UNITED STATES GOVERNMENT April 28, 2020
MEMORANDUM

To: Public Information
From: Plan Coordinator, OLP, Plans Section (GM235D)

Subject: Public Information Copy of Plan

Control # - N-10108

Type - Initial Exploration Plan

Lease(s) - OCS-G36755 - Block 45 Grand Isle Area

Operator - Contango Operators, Inc.

Description - Well and Well Protector No. 1

Attached is a copy of the subject plan.

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

Laura Christensen, Esq.
Plan Coordinator
Office of Leasing and Plans

PUBLIC INFORMATION COPY

March 3, 2020

INITIAL EXPLORATION PLAN

Contango Operators, Inc.

Lease Number:	Lease OCS-G 36755
Area Block:	Grand Isle Block 45
Prospect Name:	Iron Flea
Affected State:	Louisiana

Submitted by:	Contango Operators, Inc. 717 Texas Avenue, Suite 2900 Houston, TX 77002 Kyle Johns 713-276-7400 KJohns@contango.com

Estimated Start-up Date: May 1, 2020

AUTHORIZED REPRESENTATIVE:

Suzy Younger
Suzy Younger Regulatory, LLC
713-208-5588
suzy@suzyyoungerreg.com

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SECTION 1 - PLAN CONTENTS

A. Plan Information

Lease OCS-G 36755 was awarded to Juneau Oil & Gas, LLC in Lease Sale 253 with an effective date of December 1, 2019, and a lease term ending date of November 30, 2024. Contango Operators, Inc. was designated operator of the lease on March 3, 2020.

Under this Initial Exploration Plan, Contango Operators, Inc. proposes to drill, complete, test and temporarily abandon Well No. 1 and install a temporary caisson (Caisson No. 1). The proposed activities will be conducted in 106 feet of water. The well will be drilled and the caisson will be installed with a jackup Mobile Offshore Drilling Unit (MODU).

The WF 300 rig, which will be used for the operations proposed in this Plan does not include equipment with a potential for entanglement or entrapment (e.g., moon pool, flexible lines/ropes, or gear without turtle guards).

Pile driving will be conducted during drive pipe installation and temporary well protector caisson installation.

The details below describe the pile driving activities:

	Drive Pipe	**Temporary Well Protector Caisson**
Equipment	S-90 Hydraulic Hammer	IHC S-150 Hydraulic Hammer
Maximum Hammer Energy	66,400ft-lbs	110,000ft-lbs
Total Hammer Run Time	6 hrs	18 - 24 hrs
Material (piles)	+450' of 26" OD x ¾ WT pipe with an estimated 212' of penetration below mud line	14 Sections Total 329.9' of 72" OD 44.1' of 48" OD
Mitigation Measures	1.Utilize Mesotech 2. Dedicated personnel will continuously monitor a visual radius around the rig during pile driving operations	1.Utilize Mesotech 2. Dedicated personnel will continuously monitor a visual radius around the rig during pile driving operations

No pipelines are proposed in this Plan.

The OCS Plan Information Forms BOEM-137 are included as ***Attachment 1-1*****.**

B. Location

A Well Location Plat depicting the surface location and bottomhole location, measured depth, true vertical depth and water depth is included as ***Attachment 1-2.***

No anchors are associated with the activities proposed in this plan. A bathymetry map is included as ***Attachment 1-3.***

A schematic for a typical caisson is included as ***Attachment 1-4.***

C. Safety and Pollution Prevention Features

The offshore oil and gas industry considers safety its top priority and is committed to developing the technologies, standards and best practices, and programs needed to help ensure that workplace safety is at the front of our activities.

During the proposed exploratory operations, Contango will utilize a jackup type drilling rig. Rig specifications will be made part of the Application for Permit to Drill.

Safety features on the drilling unit will include well control, pollution prevention and blowout prevention equipment as described in 30 CFR 250 Subparts C, D, E, O, Q and S; and as further clarified by BSEE Notices to Lessees, and current policy making invoked by BSEE, Environmental Protection Agency (EPA) and USCG.

The rig will be equipped with safety and firefighting equipment required to comply with United States Coast Guard (USCG) regulations. Appropriate lifesaving equipment such as life rafts, life jackets, ring buoys, etc. as required by the USCG will be maintained on the rig at all times.

The OCS Lands Act authorizes and requires BSEE to provide for both an annual scheduled inspection and a periodic (unscheduled) inspection of all oil and gas operations on the outer continental shelf. The annual inspection examines all safety equipment designed to prevent blowouts, fires, spills or other major incidents.

D. Storage Tanks and Production Vessels

The table below provides storage tanks with capacity of 25 barrels or more that will store fuels, oil and lubricants.

Type of Storage Tank	Type of Facility	Tank Capacity	Number of Tanks	Total Capacity (bbl)	Fluid Gravity (API)
Fuel Oil	Jackup Drilling Rig	1084	2	2168	32.4°

E. Pollution Prevention Measures

These operations do not propose activities for which the State of Florida is an affected state.

F. Additional Measures

Contango does not propose any additional safety, pollution prevention or early spill detection measures beyond those required by 30 CFR 250 and 550.

G. Pay.Gov

A pay.gov receipt in the amount of $3673 is included as ***Attachment 1-5***.

U.S. Department of the Interior
Bureau of Ocean Energy Management

OMB Control Number: 1010-0151
OMB Approval Expires: 6/30/2021

OCS PLAN INFORMATION FORM

General Information

Type of OCS Plan:		Exploration Plan (EP)	Development Operations Coordination Document (DOCD)	
	X			

Company Name: Contango Operators, Inc.	BOEM Operator Number: 02503
Address:	Contact Person: Suzy Younger
717 Texas Avenue, Suite 2900	Phone Number: 713-208-5588
Houston, TX 77002	E-Mail Address: suzy@suzyyoungerreg.com

If a service fee is required under 30 CFR 550.125(a), provide the	Amount paid	$3673	Receipt No.	26NQGNFQ

Project and Worst Case Discharge (WCD) Information

Lease(s): OCS-G 36755	Area: GI	Block: 45	Project Name (If Applicable): Iron Flea

Objective(s)		Oil		Gas		Sulphur		Salt	Onshore Support Base(s): GIS Fourchon, LA / Galliano, LA
	X		X						

Platform/Well Name: #1	Total Volume of WCD: 2,077,314 bbls	API Gravity: 36°
Distance to Closest Land (Miles): 16.0	Volume from uncontrolled blowout: 45,159 BOPD	

Have you previously provided information to verify the calculations and assumptions for your WCD?		Yes	X	No
If so, provide the Control Number of the EP or DOCD with which this information was provided	N/A			
Do you propose to use new or unusual technology to conduct your activities?		Yes	X	No
Do you propose to use a vessel with anchors to install or modify a structure?		Yes	X	No
Do you propose any facility that will serve as a host facility for deepwater subsea development?		Yes	X	No

Description of Proposed Activities and Tentative Schedule (Mark all that apply)

Proposed Activity	Start Date	End Date	No. of Days
Drill, complete & test Well No. 1	05/01/20	07/12/20	73
Temporarily abandon Well No. 1 & install caisson	07/12/20	07/14/20	2

Description of Drilling Rig

X	Jackup		Drillship				
	Gorilla Jackup		Platform rig				
	Semisubmersible		Submersible				
	DP Semisubmersible		Other (Attach Description)				

Drilling Rig Name (If Known): Similar to WF 300

Description of Structure

X	Caisson		Tension leg platform				
	Fixed platform		Compliant tower				
	Spar		Guyed tower				
	Floating production system		Other (Attach Description)				

Description of Lease Term Pipelines

From (Facility/Area/Block)	To (Facility/Area/Block)	Diameter (Inches)	Length (Feet)
N/A			

Attachment 1-1

OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): No. 1					Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.	N/A			
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?							Yes	X	No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 16,846				For structures, volume of all storage and pipelines (Bbls): 0		API Gravity of fluid	36°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS OCS-G 36755	OCS	OCS OCS
Area Name	GI		
Block No.	45		
Blockline Departures (in feet)	N/S Departure: F___ L 964' FNL	N/S Departure: F___ L	N/S Departure: F___ L N/S Departure: F___ L N/S Departure: F___ L
	E/W Departure: F___ L 650' FWL	E/W Departure: F___ L	E/W Departure: F___ L E/W Departure: F___ L E/W Departure: F___ L
Lambert X-Y coordinates	X: 2,443,551.85	X:	X: X: X:
	Y: 110,781.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 57' 50.087" N	Latitude	Latitude Latitude Latitude
	Longitude 89° 56' 47.209" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 106'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:		N/A	

Anchor Locations for Drilling Rig or Construction Barge (If anchor radius supplied above, not necessary)

Anchor Name or No.	Area	Block	X Coordinate	Y Coordinate	Length of Anchor Chain on Seafloor
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	

OCS PLAN INFORMATION FORM (CONTINUED)

Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): No. 1					Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.	N/A			
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?							Yes	X	No

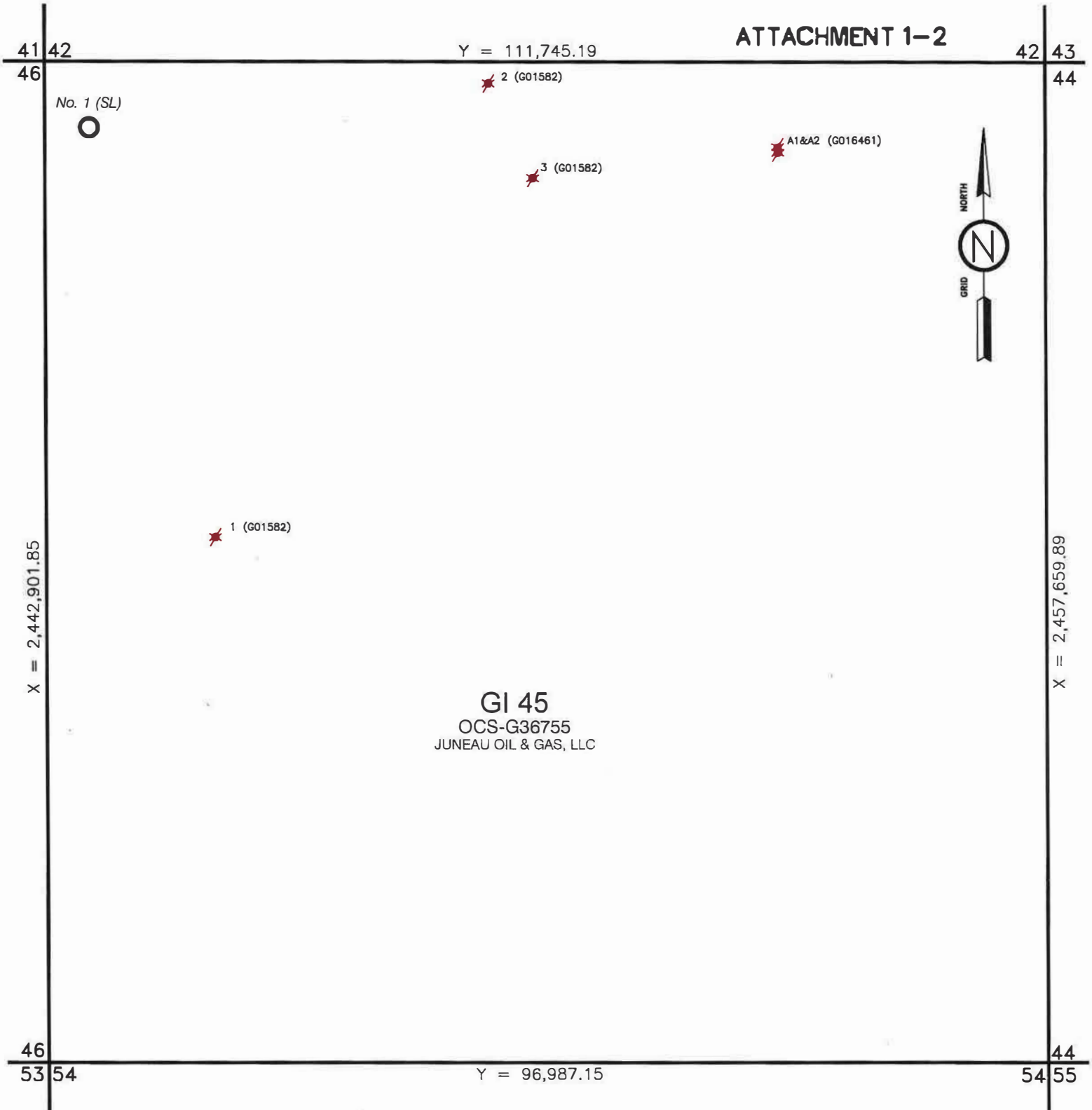
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 16,846	For structures, volume of all storage and pipelines (Bbls): 0	API Gravity of fluid: 36°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS OCS-G 36755	OCS	OCS OCS
Area Name	GI		
Block No.	45		
Blockline Departures (in feet)	N/S Departure: F____ L 964' FNL	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F____ L 650' FWL	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,443,551.85	X:	X: X: X:
	Y: 110,781.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 57' 50.087" N	Latitude	Latitude Latitude Latitude
	Longitude 89° 56' 47.209" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 106'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:		N/A	

Anchor Locations for Drilling Rig or Construction Barge (If anchor radius supplied above, not necessary)

Anchor Name or No.	Area	Block	X Coordinate	Y Coordinate	Length of Anchor Chain on Seafloor
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	
			X =	Y =	

ATTACHMENT 1-2



PROPOSED WELL LOCATION

LOCATION	BLOCK	CALLS		COORDINATES		LATITUDE	LONGITUDE	WD	MD	TVD
No. 1 (SL)	GI/45	650.00' FWL	964.19' FNL	X = 2,443,551.85	Y = 110,781.00	28° 57' 50.087"N	89° 56' 47.209"W	106'		

PUBLIC INFORMATION

Contango

Contango Operators, Inc.

Echo OFFSHORE LLC

36499 Perkins Road
Prairieville, Louisiana 70769
Tel: 225-673-2163

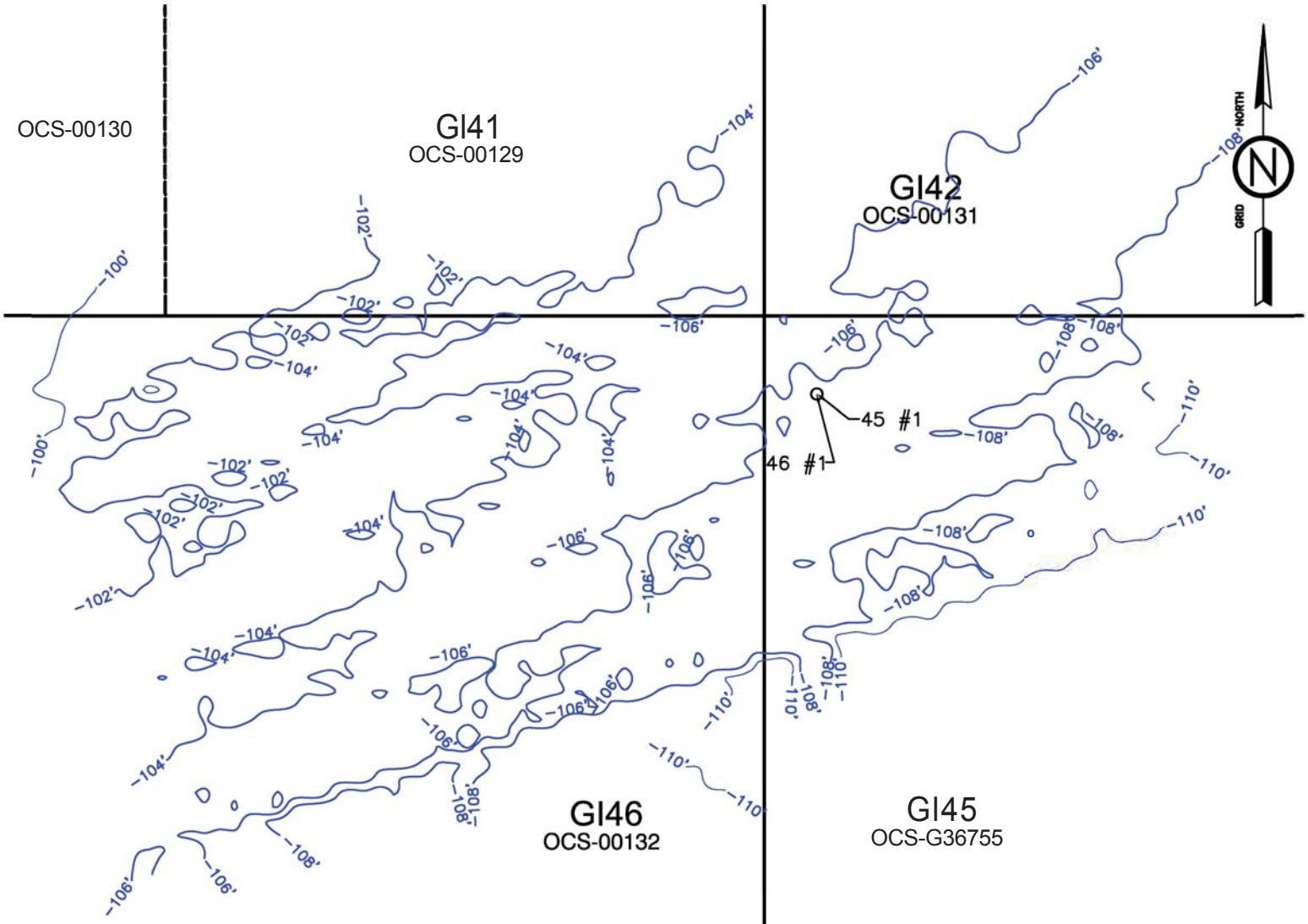
1,000 0 1,000 2,000
SCALE IN FEET

EXPLORATION PLAT

PROPOSED WELL NO. 1
OCS-G 36755 BLOCK 45
GRAND ISLE AREA

GULF OF MEXICO

DRAWN BY: RJN	CHK. BY.: MEK	REV. No.:	JOB No.: 19-065	DWG No.: 19-065-EXP45
DATUM: NAD 27	SPHEROID: CLARKE 1866	PROJECTION: LAMBERT	ZONE: LA SOUTH	DATE: 2-25-2020	REV. DATE:	SCALE: 1"=2,000'	SHEET 1 OF 1



WELL 46 #1
642.50' FWL
964. 19' FNL
X = 2,443,544.35
Y = 110,781.00
LAT. = 2a• 57' 50.088"N
LONG. = 99• 56' 47.293"W

WELL 45 #1
650.00' FWL
964. 19' FNL
X = 2,443,551.85
Y = 110,781.00
LAT. = 2a• 57' 50.087"N
LONG. = 89• 56' 47.209"W

Attachment 1-3

Contango Operators, Inc.

