UNITED STATES GOVERNMENT
MEMORANDUM

September 07, 2021

To: Public Information

From: Plan Coordinator, OLP, Plans Section (GM 235D)

Subject: Public Information copy of Plan.

Control #	-	N-10162
Type	-	Initial Exploration Plan
Lease(s)	-	OCS-G18683 Block - 313 Walker Ridge Area RUE OCS-G 30392 Block - 313 Walker Ridge Area
Operator	-	The University of Texas at Austin.
Description	-	Ancillary Activity - Deep Stratigraphic Test for Wells H002,G002,F001,F002. The Bottom Hole Lease G18683 is a TERMINATED LEASE (ONLY WAY TO GET INTO SYSTEM) - wells being approved under RUE OCS-G 30392
Rig Type	-	Not Found

Attached is a copy of the subject plan.

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

Henry Emembolu
Plan Coordinator

Initial Exploration Plan
Walker Ridge Block 313

Deep Stratigraphic Tests

Deepwater Methane Hydrate Characterization and Scientific Assessment (DE-FE0023919)

UT-GOM2-2 Scientific Drilling Program

Offshore, Louisiana

The University of Texas at Austin
101 East 27th St, Suite 4.300
Austin, TX 78712-1500

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March 2021

PUBLIC INFORMATION

University of Texas at Austin

INITIAL EXPLORATION PLAN

WALKER RIDGE BLOCK 313

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OVERVIEW

We plan to drill four deep stratigraphic tests from three surface locations. Activities include drilling/coring two 9-7/8" holes in areas where hydrates have previously been drilled (2009 JIP II Methane Hydrates LWD program) and drilling an 8-1/2" LWD well & 'twinned' 9-7/8" cored well in an updip location sited ~ 1,057 feet to the southeast. Maximum depth of the wells is 3,085 fbsf. Water depths range from 6,374 to 6,567 feet.

The first well will be drilled using LWD technology to confirm presence of hydrates in target intervals updip of the primary coring areas. The 8-1/2" hole will be drilled to a maximum depth of ~2,745 fbsf. While the results of the logs are being interpreted, the rig will move downdip and drill/core one well each at two separate locations. Each of these two wells will be located within 50 feet of a previously drilled LWD well.

In the first of the cored wells; multiple pressure cores will be taken in and around three target hydrate sands (Red, Upper Blue, & Orange sands). The depth of the hydrate targets range from ~950 to 2,700 fbsf. In addition, intermittent spot pressure-cores will be acquired throughout the borehole. A total of 28 pressure cores are planned in this well. Additional pressure cores may be taken if time and resources permit. Coring tools will be deployed through the drill string via slickline. The 9-7/8" hole will be drilled to a maximum depth of ~3,010 fbsf.

In the second cored well; a combination of conventional cores, multiple pressure-cores, and temperature/ pressure measurements will be obtained. The primary targets include mudline to ~250 fbsf and three hydrate-bearing sands (Upper Blue, Lower Blue, and Kiwi sands). The depth of the target hydrate sands range from ~2,715 to 3,075 fbsf. A total of 25 pressure cores are planned in this well. Additional pressure cores may be taken if time and resources permit. Two different BHA's will be used, requiring a trip to the change out the BHAs at approximately 1,600 fbsf. All coring tools will be deployed through the drill string via slickline. The 9-7/8" hole will be drilled to a maximum depth of ~3,085 fbsf.

Upon completion of these two cored wells, the rig will be moved back to the first location and a cored well will be drilled within 50 feet of the surface/bottom-hole location of the LWD well (first well). The hydrate target (Orange sand) is expected to be encountered at ~ 2,462 fbsf. In addition to 'in-and-around' the target interval, several intermittent spot pressure-cores will be acquired throughout the borehole. A total of 13 pressure cores are planned in this well. Additional pressure cores may be taken if time and resources permit. The 9-7/8" hole will be drilled to a maximum depth of ~2,745 fbsf.

All wells will be drilled riserless; using seawater and viscous sweeps until ~1600 fbsf and then using weighted water-based mud (WBM) and viscous sweeps to drill through the target hydrate zones to TD. Wells are expected to be normal pressured. The weighted WBM used in lower part of hole is for well bore stability and to assist with cuttings removal. Discharges into the Gulf of Mexico will be in accordance with requirements of the NPDES General Permit for the Western Portion of the OCS of the Gulf of Mexico (GMG290000).

Casing will not be run. Wells will be plugged and abandoned at the conclusion of the deep stratigraphic test. No pipelines or other facilities will be installed.

The four deep stratigraphic tests are part of the *Deepwater Methane Hydrate Characterization & Scientific Assessment* project DE-FE0023919, funded by the Department of Energy and advised by the United States Geological Survey and the Bureau of Ocean Energy Management. The objective of the project is to gain insight into the nature, formation, occurrence and physical properties of methane hydrate-bearing sediments for the purpose of research appraisal through drilling, coring, logging, and analytical activities that asses methane hydrate deposits in the Gulf of Mexico Continental Margin.

A. PLAN CONTENTS – (30 CFR 550.211)

(a) Plan Information Form

See Attachment 1 for OCS Plan Information Forms BOEM-137 for the four proposed well locations WR313 H002, WR313 G002, WR313 F001, and WR313 F002.

(b) Location

See Attachment 2 for bathymetry map with the surface locations and water depth of the proposed wells. (Scale 1"=2,000').

(c) Drilling Rig

The University of Texas at Austin plans to use a dynamically-positioned semi-submersible MODU to drill the wells proposed in this plan. Rig specifications will be provided with the Application for Permit to Drill. If another rig type is used, any differences regarding air emissions, safety, drilling, or pollution control equipment will be addressed in a revised Exploration Plan.

(d) Safety and Pollution Prevention Features

Safety and Pollution Prevention Features on the MODU are expected to include:

- Integrated control system for vessel and power management with monitoring & alarms.
- Life boats, life rafts, lifesaving appliances, life buoys, and life jackets, as prescribed by the U.S. Coast Guard
- Fire, smoke, combustible gas and H2S detection & alarm systems.
- CO2 fire extinguishing systems in the engine rooms, high voltage switchboard rooms, and thruster compartments.
- Ballast leak detection
- Emergency shutdown systems (ESDs) located in the navigation bridge, derrick control cab, helideck, and at life boats stations
- Active & passive fire protection
- Safe welding area
- Cathodic protection system
- Anti-fouling hull paint
- Watertight doors and watertight bulkhead penetrations
- Rig equipment zone management systems
- Drain, effluent, and waste systems
- Helideck AFFF foam system
- Emergency lighting
- Storage areas for explosive & radioactive materials

(e) Storage Tanks and Production Vessels

Type of Storage Tank	Type of Facility	Number of Tanks[1]	Total Tank Capacity (bbls)[1]	Fluid Gravity (SG)[1]
Fuel	Semi-submersible	4	13,663[2]	No. 2 Diesel
Oil & Lubricants	Semi-submersible	8 + 2 permanent totes	161	0.8468 to 0.89

[1] Information based on Helix Q-4000 semi-submersible

[2] Volume of fuel stored on rig is limited to 90% total capacity of the tanks (12,674 bbls).

(f) Service Fees

Attached is receipt for services fees for three surface locations ($11,019).

(g) Measures to prevent discharge of oils and grease during rainfall and routine operations (FL CZM)

Not required.

(h) Additional safety, pollution, and early spill detection measures beyond those required by 30 CFR 250 (LA CZM).

Compliance with MARPOL.

(i) BOP Information

Not required. BOPS will not be installed.

B. GENERAL INFORMATION - (30 CFR 550.213)

(a) Applications and Permits

Prior to beginning operations, in addition to the Initial Exploration Plan, the following applications will be submitted for approval:

Application/Permit	Issuing Agency	Status
Permit to Conduct Geological or Geophysical Exploration for Mineral Resources or Scientific Research on the Outer Continental Shelf (BOEM-0327& BOEM-0329)	BOEM	To be submitted
Permit to Drill (BSEE- 0123 & BSEE-0123S)	BSEE	To be submitted
Right of Use and Easement (RUE)	BOEM	To be submitted
LA Coastal Zone Management	State of Louisiana	To be submitted w/ EP
NEPA EQ (NETL F 451.1-1/3)	DOE	To be submitted

(b) Drilling Fluids

Type of Drilling Fluid	Well	Estimated Volume of Drilling Fluid to be Used per Well (16.0 ppg)	Estimated Diluted Drilling Volume Discharged to Seafloor (10.5-11.5ppg)
Water-based mud	1st	1,766 bbls	6,985 bbls
Water-based mud	2nd	7,735 bbls	30,911 bbls
Water-based mud	3rd	7,811 bbls	31,177 bbls
Water-based mud	4th	4,474 bbls	18,184 bbls

Approximately 2,300 bbls of 16.0 ppg water based mud will be on board prior to spud. Mud will be cut-back, as required, to various weights for kill & pad mud and to 10.5 ppg for drilling.

There will be no chemical products used or stored in excess of the reportable quantities listed in 40 CFR part 302.

(c) Average and peak production rates and life of reserves

Not required per NTL No. 2008-G04 (DOCD's only).

(d) Oils Characteristics

Not required per NTL No. 2008-G04 (DOCD's only).

(e) Discussion / Statement regarding any New or Unusual Technology

The University of Texas at Austin (Company No. 3487) does not propose to use any new or unusual technology to develop the wells proposed in this plan.

(f) Bonding Statement

The bond requirements for the activities and facilities proposed in this EP are satisfied by a lease bond, furnished and maintained according to 30 CFR part 256, subpart I, and NTL No. 2000-G16, "Guidelines for General Lease and Surety Bonds."

(g) Oil Spill Financial Responsibility (OSFR)

Not applicable. The proposed wells have a discharge potential of < 1000 bbls of oil or gas condensate.

(h) Deepwater Well Control Statement

The University of Texas at Austin (Company No. 3487) will have the financial capability to conduct emergency well control if required.

(i) Suspension of production

Not required per NTL No. 2008-G04 (DOCD's only).

(j) Blowout scenario (LA CZM)

The wells are designed to penetrate several zones of shallow methane-hydrate bearing sandstones. There are two potential blow-out scenarios – Scenario 1: Gas flow from gas legs located below the hydrate intervals; and Scenario 2: Gas flow from destabilized hydrates intervals.

The proposed wells were located and designed to avoid penetration of potential permeable gas-legs beneath the hydrates.

Based on modeling of the temperatures and pressures that are expected in the wells, the hydrates should remain in a stable phase throughout the drilling and coring program.

No liquid hydrocarbons are expected from a potential blowout of the well.

Scenario 1: Gas flow from beneath hydrates located within the Blue and Orange sands

The worst case blowout scenario is where free gas present beneath the hydrates within the Blue or Orange sands is penetrated and released. If penetrated, a permeable gas-rich interval beneath the hydrate stability zone could flow without proper well control. A detailed discussion of the modeling and volume calculations are presented in Attachment 3.

The maximum volume of gas that could flow from the gas pocket is estimated to be 3.79×10^{10} scf (standard cubic feet) from the Blue sand and 8.73×10^{9} scf from the Orange sand. The release from the Blue sand would occur over 0.5 years for a 1 Darcy reservoir and over 500 years for a 1 mDarcy reservoir (the time scale is linearly proportional to the permeability). The release from

the Orange sand would occur over 0.3 years for a 1 Darcy reservoir and over 300 years for a 1 mDarcy reservoir. It is difficult to predict the permeability of the Blue and Orange sands. However, previous drilling in levees systems yielded permeabilities closer to 1 mDarcy than 1 Darcy.

The proposed vertical wells (0 degrees inclination) were located and designed to avoid penetration of potential permeable gas-legs beneath the hydrates. It is unlikely that either well would inadvertently penetrate the gas legs located beneath the target hydrate intervals.

Both wells will have inclination surveys run at least every 1,000 feet to check for deviation. The maximum offset between surface and bottom-hole locations for previously drilled vertical wells WR313 G001 and WR313 H001 was 54 feet and 18.4 feet, respectively. The planned bottom-hole location for WR313 G001 is located 1,400 feet from the gas leg. The planned bottom-hole location for WR313 H001 is located 875 feet from the gas leg. It is unlikely that normal BHA walk alone could result in inadvertent penetration.

The total depth of the proposed WR313 F wells are 180 feet above the BSR at this location. No free gas is expected.

A detailed discussion of the likelihood of penetrating the gas leg below of either the Blue or Orange sand hydrate intervals is shown in Attachment 3.

Scenario 2: Dissociation of methane hydrate interval

In-situ temperatures and the methane hydrate stability-boundary have been estimated for the proposed WR313 locations. The hydrate intervals to be penetrated are stable under in-situ conditions and are expected to remain stable throughout the drilling and coring operations. Circulation of drilling fluid lowers the borehole temperature considerably below the in-situ temperature; making the borehole more stable for hydrates during drilling and coring. Previous drilling of methane hydrate intervals has documented that wellbores will remain within the stability envelop during drilling. Although there could be some disassociation of the hydrate interval related to the heat of hydration during cement operations (if not mitigated); complete hydrate reservoir disassociation is highly unlikely.

In either scenario, there would be no associated liquid hydrocarbons released.

Mitigation

The proposed wells will be drilled riserless with no BOP installed. Tertiary well control methods would include dynamic kill operations and cement plugs. An alternate compliance will be requested to place any cement plugs ~150 feet above the hydrate intervals rather than across the hydrate interval to avoid potentially destabilizing the hydrate interval during curing.

Measures to reduce the likelihood of an uncontrolled well flow include maintenance of primary well control through good drilling and hole-cleaning practices to avoid destabilization, swabbing, surging, and fracturing formations. Weighted mud (10.5 ppg) will be used for wellbore stability from ~1600 fbsf.

Throughout drilling, coring, and well abandonment; a ROV will be used for visual monitoring at the seabed to enhance ability to conduct effective and early intervention in the event of a blowout.

There are no plans to drill a relief well.

References:

Flemings, P.B., Phillips, S.C., Collett, T., Cook, A., Boswell, R., Scientists, U.-G.-E., 2018. UT-GOM2-1 Hydrate Pressure Coring Expedition Summary, In: Flemings, P.B., Phillips, S.C., Collett, T., Cook, A., Boswell, R., Scientists, U.-G.-E. (Eds.), UT-GOM2-1 Hydrate Pressure Coring Expedition Report. University of Texas Institute for Geophysics, Austin, TX.

(k) Chemical products

Not required per NTL No. 2008-G04 for EP's submitted in the Gulf of Mexico Region.

C. GEOLOGICAL AND GEOPHYSICAL INFORMATION - (30 CFR 550.214)

(a) Discussion of geological objective(s) including a brief description of the hydrocarbon trapping elements.

1. Geological Objectives:

The primary geological objectives are two shallow hydrate-bearing sand intervals located in the Terrebonne Basin. All four deep stratigraphic tests target the Blue sand (Upper Blue sand and/or Lower Blue sand). Three of the deep stratigraphic tests have a second target (Orange sand). The expected depths of the target intervals vary between proposed drilling locations. The shallowest occurrence of the top of the Blue sand is expected to be ~ 2,051 fbsf in the most up-dip drilling location (WR313 F001 and WR313 F002) with the deepest occurrence to be ~2,714 fbsf in the most down-dip location (WR313 G002). The top of the Orange sand is expected to be ~ 337-387 feet below the base of the Blue sand. The shallowest occurrence of the top of the Orange sand is expected to be ~ 2,462 fbsf in the most up-dip drilling location (WR313 F001 and WR313 F002) with the deepest occurrence to be ~2,650 fbsf in the WR313 H002 location.

The Terrebonne Basin can be characterized as a salt floored, salt bounded, secondary mini basin formed above the allochthonous salt sheet (Frye et al., 2012). WR313 is in a semi-enclosed portion of the Terrebonne Basin. Sediments entering the semi-enclosed subbasin are trapped because there is no exit point, although sediments within the Terrebonne Basin proper can flow out of the southeast of the salt diaper. The integrated interpretation of this basin setting is that coarse-grained permeable sands entered this subbasin through channels and spread outwards as sandy fans or sheets that covered much of the basin floor. Faults are not common within the mapped area except along the areas of most active salt movement (e.g., the salt wall). (Hutchinson et al., 2008). The main reservoir bodies are dipping sands that pinch updip; which, along with permeability reduction by gas hydrate in the pore spaces, provide a mechanism for hydrocarbon trapping.

2. Offset Well Locations:

Three wells were drilled previously in Walker Ridge Block 313 (WR313) (Table C-1, Table C-2). The industry well WR313 001 was drilled in the 'Orion south' prospect in 2001 by Devon Energy. WR313 G001 and WR313 H001 were drilled during the 2009 Gas Hydrates JIP Leg II LWD program (Figure C-1).

