimp yields are beyond

maximum sustainable levels with signs of overfishing occurring; and (3) pink shrimp yields are at or beyond maximum sustainable levels.

B. SHIPPING

The establishment of a series of safety fairways or traffic separation schemes (TSS's), and anchorage areas provide unobstructed approach for vessels using U.S. ports. Shipping safety fairways are lanes or corridors in which no fixed structure, whether temporary or permanent, is permitted. TSS's increase navigation safety by separating opposing lanes of vessel traffic. Fairway anchorages are areas contiguous to and associated with a fairway, in which fixed structures may be permitted within certain spacing limitations.

Fairways play an important role in the avoidance of collisions on the OCS, particularly in the case of the larger oceangoing vessels, but not all vessels stay within the fairways. Many others, such as fishing boats and OCS support vessels, travel through areas with high concentrations of fixed structures. In such cases the most important mitigation factor is the requirement for adequate marking and lighting of structures. After a structure has been in place for a while, it often becomes a landmark and an aid to navigation for vessels that operate in the area on a regular basis. Most oceangoing vessels are equipped with radar capable of aiding navigation in all weather conditions. This has contributed to safe navigation on the OCS.

Vermilion Blocks 90 and 93 are clear of all shipping fairways and anchorage areas. The drilling rig and each of the marine vessels servicing these operations will be equipped with all U.S. Coast Guard required navigational safety aids to alert ships of their presence in all weather conditions.

C. PLEASURE BOATING, SPORT FISHING AND RECREATION

The northern Gulf of Mexico coastal zone is one of the major recreational regions of the United States, particularly for marine fishing and beach activities. Gulf Coast shorelines offer a diversity of natural and developed landscapes and seascapes. Major recreational resources include coastal beaches, barrier island, estuarine bays and sounds, river deltas and tidal marshes. Other resources include publicly owned and administered areas such as national seashores, parks, beaches and wildlife lands, as well as designated preservation areas, such as historic and natural sites, landmarks, wilderness areas, wildlife sanctuaries and scenic rivers. Gulf Coastal residents and tourists from throughout the nation, as well as from foreign countries, use these

resources extensively and intensively for recreation activity. Commercial and private recreational facilities and establishments such as resorts, marinas, amusement parks and ornamental gardens also serve as primary-interest areas.

The two major recreational areas most directly associated with offshore leasing and potentially affected by it are the offshore marine environment and the coastal shorefront of the adjoining states. The major recreational activity occurring on the OCS is offshore marine recreational fishing and diving. Studies, reports and conference proceedings published by MMS and others have documented a substantial recreational fishery, including scuba diving directly associated with oil and gas structures which stems from their function as high profile artificial fishing reefs.

The coastal shorelines of the Central and Western Planning Areas contain extensive public park and recreation areas, private resorts and commercial lodging. Most of the outdoor recreational activity focused on the Gulf shorefront is associated with accessible beach areas. Beaches are a major inducement for coastal tourism, as well as a primary resource for resident recreational activity. However, recreational resources, activities and expenditures are not constant along the Gulf of Mexico shorefront, but are focused where public beaches are close to major urban centers. Beach use is a major economic factor for many Gulf coastal communities, especially during peak-use seasons in the spring and summer.

D. POTENTIAL OR KNOWN ARCHAEOLOGICAL RESOURCES

Archaeological resources are any prehistoric or historic site, building, structure, object or feature that is manmade or modified by human activity. Significant archaeological resources are defined in 36 CFR 800, Section 60.6. The MMS has previously contacted the State Historic Preservation Officers for all Gulf Coast States and requested them to provide a list of those National Register of Historic Places that are in their State's coastal zones and that could potentially be affected by OCS leasing activities.

With the exception of the Ship Shoal Lighthouse, historic archaeological resources on the OCS consist of shipwrecks. Management of this resource was accomplished by establishing a high-probability zone for the occurrence of historic shipwrecks. An MMS-funded study updated the shipwreck database. Statistical analysis of over 4,000 potential shipwrecks in the northern Gulf indicated that many of the OCS shipwrecks occur in clustered patterns related mainly to navigation hazards and port entrances.

Geomorphic features that have a high probability for associated prehistoric archaeological resources in the Central and Western Gulf include barrier islands and

back-barrier embayments, river channels and associated floodplains and terraces, and salt dome features.

Minerals Management Service has advised in an LTL dated September 5, 1995 that an archaeological survey would be required for the surface locations in Leases OCS-G 15172 and 14401, Vermilion Blocks 90 and 93. The shallow hazards survey conducted by KC Offshore, L.L.C. for Chieftain International (U.S.) Inc. satisfied this requirement. An interpretation of the survey data indicated no drilling hazards or significant cultural remains at the proposed surface locations.

E. ECOLOGICALLY SENSITIVE FEATURES

Coastal barriers of the Western and Central Gulf Coast consist of relatively low land masses that can be divided into several interrelated environments. The beach itself consists of the foreshore and backshore. The nonvegetated foreshore slopes up from the ocean to the beach berm-crest. The backshore may occasionally be absent due to storm activity. If present, the backshore is found between the beach berm-crest and the dunes and may be sparsely vegetated. The dune zone of a barrier landform can consist of a single dune ridge, several parallel dune ridges, or a number of curving dune lines that are stabilized by vegetation. These elongated, narrow landforms are composed of sand and other unconsolidated, predominantly coarse sediments that have been transported and deposited by waves, currents, storm surges and winds.