Echo)))
QFFSHORE
Prui= Tel: 225--873-2183

769

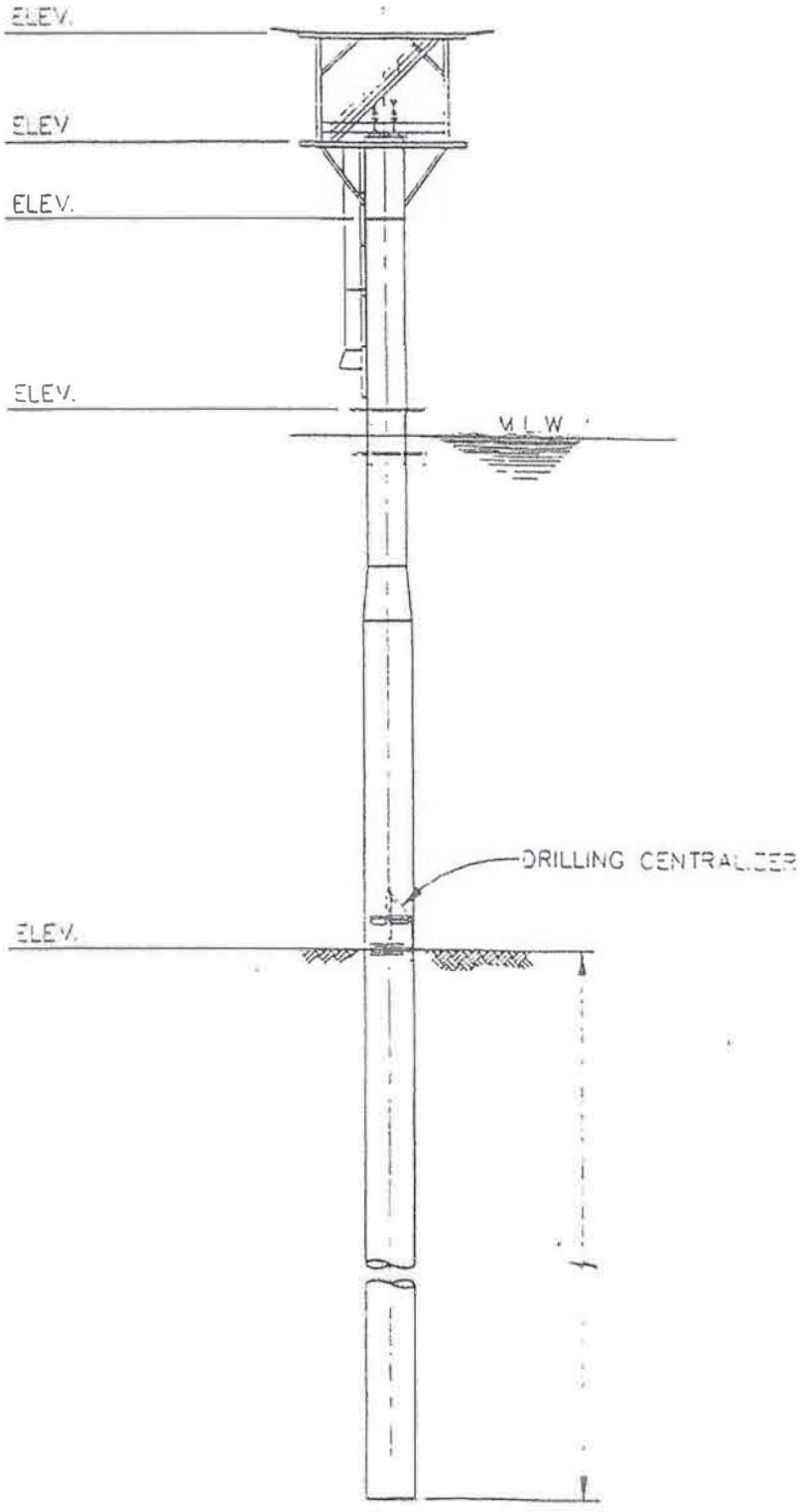
500 0 500 1,000
SCALE IN FEET

WELL ASSESSMENT
BATHYMETRY MAP
PROPOSED WELL NO. 1 OCS-G 36755 & WELL NO. 1 OCS-00132
BLOCKS 45 & 46
GRANO ISLE AREA
GULF OF MEXICO

DRA'IIN BY: RJN	CHK. BY.: MEK	REV. No.:	JOB No.: 19-065	DWG No.: 19-065-SM BAT
DATE: 2-24-2020	REV. DATE:		SCALE: 1•-2,000•	SHEET 1 OF 1

DAIUM: NAD 27	SPHEROID: CLARKE 1866	PROJECIION: LAMBERT	ZONE: LA SOUTH

TYPICAL WELL PROTECTOR CAISSON



ATTACHMENT 1-4

SECTION 2 - GENERAL INFORMATION

A. Applications and Permits

The following additional applications will be filed to conduct the operations proposed in this Plan.

Application / Permit	Issuing Agency	Status
Application for Permit to Drill	BSEE	To be submitted
Application for Permit to Modify	BSEE	To be submitted
Emergency Evacuation Plan	USCG	To be submitted
Temporary Caisson Application	BSEE	To be submitted
Nav-Aids Application	USCG	To be submitted

B. Drilling Fluids

Contango provides the types and estimated volumes of the drilling fluids that will be used to drill the well proposed in this Plan.

Type of Drilling Fluid	Estimated Volume of Drilling Fluid to be Used per Well (bbl)
Water-based (seawater, freshwater, barite)	4000
Oil-based (diesel, mineral oil)	N/A
Synthetic based (internal olefin, ester)	4000

C. New or Unusual Technology

Contango does not propose any new or unusual technology for the operations proposed in this Plan.

D. Bonding Statement

The bond requirements for the activities and facilities proposed in this Plan are satisfied by an Area Wide Exploration bond, furnished and maintained according to 30 CFR 556.900 (a) and 30 CFR 556.901 (a) and (b) and NTL No. 2015-BOEM N04, “General Financial Assurance”; and additional security under 30 CFR 556.901(d) – (f) and NTL No. 2016-BOEM-N01, “Requiring Additional Security” as required by BOEM.

E. Oil Spill Financial Responsibility (OSFR)

Contango Operators, Inc. (Company Number 02503) will demonstrate oil spill financial responsibility for the facilities proposed in this Plan according to 30 CFR 553.15 (a) an NTL No. 2008-N05, “Guidelines for Oil Spill Financial Responsibility for Covered Facilities”.

F. Deepwater Well Control Statement

Operations proposed in this plan are located in water depths less than 300 meters (984 feet); therefore, a deepwater well control statement is not provided.

G. Blowout Scenario and Worst Case Discharge Calculations

In accordance with the requirements outlines in NTL No. 2015-N01, “Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS for Worst Case Discharge and Blowout Scenarios”, the following information is provided:

The Worst Case Discharge is defined as an uncontrolled blowout through the drilling string during drilling operations.

Case 1. Well Bridging Over – It is anticipated that the severe drawdown resulting from a loss of well control will result in the hole bridging over in a matter of hours.

Case 2. Conventional Surface Intervention: It is assumed that a loss of well control from the surface will result in mobilizing 3rd party well control equipment to the rig. It is assumed that BOPs are compromised, that the rig has not caught fire and is capable of supporting well control efforts with the assistance of a support vessel. As an example, the intervention would consist of top killing the well with kill weight mud or possibly replacing the BOPs with another set to contain flow from the breached equipment.

Case 3. Relief Well Intervention: It is assumed that a rig is immediately available to mobilize to location to commence drilling a relief well. The mobilization and estimated time to drill the relief well is based on offset drilling performance curves.

Case 4. Relief Well Intervention: It is assumed that a rig is not immediately available to mobilize to location to commence drilling a relief well. The estimated time to mobilize a rig incorporates the suspension of activities of an Operator before the rig can be released for relief well operations. The time to drill the well is based on offset drilling performance curves.

Timeline for each worst case discharge scenario:

Case 1. Well Bridging Over: <1 day

Case 2. Conventional Surface Intervention

- Assess well condition 2 days
- Mobilize 3rd party equipment 2 days
- Contain discharge 10 days
- Total 14 days

Case 3. Relief Well Intervention (Rig Immediately Available)

- Assess well condition 2 days
- Mobilize rig 4 days
- Drill relief well 30 days
- Total 36 days

Case 4. Relief Well Intervention (Rig Not Immediately Available)

- Assess well condition 2 days
- Suspend current operations 10 days
- Mobilize rig 4 days
- Drill relief well 30 days
- Total 46 days

Estimated initial flow rate:
The calculated Worst Case Discharge estimate for Grand Isle Block 45, Well No. 1 is 16,846 bbls of crude with 36° gravity.

Case 4 Scenario	Maximum Discharge Rate (bbl/day)	Discharge Duration (days)	Total Volume Condensate/Crude (bbl)
Relief Well	45,159	46	2,077,314

Relief Well Rig Availability:
It is planned to drill the Grand Isle Block 45 No. 1 well using a jackup rig. The rig will be positioned for +/- 106 feet of water. There are 12 jackup rigs currently marketed in the Gulf of Mexico that are capable of drilling an open water relief well to the Grand Isle Block 45 location.

Contango does not anticipate any rig package constraints for this project.

Statement whether possibility of using nearby platform was considered:
There are no offset platforms in the area that would be capable of utilizing a platform rig to reach the bottom hole location of the wellbore.

Measures to enhance ability to prevent a blowout, to reduce the likelihood of a blowout, and to conduct effective and early intervention in event of a blowout:

Blowout Prevention:

- A Contango representative will witness and review all BOP tests, casing tests and formation integrity tests.
- A Contango representative in the office will review all FIT tests prior to moving forward with drilling operations.
- Prior to commencing cementing operations on any casing string, a minimum of 1-1/2 bottoms up will be circulated with drilling mud, so long as full returns are maintained, in order to enhance the ability of achieving a successful cement job.
- A liner top packer, in addition to cement, will be utilized in order to ensure the pressure integrity of the liner lap of any liner run in the well.
- All production casing strings will be centralized across hydrocarbon bearing zones in order to ensure the proper isolation of individual pay sands by cementation and to prevent the transmission of hydrocarbons up the annulus behind the production casing.
- The proposed well will be drilled on a mud weight schedule utilizing extensive offset data from offset wells in the field. Proposed drilling mud weights will allow for a minimum, the known hydrostatic pressures required to drill the known hydrocarbon zones encountered in the original development of the field.
- Lost circulation material in the form of properly distributed particle sized mud additives (PSDs) will be added to the mud system in the form of sweeps while drilling both the intermediate and production hole sections. PSD additives will be utilized to prevent uncontrolled mud losses in the case that lower than anticipated pore pressures or fracture gradients are encountered.

- Wiper trips will be performed as hole conditions dictate in order to quantify the stability of the wellbore and determine if sufficient mud weights are being utilized to prevent the influx of formation fluids, prevent swabbing of wellbore fluids to the formation.
- Connections will be simulated while drilling into pressure transition areas in order to properly assess the current wellbore conditions.
- Mudloggers may be utilized during the drilling of the well in order to specifically evaluate wellbore conditions including, but not limited to weights of returning drilling fluids as compared to that of the fluid entering the hole, gas content of mud returns, formation characteristics and abnormalities of cuttings and estimated paleo aging of cuttings.
- Logging while drilling (LWD) tools will be utilized to evaluate and estimate lithology, formation pressures and fluid content from surface casing point to wellbore total depth. This will enable the real time identification of any changes in anticipated formation pressures and assist in the picking of intermediate casing points and wellbore total depth, potentially eliminating the possibility of drilling into unexpected formations that could cause dangerous well control situations. Log data will be regularly provided to the office for evaluation.
- Pressure While Drilling (PWD) data will be utilized to ensure the stability of, and to maintain constant monitoring of hydrostatic pressures applied to the wellbore.

Blowout Intervention:
In the event of an uncontrolled flow of hydrocarbons from the Grand Isle Block 45, Well No. 1, Contango's Oil Spill Response Plan (OSRP) will be activated. In addition to the activation of this plan, two scenarios of well intervention have been described in the attached documentation and current availability of equipment to enact both well intervention scenarios identified:

- Assuming in an uncontrolled flow situation, the MODU is intact and not sufficiently damaged, along with the Grand Isle Block 45, Well No. 1 wellbore and surface equipment, wellbore intervention would be performed from the MODU itself, or a barge mobilized nearby. Master Service Agreements (MSAs) have been established with Cudd Pressure Control and Wild Well Control in order to expedite response in the case of an uncontrolled flow situation. As an example, flow could be controlled from either a "top kill" method or from the removal of the surface BOP stack and subsequent replacement of the stack and the wellbore shut-in.
- In the event that the MODU and/or the wellbore is irreparably damaged during a blowout scenario, wellbore intervention would be performed by contracting an additional MODU, mobilizing it to location and the subsequent spudding and drilling of a relief well. Contango currently has in place established contracts with all contractors that operate jackup rigs in the Gulf of Mexico. Such contracts would be utilized to expedite the contracting of a rig in order to drill a relief well.

In the case of an uncontrolled flow of hydrocarbons, Contango will simultaneously pursue multiple wellbore intervention methods in an attempt to mitigate and terminate the spill, until the wellbore is brought under control.

Additional measures:
No additional measures will be taken.

SECTION 3 - GEOLOGICAL AND GEOPHYSICAL INFORMATION

A. Geological Description
Proprietary Information

B. Structure Contour Map
Proprietary Information

C. Interpreted Seismic Line
Proprietary Information

D. Geological Structure Cross-Section
Proprietary Information

E. Shallow Hazards Report
Echo Offshore, LLC conducted a high-resolution geophysical investigation of Grand Isle Block 45 in February 2020. A copy of the report is included with this submittal.

F. Shallow Hazards Assessment
An assessment of seafloor and subsurface geological and manmade features and conditions that may adversely affect the proposed operations is included as ***Attachment 3-4***.

G. High Resolution Seismic Lines
Proprietary Information

H. Stratigraphic Column:
Proprietary Information

I. Time Versus Depth Tables
Proprietary Information

Echo OFFSHORE LLC

36499 Perkins Road
Prairieville, Louisiana 70769
Telephone: 225.673.2163
www.echo-offshore.net

February 24, 2020 Job No. 19-065-12

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

RE: Contango Operators, Inc.
Proposed Well No. '1' OCS-G 36755
Block 45, Grand Isle Area
Shallow Hazards and Archaeological Assessment

Contango Operators, Inc (Contango) in cooperation with Juneau Oil & Gas, LLC (Juneau) proposes to drill the referenced wells from the following surface location in Block 45, Grand Isle Area:

Datum: NAD 27	Spheroid: Clarke 1866	Projection: LAMBERT	Zone: LAS	Central Meridian: 91° 20' West
Latitude: 28° 57' 50.087" N			Longitude: 89° 56' 47.209" W	
X: 2,443,551.85			Y: 110,781.00	
FWL: 650.00'			FNL: 964.19'	

Contango/Juneau contracted Echo Offshore, LLC to conduct a high-resolution geophysical investigation covering portions of Blocks 45, 46, 41, and 42, Grand Isle Area. The fieldwork was performed between January 28 and February 3, 2020, using 50-meter & 300-meter primary grid spacing and 900-meter tie lines. A geohazard and archaeological assessment report was prepared that addresses the entire data set. This letter should be treated as supplemental to the full geophysical report. Contango in cooperation with Juneau Oil & Gas, LLC selected Echo Offshore to prepare this shallow hazard and archaeological assessment for the proposed drill site to comply with **NTL No. 2008-G05** and **NTL No. 2005-G07** from the Bureau of Ocean Energy Management (BOEM), Gulf of Mexico Region. Geophysical record copies are enclosed for the magnetometer, side scan sonar, subbottom profiler, echo sounder, and processed seismic sections from the transect line nearest the proposed well site as required by the BOEM in **NTL No. 2008-G04**.

- ***Water depth*** is approximately 106 feet surrounding the proposed surface location. The seafloor grades to the east/southeast across the area surrounding the well site at a rate of approximately 4.6 feet/mile.

- ***Seafloor sediments*** reportedly consist of silty clays (USDI MMS Visual No. 3, 1983), although subbottom records appear to indicate that surficial sediments are comprised predominately of silty sands.

- ***Seafloor installations*** are not located within 1,000 feet of the proposed well site. The closest infrastructure to the proposed surface location is the 12" GOM Shelf pipeline (Segment 630). The interpreted as-found location for this pipeline is approximately 2,753 feet to the NNW. See accompanying geophysical report for more details on positioning accuracy of as-found pipelines.

- ***Magnetic anomalies*** recorded within 1,000 feet of the proposed surface location include No. 28 (938 feet to the NW) and 19 (968 feet to the SSW). Neither of these anomalies have been recommended for avoidance as a possible hazard to operations or potential archaeological resources. The nearest anomaly designated for avoidance is no. 20, located over 1,102 feet SE of the proposed surface location. This anomaly is a 92 nT monopole with a 75-foot duration and has been designated for avoidance by 100 feet as a potential hazard and possible cultural resource pending additional investigation.

- ***Side scan sonar*** verified that the seafloor immediately surrounding the proposed well site was clear of protruding obstructions. The nearest sonar target is no. 4, located over 3,280 feet to the west. This target is an irregular object measuring approximately 9 feet x 4 feet with no measurable relief from the surrounding seafloor and has been recommended for avoidance by 50 feet as a potential hazard only. The target was not interpreted as a possible cultural resource.

- ***Subbottom data*** in the vicinity of the surface location resolved a moderately reflective seafloor underlain by approximately 2 feet of surficial sediments interpreted as silty sands (Unit A1). Below this is a unit of well laminated sediments interpreted as clays, silts, and sands (Unit A2). Unit A2 is approximately 14 feet thick at the proposed well location. Below, Unit A3 is interpreted as a slight easterly dipping section also comprised of clays, silts and sands. Unit A3 extends beyond the extents of the subbottom profiler data at around 60 feet BML. This unit appears to contain some channelized zones north, west, and northeast of the proposed well location. The closest instance of mapped channelized deposits is located approximately 450 feet NW of the proposed well site. This zone displays sharp, truncated margins and differential sediments within this zone are not expected to have an impact on rig stability at this distance, nor do they exhibit characteristics indicative of preserved prehistoric site potential.
  Processed seismic data (2.0 seconds) recorded approximately 1.4 seconds TWT (~5,000 feeet BSL) of usable subsurface data. Unit A exhibits a channelized continuous and semi continuous reflector character interpreted as locally channelized interbedded sands, clays, and silts. Within this sequence at approximately 429 feet BSL (323 feet BML) a better defined, less than 10 foot thick, sand interbed is interpreted that may induce minor drilling fluid circulation and wellbore stability problems. The base of Unit A is marked by a relatively well-defined reflector termed Horizon H10, occurring at 771 feet BSL (665 feet BML). Units B, C, and D were all

- interpreted as comprising clays and silts with several sands. The base of Unit B is marked by a relatively well-defined reflector, termed Horizon H20, occurring at 1,498 feet BSL (1,392 feet BML). Unit C exhibits a more discontinuous reflector character indictive of a complex mass transport package. At 2,105 feet BSL (1,999 BML) a change in acoustic character to more continuous lower amplitude reflectors marks an interpreted change to clays and silts with occasional sand interbeds. The based of Unit C is marked by a relatively well-defined reflector, termed Horizon H30, occurring at 2,677 feet BSL (2,571 feet BML). Horizon H30 has a slightly crenulated acoustic character and appears to mark a change to firmer lithology as acoustic penetration is reduced beneath this level. Unit D presents as a series of semi-continuous reflectors to the base of acoustic penetration at about 5,000 feet BSL. Anomalies indicative of shallow gas were identified in Units B, C, and D. The closest such anomaly is observed just below the level of Horizon H30 in Unit D around 256 feet south of the proposed well location at a depth of 2,673 feet BSL. This anomaly is classified as a Slight Risk of gas. Existing data for a well just outside of the project area (GC 46-1) indicated contact with a possible gas sand at 2,760 feet BSL, roughly corresponding with the depth of the observed anomaly. Although the proposed well does not overlie the anomaly, consideration should be given to this observation and an appropriate degree of drilling caution is advised at this level. No other drilling hazard or problems were interpreted within the 2DHR data set.