Table C-1: *Offset Wells – Surface and Bottom-hole Locations*

Well Name	API Well Number	Surface Lat. (NAD27)	Surface Long. (NAD27)	X (NAD 27 UTM 15N US ft)	Y (NAD 27 UTM 15N US ft)	Bottom Lat. (NAD27)	Bottom Long. (NAD27)	X (NAD 27 UTM 15N US ft)	Y (NAD 27 UTM 15N US ft)
WR313 001	608124000700	26.659120	-91.669906	2074707	9675848	26.651294	-91.670086	2074674	9673003
WR313 G001	608124003900	26.663190	-91.683872	2070127	9677280	26.663308	-91.683837	2070138	9677323
WR313 H001	608124004000	26.662458	-91.676041	2072687	9677040	26.662498	-91.675882	2072739	9677055

Table C-2: *Offset Wells – Additional Well information. Source: BOEM*

Well Name	API Well Number	Total MD, RKB (ft)	Total TVD, RKB (ft)	Air Gap (ft)	Water Depth (ft)
WR313 001	608124000700	16,720	16,072	72	6,216
WR313 G001	608124003900	10,200	10,199	52	6,562
WR313 H001	608124004000	9,888	9,887	51	6,462

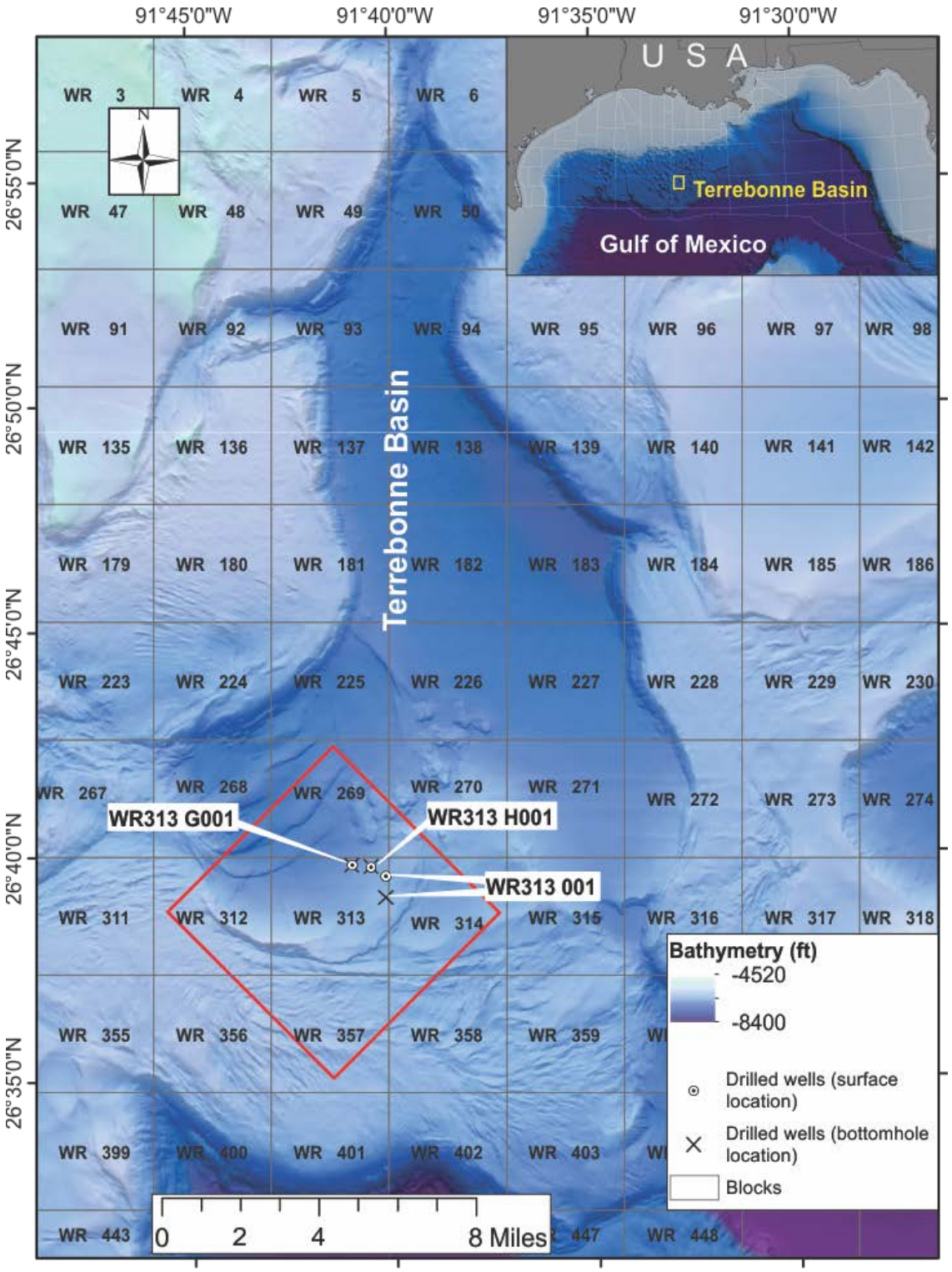

Figure C-1: *Shaded relief map of the sea floor in the northwestern part of Walker Ridge protraction area showing Terrebonne Basin and existing wells in Walker Ridge Block 313. The inset map at the top shows the position of Terrebonne Basin within the northern Gulf of Mexico. The red box outlines the location of the study area. Bathymetry data are from BOEM Northern Gulf of Mexico Deepwater Bathymetry Grid from 3D Seismic (Kramer and Shedd, 2017)*

3. Proposed Well Locations:

Four wells have been proposed for the deep stratigraphic tests: WR313 F001, WR313 H002, WR313 G002, and WR313 F002. The surface locations for the proposed wells WR313 H002 and WR313 G002 will be located approximately 50 feet from the surface locations of existing wells WR313 H001 and WR313 G001, respectively. The proposed surface location for WR313 F001 will be 1,057 feet SE of WR313 H001 and 1,435 feet NW of surface location of existing well WR313 001. The proposed surface location for WR313 F002 will be within 50 feet of surface location for WR313 F001 (Table C-3, Figure C-2).

Table C-3: *Proposed location coordinates. All values are posted in the NAD 27 coordinate system.*

Proposed Locations	Latitude (NAD 27) N			Longitude (NAD 27) W			Latitude (NAD 27)	Longitude (NAD 27)	X (NAD 27 UTM 15N US ft)	Y (NAD 27 UTM 15N US ft)	Total depth (fbsl)	Water depth (ft)
	Deg	Min	Sec	Deg	Min	Sec	Degree(N)	Degree(W)				
WR313 H002	26	39	44.550	91	40	34.356	26.662375	91.676210	2072632.04	9677009.40	9470	6460
WR313 G002	26	39	47.711	91	41	2.3750	26.663253	91.683993	2070087.35	9677302.19	9652	6567
WR313 F001	26	39	36.378	91	40	26.893	26.660105	91.674137	2073317.52	9676191.48	9120	6375
WR313 F002	26	39	36.868	91	40	26.749	26.660241	91.674097	2073330.06	9676241.04	9119	6374

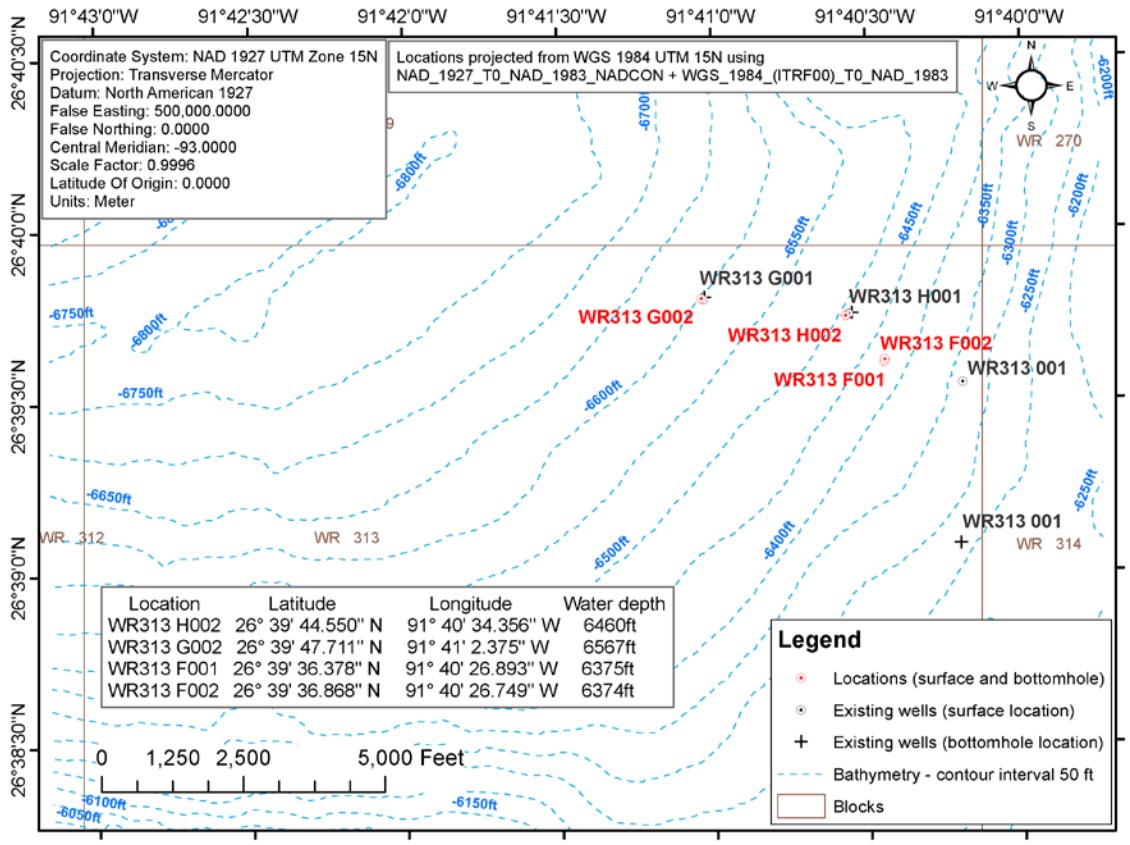

Figure C-2: *Bathymetry map of northern part of Walker Ridge Block 313 (WR313) showing existing wells and proposed locations.*

4. Setting, Water Depth, and Seafloor Slope:

The study area is near the southern boundary of Terrebonne Basin (Figure C-1). The Terrebonne Basin is an intraslope salt withdrawal mini basin in the Walker Ridge protraction area that is approximately 193 miles (168 nautical miles) south-west of Port Fourchon, LA (Figure C-3). Terrebonne Basin is located in the middle slope of central deepwater Gulf of Mexico (Prather et al., 1998), within the tabular salt and minibasin province described by Diegel et al. (1995). The Terrebonne Basin can be characterized as a salt floored, salt bounded, secondary mini basin formed above the allochthonous salt sheet (Frye et al., 2012). The water depth in the study varies between 6,000 and 6,800 feet. The local sea floor gradient at the proposed well sites vary between 2° and 3°.

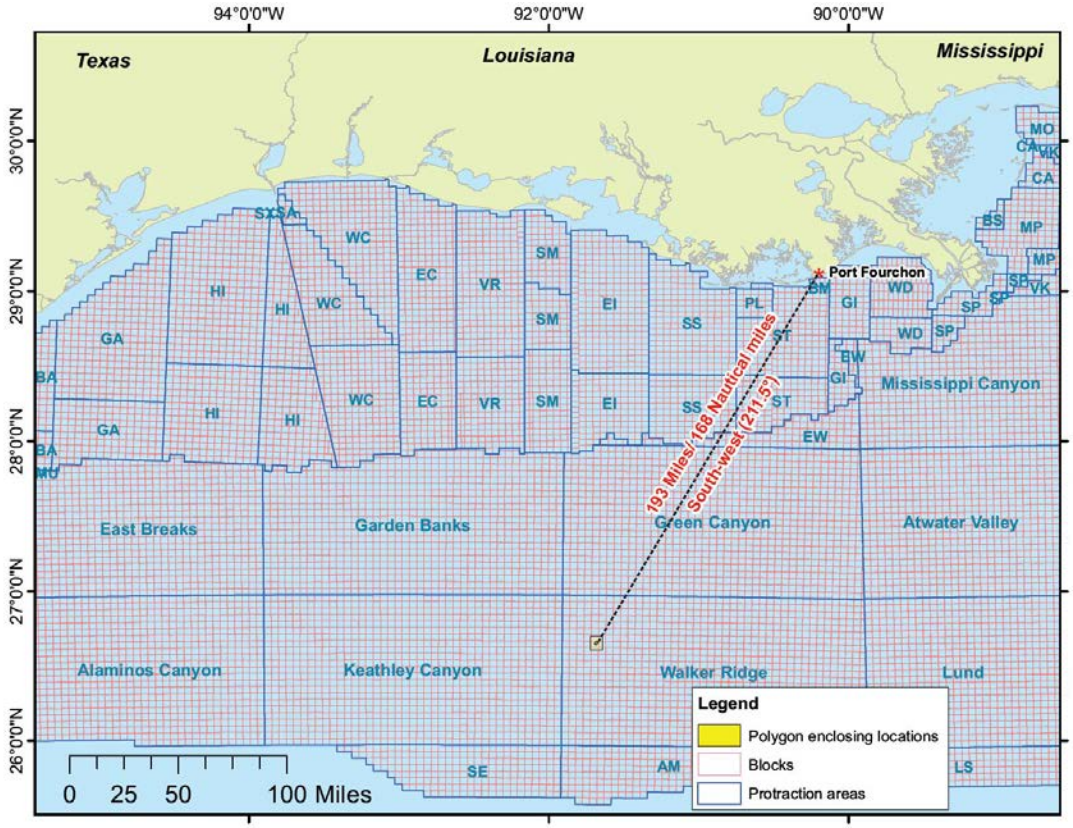

Figure C-3: *Location map showing Walker Ridge Block 313, which is approximately 168 nautical miles southwest of Port Fourchon, LA.*

5. Seafloor Channels:

There is no evidence of present-day sea floor channels in the study area (BOEM Seismic Water Bottom Anomalies Map Gallery, 2018). No channelization is visible in a detailed bathymetry map of the study area generated using 3D seismic data (Figure C-1).

6. Seafloor Escarpment:

The proposed wells are located near the southern edge of Terrebonne Basin, which is marked by locally steep sea floor gradient that is related to underlying mobile salt (Figure C-1, Figure C-2). However, such steep gradient is limited to the very edge of the basin, and the proposed well locations are not within the area of steep sea floor gradient. The local sea floor gradient at the

proposed well sites vary between 2° and 3°. No evidence of recent slumps has been observed in the study area.

The BOEM Seismic Water Bottom Anomalies Map Gallery records several historical fluid expulsion-related sea floor anomalies within the study area (Figure C-4). However, no present-day fluid-expulsion-related sea floor anomalies are within 3,500 feet of any proposed well location.

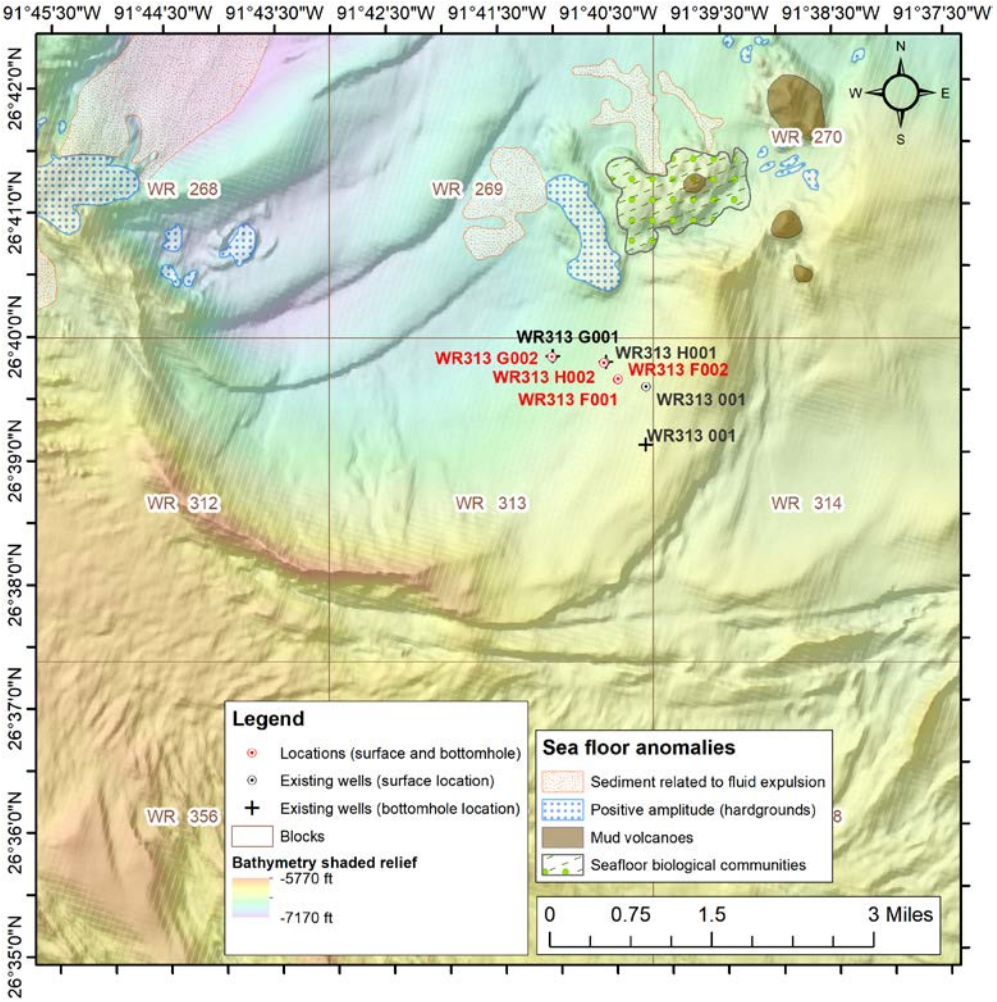

Figure C-4: *A shaded relief of bathymetry in the drilling area with interpreted sea floor anomalies (as reported in BOEM Seismic Water Bottom Anomalies Map Gallery, 2018).*

Sections 7-10 have been removed - PROPRIETARY INFORMATION

11. Pore Pressure Plots:

The wells will be drilled without a riser. Initially drilled with seawater and sweeps, a 10.5 ppg water-based mud system will be used for wellbore stability from a depth of approximately 1,600 feet below the seafloor. The increased fluid weight will then expose the upper part of the borehole to elevated pressures as illustrated with the light blue line (10.5 ppg WBM) in Figure C-25, Figure C-26, Figure C-27, and Figure C-28.

