United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, LA 70123 2394

In Reply Refer To: GM 235D April 9, 2024

Alabama Department of Environmental Management
Coastal Programs Section
Attn: Mr. Allen Phelps
3664 Dauphin St., Suite B
Mobile, Alabama 36608-1211

Dear Sir or Madam,

In accordance with 30 CFR 550.267(a)(3), enclosed for your review and coastal zone consistency determination is the following plan and its accompanying documents:

Control #	-	S-8145
Type	-	Supplemental Development Operations Coordination Document
Lease(s)	-	OCS-G 36061 Block - 944 Green Canyon Area
Operator	-	BOE EXPLORATION & PRODUCTION LLC
Description	-	Subsea Wells WB001, WB001 ALT. WB002, WB002 ALT, RW001, RW001 ALT, RW002, RW002 ALT, RW003, and RW003 ALT.

Please refer to the above control number in all communication and correspondence concerning the subject plan.

Your review and comments are requested by May 9, 2024.

If you have any questions or comments please contact Chiquita Hill at chiquita.hill@boem.gov or (504)736-2668.

Sincerely,

CHIQUITA HILL

Digitally signed by CHIQUITA HILL
Date: 2024.04.09 14:35:07 -05'00'

Chiquita Hill
Plan Coordinator
Office of Leasing and Plans,
Plans Section

Enclosure

UNITED STATES GOVERNMENT
MEMORANDUM

April 9, 2024

To: Public Information (MS 5030)
From: Plan Coordinator, FO, Plans Section (MS 5231)

Subject: Public Information copy of plan

Control #	-	S-08145
Type	-	Supplemental Development Operations Coordinations Document
Lease(s)	-	OCS-G36061 Block - 944 Green Canyon Area
Operator	-	BOE Exploration & Production LLC
Description	-	Subsea Wells WB001, WB001 ALT. WB002, WB002 ALT, RW001, RW001 ALT, RW002, RW002 ALT, RW003, and RW003 ALT.
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.

Chiquita Hill
Plan Coordinator

Site Type/Name	Botm Lse/Area/Blk	Surface Location	Surf Lse/Area/Blk
WELL/RW001	G36061/GC/944	6648 FNL, 4758 FEL	G36061/GC/944
WELL/RW001 AL	G36061/GC/944	6598 FNL, 4758 FEL	G36061/GC/944
WELL/RW002	G36061/GC/944	4440 FNL, 6830 FWL	G36061/GC/944
WELL/RW002 AL	G36061/GC/944	4390 FNL, 6830 FWL	G36061/GC/944
WELL/RW003	G36061/GC/944	6936 FNL, 7367 FEL	G36061/GC/944
WELL/RW003 AL	G36061/GC/944	6886 FNL, 7267 FEL	G36061/GC/944
WELL/WB001	G36061/GC/944	3979 FNL, 5825 FEL	G36061/GC/944
WELL/WB001 AL	G36061/GC/944	3929 FNL, 5825 FEL	G36061/GC/944
WELL/WB002	G36061/GC/944	3979 FNL, 5930 FEL	G36061/GC/944
WELL/WB002 AL	G36061/GC/944	3929 FNL, 5930 FEL	G36061/GC/944

March 5, 2024

Bureau of Ocean Energy Management
Gulf of Mexico OCS Region Office
1201 Elmwood Park Boulevard
New Orleans, LA 70123

ATTN: Plans Section

BOE Exploration & Production has reviewed regulations for the activities proposed in this plan and has included all relevant proprietary and public information and documentation regarding those activities.

The activities proposed in this plan are expected to commence on or around September 15, 2024.

All questions and/or correspondence regarding this plan should be submitted to Brandon Hebert at 985.666.0143 or via email at bhebert@beaconoffshore.com.

Respectfully,

Brandon Hebert

Brandon Hebert
Manager, Regulatory Affairs

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

PUBLIC INFORMATION

Lease Number: OCS-G 36061

Area/Block: GC 944

Prospect: Winterfell

Well(s): WB001 / WB002 and respective Alt Locations / RW001 / RW002 / RW003 and Alt Locations

BOE Exploration & Production (03572)
16564 E Brewster Rd, Ste 203
Covington, LA 70433

Submitted By:
Brandon Hebert
(985) 666-0143
bhebert@beaconoffshore.com

Estimated Start Date: September 15, 2024

APPENDIX A
PLAN CONTENTS

A) PLAN INFORMATION

Included in the attachments for this appendix is the OCS Plan Information Form 137, providing information on the development and production activity proposed in this plan.

The status of previously proposed activities in Exploration and/or Development Plans for the subject leases are as follows:

The Winterfell project area consists of adjacent Green Canyon blocks 943 (OCS-G 36060), 944 (OCS-G 36061) and 988 (OCS-G 35417).

- Initial Exploration Plan N-10114 for the subject lease(s) was approved July 27, 2020.
- Initial Exploration Plan N-10118 for the subject lease(s) was approved September 14, 2020.
- Revised Exploration Plan R-7172 for the subject lease(s) was approved June 7, 2022.
- Initial DOCD N-10191 for the subject lease(s) was approved November 22, 2022.
- Revised DOCD R-7225 for the subject lease(s) was approved April 7, 2023.
- Revised DOCD R-7271 for the subject lease(s) was approved November 29, 2023.

All above-referenced plans were submitted on behalf of BOE Exploration & Production (03572).

No well operations activity approved via plan control numbers N-10114 and R-7172 has been conducted. Plan control numbers R-7225 and R-7271 were submitted to document changes to previously approved pipeline and related infrastructure installation activity only.

Activity approved via plan control number N-10118 includes the drilling and temporary abandonment of well GC 944 001 (API 608114074300) and well GC 943 001 (API 608114075301).

Activity approved via plan control number N-10191 includes the sidetrack drilling and initial completion of well GC 944 WA001 (API 608114074301) and initial completion of well GC 943 WA002 (API 608114075301). Drilling and initial completion activity for well GC 943 WA003 is tentatively scheduled to commence March 2024.

Please note, WCD volume of 144,100 BOPD for the Winterfell project area was initially submitted and found acceptable via plan control number N-10114 and re-validated via subsequent plan control numbers listed above and this plan. Area(s) / block(s) included in those plans were Green Canyon blocks 943 (OCS-G 36060), 944 (OCS-G 36061) and 988 (OCS-G 35417).

Production activity proposed in this plan will be conducted via Anadarko Petroleum Corporation-operated Green Canyon 860 A-Heidelberg production facility.

Wells proposed in this plan with the RW- prefix are intended as relief wells for emergency purposes in the event of an incident.

B) LOCATION

A map depicting the proposed surface and bottomhole location(s) and is included in the attachment(s) to this appendix of the proprietary information copy of this plan.

A map depicting the proposed surface location(s) is included in the attachment(s) to this appendix of the public information copy of this plan.

C) SAFETY AND POLLUTION PREVENTION FEATURES

BOE Exploration & Production proposes utilizing a drillship or dynamically positioned (DP) semisubmersible as its mobile offshore drilling unit to conduct the activities proposed in this plan. Rig specifications will be included in each Application for Permit to Drill.

Safety features on the drilling unit selected will include pollution prevention, well control, and blowout prevention equipment as described in Title 30 CFR Part 250, Subparts C, D, E, and G; and as further clarified by DOI Notices to Lessees, and current policy making invoked by the DOI, Environmental Protection Agency and the U.S. Coast Guard. A Safety and Environmental Management System that is consistent with Title 30 CFR Part 250 Subparts "O" and "S" will be in effect during the proposed operations. In addition, the Well Control System, consisting of subsea BOP equipment, BOP control system, choke and kill lines, choke manifold, mud-gas separator, circulation system and monitoring (PVT) equipment will be installed and available upon demand when the riser and BOP is attached to the well. The emergency systems consisting of secondary BOP activation equipment, firefighting and abandonment equipment utilized will meet or exceed the regulatory requirements of the DOI and USCG.

Pollution prevention measures will include the installation of curbs, gutters, drip pans, and drains on drilling deck areas to collect all contaminants and debris.

The drilling rig and each of the marine vessels servicing the rig and its operations will be equipped with all U.S. Coast Guard required navigational safety aids to alert ships of its presence in all weather conditions.

D) STORAGE TANKS AND/OR PRODUCTION VESSELS

The table below provides information on oil storage tanks with a capacity of 25 barrels or more that will be used to conduct the activities proposed in this plan.

Type of Storage Tank	Type of Facility	Tank Capacity (bbls)	Number of Tanks	Total Capacity (bbls)	Fluid Gravity (API)
Fuel Oil	Drillship	5514	2	11028	No. 2 Diesel
Fuel Oil	Drillship	12458	2	24916	No. 2 Diesel
Fuel Oil	Drillship	12065	2	24130	No. 2 Diesel
Fuel Oil	Drillship	640	2	1280	No. 2 Diesel
Fuel Oil	Drillship	480	3	1440	No. 2 Diesel
Fuel Oil	Drillship	80	1	80	No. 2 Diesel
Fuel Oil	DP Semisubmersible	4541	2	9082	No. 2 Diesel
Fuel Oil	DP Semisubmersible	3392	2	6784	No. 2 Diesel
Fuel Oil	DP Semisubmersible	629	1	629	No. 2 Diesel
Fuel Oil	DP Semisubmersible	164	1	164	No. 2 Diesel
Fuel Oil	DP Semisubmersible	30	1	30	No. 2 Diesel

E) POLLUTION PREVENTION

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the State of Florida is not an affected State.

F) ADDITIONAL MEASURES

BOE Exploration & Production will comply with regulations in 30 CFR Part 250 and will not take any additional measures beyond those stated in referenced regulations regarding safety, pollution prevention, and early spill detection measures.

G) SERVICE FEE

In accordance with 30 CFR 550.125, included in the attachments for this appendix is a copy of the pay.gov receipt for the required service fee for the activities proposed in this plan.

OCS PLAN INFORMATION FORM

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

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

OCS PLAN INFORMATION FORM

General Information

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

Company Name: BOE Exploration & Production LLC	BOEM Operator Number: 03572
Address: 16564 E Brewster Rd, Ste 203	Contact Person: Brandon Hebert
Covington, LA 70433	Phone Number: 985.666.0143
	E-Mail Address: bhebert@beaconoffshore.com

If a service fee is required under 30 CFR 550.125(a), provide the	Amount paid	$50,170	Receipt No.	27C9EQ9B / 27CCGUBJ / 27CE6GJO

Project and Worst Case Discharge (WCD) Information

Lease(s): G36061	Area: GC	Block(s): 944	Project Name (If Applicable): Winterfell

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

Platform/Well Name: Loc A	Total Volume of WCD: 7,646,000 bbls	API Gravity: 31°
Distance to Closest Land (Miles): 140 (WCD purposes) / 139 (current plan distance to closest land)	Volume from uncontrolled blowout: 144,100 BOPD	

Have you previously provided information to verify the calculations and assumptions for your WCD?	X	Yes		No
If so, provide the Control Number of the EP or DOCD with which this information was provided	N-10114			
Do you propose to use new or unusual technology to conduct your activities?		Yes	X	No
Do you propose to use a vessel with anchors to install or modify a structure?		Yes	X	No
Do you propose any facility that will serve as a host facility for deepwater subsea development?		Yes	X	No

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

Proposed Activity	Start Date	End Date	No. of Days
Drill / Complete Wells	09/15/2024	12/31/2024	107
Drill / Complete Wells	01/01/2025	09/08/2025	250
Install Subsea Equipment (in 2025 or 2026)	02/01/2025	10/09/2026	100 / YR
Future Well Operations	01/01/2026	09/08/2029	250 / YR

Description of Drilling Rig

	Jackup	X	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)
Well Location WB001	GC 944 ILS	8	100
Well Location WB002	GC 944 ILS	8	100

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): WB001					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N_L 3979.00	N/S Departure: F___L	N/S Departure: F___L N/S Departure: F___L N/S Departure: F___L
	E/W Departure: F_E_L 5825.00	E/W Departure: F__L	E/W Departure: F___L E/W Departure: F___L E/W Departure: F___L
Lambert X-Y coordinates	X: 2306815.00	X:	X: X: X:
	Y: 9816821.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 02' 18.2925" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 08.4457" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 5326		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet: N/A			

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): WB002					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°
	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F N L 3979.00	N/S Departure: F L	N/S Departure: F L N/S Departure: F L N/S Departure: F L
	E/W Departure: F E L 5930.00	E/W Departure: F L	E/W Departure: F L E/W Departure: F L E/W Departure: F L
Lambert X-Y coordinates	X: 2306710.00	X:	X: X: X:
	Y: 9816821.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 02' 18.3094" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 09.6065" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 5327		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet: N/A			

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): WB001 Alt					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N__L 3929.00	N/S Departure: F__L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F_E__L 5825.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2306815.00	X:	X: X: X:
	Y: 9816871.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 02' 18.7876" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 08.4367" W	Longitude	Longitude Longitude Longitude

Water Depth (Feet): 5326	MD (Feet):	TVD (Feet):	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 =	

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): WB002 Alt					Previously reviewed under an approved EP or DOCD?		Yes	X	No		
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No		

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100			For structures, volume of all storage and pipelines (Bbls): N/A			API Gravity of fluid	31°	
	Surface Location			**Bottom-Hole Location (For Wells)**			**Completion (For multiple completions, enter separate lines)**		
Lease No.	OCS-G 36061						OCS OCS		
Area Name	Green Canyon								
Block No.	944								
Blockline Departures (in feet)	N/S Departure: 3929.00	F_N__L		N/S Departure:	F__L		N/S Departure: N/S Departure: N/S Departure:	F____L F____L F____L	
	E/W Departure: 5930.00	F_E__L		E/W Departure:	F___L		E/W Departure: E/W Departure: E/W Departure:	F____L F____L F____L	
Lambert X-Y coordinates	X: 2306710.00			X:			X: X: X:		
	Y: 9816871.00			Y:			Y: Y: Y:		
Latitude/ Longitude	Latitude 27° 02' 18.8045" N			Latitude			Latitude Latitude Latitude		
	Longitude 90° 57' 09.5976" W			Longitude			Longitude Longitude Longitude		
Water Depth (Feet): 5327				MD (Feet):	TVD (Feet):		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 =	

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): RW001					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°
	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N__L 6648.00	N/S Departure: F__L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F_E__L 4758.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2307882.00	X:	X: X: X:
	Y: 9814152.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 01' 51.6952" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 56' 57.1291" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 5330		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet: N/A			

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): RW002					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N_L 4440.00	N/S Departure: F_L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F_W_L 6830.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2303630.00	X:	X: X: X:
	Y: 9816360.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 02' 14.2395" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 43.7418" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 5272		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet: N/A			

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): RW003	Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?	X	Yes		No		

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid	31°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F N L 6936.00	N/S Departure: F__L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F E L 7367.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2305273.00	X:	X: X: X:
	Y: 9813864.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 01' 49.2633" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 26.0242" W	Longitude	Longitude Longitude Longitude

Water Depth (Feet): 5275	MD (Feet):	TVD (Feet):	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 =	

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): RW001 Alt					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°
	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N_L 6598.00	N/S Departure: F__L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F_E_L 4758.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2307882.00	X:	X: X: X:
	Y: 9814202.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 1' 52.1903" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 56' 57.1201" W	Longitude	Longitude Longitude Longitude

Water Depth (Feet): 5330	MD (Feet):	TVD (Feet):	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 =	

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): RW002 Alt					Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N_L 4390.00	N/S Departure: F__L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F_W_L 6830.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2303630.00	X:	X: X: X:
	Y: 9816410.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 2' 14.7346" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 43.7329" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 5272		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet: N/A			

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): RW003 Alt					Previously reviewed under an approved EP or DOCD?		Yes	X	No	
Is this an existing well or structure?		Yes	X	No	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?						X	Yes		No	

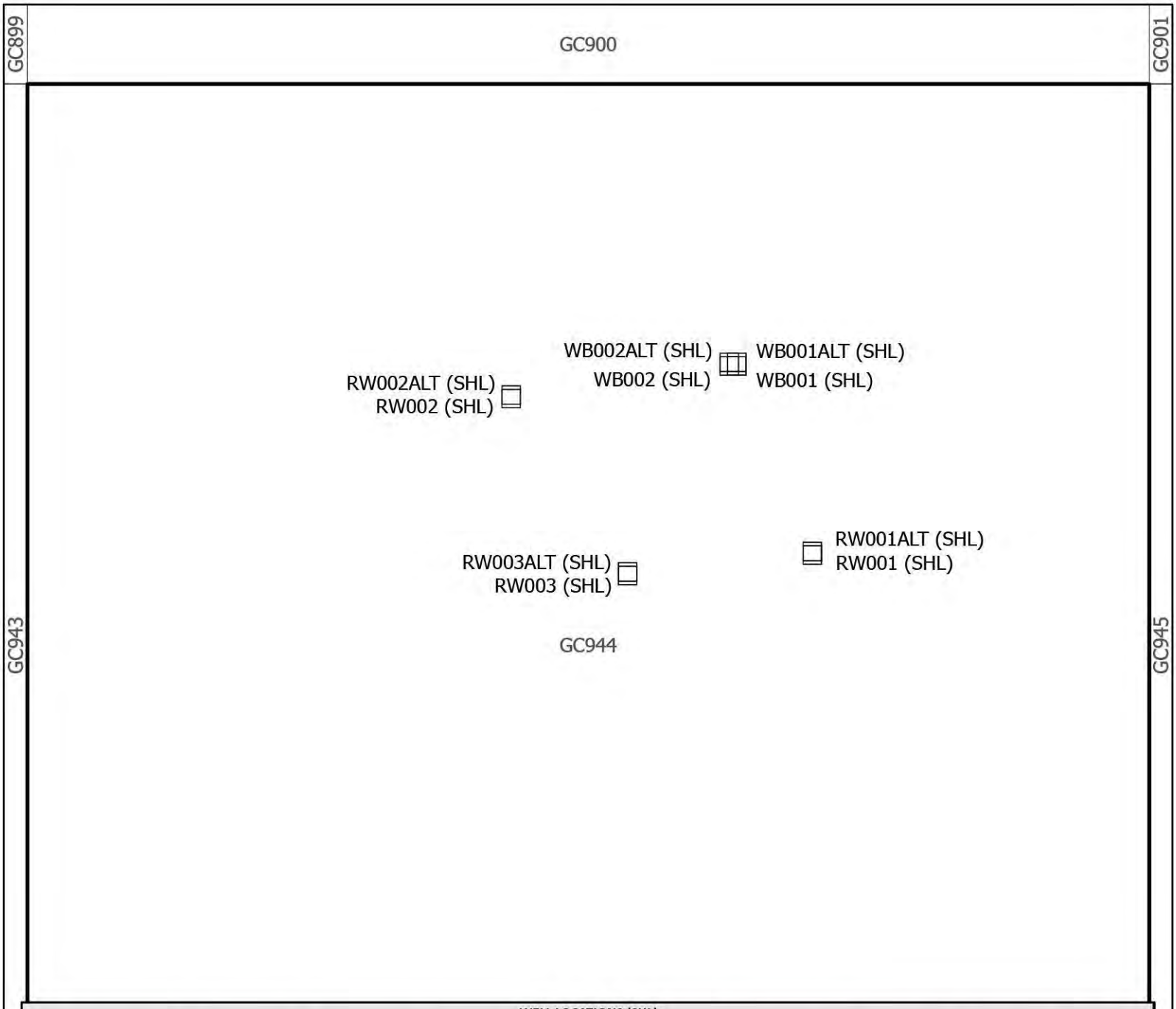
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 144,100	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid: 31°
	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS-G 36061		OCS OCS
Area Name	Green Canyon		
Block No.	944		
Blockline Departures (in feet)	N/S Departure: F_N_L 6886.00	N/S Departure: F__L	N/S Departure: F____L N/S Departure: F____L N/S Departure: F____L
	E/W Departure: F_E_L 7367.00	E/W Departure: F___L	E/W Departure: F____L E/W Departure: F____L E/W Departure: F____L
Lambert X-Y coordinates	X: 2305273.00	X:	X: X: X:
	Y: 9813914.00	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 27° 1' 49.7584" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 57' 26.0152" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 5275		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet: N/A			

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

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

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.