The operator has identified the primary hazards to rig movements, ancillary anchor and/or mooring deployments, and drilling. The proposed surface location will be marked with DGPS during rig moves and drilling to comply with the **BOEM On-Site Requirements** specified in **NTL No. 2008-G05, Section VI, Item B-2(a).** No sonar targets, magnetic anomalies, or other features on the geophysical data were recorded which were interpreted as possible shipwrecks, or possible high probability areas for prehistoric habitation within 1,000 feet of the proposed well location. Pursuant to 30 CFR 550.194 (c), 30 CFR 550.101 (c), and **NTL No. 2005-G07**, if any archaeological or potentially historically significant materials are observed during lease development, operations will immediately cease in that area and appropriate BOEM/BSEE personnel will be notified within 48 hours of discovery.

The operator and subcontractors will apply the safest and best available technologies during rig moves and drilling operations.

Sincerely,

Matt Keith
Geoscience Manager/Marine Archaeologist

Andrew Haigh
Marine Geophysicist

SECTION 4 - HYDROGEN SULFIDE (H_2S) INFORMATION

A. Concentration

Contango anticipates encountering zero (0) ppm H_2S during the proposed operations.

B. Classification

In accordance with Title 30 CFR 250.490 (c), Contango requests that the area of proposed operations be classified by BOEM as H_2S absent.

The justification for this request is based on the following wells which were drilled to the stratigraphic equivalent of the well proposed in this EP.

OCS-G No.	Area / Block / Well	API No.	MD
G 01582	GI 45 #1	17-717-20094-00	16,485’
G 01045	GI 45 #A-1	17-717-40394-70	14,504’
G 00130	GI 41 #H-4	17-717-40380-00	14,009’
G 00129	GI 41#H-6	179717-40983-01	14,451’

C. Modeling Report

Modeling reports are not required for the activities proposed in this EP.

SECTION 5 - BIOLOGICAL, PHYSICAL AND SOCIOECONOMIC INFORMATION

A. Deepwater Benthic Communities

Activities proposed in this EP are in water depths less than 300 meters (984 feet); therefore, submittal of report information outlined in attachment A of NTL No. 2009-G40, "Deepwater Benthic Communities," is not required.

B. Topographic Features (Banks)

Activities proposed in this EP do not fall within 305 meters (1000 feet) of a topographic "No Activity Zone"; therefore, no map is required per NTL No. 2009-G39, "Biologically Sensitive Underwater features and Areas."

C. Topographic Features Statement (shunting)

Activities proposed under this EP will be conducted outside all Topographic feature Protective Zones; therefore, shunting of drill cuttings and drilling fluids is not required per NTL No. 2009-G39, "Biologically Sensitive Underwater features and Areas."

D. Live bottom (Pinnacle Trend Features)

Grand Isle Block 45 is not located within 61 meters (200 feet) of any pinnacle trend feature; therefore, a separate bathymetric map is not required per NTL No. 2009-G39, "Biologically Sensitive Underwater Features and Areas."

E. Live bottoms (Low Relief)

Grand Isle Block 45 is not located within 61 meters (200 feet) of any live bottom (low relief) feature with vertical relief equal to or greater than 8 feet; therefore, live bottom (low relief) maps are not required per NTL No. 2009-G39, "Biologically Sensitive Underwater Features and Areas."

F. Potentially Sensitive Biological Features Map

Grand Isle Block 45 is not located within 30 meters (100') of potentially sensitive biological features. In accordance with NTL No. 2009-G39, "Biologically Sensitive Underwater Features and Areas," biologically sensitive area maps are not required.

G. Threatened and Endangered Species Information

Under the implementing regulations (50 CFR 402), Federal agencies must review their actions and determine whether the action may affect federally listed and proposed species or proposed or designated critical habitat.

In accordance with 30 CFR 250, Subpart B and further outlined in Notice to Lessees (NTL) 2008-G04, the federally listed endangered and threatened species potentially occurring in the lease proposed in this Exploration plan are provided in the table below:

Listed Species	Scientific Name	Status	Critical Habitat
Marine Mammals			
Blue Whale	Balaenoptera masculus	Endangered[1]	None
Bryde's Whale	Balaenoptera brydei	Endangered	None
Fin Whale	Balaenoptera physalus	Endangered[1]	None
Sei Whale	Balaenoptera borealis	Threatened	None
Sperm Whale	Physeter macrocephalus	Endangered	None
West Indian Manatee	Trichechus manatus	Endangered	None
Birds			
Ploving Piper	Charadrius molodus	Endangered	Gulf Coast beaches from Florida to Mexico
Fish			
Gulf Sturgeon	Acipenser oxyrinchus desotoi	Threatened	Gulf Coast beaches from to Louisiana
Turtles			
Green Sea Turtle	Chelonia mydas	Threatened	None
Hawksbill Sea Turtle	Eretmochelys imbricata	Endangered	None
Kemp's Ridley Sea Turtle	Lepidochelys kempii	Endangered	None
Leatherback Sea Turtle	Dermochelys coriacea	Endangered	None
Loggerhead Sea Turtle	Caretta caretta	Threatened	Texas, Louisiana, Mississippi, Alabama and Florida
Corals			
Elkhorn Coral	A. Palmata	Threatened[2]	

1. The Blue and Sei Whales are rare in the Gulf of Mexico and are unlikely to be present in the lease areas.
2. The Elkhorn Coral has been recorded growing along the southern Florida peninsula and into the northern parts of the Gulf of Mexico.

H. Archaeological Report

In accordance with NTLs No. 2005-G07 and 2011-JOINT-G01, Grand Isle Block 45 is located within an area that BOEM / BSEE have designated as having the high probability for containing the presence of archaeological resources.

BOEM / BSEE provide protection of prehistoric and historic archaeological resources by requiring remote sensing surveys in areas designated to have a high probability for archaeological resources. Echo Offshore, LLC conducted a high-resolution geophysical investigation of Grand Isle Block 45 in February 2020. A copy of the archaeological report is included in this EP as ***Attachment 5-1***.

I. Air and Water Quality Information

Air and water quality information is not required to be included in this EP per NTL No. 2008-G04.

J. Socioeconomic Information

Socioeconomic information is not required to be included in this EP per NTL No. 2008-G04.

INTRODUCTION

Juneau Oil & Gas, LLC selected Echo Offshore, LLC to conduct a high-resolution geophysical investigation centered on a proposed well locations in Blocks 45 and 46, Grand Isle Area, offshore Louisiana. Geophysical coverage includes the northeastern portion of Block 46, the northwestern corner of Block 45, as well as the southeastern corner of Block 41 and the southwestern corner of Block 42. The project was designed to identify potential shallow hazards to lease development in compliance with NTL 2008-G05 and potential impacts to archaeological resources in compliance with NTL 2005-G07 published by the BOEM. The fieldwork was conducted from January 28 through February 3, 2020. Operations were conducted under BOME G&G Permit L19-049.

Project specifications, including datum, platform, operational parameters, and data processing, are detailed in the Shallow Hazards portion of this report; combined reports are submitted as per the *Paperwork Reduction Act* 1995.

Archaeological Background

The study area is located approximately 16 statute miles (14 nautical miles) south/southeast of Lafourche Parish, Louisiana. Blocks 41 and 42, Grand Isle area are not considered high probability blocks for the presence of historic shipwrecks, but Blocks 46 and 45, Grand Isle area are considered high probability blocks for the presence of historic shipwrecks. Although all of the blocks are not designated as high probability blocks for shipwreck potential, shipwrecks are inherently random acts and can therefore occur anywhere in the Gulf. All of the leases within the project area therefore require an archaeological assessment as per NTL 2011-JOINT-G01. Coastal charts and shipwreck files have been checked to supplement the geophysical interpretation.

Attachment 5-1

Prehistoric Assessment

The subbottom profiles have been reviewed for evidence of former landforms, which may have supported prehistoric human groups. Excavations of archaeological sites in areas of coastal Louisiana still exposed above sea level have demonstrated that prehistoric human groups of hunters and gatherers reached the northern coast of the Gulf of Mexico by at least 11,500 years ago when sea level was approximately 150 feet or 45 meters below the present high stand. The exposed portions of the continental shelf could have been inhabited by human immigrants to North America prior to the dramatic sea level transgression that characterized the early Holocene period.

According to Waters (1992:277) prehistoric archaeological sites are more likely to be preserved in areas where shoreline transgression was extremely rapid, decreasing the amount of time that the feature was in the high energy littoral zone, or where transgression occurred by in-place drowning. The most likely features to be preserved are those that were buried by prograding sediments, such as subaqueous delta lobes, prior to shoreline transgression and those located in topographic low points, including features within incised channels, which would have been sheltered from primary erosional processes during retrogradation (Waters 1992:278). Models indicate that the majority of archaeological sites from the late Pleistocene and early Holocene periods were associated with shorelines and riverbanks where exploitation of the widest variety of plant and animal species could have been accomplished with the least effort and highest degree of success.

Shipwreck Review

Territories along the Gulf Coast have had numerous cultural affiliations during over 500 years of European exploration and occupation. Juan Ponce de León led the earliest European expedition to explore the Gulf coast region, sailing along Florida's western Gulf

coast in 1513 (Weber, 1992). In 1519, Alvarez de Pineda sailed along the northern Gulf of Mexico before making landfall in coastal Mexico (Weber, 1992). The Spanish continued to explore the Gulf coast of Florida throughout the sixteenth-century. Their efforts moved from exploration to colonization early on, attempting to establish a colony at Pensacola in 1559 (Smith et al., 1998; Smith et al., 1999). Spain was the dominant European power in the Gulf coast region until the early eighteenth-century. In 1682, René-Robert Cavelier, Sieur de La Salle became the first European to discover the mouth of the Mississippi River. Subsequent attempts by La Salle and others to return to the delta and develop a fort followed, and in some cases resulted in shipwrecks in the northern Gulf of Mexico. A fort was founded at Mobile in 1702 by the French, who later founded the city of New Orleans in 1718. New Orleans was named the capital of the colony of Louisiana in 1722.

Spanish control of New Orleans, granted in 1762, only lasted until 1801, when the territory reverted back to the French. French control of New Orleans the second time was short lived, as Napoleon sold the territory to the United States in 1803. The United States gained control of Mobile from the Spanish during the War of 1812. During the nineteenth century, the ports of New Orleans and Mobile were the dominant ports on the Gulf coast primarily due to the burgeoning cotton industry in the American south. The region played an important role in both foreign and domestic conflicts during the nineteenth and twentieth centuries. The Civil War significantly influenced the history of both cities and the Gulf ports were active participants in World War II as major shipping ports, and were directly involved in conflict as German U-boats patrolled the Gulf of Mexico. The potential for shipwrecks from all of these time periods and cultural affiliations exists within this portion of the continental shelf (Table 1).

Periods	Vessel Type(s) & Affiliation(s)	Rationale
1500 – 1699: Coastal Exploration	Spanish sailing ships	Monopoly on Gulf coast exploration and colonization
1700 – 1819: Growth and Control of New Orleans	British, French, American sailing ships	Decline of Spanish influence, rise of French, English, and American interests
1820 – 1899: Technological Changes in Propulsion	Global trade (predominately American and European)	Rise of steam-powered and alternative-fuel vessels
1900 – 1939: Growth of Industry, Agriculture, and Tourism	Global trade (predominately American, European, South and Central American)	Rise of modern vessels and decline of sailing ships
1940 – 1945: World War II	Global trade	Addition of German U-boats and large capacity tankers as potential historic resources

Table 1. Historic Periods in the Gulf of Mexico (adapted from CEI 1977:18).

The BOEM shipwreck database does not contain any listings within the study area. Records within the general vicinity of the project area include:

- Unknown vessel, an unidentified fishing vessel with no available dimensions or date of loss reported NW of the study area. Location reliability: 1 (very reliable).
- Unknown vessel, an unidentified vessel with no available dimensions or date of loss reported west of the study area. Location reliability: 4 (unreliable).
- *J. R. Boyd*, a 30 gross ton, oil screw-propelled motor vessel built in 1952 and reportedly lost on November 17, 1961 WNW of the study area. Location reliability: 3 (fair to poor).

- Unknown vessel, an unidentified vessel with no available dimensions or date of loss reported north of the study location. Location reliability: 2 (good to moderate).
- Vessel Hull, half of a hull reported adrift on October 22, 1985 east of the study area. Location reliability: 4 (unreliable).
- *Aztec*, an 85-foot barge reportedly lost on January 21, 1983 south of the study area. Location reliability: 2 (good to moderate).
- *Gulf Master*, a 101-ton vessel reportedly lost in 1970 south of the study area. Location reliability: 3 (fair to poor).
- Unknown wreck, an unidentified vessel with no available dimensions or date of loss located during a geophysical investigation NE of the study area. Location reliability: 1 (very reliable).
- Probable wreck, a possible vessel located west of the study area during a previous geophysical survey with reported measurements of 131.9' x 38.56' with no measurable relief. Location reliability: 1 (very reliable).
- Possible wreck, a possible vessel located west of the study area during a previous geophysical survey with no available dimensions. Location reliability: 1 (very reliable).

INTERPRETATION AND ANALYSIS

Bathymetry & Seafloor Features

Water depths throughout the project area range from a minimum of 100 feet in the northwest to a maximum of 110 feet in the southeast. Average slope is approximately 4.6 feet/mile to the east/southeast. No macrobathymetric features were identified on the bathymetry records.

Seafloor ensonification of the study area reflects a medium reflective seafloor with numerous trawl scars (Appendix E: Figure 2). Schools of fish and possible seaweed stringers were observed in the water column, but this generally did not hinder interpretation (Appendix E: Figure 3).

The seafloor is heavily trawled in the area and natural features were not identified, or expected based on the geologic conditions in the area. A total of five (5) sidescan sonar contacts were identified within the study area. These are relatively small features and were primarily identified from the high resolution data set in the southern portion of the study area. All of the targets are interpreted as man-made debris. Targets 2 and 5 are slightly larger features with some observable morphology. The remaining targets are indistinct. Although the exact nature of the targets could not be ascertained based on available data, none of the targets are part of larger debris field and the majority do not exhibit characteristics consistent with an intact shipwreck site (such as ballast, wreck timbers, or obvious wreck components). Target No. 2 has distinct morphology that could be representative of a wreck site component. Due to the object's morphology, coupled with the associated magnetic anomaly, a recommended avoidance of 250 feet has been provided pending further investigation.

A total of 54 unidentified magnetic anomalies were identified from the magnetometer data within the project area which did not directly correspond to existing infrastructure. The identified magnetic anomalies were typically relatively small in duration and intensity. Magnetic anomaly No. 3 was identified in proximity to Sonar Target No. 2 and is likely related. Magnetic Anomalies 39, 40, and 41 were in relative proximity to Sonar Target No. 5, but their relatively small sizes coupled with the distance from the sonar contact indicate that they are likely not related.

A total of seven (7) of the magnetic anomalies (No. 3, 4, 5, 15, 20, 45, and 48) cannot be attributed to modern installations, or geologic features, and are of sufficient amplitude and duration to represent a significant ferrous source and therefore should be avoided pending further investigation. Although these anomalies likely represent modern debris, they could not be discounted as potential cultural resources based on available evidence and have therefore been recommended for avoidance pending further investigation.

All magnetic anomalies are plotted on the enclosed Bathymetry and Seafloor Features Map (Map 1); dimensions, locations, and recommended avoidances for each of the anomalies and sonar contact are provided in the following Archaeological Tables.

Subbottom Features

Subbottom profiler data was of good quality, with data penetration to around 70 feet below seafloor (Appendix E: Figure 5). Subbottom profiler depths are referenced to BML (Below mud line) and are based on an assumed 5,250 feet/second average velocity of sound in shallow sediments. Uppermost a thin superficial unit termed A1 blankets the whole site. This unit is interpreted from acoustic character to comprise Silty Sands. The base of Unit A1 is marked by a relatively well-defined reflector, termed H01. The thickness of Unit A1 varies from around 2 feet below seafloor in the east to around 1.5 feet below seafloor in the

west. Below, a further unit, termed Unit A2 is observed, characterized by sub-parallel continuous to semi-continuous reflectors. This unit is interpreted to comprise interbedded clays, silts and sands. The base of the unit is marked by a well-defined reflector marking an unconformity, termed Horizon H02. This reflector can be seen to vary from around 16 feet below seafloor in the east to around 11 feet in the west. Beneath a series of easterly dipping continuous and semi-continuous reflectors are observed, termed Unit A3. This unit appears to be slightly higher energy package interpreted at further interbedded clays, silts and sands, exhibiting some occasional channelization, presenting as localized pockets and cut and fill packages of acoustically featureless sediment, interpreted to be more clays or fine sands.

The upper margins of these channelized zones range in depth from 14 to 28 feet BSL and the bottoms of these zones range from 20 to 39 feet BSL deep. These channelized zones typically appear heavily eroded and are often truncated against the adjacent parallel bedded strata. No identifiable channel margins were observed. In most cases the zones are fairly shallow and consistent in thickness with no evidence of forsetting or a distinct thalweg.

Bernard (1970) reports Holocene sediments in this area to be between 125' and 150' thick, while McClelland Engineers (1979) report approximately 120 feet of recent sediments. Surficial deposits in this area are sourced from the Teche (5,500-3,800 YBP), St. Bernard (4,000-2,000 YBP), and later Lafourche (2,500-800 YBP) deltas of the Mississippi River. The project area lies within the extents of the Teche delta lobe. Based on sea-level curve data, underlying Pleistocene landforms in this area would date to at least 17,000 YBP, before known human occupation of this part of the world.

Based on available data, it is interpreted that the channelized zones were formed in

association with the transgression of the Teche delta lobe of the Mississippi River between 5,500 and 3,800 years before present. Although humans would have been present during this time-frame, no evidence of intact margins or other high probability paleo-landform indicators were identified in association with these features.

CONCLUSIONS AND ARCHAEOLOGICAL RECOMMENDATIONS

Five (5) sonar targets and 53 magnetic anomalies were recorded in the study area. Only Sonar Target No. 2 has been recommended for avoidance as a potential archaeological resource. Of the magnetic anomalies, seven (7) have been recommended for avoidance as possible cultural resources. Although channelized zones possibly related to the Teche delta lobe were identified throughout the study area, these features are heavily truncated/eroded and do not exhibit evidence of preserved margins or other features conducive to human settlement.

Not all culturally significant materials can be identified from geophysical data; therefore, in accordance with NTL 2005-G07 and 30 CFR 550.194(c) and 30 CFR 550.101(c), if during lease activities, materials or artifacts archaeological in nature are uncovered or observed, lease activity shall cease and the Regional Supervisor, Leasing and Environment, BOEM shall be contacted within 48 hours of discovery.