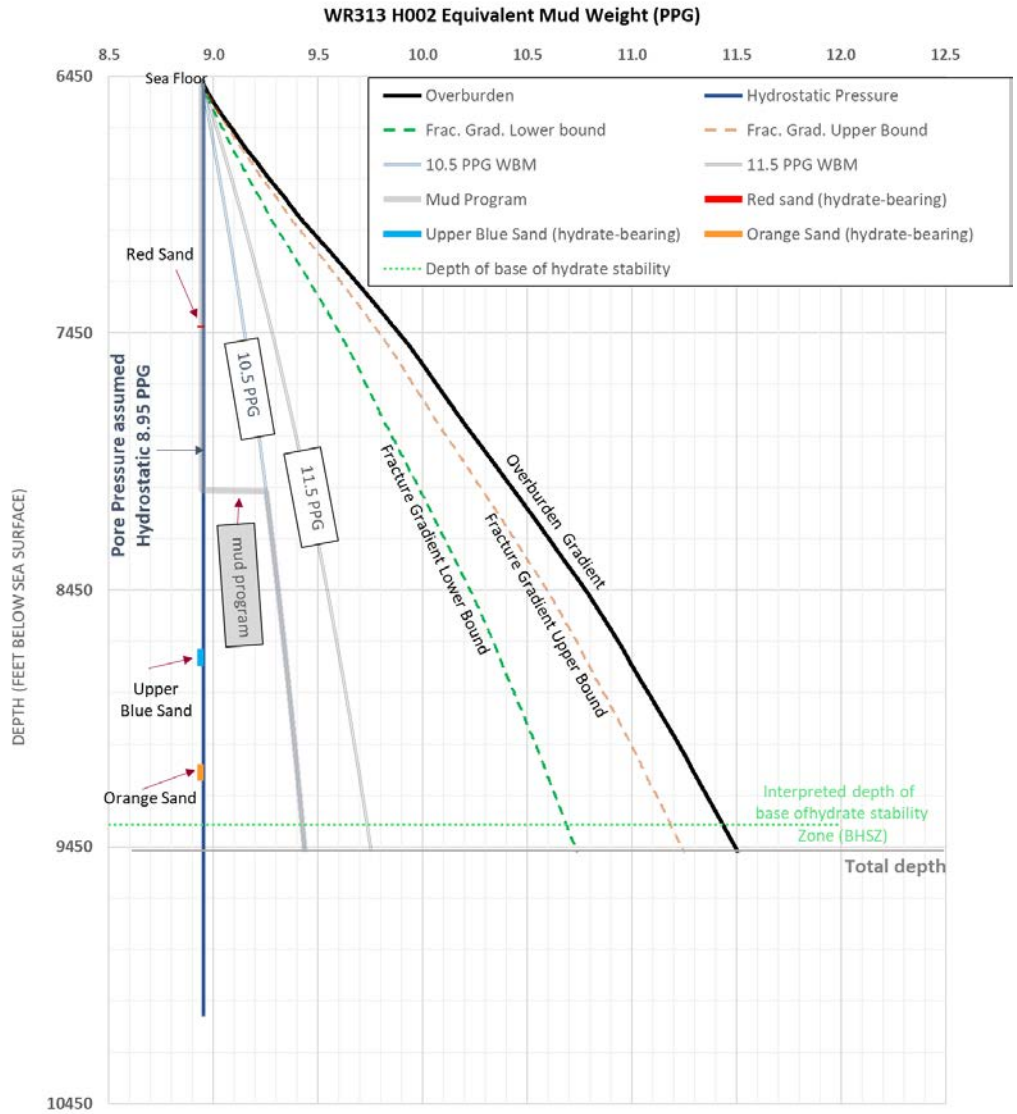

Figure C-5: *Pore pressure / fracture gradient plot for the planned WR313 H002.*

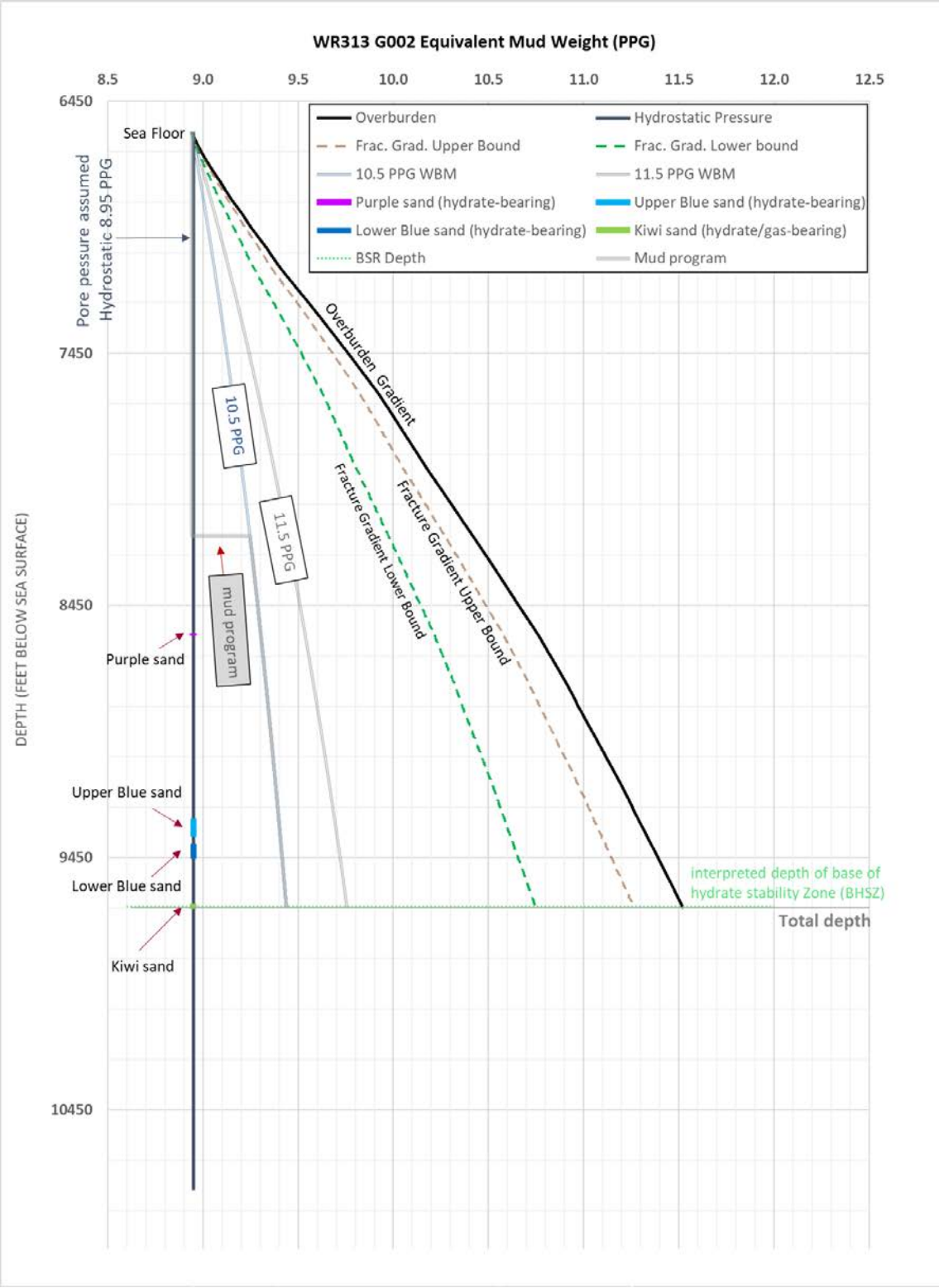

Figure C-6: *Pore pressure / fracture gradient plot for the planned WR313 G002.*

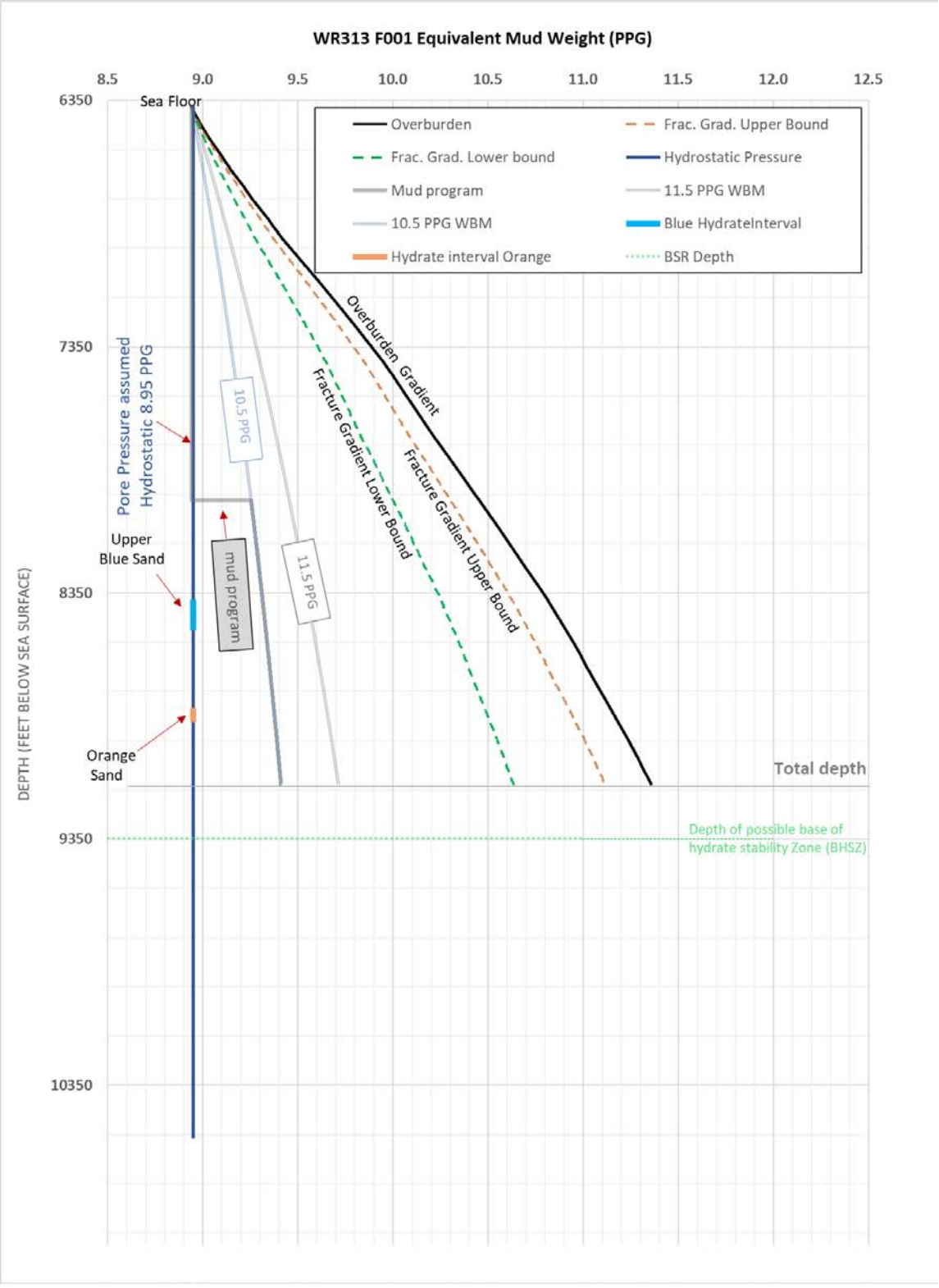

Figure C-7: *Pore pressure / fracture gradient plot for the planned WR313 F001.*

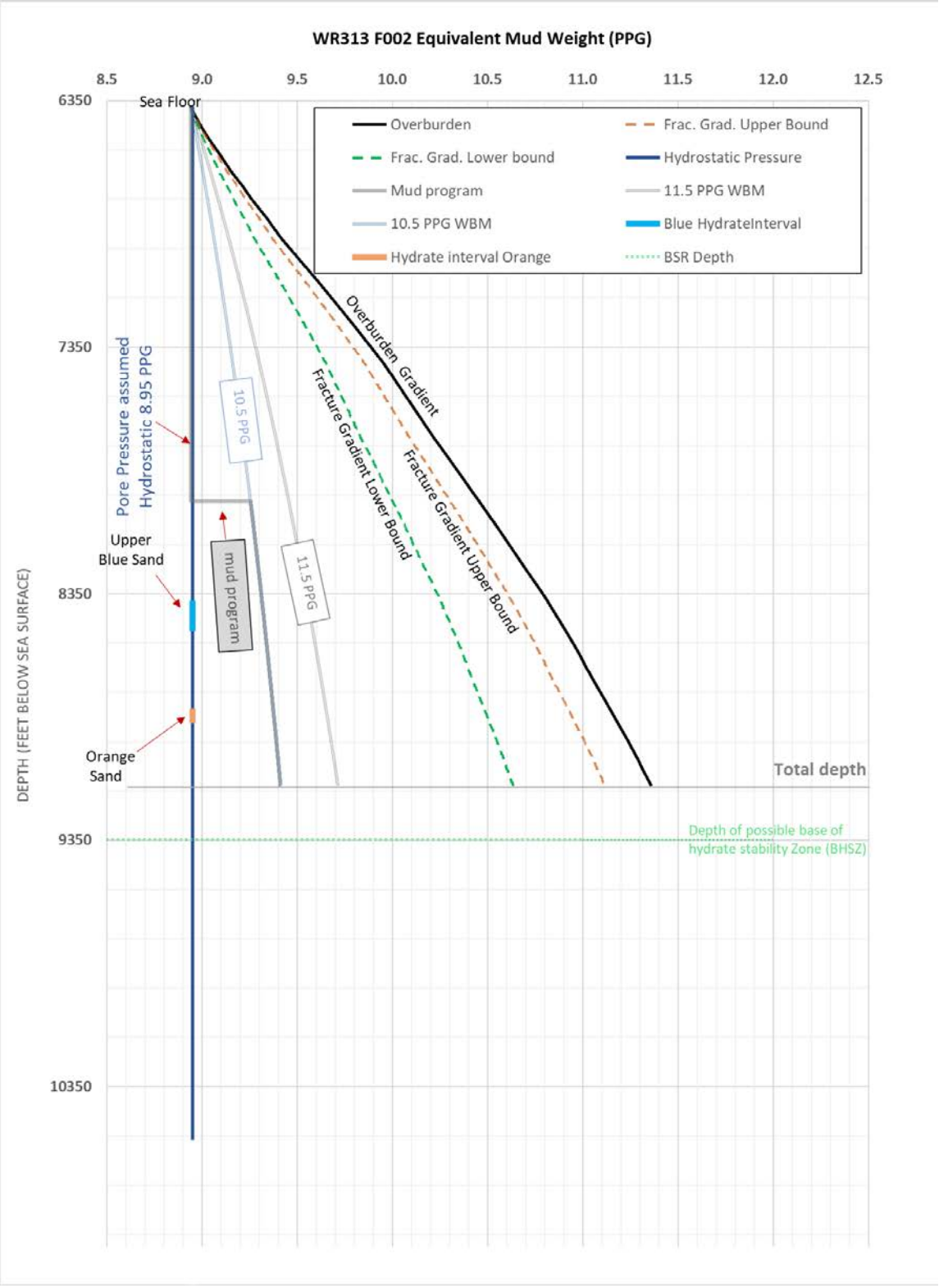

Figure C-8: *Pore pressure / fracture gradient plot for the planned WR313 F002.*

(b) Removed - PROPRIETARY INFORMATION

(c) Removed - PROPRIETARY INFORMATION

(d) Removed - PROPRIETARY INFORMATION

(e) Removed - PROPRIETARY INFORMATION

(f) Site-Specific Shallow Hazards Assessment (non-proprietary version)

The proposed wells will penetrate to a maximum depth of 3,085 feet below the sea floor. As such, most of the drilled interval is within what is traditionally interpreted to be the shallow hazards zone (<2,500 feet).

SEAFLOOR HAZARDS:

There are no identified seafloor hazards.

The seafloor gradient is between 2-3 degrees. There are no present-day channels, no evidence of recent slumps, and no present-day fluid-expulsion-related sea floor anomalies within 3500 feet of any proposed well location.

GAS HAZARDS:

There is low risk to gas flow.

The proposed well paths intersect hydrate reservoir sands (except the Kiwi sand in WR313 G002) within the hydrate stability zones where no free gas is interpreted to be present. The Kiwi sand is to be penetrated at the base of the hydrate stability zone in WR313 G002 and it is possible that a very small gas leg is present in this thin (22') sand. However, the sand is very thin and a significant gas leg is not likely present. The WR313 G001 well was drilled through the Kiwi sand without any shallow gas flow at this location.

SHALLOW WATER FLOW:

There is low risk to shallow water flow.

Although there are several interpreted wet sands that will be penetrated and are possible shallow-water flow sands; no shallow water flows were recorded during drilling of these sands by previously-drilled offset wells. The offset wells were drilled with seawater through these sand intervals.

MAN-MADE OBSTRUCTIONS:

The nearest existing wells are two wells that were drilled during the 2009 Gas Hydrates JIP Leg II LWD program (WR313 G and WR313 H; no casing or facilities installed) and one industry well (OCS-G 18683 WR313 001). No other man-made features or other potentially hazardous seafloor conditions have been identified in the vicinity of the proposed well sites. A ROV will be used to inspect the seafloor at the proposed well sites immediately before spud-in to confirm that there are no seafloor obstructions.

INTERPRETED HAZARDS MAP:

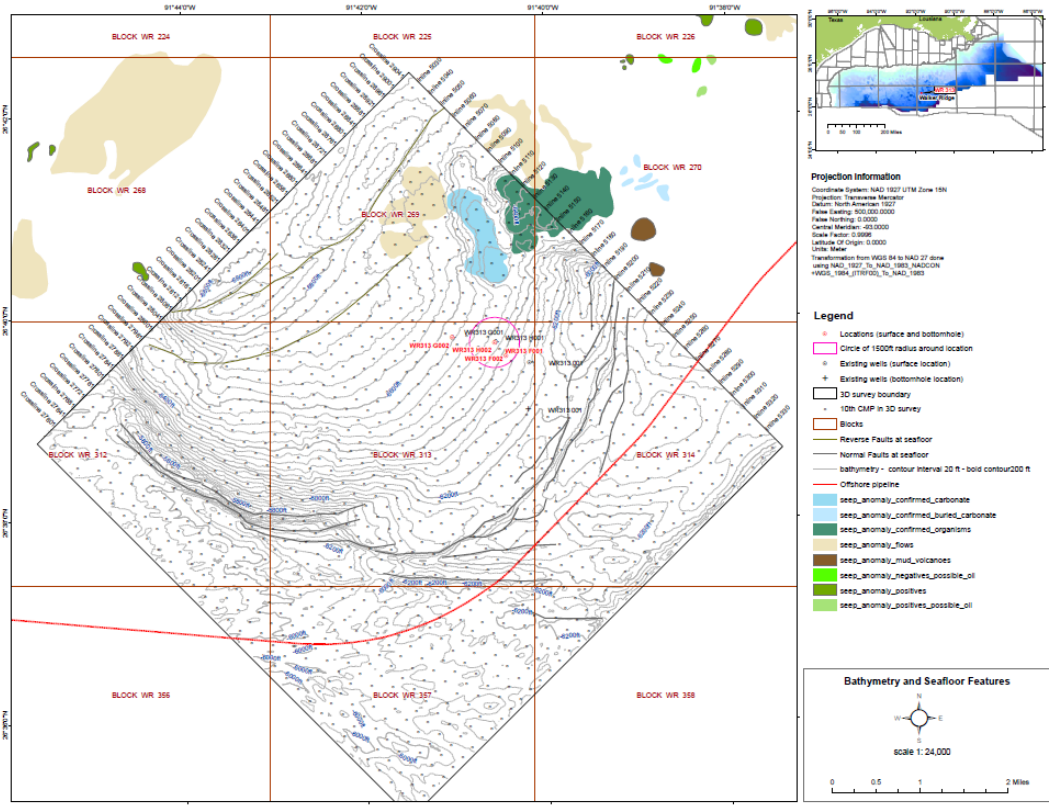

Figure C-9: *Interpreted Hazards Map. Data Source: BOEM Seismic Water Bottom Anomalies Map Gallery 2019.*

REVIEW OF GEOLOGICAL & GEOPHYSICAL DATA:

Provided in Section 7 'Top Hole Stratigraphy'.