WELL LOCATION MAPS



WELL LOCATIONS (SHL)

WELL NAME	BLOCK	BLOCK CALL (N-S)	BLOCK CALL (E-W)	LATITUDE	LONGTITUDE	X (FT)	Y (FT)	WD
WB001 ST00BP00 (SHL)	GC 944	3979.00' FNL	5825.00' FEL	27°02'18.2925"N	90°57'08.4457"W	2306815.00	9816821.00	5326'
WB002 ST00BP00 (SHL)	GC 944	3979.00' FNL	5930.00' FEL	27°02'18.3094"N	90°57'09.6065"W	2306710.00	9816821.00	5327'
WB001ALT ST00BP00 (SHL)	GC 944	3929.00' FNL	5825.00' FEL	27°02'18.7876"N	90°57'08.4367"W	2306815.00	9816871.00	5326'
WB002ALT ST00BP00 (SHL)	GC 944	3929.00' FNL	5930.00' FEL	27°02'18.8045"N	90°57'09.5976"W	2306710.00	9816871.00	5327'
RW001 ST00BP00 (SHL)	GC 944	6648.00' FNL	4758.00' FEL	27°01'51.6952"N	90°56'57.1291"W	2307882.00	9814152.00	5330'
RW002 ST00BP00 (SHL)	GC 944	4440.00' FNL	6830.00' FWL	27°02'14.2395"N	90°57'43.7418"W	2303630.00	9816360.00	5272'
RW003 ST00BP00 (SHL)	GC 944	6936.00' FNL	7367.00' FEL	27°01'49.2633"N	90°57'26.0242"W	2305273.00	9813864.00	5275'
RW001ALT ST00BP00 (SHL)	GC944	6598.00' FNL	4758.00' FEL	27°1'52.1903"N	90°56'57.1201"W	2307882.00	9814202.00	5330'
RW002ALT ST00BP00 (SHL)	GC944	4390.00' FNL	6830.00' FWL	27°2'14.7346"N	90°57'43.7329"W	2303630.00	9816410.00	5272'
RW003ALT ST00BP00 (SHL)	GC944	6886.00' FNL	7367.00' FEL	27°1'49.7584"N	90°57'26.0152"W	2305273.00	9813914.00	5275'

☐ SHL

Public

PROPOSED WELL LOCATION MAP
GC944 - LEASE OCS-G36061
GREEN CANYON AREA - GULF OF MEXICO

PCS: NAD 1927 BLM ZONE 15N
DATUM: NORTH AMERICAN 1927
UNITS: FOOT US

0 1,000 2,000 3,000 4,000 Feet
1:24,000
1 INCH = 2,000 FEET

PAGE: 8.5X11	AUTHOR: MHT SOURCE: ARF	PROJECT: WINTERFELL DOCD SUPP	DATE: 2/26/2024

BEACON OFFSHORE ENERGY

PATH: I:\GIS_MASTER\PROJECT\CORPORATE\REGULATORY\WINTERFELL\PLAN\DOCD_SUPP_20231212\DOCD_SUPP_WINTERFELL.APRX

SERVICE FEE RECEIPT

From: notification@pay.gov
To: Brandon Hebert
Subject: Pay.gov Payment Confirmation: BOEM Development/DOCD Plan - BD
Date: Wednesday, February 28, 2024 12:44:51 PM

An official email of the United States government

Pay.gov logo

Your payment has been submitted to Pay.gov and the details are below. If you have any questions regarding this payment, please contact Brenda Dickerson at (703) 787-1617 or BseeFinanceAccountsReceivable@bsee.gov.

Application Name: BOEM Development/DOCD Plan - BD
Pay.gov Tracking ID: 27C9EQ9B
Agency Tracking ID: 76648254031
Transaction Type: Sale
Transaction Date: 02/28/2024 01:43:40 PM EST
Account Holder Name: Eva Gravouilla
Transaction Amount: $20,068.00
Card Type: Visa
Card Number: **********5796

Region: Gulf of Mexico
Contact: Brandon Hebert (985) 666-0143
Company Name/No: BOE Exploration & Production LLC, 03572
Lease Number(s): 36061
Area-Block: Green Canyon GC, 944
Type-Wells: Supplemental Plan, 4

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Pay.gov is a program of the U.S. Department of the Treasury, Bureau of the Fiscal Service

From: notification@pay.gov
To: Brandon Hebert
Subject: Pay.gov Payment Confirmation: BOEM Development/DOCD Plan - BD
Date: Friday, March 1, 2024 9:31:15 AM

An official email of the United States government

Pay.gov logo

Your payment has been submitted to Pay.gov and the details are below. If you have any questions regarding this payment, please contact Brenda Dickerson at (703) 787-1617 or BseeFinanceAccountsReceivable@bsee.gov.

Application Name: BOEM Development/DOCD Plan - BD
Pay.gov Tracking ID: 27CCGUBJ
Agency Tracking ID: 76651487278
Transaction Type: Sale
Transaction Date: 03/01/2024 10:31:06 AM EST
Account Holder Name: Eva Gravouilla
Transaction Amount: $20,068.00
Card Type: Visa
Card Number: **********5796

Region: Gulf of Mexico
Contact: Brandon Hebert (985) 666-0143
Company Name/No: BOE Exploration & Production LLC, 03572
Lease Number(s): 36061
Area-Block: Green Canyon GC, 944
Type-Wells: Supplemental Plan, 4

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Pay.gov is a program of the U.S. Department of the Treasury, Bureau of the Fiscal Service

From: notification@pay.gov
To: Brandon Hebert
Subject: Pay.gov Payment Confirmation: BOEM Development/DOCD Plan - BD
Date: Monday, March 4, 2024 7:33:45 AM

An official email of the United States government

Pay.gov logo

Your payment has been submitted to Pay.gov and the details are below. If you have any questions regarding this payment, please contact Brenda Dickerson at (703) 787-1617 or BseeFinanceAccountsReceivable@bsee.gov.

Application Name: BOEM Development/DOCD Plan - BD
Pay.gov Tracking ID: 27CE6GJO
Agency Tracking ID: 76653457188
Transaction Type: Sale
Transaction Date: 03/04/2024 08:33:30 AM EST
Account Holder Name: Eva Gravouilla
Transaction Amount: $10,034.00
Card Type: Visa
Card Number: **********5796

Region: Gulf of Mexico
Contact: Brandon Hebert (985) 666-0143
Company Name/No: BOE Exploration & Production LLC, 03572
Lease Number(s): 36061
Area-Block: Green Canyon GC, 944
Type-Wells: Supplemental Plan, 2

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Pay.gov is a program of the U.S. Department of the Treasury, Bureau of the Fiscal Service

APPENDIX B
GENERAL INFORMATION

A) APPLICATIONS & PERMITS

Listed in the table below are the applications and/or permits that are required to be filed prior to conducting the activities proposed in this plan:

Application/Permit	Issuing Agency	Status
Application for Permit to Drill (APD)	BSEE	Pending
Application for Permit to Modify (APM)	BSEE	Pending
Conceptual Plan	BSEE	Pending
Deepwater Operations Plan	BSEE	Pending
Pipeline Installation Application(s)	BSEE	Pending

B) DRILLING FLUIDS

In accordance with BOEM guidance, the required drilling fluid information has been incorporated into the Waste & Discharge tables which are included in the attachment(s) to the Waste & Discharge Information appendix.

C) PRODUCTION

PROPRIETARY INFORMATION

D) OIL CHARACTERISTICS

Listed in the table below are the chemical and physical characteristics of the oils that will be produced, handled, transported, or stored at the facilities used to conduct proposed development and production activities:

Characteristics	*Value*	*Analytical Methodologies Should be Compatible With:*
1. Gravity (API)	22.4	ASTM D4052
2. Flash Point (°C)	13	ASTM D93/IP34
3. Pour Point (°C)	0.6	ASTM D97
4. Viscosity (Centipoise at 25°C)	75	ASTM D445
5. Wax Content (wt %)	2.7	Precipitate with 2-butanon/ dichloro-methane (1 to 1 volume) at -10°C
6. Asphaltene Content (wt %)	11.5	IP Method 143/84
7. Resin Content (wt %)	2.6	Jokuty et al, 1996
8. Boiling point distribution including, for each fraction, the percent volume or weight and the boiling point range in °C	Boiling Point Curve Cut Pt (Vol %) / Boiling Pt(°C) 0 / -80.6 10 / 103 12.5 / 129 15 / 146 17.5 / 160 20 / 175 30 / 228 40 / 288 50 / 351 60 / 426 70 / 529 80 / 645 90 / 815 100 / 1045	ASTM D2892 (RBP distillation) or ASTM D2887/5307
9. Sulphur (wt %)	3.05	ASTM D4294

Oil composition most likely to result in the largest volume spill has been analyzed via the following:

Oil from One Well
• Area/Block. **GC 944** • API Well No. **608114074300** • Interval **27,346' – 27,486' MD** • MMS reservoir name. **M1** • Sample date. **1/11/2021** • Sample No. (if more than one is taken) **1.07, 1.08**

E) NEW OR UNUSUAL TECHNOLOGY

BOE Exploration & Production does not plan to use new or unusual technology to carry out the activities proposed in this plan. Further, no new or unusual technology will be utilized in the event of oil spill prevention, response or cleanup. The best available and safest technologies, as referred to in 30 CFR 250, will be incorporated as standard operating procedures to the extent that are practical and applicable.

F) BONDING STATEMENT

The bond requirements for the activities and facilities proposed in this plan are satisfied by a $3,000,000 area-wide bond, furnished and maintained according to 30 CFR Part 556, Subpart I, and NTL No. 2015-N04, "General Financial Assurance;" and additional security under 30 CFR Part 556, Subpart I, and NTL 2016-N01, "Requiring Additional Security."

G) OIL SPILL FINANCIAL RESPONSIBILITY

BOE Exploration & Production, BOEM company number 03572, will demonstrate oil spill financial responsibility for the activities/facilities proposed in this plan in accordance with 30 CFR Part 553 and NTL 2008-N05, "Guidelines for Oil Spill Financial Responsibility for Covered Facilities."

H) DEEPWATER WELL CONTROL STATEMENT

BOE Exploration & Production (03572) has the financial capability to drill a relief well and conduct other emergency well control operations.

I) SUSPENSION OF PRODUCTION

In accordance with NTL 2008-G04, this information is not applicable to this Development Operations Coordination Document as no suspensions of production have been approved, or are in the process of being obtained or anticipated to be sought to hold the subject lease(s) or unit.

J) BLOWOUT SCENARIO

Please note, WCD volume of 144,100 BOPD for the Winterfell project area was submitted and found acceptable via plan control number N-10114 and re-validated via subsequent plan control numbers and this plan. Area(s) / block(s) included in those plans were Green Canyon blocks 943 (OCS-G 36060), 944 (OCS-G 36061) and 988 (OCS-G 35417).

The blowout scenarios provided as part of plan control numbers N-10114 and N-10118 and re-provided as part of plan control number N-10191 are included in the attachments to this appendix for reference.

BLOWOUT SCENARIO

The following blowout scenarios were included as part of this copy of plan control number N-10191, an Initial DOCD for the Winterfell project area approved November 22, 2022.

BLOWOUT SCENARIO

Plan N-10114

BLOWOUT SCENARIO

The following attachment provides a blowout scenario description, information regarding any oil spill, WCD results and assumptions of potential spill and additional measures taken by BOE Exploration & Production (BOE) first enhance the ability to prevent a blowout and secondly to manage a blowout scenario if it occurs.

INFORMATION REQUIREMENTS

PROPOSED PROSPECT INFORMATION

Well Surface Location	WD	X (NAD 27)	Y (NAD 27)	Latitude	Longitude
GC 988 A*	5427	2305304.00	9798186.00	26°59'14.0307"N	90°57'28.4881"W
GC 988 B	5436	2306656.00	9796934.00	26°59'01.4178"N	90°57'13.7713"W
GC 988 C	5426	2303630.00	9801500.00	26°59'47.1106"N	90°57'46.3964"W
GC 988 D	5453	2301600.00	9801500.00	26°59'47.4346"N	90°58'08.8321"W

* Plan WCD Well

INFORMATION REQUIREMENTS

A) Blowout scenario

The proposed GC 988 wells to be drilled to potential outlined in the Geological and Geophysical Information Section of this plan utilizing a typical subsea wellhead system, conductor, surface and intermediate casing strings and a MODU rig with marine riser and a subsea BOP system. A hydrocarbon influx and a well control event occurring from the objective sand is modeled with no drill pipe or obstructions in the wellbore followed by a full failure of the subsea BOP's (i.e. BOPS elements provide no restriction) and loss of well control at the seabed. The simulated flow and worst case discharge (WCD) results for all wells and the highest WCD is used for this unrestricted blowout scenario.

B) Estimated flow rate of the potential blowout

Category	
Type of Activity	Drilling
Facility Location (area / block)	GC 988 (surface location)
Facility Designation	MODU
Distance to Nearest Shoreline (nautical miles)	140 miles
Uncontrolled Blowout (Volume per day)	144,100 BOPD
Type of Fluid	Crude (31.0 API oil)

C) Total volume and maximum duration of the potential blowout

Duration of Flow (days)	**99** days total (see Relief Well Response Estimate below)
Total Volume of Spill (bbls)	**~7,646** MMBO based on **99** days of uncontrolled flow based on simulator models

WCD volume is generated using geologic maps to drive OOIP volumes. In the event of a worst case discharge situation, there will be some gradual depletion in the reservoir. As a result, the well will gradually decline in production based on the transient reservoir model. The reported worst case discharge is based on these model assumptions rather than the WCD rate multiplied times the estimated relief well days.

D) Assumptions and calculations used in determining the worst case discharge

Submitted separately in the Proprietary Copy of this Plan - Omitted from Public Information Copies

E) Potential for the well to bridge over

Mechanical failure/collapse of the borehole in a blowout scenario is influenced by several factors including in-situ stress, rock strength and fluid velocities at the sand face. Given the substantial fluid velocities inherent in the WCD, and the scenario as defined where the formation is not supported by a cased and cemented wellbore, it is likely that the borehole will fall/collapse/bridge over within a span of a few days, significantly reducing the outflow of the rates. However, for this blowout scenario, no bridging is considered.

F) Likelihood for intervention to stop blowout

The likelihood of surface intervention to stop a blowout is based on some of the following equipment specific to potential MODU's to be contracted for this well. It is reasonable to assume that the sooner BOE is able to respond to the initial blowout, the better likelihood there is to control and contain the event due to reduced pressures at the wellhead, less exposure to well fluids to eroding and compromising the well control equipment, and less exposure of hydrocarbons to the surface and greater probability of safeguarding personnel and equipment in an emergency situation. This equipment includes:

- Deadman / Autoshear function – typically fitted on DP MODU's and but to be on all MODU's operating in the GOM according to new requirements, this equipment allows for an automated pre-programmed sequence of functions to close the casing shear rams and the blind/shear rams in the event of an inadvertent or emergency disconnect of the LMRP or loss of both hydraulic and electrical supply from the surface control system.

In the event that the intervention systems for the subsea BOP's fail, BOE will initiate call out of a secondary containment / surface intervention system supported by the HWCG well containment company of which BOE is a member. This system incorporates a capping stacks capable of being deployed from the back of a vessel of opportunity equipped with an ROV, or from the Helix Q4000 or Q5000 DP MODU. Based on the potential wellbore integrity concerns, a cap and flow system can be deployed from a range of vessels. This system is capable of handling flowback volumes of up to 130,000 bbls of fluid per day and 220 MMSCF of gas per day. The vertical intervention work is contingent upon the condition of the blowing out well and what equipment is intact to access the wellbore for kill or containment operations The available intervention equipment may also require modifications based on actual wellbore conditions. Standard equipment is available through the HWCG equipment to fit the wellhead and BOP stack profiles used for the drilling of the above mentioned well.

G) Availability of rig to drill relief well, rig constraints and timing of rigs

In the event of a blowout scenario that does not involve loss or damage to the rig such as an inadvertent disconnect of the BOP's, then the existing contracted rig may be available for drilling the relief well and vertical intervention work. If the blowout scenario involves damage to the rig or loss of the BOP's and riser, a replacement rig or rigs will be required.

With the current activity level in the GOM, 20 to 25 deepwater MODU'S are potentially available to support the relief well drilling operations. Rig share and resource sharing agreements are in place between members of the HWCG as well as the larger Gulf of Mexico Operators Rig Share Agreement . BOE is a member of both groups. The ability to negotiate and contract an appropriate rig or rigs to drill relief wells is highly probable in a short period of time. If the rig or rigs are operating, the time to properly secure the well and mobe the rig to the relief well site location is estimated to be about 14 days. Dynamically positioned (DP) MODU's would be the preferred option due to the logistical advantage versus a moored MODU which may add complications due to the mooring spread.

Most 4th, 5th and 6th generation drill ships or semi-submersible rigs in the USGOM would be suitable to drill a relief well. Therefore, the rig choice would be first available, quickest to mobilize and move into position offsetting the blow out well. A relief well would be drilled from an open water location about 1500' south to southwest of the blowout well. The final rig location will be influenced by operator, contractor, BSEE and depth of intersect to insure safety of all personnel and equipment involved in the relief well effort.

VESSELS OF OPPORTUNITY

Based on the water depth restrictions for the proposed locations the following "Vessels of Opportunity" are presently available for utilization for intervention and containment and relief well operations. These may include service vessels and drilling rigs capable of working in the potential water depths and may include moored vessels and dynamically positioned vessels. The specific conditions of the intervention or relief well operations will dictate the "best fit" vessel to efficiently perform the desired results based on the blowout scenario. The list included below illustrates specific option that may vary according to the actual timing / availability at the time the vessels are needed.

OPERATION	SPECIFIC VESSEL OF OPPORTUNITY
Intervention and Containment	• Helix Q4000 (DP Semi) • Helix Q5000 (DP Semi)
Relief Well Drilling Rigs	• BOE has contractual agreements in place with HWCG, a GOM Rig Share group – these agreements give BOE access to any MODU operating in GOM
ROV / Multi-Purpose Service Vessels	• Oceaneering (numerous DP ROV vessels) • HOS Achiever, Iron Horse 1 and 2 (DP MPSV) • Helix Pipe Lay Vessel (equipped w/ 6" PL – 75,000') • Other ROV Vessels – (Chouest, HOS, Fugro, Subsea 7)
Shuttle Tanker / Barge Support	• American Eagle Tankers (AET)

H) Measures taken to enhance ability to prevent blowout

The measures to enhance the ability to prevent or reduce the likelihood of a blowout are largely based on proper planning and communication, identification of potential hazards, training and experience of personnel, use of good oil field practices and proper equipment that is properly maintained and inspected for executing drilling operations of the proposed well or wells to be drilled.