Matt Keith
Marine Archaeologist

TABLE 1. WASTES YOU WILL GENERATE, TREAT AND DOWNHOLE DISPOSE OR DISCHARGE TO THE GOM

please specify if the amount reported is a total or per well amount

Projected generated waste			Projected ocean discharges		Projected Downhole Disposal
Type of Waste and Composition	Composition	Projected Amount	Discharge rate	Discharge Method	Answer yes or no
Will drilling occur ? If yes, you should list muds and cuttings					
Water-based drilling fluid	barite, additives	4000 bbls/well	500 bbls/day/well	discharge overboard	No
Cuttings wetted with water-based fluid	water-based fluids	3100 bbls/well	300 bbls/day/well	discharge overboard	No
Cuttings wetted with synthetic-based fluid	Cuttings generated while using synthetic based drilling fluid.	1200 bbls/well	150 bbls/day/well	Shunt through downpipe	No
Brine	Brine	4,000 bbls total	<100 bbl/hr	discharge overboard	
Will humans be there? If yes, expect conventional waste					
Domestic waste (kitchen water, shower water)	grey water	30 gal/person/day	NA	Remove floating solids and discharge	No
Sanitary waste (toilet water)	treated sanitary waste	20 gal/person/day	NA	Chlorinate and discharge	No
Is there a deck? If yes, there will be Deck Drainage					
Deck Drainage	wash water and rainwater	1000 bbl (dependent on rainfall)	15 bbl/hr	discharge overboard	No
Will you conduct well treatment, completion, or workover?					
well treatment fluids	NA	NA	NA	NA	NA
well completion fluids	Calcium Chloride	600 bbls/well	100 bbls/hr (2 day per well)	NA	NA
workover fluids	NA	NA	NA	NA	NA
Miscellaneous discharges. If yes, only fill in those associated with your activity.					
Desalinization unit discharge	NA	NA	NA	NA	NA
Blowout prevent fluid	NA	NA	NA	NA	NA
Ballast water	NA	NA	NA	NA	NA
Bilge water	NA	NA	NA	NA	NA
Excess cement at seafloor	NA	NA	NA	NA	NA
Fire water	NA	NA	NA	NA	NA
Cooling water	NA	NA	NA	NA	NA
Will you produce hydrocarbons? If yes fill in for produced water.					
Produced water	formation water	None Discharged	NA	NA	NA

Will you be covered by an individual or general NPDES permit ?	**GENERAL PERMIT**	GMG 29013

Attachment 6-1

SECTION 4 - HYDROGEN SULFIDE (H_2S) INFORMATION

A. Concentration

Contango anticipates encountering zero (0) ppm H_2S during the proposed operations.

B. Classification

In accordance with Title 30 CFR 250.490 (c), Contango requests that the area of proposed operations be classified by BOEM as H_2S absent.

The justification for this request is based on the following wells which were drilled to the stratigraphic equivalent of the well proposed in this EP.

OCS-G No.	Area / Block / Well	API No.	MD
G 01582	GI 45 #1	17-717-20094-00	16,485’
G 01045	GI 45 #A-1	17-717-40394-70	14,504’
G 00130	GI 41 #H-4	17-717-40380-00	14,009’
G 00129	GI 41#H-6	179717-40983-01	14,451’

C. Modeling Report

Modeling reports are not required for the activities proposed in this EP.

OMB Control No. 1010-0151
OMB Approval Expires: 06/30/2021

EXPLORATION PLAN (EP)
AIR QUALITY SCREENING CHECKLIST

COMPANY	Contango Operators, Inc.
AREA	GI
BLOCK	45
LEASE	OCS G-36755
PLATFORM	N/A
WELL	1
COMPANY CONTACT	Suzy Younger
TELEPHONE NO.	713-208-5588
REMARKS	Drill, complete, test, install caisson & temporarily abandon GI 45 Well #1

EMISSIONS FACTORS

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

Equipment/Emission Factors	units	PM	SOx	NOx	VOC	CO	REF.	DATE
NG Turbines	gms/hp-hr		0.00247	1.3	0.01	0.83	AP42 3.2-1& 3.1-1	10/96
NG 2-cycle lean	gms/hp-hr		0.00185	10.9	0.43	1.5	AP42 3.2-1	10/96
NG 4-cycle lean	gms/hp-hr		0.00185	11.8	0.72	1.6	AP42 3.2-1	10/96
NG 4-cycle rich	gms/hp-hr		0.00185	10	0.14	8.6	AP42 3.2-1	10/96
Diesel Recip. < 600 hp.	gms/hp-hr	1	0.1835	14	1.12	3.03	AP42 3.3-1	10/96
Diesel Recip. > 600 hp.	gms/hp-hr	0.32	0.1835	11	0.33	2.4	AP42 3.4-1	10/96
Diesel Boiler	lbs/bbl	0.084	0.3025	0.84	0.008	0.21	AP42 1.3-12,14	9/98
NG Heaters/Boilers/Burners	lbs/mmscf	7.6	0.593	100	5.5	84	AP42 1.4-1, 14-2, & 14	7/98
NG Flares	lbs/mmscf		0.593	71.4	60.3	388.5	AP42 11.5-1	9/91
Liquid Flaring	lbs/bbl	0.42	6.83	2	0.01	0.21	AP42 1.3-1 & 1.3-3	9/98
Tank Vapors	lbs/bbl				0.03		E&P Forum	1/93
Fugitives	lbs/hr/comp.				0.0005		API Study	12/93
Glycol Dehydrator Vent	lbs/mmscf				6.6		La. DEQ	1991
Gas Venting	lbs/scf				0.0034			

Sulphur Content Source	Value	Units
Fuel Gas	3.33	ppm
Diesel Fuel	0.05	% weight
Produced Gas(Flares)	3.33	ppm
Produced Oil (Liquid Flaring)	1	% weight

EMISSIONS CALCULATIONS 1ST YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS
Contango Operators, Inc.	GI	45	OCS G-36755	N/A	1		Suzy Younger	713-208-5588	

OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Boilers	MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	8800	425.04	10200.96	24	75	6.20	3.56	213.22	6.40	46.52	5.58	3.20	191.89	5.76	41.87
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	2065	99.7395	2393.75	10	43	1.46	0.83	50.03	1.50	10.92	0.31	0.18	10.72	0.32	2.34
	VESSELS>600hp diesel(supply)	2065	99.7395	2393.75	8	21	1.46	0.83	50.03	1.50	10.92	0.12	0.07	4.29	0.13	0.94
	VESSELS>600hp diesel(tugs)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	**BPD**	**SCF/HR**	**COUNT**												
	TANK-	0			0	0				0.00					0.00	
DRILLING	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		208333.23		24	2		0.12	14.87	12.56	80.94		0.00	0.36	0.30	1.94
2020	**YEAR TOTAL**						**9.11**	**5.35**	**328.16**	**21.96**	**149.29**	**6.02**	**3.45**	**207.26**	**6.51**	**47.09**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**											**532.80**	**532.80**	**532.80**	**532.80**	**21588.65**
	16.0															

SUMMARY

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
Contango Operat	GI	45	OCS G-36755	N/A	1

Year	Emitted Substance				
	PM	SOx	NOx	VOC	CO
2020	6.02	3.45	207.26	6.51	47.09
Allowable	532.80	532.80	532.80	532.80	21588.65

SECTION 5 - BIOLOGICAL, PHYSICAL AND SOCIOECONOMIC INFORMATION

A. Deepwater Benthic Communities

Activities proposed in this EP are in water depths less than 300 meters (984 feet); therefore, submittal of report information outlined in attachment A of NTL No. 2009-G40, "Deepwater Benthic Communities," is not required.

B. Topographic Features (Banks)

Activities proposed in this EP do not fall within 305 meters (1000 feet) of a topographic "No Activity Zone"; therefore, no map is required per NTL No. 2009-G39, "Biologically Sensitive Underwater features and Areas."

C. Topographic Features Statement (shunting)

Activities proposed under this EP will be conducted outside all Topographic feature Protective Zones; therefore, shunting of drill cuttings and drilling fluids is not required per NTL No. 2009-G39, "Biologically Sensitive Underwater features and Areas."

D. Live bottom (Pinnacle Trend Features)

Grand Isle Block 45 is not located within 61 meters (200 feet) of any pinnacle trend feature; therefore, a separate bathymetric map is not required per NTL No. 2009-G39, "Biologically Sensitive Underwater Features and Areas."

E. Live bottoms (Low Relief)

Grand Isle Block 45 is not located within 61 meters (200 feet) of any live bottom (low relief) feature with vertical relief equal to or greater than 8 feet; therefore, live bottom (low relief) maps are not required per NTL No. 2009-G39, "Biologically Sensitive Underwater Features and Areas."

F. Potentially Sensitive Biological Features Map

Grand Isle Block 45 is not located within 30 meters (100') of potentially sensitive biological features. In accordance with NTL No. 2009-G39, "Biologically Sensitive Underwater Features and Areas," biologically sensitive area maps are not required.

G. Threatened and Endangered Species Information

Under the implementing regulations (50 CFR 402), Federal agencies must review their actions and determine whether the action may affect federally listed and proposed species or proposed or designated critical habitat.

In accordance with 30 CFR 250, Subpart B and further outlined in Notice to Lessees (NTL) 2008-G04, NMFS Endangered Species Act Section 7 Biological Opinion and the Marine Mammal Protection Act (MMPA), the federally listed endangered and threatened species potentially occurring in the lease proposed in this Exploration plan are provided in the table below:

Listed Species	Scientific Name	Status	Critical Habitat
Marine Mammals			
Blue Whale	Balaenoptera masculus	Endangered[1]	None
Bryde's Whale	Balaenoptera brydei	Endangered[3]	None
Fin Whale	Balaenoptera physalus	Endangered[1]	None
Sei Whale	Balaenoptera borealis	Threatened	None
Sperm Whale	Physeter macrocephalus	Endangered	None
West Indian Manatee	Trichechus manatus	Endangered	None
Birds			
Ploving Piper	Charadrius molodus	Endangered	Gulf Coast beaches from Florida to Mexico
Fish			
Gulf Sturgeon	Acipenser oxyrinchus desotoi	Threatened	Gulf Coast beaches from to Louisiana
Turtles			
Green Sea Turtle	Chelonia mydas	Threatened	None
Hawksbill Sea Turtle	Eretmochelys imbricata	Endangered	None
Kemp's Ridley Sea Turtle	Lepidochelys kempii	Endangered	None
Leatherback Sea Turtle	Dermochelys coriacea	Endangered	None
Loggerhead Sea Turtle	Caretta caretta	Threatened	Texas, Louisiana, Mississippi, Alabama and Florida
Corals			
Elkhorn Coral	A. Palmata	Threatened[2]	

1. The Blue and Sei Whales are rare in the Gulf of Mexico and are unlikely to be present in the lease areas.
2. The Elkhorn Coral has been recorded growing along the southern Florida peninsula and into the northern parts of the Gulf of Mexico.
3. Bryde's Whales are found in the northeastern Gulf of Mexico an are unlikely to be found in the lease area.

H. Archaeological Report

In accordance with NTLs No. 2005-G07 and 2011-JOINT-G01, Grand Isle Block 45 is located within an area that BOEM / BSEE have designated as having the high probability for containing the presence of archaeological resources.

BOEM / BSEE provide protection of prehistoric and historic archaeological resources by requiring remote sensing surveys in areas designated to have a high probability for archaeological resources. Echo Offshore, LLC conducted a high-resolution geophysical investigation of Grand Isle Block 45 in February 2020. A copy of the archaeological report is included in this EP as ***Attachment 5-1***.

I. Air and Water Quality Information

Air and water quality information is not required to be included in this EP per NTL No. 2008-G04.

J. Socioeconomic Information

Socioeconomic information is not required to be included in this EP per NTL No. 2008-G04.

SECTION 6 – WASTES AND DISCHARGES INFORMATION

A. Projected Wastes

"Wastes You Will Generate, Treat and Downhole Dispose or Discharge" is included as ***Attachment 6-1***.

B. Modeling Report

Modeling reports are not required for the activities proposed in this plan.

SECTION 7 – AIR EMISSIONS INFORMATION

A. Screening Checklist

Screening Questions for EP	Yes	No
Is any calculated Complex Total (CT) Emission amount (tons) associated with your proposed exploration activities more than 90% of the amounts calculated using the following formulas: CT = $3400D^{2/3}$ for CO, and CT = 33.3D for the other air pollutants (where D = distance to shore in miles)?		**X**
Do your emissions 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**

There are no existing facilities or activities co-located with the currently proposed activities; therefore, the Complex Total Emissions are the same as the Plan Emissions. The Air Emission Worksheets showing the emissions calculations for the proposed activities are included as ***Attachment 7-1.***

This information was calculated by: Suzy Younger
713-208-5588
suzy@suzyyoungerreg.com

SECTION 8 – OIL SPILLS INFORMATION

A. Oil Spill Response Planning

All the proposed activities and facilities in this proposed EP will be covered by the Oil Spill Response Plan (OSRP) filed by Contango Operators, Inc. (Company No. 2503), approved on December 23, 2013 and deemed "in compliance" on June 27, 2019 (OSRP Control No. 0-575).

B. Spill Response Sites

Spill Response Sites	Preplanned Staging Areas
Houma, LA	Houma, LA
Harvey, LA	Harvey, LA
Leeville, LA	Port Fourchon, LA

C. OSRO Information

Contango's primary equipment provider is Clean Gulf Associates (CGA). Clean Gulf Associates, LLC (CGAS) will provide closest available personnel, as well as a supervisor to operate the equipment.

D. Worst-Case Discharge Scenario Determination

Category	Regional OSRP WCD	EP WCD
Type of Activity	Drilling > 10 Miles	Exploratory Drilling
Facility Location (area/block)	N/A	GI 45
Facility Designation		Well #001
Distance to Nearest Shoreline (miles)		16.0
Storage Tanks & Flowlines		0
Lease Term Pipelines		0
Uncontrolled Blowout (bbl)		45,159
Total Volume		**45,159**
Type of oil(s) (crude, condensate, diesel)		Crude
API Gravity		36°

Contango has determined that the worst-case scenario from the activities proposed in this EP does supersede the worst-case scenario from our approved OSRP. Contango submitted an update to their OSRP on March 27, 2020, to reflect the above worst-case scenario determination.

E. Oil Spill Response Discussion

The Oil Spill Response Discussion is included as ***Attachment 8-1***.

F. Modeling Report

A modeling report is not required for the activities proposed in this plan.

SPILL RESPONSE DISCUSSION

For the purpose of NEPA and Coastal Zone Management Act analysis, the largest spill volume originating from the proposed activity would be a well blowout during drilling operations, estimated to be 45,159 barrels of crude oil with an API gravity of 36°.

Land Segment and Resource Identification

Trajectories of a spill and the probability of it impacting a land segment have been projected utilizing information in the BOEM Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on the BOEM website. The results are shown in **Figure 1.** The BOEM OSRAM identifies a 20% probability of impact to the shorelines of Terrebonne Parish, Louisiana within 30 days. Terrebonne Parish includes the eastern portion of Atchafalaya National Wildlife Refuge across to Timbalier Bay. The Terrebonne parish also includes the area along the Gulf Coast including Caillou Bay, Isles Dernieres 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.

Response

Contango will make every effort to respond to the Worst Case Discharge as effectively as practicable. A description of the response equipment under contract to contain and recover the Worst Case Discharge is shown in **Figure 2.**

Using the estimated chemical and physical characteristics of crude oil, an ADIOS weathering model was run on a similar product from the ADIOS oil database. The results indicate 27% or approximately 12,193 barrels of crude oil would be evaporated/dispersed within 24 hours, with approximately 32,966 barrels remaining.

Natural Weathering Data: GI 45, Well #001	**Barrels of Oil**
WCD Volume	45,159
Less 27% natural evaporation/dispersion	12,193
Remaining volume	32,966

Figure 2 outlines equipment, personnel, materials and support vessels as well as temporary storage equipment available to respond to the worst case discharge. The volume accounts for the amount remaining after evaporation/dispersion at 24 hours. The list estimates individual times needed for procurement, load out, travel time to the site and deployment. **Figure 2** also indicates how operations will be supported.

Contango's Oil Spill Response Plan includes alternative response technologies such as dispersants and in-situ burn. Strategies will be decided by Unified Command based on an operations safety analysis, the size of the spill, weather and potential impacts. If aerial dispersants are utilized, 8 sorties (9,600 gallons) from two of the DC-3 aircrafts and 4 sorties (8,000 gallons) from the Basler

aircraft would provide a daily dispersant capability of 7,540 barrels. If the conditions are favorable for in-situ burning, the proper approvals have been obtained and the proper planning is in place, in-situ burning of oil may be attempted. Slick containment boom would be immediately called out and on-scene as soon as possible. Offshore response strategies may include attempting to skim utilizing CGA spill response equipment, with a total derated skimming capacity of 369,152 barrels. Temporary storage associated with skimming equipment equals 46,796 barrels. If additional storage is needed, various storage barges with a total capacity 368,000+ bbls may be mobilized and centrally located to provide temporary storage and minimize off-loading time. **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, Louisiana would depend upon existing environmental conditions. Shoreline protection would include the use of CGA's near shore and shallow water skimmers with a totaled derated skimming capacity of 147,915 barrels. Temporary storage associated with skimming equipment equals 1,845 barrels. If additional storage is needed, various storage barges with a total capacity 153,000 bbls may be mobilized and centrally located to provide temporary storage and minimize off-loading time. Onshore response may include the deployment of shoreline boom on beach areas, or protection and sorbent boom on vegetated areas. A Letter of Intent from Miller Environmental will ensure access to 51,000 feet of 18" shoreline protection boom. **Figure 2** outlines individual times needed for procurement, load out, travel time to the site and deployment. Strategies would be based upon surveillance and real time trajectories that depict areas of potential impact given actual sea and weather conditions. Applicable Area Contingency Plans (ACPs), Geographic Response Plans (GRPs), and Unified Command (UC) will be consulted to ensure that environmental and special economic resources are correctly identified and prioritized to ensure optimal protection. Shoreline protection strategies depict the protection response modes applicable for oil spill clean-up operations. As a secondary resource, the State of Louisiana Initial Oil Spill Response Plan will be consulted as appropriate to provide detailed shoreline protection strategies and describe necessary action to keep the oil spill from entering Louisiana's coastal wetlands. The UC should take into consideration all appropriate items detailed in Tactics discussion of this Appendix. The UC and their personnel have the option to modify the deployment and operation of equipment to allow for a more effective response to site-specific circumstances. Contango's contract Incident Management Team has access to the applicable ACP(s) and GRP(s).

Based on the anticipated worst case discharge scenario, Contango can be onsite with contracted oil spill recovery equipment with adequate response capacity to contain and recover surface hydrocarbons, and prevent land impact, to the maximum extent practicable, within an estimated 60 hours (based on the equipment's Effective Daily Recovery Capacity (EDRC)).

Initial Response Considerations

Actual actions taken during an oil spill response will be based on many factors to include but not be limited to:

- Safety
- Weather
- Equipment and materials availability
- Ocean currents and tides
- Location of the spill
- Product spilled
- Amount spilled
- Environmental risk assessments
- Trajectory and product analysis
- Well status, i.e., shut in or continual release

Contango will take action to provide a safe, aggressive response to contain and recover as much of the spilled oil as quickly as it is safe to do so. In an effort to protect the environment, response actions will be designed to provide an "in-depth" protection strategy meant to recover as much oil as possible as far from environmentally sensitive areas as possible. Safety will take precedence over all other considerations during these operations.

Coordination of response assets will be supervised by the designation of a SIMOPS group as necessary for close quarter vessel response activities. Most often, this group will be used during source control events that require a significant number of large vessels operating independently to complete a common objective, in close coordination and support of each other. This group must also monitor the subsurface activities of each vessel (ROV, dispersant application, well control support, etc.). The SIMOPS group leader reports to the Source Control Section Chief.