3-D SEISMIC REFLECTION DATA SUPPORT:

Top-hole prognosis diagrams are provided in Section 8 'Top Hole Prognosis'.

SPECIAL SAFETY MEASURES TO MINIMIZE THE ADVERSE EFFECTS OF SHALLOW HAZARDS:

Measures to reduce the likelihood of an uncontrolled well flow include maintenance of primary well control through good drilling and hole-cleaning practices to avoid destabilization, swabbing, surging, and fracturing formations. Weighted mud (10.5 ppg) will be used for wellbore stability from ~1600 fbsf.

Immediately prior to commencing drilling operations an 'as-found' site clearance survey will be conducted via ROV. The ROV will be equipped with acoustic positioning and sector-scanning sonar. The ROV investigation will cover a minimum of 500-ft radius from the well site.

Throughout drilling, coring, and well abandonment; a ROV will be used for visual monitoring at the seabed to enhance ability to conduct effective and early intervention in the event of a shallow well flow.

(g) High-resolution Seismic Lines

POWER SPECTRUM DIAGRAM

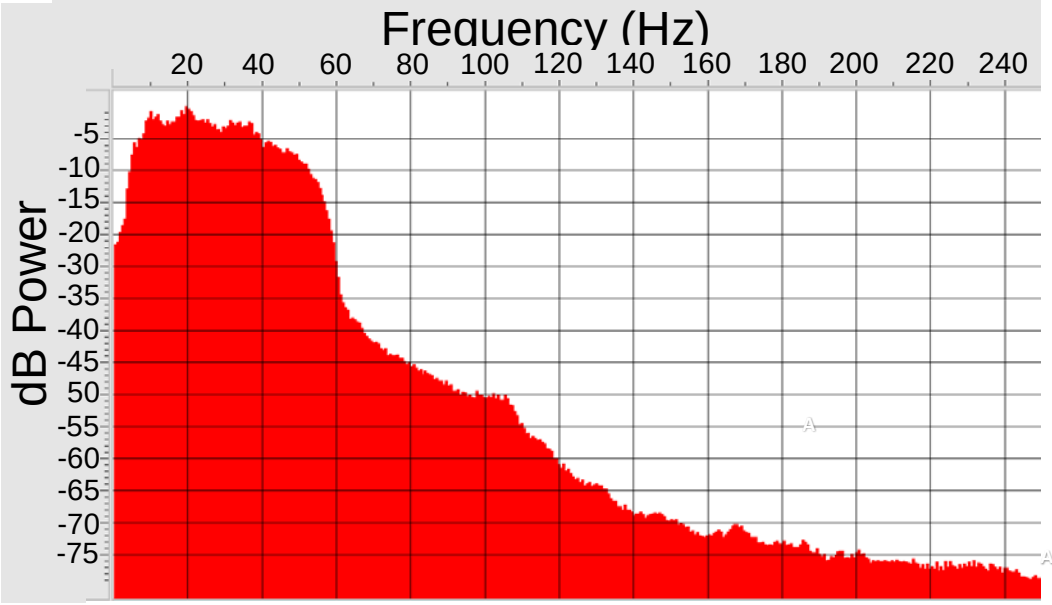

Figure C-10: *Power spectrum of WAZ 3D survey data extracted from time volume generated by applying migration velocity on pre-stack depth migrated volume (down to 12,000 ft). Sampling interval of the time volume was 4 ms.*

SAMPLING RATE

The sampling interval for the interpreted volume is 16 ft.

ACQUISITION PARAMETERS (e.g. cable, source depth)

Dataset was generated using marine wide-azimuth seismic survey with acquisition parameters shown below (webpage E-Octopus I-V, Schlumberger).

- Recording System: Triacq V
- Energy Source: Tuned Bolt air gun array (1 per vessel): 8,475 in^3
- Line Orientation: NE/SW
- Source Depth: 10 m
- Streamer Configuration: Multi-streamer: 10 x 7,000 m cables/vessel
- Streamer Depth: 12 m
- Maximum Offset: 9,400 m
- Sample Rate: 2 ms
- Record Length: 14 s
- DGF Receiver Interval: 12.5 m
- Recorded Bin Dimensions: 6.25 x 60 m

YEAR SURVEY WAS RUN

The survey was acquired in 2006-2007. Final migration volume was delivered in 2008. Data provided by WesternGeco. (E-Octopus I-V).

TYPE PROCESSING USED

The processing flow for the used depth domain 3D seismic data was as follows (webpage E-Octopus I-V, Schlumberger)

- Digital group forming (DGF): output 12.5 m
- Navigation merge
- Calibrated marine source designature
- Anomalous amplitude attenuation (AAA)
- Water velocity correction
- Inverse Q compensation
- Residual wavelet shaping
- 3D demultiple
- 3 iterations of multiazimuth sediment tomography (incorporating anisotropy)
- High-resolution sediment flood (pick top of salt 1)
- Salt flood 1 (pick bottom of salt 1)
- Salt body 1 (pick top of salt 2)
- Salt flood 2 (pick bottom of salt 2)
- Salt body 2
- Subsalt tomography (using angle gathers)
- Full salt body velocity model
- Kirchhoff pre-stack depth migration

(h) Stratigraphic Column

A stratigraphic column for each of the proposed wells can be found within the Top Hole Prognosis section of this plan. Figures C-15 through C-22 show the simplified stratigraphy as well as denoted lithologic units. Tables of mapped geologic surfaces for each of the proposed wells can be seen also in the Top Hole Prognosis section (Tables C-5 through C-8).

(i) Time vs. Depth for areas with no well control

The proposed surface/bottom-hole locations for WR313 H002 and WR313 G002 wells are ~50 feet from the previously drilled and logged WR313 H001 and WR313 G001 wells. To project the depths in these wells, changes in elevation of the tops was corrected by examining the slope of significant reflectors in the previously drilled well and using this to project the change in depth 50 feet away.

The proposed surface locations for WR313 F001 and WR313 F002 wells are ~1,057 feet and 1,025 feet (respectively) from the surface location of the nearest well (WR313 H001). In this case, a more detailed analysis of the seismic data was performed. The depth of surfaces observed in the existing LWD wells (WR313 H001 and WR313 G001) were compared to the depths inferred from seismic data at these locations. A model was then developed to correct the mapped depth of the seismic events to the depth observed in the previously drilled wells. This correction was then used to correct the depth observed in seismic at the WR313 F001 and WR313 F002 well locations to the depth that should be encountered while drilling.

Table C-4: *Seismic Travel Time vs. Depth at the F001 location.*

A		B		C		D	
TWT bsf (s)	Depth (fbsf)	TWT bsf (s)	Depth (fbsf)	TWT bsf (s)	Depth (fbsf)	TWT bsf (s)	Depth (fbsf)
0	0	Continued from Column A		Continued from Column B		Continued from Column C	
0.01	25.4	0.26	705.7	0.51	1451.8	0.76	2251.4
0.02	50.9	0.27	735. 9	0.52	1482.9	0.77	2282.8
0.03	76.3	0.28	766.0	0.53	1515.4	0.78	2314.9
0.04	101.8	0.29	796.2	0.54	1547.1	0.79	2346.0
0.05	127.2	0.30	826.6	0.55	1579.3	0.80	2377.2
0.06	152.6	0.31	856.8	0.56	1611.7	0.81	2409.1
0.07	178.6	0.32	886.7	0.57	1644.8	0.82	2440.4
0.08	204.3	0.33	918.0	0.58	1677.0	0.83	2476.5
0.09	230.1	0.34	948.4	0.59	1709.6	0.84	2513.1
0.10	256. 2	0.35	979.6	0.60	1742.0	0.85	2545.5
0.11	282.5	0.36	1008.2	0.61	1775.1	0.86	2578.0
0.12	309.0	0.37	1037.7	0.62	1808.5	0.87	2610.6
0.13	335.4	0.38	1066.3	0.63	1842.0	0.88	2643.0
0.14	361.9	0.39	1094.8	0.64	1875.4	0.89	2675.4
0.15	389.0	0.40	1123.5	0.65	1908.3	0.90	2707.9
0.16	416.5	0.41	1152.2	0.66	1940.1	0.91	2740.6
0.17	444.5	0.42	1180.7	0.67	1971.5	0.92	2773.3
0.18	471.5	0.43	1210.2	0.68	2002.3	0.93	2806.0
0.19	498.8	0.44	1239.4	0.69	2033.7	0.94	2839.0
0.20	526.9	0.45	1268.7	0.70	2066.1	0.95	2871.7
0.21	556.2	0.46	1298.8	0.71	2096.9	0.96	2904.1
0.22	585.6	0.47	1329.5	0.72	2127.7	0.97	2936.8
0.23	615.1	0.48	1360.5	0.73	2157.8	0.98	2969.7
0.24	645.7	0.49	1391.1	0.74	2189.4	0.99	2998.3
0.25	675.8	0.50	1421.4	0.75	2220.0	1.00	3030.6

(j) Geochemical information

Not required per NTL No. 2008-G04 for EP's submitted in the Gulf of Mexico Region.

(k) Future G&G activities

Not required per NTL No. 2008-G04 for EP's submitted in the Gulf of Mexico Region.

References:

Boswell, R., Frye, M., Shelander, D., Shedd, W., McConnell, D. R., and Cook, A., 2012, Architecture of gas-hydrate-bearing sands from Walker Ridge 313, Green Canyon 955, and Alaminos Canyon 21: Northern deepwater Gulf of Mexico: Marine and Petroleum Geology, v. 34, no. 1, p. 134-149.

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Prather, B. E., Booth, J. R., Steffens, G. S., and Craig, P. A., 1998, Classification, lithologic calibration, and stratigraphic succession of seismic facies of intraslope basins, deep-water Gulf of Mexico: AAPG Bulletin, v. 82, no. 5A, p. 701-728.

D. HYDROGEN SULPHIDE INFORMATION - (30 CFR 550.215)

(a) Classification

Walker Ridge 313 has been classified as H_2S absent per email from Thomas Bjerstedt, Minerals Management Service (MMS), dated 4/3/2008. WR313 H001 and WR313 G001 are the closest offsets to the proposed locations and are located within same fault block and are interpreted to contain continuous stratigraphic horizons. No H_2S was encountered during the drilling of WR313 H001 or WR313 G001 in 2009. **We request that the area continued to be classified as a "zone where the absence of H_2S has been confirmed".**

(b) Concentration

As is generally found in the slope of the northern Gulf of Mexico, sulfate-reducing bacteria are the dominant microbes degrading organic-matter in the shallow interval beneath the seafloor. This interval begins at the seafloor and its thickness varies regionally. At the WR313 G002 location, this zone of sulfate-reducing bacteria is estimated to begin at the seafloor and extend to ~65 fbsf. The sulfate-methane transition (SMT) is the boundary that delimits the transition from sulfate-reducing bacteria to methanogens. At the WR313 G002 location, detectable H_2S is anticipated only in a narrow interval around the sulfate-methane transition (< 33 feet thick) with peak concentrations of dissolved H_2S in the pore water between 15 and 250 ppm, based on observed values in similar environments (Borowski, 2006; Riedinger et al., 2005). Drilling riserless, no well will have circulation back to surface while drilling/coring through the SMT and no flow is expected in this shale-prone interval. However; as H_2S may accumulate in the core barrel and/or be entrained in the cores from this short interval, H_2S precautions as per an approved H_2S Contingency Plan will be taken **when retrieving core from the narrow interval around the SMT** (WR313 G002 well only). No cores will be taken from above or within the SMT in the WR313 H002 or WR313 F002 wells.

Based on thousands of sites with cores collected through the sulfate-methane transition from similar environments with DSDP/ODP/IODP drilling as well as piston coring from UNOLS and similar vessels, H_2S concentrations are expected to remain below 10 ppm in any working space on board even when measured at the core liner. Examples of scientific drilling expeditions in which coring through the SMT in hydrate-bearing regions kept concentrations less than 10 ppm on board include Paull et al. (1996) and Riedel et al. (2006). Similarly, other IODP operations in the northern Gulf of Mexico that cored through sediments above the SMT also maintained H_2S concentrations < 10 ppm on board (Flemings et al., 2006). Broadly, recovery of sediment cores from buried sulfate-methane transition zones in siliciclastic sediments do not appear to have triggered the 10 ppm action level on board, and have a lower risk of H_2S exposure compared to carbonate sediments, active gas seeps, and active volcanic environments. H_2S present in a sediment core is rapidly mixed and diluted with the surrounding air during processing, for example, a carbonate sediment core from offshore Australia with 156,000 ppm within the core liner did not increase ambient H_2S readings above 10 ppm (Feary et al. 2000).

(c) H_2S Contingency Plan

The University of Texas at Austin will submit to the appropriate BOEM district office a H_2S Contingency Plan prepared according to 30 CFR 250.490 (f) before conducting the deep stratigraphic test at the WR313 G002 proposed location.

References:

Borowski, W. S. (2006). Data report: Dissolved sulfide concentration and sulfur isotopic composition of sulfide and sulfate in pore waters, ODP Leg 204, Hydrate Ridge and vicinity, Cascadia Margin, offshore Oregon. In Proceedings of the Ocean Drilling Program, Scientific Results (Vol. 204, pp. 1-13). College Station, TX: Ocean Drilling Program. doi:10.2973/odp.proc.sr.204.105.2006.

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Riedinger, N., Pfeifer, K., Kasten, S., Garming, J. F. L., Vogt, C., & Hensen, C. (2005). Diagenetic Alteration of Magnetic Signals by Anaerobic Oxidation of Methane Related to a Change in Sedimentation Rate. Geochimica et Cosmochimica Acta, 69(16), 4117-4126. doi:10.1016/j.gca.2005.02.004.

E. BIOLOGICAL, PHYSICAL, AND SOCIOECONOMIC INFORMATION - (30 CFR 550.216)

(a) Chemosynthetic Communities Review

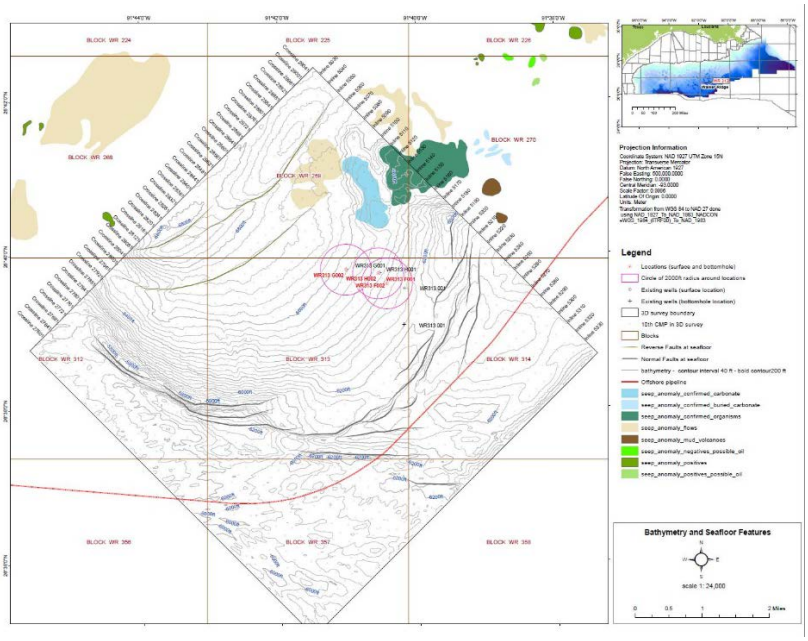

Figure E-1: *Bathymetry, seafloor and shallow geologic features with a circle radius of 2000' around each location. Data Source: BOEM Seismic Water Bottom Anomalies Map Gallery 2019.*

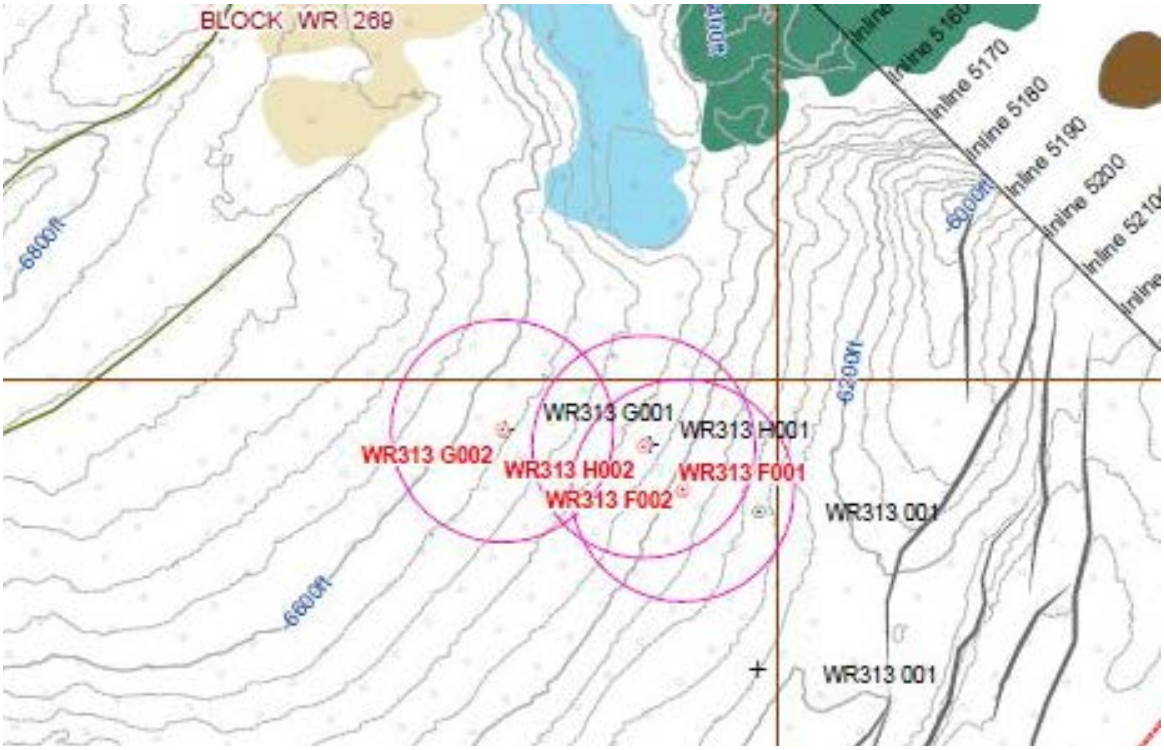

Figure E-2: *Zoomed view of bathymetry, seafloor and shallow geologic features with a circle radius of 2000' around each location. Data Source: BOEM Seismic Water Bottom Anomalies Map Gallery 2019.*

Analysis with identification & discussion of seafloor and shallow geological features that could be disturbed:

There are NO KNOWN Chemosynthetic Community Sites in WR313 as per the following BOEM list: https://www.boem.gov/Chemo-Community-Locations-in-the-GOM/

Summary statement for each well location and associated anchor patterns:

Not applicable. Wells will be drilled with a dynamically-positioned semi-submersible rig.