When Gulf water levels are elevated by storms, water will overwash a coastal barrier. This action will create overwash fans or terraces behind and between the dunes. With time, these terraces will be vegetated by opportunistic species. Along more stable barriers, the area behind the dunes consists of broad flats that support scrubby woody vegetation. Saline or freshwater ponds may be found among the dunes or landward flats. Landward, these flats may grade into wetlands and intertidal mud flats that fringe the shore of lagoons, islands and embayments. In other areas, these barriers may grade into scrub or forest habitat of the mainland, with no bay or lagoon separating the two landforms. Habitats found among the coastal barrier landforms provide a variety of niches that support many avian, terrestrial, aquatic and amphibious species, some of which are endangered or threatened.

Stability of these habitats is primarily dependent upon the rates of geodynamic change for each coastal vicinity. The major sources of pressure that cause barrier landforms to change are storms, subsidence, delta abandonment and human activity.

From east to west, the barrier coasts of the Western and Central Gulf include Baldwin

County Headland in Alabama, the barrier islands of Mississippi Sound, the Chandeleur Islands, the Modern Mississippi River Delta and its developing barrier islands, the Bayou Lafourche Headland and accompanying barrier islands, Isles Dernieres, the Chenier Plain of Louisiana and Texas, Trinity River Delta, Brazos-Colorado River Delta and its accompanying barrier islands, barrier islands of Espiritu Santo Bay and Laguna Madre and the Rio Grande Delta.

Louisiana has the most rapidly retreating beaches in the nation. The statewide average for 1956-1978 was 8.29 m/yr. The sand beach formed between the Gulf and Bay Marchand retreated landward at rates of 18 to 23 m/yr. Between 1887 and 1978. The average retreat rate for Fourchon Beach over the last 100 years has been 10 to 20 beaches along the deltaic plain in Louisiana fit into one of three categories, depending on the stage of the deltaic cycle of the nearby landmass. When a major distributary of the Mississippi River is abandoned, submergence due to subsidence and sea-level rise transforms the abandoned delta into an erosional headland with flanking barriers. The Bayou Lafourche Headland is an example of an eroding and subsiding delta that transgressively generates a barrier island arc, the ends of which are separated from the mainland. Isles Dernieres is an example of a barrier arc of islands that separated from its headland due to subsidence. With continued subsidence and no source of sediment, Isles Dernieres will eventually submerge and form a submarine inner-shelf shoal.

The coast of the Chenier Plain is fronted by sand beaches and coastal mudflats. The source of the mud is the discharge of the Mississippi and Atchafalaya Rivers, which tends to drift westward due to prevailing winds and associated near shore currents.

From the Texas-Louisiana border to Rollover Pass, Texas, the Texas coast is a physiographic continuation of the Chenier Plain. Here, thin accumulations of sand, shell and caliche nodules make up beaches that are migrating landward over tidal marshes. These beaches are narrow and have numerous overwash features and local, poorly developed sand dunes.

The rest of the Texas coast is a continuous barrier shoreline. The barrier islands and spits were formed from sediments supplied from the three previously listed deltaic headlands: the Trinity delta, which is immediately west of the Sabine River in Jefferson County; the Brazos-Colorado Rivers delta complex in Brazoria and Matagorda Counties; and the Rio Grande delta in southernmost Cameron County.

The Central and Western Gulf Coast includes barrier islands that are part of the National Park System. These are the Padre Island National Seashore along the Texas coast and Gulf Islands National Seashore offshore Mississippi.

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

Louisiana contains most of the Gulf coastal wetlands. The deterioration of coastal wetlands, particularly in Louisiana, is an issue of concern. In Louisiana, the annual rate of wetlands loss has been measured at 130 km^2 for the period 1955-1978. A recent study has shown that the current rate of land loss on the Deltaic Plain area of the Louisiana coast has decreased to about 90 km^2 per year. Several factors contribute to wetlands loss in coastal Louisiana. Sediment deprivation is a result of a 50% decrease in the suspended-sediment load of the river since the 1950's, channelization of the river, and, the primary cause, which was levee construction. Subsidence and sea level rise have caused submergence of lower wetland areas. Construction of ring levees have allowed drainage and development of extensive wetlands. Development activities in low areas, outside leveed areas, have caused the filling in of wetlands. Construction of canals converts wetlands to open water and upland spoil banks. Canals and subsidence have also contributed to increased tidal influence and salinities in freshwater and low-salinity wetlands, which in turn increase erosion and sediment export.

In Mississippi and Alabama, the mainland marshes behind Mississippi Sound occur as discontinuous wetlands associated with estuarine environments. The most extensive wetland areas in Mississippi occur east of the Pearl River delta near the western border of the state and the Pascagoula River delta area near the eastern border of the state. The wetlands of Mississippi seem to be more stable than those in Louisiana, perhaps reflecting the more stable substrate and more active sedimentation per unit of wetland area. Also, there have been only minor amounts of canal dredging in the Mississippi wetlands.

Most of the wetlands in Alabama occur on the Mobile River delta or along northern Mississippi Sound. Between 1955 and 1979, fresh marshes and estuarine marshes declined in these areas by 69% and 29%, respectively. Major causes of non-fresh wetland losses were industrial development and navigation, residential and commercial development, natural succession and erosion/subsidence. The loss of fresh marsh was mainly attributable to commercial and residential development and silviculture.