In addition, these activities will be monitored by the Incident Management Team (IMT) and Unified Command via a structured Common Operating Picture (COP) established to track resource and slick movement in real time.

Upon notification of a spill, the following actions will be taken:

- Information will be confirmed
- An assessment will be made and initial objectives set
- OSROs and appropriate agencies will be notified
- ICS 201, Initial Report Form completed
- Initial Safety plan will be written and published
- Unified Command will be established
    - Overall safety plan developed to reflect the operational situation and coordinated objectives
    - Areas of responsibility established for Source Control and each surface operational site
    - On-site command and control established

Offshore Response Actions

Equipment Deployment

Surveillance

- Surveillance Aircraft: within two hours of QI notification, or at first light
- Provide trained observer to provide on site status reports
- Provide command and control platform at the site if needed
- Continual surveillance of oil movement by remote sensing systems, aerial photography and visual confirmation
- Continual monitoring of vessel assets using vessel monitoring systems

Dispersant application assets

- Put ASI on standby
- With the FOSC, conduct analysis to determine appropriateness of dispersant application (refer to Section 18)
- Gain FOSC approval for use of dispersants on the surface
- Deploy aircraft in accordance with a plan developed for the actual situation
- Coordinate movement of dispersants, aircraft, and support equipment and personnel
- Confirm dispersant availability for current and long range operations
- Start ordering dispersant stocks required for expected operations

Containment boom

- Call out early and expedite deployment to be on scene ASAP
- Ensure boom handling and mooring equipment is deployed with boom
- Provide continuing reports to vessels to expedite their arrival at sites that will provide for their most effective containment
- Use Vessels of Opportunity (VOO) to deploy and maintain boom

Oceangoing Boom Barge

- Containment at the source
- Increased/enhanced skimmer encounter rate
- Protection booming

In-situ Burn assets

- Determine appropriateness of in-situ burn operation in coordination with the FOSC and affected SOSC
- Determine availability of fire boom and selected ignition systems
- Start ordering fire boom stocks required for expected operations
- Contact boom manufacturer to provide training & tech support for operations, if required
- Determine assets to perform on water operation
- Build operations into safety plan
- Conduct operations in accordance with an approved plan
- Initial test burn to ensure effectiveness

Dedicated off-shore skimming systems
General

- Deployed to the highest concentration of oil
- Assets deployed at safe distance from aerial dispersant and in-situ burn operations

CGA HOSS Barge

- Use in areas with heaviest oil concentrations
- Consider for use in areas of known debris (seaweed, and other floating materials)

CGA 95' Fast Response Vessels (FRVs)

- Designed to be a first vessel on scene
- Capable of maintaining the initial Command and Control function for on water recovery operations
- 24 hour oil spill detection capability
- Highly mobile and efficient skimming capability
- Use as far off-shore as safely possible

CGA FRUs

- To the area of the thickest oil
- Use as far off-shore as allowed
- VOOs 140' – 180' in length
- VOOs with minimum of 18' x 38' or 23' x 50' of optimum deck space
- VOOs in shallow water should have a draft of <10 feet when fully loaded

T&T Koseq Skimming Systems

- To the area of the thickest oil
- Use as far off-shore as allowed
- VOOs with a minimum of 2,000 bbls storage capacity
- VOOs at least 200' in length
- VOOs with deck space of 100' x 40' to provide space for arms, tanks, and crane
- VOOs for shallow water should be deck barges with a draft of <10 feet when fully loaded

Storage Vessels

- Establish availability of CGA contracted assets (See Appendix E)
- Early call out (to allow for tug boat acquisition and deployment speeds)
- Phase mobilization to allow storage vessels to arrive at the same time as skimming systems
- Position as closely as possible to skimming assets to minimize offloading time

Vessels of Opportunity (VOO)

- Use Contango's contracted resources as applicable
- Industry vessels are ideal for deployment of Vessel of Opportunity Skimming Systems (VOSS)
- Acquire additional resources as needed
- Consider use of local assets, i.e. fishing and pleasure craft for ISB operations or boom tending
- Expect mission specific and safety training to be required
- Plan with the US Coast Guard for vessel inspections
- Place VOOs in Division or Groups as needed
- Use organic on-board storage if appropriate
- Maximize non-organic storage appropriate to vessel limitations
- Decant as appropriate after approval to do so has been granted
- Assign bulk storage barges to each Division/Group
- Position bulk storage barges as close to skimming units as possible
- Utilize large skimming vessel (e.g. barges) storage for smaller vessel offloading
- Maximize skimming area (swath) to the optimum width given sea conditions and available equipment
- Maximize use of oleophilic skimmers in all operations, but especially offshore
- Nearshore, use shallow water barges and shuttle to skimming units to minimize offloading time
- Plan and equip to use all offloading capabilities of the storage vessel to minimize offloading time

Adverse Weather Operations:

In adverse weather, when seas are ≥ 3 feet, the use of larger recovery and storage vessels, oleophilic skimmers, and large offshore boom will be maximized. KOSEQ Arm systems are built for rough conditions, and they should be used until their operational limit (9.8' seas) is met. Safety will be the overriding factor in all operations and will cease at the order of the Unified Command, vessel captain, or in an emergency, "stop work" may be directed by any crew member.

Surface Oil Recovery Considerations and Tactics
(Offshore and Near-shore Operations)

Maximization of skimmer-oil encounter rate

- Place barges in skimming task forces, groups, etc., to reduce recovered oil offloading time
- Place barges alongside skimming systems for immediate offloading of recovered oil when practicable
- Use two vessels, each with heavy sea boom, in an open-ended "V" configuration to funnel surface oil into a trailing skimming unit's organic, V-shaped boom and skimmer (see page 7, *CGA Equipment Guide Book and Tactic Manual* (CGATM)

- Use secondary vessels and heavy sea boom to widen boom swath beyond normal skimming system limits (see page 15, CGATM)
- Consider night-time operations, first considering safety issues
- Utilize all available advanced technology systems (IR, X-Band Radar, etc.) to determine the location of, and move to, recoverable oil
- Confirm the presence of recoverable oil prior to moving to a new location

Maximize skimmer system efficiency

- Place weir skimming systems in areas of calm seas and thick oil
- Maximize the use of oleophilic skimming systems in heavier seas
- Place less mobile, high EDRC skimming systems (e.g. HOSS Barge) in the largest pockets of the heaviest oil
- Maximize onboard recovered oil storage for vessels.
- Obtain authorization for decanting of recovered water as soon as possible
- Use smaller, more agile skimming systems to recover streamers of oil normally found farther from the source. Place recovered oil barges nearby

Recovered Oil Storage

- Smaller barges in larger quantities will increase flexibility for multi-location skimming operations
- Place barges in skimming task forces, groups, etc., to reduce recovered oil offloading time
- Procure and deploy the maximum number of portable tanks to support Vessel of Opportunity Skimming Systems if onboard storage is not available
- Maximize use of the organic recovered oil storage capacity of the skimming vessel

Command, Control, and Communications (C_3)

- Publish, implement, and fully test an appropriate communications plan
- Design an operational scheme, maintaining a manageable span of control
- Designate and mark C_3 vessels for easy aerial identification
- Designate and employ C_3 aircraft for task forces, groups, etc.
- Use reconnaissance air craft and Rapid Response Teams (RAT) to confirm the presence of recoverable oil

On Water Recovery Group
When the first skimming vessel arrives on scene, a complete site assessment will be conducted before recovery operations begin. Once it is confirmed that the air monitoring readings for O2, LEL, H2S, CO, VOC, and Benzene are all within the permissible limits, oil recovery operations may begin.

As skimming vessels arrive, they will be organized to work in areas that allow for the most efficient vessel operation and free vessel movement in the recovery of oil. Vessel groups will vary in structure as determined by the Operations Section of the Unified Command, but will generally consist, at a minimum, of the following dedicated assets:

- 3 to 5 – Offshore skimming vessels (recovery)
- 1 – Tank barge (temporary storage)
- 1 – Air asset (tactical direction)
- 2 – Support vessels (crew/utility for supply)
- 6 to 10 – Boom vessels (enhanced booming)

***Example** (**Note:** Actual organization of TFs will be dependent on several factors including, asset availability, weather, spilled oil migration, currents, etc.)*

The 95' FRV Breton Island out of Venice arrives on scene and conducts an initial site assessment. Air monitoring levels are acceptable and no other visual threats have been observed. The area is cleared for safe skimming operations. The Breton Island assumes command and control (CoC) of on-water recovery operations until a dedicated non-skimming vessel arrives to relieve it of those duties.

A second 95' FRV arrives and begins recovery operations alongside the Breton Island. Several more vessels begin to arrive, including a third 95' FRV out of Galveston, the HOSS Barge (High Volume Open Sea Skimming System) out of Harvey, a boom barge (CGA 300) with 25,000' of 42" auto boom out of Leeville, and 9 Fast Response Units (FRUs) from the load-out location at C-Port in Port Fourchon.

As these vessels set up and begin skimming, they are grouped into task forces (TFs) as directed by the Operations Section of the Unified Command located at the command post.

Initial set-up and potential actions:

- A 1,000 meter safety zone has been established around the incident location for vessels involved in Source Control
- The HOSS Barge is positioned facing the incident location just outside of this safety zone or at the point where the freshest oil is reaching the surface
- The HOSS Barge engages its Oil Spill Detection (OSD) system to locate the heaviest oil and maintains that ability for 24-hour operations

- The HOSS Barge deploys 1,320’ of 67” Sea Sentry boom on each side, creating a swath width of 800’
- The Breton Island and H.I. Rich skim nearby, utilizing the same OSD systems as the HOSS Barge to locate and recover oil
- Two FRUs join this group and it becomes TF1
- The remaining 7 FRUs are split into a 2 and 3 vessel task force numbered TF2 and TF3
- A 95’ FRV is placed in each TF
- The boom barge (CGA 300) is positioned nearby and begins deploying auto boom in sections between two utility vessels (1,000’ to 3,000’ of boom, depending on conditions) with chain-link gates in the middle to funnel oil to the skimmers
- The initial boom support vessels position in front of TF2 and TF3
- A 100,000+ barrel offshore tank barge is placed with each task force as necessary to facilitate the immediate offload of skimming vessels

The initial task forces (36 hours in) may be structured as follows:

TF 1

- 1 – 95’ FRV
- 1 – HOSS Barge with 3 tugs
- 2 – FRUs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 8 – 500’ sections of auto boom with gates
- 8 – Boom-towing vessels
- 2 – Support vessels (crew/utility)

TF 2

- 1 – 95’ FRV
- 4 – FRUs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 10 – 500’ sections of auto boom with gates
- 10 – Boom-towing vessels
- 2 – Support vessels (crew/utility)

TF 3

- 1 – 95’ FRV
- 3 – FRUs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 8 – 500’ sections of auto boom with gates
- 8 – Boom-towing vessels
- 2 – Support vessels (crew/utility)

Offshore skimming equipment continues to arrive in accordance with the ETA data listed in figure H.3a; this equipment includes 2 AquaGuard skimmers and 11 sets of Koseq Rigid Skimming Arms. These high volume heavy weather capable systems will be divided into functional groups and assigned to specific areas by the Operations Section of the Unified Command.

At this point of the response, the additional TFs may assume the following configurations:

TF 4

- 2 – Sets of Koseq Rigid Skimming Arms w/ associated 200'+ PIDVs
- 1 – AquaGuard Skimmer
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 6 – 500' sections of auto boom with gates
- 6 – Boom-towing vessels

TF 5

- 3 – Sets of Koseq Rigid Skimming Arms w/ associated 200'+ PIDVs
- 1 – AquaGuard Skimmer
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 8 – 500' sections of auto boom with gates
- 8 – Boom-towing vessels

TF 6

- 3 – Sets of Koseq Rigid Skimming Arms w/ associated 200'+ PIDVs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 6 – 500' sections of auto boom with gates
- 6 – Boom-towing vessels

TF 7

- 3 – Sets of Koseq Rigid Skimming Arms w/ associated 200'+ PIDVs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 6 – 500' sections of auto boom with gates
- 6 – Boom-towing vessels

CGA Minimum Acceptable Capabilities for Vessels of Opportunity (VOO)
Minimum acceptable capabilities of Petroleum Industry Designed Vessels (PIDV) for conducting Vessel of Opportunity (VOO) skimming operations are shown in the table below. PIDVs are "purpose-built" to provide normal support to offshore oil and gas operators. They include but are not limited to utility boats, offshore supply vessels, etc. They become VOOs when tasked with oil spill response duties.

Capability	FRU	KOSEQ	AquaGuard
Type of Vessel	Utility Boat	Offshore Supply Vessel	Utility Boat
Operating parameters			
Sea State	3-5 ft max	9.8 ft max	3-5 ft max
Skimming speed	≤1 kt	≤3 kts	≤1 kt
Vessel size			
Minimum Length	100 ft	200 ft	100 ft
Deck space for: • Tank(s) • Crane(s) • Boom Reels • Hydraulic Power Units • Equipment Boxes	18x32 ft	100x40 ft	18x32 ft
Communication Assets	Marine Band Radio	Marine Band Radio	Marine Band Radio

Tactical use of Vessels of Opportunity (VOO): Contango will take all possible measures to maximize the oil-to-skimmer encounter rate of all skimming systems, to include VOOs, as discussed in this section. VOOs will normally be placed within an On-water recovery unit as shown in figures below.

Skimming Operations: PIDVs are the preferred VOO skimming platform. OSROs are more versed in operating on these platforms and the vessels are generally large enough with crews more likely versed in spill response operations. They also have a greater possibility of having on-board storage capacity and the most likely vessels to be under contract, and therefore more readily available to the operator. These vessels would normally be assigned to an on-water recovery group/division (see figure below) and outfitted with a VOSS suited for their size and capabilities. Specific tactics used for skimming operations would be dependent upon many parameters which include, but are not limited to, safety concerns, weather, type VOSS on board, product being recovered, and area of oil coverage. Planners would deploy these assets with the objective of safely maximizing oil- to-skimmer encounter rate by taking actions to minimize non-skimming time and maximizing boom swath. Specific tactical configurations are shown in figures below.

The Fast Response Unit (FRU): A self-contained, skid based, skimming system that is deployed from the right side of a vessel of opportunity (VOO). An outrigger holds a 75' long section of air inflatable boom in place that directs oil to an apex for recovery via a Foilex 250 weir skimmer. The outrigger creates roughly a 40' swath width dependent on the VOO beam. The lip of the collection bowl on the skimmer is placed as close to the oil and water interface as possible to maximize oil recovery and minimize water retention. The skimmer then pumps all fluids recovered to the storage tank where it is allowed to settle, and with the approval of the Coast Guard, the water is decanted from the bottom of the tank back into the water ahead of the containment boom to be recycled through the system. Once the tank is full of as much pure recovered oil as possible it is offloaded to a storage barge for disposal in accordance with an approved disposal plan. A second 100 barrel storage tank can be added if the appropriate amount of deck space is available to use as secondary storage.

Tactical Overview

Mechanical Recovery – The FRU is designed to provide fast response skimming capability in the offshore and nearshore environment in a stationary or advancing mode. It provides a rated daily recovery capacity of 4,100 barrels. An additional boom reel with 440' of offshore boom can be deployed along with the FRU, and a second support vessel for boom towing, to extend the swath width when attached to the end of the fixed boom. The range and sustainability offshore is dependent on the VOO that the unit is placed on, but generally these can stay offshore for extended periods. The FRU works well independently or assigned with other on-water recovery assets in a task force. In either case, it is most effective when a designated aircraft is assigned to provide tactical direction to ensure the best placement in recoverable oil.
Maximum Sea Conditions – Under most circumstances the FRU can maintain standard oil spill recovery operations in 2' to 4' seas. Ultimately, the Coast Guard licensed Captain in charge of the VOO (with input from the CGAS Supervisor assigned) will be responsible to determine when the sea conditions have surpassed the vessel's safe operating capabilities.

Possible Task Force Configuration (Multiple VOOs can be deployed in a task force)
1 – VOO (100' to 165' Utility or Supply Vessel)
1 – Boom reel w/support vessel for towing
1 – Tank barge (offshore) for temporary storage
1 – Utility/Crewboat (supply)
1 – Designated spotter aircraft

The VOSS (yellow) is being deployed and connected to an out-rigged arm. This is suitable for collection in both large pockets of oil and for recovery of streaming oil. The oil-to-skimmer encounter rate is limited by the length of the arm. Skimming pace is ≤ 1 knot.

Through the use of an additional VOO, and using extended sea boom, the swath of the VOSS is increased therefore maximizing the oil-to-skimmer encounter rate. Skimming pace is ≤ 1 knot.

The Koseq Rigid Sweeping Arm: A skimming system deployed on a vessel of opportunity. It requires a large Offshore or Platform Supply Vessel (OSV/PSV), greater than 200' with at least 100' x 50' of free deck space. On each side of the vessel, a 50' long rigid framed Arm is deployed that consists of pontoon chambers to provide buoyancy, a smooth nylon face, and a hydraulically adjustable mounted weir skimmer. The Arm floats independently of the vessel and is attached by a tow bridle and a lead line. The movement of the vessel forward draws the rubber end seal of the arm against the hull to create a collection point for free oil directed to the weir by the Arm face. The collection weir is adjusted to keep the lip as close to the oil water interface as possible to maximize oil recovery while attempting to minimize excess water collection. A transfer pump (combination of positive displacement, screw type and centrifuge suited for highly viscous oils) pump the recovered liquid to portable tanks and/or dedicated fixed storage tanks onboard the vessel. After being allowed to sit and separate, with approval from the Coast Guard, the water can be decanted (pumped off) in front of the collection arm to be reprocessed through the system. Once full with as much pure recovered oil as possible, the oil is transferred to a temporary storage barge where it can be disposed of in accordance with an approved disposal plan.

Tactical Overview

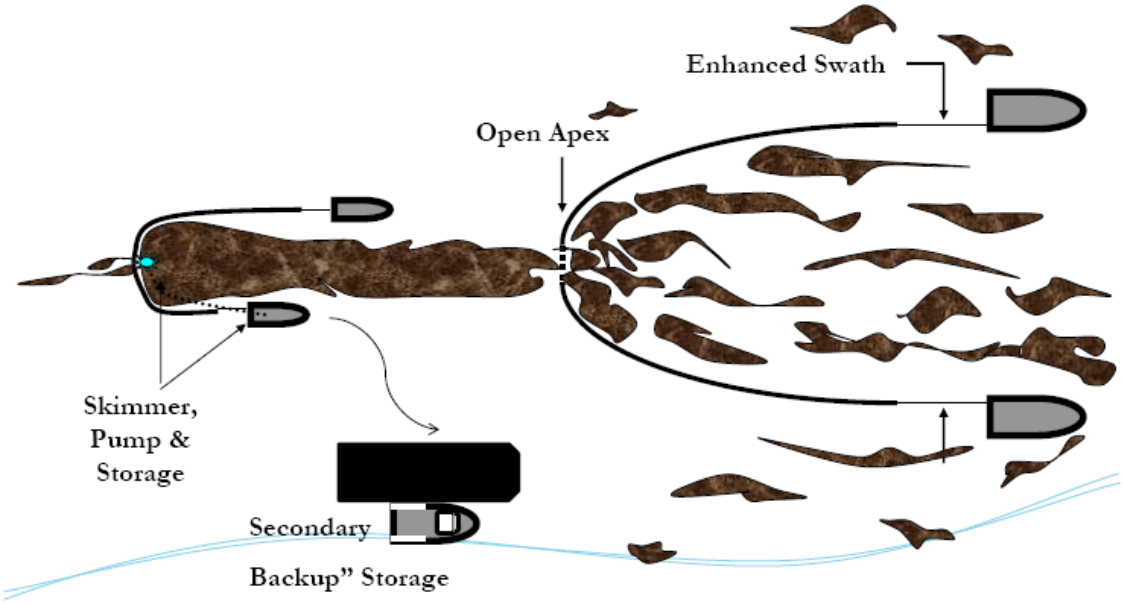
Mechanical Recovery – Deployed on large vessels of opportunity (VOO) the Koseq Rigid Sweeping Arms are high volume surge capacity deployed to increase recovery capacity at the source of a large oil spill in the offshore and outer nearshore environment of the Gulf of Mexico. They are highly mobile and sustainable in rougher sea conditions than normal skimming vessels (9.8' seas). The large Offshore Supply Vessels (OSV) required to deploy the Arms are able to remain on scene for extended periods, even when sea conditions pick up. Temporary storage on deck in portable tanks usually provides between 1,000 and 3,000 bbls. In most cases, the OSV will be able to pump 20% of its deadweight into the liquid mud tanks in accordance with the vessels Certificate of Inspection (COI). All storage can be offloaded utilizing the vessels liquid transfer system.