(b) Topographic Features Information

The proposed activities are not within 1000 feet of a No-Activity Zone of a Topographic Feature.

(c) Topographic Features Shunting Statement

Not applicable. Three or more wells will not be drilled from the same surface location within the 30 mile Zone of a Topographic Feature

(d) Live Bottoms (Pinnacle Trend)

Not applicable. The activities proposed in this plan are not within 200 feet of any Pinnacle Trend Feature with vertical relief greater than 8 feet.

(e) Live Bottoms (Low Relief) Map

Not applicable. Live Bottom stipulation is not attached to the lease.

(f) Potentially sensitive biological features

There are NO KNOWN sensitive or unique habitats in WR313 as per the following BOEM list of identified biologically sensitive topographic features in the Gulf of Mexico: https://www.boem.gov/Biologically-Sensitive-Areas-List/

The following BOEM NTLs apply:

1. BOEM NTL No. 2009-G39 - Biologically Sensitive Underwater Features and Areas.
   Effective Date: January 27, 2010.
   https://www.boem.gov/Regulations/Notices-To-Lessees/2009/09-G39.aspx

2. BOEM NTL No. 2009-G40 - Deepwater Benthic Communities.
   Effective Date: January 27, 2010.
   https://www.boem.gov/Regulations/Notices-To-Lessees/2009/09-G40.aspx

(g) ROV Monitoring Survey Plan

If requested, the University of Texas will perform a limited ROV visual habitat survey before and after operations. Basic information and observations will be recorded on BOEM Form 141.

(h) Threatened or endangered species, critical habitat, and marine mammals

Endangered or threatened species likely to occur at or near the lease area include sperm whales, Gulf of Mexico Bryde's whale, oceanic whitetip shark, and five species of sea turtles (leatherback, green turtle, hawksbill, Kemp's ridley, and loggerhead). Critical habitat has been designated for the loggerhead turtle. No critical habitat has been designated in the Gulf of Mexico for the whale species, oceanic whitetip shark, or the other sea turtles species.

Endangered or threatened species in coastal areas include the West Indian manatee, Gulf Sturgeon, seven species of birds (piping plover, whooping crane, Cape Sable seaside sparrow, Mississippi sandhill crane, rufa red knot, roseate tern, wood stork), and four species of beach mouse (Alabama, Choctawhatchee, Perdido Key, and St. Andrew). Critical habitat has been designated for all of these species.

The threatened Giant manta ray may be found in coastal areas. No critical habitat has been designated.

Reference: OCS EIS/EA BOEM 2017-009
Gulf of Mexico OCS Oil & Gas Lease Sales: 2017-2022
Gulf of Mexico Lease Sales 249 -261
Final Multisale Environmental Impact Statement
March 2017

Reference: NOAA Fisheries
ESA Threatened & Endangered Species
https://www.fisheries.noaa.gov/species-directory/threatened-endangered

(i) Archaeological Report

The proposed locations have not been identified as having a potential for containing historic or prehistoric archaeological resources. Additionally, the surface locations for the proposed wells WR313 H002 and WR313 G002 will be located approximately 50 feet from the surface locations of existing wells WR313 H001 and WR313 G001, respectively (drilled during the 2009 Gas Hydrates JIP Leg II LWD program). No historic or prehistoric archaeological resources were found at the WR313 H001 or WR313 G001 locations.

However, in accordance with NTL N0. 2005-G07 reissued June 25, 2020; should the Regional Director have reason to believe that an archaeological resource may exist based on a technical analysis of existing archaeological, geological, and other pertinent environmental data and an archaeological report is required as a COA; a ROV investigation as per the 'Guidance for

Compliance with Mitigation 3.20 - Avoidance of Archaeological Resources' would be conducted in conjunction with the as-found site survey of the proposed location(s) in question immediately prior to commencing bottom-disturbing operations.

(j) Air and water quality information

Not required per NTL No. 2008-G04. The State of Florida is not an affected state.

(k) Socioeconomic information

Not required per NTL No. 2008-G04. The State of Florida is not an affected state.

F. WASTE AND DISCHARGE INFORMATION – (30 CFR 550.217)

(a) Projected Generated Solid & Liquid Wastes

Not required per NTL No. 2008-G04 based on proposed activities.

(b) Projected Ocean Discharges

Not required per NTL No. 2008-G04 based on proposed activities.

(c) Modeling Report

Not required per NTL No. 2008-G04. An individual NPDES permit will not be required by the EPA.

(d) NPDES permits [30 CFR 250.217 (c) and 250.248 (c)]

Not required per NTL No. 2008-G04 for EPs submitted in the GOMR.

(e) Projected cooling water intake [30 CFR 250.217 (e) and 250.248 (e)]

Not required per NTL No. 2008-G04 for EPs submitted in the GOMR.

G. AIR EMISSIONS INFORMATION – (30 CFR 550.218)

(a) Screening Questions

Screening Questions for EP's	Yes	No
Is any calculated Complex Total (CT) Emission amount (in tons) associated with your proposed exploration activities more than 90% of the amounts calculated using the following formulas: CT = $3400D^{2/3}$ for CO, and CT = 33.3D for the other pollutants (where D = distance to shore in miles)?		No
Do your emission calculations include any emission reduction measures or modified emission factors?		No
Are your proposed exploration activities located east of 87.5 W longitude?		No
Do you expect to encounter H_2S at concentrations greater than 20 parts per million (ppm)?		No
Do you propose to flare or vent natural gas for more than 48 continuous hours from any proposed well?		No
Do you propose to burn produced hydrocarbon liquids?		No

The distance to shore is 176 statute miles.

(b) Plan Emissions Worksheet – Summary Table of Projected Emissions

Air Pollutant	Plan Emission Amounts (tons)[1]	Calculated Exemption Amounts (tons)	Calculated Complex Total Emission Amounts (tons)[2]
Carbon monoxide (CO)	110.98	106,819.81	110.98
Particulate Matter (PM10)	17.82	5,864.13	17.82
Particulate Matter (PM2.5)	17.28	5,864.13	17.28
Sulphur dioxide (SOx)	0.43	5,864.13	0.43
Nitrogen oxides (NOx)	707.56	5,864.13	707.56
Volatile organic compounds (VOC)	20.34	5,864.13	20.34
TSP	29.53	5,864.13	29.53

1. The rig type to be used in the project is a dynamically-positioned semisubmersible rig; exact drilling vessel unknown. The air emission worksheet (BOEM Form 0138) has been prepared using spreadsheet default emissions factors and the maximum horsepower value for rig type (DP semisubmersible) from the BOEM 'Maximum Emissions Estimates for Rig and Drillship Types' table.
2. There are no existing facilities or activities co-located within the proposed activities. Complex Total Emissions are the same as the Plan Emissions.

The air emissions worksheet (Attachment 5) was prepared by:
Jamie Morrison
Project Manager
The University of Texas at Austin
936-355-3505
jmorrison@ig.utexas.edu

(c) Emissions reduction measures

No emissions-reduction measures were included in the calculations.

(d) Verification of nondefault emission factors

Not applicable. Default emission factors were used in the calculations.

(e) Non-exempt activities

Not applicable. The projected emissions of SO2, PM, NOx, CO, and VOC are not greater than the respective emission exemption amounts.

(f) Modeling report

Not required per NTL No. 2008-G04.

H. OIL SPILL INFORMATION – (30 CFR 550.219)

(a) Oil Spill Response Planning

No liquid hydrocarbons are anticipated from the wellbores. Maximum spill potential is from stored low-Sulphur diesel on the drilling rig.

Oil spill response will be as per the Vessel Response Plan.

Worst-Case Discharge Table

Type of Activity	Deep Strat Test
Facility Location (Area/Blk)	Walker Ridge 313
Facility Designation	DP semisubmersible TBD
Distance to nearest shore	176 statute miles
Vessel Storage Tanks (total)	TBD bbls
Type of Oil	Low-Sulphur Diesel

(b) Oil Spill Response Discussion – Based on Helix Q-4000 DP Semisubmersible

1. Helix Q-4000 Vessel Response Plan No. 25800; US Certificate of Financial Responsibility (COFR) #862151-18; National Response Corporation, USCG OSRO Number: 16- Group V Capabilities; Primary Response Equipment Location: New Iberia, Louisiana
2. Helix Q-4000 Fuel Storage Tanks (4 tanks): 12,329 bbls total (storage limited to 90% of tank capacity)
3. Estimated time for equipment to arrive on-site from NRC's base in New Iberia is approximately 20 hours.
4. Estimated time to contain, to the maximum extent practicable, a worst-case discharge: Based on one skimmer vessel recovering 24,000 gals per day, it would take 22 days. NRC has 2 such vessels and a number of towed skimmers. So depending on how many resources were deployed, it could take as little as 7 days to contain the worst-case discharge.

(c) Modeling report

Potential spill not modeled.

I. ENVIRONMENTAL MONITORING INFORMATION – (30 CFR 550.221)

(a) Monitoring Systems (existing or planned)

As per BSEE NTL 2018-G01 "Ocean Current Monitoring", ocean current data will be continuously monitored and gathered on a real-time basis near the ocean surface using an appropriate current monitoring device.

(b) Statement regarding incidental takes of protected or endangered species or marine mammals.

The University of Texas at Austin does not expect any incidental takes of protected species as a result of operations proposed under this Exploration Plan.

To avoid or minimize impacts to marine mammals or any of the ESA listed threatened or endangered species; The University of Texas will monitor for incidental take as per the following guidelines and requirements:

- BSEE NTL No. 2015-G03 "Marine Trash and Debris Awareness and Elimination"
- 2020 BiOp – Biological Opinion on the Federally Regulated Oil & Gas Program Activities in the Gulf of Mexico
  - Appendix A – Seismic Survey Mitigation and Protected Species Observer Protocols (replaces BOEM NTL No. 2016-G02)
  - Appendix B – GoM Marine Trash & Debris Awareness and Elimination Survey Protocols

- Appendix C- "GoM Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols (replaces BOEM NTL No. 2016-G01)
- Appendix J – Sea Turtle Handling and Resuscitation Guidelines

(c) Flower Garden Banks National Marine Sanctuary

Not applicable. Activities will not be conducted within the Protective Zones of the Flower Garden Banks and Stetson Bank.

J. LEASE STIPULATIONS INFORMATION – (30 CRF 550.222)

There are no lease stipulations for Walker Ridge 313.

K. ENVIRONMENTAL MITIGATION MEASURES INFORMATION – (30 CFR 550.223)

a) Description of measures to avoid, minimize, and mitigate environmental impacts.

Not required per NTL No. 2008-G04. The State of Florida is not an affected state.

b) Description of measures to avoid, minimize, and mitigate incidental takes of protected and endangered species / marine mammals.

To avoid, minimize, or mitigate impacts to marine mammals or any of the ESA listed threatened or endangered species; The University of Texas will adhere to specific mitigation measures outlined in the following guidelines and requirements:

- BSEE NTL No. 2015-G03 "Marine Trash and Debris Awareness and Elimination"
- 2020 BiOp – Biological Opinion on the Federally Regulated Oil & Gas Program Activities in the Gulf of Mexico
  - Appendix A – Seismic Survey Mitigation and Protected Species Observer Protocols (replaces BOEM NTL No. 2016-G02)
  - Appendix B – GoM Marine Trash & Debris Awareness and Elimination Survey Protocols
  - Appendix C- "GoM Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols (replaces BOEM NTL No. 2016-G01)
  - Appendix J – Sea Turtle Handling and Resuscitation Guidelines

In accordance with 2020 BiOp Appendix A – "Seismic Survey Mitigation and Protected Species Observer Protocols"; seismic operators are required to use protected species observers (PSOs) and follow specific survey protocols when operating such as exclusion zones, buffer zones, pre-clearance, ramp-up, and visual & acoustic monitoring. The University of Texas does not plan to conduct any deep penetrating surveys or use air guns during proposed activities. Non-airgun high-resolution geophysical surveys will be conducted as part of "as found" and "as left" site surveys. The active acoustic source will be deployed on a remote operated vehicle (ROV) equipped with sector-scanning sonar technology and digital recording capabilities. The investigation will be a minimum 500 feet of sonar coverage from the proposed surface location. During this investigation, the sector-scanning sonar will be set at a range of no more than 330 feet to identify any features standing above the seafloor. The non-air-gun high-resolution geophysical (HGR) survey protocol mitigation will not be followed unless considered and determined to be needed as per the GoM OCS Proposed Geological & Geophysical Activities – Final Programmatic Environmental Impact Statement which states that "rather than adopting the non-air-gun high-resolution geophysical (HGR) survey protocol mitigation at this time, the

protocol will be reserved, considered, and applied at the site-specific stage, on an as-needed basis". The non-airgun HRG surveys will use sources with frequencies ≥ 180 kHz.

In accordance with 2020 BiOp Appendix B - GoM Marine Trash & Debris Awareness and Elimination Survey Protocols and BSEE NTL No. 2015-G03 "Marine Trash and Debris Awareness and Elimination"; The University of Texas at Austin will adhere to the following:

- Compliance with the International Maritime Organization regulations under the International Convention for the Prevention of Pollution from Ships (MARPOL or marine pollution 73/78 for short), Annex V, and the Marine Plastic Pollution Research and Control Act.
- Avoid accidental loss of solid-waste items by developing waste management plans, posting informational placards, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste.
- Make durable identification-markings on skid-mounted equipment, spools & reels, drums, tools, portable containers, and other material.
- Post signs as per BiOp 2020 Appendix B (Attachment 1) detailing the reasons (legal and ecological) why release of debris must be eliminated. The signs will be referenced and contents explained during vessel orientations.
- Assure marine trash and debris awareness training is completed annually for all employees and contractors actively engaged in offshore operations (video + management commitment). This includes attendance records and annual reporting to marinedebris@bsee.gov.

In accordance with 2020 BiOp Appendix C - "GoM Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols"; vessels are to maintain a vigilant watch for marine mammals and sea turtles and slow down, stop their vessel, or alter course; as appropriate and regardless of vessel size, to avoid striking any protected species. A visual monitor (third-party or crew) aboard the vessel must monitor a vessel strike avoidance zone, as per species-specific distances, around the vessel. Visual monitors must be provided sufficient training to distinguish aquatic-protected species. Vessel speeds should be reduced to 10 knots or less when mother/calf pairs, pods, or assemblages (>3) of cetaceans are observed, and maintain a distance of 100 meters or greater from sperm whales, 500 meters from any baleen whale, and a distance of 50 meters or greater from small cetaceans, sea turtles, and other aquatic protected species. If a manatee is sighted, vessel should operate at "no wake/idle" speeds within the area and attempt to maintain a separation distance of 165 feet if practicable.

Vessel personnel must report sightings of any injured or dead protected species (marine mammals and sea turtles) immediately, regardless of whether the injury or death is caused by their vessel. Marine mammal injuries/deaths shall be reported to the NMFS Southeast Marine Mammal Stranding Hotline at 1-877-433-8299 (http://www.nmfs.noaa.gov/pr/health/report.htm#southeast). Sea turtle injuries/ deaths to the State Coordinators for the Sea Turtle Stranding and Salvage Network (STSSN) at http://www.sefsc.noaa.gov/species/turtles/stranding_coordinators. Any injured or dead protected species should also be reported to takereport.nmfsser @noaa.gov. If the injury or death was caused by a collision with one of the project vessels, entrapment with operator's equipment or vessel or entanglement within an operator's equipment; the vessel personnel must notify BSEE within 24 hours of the strike/entrapment/entanglement by email to protectedspecies@bsee.gov and protectedspecies@boem.gov. Reports should include the time, date, water depth and location (latitude/longitude) of the first discovery; relevant weather conditions; the name, type, call sign,

and speed of the vessel during and leading up to the first sighting; and the species identification or a description of the animal, if possible; condition of the animal; observed behaviors of the animal if alive; photographs or video footage of the animal; and general circumstances under which the animal was discovered. If oil and gas industry activity is responsible for the injury or death, the responsible parties should remain available to assist the respective salvage and stranding network as needed.