In Texas, coastal marshes occur along the inshore side of barrier islands and bays and on river deltas. Salt marshes consisting primarily of smooth cordgrass occur at lower elevations and at higher salinities. Brackish marshes occur in transition areas landward of salt marshes on slightly higher elevations and at greater distances from saltwater bodies. Freshwater marshes of the region occur primarily along the major rivers and tributaries. Sparse banks of black mangroves are also found in the region. Broad expanses of emergent wetland vegetation do not commonly occur south of the arid climate and hyper saline waters to the south. Dominant salt-marsh plants here include more salt tolerant species such as *Batis maritima* and *Salicornia sp.*

Wetland changes observed in Texas during the past several decades appear to be driven by subsidence and sea-level increases. Open-water areas are appearing in wetlands along their seaward margins, while new wetlands are encroaching onto previously non-wetland habitat along the landward margin of wetland areas on the mainland, on the back side of barrier islands, and onto spoil banks. In addition, wetlands are being affected by human activities including canal dredging, impoundments, and accelerated subsidence caused by fluid withdrawals. The magnitudes of these wetland acreage changes in most of Texas have not been determined at the present time. In the Freeport, Texas area, along the Louisiana border, wetlands loss is occurring at rates similar to those occurring in adjacent parts of the Louisiana Chenier Plain.

Offshore sea grasses are not conspicuous in the Central and Western Gulf; however, fairly extensive beds may be found in estuarine areas behind the barrier islands throughout the Gulf. Sea grasses would be continuous around the entire periphery of the Gulf if it were not for the adverse effects of turbidity and low salinity of the Mississippi effluent from the delta to Galveston. In general, the vast majority of the benthos of the Central and Western Gulf consists of soft, muddy bottom dominated by polychaetes. Benthic habitats that are at the most risk to potential impacts from oil and gas operations are those of the topographic features, and the pinnacle trend live bottom.

The northeastern portion of the Central Gulf of Mexico exhibits a region of topographic relief, the "pinnacle trend," found at the outer edge of the Mississippi-Alabama shelf between the Mississippi River and DeSoto Canyon. The pinnacles appear to be carbonate reefal structures in an intermediate stage between growth and fossilization. The region contains a variety of features from low to major pinnacles, as well as ridges, scraps, and relict patch reefs. The heavily indurated pinnacles provide a surprising amount of surface area for the growth of sessile invertebrates and attract large numbers of fish.

With the exception of the region defined as the pinnacle-trend areas, the substrate in

waters shallower than 67 m of the Central Gulf is a mixture of mud and/or sand. The live-bottom surveys required by MMS and conducted in the eastern portions of the area have also revealed sand or mud substrate. These areas are not conducive to "live-bottom" community growth since a hard substrate is needed for epifaunal attachment. As the substrate grades to carbonate sand in the Eastern Gulf, the potential for "live-bottoms" increases.

Chemosynthetic clams, mussels, and tube worms similar to the hydrothermal vent communities of the eastern Pacific have been discovered in the deep waters of the Gulf. These col-water communities are primarily associated with seismic wipe-out zones and hydrocarbon and H_2S seep areas in water depths greater than 400 m. Chemosynthetic communities have been a source of controversy over the past few years, in part because of the unusual environmental requirements and hypothesized sensitivity of the communities to oil and gas activities. The MMS requires site-specific surveys of bottom-disturbing actions in water depths greater than 400 m in order to judge the potential of the region for supporting chemosynthetic organisms.

The shelf and shelf edge of the Central and Western Gulf are characterized by topographic features which are inhabited by benthic communities. The habitat created by the topographic features is important because they support hard-bottom communities of high biomass, high diversity, and high numbers of plant and animal species; they support, either as shelter, food, or both, large numbers of commercially and recreationally important fishes; they are unique to the extent that they are small isolated areas of communities in the vast Gulf of Mexico; they provide a relatively pristine area suitable for scientific research; and they have an aesthetically attractive intrinsic value.

Seven distinct biotic zones on the banks of the Gulf have been identified. None of the banks contain all of the seven zones. The zones are divided into four categories dependent upon the degree of reef-building activity in each zone. The Central Gulf of Mexico lists 16 topographic features and the western Gulf of Mexico lists 23 topographic features. None of those listed are in or near the vicinity of the proposed operations in Vermilion Block 90 or Vermilion Block 93.

F. PIPELINES AND CABLES

As a prudent operator, Chieftain International (U.S.) Inc. will conduct its operations in accordance with the provisions specified in Minerals Management Service Notice to Lessees 83-03 in order to avoid all pipelines and/or cables in the vicinity of the proposed operations.

G. OTHER MINERAL USES

The activities proposed for Vermilion Blocks 90 and 93 will have no direct or indirect impact on other mineral uses.

H. OCEAN DUMPING

The Marine Pollution Research and Control Act of 1987 implements Annex V of the International Convention for the Prevention of Pollution from Ships. Most of the law's regulatory provisions became effective on December 31, 1988. Under provisions of the law, all ships and watercraft, including all commercial and recreational fishing vessels, are prohibited from dumping plastics at sea. The law also severely restricts the legality of dumping other vessel-generated garbage and solid waste items both at sea and in U.S. navigable waters. The USCG is responsible for enforcing the provisions of this law and has developed final rules for its implementation, calling for adequate trash reception facilities at all ports, docks, marinas, and boat launching facilities.