Maximum Sea Conditions - Under most circumstances the larger OSVs are capable of remaining on scene well past the Skimming Arms maximum sea state of 9.8'. Ultimately it will be the decision of the VOO Captain, with input from the T&T Supervisor onboard, to determine when the sea conditions have exceeded the safe operating conditions of the vessel.

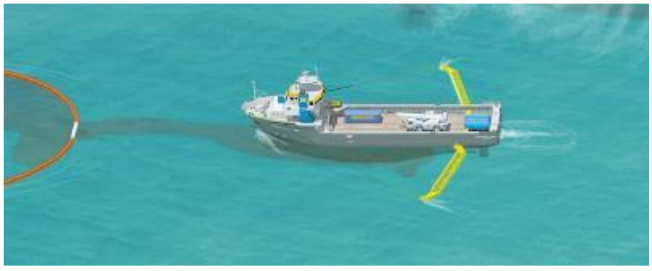
Command and Control – The large OSVs in many cases have state of the art communication and electronic systems, as well as the accommodations to support the function of directing all skimming operations offshore and reporting back to the command post.

Possible Task Force Configuration (Multiple Koseq VOOs can be deployed in a task force)

1 – ≥ 200' Offshore Supply Vessels (OSV) with set of Koseq Arms
2 to 4 portable storage tanks (500 bbl)
1 – Modular Crane Pedestal System set (MCPS) or 30 cherry picker (crane) for deployment
1 – Tank barge (offshore) for temporary storage
1 – Utility/Crewboat (supply)
1 – Designated spotter aircraft
4 – Personnel (4 T&T OSRO)



Scattered oil is "caught" by two VOO and collected at the apex of the towed sea boom. The oil moves thought a "gate" at that apex, forming a larger stream of oil which moves into the boom of the skimming vessel. Operations are paced at >1. A recovered oil barge stationed nearby to minimize time taken to offload recovered oil.



This is a depiction of the same operation as above but using KOSEQ Arms. In this configuration, the collecting boom speed dictates the operational pace at ≥ 1 knot to minimize entrainment of the oil.

Clean Gulf Associates (CGA) Procedure for Accessing Member-Contracted and other Vessels of Opportunity (VOOs) for Spill Response

- CGA has procedures in place for CGA member companies to acquire vessels of opportunity (VOOs) from an existing CGA member's contracted fleet or other sources for the deployment of CGA portable skimming equipment including Koseq Arms, Fast Response Units (FRUs) and any other portable skimming system(s) deemed appropriate for the response for a potential or actual oil spill, WCD oil spill or a Spill of National Significance (SONS).

- CGA uses Port Vision, a web-based vessel and terminal interface that empowers CGA to track vessels through Automatic Identification System (AIS) and terminal activities using a Geographic Information System (GIS). It provides live AIS/GIS views of waterways showing current vessel positions, terminals, created vessel fleets, and points-of-interest. Through this system, CGA has the ability to get instant snapshots of the location and status of all vessels contracted to CGA members, day or night, from any web-enabled PC.

Near Shore Response Actions

Timing

- Put near shore assets on standby and deployment in accordance with planning based on the actual situation, actual trajectories and oil budgets
- VOO identification and training in advance of spill nearing shoreline if possible
- Outfitting of VOOs for specific missions
- Deployment of assets based on actual movement of oil

Considerations

- Water depth, vessel draft
- Shoreline gradient
- State of the oil
- Use of VOOs
- Distance of surf zone from shoreline

Surveillance

- Provide trained observer to direct skimming operations
- Continual surveillance of oil movement by remote sensing systems, aerial photography and visual confirmation
- Continual monitoring of vessel assets

Dispersant Use

- Generally will not be approved within 3 miles of shore or with less than 10 meters of water depth
- Approval would be at Regional Response Team level (Region 6)

Dedicated Near Shore skimming systems

- FRVs
- Egmopol and Marco SWS
- Operate with aerial spotter directing systems to observed oil slicks

VOO

- Use Contango's contracted resources as applicable
- Industry vessel are usually best for deployment of Vessel of Opportunity Skimming Systems (VOSS)
- Acquire additional resources as needed
- Consider use of local assets, i.e. fishing and pleasure craft
- Expect mission specific and safety training to be required
- Plan with the US Coast Guard for vessel inspections
- Operate with aerial spotter directing systems to oil patches

Shoreline Protection Operations

Response Planning Considerations

- Review appropriate Area Contingency Plan(s)
- Locate and review appropriate Geographic Response and Site Specific Plans
- Refer to appropriate Environmentally Sensitive Area Maps
- Capability for continual analysis of trajectories run periodically during the response
- Environmental risk assessments (ERA) to determine priorities for area protection
- Time to acquire personnel and equipment and their availability
- Refer to the State of Louisiana Initial Oil Spill Response Plan, Deep Water Horizon, dated 2 May 2010, as a secondary reference
- Aerial surveillance of oil movement
- Pre-impact beach cleaning and debris removal
- Shoreline Cleanup Assessment Team (SCAT) operations and reporting procedures
- Boom type, size and length requirements and availability
- Possibility of need for In-situ burning in near shore areas
- Current wildlife situation, especially status of migratory birds and endangered species in the area
- Check for Archeological sites and arrange assistance for the appropriate state agency when planning operations the may impact these areas

Placement of boom

- Position boom in accordance with the information gained from references listed above and based on the actual situation
- Determine areas of natural collection and develop booming strategies to move oil into those areas
- Assess timing of boom placement based on the most current trajectory analysis and the availability of each type of boom needed. Determine an overall booming priority and conduct booming operations accordingly. Consider:
    - Trajectories
    - Weather forecast
    - Oil Impact forecast
    - Verified spill movement
    - Boom, manpower and vessel (shallow draft) availability
    - Near shore boom and support material, (stakes, anchors, line)

Beach Preparation - Considerations and Actions

- Use of a 10 mile go/no go line to determine timing of beach cleaning
- SCAT reports and recommendations
- Determination of archeological sites and gaining authority to enter
- Monitoring of tide tables and weather to determine extent of high tides
- Pre cleaning of beaches by moving waste above high tide lines to minimize waste
- Determination of logistical requirements and arranging of waste removal and disposal

- Staging of equipment and housing of response personnel as close to the job site as possible to maximize on-site work time
- Boom tending, repair, replacement and security (use of local assets may be advantageous)
- Constant awareness of weather and oil movement for resource re-deployment as necessary
- Earthen berms and shoreline protection boom may be considered to protect sensitive inland areas
- Requisitioning of earth moving equipment
- Plan for efficient and safe use of personnel, ensuring:
    - A continual supply of the proper Personal Protective Equipment
    - Heating or cooling areas when needed
    - Medical coverage
    - Command and control systems (i.e. communications)
    - Personnel accountability measures
- Remediation requirements, i.e., replacement of sands, rip rap, etc.
- Availability of surface washing agents and associated protocol requirements for their use (see National Contingency Plan Product Schedule for list of possible agents)
- Discussions with all stakeholders, i.e., land owners, refuge/park managers, and others as appropriate, covering the following:
    - Access to areas
    - Possible response measures and impact of property and ongoing operations
    - Determination of any specific safety concerns
    - Any special requirements or prohibitions
    - Area security requirements
    - Handling of waste
    - Remediation expectations
    - Vehicle traffic control
    - Domestic animal safety concerns
    - Wildlife or exotic game concerns/issues

Inland and Coastal Marsh Protection and Response Considerations and Actions

- All considered response methods will be weighed against the possible damage they may do to the marsh. Methods will be approved by the Unified Command only after discussions with local Stakeholder, as identified above.
    - In-situ burn may be considered when marshes have been impacted
- Passive clean up of marshes should considered and appropriate stocks of sorbent boom and/or sweep obtained.
- Response personnel must be briefed on methods to traverse the marsh, i.e.,
    - use of appropriate vessel
    - use of temporary walkways or road ways
- Discuss and gain approval prior cutting or moving vessels through vegetation
- Discuss use of vessels that may disturb wildlife, i.e, airboats
- Safe movement of vessels through narrow cuts and blind curves

- Consider the possibility that no response in a marsh may be best
- In the deployment of any response asset, actions will be taken to ensure the safest, most efficient operations possible. This includes, but is not limited to:
    - Placement of recovered oil or waste storage as near to vessels or beach cleanup crews as possible.
    - Planning for stockage of high use items for expeditious replacement
    - Housing of personnel as close to the work site as possible to minimize travel time
    - Use of shallow water craft
    - Use of communication systems appropriate ensure command and control of assets
    - Use of appropriate boom in areas that I can offer effective protection
    - Planning of waste collection and removal to maximize cleanup efficiency
- Consideration or on-site remediation of contaminated soils to minimize replacement operations and impact on the area

Decanting Strategy
Recovered oil and water mixtures will typically separate into distinct phases when left in a quiescent state. When separation occurs, the relatively clean water phase can be siphoned or decanted back to the recovery point with minimal, if any, impact. Decanting therefore increases the effective on-site oil storage capacity and equipment operating time. FOSC/SOSC approval will be requested prior to decanting operations. This practice is routinely used for oil spill recovery.

CGA Equipment Limitations
The capability for any spill response equipment, whether a dedicated or portable system, to operate in differing weather conditions will be directly in relation to the capabilities of the vessel the system in placed on. Most importantly, however, the decision to operate will be based on the judgment of the Unified Command and/or the Captain of the vessel, who will ultimately have the final say in terminating operations. Skimming equipment listed below may have operational limits which exceed those safety thresholds. As was seen in the Deepwater Horizon (DWH) oil spill response, vessel skimming operations ceased when seas reached 5-6 feet and vessels were often recalled to port when those conditions were exceeded. Systems below are some of the most up-to-date systems available and were employed during the DWH spill.

Boom	3 foot seas, 20 knot winds
Dispersants	Winds more than 25 knots Visibility less than 3 nautical miles Ceiling less than 1,000 feet.
FRU	8 foot seas
HOSS Barge/OSRB	8 foot seas
Koseq Arms	8 foot seas
OSRV	4 foot seas

Environmental Conditions in the GOM

Louisiana is situated between the easterly and westerly wind belts, and therefore, experiences westerly winds during the winter and easterly winds in the summer. Average wind speed is generally 14-15 mph along the coast. Wave heights average 4 and 5 feet. However, during hurricane season, Louisiana has recorded wave heights ranging from 40 to 50 feet high and winds reaching speeds of 100 mph. Because much of southern Louisiana lies below sea level, flooding is prominent.

Surface water temperature ranges between 70 and 80˚F during the summer months. During the winter, the average temperature will range from 50 and 60˚F.

The Atlantic and Gulf of Mexico hurricane season is officially from 1 June to 30 November. 97% of all tropical activity occurs within this window. The Atlantic basin shows a very peaked season from August through October, with 78% of the tropical storm days, 87% of the minor (Saffir-Simpson Scale categories 1 and 2) hurricane days, and 96% of the major (Saffir-Simpson categories 3, 4 and 5) hurricane days occurring then. Maximum activity is in early to mid September. Once in a few years there may be a hurricane occurring "out of season" - primarily in May or December. Globally, September is the most active month and May is the least active month.

FIGURE 1
TRAJECTORY BY LAND SEGMENT

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

Area/Block	OCS-G	Launch Area	Land Segment and/or Resource	Conditional Probability (%)
GI 45, Well #001 *16 miles from shore*	G36755	C37	Matagorda, TX Brazoria, TX Galveston, TX Jefferson, TX Cameron, LA Vermilion, LA Iberia, La **Terrebonne, LA** Lafourche, LA Jefferson, LA Plaquemines, LA	1 1 1 1 6 4 1 **20** 16 4 10

WCD Scenario– <u>BASED ON WELL BLOWOUT DURING DRILLING OPERATIONS</u> (16 miles from shore)
32,966 bbls of crude oil (Volume considering natural weathering)
API Gravity 36°

FIGURE 2 – Equipment Response Time to GI 45, Well #001

Dispersants/Surveillance

Dispersant/Surveillance	Dispersant Capacity (gal)	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to site	Total Hrs
ASI							
Basler 67T	2000	2	Houma	2	2	0.3	4.3
DC 3	1200	2	Houma	2	2	0.4	4.4
DC 3	1200	2	Houma	2	2	0.4	4.4
Aero Commander	NA	2	Houma	2	2	0.3	4.3

Offshore Response

Offshore Equipment Pre-Determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
HOSS Barge	76285	4000	3 Tugs	12	Harvey	6	0	12	4	2	24
95' FRV	22885	249	NA	6	Leeville	2	0	2	1	1	6
95' FRV	22885	249	NA	6	Galveston	2	0	2	15	1	20
95' FRV	22885	249	NA	6	Venice	2	0	3	1.5	1	7.5
95' FRV	22885	249	NA	6	Vermilion	2	0	3	5	1	11
Boom Barge (CGA-300) 42" Auto Boom (25000')	NA	NA	1 Tug 50 Crew	4 (Barge) 2 (Per Crew)	Leeville	8	0	4	3	2	19
Enterprise Marine Services LLC (Available through contract with CGA)											
CTCo 2603	NA	25000	1 Tug	6	Amelia	28	0	6	13	1	48
CTCo 2607	NA	23000	1 Tug	6	Amelia	28	0	6	13	1	48
Kirby Offshore (available through contract with CGA)											
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60

Staging Area: Fourchon

Offshore Equipment With Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
T&T Marine (available through direct contract with CGA)											
Aqua Guard Triton RBS (1)	22323	2000	1 Utility	6	Galveston	4	12	12	2	2	32
Aqua Guard Triton RBS (1)	22323	2000	1 Utility	6	Harvey	4	12	3	2	2	23
Koseq Skimming Arms (2) Lamor brush	45770	12000	2 OSV	12	Harvey	24	24	3	2	2	55
Koseq Skimming Arms (4) MariFlex 150 HF	72652	24000	4 OSV	24	Harvey	24	24	3	2	2	55
CGA											
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Vermilion	2	6	5.5	2	1	16.5
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Galveston	2	6	12	2	1	23
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Aransas Pass	2	6	16.5	2	1	27.5
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Lake Charles	2	6	7	2	1	18
FRU (3) + 100 bbl Tank (6)	12753	600	3 Utility	18	Leeville	2	6	2	2	1	13
FRU (2) + 100 bbl Tank (4)	8502	400	2 Utility	12	Venice	2	6	5	2	1	16
Hydro-Fire Boom	NA	NA	8 Utility	40	Harvey	0	24	3	2	6	35

Nearshore Response

Nearshore Equipment Pre-determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
Mid-Ship SWS	22885	249	NA	4	Leeville	2	0	N/A	48	1	51
Mid-Ship SWS	22885	249	NA	4	Venice	2	0	N/A	48	1	51
Trinity SWS	21500	249	NA	4	Leeville	2	0	N/A	48	1	51
46' FRV	15257	65	NA	4	Aransas Pass	2	0	2	21	1	26
46' FRV	15257	65	NA	4	Leeville	2	0	2	2	1	7
46' FRV	15257	65	NA	4	Lake Charles	2	0	2	7	1	12
46' FRV	15257	65	NA	4	Venice	2	0	2	3.5	1	8.5
Enterprise Marine Services LLC (Available through contract with CGA)											
CTCo 2604	NA	20000	1 Tug	6	Amelia	34.5	0	6	6.5	1	48
CTCo 2605	NA	20000	1 Tug	6	Amelia	34.5	0	6	6.5	1	48
CTCo 2606	NA	20000	1 Tug	6	Amelia	34.5	0	6	6.5	1	48
CTCo 2608	NA	23000	1 Tug	6	Amelia	34.5	0	6	6.5	1	48
CTCo 2609	NA	23000	1 Tug	6	Amelia	34.5	0	6	6.5	1	48
CTCo 5001	NA	47000	1 Tug	6	Amelia	34.5	0	6	6.5	1	48

Staging Area: Fourchon

Nearshore Equipment With Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Load Out	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
CGA											
SWS Egmopol	1810	100	NA	3	Galveston	2	2	12	2	1	19
SWS Egmopol	1810	100	NA	3	Leeville	2	2	2	2	1	8
SWS Marco	3588	20	NA	3	Lake Charles	2	2	7	2	1	14
SWS Marco	3588	34	NA	3	Leeville	2	2	2	2	1	8
SWS Marco	3588	34	NA	3	Venice	2	2	5	2	1	12
Foilex Skim Package (TDS 150)	1131	50	1 Utility	3	Lake Charles	4	12	7	2	2	27
Foilex Skim Package (TDS 150)	1131	50	1 Utility	3	Galveston	4	12	11.5	2	2	31.5
Foilex Skim Package (TDS 150)	1131	50	1 Utility	3	Harvey	4	12	3	2	2	23
4 Drum Skimmer (Magnum 100)	680	100	1 Crew	3	Lake Charles	2	2	7	2	1	14
4 Drum Skimmer (Magnum 100)	680	100	1 Crew	3	Harvey	2	2	3	2	1	10
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Lake Charles	2	2	7	2	1	14
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Harvey	2	2	3	2	1	10

Staging Area: Fourchon

Shoreline Protection Boom	VOO	Persons Req.	Storage/Warehouse Location	Hrs to Procure	Hrs to Load Out	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
Miller Environmental (available through Letter of Intent)									
14,000' 18" Boom	6 Crew	12	Sulphur, LA	1	1	7	2	2	13
14,000' 18" Boom	6 Crew	12	Beaumont, TX	1	1	8.5	2	2	14.5
10,000' 18" Boom	5 Crew	10	Corpus Christi, TX	1	1	17	2	2	23
12,000' 18" Boom	5 Crew	10	Houston, TX	1	1	11	2	2	17
1,000' 18" Boom	5 Crew	10	Three Rivers, TX	1	1	17	2	2	23

Wildlife Response	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
					CGA						
Wildlife Support Trailer	NA	NA	NA	2	Harvey	2	2	3	1	2	10
Bird Scare Guns (24)	NA	NA	NA	2	Harvey	2	2	3	1	2	10
Bird Scare Guns (12)	NA	NA	NA	2	Galveston	2	2	12	1	2	19
Bird Scare Guns (12)	NA	NA	NA	2	Aransas Pass	2	2	16.5	1	2	23.5
Bird Scare Guns (48)	NA	NA	NA	2	Lake Charles	2	2	7	1	2	14
Bird Scare Guns (24)	NA	NA	NA	2	Leeville	2	2	2	1	2	9

Response Asset	Total
Offshore EDRC	369,152
Offshore Recovered Oil Capacity	414,796+
Nearshore / Shallow Water EDRC	147,915
Nearshore / Shallow Water Recovered Oil Capacity	154,845

SECTION 9 – ENVIRONMENTAL MONITORING INFORMATION

A. Monitoring Systems

There are no environmental monitoring systems currently in place or planned for the activities proposed in this Plan.