When planning and designing the well, ample time is spent analyzing offset data, performing any needed earth modeling and identifying any potential drilling hazards or well specific conditions to

safeguard the safety of the crews when well construction operations are underway. Once the design criteria and well design is established, the well design is modeled for the lifecycle of the wellbore to ensure potential failure modes are eliminated. A minimum of 2 independent barriers for both internal and external flow paths in addition to proper positive and negative testing of the barriers is part of BOE's design and testing protocol.

The proper training of crew members and awareness to identify and handle well control event is the best way prevent a blowout incident. Contractor's personnel and service personnel training requirements are verified per regulatory requirements. Drills are performed frequently to verify crew training and improve reaction times.

Good communication between rig personnel, office support personnel is critical to the success of the operations. Pre-spud meetings are conducted with rig crews and service providers to discuss, inform and as needed improve operations and well plans for safety and efficiency considerations. Daily meetings are conducted to discuss planning and potential hazards to ensure state of preparedness and behavior is enforced to create an informed and safe culture for the operations. Any changes in the planning and initial approved wellbore design is incorporated and communicated in a Management of Change (MOC) process to ensure continuity for all personnel.

Use of established good oil field practices that safeguard crews and equipment are integrated to incorporate BOE's, the contractor and service provider policies.

Additional personnel and equipment will be used as needed to elevate awareness and provide real time monitoring of well conditions while drilling such as MWD/LWD/PWD tools used in the bottom hole assemblies. The tool configuration for each open hole section varies to optimize information gathered including the use of Formation-Pressure-While-Drilling (FPWD) tools to establish real time formation pressures and to be used to calibrates pore pressure models while drilling. Log information and pressure data is used by the drilling engineers, geologist and pore pressure engineers to maintain well control and reduced potential events such as well control events and loss circulation events.

Onsite Mud loggers continuously monitor return drilling fluids, drill gas levels and cuttings as well as surface mud volumes and flow rates, rate of penetration and lithology/paleo to aid in understanding trends and geology being drilled. Remote monitoring of real time drilling parameters and evaluation of geologic markers and pore pressure indicators is used to identify potential well condition changes.

Proper equipment maintenance and inspection program for same to before the equipment is required. Programmed equipment inspections and maintenance will be performed to ensure the equipment operability and condition. Operations will cease as needed in order to ensure equipment and well conditions are maintained and controlled for the safety of personnel, rig and subsurface equipment and the environment.

l) Measures to conduct effective and early intervention in the event of a blowout

The following is provided to demonstrate the potential time needed for performing secondary intervention and drilling of a relief well to handle potential worst case discharge for the proposed prospect. Specific plans are integrated into the HWCG procedures to be approved and submitted with the Application for Permit to Drill. Equipment availability, backup equipment and adaptability to the potential scenarios will need to be addressed based on the initial site assessment of the seafloor conditions for intervention operations. Relief well equipment such as backup wellhead equipment and tubulars will be available in BOE's inventory for immediate deployment as needed to address drilling the relief well(s).

SITE SPECIFIC PROPOSED RELIEF WELL AND INTERVENTION PLANNING

No platform was considered for drilling relief wells for this location due to location, water depth and lack of appropriate platform within the area. For this reason a moored or DP MODU will be preferred / required.

RELIEF WELL RESPONSE TIME ESTIMATE

OPERATION	TIME ESTIMATE (DAYS)
IMMEDIATE RESPONSE • safeguard personnel, render first-aid • make initial notifications • implement short term intervention (if possible) • implement spill control • develop Initial Action Plan	1
INTERIM REPSONSE • establish Onsite Command Center and Emergency Management Team • assess well control issues • mobilize people and equipment (Helix DW Containment System) • implement short term intervention and containment (if possible) • develop Intervention Plan • initiate relief well planning • continue spill control measures	4
INTERVENTION AND CONTAIMENT OPERATIONS • mobilize equipment and initiate intervention and containment operations • perform TA operations and mobilize relief wells rig(s) • finalize relief well plans, mobilize spud equipment, receive approvals • continue spill control measures	14
RELIEF WELL(S) OPERATIONS • continue intervention and containment measures • continue spill control measures • drill relief well (s)	60
PERFORM HYDRAULIC KILL OPERATIONS / SECURE BLOWNOUT WELL • continue intervention and containment measures • continue spill control measures • perform hydraulic kill operations, monitor well, secure well	20
ESTIMATED TOTAL DAYS OF UNCONTROLLED FLOW	**99**
SECURE RELIEF WELL(S) / PERFORM P&A / TA OPERATIONS / DEMOBE	30
TOTAL DAYS	**129**

BLOWOUT SCENARIO

Plan N-10118

BLOWOUT SCENARIO

The following attachment provides a blowout scenario description, information regarding any oil spill, WCD results and assumptions of potential spill and additional measures taken by BOE Exploration & Production (BOE) first enhance the ability to prevent a blowout and secondly to manage a blowout scenario if it occurs.

INFORMATION REQUIREMENTS

PROPOSED PROSPECT INFORMATION

Well Surface Location	WD	X (NAD 27)	Y (NAD 27)	Latitude	Longitude
GC 943 AD	5378	2294446.00	9813883.00	27°01'51.175" N	90°59'25.718" W
GC 943 A-Alt	5379	2294496.00	9813883.00	27°01'51.167" N	90°59'25.166" W
GC 944 A	5438	2299721.00	9807355.00	27°00'45.705" N	90°58'28.560" W
GC 944 B *	5428	2302639.00	9807631.00	27°00'47.972" N	90°57'56.256" W
GC 988 C	5426	2303630.00	9801500.00	26°59'47.1106" N	90°57'46.3964" W
GC 988 F	5409	2303646.00	9804455.00	27°00'16.3656" N	90°57'45.6921" W

* Plan WCD Well

INFORMATION REQUIREMENTS

A) Blowout scenario

The proposed wells to be drilled to potential outlined in the Geological and Geophysical Information Section of this plan utilizing a typical subsea wellhead system, conductor, surface and intermediate casing strings and a MODU rig with marine riser and a subsea BOP system. A hydrocarbon influx and a well control event occurring from the objective sand is modeled with no drill pipe or obstructions in the wellbore followed by a full failure of the subsea BOP's (i.e. BOPS elements provide no restriction) and loss of well control at the seabed. The simulated flow and worst case discharge (WCD) results for all wells and the highest WCD is used for this unrestricted blowout scenario.

B) Estimated flow rate of the potential blowout

Category	
Type of Activity	Drilling
Facility Location (area / block)	GC 944 (surface location)
Facility Designation	MODU
Distance to Nearest Shoreline (nautical miles)	140 miles
Uncontrolled Blowout (Volume per day)	69,300 BOPD
Type of Fluid	Crude (31.0 API oil)

C) Total volume and maximum duration of the potential blowout

Duration of Flow (days)	**99** days total (see Relief Well Response Estimate below)
Total Volume of Spill (bbls)	**~5,237,000** bbls based on **99** days of uncontrolled flow based on simulator models

WCD volume is generated using geologic maps to drive OOIP volumes. In the event of a worst case discharge situation, there will be some gradual depletion in the reservoir. As a result, the well will gradually decline in production based on the transient reservoir model. The reported worst case discharge is based on these model assumptions rather than the WCD rate multiplied times the estimated relief well days.

D) Assumptions and calculations used in determining the worst case discharge

Submitted separately in the Proprietary Copy of this Plan - Omitted from Public Information Copies

E) Potential for the well to bridge over

Mechanical failure/collapse of the borehole in a blowout scenario is influenced by several factors including in-situ stress, rock strength and fluid velocities at the sand face. Given the substantial fluid velocities inherent in the WCD, and the scenario as defined where the formation is not supported by a cased and cemented wellbore, it is likely that the borehole will fall/collapse/bridge over within a span of a few days, significantly reducing the outflow of the rates. However, for this blowout scenario, no bridging is considered.

F) Likelihood for intervention to stop blowout

The likelihood of surface intervention to stop a blowout is based on some of the following equipment specific to potential MODU's to be contracted for this well. It is reasonable to assume that the sooner BOE is able to respond to the initial blowout, the better likelihood there is to control and contain the event due to reduced pressures at the wellhead, less exposure to well fluids to eroding and compromising the well control equipment, and less exposure of hydrocarbons to the surface and greater probability of safeguarding personnel and equipment in an emergency situation. This equipment includes:

- Deadman / Autoshear function – typically fitted on DP MODU's and but to be on all MODU's operating in the GOM according to new requirements, this equipment allows for an automated pre-programmed sequence of functions to close the casing shear rams and the blind/shear rams in the event of an inadvertent or emergency disconnect of the LMRP or loss of both hydraulic and electrical supply from the surface control system.

In the event that the intervention systems for the subsea BOP's fail, BOE will initiate call out of a secondary containment / surface intervention system supported by the HWCG well containment company of which BOE is a member. This system incorporates a capping stacks capable of being deployed from the back of a vessel of opportunity equipped with an ROV, or from the Helix Q4000 or Q5000 DP MODU. Based on the potential wellbore integrity concerns, a cap and flow system can be deployed from a range of vessels. This system is capable of handling flowback volumes of up to 130,000 bbls of fluid per day and 220 MMSCF of gas per day. The vertical intervention work is contingent upon the condition of the blowing out well and what equipment is intact to access the wellbore for kill or containment operations The available intervention equipment may also require modifications based on actual wellbore conditions. Standard equipment is available through the HWCG equipment to fit the wellhead and BOP stack profiles used for the drilling of the above mentioned well.

G) Availability of rig to drill relief well, rig constraints and timing of rigs

In the event of a blowout scenario that does not involve loss or damage to the rig such as an inadvertent disconnect of the BOP's, then the existing contracted rig may be available for drilling the relief well and vertical intervention work. If the blowout scenario involves damage to the rig or loss of the BOP's and riser, a replacement rig or rigs will be required.

With the current activity level in the GOM, 20 to 25 deepwater MODU'S are potentially available to support the relief well drilling operations. Rig share and resource sharing agreements are in place between members of the HWCG as well as the larger Gulf of Mexico Operators Rig Share Agreement . BOE is a member of both groups. The ability to negotiate and contract an appropriate rig or rigs to drill relief wells is highly probable in a short period of time. If the rig or rigs are operating, the time to properly secure the well and mobe the rig to the relief well site location is estimated to be about 14 days. Dynamically positioned (DP) MODU's would be the preferred option due to the logistical advantage versus a moored MODU which may add complications due to the mooring spread.

Most 4th, 5th and 6th generation drill ships or semi-submersible rigs in the USGOM would be suitable to drill a relief well. Therefore, the rig choice would be first available, quickest to mobilize and move into position offsetting the blow out well. A relief well would be drilled from an open water location about 1500' south to southwest of the blowout well. The final rig location will be influenced by operator, contractor, BSEE and depth of intersect to insure safety of all personnel and equipment involved in the relief well effort.

VESSELS OF OPPORTUNITY

Based on the water depth restrictions for the proposed locations the following "Vessels of Opportunity" are presently available for utilization for intervention and containment and relief well operations. These may include service vessels and drilling rigs capable of working in the potential water depths and may include moored vessels and dynamically positioned vessels. The specific conditions of the intervention or relief well operations will dictate the "best fit" vessel to efficiently perform the desired results based on the blowout scenario. The list included below illustrates specific option that may vary according to the actual timing / availability at the time the vessels are needed.

OPERATION	SPECIFIC VESSEL OF OPPORTUNITY
Intervention and Containment	• Helix Q4000 (DP Semi) • Helix Q5000 (DP Semi)
Relief Well Drilling Rigs	• BOE has contractual agreements in place with HWCG, a GOM Rig Share group – these agreements give BOE access to any MODU operating in GOM
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safeguard the safety of the crews when well construction operations are underway. Once the design criteria and well design is established, the well design is modeled for the lifecycle of the wellbore to ensure potential failure modes are eliminated. A minimum of 2 independent barriers for both internal and external flow paths in addition to proper positive and negative testing of the barriers is part of BOE's design and testing protocol.

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Additional personnel and equipment will be used as needed to elevate awareness and provide real time monitoring of well conditions while drilling such as MWD/LWD/PWD tools used in the bottom hole assemblies. The tool configuration for each open hole section varies to optimize information gathered including the use of Formation-Pressure-While-Drilling (FPWD) tools to establish real time formation pressures and to be used to calibrates pore pressure models while drilling. Log information and pressure data is used by the drilling engineers, geologist and pore pressure engineers to maintain well control and reduced potential events such as well control events and loss circulation events.

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SITE SPECIFIC PROPOSED RELIEF WELL AND INTERVENTION PLANNING

No platform was considered for drilling relief wells for this location due to location, water depth and lack of appropriate platform within the area. For this reason a moored or DP MODU will be preferred / required.

RELIEF WELL RESPONSE TIME ESTIMATE

OPERATION	TIME ESTIMATE (DAYS)
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RELIEF WELL(S) OPERATIONS • continue intervention and containment measures • continue spill control measures • drill relief well (s)	60
PERFORM HYDRAULIC KILL OPERATIONS / SECURE BLOWNOUT WELL • continue intervention and containment measures • continue spill control measures • perform hydraulic kill operations, monitor well, secure well	20
ESTIMATED TOTAL DAYS OF UNCONTROLLED FLOW	**99**
SECURE RELIEF WELL(S) / PERFORM P&A / TA OPERATIONS / DEMOBE	30
TOTAL DAYS	**129**

APPENDIX C
GEOLOGICAL & GEOPHYSICAL INFORMATION

A) GEOLOGICAL DESCRIPTION
PROPRIETARY INFORMATION

B) STRUCTURE CONTOUR MAPS
Current structure maps drawn to the top of each productive hydrocarbon sand, showing the location of the proposed well(s) and location(s) of geological cross-sections are included in the attachment(s) to this appendix of the proprietary information copy of this plan.

Wells proposed in this plan with the RW- prefix are intended as relief wells for emergency purposes in the event of an incident.

C) INTERPRETED 2D/3D SEISMIC CROSS SECTIONS
Interpreted 2D/3D seismic line cross section maps for the proposed well location(s) are included in the attachment(s) to this appendix of the proprietary information copy of this plan.

Wells proposed in this plan with the RW- prefix are intended as relief wells for emergency purposes in the event of an incident.

D) GEOLOGICAL STRUCTURE CROSS SECTIONS
Geological structure cross-section markers showing the key horizons and objective sands for the proposed well location(s) are included in the attachment(s) to this appendix of the proprietary information copy of this plan.

Wells proposed in this plan with the RW- prefix are intended as relief wells for emergency purposes in the event of an incident.

E) SHALLOW HAZARDS REPORT
A shallow hazard report incorporating Green Canyon 943 and Green Canyon 944 was submitted to BOEM in conjunction with plan control number N-10118 (Berger Geosciences Project No. 19-07-27). An archaeological report incorporating Green Canyon 943 and Green Canyon 944 was submitted to BOEM in conjunction with plan control number N-10118 (Echo Offshore Project No. 19-042-41).

F) SHALLOW HAZARDS ASSESSMENT
An assessment of any seafloor and subsurface geological and manmade features and conditions that may adversely affect drilling operations for the proposed well(s) is included in the attachment(s) to this appendix.

Wells proposed in this plan with the RW- prefix are intended as relief wells for emergency purposes in the event of an incident.

G) HIGH RESOLUTION SEISMIC LINES

The 3D Seismic Inline and 3D Seismic Crossline sections for the proposed well(s) are included in the attachment(s) to this appendix of the proprietary information copy of this plan.

Wells proposed in this plan with the RW- prefix are intended as relief wells for emergency purposes in the event of an incident.

H) STRATIGRAPHIC COLUMN

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan. The subject plan is a Development Operations Coordination Document.

I) TIME VS DEPTH TABLES

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan. The subject plan is a Development Operations Coordination Document.

J) GEOCHEMICAL INFORMATION

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the subject area is within the boundaries of the Gulf of Mexico.

K) FUTURE G&G ACTIVITIES

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the subject area is within the boundaries of the Gulf of Mexico.

SHALLOW HAZARDS ASSESSMENT

Wellsite Discussion

Green Canyon Area

Proposed Wells GC 944-WB001

And GC 944-WB002

(Lease No. G36061)

Gulf of Mexico

PUBLIC COPY

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Shallow Hazards Assessment for the Proposed Wells

This section contains an assessment of the shallow hazards and tophole prognoses for proposed exploration wells GC 944-WB001 and GC 944-WB002 (Figures W-1 through W-7). The wellsite assessments considers the shallow geologic conditions within a 500 ft radius of the proposed wellbore from the seafloor to the top of salt as described in Section 1 of Berger, 2020. The seafloor benthic communities assessment considers surface conditions at the proposed well locations and have been described in Section 2 of Berger, 2020. The archaeological assessment considers surface conditions and is presented under separate cover by Echo Offshore, LLC. (Echo, 2020).

Tophole Prognosis Criteria

The following sections specify the criteria used to develop the tophole prognosis for each proposed well. The assessment is based on the evaluation of 3-D seismic data. The tophole assessment is restricted to the specific proposed well locations.

Gas Hydrates. The base of the estimated gas hydrate stability zone (BGHSZ) is calculated based on Maekawa et al. (1995) or an identifiable bottom-simulating reflector. The potential for solid gas hydrates was evaluated for the proposed wells. The criteria include:

- Is water depth conducive for gas hydrate formation?
- What is the estimated depth to the base of the gas hydrate stability zone (BGHSZ) at the proposed well?
- Is a bottom-simulating reflector (BSR) present between the seafloor and BGHSZ?
- Is a BSR present within 500 ft of the proposed well?
- Does the proposed well intersect a BSR?
- Have gas hydrates been identified in the region of the proposed well?

HIGH	The wellsite conditions meet ALL of the above stated criteria, and correlates to an existing well that encountered gas hydrates.
MODERATE	The wellsite conditions meet SEVERAL of the above stated criteria. There is no direct evidence of gas hydrates at nearby wells.
LOW	The wellsite conditions meet SOME of the above stated criteria, and does not correlate to nearby wells.
NEGLIGIBLE	The wellsite conditions meet FEW to NONE of the above stated criteria, and there is no evidence of gas hydrates at nearby wells.

Shallow Gas. The potential for shallow gas was evaluated for the proposed wells. The criteria used to evaluate the proposed well include:

- Does an anomalous amplitude event exist in proximity of the proposed well, and is there evidence for connectivity to the proposed wellbore?
- Is there supporting geophysical evidence for shallow gas associated with the anomalous amplitude?
- Is there an anomalous amplitude within a sequence that may be sand-prone?
- Is there evidence of migration of fluid (including hydrocarbons) from depth, such as along a fault plane?
- Does the sequence correlate to other wells within the area that encountered shallow gas?
- Is the proposed well located in a frontier area with little or no offset well control?

HIGH	The amplitude event meets ALL of the above stated criteria, or correlates to an existing well that encountered shallow gas.
MODERATE	The amplitude event meets SEVERAL of the above stated criteria. There is no direct evidence of shallow gas from nearby wells.
LOW	The amplitude event meets SOME of the above stated criteria, and does not correlate to nearby wells.
NEGLIGIBLE	The amplitude event meets FEW to NONE of the above stated criteria, and there is no evidence of shallow gas from nearby wells.