Interim final rules published May 2, 1990 explicitly stated that fixed and floating platforms and all drilling rigs, manned production platforms and support vessels operating under a Federal oil and gas lease are required to develop Waste Management Plans and to post placards reflecting MARPOL, Annex V dumping restrictions. Waste Management Plans will require oil and gas operators to describe procedures for collection, processing, storing, and discharging garbage and to designate the person who is in charge of carrying out the plan. These rules ships of 40 feet or more in length that are documented under the laws of the U.S. or numbered by a State and that are equipped with a galley and berthing. Placards noting discharge limitations and restrictions, as well as penalties for noncompliance, apply to all boats and ships 26 feet or more in length. Furthermore, the Shore Protection Act of 1988 requires ships transporting garbage and refuse to assure that the garbage and refuse is properly contained on board so that it will not be lost in the water from inclement wind or water conditions.

The disposal of oil and gas operational wastes is managed by US EPA through regulations established under three Federal Acts. The Resource Conservation and Recovery Act (RCRA) provides a framework for the safe disposal of discarded materials, regulating the management of solid and hazardous wastes. The US EPA has exempted many oil and gas wastes from coverage under hazardous wastes regulations under Subtitle C of RCRA. If covered, such wastes would be more stringently regulated under hazardous waste rules; i.e., industry would be responsible for the wastes from their generation to their final disposal. Exempt wastes include those generally coming from an activity directly associated with the drilling, production, or processing

of a hydrocarbon product. Nonexempt oil and gas wastes include those not unique to the oil and gas industry and used in the maintenance of equipment.

The direct disposal of operational wastes into offshore waters is limited by US EPA under the authority of the Clean Water Act., and when injected underground, oil and gas operational wastes are regulated by US EPA's third program, the Underground Injection Control program.

A general NPDES permit, based on effluent limitation guidelines, is required for direct disposal of operational wastes into offshore waters. The major discharges from offshore oil and gas exploration and production activities include produced water, drilling fluids and cuttings, ballast water, and storage displacement water. Minor discharges from the offshore oil and gas industry include drilling-waste chemicals, fracturing and acidizing fluids, and well completion and workover fluids; and from production operations, deck drainage, and miscellaneous well fluids (cement, BOP fluid); and other sanitary and domestic wastes, gas and oil processing wastes, and miscellaneous discharges. Produced sand is no longer allowed to be discharged under NPDES General Permit GMG 290000.

I. ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT

Twenty-nine species of cetaceans, one sirenian, and one exotic pinniped (California sea lion) have been sighted in the northern Gulf of Mexico. Seven species of baleen whales have been reported in the Gulf of Mexico. These include the northern right whale and six species of balaenopterid whales (blue, fin, sei, Bryde's, minke, and humpback). Sightings and strandings of these species in this area are uncommon; however, historical sightings and strandings census data suggest that they more often frequent the north-central Gulf region in comparison to the other areas of the Gulf. Twenty-two species of toothed whales and dolphins have been reported in the Gulf of Mexico. These include the great sperm whale, pygmy and dwarf sperm whales, four species of beaked whales (Cuvier's, Gervais', Blainville's and Sowerby's), killer whale, false and pygmy killer whale, short-finned pilot whale, grampus (Risso's dolphin), melon-headed whale, and nine other species of delphinid dolphins (bottlenose, Atlantic spotted, pantropical spotted, spinner, clymene, striped, common, Fraser's and rough-toothed). Many of these species are distributed in warm temperate to tropical waters throughout the world.

Five species of baleen whales (northern right, blue, fin, sei and humpback) and one species of toothed whale (great sperm whale) found within the Gulf of Mexico are currently listed as endangered species under the provisions of the Endangered Species

Act of 1973. All are uncommon to rare in the Gulf except for the great sperm whale.

The Alabama, Choctawhatchee, and Perdido Key beach mice, subspecies of the old field mouse, occupy restricted habitats in the mature coastal dunes of Florida and Alabama. The beach mice feed nocturnally on the lee side of the dunes and remain in burrows during the day. Their diet consists mainly of beach grass and sea oats.

The green turtle population in the Gulf once supported a commercial harvest in Texas and Florida, but the population has not completely recovered since the collapse of the fishery around the turn of the century. Green turtles prefer depths of less than 20m, where sea grasses and algae are plentiful. Leatherbacks, the largest and most oceanic of the marine turtles, seasonally enter coastal and estuarine habitats where jellyfish are plentiful. Their nesting is concentrated on coarse-grain beaches in the tropical latitudes. The hawksbill is the lease commonly reported marine turtle in the Gulf. Stranded turtles are regularly reported in Texas and, recently in Louisiana, these tend to be either hatchlings or yearlings. The Kemp's ridley sea turtle is the most imperiled of the world's marine turtles. Nesting primarily occurs on a stretch of beach in Rancho Nuevo, Vera Cruz, Mexico. Nesting in the United States occurs infrequently on Padre and Mustang Islands in south Texas from May to August. In the Gulf Kemp's ridleys appear to inhabit near shore areas and congregations of Kemp's have been recorded off the mouth of the Mississippi River. The loggerhead sea turtle occurs worldwide in habitats ranging from estuaries to the continental shelf. In the Gulf of Mexico, recent surveys indicate that the Florida Panhandle accounts for approximately one-third of the nesting on the Florida Gulf Coast. In the Central Gulf, loggerhead nesting has been reported on Gulf Shores and Dauphin Island, Alabama, Ship Island, Mississippi, and the Chandeleur Islands, Louisiana. The banks off of the central Louisiana coast and near the Mississippi Delta are also important marine turtle feeding areas. Hatchlings have a pelagic phase followed by movement inshore.