A Gulf of Mexico reference guide that includes and helps identify marine mammals (21 species of whales and dolphins; 1 species of manatee), sea turtles (5 species), and other aquatic-protected species (giant manta ray, Gulf sturgeon, oceanic whitetip shark) that may be encountered in the Gulf of Mexico OCS should be available to vessel personnel.

Other measures to reduce potential effects on the habitats and marine ecosystems in which listed species live include: oil and gas safety systems and equipment will be designed, installed, used, maintained, and tested in a manner to assure the safety and protection of the human, marine, and coastal environments. Best available and safe technologies will be used whenever practical. Effluent discharges will be done in accordance with the NPDES General Permit for Offshore Oil & Gas Operations in the Western portion of the Gulf of Mexico (NPDES GMG290000) issued by USEPA; including monitoring requirements as described in the NPDES permit.

L. DECOMMISSIONING INFORMATION – (30 CFR 250.255)

Not required for EPs submitted in the GOMR per NTL No. 2008-G04.

M. RELATED FACILITIES & OPERATIONS INFORMATION – (30 CFR 250.256)

Not required per NTL No. 2008-G04 (DOCD's only).

N. SUPPORT VESSELS AND AIRCRAFT INFORMATION – (30 CFR 550.224)

(a) General

Type	Max Fuel Tank Storage Capacity*	Max No. in Area at any Time	Trip Frequency or Duration
Supply vessel	112,200 gallons (220')	2	~ 2 trips during Mobilization,~2 trips during Demobilization and at least 1 supply vessel on location throughout project excluding mob & demob (50 days)
Helicopter	264 gallons (S-76)	1	4 flights during mobilization, 4 flights during demobilization, and 5 per week during project (44 total flights)
Crew boat	12,000 gallons	1	Grocery run 1 per week (7 total)

* Estimated volumes. Vessels not yet chartered.

(b) Diesel Oil Supply Vessels

Size of Fuel Supply Vessel	Capacity*	Freq of Fuel Transfers	Route Fuel Supply Vessel Will Take
220 ft	112,200 gallons	2 per project	From shorebase in Fourchon, LA (to be confirmed) to location in WR313

* Estimated volume. Vessels not yet chartered.

(c) Air Emissions by support vessels

Source	Composition*	Frequency	Duration of emissions per round trip	Estimated project total duration of emissions within 25 mi of MODU
Supply Boat	2 main engines 3,822 bhp	14 round trips	Avg 13.5 knots - 19 hrs round trip (RT) + wait time on location	57 days
Helicopter	2 engines 1666 SHP	44 round trips	Avg 145 knots - 2 hrs RT	14.7 hrs (20 minutes per round trip)
Crew boat	4 Main engines 5400 BHP	7 round trips	Avg 23 knots-11 hrs RT+ wait time on location	14 hrs (2 hours per round trip)

* Estimated composition. Vessels not yet chartered.

(d) Drilling Fluid Transportation

Not required per NTL No. 2008-G04.

(e) Solid and liquid wastes transportation

Not required per NTL No. 2008-G04.

(f) Vicinity Map with Transportation Routes & Distance to Shore

See Attachment 6 for vicinity map.

O. ONSHORE SUPPORT FACILITIES INFORMATION – (30 CFR 550.225)

(a) General

Name of Facility	Location	Existing/New/Modified
Intermoor Dock	Port Fourchon, Louisiana	Existing
MI-Swaco Dock	Port Fourchon, Louisiana	Existing

(b) Support Facility Construction

No support facility construction or expansion is planned for these activities.

(c) Support Facility Construction Timetable

Not applicable. No support facility construction or expansion is planned for these activities.

(d) Waste Disposal Facilities

Name/Location of Facility	Type of Waste	Estimated Amount - Project	Comment
Intermoor Dock Port Fourchon, LA	Municipal	40 m^3	
American Recovery Houma, LA	Used engine oil	2600 gallons	
TBD	Non-hazardous water-based drilling fluids	400 bbls	Base plan is to sell excess WBM to Frances Drilling Fluids for re-use
TBD	Excess cement	Up to ~1500 sacks	Base plan is to leave cement on rig with next client

(e) Air Emissions

Not required for EPs submitted in the GOMR per NTL No. 2008-G04.

(f) Unusual solid & liquid wastes

Not required for EPs submitted in the GOMR per NTL No. 2008-G04.

P. COASTAL ZONE MANAGEMENT INFORMATION – (30 CFR 550.226)

Issues identified in the Louisiana Coastal Zone Management Program include the following: general coastal use guidelines; water and air quality; linear facilities; dredged soil deposition; shoreline modifications; surface alterations; hydrologic and sediment transport modifications; waste disposal; uses that result in the alteration of waters draining into coastal waters; oil, gas, or other mineral activities.

Issues applicable to the proposed activities in this Exploration Plan are: coastal use guidelines; water and air quality; waste disposal; and oil, gas, or other mineral activities.

(a) Consistency certification

See Attachment 7 for Louisiana consistency certification.

(b) Other Information

Relevant enforceable policies were considered in certifying consistency for Louisiana.

The University of Texas at Austin will comply with existing Federal and State laws, regulations, and resultant enforceable program policies in the Louisiana Coastal Zone Management Program.

The Public Information Copy includes all information except the proprietary information as itemized in Section R of this plan.

Louisiana Enforceable Policies

	Info Included?		
	Yes	No	N/A
A. Guidelines Applicable to All Uses			
1.2 Applicable air and water quality laws and regulations compliance guidelines	X		
A. Air Quality			
B. Water Quality			
1.6 General factors that will be utilized by the permitting authority	X		
1.7 Adverse effects from land and water uses in the coastal areas	X		
1.9 Permitting multiple uses to avoid conflict			X
C. Guidelines for Linear Facilities			
3.1 Linear use alignments			X
3.2 Linear facilities dredging or filling avoidance			X
3.3 Linear facilities dredging or filling guidelines			X
3.4 Pipeline "push ditch" methodology			X
3.5 Facilities with corridors, rights-of-way, canals, and streams			X
3.6 Multiple uses			X
3.7 Barrier Island traverses			X
3.8 Beach, tidal passes, protective reef, or shoreline traverses			X
3.9 Location guidelines			X
3.10 Planning guidelines			X
3.11 Saline to freshwater channeling			X
3.12 Directional drilling, multiuse canals, and accesses			X
3.13 Pipeline guidelines			X
3.14 Restoration			X
3.15 Best practical techniques			X
3.16 Dead end canals			X
D. Guidelines for Dredged Spoil Deposition			
4.1 Best practical techniques			X
4.2 Beneficial use of soil			X
4.3 Preventing impounding or draining wetlands			X
4.4 Disposal restrictions on marsh and reefs			X
4.5 Preventing navigation, fishing, and timber growth hindrances			X
4.6 Spoil retention techniques			X
4.7 DNR Consent for State-Owned Property			X
F. Guidelines for Surface Alterations			
6.1 Industrial, commercial, urban, residential, and recreational use guidelines			X
G. Guidelines for Hydrologic and Sediment Transport Modifications			
7.1 Controlled diversion of sediment-laden waters to initiate marsh building			X
7.3 Undesirable deposition of sediments			X
7.9 Withdrawal of surface and ground water			X
H. Guidelines for Disposal of Wastes			
8.1 Location and operation of waste storage, treatment, and disposal facilities	X		
8.2 Generation, transportation, treatment, storage, and disposal of hazardous waste			X
8.8 Approved disposal sites	X		
8.9 Radioactive waste			X
I. Guidelines for Uses that Result in the Alternation of Waters Draining into Waters			
9.2 Developed area runoff			X
J. Guidelines for Oil, Gas, and other Mineral Activities			
10.3 Siting of exploration, production and refining activities	X		
10.5 Access to sites		X	
10.6 Best practical techniques for drilling and production sites	X		
10.10 Guidelines for drilling and production equipment for preventing adverse environmental effects	X		
10.11 Effective environmental protection and emergency or contingency plans	X		

Q. ENVIRONMENTAL IMPACT ANALYSIS – (30 CFR 550.227)

(a) List of IPF's (worksheet preferred, but not mandatory) and;

(b) List of environmental resources that could be affected by IPF's (worksheet preferred but not mandatory)

Environmental Impact Analysis Worksheet

Environmental Resources	Impact Producing Factors (IPFs) Categories and Examples Refer to a recent GOM OCS Lease Sale EIS for a more complete list of IPFs					
	Emissions (air, noise, light, etc.)	**Effluents** (discharges to the water column or seafloor)	**Physical disturbances to the seafloor**	**Wastes sent to shore for treatment or disposal**	**Accidents** (e.g., oil spills, chemical spills, H2S releases)	**Debris** (Discarded Trash & Debris)
Site-specific at Offshore Location						
Designated topographic features		(1)	(1)		(1)	
Pinnacle Trend area live bottoms		(2)	(2)		(2)	
Eastern Gulf live bottoms		(3)	(3)		(3)	
Chemosynthetic communities			(4)			
Water quality		X			X	
Fisheries						
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)			(7)			
Prehistoric archaeological sites			(7)			
Vicinity of Offshore Location						
Essential fish habitat					(6)	
Marine and pelagic birds	X				X	X
Public health and safety					(5)	X
Coastal and Onshore						
Beaches					(6)	X
Wetlands					(6)	X
Shore birds and coastal nesting birds	X				(6)	X
Coastal wildlife refuges						X
Wilderness areas						

Footnotes for Environmental Impact Analysis Matrix

1. Activities that may affect a marine sanctuary or topographic feature. Specifically, if the well or platform site or any anchors will be on the seafloor within the:
   (a) 4-mile zone of the Flower Garden Banks, or the 3-mile zone of Stetson Bank;
   (b) 1000-m, 1-mile or 3-mile zone of any topographic feature (submarine bank) protected by the Topographic Features Stipulation attached to an OCS lease;
   (c) Essential Fish Habitat (EFH) criteria of 500 feet from any no-activity zone; or
   (d) Proximity of any submarine bank (500 feet buffer zone) with relief greater than 2 meters that is not protected by the Topographic Features Stipulation attached to an OCS lease.
1. Activities with any bottom disturbance within an OCS lease block protected through the Live Bottom (Pinnacle Trend) Stipulation attached to an OCS lease.
2. Activities within any Eastern Gulf OCS block where seafloor habitats are protected by the Live Bottom (Low Relief) Stipulation attached to an OCS lease.
3. Activities on blocks designated by the BOEM as being in water depths 400 meters or greater.
4. Exploration or production activities where H2S concentrations greater than 500 ppm might be encountered.
5. 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.
6. 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 prehistoric site that no impact would occur, the EIA can note that in a sentence or two.
7. All activities that you determine might have an adverse effect on endangered or threatened marine mammals or sea turtles or their critical habitats.
8. Production activities that involve transportation of produced fluids to shore using shuttle tankers or barges.

Footnote Statements

1. Not applicable.
2. Not applicable.
3. Not applicable.
4. Not applicable. No known chemosynthetic communities in location of proposed action.
5. Not applicable.
6. Not applicable. Proposed action is located a sufficient distance from resource that no impact would occur.
7. Not applicable. Proposed action is located a sufficient distance from shipwreck or prehistoric site that no impact would occur.
8. Applicable. See c) below for discussion of effects.
9. Not applicable. There will be no transportation of produced fluids associated with the proposed action.

(c) Analysis of impacts on each Environmental Resource which you identify as being impacted by that IPF.

Water Quality

The primary impacting sources to water quality in **coastal** waters are point-source and storm-water discharges from support facilities, vessel discharges, and nonpoint-source runoff. These activities are regulated, localized and temporary in nature. The impacts to coastal water quality from proposed action should be minimal due to short duration of project, limited use of support facilities and support vessels, distance from shore of most of the routine activities, and the USEPA regulations that restrict discharges. The worst case discharge for the proposed action is from ruptured fuel tanks on the drilling vessel. Due to the distance from shore, impact on coastal waters is expected to be minimal.

The primary impacting sources to water quality in **offshore** waters are discharges of water-based drilling fluid, cuttings, and other miscellaneous discharges. Regulations are in place to limit the toxicity of the discharge components, the levels of incidental contaminants in these discharges, the discharge rates, and discharge locations. Service-vessel discharges might include water with oil concentration of approximately 15 ppm as established by regulatory standards.

Any disturbance of the seafloor would increase turbidity in the surrounding water, but the increased turbidity should be temporary and restricted to the area near the disturbance. There are multiple Federal regulations and permit requirements that would decrease the magnitude of these activities. Impacts to offshore waters from routine activities associated with the proposed action should be minimal as long as regulatory requirements are followed.

Accidental events that could impact offshore water quality include spills of fuel oil, chemicals or drilling fluids; loss of well control (release of gas); usage of chemical dispersants in oil-spill response; collisions; or other malfunctions that would result in such spills. Based on the potential volume and duration of a release of gas from loss of well control in the proposed action, potential impacts to offshore water quality are not expected to be significant. In the case of ruptured fuel tanks; although response efforts may decrease the amount of oil in the environment, the response efforts may also impact the environment through, for example, increased vessel traffic and application of dispersants. Chemicals used in proposed action are not a significant risk for a spill because they are either nontoxic, used in minor quantities, or are only used on a non-continuous basis. Although there is the potential for accidental events, the proposed action would not significantly change the water quality of the Gulf of Mexico over a large spatial or temporal scale.

Because all vessels in the U.S. and international waters are required to adhere to International Maritime Organization regulations under the International Convention for the Prevention of Pollution from Ships (MARPOL) limiting discharges, avoiding releases of oil water, and prohibiting disposal of solid wastes; expected effects to water quality would be minimal.

Marine Mammals

The major impact sources on marine mammals from the proposed action are the degradation of water quality from accidental fuel spill; noise generated by aircraft, support vessels, and the rig; vessel traffic; and marine debris from service vessels and rig. Impacts from vessel traffic could negatively impact marine mammals by increasing noise levels as well as having the potential to harm or harass marine mammal species. Impacts from vessel and equipment noise are assessed as nominal to minor. Behavioral impacts are anticipated to be short-term disruption of behavioral patterns, abandonment of activities, and/or temporary displacement from discrete areas. Small numbers of marine mammals could be killed or injured by chance collision. Nominal to moderate impacts are expected depending whether or not a collision did occur. Due to extensive mitigations, no serious injuries or mortalities are expected. The proposed activities, when mitigated as required by BOEM and NMFS, are not expected to have long-term impacts on the size and productivity of any marine mammal species or population. Other routine activities such as aircraft activity, drilling and production noise, discharges, and marine debris are expected to have negligible effects. Minor impacts are expected for non-airgun HRG surveys. Accidental disturbances resulting from the proposed action, including oil spills and spill-response activities, have the potential to have adverse, but not significant impacts on marine mammals. Potential impacts to marine mammals from an accidental spill are expected to range from nominal to minor.

Sea Turtles

Deepwater activities are unlikely to have a long-term adverse effect on the size and productivity of any sea turtle species and population stock in the northern Gulf of Mexico. Small numbers of sea turtles could be killed or injured by chance collision with service vessels

or by eating indigestible OCS-related debris. Impacts to sea turtles from vessel traffic would range from nominal to moderate (if collision occurred). Contact with oil spills can cause chronic (longer-term lethal or sub-lethal oil-related impacts) or acute (spill-related deaths occurring during a spill) effects on sea turtles. Impact of small diesel fuel spills would be expected to range from nominal (if the fuel does not contact individual sea turtles) to minor (if individual sea turtles encounter the dispersed windows of the surface slick). Contaminants in discharges could indirectly affect sea turtles through food-chain biomagnification. Impacts from entanglement and entrapment are assessed to be nominal. The evidence on whether there are adverse impacts from anthropogenic noise is inconclusive. Nominal to minor impacts on sea turtles are expected for non-airgun HRG surveys. Vessel and equipment noise is transitory and generally does not propagate great distances from the vessel; furthermore, the source levels are too low to cause death or injuries such as auditory threshold shifts. The most likely effects of vessel and equipment noise on sea turtles would include behavioral changes (evasive maneuvers) and auditory masking. Sound generated by dynamic positioning (broadband noise) may elicit temporary avoidance or displacement of individual sea turtles from some radius around the drilling area. Noises generated by project-related aircraft include airborne sounds to individual sea turtles on the sea surface and underwater sounds from air-to-water transmission from passing aircraft. Aircraft noise is generally <500 Hz and within the auditory range of sea turtles. However, noise is expected to be brief in duration. Due to short duration and limited number of potential exposures, the impact of aircraft noise on sea turtles is expected to be nominal.

Air Quality

Emissions of pollutants into the atmosphere from the routine activities associated with the proposed action are projected to have minimal impacts to onshore air quality because of the prevailing atmospheric conditions, emission heights, emission rates, distance of these emissions from the coastline, and the short duration of the project. The ambient concentrations of pollutants due to emissions from proposed-action activities are expected to be well within the NAAQS. Accidental events associated with the proposed action that could impact air quality include fire and spills of fuel oil, natural gas, and refined hydrocarbons; and could result in the releases of NAAQS air pollutants (i.e., SO_X, NO_X, VOC's, CO, PM_{10}, and $PM_{2.5}$). These emissions are not expected to have concentrations that would change onshore air quality classifications. Response activities would be temporary in nature and occur offshore; therefore, there are little expected impacts from these actions to onshore air quality.

Marine and Pelagic Birds / Coastal Birds

Overall, impacts to avian species from routine activities in the central GOM are expected to be adverse but not significant. Impacts to marine and coastal birds are assessed as nominal to minor for active acoustic noise, vessel and equipment noise, and aircraft traffic & noise. Primary impacts include: collision-related mortality of trans-Gulf migrant land birds and sublethal, chronic effects due to exposure to or intake of OCS-related contaminants via spilled oil, pollutants in the water from service vessels, or discarded debris. Oil spills and disturbance impacts associated with clean-up have the greatest impact on coastal and marine birds. Because of their normal coastal or inner continental shelf ranges, these species are not expected to occur in deep water portions of the central GOM. Due to the distance of the

proposed action from the coast/critical habitats, any impact on coastal & marine birds from the proposed action is expected to be minimal.