Shallow Water Flow. The potential for shallow water flow (SWF) was assessed for each proposed well. The potential for SWF is based on the following criteria:

- Does the stratigraphic unit correlate to a regional sand-prone sequence?
- Was the area subject to high Pleistocene sedimentation rates and rapid overburden deposition?
- Is the sequence composed of high-amplitude, chaotic reflectors indicative of sand?
- Is there a potential seal (perhaps clay-prone) above the sand-prone sequence?
- Does the sequence correlate to other wells within the area that encountered SWF?
- If there are no existing wells in the area with reported SWF, is the proposed well located in a frontier area with little or no offset well control?

HIGH	The stratigraphic unit meets ALL of the above stated criteria, or correlates to an existing well that encountered SWF.
MODERATE	The stratigraphic unit meets SEVERAL of the above stated criteria. There is no direct evidence of SWF from nearby wells.
LOW	The stratigraphic unit meets SOME of the above stated criteria, and does not correlate to nearby wells.
NEGLIGIBLE	The stratigraphic unit meets FEW to NONE of the above stated criteria, and there is no evidence of SWF from nearby wells.

Proposed Well GC 944-WB001

The following is a discussion of Proposed Well GC 944-WB001 and a twinned location Proposed Well GC 944-Alt-WB001. The surface locations of both proposed wells are in the northeastern portion of GC 944.

The water depth at Proposed Well GC 944-WB001 is 5,326 ft below sea level (BSL; Map W-1). The proposed well is within a relatively smooth seafloor area that slopes to the east at about 1.2°. The proposed location provided by Beacon is as follows:

Table W-1. Location information for Proposed Well GC 944-WB001

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	Y	Latitude	Longitude
2,306,815.00	9,816,821.00	27° 02' 18.2925" N	90° 57' 08.4457" W
Block Calls (GC 944)		3-D Seismic Line Reference	
		Line	Trace
5,825' FEL	3,979' FNL	9389	35004

Twinned Location

Proposed Well GC 944-Alt-WB001 is 50 ft north from the Proposed Well GC 944-WB001 with the same wellpath and is intended to be used as an alternate drilling location. Seafloor and subsurface conditions at the twinned well are approximately equivalent and no separate illustrations of the subsurface conditions were prepared. The proposed alternate drilling location is as follows:

Table W-2. Location information for Proposed Twinned Well GC 944-Alt-WB001

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	Y	Latitude	Longitude
2,306,815.00	9,816,871.00	27° 02' 18.7876" N	90° 57' 08.4367" W
Block Calls (GC 944)			
5,825' FEL	3,929' FNL		

Power Spectrum Analysis

The power spectrum for the proposed well was derived through the use of IHS Kingdom Suite's Trace Calculator tool. For the Proposed Well GC 944-WB001, the power spectrum was extracted from a subset that ranges from Inline 9339 to 9439 and Crossline 35204 to 35404 and is limited to the upper one second below the seafloor. The frequency content within the upper one second below the seafloor is of sufficient quality for shallow hazards analysis.

Figure W-2. Power spectrum for the Proposed Well GC 944-WB001.

Seafloor Conditions

The following paragraphs summarize the seafloor morphology and benthic communities potential at the proposed well location.

Seafloor Morphology. The surface location of Proposed Well GC 944-WB001 is in the northeastern quadrant of GC 944 (Figure W-1). Water depths within the vicinity of the proposed well range from 3,268 ft to 3,410 ft BSL (Map W-1).

The proposed well is in an area of generally smooth and featureless seafloor (Map W-2; Figure W-2). There are two seafloor faults present within 2,000 ft of the proposed location (Map W-4 and Figure W-4). A vertical wellbore will cross one of these faults at approximately 961 ft BML.

There are two seafloor faults within 2,000 ft of Proposed Well GC 944-WB001. A vertical wellbore will cross one of these faults at approximately 961 ft BML.

Benthic Communities Assessment. No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location (BOEM, 2023b). There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location (Maps W-3 and W-4; Figure W-1; BOEM, 2023a). There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well.

Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of Proposed Well GC 944-WB001.

Infrastructure. Pursuant to the public information in the BOEM database (2023b) there is no existing infrastructure within 2,000 ft of the proposed well location. The closest infrastructure to the proposed well location is an active gas pipeline (Segment No. 18711) located 5.6 miles to the north in GC block 856.

No infrastructure is located within 2,000 ft of Proposed Well GC 944-WB001.

Archaeologic Assessment. All blocks in the Green Canyon Protraction Area are regarded as being in a high probability zone for historic shipwrecks based on Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) NTL No. 2011-JOINT-G01 (BOEM/BSEE, 2011), including GC 944. Pursuant to the public information in the NOAA Automated Wreck and Obstruction Information System and Navigational Charts (NOAA, 2023); there are no reported shipwrecks in GC 944. An archaeological survey and report was completed by Echo Offshore, LLC. (Echo) in 2020 and was submitted to the BOEM under separate cover. For sonar contacts and avoidances please refer to the Echo AUV Archaeological Investigation (Echo, 2020).

There is no evidence of man-made features from the 3-D seismic data; however, man-made features and other seafloor conditions may exist that are not detectable within the resolution limits of the 3-D seismic data used for this assessment.

For details about sonar contacts and avoidances within 2,000 ft of the proposed well please refer to the Echo AUV Archeological Investigation (Echo, 2020).

Wellsite Assessment

The *wellsite assessment* covers the subsurface conditions within a 500 ft radius of the proposed wellpath from the seafloor to the top of salt at 1,295 ft BML (6,621 ft BSL).

Stratigraphy and Tophole Prognosis. Four marker horizons (Horizons 10, 20, 30, and the top of salt) and the seafloor were interpreted at Proposed Well GC 944-WB001. A generalized description of the stratigraphic sequences can be found in Section 1.4 of Berger, 2020. The following is an assessment of the conditions that will be encountered directly below the planned surface location.

Seafloor Faults. The wellbore at Proposed Well GC 944-WB001 will penetrate one seafloor fault within the investigation limit (Map W-4; Figure W-4). This fault will be encountered at approximately 961 ft BML.

There are two seafloor faults within 2,000 ft of Proposed Well GC 944-WB001. A vertical wellbore will cross one of these faults at approximately 961 ft BML.

Seafloor to Horizon 10. Utilizing the nearest subbottom profiler (SBP) image provided by Echo, the proposed wellbore will penetrate ~12 ft of hemipelagic clay drape then ~20 ft of clay-rich mass transport deposits (Figure W-3). Below this interval, about 137 ft of stratified clay- and silt-rich sediments with occasional, thin clay-rich mass transport deposits are imaged on the SBP data. The penetration limit of the SBP data is at 157 ft BML. On the 3-D seismic data, these deposits appear as parallel and continuous reflectors which are imaged between the seafloor and Horizon 10 at 182 ft BML (Figure W-4).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-4).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 10 to Horizon 20. Sediments within this sequence consist of parallel and continuous, low-to moderate-amplitude reflectors transitioning to somewhat chaotic, low-amplitude reflections interpreted to represent stratified silt and clay turbidites (Figure W-4). This sequence is 264 ft thick and Horizon 20 is mapped at 446 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-4).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 20 to Horizon 30. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-4). The sediments are expected to be clay and silt dominated with thin sand intervals possible. The sequence is 432 ft thick, and Horizon 30 is expected to be encountered 878 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-4).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 30 to Top of Salt. The sequence between Horizon 30 and top of salt at the proposed well location consists of an upper sub-unit (83 ft thick) of moderate-amplitude, continuous to discontinuous reflectors overlying a lower sub-unit of low-amplitude discontinuous to chaotic reflectors. The upper sub-unit is interpreted to represent silt- and clay-rich mass transport deposits with interbedded sands (Figure W-4). The sediments of the lower sub-unit (334 ft thick) are expected to be silt and clay mass transport deposit with possible thin sand intervals. A fault marks the interface between the sub-units at 961 ft BML. The overall sequence is 417 ft thick and the top of salt is expected to be at 1,295 ft BML (Figure W-4).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-4).

A seafloor fault will be encountered within this unit at approximately 961 ft BML.

There is a ***Low*** potential for gas hydrates in this sequence. There is a ***Low*** potential for shallow gas and a ***Low*** potential for SWF from Horizon 30 at 878 ft BML to the fault at 961 ft BML. A ***Negligible*** potential for shallow gas and a ***Negligible*** potential for SWF are assessed from the fault at 961 ft BML to the top of salt at 1,295 ft BML within this sequence.

Proposed Well GC 944-WB002

The following is a discussion of Proposed Well GC 944-WB002 and a twinned location Proposed Well GC 944-Alt-WB002. The surface locations of both proposed wells are in the northeastern portion of GC 944.

The water depth at Proposed Well GC 944-WB002 is 5,327 ft below sea level (BSL; Map W-5). The proposed well is within a relatively smooth seafloor area that slopes to the east at about 1.2°. The proposed location provided by Beacon is as follows:

Table W-3. Location information for Proposed Well GC 944-WB002

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	**Y**	**Latitude**	**Longitude**
2,306,710.00	9,816,821.00	27° 02' 18.3094" N	90° 57' 09.6065" W
Block Calls (GC 944)		**3-D Seismic Line Reference**	
		Line	**Trace**
5,930' FEL	3,979' FNL	9390	35005

Twinned Location

Proposed Well GC 944-Alt-WB002 is 50 ft north from the Proposed Well GC 944-WB002 with the same wellpath and is intended to be used as an alternate drilling location. Seafloor and subsurface conditions at the twinned well are approximately equivalent and no separate illustrations of the subsurface conditions were prepared. The proposed alternate drilling location is as follows:

Table W-4. Location information for Proposed Twinned Well GC 944-Alt-WB002

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	**Y**	**Latitude**	**Longitude**
2,306,710.00	9,816,871.00	27° 02' 18.8045" N	90° 57' 09.5976" W
Block Calls (GC 944)			
5,930' FEL	3,929' FNL		

Power Spectrum Analysis

The power spectrum for the proposed well was derived through the use of IHS Kingdom Suite's Trace Calculator tool. For the Proposed Well GC 944-WB002, the power spectrum was extracted from a subset that ranges from Inline 9340 to 9440 and Crossline 35205 to 35405 and is limited to the upper one second below the seafloor. The frequency content within the upper one second below the seafloor is of sufficient quality for shallow hazards analysis.

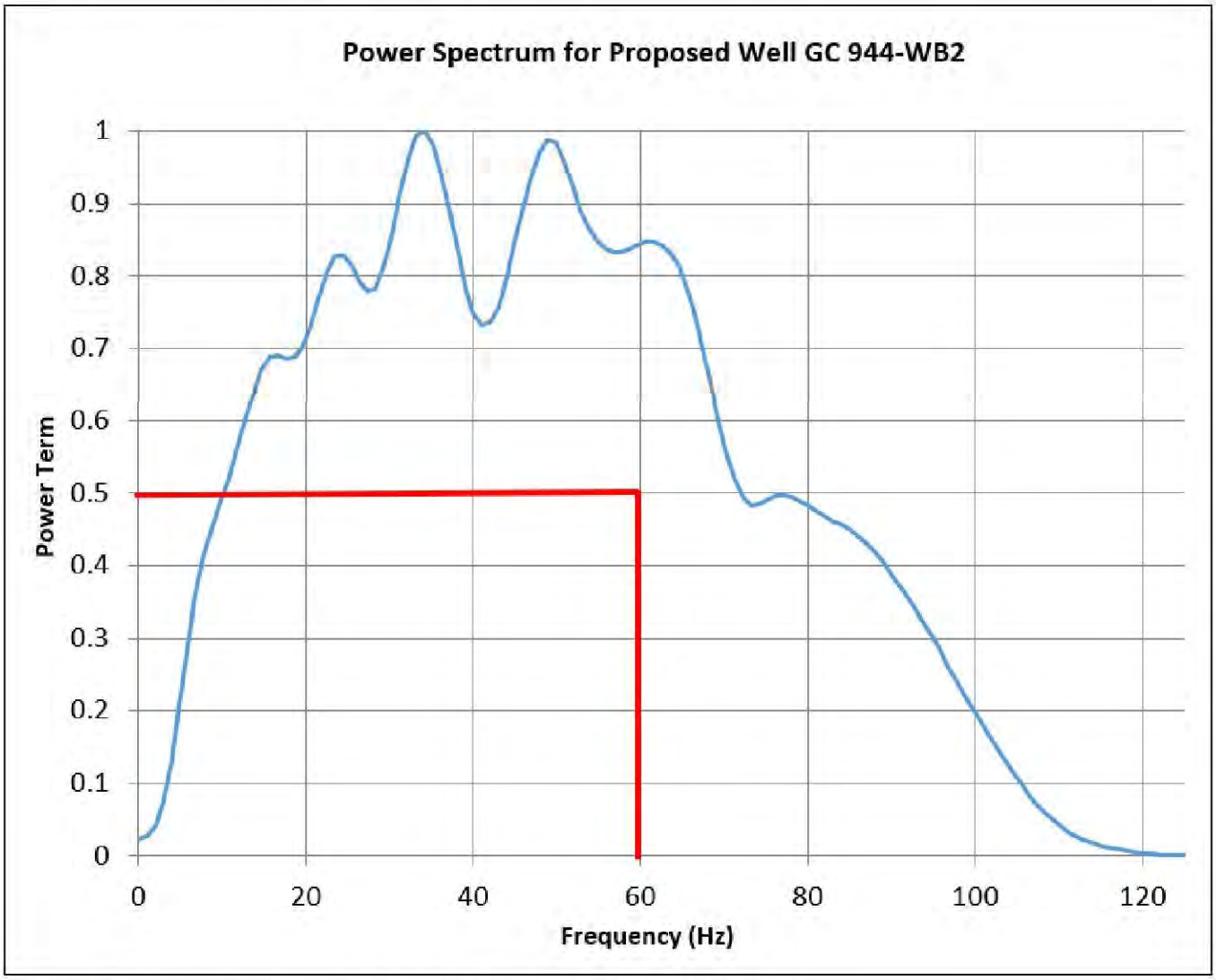

Figure W-5. Power spectrum for the Proposed Well GC 944-WB002.

Seafloor Conditions

The following paragraphs summarize the seafloor morphology and benthic communities potential at the proposed well location.

Seafloor Morphology. The surface location of Proposed Well GC 944-WB002 is in the northeastern quadrant of GC 944 (Figure W-1). Water depths within the vicinity of the proposed well range from 3,268 ft to 3,410 ft BSL (Map W-5).

The proposed well is in an area of generally smooth and featureless seafloor (Map W-6; Figure W-6). There are three seafloor faults present within 2,000 ft of the proposed location (Map W-6 and Figure-W-7). A vertical wellbore will cross one of these faults at approximately 1,027 ft BML.

There are three seafloor faults within 2,000 ft of Proposed Well GC 944-WB002. A vertical wellbore will cross one of these faults at approximately 1,027 ft BML.

Benthic Communities Assessment. No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location (BOEM, 2023b). There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location (Maps W-7 and W-8; Figure W-1; BOEM, 2023a). There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well.

Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of Proposed Well GC 944-WB002.

Infrastructure. Pursuant to the public information in the BOEM database (2023b) there is no existing infrastructure within 2,000 ft of the proposed well location. The closest infrastructure to the proposed well location is an active gas pipeline (Segment No. 18711) located 5.6 miles to the north in GC block 856.

No infrastructure is located within 2,000 ft of Proposed Well GC 944-WB002.

Archaeologic Assessment. All blocks in the Green Canyon Protraction Area are regarded as being in a high probability zone for historic shipwrecks based on Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) NTL No. 2011-JOINT-G01 (BOEM/BSEE, 2011), including GC 944. Pursuant to the public information in the NOAA Automated Wreck and Obstruction Information System and Navigational Charts (NOAA, 2023); there are no reported shipwrecks in GC 944. An archaeological survey and report was completed by Echo Offshore, LLC. (Echo) in 2020 and was submitted to the BOEM under separate cover. For sonar contacts and avoidances please refer to the Echo AUV Archaeological Investigation (Echo, 2020).

There is no evidence of man-made features from the 3-D seismic data; however, man-made features and other seafloor conditions may exist that are not detectable within the resolution limits of the 3-D seismic data used for this assessment.

For details about sonar contacts and avoidances within 2,000 ft of the proposed well please refer to the Echo AUV Archeological Investigation (Echo, 2020).

Wellsite Assessment

The *wellsite assessment* covers the subsurface conditions within a 500 ft radius of the proposed wellpath from the seafloor to the top of salt at 1,309 ft BML (6,636 ft BSL).

Stratigraphy and Tophole Prognosis. Four marker horizons (Horizons 10, 20, 30, and the top of salt) and the seafloor were interpreted at Proposed Well GC 944-WB002. A generalized description of the stratigraphic sequences can be found in Section 1.4 of Berger, 2020. The following is an assessment of the conditions that will be encountered directly below the planned surface location.

Seafloor Faults. The wellbore at Proposed Well GC 944-WB002 will penetrate one seafloor fault within the investigation limit (Map W-8; Figure W-7). This fault will be encountered at approximately 1,027 ft BML.

There are three seafloor faults within 2,000 ft of Proposed Well GC 944-WB002. A vertical wellbore will cross one of these faults at approximately 1,027 ft BML.

Seafloor to Horizon 10. Utilizing the nearest subbottom profiler (SBP) image provided by Echo, the proposed wellbore will penetrate ~12 ft of hemipelagic clay drape then ~22 ft of clay-rich mass transport deposits (Figure W-6). Below this interval, about 138 ft of stratified clay- and silt-rich sediments with occasional, thin clay-rich mass transport deposits are imaged on the SBP data. The penetration limit of the SBP data is at 160 ft BML. On the 3-D seismic data, these deposits appear as parallel and continuous reflectors which are imaged between the seafloor and Horizon 10 at 189 ft BML (Figure W-7).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-8).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 10 to Horizon 20. Sediments within this sequence consist of parallel and continuous, low-to moderate-amplitude reflectors transitioning to somewhat chaotic, low-amplitude reflections interpreted to represent stratified silt and clay turbidites (Figure W-7). This sequence is 263 ft thick and Horizon 20 is mapped at 452 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-8).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 20 to Horizon 30. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-7). The sediments are expected to be clay and silt dominated with thin sand intervals possible. The sequence is 429 ft thick, and Horizon 30 is expected to be encountered 881 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-8).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 30 to Top of Salt. The sequence between Horizon 30 and top of salt at the proposed well location consists of an upper sub-unit (146 ft thick) of moderate-amplitude, continuous to discontinuous reflectors overlying a lower sub-unit of low-amplitude discontinuous to chaotic reflectors. The upper sub-unit is interpreted to represent silt- and clay-rich mass transport deposits with interbedded sands (Figure W-7). The sediments of the lower sub-unit (282 ft thick) are expected to be silt and clay mass transport deposit with possible thin sand intervals. A fault marks the interface between the sub-units at 1,027 ft BML. The overall sequence is 428 ft thick and the top of salt is expected to be at 1,309 ft BML (Figure W-7).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-8).

A seafloor fault will be encountered within this unit at approximately 1,027 ft BML.

There is a ***Low*** potential for gas hydrates in this sequence. There is a ***Low*** potential for shallow gas and a ***Low*** potential for SWF from Horizon 30 at 881 ft BML to the fault at 1,027 ft BML. A ***Negligible*** potential for shallow gas and a ***Negligible*** potential for SWF are assessed from the fault at 1,027 ft BML to the top of salt at 1,309 ft BML within this sequence.