The offshore waters, coastal beaches, and contiguous wetlands of the northern Gulf of Mexico are populated by both resident and migratory species of coastal and marine birds. They are herein separated into five major groups: seabirds, shorebirds, wading birds, marsh birds, and waterfowl. Many species are strongly pelagic, and therefore rarely seen from shore. The remaining species, which are most susceptible to potential deleterious effects resulting from OCS-related activities, are found within coastal and inshore habitats. Recent surveys indicate that Louisiana and Texas are among the most important states in the south and southeastern U.S. in terms of nesting colony sites and total number of nesting coastal and marine birds. Fidelity to these nesting sites varies from year to year along the Gulf Coast, with site abandonment along the northern Gulf Coast often attributed to habitat alteration and excessive human disturbance. Feeding

habitats include the waters and coastal shores of the open Gulf, bays and estuaries, brackish and freshwater wetlands, as well as coastal farmlands and landfills.

The following coastal and marine bird species, which inhabit or frequent the north-central and western Gulf of Mexico coastal areas, are recognized by the FWS as either endangered or threatened: piping plover, whooping crane, eskimo curlew, bald eagle, peregrine falcon, eastern brown pelican, and interior least term.

The piping plover is a distinctive ringed plover of central and eastern North America. It nests on sandy beaches along coasts or inland lakeshores, preferring areas with scant vegetation and cover. Uncontrolled hunting in the early 1900's brought the species close to extinction. Its historic populations have remained depressed because of losses to their specific nesting and wintering habitat requirements. Preliminary information indicates that Texas is the most important wintering area, in the extensive sand flats of Laguna Madre and sand flats associated with barrier island passes and river mouths. In Louisiana, barrier islands appear to provide the most suitable habitat. Unfortunately, some of these sites are experiencing dramatic rates of land loss via erosion.

Wild whopping cranes presently occur in two migratory populations. The first nests in Canada and migrates to wintering grounds along the Texas coast on salt flats and islands in and around Aransas National Wildlife Refuge (ANWR). The second population was established in southeastern Idaho. Results from the 1991 winter census indicated only 132 whooping cranes in the peak ANWR population, representing a drop in the previous year's census of 146 birds (USDOI, FWS, 1992). Cranes feed during the winter months on a wide variety of foods gathered from the coastal environment.

The bald eagle is the only species of sea eagle regularly occurring on the North American continent. The bulk of the bald eagle's diet is fish, combined with opportunistic capture of a variety of vertebrate species. The bald eagle requires a large area for hunting and is sensitive to chemical contaminants in the food chain. The historical nesting range of the bald eagle in the southeast U.S. included the entire coastal plain and along major rivers and lakes.

The peregrine falcon of North America has been separated into three subspecies: the Arctic peregrine, American peregrine, and Peale's peregrine. The Arctic peregrine nests in tundra areas of North American and Greenland, and migrates south to the Gulf Coast, West Indies, and Central and South America. Coastal areas along the Gulf Coast are well known as foci for migrant peregrines, where beaches, flats, and wetlands are used for hunting and resting.

The eastern brown pelican is a colonial nesting species that feeds entirely upon fishes captured by plunge diving in coastal waters. It rarely ventures beyond 20 miles from the coast. A severe reduction in its population occurred during the late 1950's and is attributed to the toxic effects of DDT. Subsequent to the 1972 U.S. ban on the use of DDT, there has been a marked increase in populations of the brown pelican along its entire former range.

The least tern is the smallest North American tern. Populations occurring within the Mississippi basin have been eliminated as a result of destruction and alteration of nesting habitat along the Mississippi River and its tributaries. Least terns are the only nesting tern species in Louisiana to use mainland beaches, and they will use human made and managed spoil sites as well.

J. SOCIOECONOMIC

In relation to oil and gas activity in the Gulf of Mexico, the exploration and production of crude oil and gas is classified as a primary industry. Classified as secondary industries are activities associated with the processing of crude oil and gas in refineries, natural gas plants, and petrochemical plants.

The production of OCS oil and gas, particularly offshore Louisiana, has been a major source of revenue in the study area since 1954. Data from the 1988 Census show that the average annual payroll associated with oil and gas activities amounts to approximately $1.7 billion for the Gulf of Mexico Region ($1.4 billion for the Central Gulf and $0.3 billion for the Western Gulf). Average annual tax dollars generated per employee in the offshore oil and gas program are estimated at 8% of payroll revenues. Thus, State and local taxes generated annually by the Federal Offshore oil and gas program are estimated at $114.9 million from the Central Gulf and $20.9 million from the Western Gulf.

Job estimates as of December 1992 show that 31,800 jobs are directly or indirectly dependent on the offshore program. Approximately 84% of these jobs are associated with activity in the Central Gulf and 16% are related to the Western Gulf. Nearly all offshore related employment in the Central Gulf is due to activity offshore Louisiana. In addition, offshore activity in other areas of the Gulf also generates employment in Louisiana. Estimates of direct employment offshore are 26,600 workers in the Central Gulf, and 5,200 workers in the Western Gulf.

The offshore oil exploration industry including oil companies, drilling contractors, and oilfield suppliers provide a major input to Louisiana's economy. A number of ports in

the Central and Western Gulf have developed into important centers for offshore support. The most active of these in Louisiana are (from east to west) Venice, Morgan City, Intracoastal City, and Cameron, Louisiana. The onshore support base for Chieftain International (U.S.), Inc.'s operations in Vermilion Blocks 90 and 93 (OCS-G 1511172 and OCS-G 14401) is the Baroid Dock in Fresh Water City, Louisiana.

III. UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

A. WATER QUALITY

Routine operational discharges (drilling muds and cuttings, produced waters, deck drainage, and sanitary and domestic wastes) or accidental spills may temporarily degrade some measures of water quality adjacent to the proposed surface location. However, these impacts decrease to very low with distance from the source. Therefore, the impact from these factors is considered to be low.

B. EFFECTS ON MARINE ORGANISMS

Some organisms will be killed and some will be temporarily functionally impaired as a result of operational discharges. The most affected groups will be plankton and benthos immediately around the proposed surface locations. Damage will be both mechanical and toxicological. These communities are widespread throughout the deep-water areas of the Gulf. These impacts are considered to be localized, short term and reversible at the population level.

An oil spill could affect a broad spectrum of marine organisms. However, most effects would be localized and short term. Any effects on mammals and turtles would be significant.

C. EFFECTS ON THREATENED OR ENDANGERED SPECIES

Activities resulting from the proposed action have a potential to cause detrimental effects on endangered cetaceans. These cetaceans could be impacted by operational discharges, helicopter and vessel traffic, platform noise, explosive platform removals, seismic surveys, oil spills, and oil-spill response activities. The effects of the majority of these activities are estimated to be sublethal, and expected impact levels range from low to very low. Sale-related oil spills of any size are expected to seldom contact endangered and threatened cetaceans.

Activities resulting from the proposed action have a potential to affect Alabama, Choctawhatchee, and Perdido Key beach mice detrimentally; however, due to the location of the block, the potential for spills or related activities impacting their habitat is minimal.

Activities resulting from the proposed action have a potential to affect marine turtles detrimentally. Marine turtles could be impacted by anchoring, structure installation, pipeline placement, dredging, blowouts, operational discharges, OCS-related trash and debris, vessel traffic, explosive platform removals, oil-spill response activities, oil spills, and habitat and water quality degradation. The effects of the majority of these activities are expected to be sublethal. Sale-related oil spills of any size are seldom expected to contact marine turtles.

Activities resulting from the proposed action have the potential to affect Central Gulf coastal and marine birds detrimentally. It is expected that the effects from the major impact-producing factors on coastal and marine birds are negligible and of nominal occurrence. As a result, there will be no discernible disturbance of Gulf coastal and marine birds.

The brown pelican, Arctic peregrine falcon, bald eagle, piping plover, and least tern may be impacted by helicopter and service-vessel traffic, offshore pipeline landfalls, entanglement in and ingestion of offshore oil and gas related plastic debris, and oil spills. The effects of these activities are expected to be sublethal. Sale-related oil spills of any size are expected to seldom contact threatened and endangered birds or their critical feeding, resting, or nesting habitats.

The Gulf sturgeon can be impacted by oil spills resulting from the proposed action. The impact is expected to result in sublethal effects and cause short-term physiological or behavioral changes.

D. WETLANDS AND BEACH

The major impact-producing factors associated with the proposed action that could affect barrier beaches include oil spills, pipeline emplacements, navigation canal dredging and maintenance dredging, and support infrastructure (pipeline landfalls, navigation channels, service bases, platform yards, etc.) Are not expected to occur, because no new infrastructure construction is anticipated as a result of the proposed action. Although some maintenance dredging is expected to occur, this activity has not been shown to have a negative impact on barriers, and the need for dredging cannot be attributed to the small percentage of vessel traffic in these channels.

Deepening of the channel to Port Fourchon is not expected to affect nearby barrier features.

The proposed activity is not expected to result in permanent alterations of barrier beach configurations, except in localized areas downdrift from navigation channels that have been dredged and deepened. Strategic placement of dredged material resulting from these actions can mitigate adverse impacts upon those localized areas.

Wetlands include forested wetlands (bottomland and swamp), tidal marshes, and seagrasses. Swamps and marshes occur throughout the coastal zone. Seagrasses are restricted in distribution to small areas behind barrier islands in Mississippi and Chandeleur Sounds. Impact-producing factors resulting from OCS oil and gas activities that could adversely affect wetlands include oil spills, pipeline construction and remaining canals, dredging of new navigation channels, maintenance dredging and vessel usage of existing navigation channels, and construction and maintenance of onshore facilities in wetland areas.

The proposed activity is expected to result in a small amount of dieback and mortality of wetlands vegetation as a result of contacts from oil spills. Most of these wetlands will recover within 10 years and the remaining will be converted to open water. Some wetlands are projected to be eroded along channel margins as a result of OCS vessel wake erosion, and some wetlands are projected to be created as a result of beneficial disposal of dredged material from channel-deepening projects.

E. AIR QUALITY

The potential degrading effects on air quality from onshore and offshore operational activities are platform emissions; drilling activities during exploration, delineation and development; service vessel operations; evaporation of volatile hydrocarbons from surface oil slicks; and fugitive emissions during hydrocarbon venting and offloading.

Emissions of pollutants in the atmosphere for these activities are likely to have minimum impact on offshore air quality because of prevailing atmospheric conditions, emissions from OCS activities is estimated to be negligible because of the atmospheric regime, the emission rates, and distance of these emissions from the coastline. The above discussion is based on average conditions; however, there will be days of low mixing heights and wind speeds that could increase impact levels. These conditions are characterized by fog formation, which in the Gulf occurs 35 days a year, mostly during winter. Impact from these conditions is reduced in winter because the onshore winds have the smallest frequency (37%) and rain removal is greatest. Summer is the worst

time, with onshore winds having a frequency of 61%. Emissions of pollutants into the atmosphere are expected to have concentrations that would not change the onshore air quality classifications.