Marine Debris

Both entanglement in, and ingestion of, discarded trash and debris have caused the death or serious injury of marine mammals. Marine debris can also have a negative impact on public health & safety, sea turtles, beaches, wetlands, coastal birds, and coastal wildlife refuges. Impacts from marine debris are expected to be small, localized, and temporary. The limited amount of marine debris, if any, resulting from the proposed action is not expected to substantially impact marine mammals or coastal environments. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V and the Marine Plastic Pollution Research and Control Act, and regulations imposed by various agencies including the United States Coast Guard (USCG) and the Environmental Protection Agency (EPA). Operations will be in accordance with the regulations. Accidental loss of solid waste items will be avoided by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins. Special caution will be exercised when handling and disposing of small items and packaging materials; particularly those made of non-biodegradable, environmentally persistent materials such as plastic or glass.

(d) Potential Impacts on Activities from Environmental Conditions

A major environmental concern in this area is the impact of potential hurricanes. The operating window of the project was selected to allow operations to be conducted outside of hurricane season.

(e) Alternatives Considered to Reduce Environmental Impacts

Not required per NTL No. 2008-G04. (DOCD's only)

(f) Mitigation Measures

Mitigation measures include: compliance with the 2020 Biological Opinion on the Federally Regulated Oil & Gas Program Activities in the Gulf of Mexico (BiOp 2020), NPDES General Permit for the Western Portion of the OCS of the Gulf of Mexico (GMG29000), NTL 2015-BSEE-G03, MARPOL-Annex V, Marine Plastic Pollution Research & Control Act, National Marine Sanctuary Regulations, and US Coast Guard Regulations; avoidance of sensitive benthic communities; avoidance of historic & prehistoric sites; limited scope and duration of project; vessel compliance with MARPOL; design, installation, and maintenance as per written manufacturer's specification of oil and gas safety systems and equipment; use of best available and safe technologies whenever practical; and good waste management practices.

(g) Consultation

No agencies or persons were consulted regarding potential impacts associated with the proposed activities.

(h) EIA Preparer

Jamie Morrison
Project Manager
The University of Texas at Austin employee

(i) References

OCS EIS/EA BOEM 2017-051
Gulf of Mexico OCS Proposed Geological & Geophysical Activities; Western, Central, and Eastern Planning Areas
Final Programmatic Environmental Impact Statement
August 2017

NOTE: Incorporated by reference: GOM OCS Oil& Gas Lease Sales 2015 & 2016; and GOM OCS Oil & Gas Lease Sales 2017-2022, and GOM Lease Sales 249, 250, 251, 252, 253, 254, 256, 259, and 261 – Final Multisale Environmental Impact Statement (USDOI, BOEM, and 2017a).

Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico
National Marine Fisheries Service
Endangered Species Act Section 7 Biological Opinion
Office of Protected Resources, NMFS, NOAA, and Department of Commerce
March 2020

OCS EIS/EA BOEM 2017-009
Gulf of Mexico OCS Oil & Gas Lease Sales: 2017-2022
Gulf of Mexico Lease Sales 249 -261
Final Multisale Environmental Impact Statement
March 2017

OCS EIS/EA BOEM 2015-033
Gulf of Mexico OCS Oil & Gas Lease Sales: 2016-2017
Central Planning Area Lease Sales 241 & 247
Final Supplemental Environmental Impact Statement
September 2015

OCS EIS/EA BOEM 2012-019
Gulf of Mexico OCS Oil & Gas Lease Sales: 2012-2017
Central Planning Area Lease Sales 227, 231, 235, 241 & 247
Final Environmental Impact Statement
Volume 2: Chapters 4.2-4.5 and 5
July 2012

R. ADMINISTRATIVE INFORMATION – (30 CFR 550.228)

(a) Proprietary Information

Proprietary copies of this plan contain information not available to the public and include top hole stratigraphy & prognosis derived from seismic interpretation, wellbore temperature & hydrate stability curves, structure maps, seismic lines, geological cross sections, blow-out scenario modeling, fault penetration derived from seismic interpretation, and proprietary portions of the shallow hazards assessment.

(b) Bibliography for any material references by EP (e.g. previous plans)

Bibliographical information for references have been embedded in the Exploration Plan at the point of reference.

ATTACHMENT 1 – OCS Plan Information Forms BOEM-0137

- WR313 H002

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:	X	Exploration Plan (EP)	Development Operations Coordination Document (DOCD)		
Company Name: The University of Texas at Austin			BOEM Operator Number: 3487		
Address:			Contact Person: Peter Flemings		
P.O. Box R-G4800			Phone Number: 512-475-8738		
Austin, Texas 78713-8918			E-Mail Address: pflemings@jsg.utexas.edu		
If a service fee is required under 30 CFR 550.125(a), provide the		Amount paid	$11,019	Receipt No.	26RCB44M

Project and Worst Case Discharge (WCD) Information

Lease(s): Unleased - RUE requeste		Area: WR		Block(s): 313		Project Name (If Applicable): DE-FE0023919 - UT-GOM2-2					
Objective(s)		Oil	x	Gas		Sulphur		Salt	Onshore Support Base(s): Port Fourchon LA		
Platform/Well Name: WR313 H002		Total Volume of WCD: No liquid hydrocarbons from we							API Gravity: N/A		
Distance to Closest Land (Miles): 176		Volume from uncontrolled blowout: No liquid hydrocarbons from well									
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											
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
Exploration drilling			
Development drilling			
Well completion			
Well test flaring (for more than 48 hours)			
Installation or modification of structure			
Installation of production facilities			
Installation of subsea wellheads and/or manifolds			
Installation of lease term pipelines			
Commence production			
Other (Specify and attach description)	See Continuation		

Description of Drilling Rig

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

Drilling Rig Name (If Known):

Description of Structure

	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			

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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): WR313 H002					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.				
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): 0		For structures, volume of all storage and pipelines (Bbls):			API Gravity of fluid	N/A		

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS Unleased - RUE requested	OCS Unleased- RUE requested	OCS OCS N/A
Area Name	Walker Ridge	Walker Ridge	
Block No.	313	313	
Blockline Departures (in feet)	N/S Departure: F N L 1250.0 E/W Departure: F E L 2412.1	N/S Departure: F N L 1250.0 E/W Departure: F E L 2412.1	N/S Departure: F L N/S Departure: F L N/S Departure: F L E/W Departure: F L E/W Departure: F L E/W Departure: F L
Lambert X-Y coordinates	X: 2072632.04 NAD 27 Y: 9677009.4 NAD 27	X: 2072632.04 NAD 27 Y: 9677009.4 NAD 27	X: X: X: Y: Y: Y:
Latitude/ Longitude	Latitude 26.662375 NAD 27 Longitude 91.676210 NAD 27	Latitude 26.662375 NAD 27 Longitude 91.676210 NAD 27	Latitude Latitude Latitude Longitude Longitude Longitude

Water Depth (Feet): 6460	MD (Feet): 3010 fbsf	TVD (Feet): 3010 fbsf	MD (Feet): MD (Feet): MD (Feet):	TVD (Feet): TVD (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 =	

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OCS PLAN INFORMATION FORM (CONTINUED)

Provide the following information for the well with the highest Worst Case Discharge volume:

Worst Case Discharge (WCD) Well Information							
WCD Well Name	Surface Lease	Surface Area/Block	Bottom Lease	Bottom Area/Block	Product Type	MD	TVD
N/A							

Analog Well(s)			
Area/Block	OCS Lease	Well No.	API No.

Geologic Data for WCD

Open Hole Interval for WCD	
Top (TVD in feet)	Base (TVD in feet)

	Sand 1	Sand 2	Sand 3	Sand 4	Sand 5
Formation Data					
Sand Name					
Estimated Top TVD					
Estimated Base TVD					
Estimated Net Sand Height MD (Net Pay if hydrocarbon)					
Estimated Net Sand Height TVT (Net Pay if hydrocarbon)					
Fluid Type					
Used in WCD? (Yes/No)					

Seismic Survey Used	

Engineering Data for WCD

WCD Engineering Items											
WCD (STB/Day)											
WCD Calculated at	Mudline		Yes		No		Atmosphere		Yes		No
Flow Correlation											
Outlet Pressure (Psia)											
Gas Turbulence Factor											
Software Model Used											

	Sand 1	Sand 2	Sand 3	Sand 4	Sand 5
Formation Data					
Sand Name					
Permeability (mD)					
Initial Pressure (PSIA)					

OCS PLAN INFORMATION FORM (CONTINUED)

	Sand 1	Sand 2	Sand 3	Sand 4	Sand 5
Formation Data					
Reservoir Temperature (F)					
Porosity (0.00)					
Water Saturation (0.00)					
Rock Compressibility (microsips)					
Water Salinity (ppm)					
Drive Mechanism					
Drainage Area (acres)					
Oil Reservoir Data					
Bubble Point Pressure (PSIA)					
Initial Bo (RB/STB)					
Bo (RB/STB) @ Bubble Point					
Rsi (SCF/STB)					
Initial Oil Viscosity (Cp)					
Oil Viscosity (CP) @ Bubble Point					
Oil Compressibility (1/PSIA)					
Oil API Gravity (API)					
Specific Gas Gravity (0.00)					
Gas Reservoir Data					
Condensate API Gravity (API)					
Specific Gas Gravity (0.00)					
Yield (STB/MMCF)					

Source of Permeability Used			
Permeability from MDT			
Permeability from Core Analysis	Percussion core	Rotary sidewall core	Conventional core
Pressure Transient Analysis			
Permeability from CMR or NMR log analysis			
Permeability from other source			

Provide Model Input Values for Relative Permeability:	
Residual Oil to Gas fraction (=1-Slc-Swc)	
Residual Oil to Water fraction (=Soc)	
Critical Gas fraction (Sgc, Gas/Oil-Water Systems)	
Residual Gas to Water fraction (Sgc, Gas/Gas-Water Systems)	
Kro Oil Curve Endpoint (fraction of absolute permeability)	
Krg Gas Curve Endpoint (fraction of absolute permeability)	
Krw Water Curve Endpoint (fraction of absolute permeability)	

Paperwork Reduction Act of 1995 Statement: The Paperwork Reduction Act of 1995 (44 U.S.C. 2501 et seq.) requires us to inform you that BOEM collects this information as part of an applicant's Exploration Plan or Development Operations Coordination Document submitted for BOEM approval. We use the information to facilitate our review and data entry for OCS plans. We will protect proprietary data according to the Freedom of Information Act and 30 CFR 550.197. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget Control Number. Responses are mandatory (43 U.S.C. 1334). The public reporting burden for this form is included in the burden for preparing Exploration Plans and Development Operations Coordination Documents. We estimate that burden to average 600 hours with an accompanying EP, or 700 hours with an accompanying DPP or DOCD, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms associated with subpart B. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Bureau of Ocean Energy Management, 45600 Woodland Road, Sterling, Virginia 20166.

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CONTINUATION – BOEM Form 0137

Description of Proposed Activities and Tentative Schedule

Drill four deep stratigraphic tests for geological research. Maximum total depth is 3,085 fbsf. Project to start no sooner than January 1, 2022 and conclude by June 1, 2022. The expected project duration is ~57 days.

o WR313 G002

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): WR313 G002					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.					
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): 0				For structures, volume of all storage and pipelines (Bbls):		API Gravity of fluid		N/A	
	Surface Location				**Bottom-Hole Location (For Wells)**		**Completion (For multiple completions, enter separate lines)**			
Lease No.	OCS Unleased - RUE requested				OCS Unleased- RUE requested		OCS OCS N/A			
Area Name	Walker Ridge				Walker Ridge					
Block No.	313				313					
Blockline Departures (in feet)	N/S Departure: F N L 957.2				N/S Departure: F N L 957.2		N/S Departure: F___ L N/S Departure: F___ L N/S Departure: F___ L			
	E/W Departure: F E L 4956.8				E/W Departure: F E L 4956.8		E/W Departure: F___ L E/W Departure: F___ L E/W Departure: F___ L			
Lambert X-Y coordinates	X: 2070087.35 NAD 27				X: 2070087.35 NAD 27		X: X: X:			
	Y: 9677302.19 NAD 27				Y: 9677302.19 NAD 27		Y: Y: Y:			
Latitude/ Longitude	Latitude 26.663253 NAD 27				Latitude 26.663253 NAD 27		Latitude Latitude Latitude			
	Longitude 91.683993 NAD 27				Longitude 91.683993 NAD 27		Longitude Longitude Longitude			
Water Depth (Feet): 6567					MD (Feet): 3085 fbsf	TVD (Feet): 3085 fbsf	MD (Feet): MD (Feet): MD (Feet):		TVD (Feet): TVD (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 =	

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o WR313 F001

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): WR313 F001					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.				
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): 0				For structures, volume of all storage and pipelines (Bbls):		API Gravity of fluid		N/A

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS Unleased - RUE requested	OCS Unleased- RUE requested	OCS OCS N/A
Area Name	Walker Ridge	Walker Ridge	
Block No.	313	313	
Blockline Departures (in feet)	N/S Departure: F N L 2067.9	N/S Departure: F N L 2067.9	N/S Departure: F L N/S Departure: F L N/S Departure: F L
	E/W Departure: F E L 1726.6	E/W Departure: F E L 1726.6	E/W Departure: F L E/W Departure: F L E/W Departure: F L
Lambert X-Y coordinates	X: 2073317.52 NAD 27	X: 2073317.52 NAD 27	X: X: X:
	Y: 9676191.48 NAD 27	Y: 9676191.48 NAD 27	Y: Y: Y:
Latitude/ Longitude	Latitude 26.660105 NAD 27	Latitude 26.660105 NAD 27	Latitude Latitude Latitude
	Longitude 91.674137 NAD 27	Longitude 91.674137 NAD 27	Longitude Longitude Longitude
Water Depth (Feet): 6375		MD (Feet): 2745 fbsf / TVD (Feet): 2745 fbsf	MD (Feet): MD (Feet): MD (Feet): / TVD (Feet): TVD (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 =	

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o WR313 F002

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): WR313 F002					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.					
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): 0				For structures, volume of all storage and pipelines (Bbls):			API Gravity of fluid	N/A	
	Surface Location				**Bottom-Hole Location (For Wells)**			**Completion (For multiple completions, enter separate lines)**		
Lease No.	OCS Unleased - RUE requested				OCS Unleased- RUE requested			OCS OCS N/A		
Area Name	Walker Ridge				Walker Ridge					
Block No.	313				313					
Blockline Departures (in feet)	N/S Departure: F N L 2018.3				N/S Departure: F N L 2018.3			N/S Departure: F___ L N/S Departure: F___ L N/S Departure: F___ L		
	E/W Departure: F E L 1714.1				E/W Departure: F E L 1714.1			E/W Departure: F___ L E/W Departure: F___ L E/W Departure: F___ L		
Lambert X-Y coordinates	X: 2073330.06 NAD 27				X: 2073330.06 NAD 27			X: X: X:		
	Y: 9676241.04 NAD 27				Y: 9676241.04 NAD 27			Y: Y: Y:		
Latitude/ Longitude	Latitude 26.660241 NAD 27				Latitude 26.660241 NAD 27			Latitude Latitude Latitude		
	Longitude 91.674097 NAD 27				Longitude 91.674097 NAD 27			Longitude Longitude Longitude		
Water Depth (Feet): 6374					MD (Feet): 2745 fbsf	TVD (Feet): 2745 fbsf		MD (Feet): MD (Feet): MD (Feet):	TVD (Feet): TVD (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 =	

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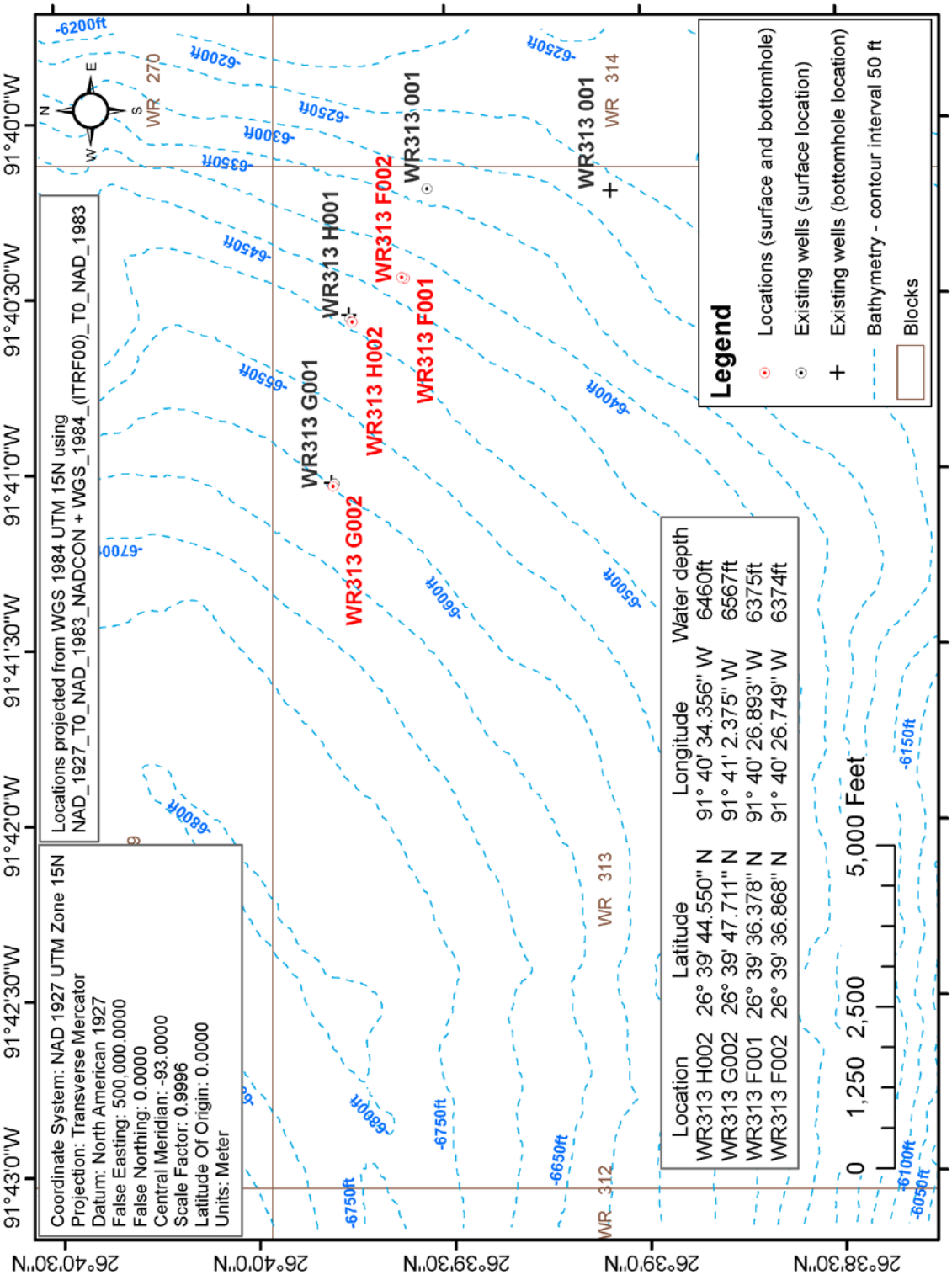
ATTACHMENT 2 - Bathymetry map with location of existing & proposed wells.