Attachment A

From: Eric Zimmermann ericz@llog.com
Sent: Friday, July 24, 2020 10:10 AM
To: Bill Berger III bill@b-geo.com
Cc: Ryan Murphy <rmurphy@beaconoffshore.com>; Jaime Mata jaimem@llog.com
Subject: Monarch Area - GC 944

Bill,

I hope all is well and that you and your family is managing through all of this well.

We have transacted with Beacon to take over the Monarch Prospect area in and around GC 944. Please take this as an indication that LLOG grants permission to work with Beacon to transition the Shallow Hazards in this area.

Ryan indicates that they have the same data that we do in the area, so that should not be a problem. This however does not constitute a release of the data to Beacon.

LLOG would require sending to Beacon the input data specs that we sent to Berger and subsequently having Beacon providing to Berger a release of the data directly from Western. Beacon is not allowed permission to any data beyond which they represent ownership directly from Western.

If there are any questions, please let me know.

All the best,

Eric

References

Berger Geosciences, (Berger) LLC., 2020. *Shallow Hazards Assessment and Benthic Communities Evaluation, Blocks 993, 944, and 987 (Lease Nos. G36060, G36061, and G36039), Green Canyon Area, Gulf of Mexico.* Project Number 19-07-27. April 24, 2020.

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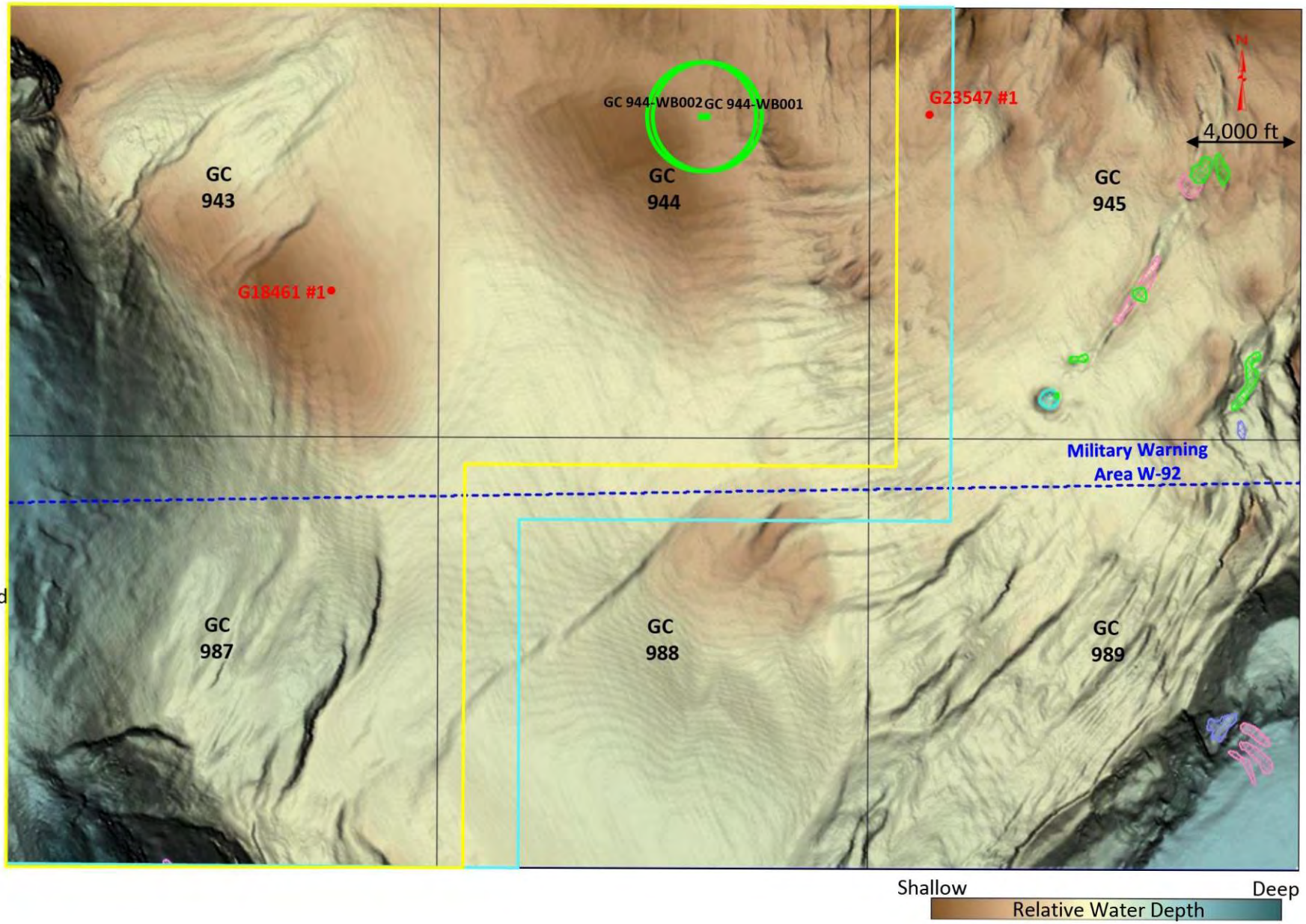
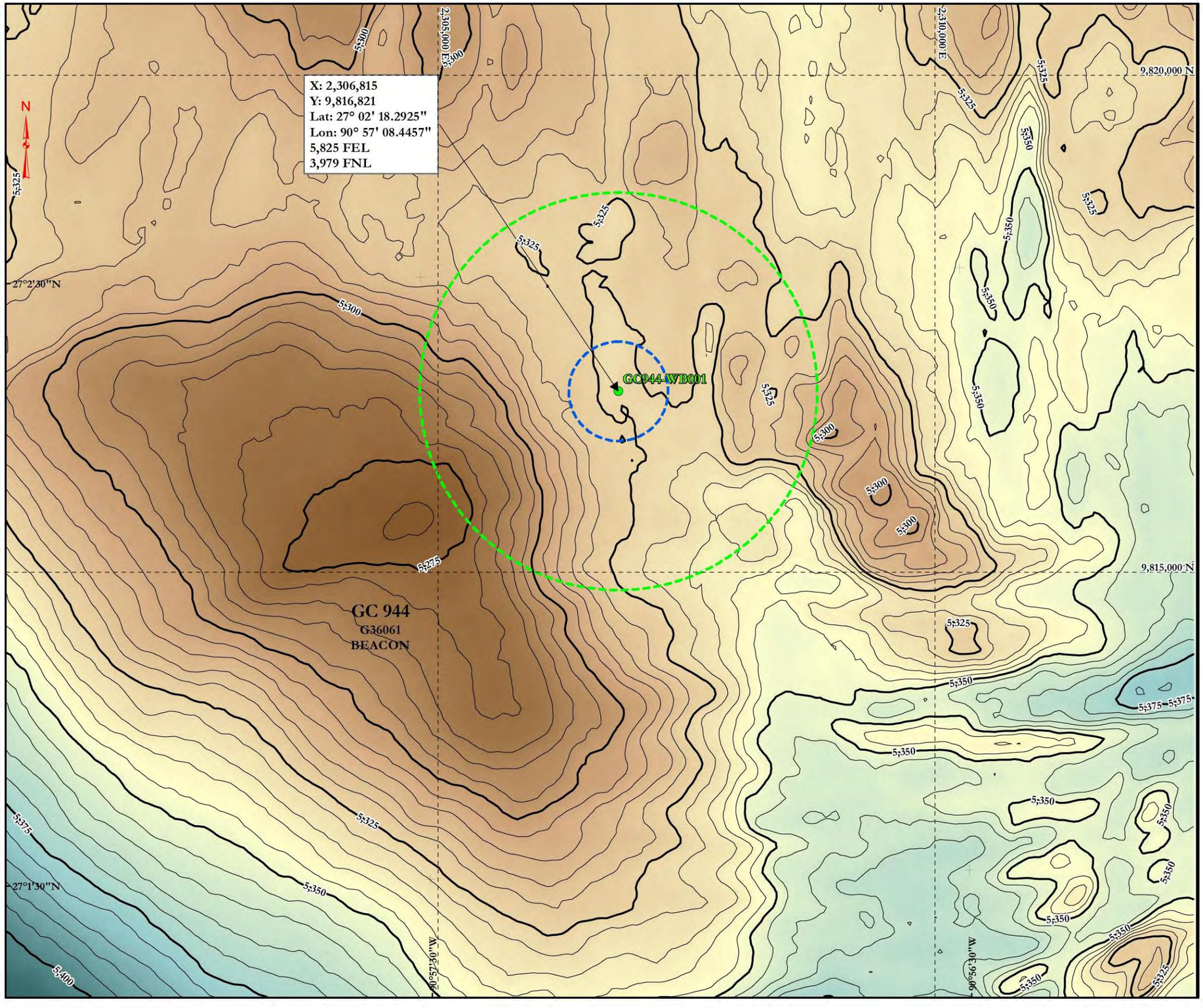


Seafloor rendering showing proposed well locations

Figure W-1



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 5-ft Contours
- 25-ft Contours

Depths
(Below Sea Level)
5,268 ft
5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

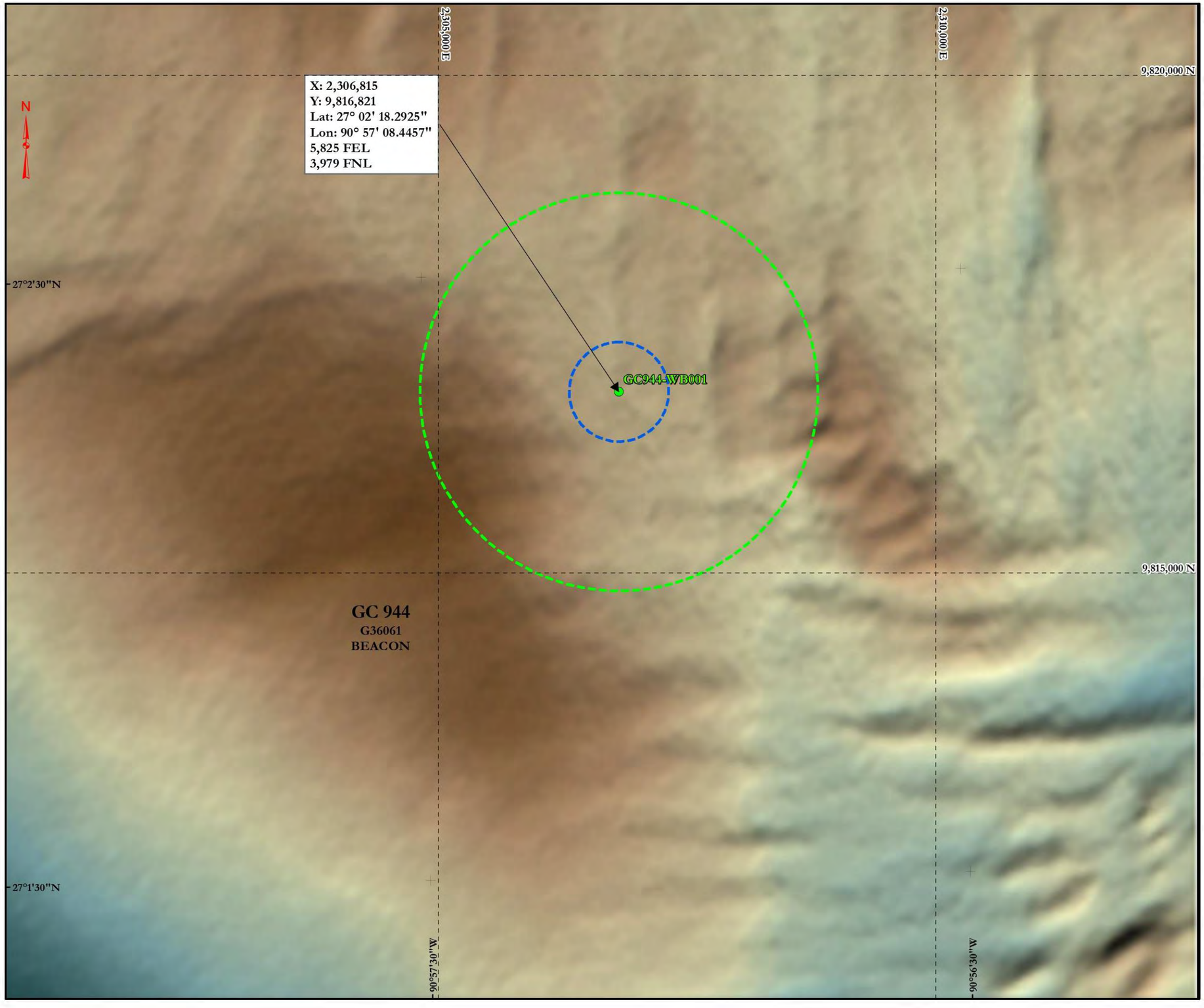
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-1
Bathymetry
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle

Depths
(Below Sea Level)
5,268 ft
5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 45°
Elevation : 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27
Projection: UTM
Zone: 15N
Grid Units: Feet

Interpretation By: P. Przybylski
Cartography: T. Nguyen
Project No.: 23-05-09
Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

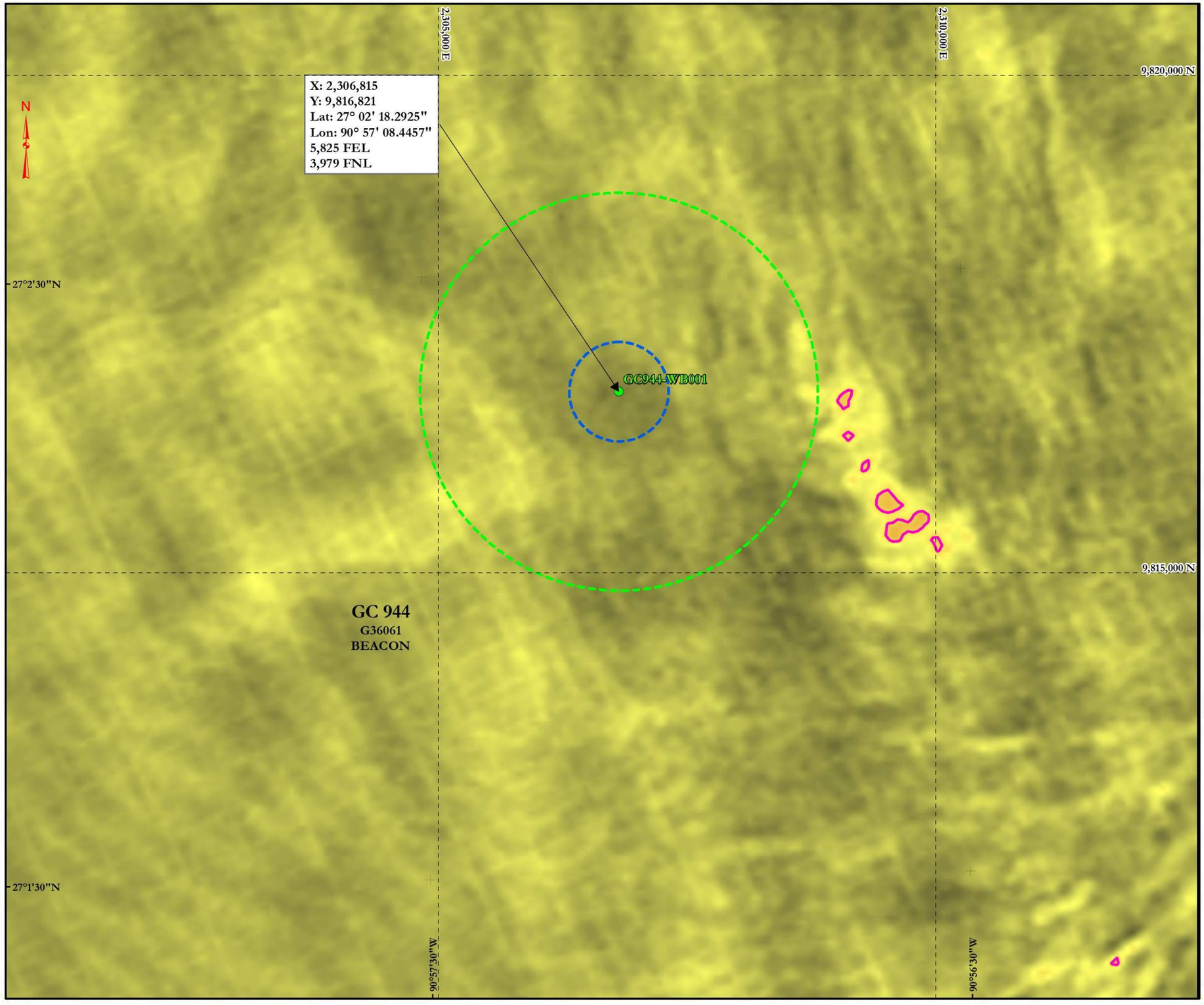
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-2
Seafloor Rendering
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude
(Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 80°
Elevation : 45°
Vertical Exaggeration: 5X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27
Projection: UTM
Zone: 15N
Grid Units: Feet

Interpretation By: P. Przybylski
Cartography: T. Nguyen
Project No.: 23-05-09
Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

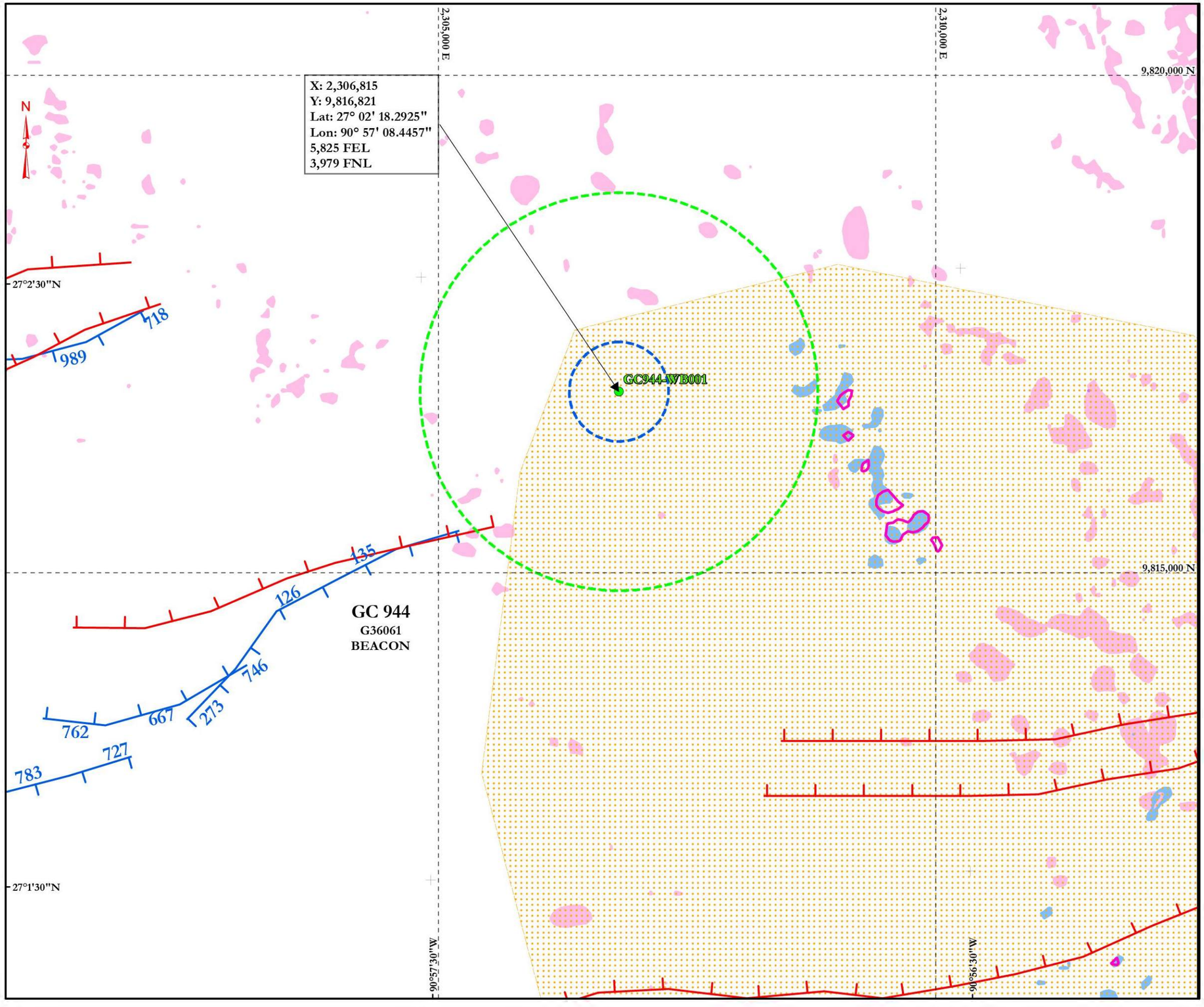
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-3
Seafloor Amplitude Rendering
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents downthrown side)
- Slump Scarp (teeth indicate slope direction)
- Area of Numerous Faults