B. Incidental Takes

There is no reason to believe that any of the endangered species or marine mammals as listed in the Endangered Species Act (ESA) will be incidentally taken as a result of the operations proposed in this plan.

Contango, and its personnel and subcontractors, while undertaking activities proposed in this Plan will adhere to the requirements as set forth in Appendices A, B, C and J of the NMFS Endangered Species Act Section 7 Biological Opinion, the MMPA and the following documents, as applicable, to avoid or minimize impacts to any of the species listed in the ESA:

- NTL No. 2015-G03 (Marine Trash and Debris Awareness and Elimination)
- NTL No. 2016-G01 (Vessel Strike Avoidance and Injured/Dead Protected Species Reporting
- NTL No. 2016-G02 (Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program)

C. Flower Garden Banks National Marine Sanctuary

Contango's activities proposed in this Plan are not located within the Protective Zones of the Flower Garden Banks or Stetson Bank; therefore, relevant information is not required in this Plan.

SECTION 10 – LEASE STIPULATIONS INFORMATION

Exploratory activities are subject to the following stipulation attached to Lease OCS-G 36755, Grand Isle Block 45.

A. Marine Protected Species

In accordance with the Federal Endangered Species Act and the Marine Mammal Protection Act, Contango will:

(a) Collect and remove flotsam resulting from activities related to exploration, development, and production of this lease;

(b) Post signs in prominent places on all vessels and platforms used as a result of activities related to exploration, development, and production of this lease detailing the reasons (legal and ecological) why release of debris must be eliminated;

(c) Observe for marine mammals and sea turtles while on vessels, reduce vessel speed to 10 knots or less when assemblages of cetaceans are observed, and maintain a distance of 90 meters or greater from whales, and a distance of 45 meters or greater from small cetaceans and sea turtles;

(d) Employ mitigation measures prescribed by BOEM/BSEE or the National Marine Fisheries Service (NMFS) for all seismic surveys, including the use of an "exclusion zone" and buffer zone based upon the appropriate water depth, ramp-up and shutdown procedures, visual monitoring, and reporting;

(e) Identify important habitats, including designated critical habitat, used by listed species (e.g., sea turtle nesting beaches, piping plover critical habitat), in oil spill contingency planning and require the strategic placement of spill cleanup equipment to be used only by personnel trained in less-intrusive cleanup techniques on beaches and bay shores; and

(f) Immediately report all sightings and locations of injured or dead protected species (e.g., marine mammals and sea turtles) to the appropriate stranding network. If oil and gas industry activity is responsible for the injured or dead animal (e.g., because of a vessel strike), the responsible parties should remain available to assist the stranding network. If the injury or death was caused by a collision with the lessee's vessel, the lessee must notify BOEM within 24 hours of the strike.

(g) Follow the guidelines in NMFS Endangered Species Act Section 7 Biological Opinion of sea turtle handling, resuscitation, and release if incidentally taken during the course of operations.

(h) BOEM and BSEE issue Notices to Lessees and Operators (NTLs), which more fully describe measures to be implemented in support of the above-mentioned implementing statutes and regulations, as well as measures identified by the United States Fish and Wildlife Service and NMFS arising from, among others, conservation recommendations, rulemakings pursuant to the MMPA, or consultation. The lessee and its operators, personnel, and subcontractors, while undertaking activities authorized under this lease, must implement and comply with the specific mitigation measures outlined in the following NTLs:

- BOEM NTL No. 2016-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting" (available at http://www.boem.gov/BOEM-NTL-No-2016-G01);
- BOEM NTL No. 2016-G02 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program" (available at http://www.boem.gov/BOEMNTL-2016-G02); and
- BSEE NTL No. 2015-G03 "Marine Trash and Debris Awareness and Elimination" (available at https://www.bsee.gov/sites/bsee.gov/files/notices-to-lessees-ntl/alerts/ntl2015-g03.pdf).

At the lessee's option, the lessee, its operators, personnel, and contractors may comply with the most current measures to protect species in place at the time an activity is undertaken under this lease, including, but not limited to, new or updated versions of these NTLs or a new Biological Opinion. The lessee and its operators, personnel, and subcontractors will be required to comply with the mitigation measures identified in the above referenced NTLs, and additional measures in the conditions of approvals for their plans or permits.

SECTION 11 - ENVIRONMENTAL MITIGATION MEASURES

A. Measures taken to avoid, minimize and mitigate impacts

This plan does not propose activities for which the state of Florida is an affected state; therefore, mitigation information is not required for the activities proposed in this plan.

B. Incidental Takes

Contango will adhere to the requirements set forth in Appendices A, B, C and J of the NMFS Endangered Species Act Section 7 Biological Opinion, MMPA and the following documents, as applicable, to avoid or minimize impacts to any of the species listed in the Endangered Species Act (ESA) as a result of the operations conducted herein:

NTL No. 2015-BSEE-G03, "Marine Trash and Debris Awareness and Elimination"
NTL No. 2016-BOEM-G01, "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting
NTL No. 2016-BOEM-G02, "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program"

SECTION 12 - SUPPORT VESSELS AND AIRCRAFT INFORMATION

A. General

The following table provides information regarding the vessels and aircraft Contango will use to support the activities proposed in this Plan:

Type of Vessel	Maximum Fuel Tank Capacity	Maximum Number in Area at Any Time	Trip Frequency
Tug Boat	N/A	N/A	N/A
Supply Boat	88360 gal	1	2 X week
Crew Boat	33980 gal	1	4 X week
Helicopter	570 gal	1	1 X 2 weeks

B. Diesel Oil Supply Vessels

Size of Fuel Supply Vessel (ft)	Capacity of Fuel Supply Vessel	Frequency of Fuel Transfers	Route Fuel Supply Vessel Will Take
220	88360 gal	1 X week	Direct route from shorebase to location

C. Solid and Liquid Waste Transportation

The projected solid and liquid wastes table Contango will transport and dispose of onshore is included as ***Attachment 12-1.***

D. Vicinity Map

Rigs, vessels, supply boats, tug boats and diesel oil supply vessels utilized for the operations proposed in this Plan will not transit the Bryde's whale area described in the NMFS Endangered Species Act Section 7 Biological Opinion.

A vicinity map showing the location from the shoreline and the primary route(s) of the support vessels and aircraft when travelling between the onshore support facilities and the proposed activities in this Plan is included as ***Attachment 12-2.***

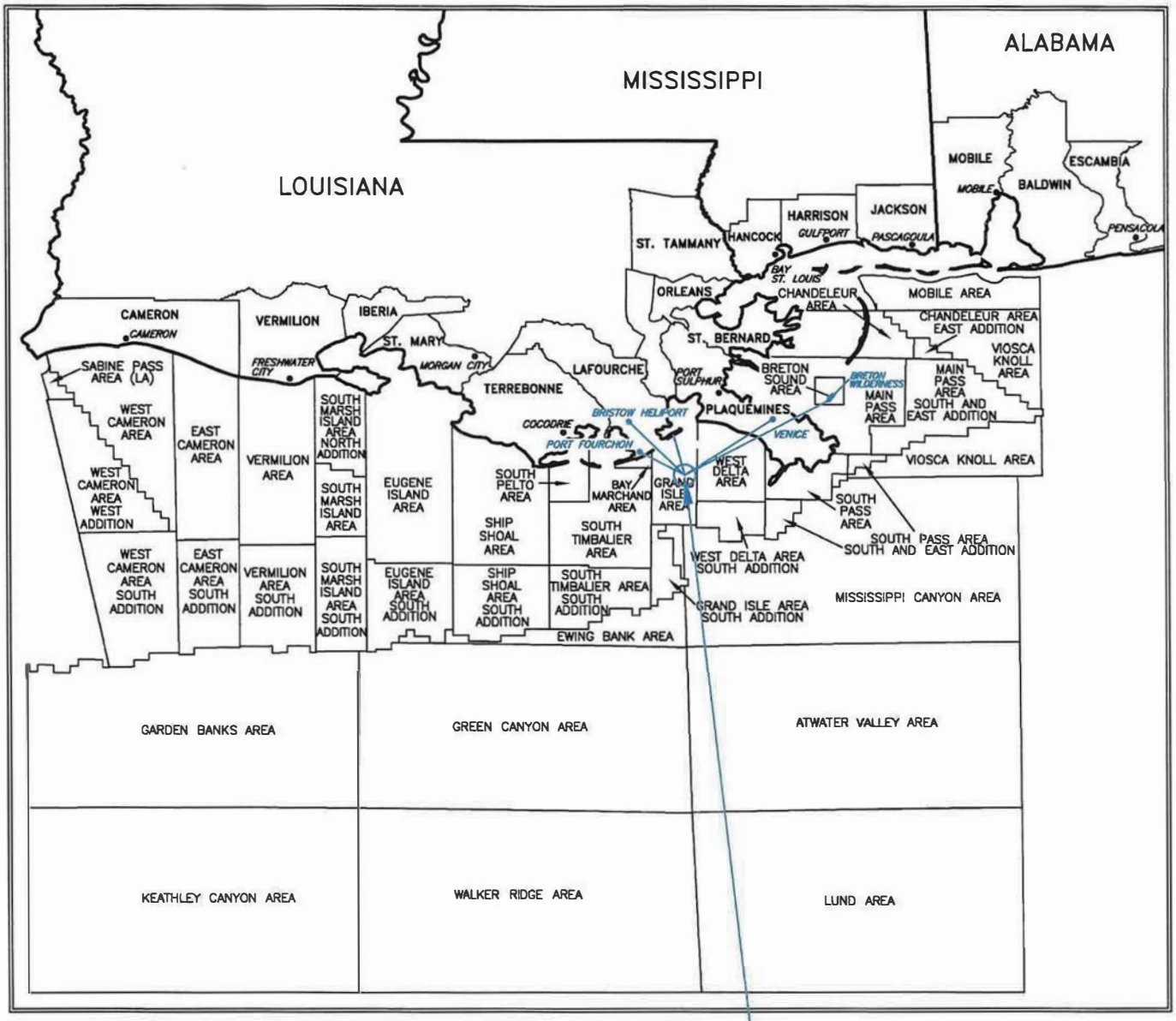
TABLE 2. WASTES YOU WILL TRANSPORT AND /OR DISPOSE OF ONSHORE

please specify whether the amount reported is a total or per well

Projected generated waste		Solid and Liquid Wastes transportation	Waste Disposal		
Type of Waste	**Composition**	**Transport Method**	**Name/Location of Facility**	**Amount**	**Disposal Method**
Will drilling occur ? If yes, fill in the muds and cuttings.					
Oil-based drilling fluid or mud	NA	NA	NA	NA	NA
Synthetic-based drilling fluid or mud	used SBF and additives	cuttings boxes / supply boat tanks	R360 or EcoServ in Fourchon, LA	500 bbls/well	Recycled
Cuttings wetted with Water-based fluid	NA	NA	NA	NA	NA
Cuttings wetted with Synthetic-based fluid	Cuttings/Residual SBF	cuttings boxes on supply boat	R360 or EcoServ in Fourchon, LA	1700 bbls/well	Recycled
Cuttings wetted with oil-based fluids	NA	NA	NA	NA	NA
Will you produce hydrocarbons? If yes fill in for produced sand.					
Produced sand	NA	NA	NA	NA	NA
Will you have additional wastes that are not permitted for discharge? If yes, fill in the appropriate rows.					
trash and debris	trash and debris	storage bins on supply boat	Grand Isle Shipyard, Port Fourchon, LA	500 cu ft total	landfill
used oil	NA	drums on supply boat	NA	NA	NA
wash water	NA	NA	NA	NA	NA
chemical product wastes	NA	NA	NA	NA	NA

Attachment 12-1

LOUISIANA GULF COAST INDEX
BOEM O.C.S. LEASING AREAS



WELL NO. 1

~16.0 STATUTE (13.9 NAUTICAL) MILES TO LAFOURCHE PARISH (NEAREST SHORE)
COORDINATE TO NEAREST POINT ON SHORELINE X = 2,395,474 Y = 180,408
~18.9 STATUTE (16.4 NAUTICAL) MILES TO PORT FOURCHON, LA
~37 STATUTE (32 NAUTICAL) MILES TO BRISTOW HELIPORT, GALLIANO, LA
~42 STATUTE (36 NAUTICAL) MILES TO VENICE, LA
~89 KILOMETERS TO BRETON WILDERNESS

Attachment 12~2

VICINITY MAP

THE DISTANCES SHOWN HEREON ARE FROM THE PROPOSED WELL TO THE NEAREST COASTLINE POINT AS OBTAINED FROM NOAA, ENTITLED NOAA MEDIUM RESOLUTION SHORELINE. <HTTP://SHORELINE.NOAA.GOV/DATA/DATASHEETS/MEDRES.HTML>.

Contango

Contango Operators, Inc.

Echo OFFSHORE LLC
36499 Perkins Road
Prairieville, Louisiana 70769
Tel: 225-673-2163

NOT TO SCALE

EXPLORATION PLAT

PROPOSED WELL NO. 1
OCS-G 36755 BLOCK 45
GRAND ISLE AREA

GULF OF MEXICO

DRAWN BY: RJN	CHK. BY.: MEK	REV. No.:	JOB No.: 19-065	DWG No.: 19-065-EXP45
DATUM: NAD 27	SPHEROID: CLARKE 1866	PROJECTION: LAMBERT	ZONE: LA SOUTH	DATE: 2-25-2020	REV. DATE:	SCALE: N.T.S.	SHEET 1 OF 1

SECTION 13 - ONSHORE SUPPORT FACILITIES INFORMATION

A. General

The onshore facilities to be used to provide vessel and aircraft service for the activities proposed in this Plan are provided in the table below:

Name	Location	Existing / New / Modified
GIS Shorebase	Port Fourchon, LA	Existing
Heliport	Galiano, LA	Existing

B. Support Base Construction or Expansion

There will be no new construction of a new shorebase, nor expansion of an existing shorebase to conduct the activities proposed in this Plan.

C. Support Base Construction or Expansion Timetable

A support base construction or expansion timetable is not required for the activities proposed in this Plan.

D. Waste Disposal

The proposed liquid and solid wastes Contango will transport and/or dispose of onshore are included in a table as ***Attachment 12-1***.

SECTION 14 – COASTAL ZONE MANAGEMENT (CZMA) INFORMATION

Congress enacted the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) to protect the coastal environment from growing demands associated with residential, recreational, commercial, and industrial uses (e.g., State and Federal offshore oil and gas development). The CZMA provisions help States develop coastal management programs (Programs) to manage and balance competing uses of the coastal zone. Federal Agencies must follow the Federal Consistency provisions as delineated in 15 CFR part 930.

Under the direction of the CZMA, the states of Texas, Louisiana, Mississippi, Alabama and Florida developed Coastal Zone Management Programs (CZMP). Applicants for an OCS Plan must provide a certification with applicable documentation for the affected state to determine that the proposed activities comply with the enforceable policies of each state's approved program and that the proposed activities will be conducted in compliance with the program.

A. Consistency Certification

Relevant enforceable policies were considered in certifying consistency for Louisiana. The Coastal Zone Management Consistency Certification is included as ***Attachment 14-1***.

COASTAL ZONE MANAGEMENT

CONSISTENCY CERTIFICATION

INITIAL EXPLORATION PLAN

LEASE OCS-G 36755
GRAND ISLE BLOCK 45

The proposed activities comply with the enforceable policies of the Louisiana approved Coastal Zone Management Program and will be conducted in a manner consistent with such Program.

Contango Operators, Inc.

Lessee or Operator

Certifying Official

2/26/2020

Date

Attachment 14-1

SECTION 15 – ENVIRONMENTAL IMPACT ANALYSIS (EIA)

Initial Exploration Plan
Grand Isle Block 45
Leases OCS-36755

A. Impact Producing Factors

Environmental Resources	Impact Producing Factors (IPFs) Categories and Examples					
	Emissions (air, noise, light, etc.)	**Effluents (muds, cuttings, other discharges to the water column or seafloor**	**Physical disturbances to the seafloor (rig or anchor emplacements, etc.)**	**Wastes sent to shore for treatment or disposal**	**Accidents (e.g., oil spills, chemical spills, H_2S releases)**	**Discarded trash & debris**
Site-specific at Offshore Location						
Designated topographic features		(1)	(1)		(1)	
Pinnacle Trend area live bottom		(2)	(2)		(2)	
Eastern Gulf live bottoms		(3)	(3)		(3)	
Benthic communities			(4)			
Water quality		X	X		X	
Fisheries		X	X		X	
Marine Mammals	X(8)	X			X(8)	X
Sea Turtles	X(8)	X			X(8)	X
Air quality	X(9)					
Shipwreck sites (known or potential)			X(7)			
Prehistoric archaeological sites			X(7)			
Vicinity of Offshore Location						
Essential fish habitat		X	X		X(6)	
Marine and pelagic birds	X				X	X
Public health and safety					(5)	
Coastal and Onshore beaches						
Beaches					X(6)	X
Wetlands					X(6)	
Shore birds and coastal nesting birds					X(6)	X
Coastal wildlife refuges					X	
Wilderness areas					X	

Footnotes for Environmental Impact Analysis Matrix

1) Activities that may affect a marine sanctuary or topographic feature. Specifically, if the well or platform site or any anchors will be on the seafloor within the:
   - 4-mile zone of the Flower Garden Banks, or the 3-mile zone of Stetson Bank;
   - 1000-m, I-mile or 3-mile zone of any topographic feature (submarine bank) protected by the Topographic Features Stipulation attached to an OCS lease;
   - Essential Fish Habitat (EFH) criteria of 500 ft. from any no-activity zone; or
   - Proximity of any submarine bank (500 ft. buffer zone) with relief greater than 2 meters that is not protected by the Topographic Features Stipulation attached to an OCS lease.
2) Activities with any bottom disturbance within an OCS lease block protected through the Live Bottom (Pinnacle Trend) Stipulation attached to an OCS lease.
3) Activities within any Eastern Gulf OCS block where seafloor habitats are protected by the Live Bottom (Low- Relief) Stipulation attached to an OCS lease.
4) Activities on blocks designated by the BOEM as being in water depths 300 meters or greater
5) Exploration or production activities where H2S concentrations greater than 500 ppm might be encountered.
6) All activities that could result in an accidental spill of produced liquid hydrocarbons or diesel fuel that you determine would impact these environmental resources. If the proposed action is located a sufficient distance from a resource that no impact would occur, the EIA can note that in a sentence or two.
7) All activities that involve seafloor disturbances, including anchor emplacements, in any OCS block designated by the BOEM as having high-probability for the occurrence of shipwrecks or prehistoric sites, including such blocks that will be affected that are adjacent to the lease block in which your planned activity will occur. If the proposed activities are located a sufficient distance from a shipwreck or a prehistoric site that no impact would occur, the EIA can note that in a sentence or two.
8) All activities that you determine might have an adverse effect on endangered or threatened marine mammals or sea turtles or their critical habitats.
9) Production activities that involve transportation of produced fluids to shore using shuttle tankers or barges.