F. COMMERCIAL FISHING

The major impact producing factors on fishing activities from the proposed operations are coastal environmental degradation, structure placement, oil spills, production platform removals, seismic surveys, subsurface blowouts, pipeline trenching, and OCS discharges of drilling muds, produced waters and NORM, and underwater OCS obstructions.

The effects on and the extent of damage from an oil spill to Gulf commercial fisheries is restricted by time and location. Oil spills that contact coastal bays, estuaries, and waters of the OCS when high concentrations of pelagic eggs and larvae are present have the greatest potential to damage commercial fishery resources. Migratory species, such as mackerel, cobia, and crevalle could be impacted if oil spills contact near shore open waters. An oil spill contacting a low-energy inshore area would affect localized populations of commercial fishery resources such as menhaden, shrimp, and blue crabs. Chronic oiling in an inshore area would affect all life stages of a localized population of a sessile fishery resource such as oysters.

The emplacement of a structure, with a surrounding 100 m navigational safety zone, in water depths less than 152 m, results in the loss of approximately 6 ha of bottom trawling area to commercial fishermen and causes space-use conflicts. Gear conflicts from underwater OCS obstructions result in losses of trawl and shrimp catch, business downtime, and vessel damage.

Commercial fishery resources may also be affected by the discharge of drilling muds which may contain material toxic to marine fishes; however, this is only at concentrations four or five orders of magnitude higher than those found more than a few meters form the discharge point. Further dilution is extremely rapid in offshore waters.

The fate and effects of NORM from the discharge of produced water on seafood available for commercial harvest has become an issue of environmental concern. However, the likelihood of consuming seafood containing higher than normal radium for a sufficient period of time to present a risk is minimal. The prospect that NORM discharged in offshore produced water will affect commercial fishery species and subsequently increase man's intake of radium is virtually zero.

Activities resulting from the proposed action have the potential to cause detrimental effects to Central Gulf commercial fisheries. It is expected that the effects from the major impact-producing factors on commercial fisheries in the CPA are inconsequential and of nominal occurrence. As a result, there will be little discernible disturbance to Gulf commercial fisheries.

G. SHIP NAVIGATION

Very little interference can be expected between drilling/completion rig, platform, and vessels utilized during development operations and ships that use established fairways.

Approved aids to navigation will be installed on the drilling rig and all marine vessels servicing these operations in accordance with USCG regulations.

H. ARCHAEOLOGICAL RESOURCES

The greatest potential impact to an historic and/or prehistoric archaeological resource as a result of the proposed action would result from a contact between OCS offshore activity (platform installation, drilling rig emplacement, dredging or pipeline project) and a historic shipwreck.

The OCS activity could contact a shipwreck because of incomplete knowledge on the location of shipwrecks in the Gulf. Although this occurrence is not probable, such an event would result in the disturbance or destruction of important historic archaeological information. Other factors associated with the proposed action are not expected to affect historic archaeological resources.

The archaeological surveys required prior to an operator beginning oil and gas activities in a lease block are estimated to be 90% effective at identifying possible sites.

Minerals Management Service has advised in an LTL dated September 5, 1996 that an archaeological survey would be required for Leases OCS-G 15172 and OCS-G 14401, Vermilion Blocks 90 and 93. The shallow hazards survey conducted by KC Offshore, L.L.C. for Chieftain International (U.S.) Inc. satisfied this requirement. An interpretation of the survey data over Blocks 90 and 93 indicated no drilling hazards or significant cultural remains at the proposed surface locations.

Chieftain International, (U.S.), Inc., as a prudent operator, agrees that should any site, structure or object of historical or archaeological significance be discovered during drilling and exploration activities within these lease, such finds would immediately be

reported to the Director, Gulf of Mexico OCS Region, and every reasonable effort would be made to preserve and protect the archaeological resources from damage until said Director has given directions as to its preservation.

I. RECREATION AND AESTHETIC VALUES

The drilling rig and marine vessels may represent an obstacle to some sport fishermen, but such effect is expected to be negligible and not permanent.

Even though existing regulations and orders prohibit indiscriminate littering of the marine environment with trash, offshore oil and gas operations involving men, machines, equipment and supplies is bound to result in some littering of the ocean. Human nature and accidents associated with offshore operations will contribute some floatable debris to the ocean environment which will eventually come ashore on major recreational beaches.

The effects that normal operations or a minor oil spill would have on any fish stocks important to sport fishermen are also considered to be negligible.

A few oil spills greater than 1 and less than or equal to 50 bbls are assumed to affect portions of CPA beaches, with little disruption of recreational activities. Marine debris will be lost from time to time. However, the impact from resulting intermittent pollution wash-up on Louisiana and Texas beaches should be very low (less than 0.5%). Helicopter and vessel traffic will add very little additional noise pollution likely to affect wilderness beach users.

The proposed action is expected to result in minor pollution events and near shore operations that may adversely affect the enjoyment of some beach users on Texas and Louisiana beaches.

IV. SUMMARY

The proposed activity will be carried out and completed with the guarantee of the following items:

A. 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.

B. All operations are covered by a Minerals Management Service approved Oil

Spill Contingency Plan.

C. All applicable Federal, State, and Local requirements regarding air emissions, water quality, and discharge for the proposed activities, as well as any other permit conditions, will be complied with.

D. The proposed activities described in detail in the Initial Plan of Exploration will comply with Louisiana's Coastal Management Program and will be conducted in a manner consistent with such program.