3D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt or Limit of Investigation

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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

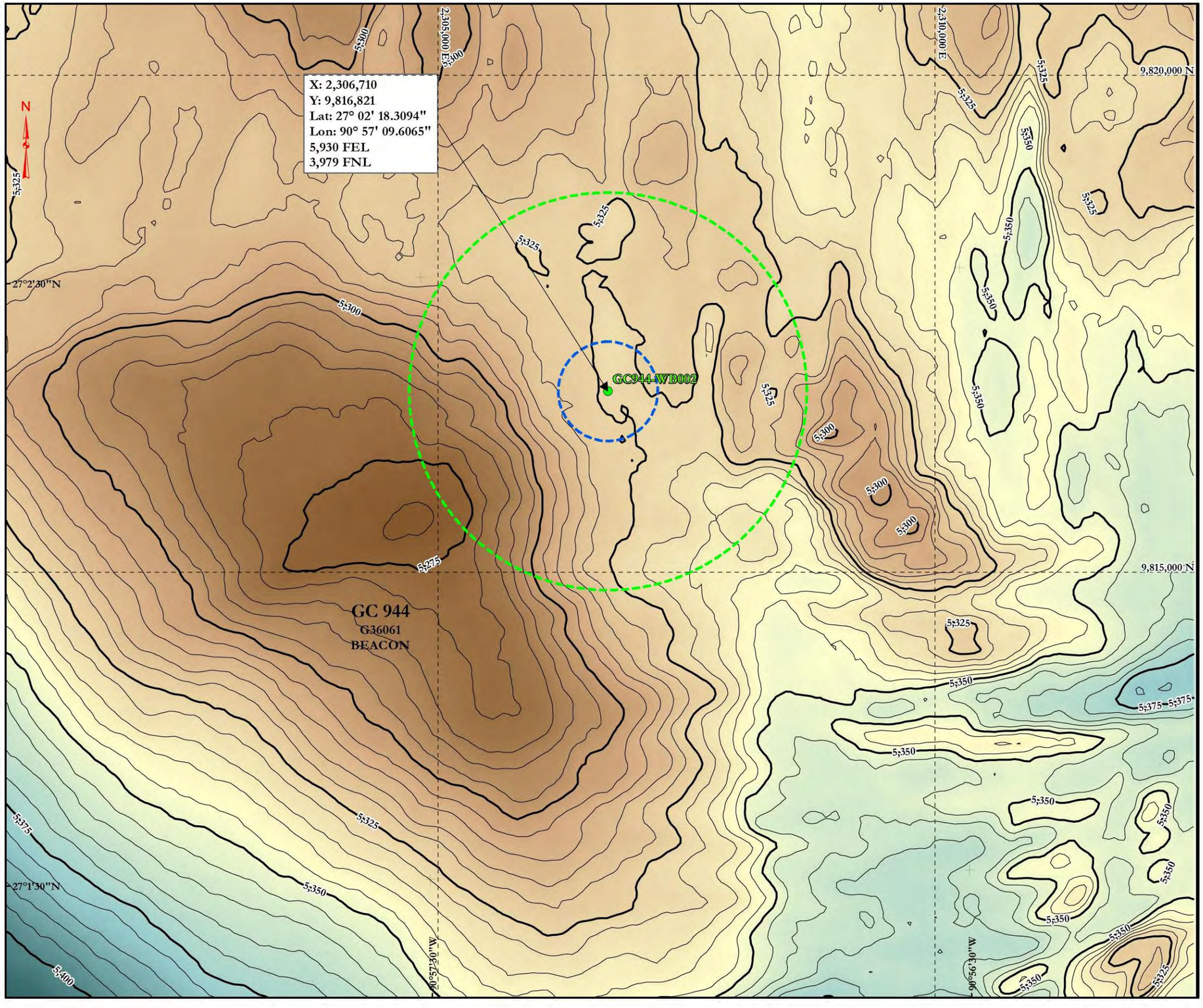
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-4
Geologic Features
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 5-ft Contours
- 25-ft Contours

Depths
(Below Sea Level)
5,268 ft
5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

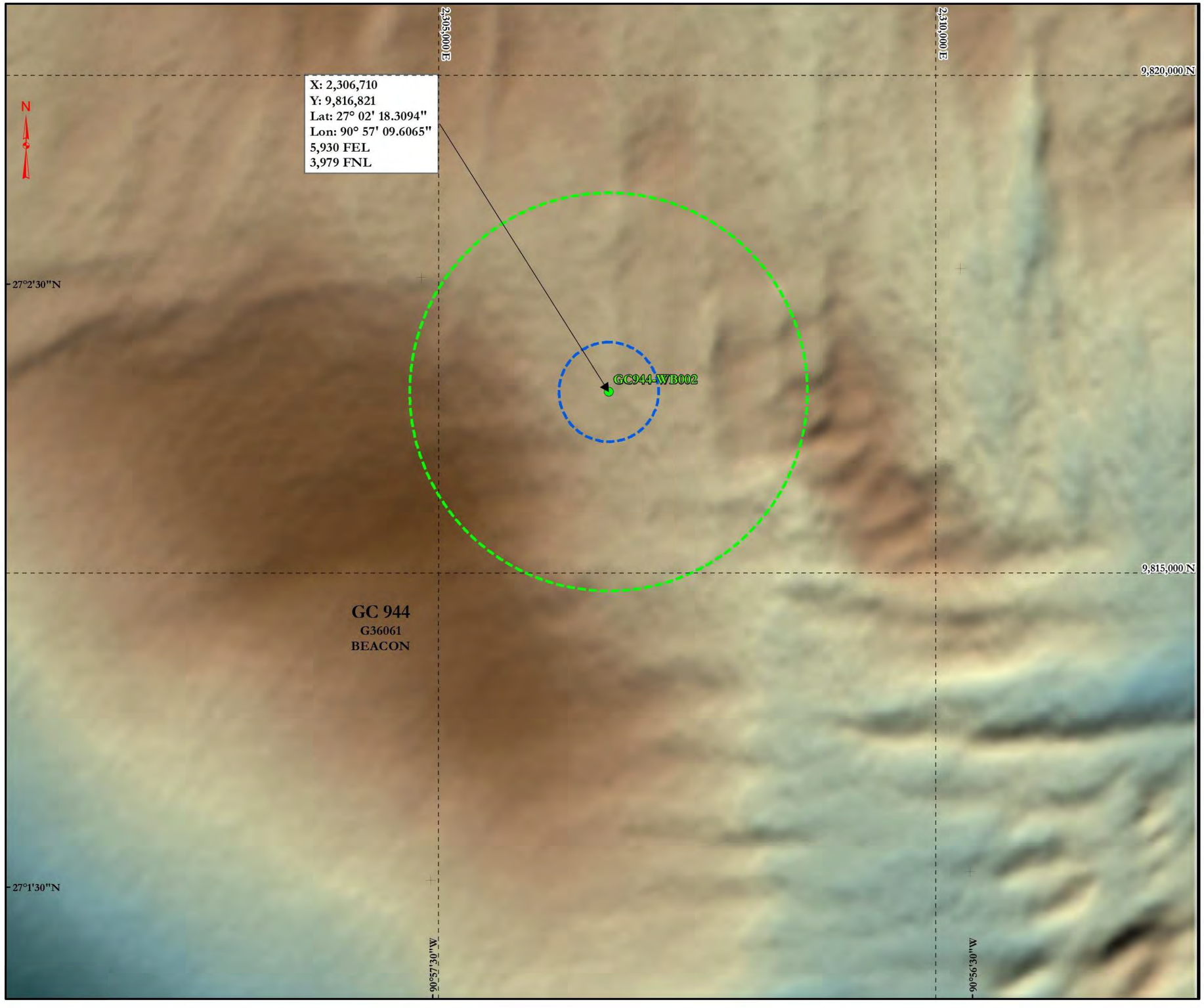
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-5
Bathymetry
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle

Depths
(Below Sea Level)

5,268 ft

5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 45°
Elevation : 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27
Projection: UTM
Zone: 15N
Grid Units: Feet

Interpretation By: P. Przybylski
Cartography: T. Nguyen
Project No.: 23-05-09
Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

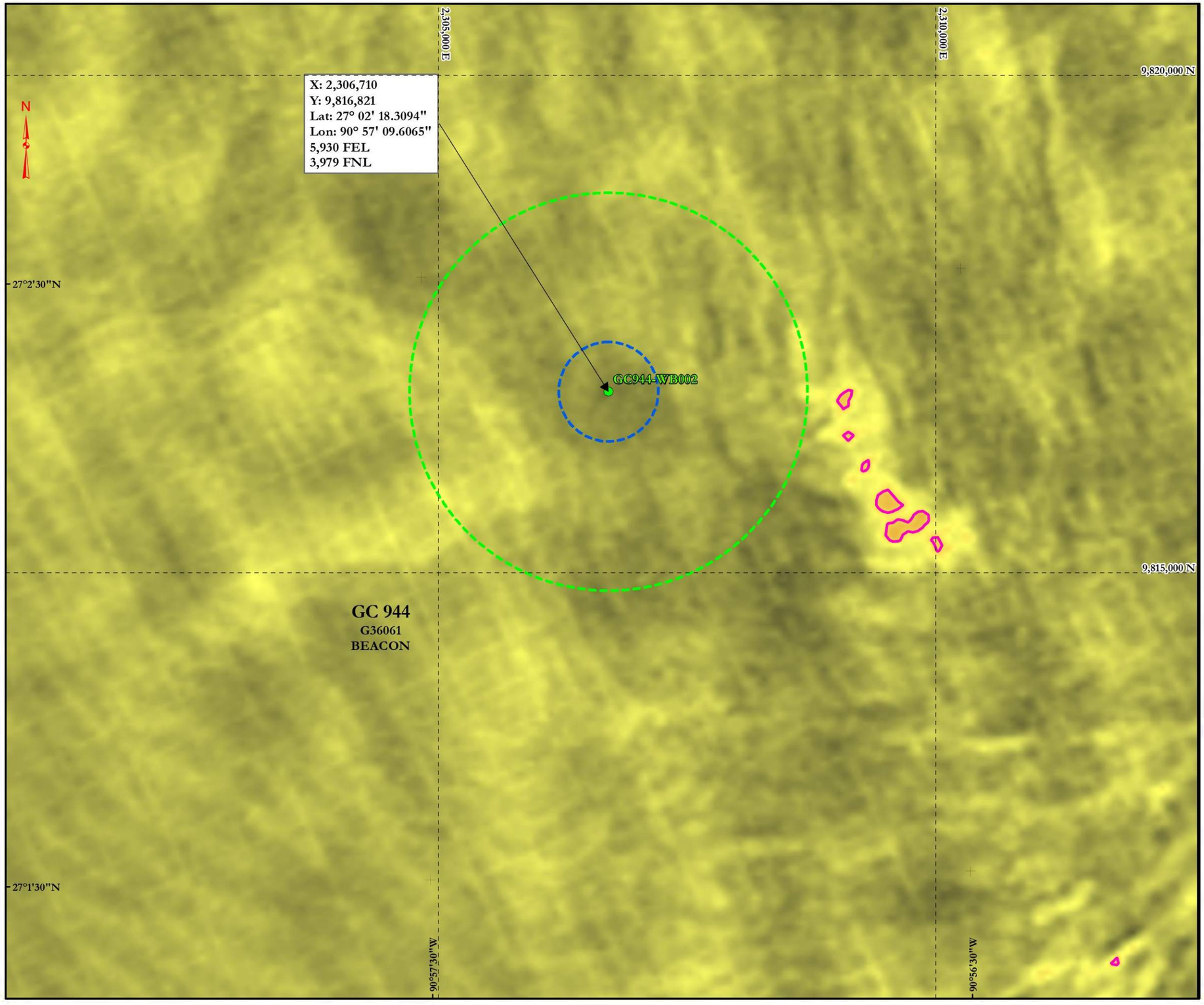
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-6
Seafloor Rendering
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude
(Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 80°
Elevation : 45°
Vertical Exaggeration: 5X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

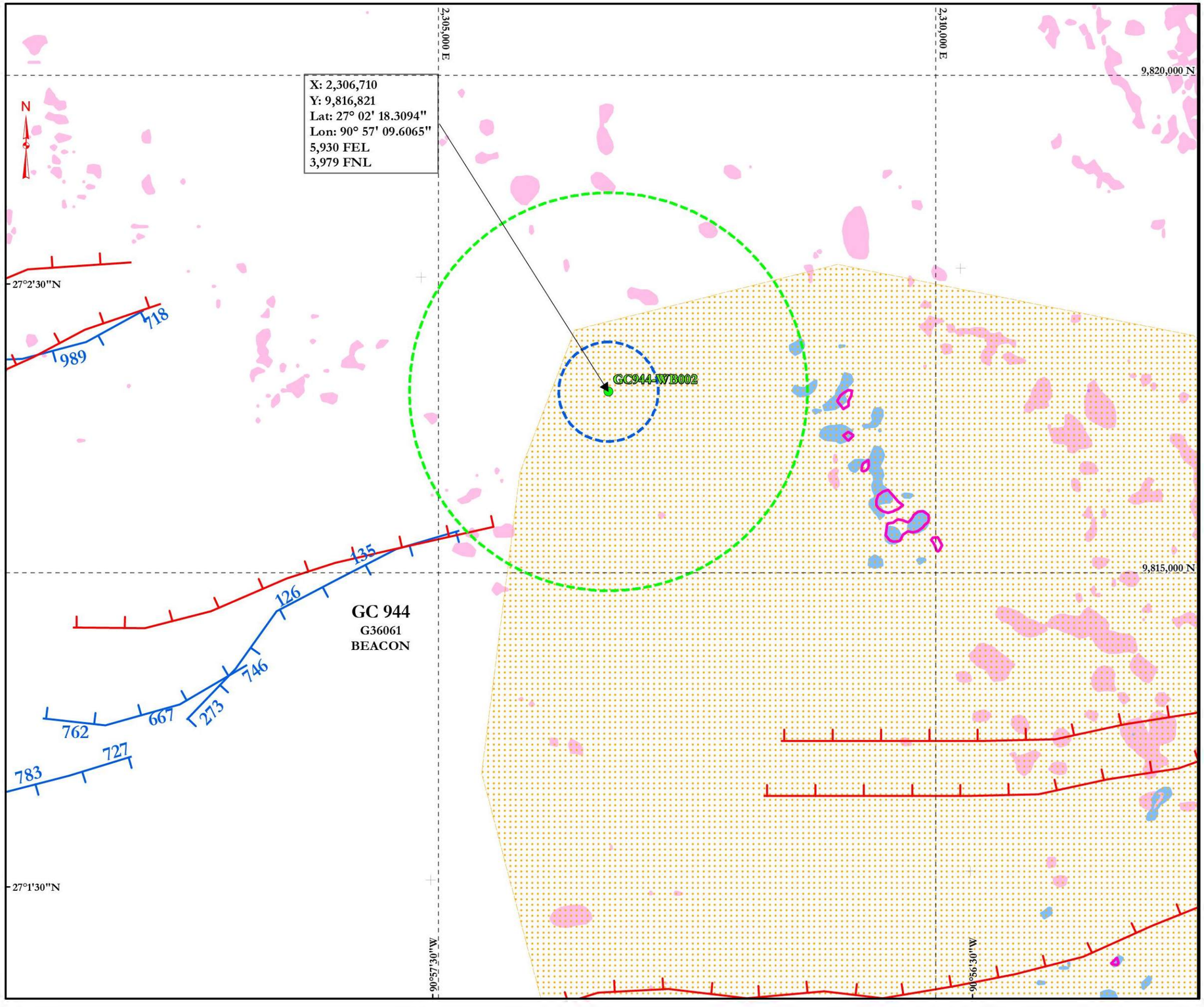
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-7
Seafloor Amplitude Rendering
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents downthrown side)
- Slump Scarp (teeth indicate slope direction)
- Area of Numerous Faults

3D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt or Limit of Investigation

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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-8
Geologic Features
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

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Wellsite Clearance Letters

Proposed Relief Wells GC 944-RW-1, GC 944-RW-2, And GC 944-RW-3

Green Canyon Area
Block 944 (Lease No. G36061)
Gulf of Mexico

Berger Geosciences Project No. 24-01-26

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Shallow Hazards Assessment for the Proposed Wells

This section contains an assessment of the shallow hazards and tophole prognoses for proposed relief wells GC 944-RW-1, GC 944-RW-2, and GC 944-RW-3 (Figures W-1 through W-10). The wellsite assessments considers the shallow geologic conditions within a 500 ft radius of the proposed wellbore from the seafloor to the top of salt as described in Section 1 of Berger, 2020. The seafloor benthic communities assessment considers surface conditions at the proposed well locations and have been described in Section 2 of Berger, 2020. The archaeological assessment considers surface conditions and is presented under separate cover by Echo Offshore, LLC. (Echo, 2020).

Tophole Prognosis Criteria

The following sections specify the criteria used to develop the tophole prognosis for each proposed well. The assessment is based on the evaluation of 3-D seismic data. The tophole assessment is restricted to the specific proposed well locations.

Gas Hydrates. The base of the estimated gas hydrate stability zone (BGHSZ) is calculated based on Maekawa et al. (1995) or an identifiable bottom-simulating reflector. The potential for solid gas hydrates was evaluated for the proposed wells. The criteria include:

- Is water depth conducive for gas hydrate formation?
- What is the estimated depth to the base of the gas hydrate stability zone (BGHSZ) at the proposed well?
- Is a bottom-simulating reflector (BSR) present between the seafloor and BGHSZ?
- Is a BSR present within 500 ft of the proposed well?
- Does the proposed well intersect a BSR?
- Have gas hydrates been identified in the region of the proposed well?