A. Analysis

Site Specific Activities at Grand Isle Block 45

Contango proposes to drill, complete and test Well No. 1 and install 1 caisson and temporarily abandon the well. A typical jackup type drilling rig will be utilized during the proposed operations. The operations will be located 16.0 miles from the nearest shoreline.

1. Designated Topographic Features:

IPFs that could potentially cause impacts on topographic features include effluents, physical disturbance to the seafloor, and accidents. Topographic features are a subset of GOM live bottom habitats that are large enough to have an especially important ecological role, with specific protections defined in the proposed Topographic Features Stipulation. Within the Gulf of Mexico, BOEM has identified 37 topographic features where some degree of protection from oil and gas development may be warranted based on geography and ecology.

Oil and gas exploration, development, and transportation activities in the vicinity of sensitive biological habitats associated with topographic features on the OCS (e.g., coral reefs) may cause deleterious impacts to those habitats in several ways, including toxic and smothering effects from drilling and production effluents and mechanical damage from drilling rigs, platforms, pipelines, and anchor emplacement.

Activities proposed in this EP do not fall within 305 meters (1000 feet) of a topographic “No Activity Zone”; therefore; there are no IPFs (including effluents, physical disturbances to the seafloor and accidents) from the proposed activities in Grand Isle Block 45 that could cause impacts to topographic features. The activities proposed in this Plan will be covered by Contango’s Regional OSRP.

2. Pinnacle Trend Area Live Bottoms

IPFs that could potentially cause impacts on pinnacle trend area live bottoms include effluents, physical disturbance to the seafloor and accidents.

Pinnacle trend area live bottoms means small, isolated low to moderate relief carbonate reefal features or outcrops of unknown origin or hard substrates exposed by erosion that provide surface area for the growth of sessile invertebrates and attract large numbers of fish.

Oil and gas exploration, development, and transportation activities in the vicinity of the crests and flanks of pinnacle and hard-bottom features including those located in 74 lease blocks in the Central Planning Area of the Gulf of Mexico may cause deleterious impacts to sessile and pelagic communities associated with those habitats.

The Live Bottom Stipulation was not invoked for Grand Isle Block 45; therefore, there are no IPFs (including effluents, physical disturbances to the seafloor and accidents from the proposed activities which could impact a live bottom (pinnacle trend) area.

3. Eastern Gulf Live Bottoms

IPFs that could potentially cause impacts on Eastern Gulf live bottoms include effluents, physical disturbance to the seafloor and accidents.

Oil and gas exploration, development, and transportation activities in the vicinity of the crests and flanks of pinnacle and hard-bottom features, including those located on 74 OCS lease blocks in the northeastern Central Planning Area (CPA) of the Gulf of Mexico, may cause deleterious impacts to the sessile and pelagic communities associated with those habitats. Adverse impacts could be caused by mechanical damage from drilling rigs, platforms, pipelines, and anchor emplacement.

The Eastern Gulf Live Bottom Stipulation was not invoked for Grand Isle Block 45; therefore, it is unlikely that activities in Grand Isle Block 45 that could cause impacts to Eastern Gulf live bottoms.

4. Benthic Communities

IPFs that could potentially cause impacts on benthic communities are physical disturbance to the seafloor.

Benthic communities that lie in water depths in excess of 300 meters (984 feet) are of concern for environmental protection measures.

Operations proposed in this Plan are in water depths of 106 feet; therefore, there it is unlikely that the activities proposed in this Plan that could cause impacts to benthic communities.

5. Water Quality

IPFs that could potentially cause impacts to water quality from the activities proposed in this Plan
include effluents, physical disturbances to the seafloor and accidents.

Emplacement of rigs / anchors could result disruption of sediments only in the immediate vicinity of the site. Displaced material from or the physical presence of the rig or platform can increase turbidity temporarily and is generally not significant beyond a few hundred meters from the rig.

Exploration and development discharges are authorized under EPA's Region VI NPDES General Permit GMG 29000. The permit establishes effluent limitations, prohibitions, reporting requirements, and other conditions on discharges from oil and gas activities, thereby eliminating many biological or ecological effects. Operational discharges are not likely to cause any significant adverse impacts to water quality.

Accidental oil spills could potentially alter offshore water quality. In the event of an oil spill, the water quality would be temporarily affected. Winds, waves and currents may result in natural dispersion breaking a slick into droplets which are then distributed throughout the water. Oxidation occurs when oil contacts the water and oxygen combines with the oil to produce water-soluble compounds. The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

6. Fisheries

IPFs that could potentially cause impacts to fisheries from the activities proposed in this include effluents, physical disturbances to the seafloor and accidents.

Contango will conduct the activities proposed in this Plan in compliance with EPA's Region VI NPDES GMG 209000, which sets parameters on certain effluent discharges. Therefore, it is not anticipated that these discharges will cause significant impacts to fisheries.

Emplacement of rigs / anchors could result disruption of sediments only in the immediate vicinity of the site. Displaced material from or the physical presence of the rig or platform can increase turbidity temporarily and is generally not significant beyond a few hundred meters from the rig. Therefore, it is not anticipated that disturbance to the seafloor will cause significant impacts to fisheries.

In the event of an oil spill, fish and shellfish may not be exposed immediately, but can come into contact with oil if it is mixed into the water column. When exposed to oil, adult fish may experience reduced growth, enlarged livers, changes in the heart and respiration rates, fin erosion, and reproductive impairment. Oil may adversely affect eggs and larvae survival. However, an oil spill is unlikely to have an impact on fisheries due to industry standards, response technology and available equipment. The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

7. Marine Mammals

The impact producing factors that could cause impacts to marine mammals include emissions, effluents, accidents and discarded trash and debris.

Exploratory drilling may impact marine mammals based on disturbance by sound emitted during drilling, during seismic profiling of the well, and from support vessels or aircraft. There is little conclusive evidence for long-term displacements and population trends for marine mammals relative to noise.

Effluent discharges from oil and gas drilling operations is authorized under the EPA's NPDES General Permit 290000 and sets parameters on certain effluent discharges. Therefore, it is not anticipated that these discharges will cause significant impacts to marine mammals.

Spills and leaks can occur at all stages of oil and gas development, with varying effects based on the type and amount of substance spilled. Spills (defined as > 1,000 barrels) can occur from blowouts, other losses of well control, or accidents during loading, transport, and unloading of oil or gas from platforms to shore via vessels or pipelines. Smaller spills and leaks of oil, gas, or other chemicals also can occur from storage tank accidents, transfer mishaps, leaks from fuel tanks, or incidents involving temporarily or permanently abandoned wells. Spills and leaks can cause acute injury or mortality, can have longer-term, sublethal effects on marine mammals, and can degrade habitat. However, it is unlikely a spill would occur from the proposed activities (refer to Item 5, Water Quality). The activities proposed in this Plan will be covered by Contango's Oil Spill Response Plan.

Marine trash and debris pose a threat to fish, marine mammals, sea turtles and other marine animals. The Bureau of Safety and Environmental Enforcement outlined regulatory

requirements in BSEE NTL (Notice to Lessees) No. 2015-G03. Oil and gas operators are prohibited from discharging containers and other materials into the marine environment and requires operators to increase worker's awareness and emphasizing their responsibilities through the use of Marine Trash and Debris Placards, Marine Trash and Debris Awareness Training and by annual Marine Trash and Debris Awareness Training and Certification Process. Therefore, it is not anticipated that marine trash and debris will cause significant impacts to marine mammals.

8. Sea Turtles

IPFs that could cause impacts to sea turtles include emissions, effluents, accidents and discarded trash and debris.

Five species of sea turtles occur in the Gulf of Mexico: Kemp's ridley, loggerhead, green, leatherback, and hawksbill. All sea turtles in the Gulf of Mexico are either threatened or endangered under the Endangered Species Act.

Sea turtles can be startled by noise from drilling activities, support vessels and helicopters; however, this is a temporary response.

Effluent discharges from oil and gas drilling operations are authorized under the EPA's NPDES General Permit 290000 and sets parameters on certain effluent discharges. Therefore, it is not anticipated that these discharges will cause significant impacts to sea turtles.

Support vessels rarely collide with sea turtles; however, if one should occur, the sea turtle could be injured or die. Vessel crews are required to notify BSEE within 24 hours of a vessel strike to notify protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the salvage and stranding network as needed. Vessel crews are required to notify sea turtle strandings to the Sea Turtle Stranding and Salvage Network Coordinator State Coordinator (phone numbers vary by state) https://www.fisheries.noaa.gov/about/southeast-fisheries-science-center.

Sea turtles are extremely vulnerable to oil spills. Specifically, sea turtles can become coated in oil or inhale volatile chemicals when they surface to breathe, swallow oil or contaminated prey and swim through oil or come in contact with it. It is unlikely that an accidental spill would occur from the activities proposed in this Plan (refer to Item 5, Water Quality). The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

9. Air Quality

IPFs that could cause potentially cause impacts to air quality include emissions.

Drilling operations release a number of harmful pollutants. However, these emissions would not impact onshore air quality because of the prevailing atmospheric condition, emission height and distance from shore.

The activities proposed in this Plan are located 16.0 miles from the nearest Louisiana shoreline. There would be a limited degree of degradation in the immediate of the

activities. Per the Air Emissions Spreadsheets provided in Section 7, Contango will not exceed the exemption levels provided by BOEM.

10. Shipwreck Sites

IPFs that could potentially cause impacts to known or unknown shipwreck sites as a result of the activities proposed in this Plan include disturbances to the seafloor.

Historic shipwrecks dating have been discovered, largely through industry surveys, in all parts and in all water depths of the Gulf of Mexico.

Grand Isle Block is not located in or adjacent to an OCS Block designated by BOEM as having a high potential for shipwrecks. Contango will report to BOEM the discovery of any evidence of a shipwreck and make every reasonable effort to preserve and protect that shipwreck.

11. Prehistoric Archaeological Sites

IPFs that could potentially cause impacts to prehistoric archaeological sites are physical disturbances to the seafloor.

The National Historic Preservation Act (NHPA) of 1996, as amended, is Federal legislation developed to ensure that our Nation's historical and archaeological properties are not lost through neglect or inadvertently damaged by activities permitted or funded by Federal agencies. Specifically, BOEM and BSEE, as Federal bureaus, are required under Section 106 of the Act to institute procedures to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance. Archaeological sites on the OCS are most likely to be either prehistoric Native American sites dating from the time at the end of the last Ice Age when sea levels were about 200 feet lower than they are today or historic shipwrecks.

Review of the high resolution shallow hazards survey did not indicate the occurrence of prehistoric archaeological sites in Grand Isle Block 45.

Vicinity of Offshore Location

1. Essential Fish Habitat (EFH)

IPFs that could potentially cause impacts to EFHs a result of the activities proposed in this Plan include effluents, physical disturbances to the seafloor and accidents.

Fish and other marine species depend on their habitat to survive and reproduce. Congress improved the nation's primary fisheries law in 1996 to recognize the importance of healthy habitat for commercial and recreational fisheries.

Protecting and restoring EFHs has helped to maintain productive fisheries and rebuild depleted fish stocks in the United States. NOAA Fisheries has used EFH authorities to support the $200 billion U.S. fishing industry while protecting more than 800 million acres of habitat. Our economy

and fishing industry benefit from sustainable fisheries supported by productive habitats that provide high-quality seafood.

Measures to minimize potential EFH impacts are an integral part of the OCS Program. These measures are implemented through lease stipulations, operating regulations, Notices to Lessees and Operators (NTLs) and project specific requirements or conditions of approval. These measures address concerns, including effluents.

Effluent discharges from oil and gas drilling operations are authorized under the EPA's NPDES General Permit 290000 and sets parameters on certain effluent discharges. See Item 5 – Water Quality above.

The Live Bottom (low relief and pinnacle trend) Stipulations and the Eastern Gulf Pinnacle Trend Stipulation would prevent most of the potential impacts on EFH from bottom disturbing activities.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an imp[act on EFHs due to industry standards, response technology and available equipment. The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

2. Marine and Pelagic Birds

IPFs that could potentially cause impacts to marine and pelagic birds as a result of the activities proposed in this Plan are emissions, accidents and discarded trash and debris.

The air pollution emitted into the atmosphere are below concentrations that could harm marine and pelagic birds.

Marine and pelagic birds could be adversely impacted by an accidental spill by coming into contact with the oil and by ingesting prey.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact on marine and pelagic birds due to industry standards, response technology and available equipment. The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

In many areas of the globe, birds inadvertently feed on plastic floating on the water, mistaking it for food, and many times this ingestion leads to death and even the death of their young.

Marine trash and debris pose a threat to coastal and marine birds. The Bureau of Safety and Environmental Enforcement outlined regulatory requirements in BSEE NTL (Notice to Lessees) No. 2015-G03. Oil and gas operators are prohibited from discharging containers and other materials into the marine environment and requires operators to increase worker's awareness and emphasizing their responsibilities through the use of Marine Trash and Debris Placards, Marine Trash and Debris Awareness Training and by annual Marine Trash and Debris Awareness Training and Certification Process. Therefore, it is not anticipated that marine trash and debris will cause significant impacts to marine and pelagic birds.

3. Public Health and Safety

There are no IPFs from the activities proposed in this Plan that could cause impacts to health and safety. Contango has requested BOEM approval to classify the target objective as absent of H_2S.

Coastal and Onshore

1. Beaches

IPFs associated with offshore oil and gas operations are oil spills and marine trash and debris. .

Healthy oceans are critically important to marine life and to coastal communities whose economics rely on tourism and fishing.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact on marine and pelagic birds due to industry standards, response technology and available equipment. The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

There will be a limited amount of marine debris resulting from the operations. The Bureau of Safety and Environmental Enforcement outlined regulatory requirements in BSEE NTL (Notice to Lessees) No. 2015-G03. Oil and gas operators are prohibited from discharging containers and other materials into the marine environment and requires operators to increase worker's awareness and emphasizing their responsibilities through the use of Marine Trash and Debris Placards, Marine Trash and Debris Awareness Training and by annual Marine Trash and Debris Awareness Training and Certification Process. Therefore, it is not anticipated that marine trash and debris will cause significant impacts to beaches.

2. Wetlands

An accidental oil spills could cause impacts to wetlands. However, due to the distance from shore and the response capabilities, no significant impacts are anticipated.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact due to industry standards, response technology and available equipment. The activities proposed in this Plan will be covered under Contango's Oil Spill Response Plan.

There will be a limited amount of marine debris resulting from the operations. The Bureau of Safety and Environmental Enforcement outlined regulatory requirements in BSEE NTL (Notice to Lessees) No. 2015-G03. Oil and gas operators are prohibited from discharging containers and other materials into the marine environment and requires operators to increase worker's awareness and emphasizing their responsibilities through the use of Marine Trash and Debris Placards, Marine Trash and Debris Awareness Training and by annual Marine Trash and Debris Awareness Training and Certification Process. Therefore, it is not anticipated that marine trash and debris will cause significant impacts to wetlands.

3. Shore Birds and Nesting Coastal Birds

IPFs that could potentially cause impacts to shore birds and nesting coastal birds are accidents and discarded trash and debris.

It is unlikely a spill would occur from the activities proposed in this plan (refer to Section 5 – Water Quality). Longshore currents are generated when a train of waves reach the coastline and release bursts of energy. As a result, the wave tends to bend and conform to the general shape of the coastline. These currents would allow for sufficient time to respond effectively; therefore, no impacts are expected.

There will be a limited amount of marine debris resulting from the operations. The Bureau of Safety and Environmental Enforcement outlined regulatory requirements in BSEE NTL (Notice to Lessees) No. 2015-G03. Oil and gas operators are prohibited from discharging containers and other materials into the marine environment and requires operators to increase worker's awareness and emphasizing their responsibilities through the use of Marine Trash and Debris Placards, Marine Trash and Debris Awareness Training and by annual Marine Trash and Debris Awareness Training and Certification Process. Therefore, it is not anticipated that marine trash and debris will cause significant impacts to shore birds and nesting birds.

4. Coastal Wildlife Refuges

The IPF associated with coastal wildlife refuges is spills (accidents).

Due to the location of the activities and longshore currents, it is unlikely that the activities proposed in this Plan could impact coastal wildlife refuges.

5. Wilderness Areas

The IPF associated with coastal wilderness areas is spills (accidents).

Due to the location of the activities and longshore currents, it is unlikely that the activities proposed in this Plan could impact coastal wildlife refuges.

6. Other Environmental Resources Identified

There are no other environmental resources identified for this assessment.

Impacts on Proposed Activities

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

Environmental Hazards

Due to its location in the gulf, Grand Isle Block 45 may experience hurricane and tropical force winds and sea currents.

In accordance with Title 33 CFR.140, Contango will prepare and submit an Emergency Evacuation Plan to the U.S. Coast Guard which outlines pre-evacuation and evacuation steps.

The following preventive measures may be implemented to mitigate impacts:

1. Secure well
2. Secure rig
3. Evacuate Personnel

Alternatives

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

Mitigation Measures

No mitigations measures, other than those required by regulation will be considered to avoid, lessen or eliminate potential impacts on environmental hazards.

Consultation

There were no outside agencies or persons consulted regarding potential impacts associated with the activities proposed in this Plan.

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References

Author	Title	Date
BOEM	Region Wide Lease Sale 253 Lease Stipulations	2019
BOEM	Essential Fish Habitat for the Gulf of Mexico	2016
BOEM	Final Supplemental EIS Statement 2018	2018
BOEM *f.k.a. MMS*	NTL 2008 G-04 "Information Requirements for EPs and DOCDs"	04/01/08
BOEM *f.k.a.* MMS	NTL 2009 -27 "Submitting EPs and DOCDs"	09/08/09
BOEM *f.k.a.* MMS	NTL 2009 G-39 "Biologically Sensitive Underwater Features and Areas	01/27/10
BOEM / BSEE	NTL 2011 JOINT-G01 "Revisions to Archaeological Survey Blocks"	12/29/11
BOEM	NTL 2015 N-04 "General Financial Assurance"	08/17/15
BOEM	NTL 2016 G-02 "Implementation of Seismic Mitigation Measures and Protected Observer Program"	09/30/16

BSEE	NTL 2015 G-03 " Marine Trash and Debris Awareness and Elimination	12/17/15
EPA	NPDES General Permit	09/18/17
NOAA	How Does Oil Impact Marine Life – NOAA Website	01/07/20
NOAA	2014 NOAA Marine Debris Program Report – NOAA Website	2014
NOAA	Office of Response and Restoration – NOAA Website	2019
NOAA	Sea Turtle Stranding and Salvage Network – NOAA Website	2020
U.S. Fish and Wildlife	Marine Mammal Protection Act	1972
Valverde, Roldan A. / Holzward, K.R.	Sea Turtles in the Gulf of Mexico	06/27/2017

SECTION 16 – ADMINISTRATIVE INFORMATION

A. Exempted Information Description (public information copies only)

The following information has been removed from the Public Information copy of this Plan:

- Bottomhole location of wells
- Discussion of target objectives
- Geological or geophysical data
- Interpreted geology

B. Bibliography

N/A