All values are posted in the NAD27 coordinate system.



ATTACHMENT 3 – Blowout Scenario Modeling and Volume Calculations

Removed – PROPRIETARY INFORMATION

ATTACHMENT 4 – Seismic Lines

Removed – PROPRIETARY INFORMATION

ATTACHMENT 5 – Air Emissions Worksheet

EP - AIR QUALITY

OMB Control No. 1010-0151
OMB Approval Expires: 08/31/2023

COMPANY	The University of Texas at Austin (Company #3487)
AREA	Walker Ridge
BLOCK	313
LEASE	RUE # TBD pending approval
FACILITY	DP Semisubmersible
WELL	WR313 F001, WR313 F002, WR313 G 002, and WR313 H002
COMPANY CONTACT	Peter Flemings
TELEPHONE NO.	512-475-8738
REMARKS	Specific drilling rig yet to be determined. Rig type is DP semisubmersible.

AIR EMISSIONS CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	FACILITY	WELL			
ersity of Texas at Austin (Compar	313	RUE # TBD per	DP Semisubme	WR313 F001, WR313 F002, WR313 G 002, and WR313 H002				

Year	Facility Emitted Substance								
	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3
2020	29.53	17.82	17.28	0.43	707.56	20.34	0.00	110.98	0.21
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Allowable	5864.13			5864.13	5864.13	5864.13		106819.81	

AIR EMISSIONS CALCULATIONS - 1ST YEAR

COMPANY	AREA	BLOCK	LEASE	FACILITY	WELL	CONTACT	PHONE	REMARKS
The University of Texas at Aus	Walker Ridge	313	RUE I TBD pr	Semisubmersi	WR313 PB01, WR313 PB02, WR313 G 002, and WR313 H002	Peter Flemings	512-475-8738	Specific drilling rig yet to be determined. Rig type is DP semisubmersible.

OPERATIONS	EQUIPMENT	QUIPMENT I	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR									ESTIMATED TONS								
	Diesel Engines		HP	GAL/HR	GAL/D																				
	Nat. Gas Engines		HP	SCF/HR	SCF/D																				
	Burners		MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3
DRILLING	VESSELS- Drilling - Propulsion Engine - Diesel		61200	3148.5	75563.88	24	57	43.18	26.05	25.27	0.63	1034.45	29.74	0.00	162.25	0.30	29.53	17.82	17.28	0.43	707.56	20.34	0.00	110.98	0.21
	VESSELS- Drilling - Propulsion Engine - 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Drilling Prime Engine, Auxiliary		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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY INSTALLAT	VESSELS - Heavy Lift Vessel/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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			BPD																						
DRILLING - N/A	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST - N/A	COMBUSTION FLARE - no smoke			0		0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	COMBUSTION FLARE - light smoke			0		0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	COMBUSTION FLARE - medium smoke			0		0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	COMBUSTION FLARE - heavy smoke			0		0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
ALASKA-SPECIFIC SOURCES - N/A	**VESSELS**		kW			HR/D	D/YR																		
	VESSELS - Ice Management Diesel		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
2020	**Facility Total Emissions**							**43.18**	**26.05**	**25.27**	**0.63**	**1,034.45**	**29.74**	**0.00**	**162.25**	**0.30**	**29.53**	**17.82**	**17.28**	**0.43**	**707.56**	**20.34**	**0.00**	**110.98**	**0.21**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																#####			#####	#####	#####		#####	
	176.1																								
DRILLING	VESSELS- Crew Diesel		5400	277.808	6667.40	2	7	3.81	2.30	2.23	0.06	91.27	2.62	0.00	14.32	0.03	0.03	0.02	0.02	0.00	0.64	0.02	0.00	0.10	0.00
	VESSELS - Supply Diesel		3822	196.627	4719.04	24	57	2.70	1.63	1.58	0.04	64.60	1.86	0.00	10.13	0.02	1.84	1.11	1.08	0.03	44.19	1.27	0.00	6.93	0.01
	VESSELS - Tugs 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY - N/A	VESSELS - 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION - N/A	VESSELS - Crew 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS - Supply 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION - N/A	VESSELS - Support 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALASKA-SPECIFIC SOURCES - N/A	**On-Ice Equipment**			GAL/HR	GAL/D																				
	Man Camp - Operation (maximum people per day)		PEOPLE/DAY																						
	VESSELS		kW			HR/D	D/YR																		
	On-Ice - Loader			0	0.0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
	On-Ice - Other Construction Equipment			0	0.0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
	On-Ice - Other Survey Equipment			0	0.0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
	On-Ice - Tractor			0	0.0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
	On-Ice - Truck (for gravel island)			0	0.0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
	On-Ice - Truck (for surveys)			0	0.0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
	Man Camp - Operation		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	
	VESSELS - Hovercraft Diesel		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2020	**Non-Facility Total Emissions**							**6.51**	**3.93**	**3.81**	**0.09**	**155.88**	**4.48**	**0.00**	**24.45**	**0.05**	**1.87**	**1.13**	**1.09**	**0.03**	**44.83**	**1.29**	**0.00**	**7.03**	**0.01**

AIR EMISSIONS COMPUTATION FACTORS

Fuel Usage Conversion Factors	Natural Gas Turbines				Natural Gas Engines		Diesel Recip. Engine		Diesel Turbines				
	SCF/hp-hr	9.524			SCF/hp-hr	7.143	GAL/hp-hr	0.0514	GAL/hp-hr	0.0514			
Equipment/Emission Factors	**units**	**TSP**	**PM10**	**PM2.5**	**SOx**	**NOx**	**VOC**	**Pb**	**CO**	**NH3**	**REF.**	**DATE**	**Reference Links**
Natural Gas Turbine	g/hp-hr		0.0086	0.0086	0.0026	1.4515	0.0095	N/A	0.3719	N/A	AP 42 3.1-1 & 3.1-2a	4/00	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf
RECIP. 2 Cycle Lean Natural Gas	g/hp-hr		0.1393	0.1393	0.0020	6.5398	0.4082	N/A	1.2009	N/A	AP 42 3.2-1	7/00	https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s02.pdf
RECIP. 4 Cycle Lean Natural Gas	g/hp-hr		0.0002	0.0002	0.0020	2.8814	0.4014	N/A	1.8349	N/A	AP 42 3.2-2	7/00	https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s02.pdf
RECIP. 4 Cycle Rich Natural Gas	g/hp-hr		0.0323	0.0323	0.0020	7.7224	0.1021	N/A	11.3408	N/A	AP 42 3.2-3	7/00	https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s02.pdf
Diesel Recip. < 600 hp	g/hp-hr	1	1	1	0.0279	14.1	1.04	N/A	3.03	N/A	AP 42 3.3-1	10/96	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
Diesel Recip. > 600 hp	g/hp-hr	0.32	0.182	0.178	0.0055	10.9	0.29	N/A	2.5	N/A	AP 42 3.4-1 & 3.4-2	10/96	https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s04.pdf
Diesel Boiler	lbs/bbl	0.0840	0.0420	0.0105	0.0089	1.0080	0.0084	5.14E-05	0.2100	0.0336	AP 42 1.3-1; Pb and NH3:WARFIRE (08/2018)	5/10 and 5/10	https://cfpub.epa.gov/webfire/
Diesel Turbine	g/hp-hr	0.0381	0.0137	0.0137	0.0048	2.7341	0.0013	4.45E-05	0.0105	N/A	AP 42 3.1-1 & 3.1-2a	4/00	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf
Dual Fuel Turbine	g/hp-hr	0.0381	0.0137	0.0137	0.0048	2.7341	0.0095	4.45E-05	0.3719	0.0000	AP 42 3.1-1 & 3.1-2a; AP 42 3.1-1 & 3.1-2a	4/00	https://cfpub.epa.gov/webfire/
Vessels - Propulsion	g/hp-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI; TSP refer to Diesel Recip. > 600 hp reference	5/15	https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data
Vessels - Drilling Prime Engine, Auxiliary	g/hp-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI; TSP refer to Diesel Recip. > 600 hp reference	5/15	
Vessels - Diesel Boiler	g/hp-hr	0.0466	0.1431	0.1417	0.4400	1.4314	0.0820	3.73E-05	0.1431	0.0003	USEPA 2017 NEI; TSP [units converted] refer to Diesel Boiler Reference	5/15	
Vessels - Well Stimulation	g/hp-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI; TSP refer to Diesel Recip. > 600 hp reference	5/15	
Natural Gas Heater/Boiler/Burner	lbs/MMscf	7.60	1.90	1.90	0.60	190.00	5.50	5.00E-04	84.00	3.2	AP 42 1.4-1 & 1.4-2; Pb and NH3:WARFIRE (08/2018)	7/98 and 8/18	https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s04.pdf
Combustion Flare (no smoke)	lbs/MMscf	0.00	0.00	0.00	0.57	71.40	35.93	N/A	325.5	N/A	AP 42 13.5-1, 13.5-2	2/18	https://cfpub.epa.gov/webfire/
Combustion Flare (light smoke)	lbs/MMscf	2.10	2.10	2.10	0.57	71.40	35.93	N/A	325.5	N/A	AP 42 13.5-1, 13.5-2	2/18	https://www3.epa.gov/ttn/chief/ap42/ch13/final/C13S05_02-05-18.pdf
Combustion Flare (medium smoke)	lbs/MMscf	10.50	10.50	10.50	0.57	71.40	35.93	N/A	325.5	N/A	AP 42 13.5-1, 13.5-2	2/18	
Combustion Flare (heavy smoke)	lbs/MMscf	21.00	21.00	21.00	0.57	71.40	35.93	N/A	325.5	N/A	AP 42 13.5-1, 13.5-2	2/18	
Liquid Flaring	lbs/bbl	0.42	0.0966	0.0651	5.364	0.84	0.01428	5.14E-05	0.21	0.0336	AP 42 1.3-1 [remark 1.3-3 and 1.3-5	5/10	https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s03.pdf
Storage Tank	tons/yr/tank						4.300				2014 Gulfwide Inventory; Reg emiss [upper bound of 95% CI]	2017	https://www.boem.gov/environment/environmental-studies/2014-gulfwide-emission-inventory
Fugitives	lbs/hr/component						0.0005				API Study	12/93	https://www.api.org/
Glycol Dehydrator	tons/yr/dehydrator						19.240				2011 Gulfwide Inventory; Reg emiss [upper bound of 95% CI]	2014	https://www.boem.gov/environment/environmental-studies/2011-gulfwide-emission-inventory
Cold Vent	tons/yr/vent						44.747				2014 Gulfwide Inventory; Reg emiss [upper bound of 95% CI]	2017	https://www.boem.gov/environment/environmental-studies/2014-gulfwide-emission-inventory
Waste Incinerator	lb/ton		15.0	15.0	2.5	2.0	N/A	N/A	20.0	N/A	AP 42 2.1-12	10/96	https://www3.epa.gov/ttnchie1/ap42/ch02/final/c02s01.pdf
On-Ice - Loader	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP [units converted] refer to Diesel Recip. <600 reference	2008	https://www.epa.gov/moves/nonroad2008a-installation-and-updates
On-Ice - Other Construction Equipment	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP [units converted] refer to Diesel Recip. <600 reference	2008	
On-Ice - Other Survey Equipment	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP [units converted] refer to Diesel Recip. <600 reference	2008	
On-Ice - Tractor	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP [units converted] refer to Diesel Recip. <600 reference	2008	
On-Ice - Truck (for gravel island)	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP [units converted] refer to Diesel Recip. <600 reference	2008	
On-Ice - Truck (for surveys)	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP [units converted] refer to Diesel Recip. <600 reference	2008	
Man Camp - Operation (max people/day)	tons/person/day		0.0004	0.0004	0.0004	0.006	0.001	N/A	0.001	N/A	BOEM 2014-1001	2014	https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/BOEM_Newsroom/Library/Publications/2014-1001.pdf
Vessels - Ice Management Diesel	g/hp-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI; TSP refer to Diesel Recip. > 600 hp reference	5/15	https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data
Vessels - Hovercraft Diesel	g/hp-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI; TSP refer to Diesel Recip. > 600 hp reference	5/15	https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data

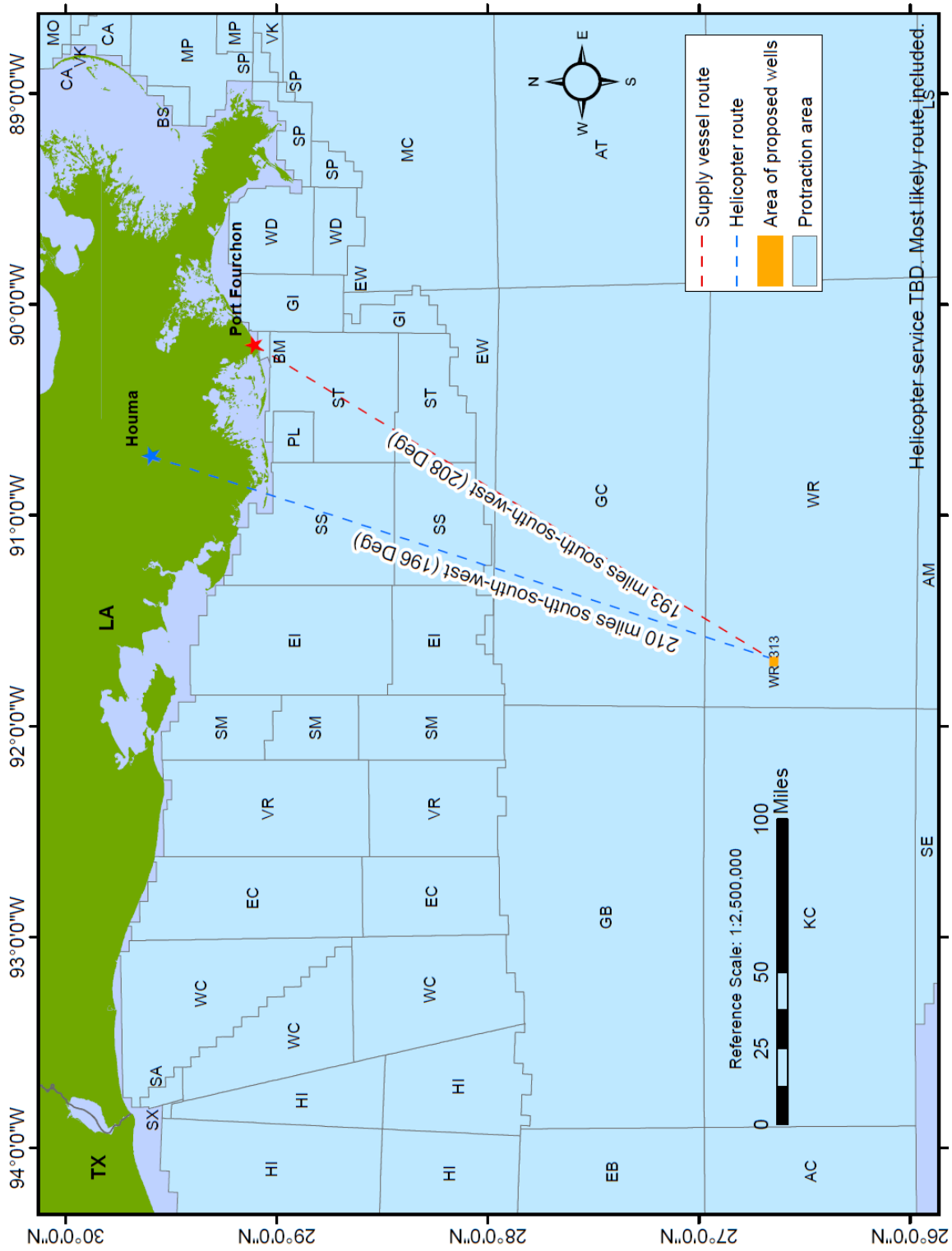
Sulfur Content Source	Value	Units
Fuel Gas	3.38	ppm
Diesel Fuel	0.0015	% weight
Produced Gas (Flare)	3.38	ppm
Produced Oil (Liquid Flaring)	1	% weight

Density and Heat Value of Diesel Fuel		
Density	7.05	lbs/gal
Heat Value	19,300	Btu/lb

Heat Value of Natural Gas		
Heat Value	1.050	MMBtu/MMscf

Natural Gas Flare Parameters	Value	Units
VOC Content of Flare Gas	0.6816	lb VOC/lb-mol gas
Natural Gas Flare Efficiency	98	%

ATTACHMENT 6 – Vicinity Map with Transportation Routes & Distance to Shore



ATTACHMENT 7 – Louisiana Consistency Certification

STATE OF LOUISIANA

COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATION

Initial Exploration Plan
Walker Ridge Block 313

Deep Stratigraphic Tests

Deepwater Methane Hydrate Characterization and Scientific Assessment (DE-FE0023919)

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

The University of Texas at Austin (Operator No. 3487)

Dr. Alison Preston, Certifying Official
Interim Vice President for Research

April 8, 2021