HIGH	The wellsite conditions meet ALL of the above stated criteria, and correlates to an existing well that encountered gas hydrates.
MODERATE	The wellsite conditions meet SEVERAL of the above stated criteria. There is no direct evidence of gas hydrates at nearby wells.
LOW	The wellsite conditions meet SOME of the above stated criteria, and does not correlate to nearby wells.
NEGLIGIBLE	The wellsite conditions meet FEW to NONE of the above stated criteria, and there is no evidence of gas hydrates at nearby wells.

Shallow Gas. The potential for shallow gas was evaluated for the proposed wells. The criteria used to evaluate the proposed wells include:

- Does an anomalous amplitude event exist in proximity of the proposed well, and is there evidence for connectivity to the proposed wellbore?
- Is there supporting geophysical evidence for shallow gas associated with the anomalous amplitude?
- Is there an anomalous amplitude within a sequence that may be sand-prone?
- Is there evidence of migration of fluid (including hydrocarbons) from depth, such as along a fault plane?
- Does the sequence correlate to other wells within the area that encountered shallow gas?
- Is the proposed well located in a frontier area with little or no offset well control?

HIGH	The amplitude event meets ALL of the above stated criteria, or correlates to an existing well that encountered shallow gas.
MODERATE	The amplitude event meets SEVERAL of the above stated criteria. There is no direct evidence of shallow gas from nearby wells.
LOW	The amplitude event meets SOME of the above stated criteria, and does not correlate to nearby wells.
NEGLIGIBLE	The amplitude event meets FEW to NONE of the above stated criteria, and there is no evidence of shallow gas from nearby wells.

Shallow Water Flow. The potential for shallow water flow (SWF) was assessed for each proposed well. The potential for SWF is based on the following criteria:

- Does the stratigraphic unit correlate to a regional sand-prone sequence?
- Was the area subject to high Pleistocene sedimentation rates and rapid overburden deposition?
- Is the sequence composed of high-amplitude, chaotic reflectors indicative of sand?
- Is there a potential seal (perhaps clay-prone) above the sand-prone sequence?
- Does the sequence correlate to other wells within the area that encountered SWF?
- If there are no existing wells in the area with reported SWF, is the proposed well located in a frontier area with little or no offset well control?

HIGH	The stratigraphic unit meets ALL of the above stated criteria, or correlates to an existing well that encountered SWF.
MODERATE	The stratigraphic unit meets SEVERAL of the above stated criteria. There is no direct evidence of SWF from nearby wells.
LOW	The stratigraphic unit meets SOME of the above stated criteria, and does not correlate to nearby wells.
NEGLIGIBLE	The stratigraphic unit meets FEW to NONE of the above stated criteria, and there is no evidence of SWF from nearby wells.

Proposed Relief Well GC 944-RW-1

The following is a discussion of Proposed Relief Well GC 944-RW-1. The surface location of the proposed relief well is in the northeastern portion of GC 944 (Figure W-1).

The water depth at Proposed Relief Well GC 944-RW-1 is 5,330 ft below sea level (BSL; Map W-1). The proposed well is within a relatively smooth seafloor area that slopes to the east at about 1.4°. The proposed location is as follows:

Table W-1. Location information for Proposed Relief Well GC 944-RW-1

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	**Y**	**Latitude**	**Longitude**
2,307,882	9,814,152	27° 01' 51.6952" N	90° 56' 57.1291" W
Block Calls (GC 944)		**3-D Seismic Line Reference**	
		Line	**Trace**
4,758 FEL	6,648 FNL	9391	34934

Twinned Location

Proposed Relief Well GC 944-Alt-RW-1-is 50 ft north from the Proposed Relief Well GC 944-RW-1 with the same wellpath and is intended to be used as an alternate drilling location. Seafloor and subsurface conditions at the twinned well are approximately equivalent and no separate illustrations of the subsurface conditions were prepared. The proposed alternate drilling location is as follows:

Table W-2. Location information for Proposed Twinned Relief Well GC 944-Alt-RW-1

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	**Y**	**Latitude**	**Longitude**
2,307,882	9,814,202	27° 01' 52.1903" N	90° 56' 57.1201" W
Block Calls (GC 944)			
4,758 FEL	6,598 FNL		

Power Spectrum Analysis

The power spectrum for the proposed relief well was derived using IHS Kingdom Suite's Trace Calculator tool. For the Proposed Relief Well GC 944-RW-1, the power spectrum was extracted from a subset that ranges from Inline 9191 to 9591 and Crossline 34734 to 35134 and is limited to the upper one second below the seafloor. The frequency content within the upper one second below the seafloor is of sufficient quality for shallow hazards analysis.

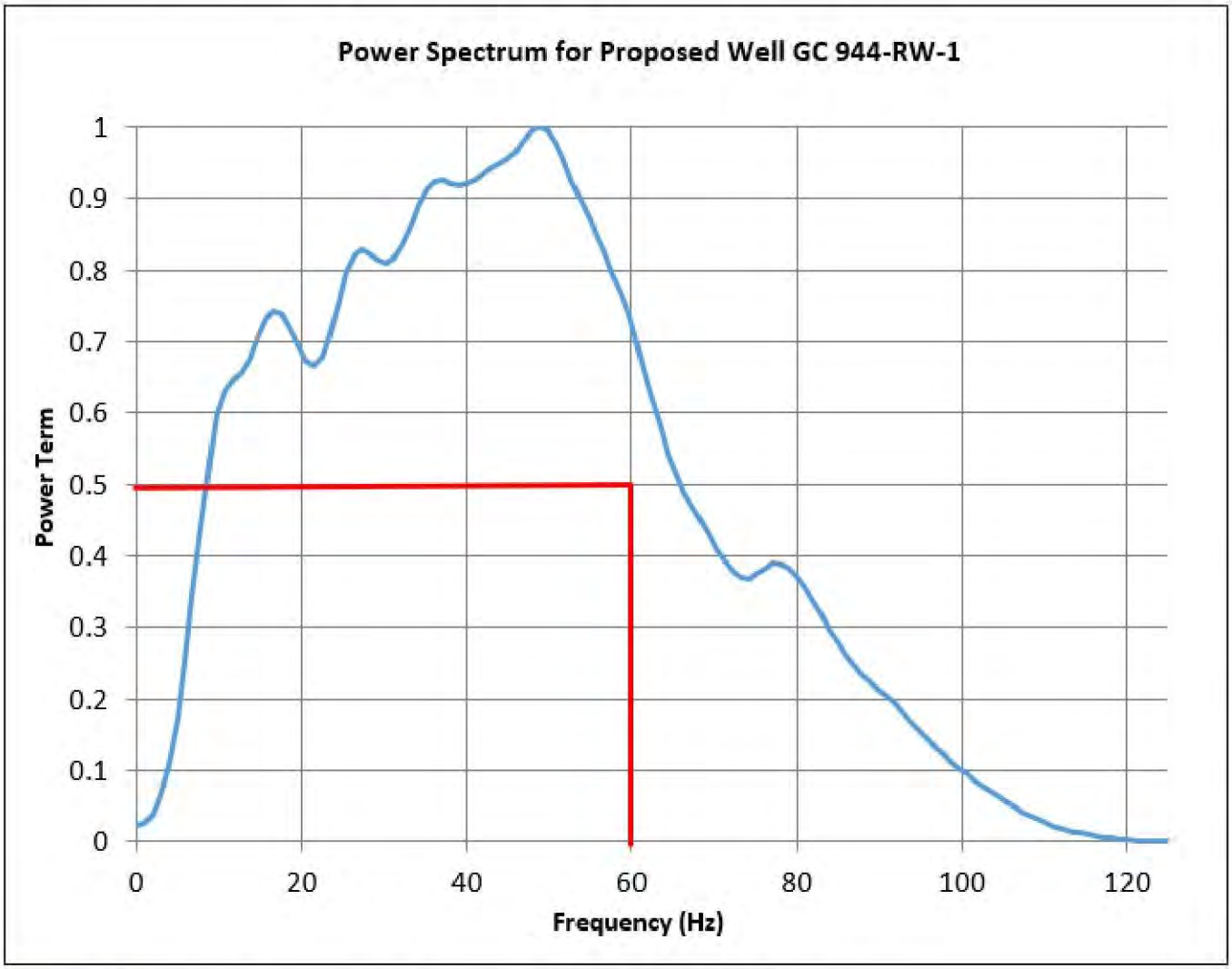

Figure W-2. Power spectrum for Proposed Relief Well GC 944-RW-1.

Seafloor Conditions

The following paragraphs summarize the seafloor morphology and benthic communities potential at the proposed well location.

Seafloor Morphology. The surface location of Proposed Relief Well GC 944-RW-1 is in the northwestern quadrant of GC 944 (Figure W-1). Water depths within the vicinity of the proposed well range from 5,262 ft to 5,414 ft BSL (Map W-1).

The proposed well is in an area of generally smooth and featureless seafloor (Map W-1; Figure W-1). There are two seafloor faults present within 2,000 ft of the proposed location to the southeast (Map W-4; Figure W-4). A vertical wellbore will not cross either of these faults.

There are two seafloor faults within 2,000 ft of Proposed Well GC 944-RW-1. A vertical wellbore will not cross either of these faults.

Benthic Communities Assessment. No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location (BOEM, 2024b). There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location (Maps W-2 and W-3; Figure W-1; BOEM, 2024a). There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well.

Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of Proposed Relief Well GC 944-RW-1.

Infrastructure. Pursuant to the public information in the BOEM database (2024b) there is no existing infrastructure within 2,000 ft of the proposed well location. The closest infrastructure to the proposed well location is an existing well (G32547-1) located 1.4 miles to the east and active gas pipeline (Segment No. 18711) located 6.1 miles to the north in GC block 856.

No infrastructure is located within 2,000 ft of Proposed Relief Well GC 944-RW-1.

Archaeologic Assessment. All blocks in the Green Canyon Protraction Area are regarded as being in a high probability zone for historic shipwrecks based on Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) NTL No. 2011-JOINT-G01 (BOEM/BSEE, 2011), including GC 944. Pursuant to the public information in the NOAA Automated Wreck and Obstruction Information System and Navigational Charts (NOAA, 2024); there are no reported shipwrecks in GC 944. An archaeological survey and report were completed by Echo Offshore, LLC. (Echo) in 2020 and was submitted to the BOEM under separate cover. For sonar contacts and avoidances please refer to the Echo AUV Archaeological Investigation (Echo, 2020).

There is no evidence of man-made features from the 3-D seismic data; however, man-made features and other seafloor conditions may exist that are not detectable within the resolution limits of the 3-D seismic data used for this assessment.

For details about sonar contacts and avoidances within 2,000 ft of the proposed well please refer to the Echo AUV Archeological Investigation (Echo, 2020).

Wellsite Assessment

The *wellsite assessment* covers the subsurface conditions within a 500 ft radius of the proposed wellpath from the seafloor to the top of salt at 1,286 ft BML (6,616 ft BSL).

Stratigraphy and Tophole Prognosis. Four marker horizons (Horizons 10, 20, 30, and the top of salt) and the seafloor were interpreted at Proposed Relief Well GC 944-RW-1. A generalized description of the stratigraphic sequences can be found in Section 1.4 of Berger, 2020. The following is an assessment of the conditions that will be encountered directly below the planned surface location.

Seafloor Faults. The wellbore at Proposed Relief Well GC 944-RW-1 will not penetrate any seafloor faults within the investigation limit (Figure W-4).

There are two seafloor faults within 2,000 ft of Proposed Well GC 944-RW-1. A vertical wellbore will not cross either of these faults.

Seafloor to Horizon 10. Utilizing the nearest subbottom profiler (SBP) image provided by Echo, the proposed wellbore will penetrate ~10 ft of hemipelagic clay drape then ~8 ft of clay-rich mass transport deposits (Figure W-3). Below this interval, about 140 ft of stratified clay- and silt-rich sediments with occasional, thin clay-rich mass transport deposits are imaged on the SBP data. The penetration limit of the SBP data is 158 ft BML. On the 3-D seismic data, these deposits appear as parallel and continuous reflectors which are imaged between the seafloor and Horizon 10 at 182 ft BML (Figure W-4).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-4).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 10 to Horizon 20. The Horizon 10 to Horizon 20 sequence consists of low- to moderate-amplitude continuous to discontinuous reflectors. Sediments within this sequence are expected to consist of silt- and clay-dominated turbidite deposits with possible sands (Figure W-4). This sequence is 285 ft thick and Horizon 20 is mapped at 467 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-4).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 20 to Horizon 30. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-4). The sediments are expected to be clay- and silt-dominated turbidite deposits with possible sands. The sequence is 331 ft thick, and Horizon 30 is expected to be encountered 798 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-4).

A buried fault will be encountered within this sequence at approximately 622 ft BML.

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 30 to Top of Salt. The sequence between Horizon 30 and top of salt at the proposed well location consists of an upper sub-unit and a lower sub-unit separated by an interface at 955 ft BML (Figure W-4). Ther upper sub-unit (157 ft thick) consists of moderate-amplitude, continuous to discontinuous reflectors. The upper sub-unit is interpreted to consist of silt- and sand-dominated mass transport deposits (Figure W-4). The lower sub-unit (331 ft thick) consists of low-amplitude, discontinuous to chaotic reflectors. The sediments of the lower sub-unit are expected to be silt and clay mass transport deposits with interbedded sands. The overall sequence is 488 ft thick and the top of salt is expected to be at 1,286 ft BML (Figure W-4).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-4).

There is a ***Low*** potential for gas hydrates in this sequence. There is a ***Low*** potential for shallow gas and a ***Low*** potential for SWF from Horizon 30 at 798 ft BML to the interface at 955 ft BML. A ***Negligible*** potential for shallow gas and a ***Negligible*** potential for SWF are assessed from the interface at 955 ft BML to the top of salt at 1,286 ft BML within this sequence.

Proposed Relief Well GC 944-RW-2

The following is a discussion of Proposed Relief Well GC 944-RW-2. The surface location of the proposed relief well is in the northwestern portion of GC 944 (Figure W-1).

The water depth at Proposed Relief Well GC 944-RW-2 is 5,272 ft below sea level (BSL; Map W-5). The proposed well is within a relatively smooth seafloor area that slopes to the northwest at about 0.5°. The proposed location is as follows:

Table W-3. Location information for Proposed Relief Well GC 944-RW-2

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	Y	Latitude	Longitude
2,303,630	9,816,360	27° 02' 14.2395" N	90° 57' 43.7418" W
Block Calls (GC 944)		3-D Seismic Line Reference	
		Line	Trace
6,830' FWL	4,440' FNL	9436	35026

Twinned Location

Proposed Relief Well GC 944-Alt-RW-2 is 50 ft north from the Proposed Relief Well GC 944-RW-2 with the same wellpath and is intended to be used as an alternate drilling location. Seafloor and subsurface conditions at the twinned well are approximately equivalent and no separate illustrations of the subsurface conditions were prepared. The proposed alternate drilling location is as follows:

Table W-4. Location information for Proposed Twinned Relief Well GC 944-Alt-RW-2

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	Y	Latitude	Longitude
2,303,630	9,816,410	27° 02' 14.7346" N	90° 57' 57.7329" W
Block Calls (GC 944)			
6,830' FWL	4,390 FNL		

Power Spectrum Analysis

The power spectrum for the proposed well was derived using IHS Kingdom Suite's Trace Calculator tool. For the Proposed Relief Well GC 944-RW-2, the power spectrum was extracted from a subset that ranges from Inline 9236 to 9636 and Crossline 34826 to 35226 and is limited to the upper one second below the seafloor. The frequency content within the upper one second below the seafloor is of sufficient quality for shallow hazards analysis.

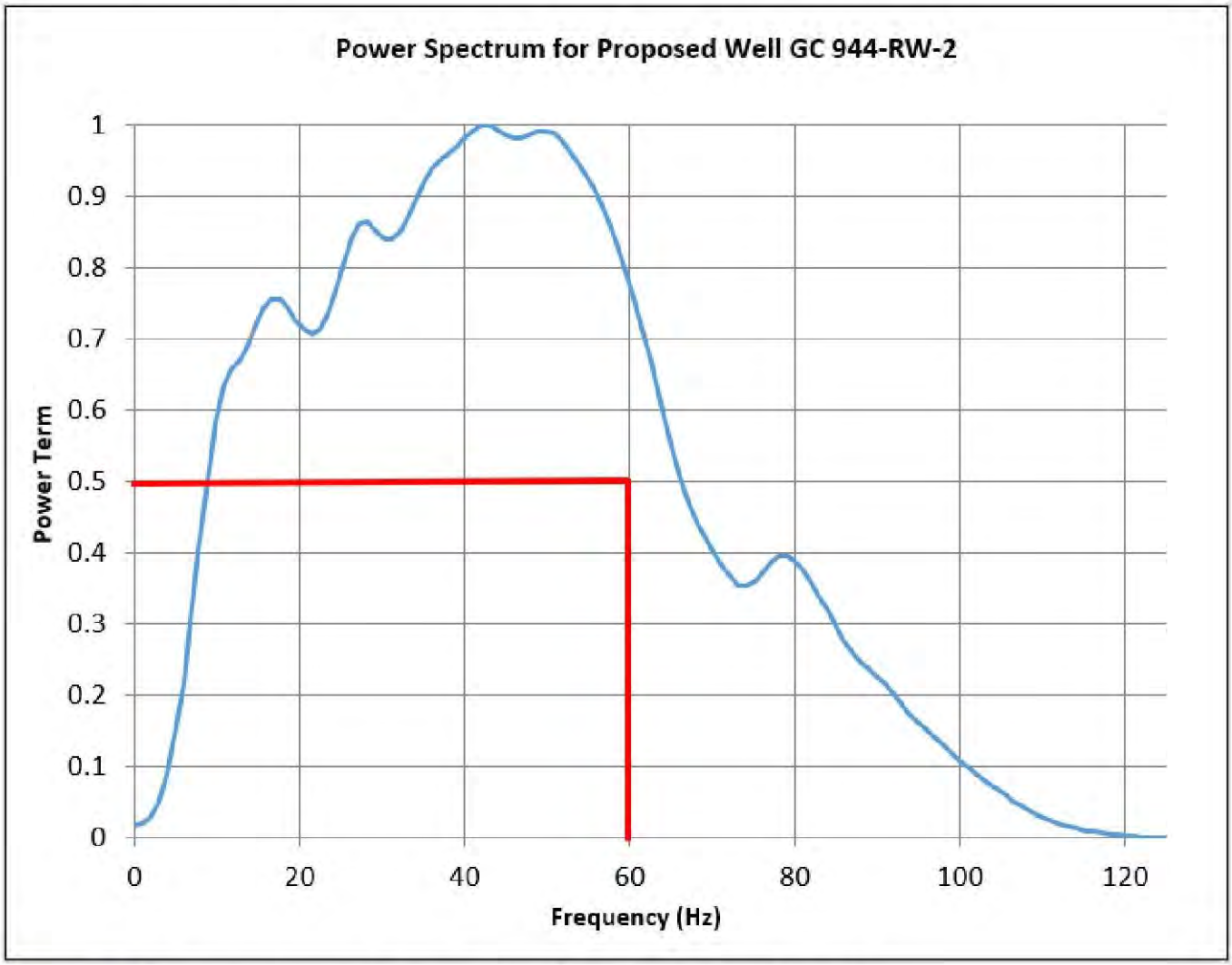

Figure W-5. Power spectrum for the Proposed Relief Well GC 944-RW-2.