BIBLIOGRAPHY

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2. U.S. Department of the Interior, Minerals Management Service, 1993. Gulf of Mexico Sales 147 and 150: Central and Western Planning Areas Final Environmental Impact Statement. Washington, D.C. OCS EIS/EA MMS 93-0065 Volumes I & II

3. U.S. Department of the Interior, Minerals Management Service, 1994. Gulf of Mexico Sales 152 and 155: Central and Western Planning Areas Final Environmental Impact Statement. Washington, D.C. OCS EIS/EA MMS 94-0058 Volumes I & II

4. U.S. Department of the Interior, Minerals Management Service, 1995. Gulf of Mexico Sales 157 and 161: Central and Western Planning Areas Final Environmental Impact Statement. Washington, D.C. OCS EIS/EA MMS 95-0017 Volumes I & II.

PLAN OF EXPLORATION

VERMILION AREA
BLOCKS 90 AND 93, OCS-G 15172 AND 14401

COASTAL ZONE MANAGEMENT CONSISTENCY
CERTIFICATION AND PUBLIC NOTICES

PLAN OF EXPLORATION

VERMILION AREA BLOCKS 90 AND 93
OCS-G 15172 AND 14401

COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION

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

Arrangements have been made with the *Advocate* in Baton Rouge, Louisiana to publish a Public Notice of the proposed activities no later than September 10, 1996. Additionally, arrangements have been made with the *Abbeville Meridonal* in Vermilion Parish to publish a Public Notice of the proposed activities no later than September 10, 1996.

Chieftain International (U.S.) Inc.
Lessee or Operator

Bill Theis
Certifying Official (Bill Theis)

August 23, 1996
Date

CHIEFTAIN
INTERNATIONAL (U.S.) INC.

VIA FACSIMILE #(504) 388-0164

August 23, 1996

The Advocate
LEGAL AD DEPARTMENT
P. O. Box 588
Baton Rouge, Louisiana 70821-0588

Attn: Vickie Thompson
Public Notices

RE: VERMILION AREA BLOCKS 90 AND 93, OCS-G 15172 AND 14401
PUBLIC NOTICE OF PROPOSED PLAN OF EXPLORATION

Ladies/Gentlemen:

Please publish the attached legal notice in the *Advocate* on or about September 10, 1996. Send the proof of publication and invoice to:

Chieftain International (U.S.) Inc.
Attention: Bill Theis
Plaza of the Americas, Suite 1000
LB 131. 600 North Pearl Street
Dallas, Texas 75201

Should you require any additional information, please contact me at (214) 754-7104.

Sincerely,

Bill Theis
Exploration Coordinator

Attachment

CHIEFTAIN
INTERNATIONAL (U.S.) INC.

VIA FACSIMILE #(318) 898-9022

August 23, 1996

Abbeville Meridonal
LEGAL NOTICE DEPARTMENT
318 N. Main Street
Abbeville, Louisiana 70511

Attn: Theresa Milliman
Public Notices

RE: VERMILION AREA BLOCKS 90 AND 93, OCS-G 15172 AND 14401
PUBLIC NOTICE OF PROPOSED PLAN OF EXPLORATION

Ladies/Gentlemen:

Please publish the attached legal notice in the *Meridonal* on or about September 10, 1996. Send the proof of publication and invoice to:

Chieftain International (U.S.) Inc.
Attention: Bill Theis
Plaza of the Americas, Suite 1000
LB 131, 600 North Pearl Street
Dallas, Texas 75201

Should you require any additional information, please contact me at (214) 754-7104.

Sincerely,

Bill Theis
Exploration Coordinator

Attachment

Public Notice of Federal Consistency Review of a Proposed Plan (POE) by the Coastal Management Division/Louisiana Department of Natural Resources for the Plan's Consistency with the Louisiana Coastal Resources Program

Applicant:	Chieftain International (U.S.) Inc. Plaza of the Americas Suite 1000, LB 131, 600 North Pearl Street Dallas, Texas 75201
Location:	Vermilion Area, Leases OCS-G 15172 and 14401 Blocks 90 and 93 Lease Offering Dates: June 30, 1995 and April 30, 1994
Description:	Proposed Plan of Exploration for the above area provides for the exploration for oil and gas. Exploration activities shall include drilling, completion and TA from a jack-up rig and transport of drilling crews and equipment by helicopter and/or cargo vessel from an onshore base located at Fresh Water City, Louisiana. No ecologically sensitive species or habitats are expected to be located near or affected by these activities.

A copy of the plan described above is available for inspection at the Coastal Management Division Office located on the 10th floor of the State Land and Natural Resources Bldg., 625 North 4th Street, Baton Rouge, Louisiana. Office hours: 8:00 a.m. to 5:00 p.m., Monday through Friday. The public is requested to submit comments to the coastal Management Division, Attention: OCS Plans, P.O. Box 4487, Baton Rouge, Louisiana 70804-4487. Comments must be received within 15 days of the date of this notice or 15 days after the Coastal Management Division obtains a coy of the plan and it is available for public inspection. This public notice is provided to meet the requirements of the NOAA Regulations on Federal Consistency with approved Coastal Management Programs.

PLAN OF EXPLORATION

VERMILION AREA
BLOCK 90 AND 93, OCS-G 15172 AND 14401

COMPANY CONTACT

CHIEFTAIN INTERNATIONAL (U.S.) INC.

COMPANY CONTACT:

Bill Theis
Plaza of the Americas
Suite 1000, LB 131, 600 N. Pearl Street
Dallas, Texas 75201

(214) 754-7104