Seafloor Conditions

The following paragraphs summarize the seafloor morphology and benthic communities potential at the proposed relief well location.

Seafloor Morphology. The surface location of Proposed Relief Well GC 944-RW-2 is in the northwestern quadrant of GC 944 (Figure W-1). Water depths within the vicinity of the proposed well range from 5,262 ft to 5,407 ft BSL (Map W-5).

The proposed well is in an area of generally smooth and featureless seafloor (Map W-5; Figure W-1). There are two seafloor faults present within 2,000 ft of the proposed location. The nearest seafloor fault is 1,320 ft to the southeast (Map W-8 and Figure W-7). A vertical wellbore will not cross either of these faults.

There are two seafloor faults within 2,000 ft of Proposed Relief Well GC 944-RW-2. A vertical wellbore will not cross either of these faults.

Benthic Communities Assessment. No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location (BOEM, 2024b). There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location (Maps W-7 and W-8; Figure W-1; BOEM, 2024a). There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well.

Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of Proposed Relief Well GC 944-RW-2.

Infrastructure. Pursuant to the public information in the BOEM database (2024b) there is no existing infrastructure within 2,000 ft of the proposed well location. The closest infrastructure to the proposed well location is an existing well (G3636-WA) located 1.77 miles to the west and an active gas pipeline (Segment No. 18711) located 5.7 miles to the north in GC Block 856.

No infrastructure is located within 2,000 ft of Proposed Relief Well GC 944-RW-2.

Archaeologic Assessment. All blocks in the Green Canyon Protraction Area are regarded as being in a high probability zone for historic shipwrecks based on Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) NTL No. 2011-JOINT-G01 (BOEM/BSEE, 2011), including GC 944. Pursuant to the public information in the NOAA Automated Wreck and Obstruction Information System and Navigational Charts (NOAA, 2024); there are no reported shipwrecks in GC 944. An archaeological survey and report was completed by Echo Offshore, LLC. (Echo) in 2020 and was submitted to the BOEM under separate cover. For sonar contacts and avoidances please refer to the Echo AUV Archaeological Investigation (Echo, 2020).

There is no evidence of man-made features from the 3-D seismic data; however, man-made features and other seafloor conditions may exist that are not detectable within the resolution limits of the 3-D seismic data used for this assessment.

For details about sonar contacts and avoidances within 2,000 ft of the proposed well please refer to the Echo AUV Archeological Investigation (Echo, 2020).

Wellsite Assessment

The *wellsite assessment* covers the subsurface conditions within a 500 ft radius of the proposed wellpath from the seafloor to the top of salt at 1,897 ft BML (7,169 ft BSL).

Stratigraphy and Tophole Prognosis. Four marker horizons (Horizons 10, 20, 30, and the top of salt) and the seafloor were interpreted at Proposed Relief Well GC 944-RW-2. A generalized description of the stratigraphic sequences can be found in Section 1.4 of Berger, 2020. The following is an assessment of the conditions that will be encountered directly below the planned surface location.

Seafloor Faults. The wellbore at Proposed Well GC 944-RW-2 is not expected to penetrate any seafloor faults within the investigation limit (Map W-8; Figure W-7).

There are two seafloor faults within 2,000 ft of Proposed Relief Well GC 944-RW-2; however, a vertical wellbore is not expected to intersect these faults or any other faults to the Limit of Investigation.

Seafloor to Horizon 10. Utilizing the nearest subbottom profiler (SBP) image provided by Echo, the proposed wellbore is expected to penetrate ~8 ft of hemipelagic clay drape then ~7 ft of clay-rich mass transport deposits (Figure W-6). Below this interval, about 145 ft of stratified clays and silts with occasional thin clay-rich mass transport deposits are imaged on the SBP data. The penetration limit of the SBP data is at 160 ft BML. On the 3-D seismic data, the sediments between the seafloor and Horizon 10 appear as hemipelagic drape overlying stratified silt and clay turbidites and basal silt and clay mass transit deposits to the depth of 165 ft BML (Figure W-7).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-8).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 10 to Horizon 20. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-7). Sediments within this sequence are expected to consist of silt- and clay-dominated turbidite deposits with possible sands (Figure W-7). This sequence is 205 ft thick and Horizon 20 is mapped at 370 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-8).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 20 to Horizon 30. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-7). The sediments are expected to be clay and silt dominated turbidite deposits with possible sands. The sequence is 453 ft thick, and Horizon 30 is expected to be encountered 823 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-8).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 30 to Top of Salt. The sequence between Horizon 30 and top of salt at the proposed well location consists of an upper sub-unit (183 ft thick) of moderate-amplitude, continuous to discontinuous reflectors overlying a lower sub-unit of low-amplitude discontinuous to chaotic reflectors. The upper sub-unit is interpreted to represent silt- and clay-rich mass transport deposits (Figure W-7). The sediments of the lower sub-unit (873 ft thick) are expected to be silt and clay mass transport deposits with interbedded sands. The overall sequence is 1,056 ft thick and the top of salt is expected to be at 1,879 ft BML (Figure W-7).

There are five amplitude anomalies within 500 ft of the proposed wellbore within this sequence. (Map W-8). The anomalies are located to the northwest of the proposed wellsite and the nearest is within 404 ft. All five anomalies are associated with top of salt reflection and are not considered to represent shallow gas (Figure W-7).

The base of the gas hydrate stability zone (BGHSZ) at this water depth is estimated to be 1,654 ft BML based on Maekawa et al. (1995).

There is a ***Low*** potential for gas hydrates in this sequence from Horizon 30 at 823 ft BML to the base of the gas hydrate stability zone (BGHSZ) at 1,654 ft BML. There is a ***Negligible*** potential for gas hydrates from the base of the gas hydrate stability zone (BGHSZ) at 1,654 ft BML to the top of salt at 1,879 ft BML. There is a ***Low*** potential for shallow gas and a ***Low*** potential for SWF from Horizon 30 at 823 ft BML to the Interface at 1,006 ft BML. A ***Negligible*** potential for shallow gas and a ***Negligible*** potential for SWF are assessed from the Interface at 1,006 ft BML to the top of salt at 1,879 ft BML within this sequence.

Proposed Relief Well GC 944-RW-3

The following is a discussion of Proposed Relief Well GC 944-RW-3. The surface location of the proposed relief well is in the central portion of GC 944 (Figure W-1).

The water depth at Proposed Relief Well GC 944-RW-3 is 5,275 ft below sea level (BSL; Map W-9). The proposed well is within a relatively smooth seafloor area that slopes to the southwest at about 0.9°. The proposed location is as follows:

Table W-5. Location information for Proposed Relief Well GC 944-RW-3

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	Y	Latitude	Longitude
2,305,273	9,813,864	27° 01' 49.2633" N	90° 57' 26.0242" W
Block Calls (GC 944)		3-D Seismic Line Reference	
		Line	Trace
7,367' FEL	6,936' FNL	9429	34954

Twinned Location

Proposed Relief Well GC 944-Alt-RW-3 is 50 ft north from the Proposed Relief Well GC 944-RW-3 with the same wellpath and is intended to be used as an alternate drilling location. Seafloor and subsurface conditions at the twinned well are approximately equivalent and no separate illustrations of the subsurface conditions were prepared. The proposed alternate drilling location is as follows:

Table W-6. Location information for Proposed Twinned Relief Well GC 944-Alt-RW-3

NAD27 UTM Zone 16 North, US Survey ft		Geographic Coordinates	
X	Y	Latitude	Longitude
2,305,273	9,813,914	27° 01' 49.7584" N	90° 57' 26.0152" W
Block Calls (GC 944)			
7,367' FEL	6,886 FNL		

Power Spectrum Analysis

The power spectrum for the proposed well was derived using IHS Kingdom Suite's Trace Calculator tool. For the Proposed Relief Well GC 944-RW-3, the power spectrum was extracted from a subset that ranges from Inline 9379 to 9479 and Crossline 34754 to 35154 and is limited to the upper one second below the seafloor. The frequency content within the upper one second below the seafloor is of sufficient quality for shallow hazards analysis.

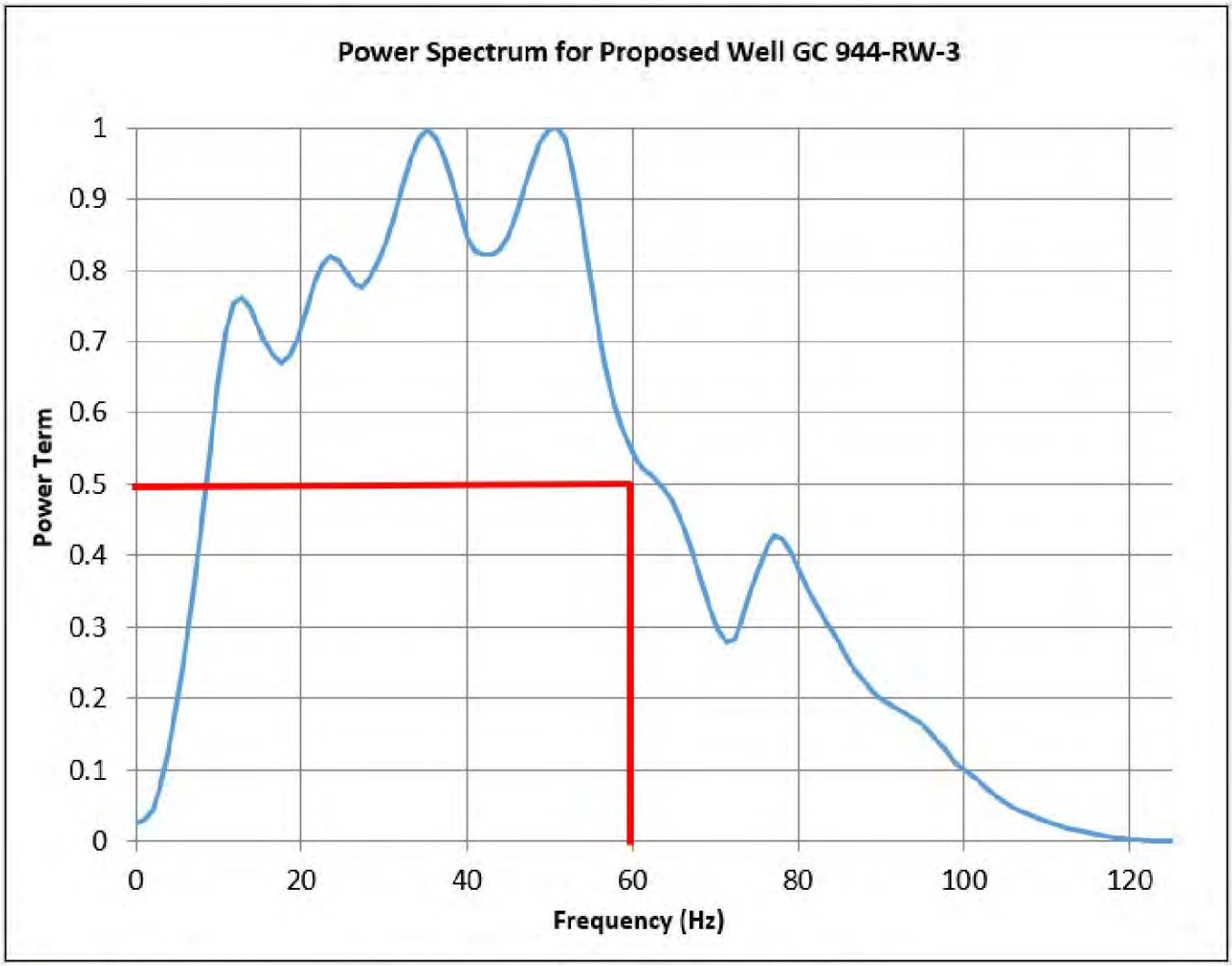

Figure W-8. Power spectrum for the Proposed Relief Well GC 944-RW-3

Seafloor Conditions

The following paragraphs summarize the seafloor morphology and benthic communities potential at the proposed well location.

Seafloor Morphology. The surface location of Proposed Relief Well GC 944-RW-3 is near the center of GC Block 944 (Figure W-1). Water depths within the vicinity of the proposed well range from 5,262 ft to 5,424 ft BSL (Map W-9).

The proposed well is in an area of generally smooth and featureless seafloor (Map W-9; Figure W-1). There is one seafloor fault present within 2,000 ft of the proposed location. The seafloor expression of this fault is 1,500 ft to the northwest (Map W-10 and Figure W-10). A vertical wellbore will not cross this fault.

There is one seafloor fault within 2,000 ft of Proposed Relief Well GC 944-RW-3. A vertical wellbore will not cross this fault.

Benthic Communities Assessment. No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location (BOEM, 2024b). There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location (Maps W-10 and W-11; Figure W-1; BOEM, 2024a). There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well.

Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of Proposed Relief RW-3.

Infrastructure. Pursuant to the public information in the BOEM database (2024b) there is no existing infrastructure within 2,000 ft of the proposed well location. The closest infrastructure to the proposed well location is an active gas pipeline (Segment No. 18711) located 6.2 miles to the north in GC Block 856.

No infrastructure is located within 2,000 ft of Proposed Relief Well GC 944-RW-3.

Archaeologic Assessment. All blocks in the Green Canyon Protraction Area are regarded as being in a high probability zone for historic shipwrecks based on Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) NTL No. 2011-JOINT-G01 (BOEM/BSEE, 2011), including GC 944. Pursuant to the public information in the NOAA Automated Wreck and Obstruction Information System and Navigational Charts (NOAA, 2024); there are no reported shipwrecks in GC 944. An archaeological survey and report was completed by Echo Offshore, LLC. (Echo) in 2020 and was submitted to the BOEM under separate cover. For sonar contacts and avoidances please refer to the Echo AUV Archaeological Investigation (Echo, 2020).

There is no evidence of man-made features from the 3-D seismic data; however, man-made features and other seafloor conditions may exist that are not detectable within the resolution limits of the 3-D seismic data used for this assessment.

For details about sonar contacts and avoidances within 2,000 ft of the proposed well please refer to the Echo AUV Archeological Investigation (Echo, 2020).

Wellsite Assessment

The *wellsite assessment* covers the subsurface conditions within a 500 ft radius of the proposed wellpath from the seafloor to the top of salt at 1,901 ft BML (7,176 ft BSL).

Stratigraphy and Tophole Prognosis. Four marker horizons (Horizons 10, 20, 30, and the top of salt) and the seafloor were interpreted at Proposed Relief Well GC 944-RW-3. A generalized description of the stratigraphic sequences can be found in Section 1.4 of Berger, 2020. The following is an assessment of the conditions that will be encountered directly below the planned surface location.

Seafloor Faults. The wellbore at Proposed Relief Well GC 944-RW-3 is not expected to penetrate any seafloor faults within the investigation limit (Map W-12; Figure W-10).

There is one seafloor fault within 2,000 ft of Proposed Well GC 944-RW-3. A vertical wellbore will not intersect this fault or any other seafloor faults to the Limit of Investigation.

Seafloor to Horizon 10. Utilizing the nearest subbottom profiler (SBP) image provided by Echo, the proposed wellbore will penetrate ~10 ft of hemipelagic clay drape then ~8 ft of clay-rich mass transport deposits (Figure W-9). Below this interval, about 130 ft of stratified clays and silts with occasional thin clay-rich mass transport deposits are imaged on the SBP data. The penetration limit of the SBP data is at 148 ft BML. On the 3-D seismic data, the sediments between the seafloor and Horizon 10 appear as hemipelagic drape overlying stratified silt and clay turbidites and basal silt and clay mass transit deposits to the depth of 172 ft BML (Figure W-10).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-12).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 10 to Horizon 20. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-10). Sediments within this sequence are expected to consist of silt- and clay-dominated turbidite deposits with possible sands (Figure W-10). This sequence is 213 ft thick and Horizon 20 is mapped at 385 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-12).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 20 to Horizon 30. The sequence between Horizon 20 and Horizon 30 at the proposed well location consists of low-amplitude, chaotic to discontinuous reflectors interpreted to represent fine-grained debris flows and other mass transport deposits (Figure W-10). The sediments are expected to be clay and silt dominated turbidite deposits with possible sands. The sequence is 316 ft thick, and Horizon 30 is expected to be encountered 701 ft BML.

There are no amplitude anomalies within 500 ft of the proposed wellbore within this unit (Map W-12).

There is a ***Low*** potential for gas hydrates, a ***Negligible*** potential for shallow gas, and a ***Negligible*** potential for SWF within this sequence.

Horizon 30 to Top of Salt. The sequence between Horizon 30 and top of salt at the proposed well location consists of an upper sub-unit (161 ft thick) of moderate-amplitude, continuous to discontinuous reflectors overlying a lower sub-unit of low-amplitude discontinuous to chaotic reflectors. The upper sub-unit is interpreted to represent silt- and clay-dominated mass transport deposits (Figure W-10). The sediments of the lower sub-unit (1,039 ft thick) are expected to be silt and clay dominated mass transport deposits with possible thin sands becoming silt and sand rich near the base. The overall sequence is 1,200 ft thick and the top of salt is expected to be at 1,901 ft BML (Figure W-10).

There are no amplitude anomalies within 500 ft of the proposed wellbore within this sequence (Map W-12).

A buried fault will be encountered within this sequence at approximately 1,198 ft BML.

The base of the gas hydrate stability zone (BGHSZ) at this water depth is estimated to be 1,654 ft BML based on Maekawa et al. (1995).

There is a ***Low*** potential for gas hydrates in this sequence from Horizon 30 at 701 ft BML to the base of the gas hydrate stability zone (BGHSZ) at 1,654 ft BML. There is a ***Negligible*** potential for gas hydrates from the base of the gas hydrate stability zone (BGHSZ) at 1,654 ft BML to the top of salt at 1,901 ft BML. There is a ***Low*** potential for shallow gas and a ***Low*** potential for SWF from Horizon 30 at 701 ft BML to the Interface at 862 ft BML. A ***Negligible*** potential for shallow gas and a ***Negligible*** potential for SWF are assessed from the Interface at 862 ft BML to the top of salt at 1,901 ft BML within this sequence.

Attachment A

From: Eric Zimmermann ericz@llog.com
Sent: Friday, July 24, 2020 10:10 AM
To: Bill Berger III bill@b-geo.com
Cc: Ryan Murphy <rmurphy@beaconoffshore.com>; Jaime Mata jaimem@llog.com
Subject: Monarch Area - GC 944

Bill,

I hope all is well and that you and your family is managing through all of this well.

We have transacted with Beacon to take over the Monarch Prospect area in and around GC 944. Please take this as an indication that LLOG grants permission to work with Beacon to transition the Shallow Hazards in this area.

Ryan indicates that they have the same data that we do in the area, so that should not be a problem. This however does not constitute a release of the data to Beacon.

LLOG would require sending to Beacon the input data specs that we sent to Berger and subsequently having Beacon providing to Berger a release of the data directly from Western. Beacon is not allowed permission to any data beyond which they represent ownership directly from Western.

If there are any questions, please let me know.

All the best,

Eric

References

Berger Geosciences, (Berger) LLC., 2020. *Shallow Hazards Assessment and Benthic Communities Evaluation, Blocks 993, 944, and 987 (Lease Nos. G36060, G36061, and G36039), Green Canyon Area, Gulf of Mexico.* Project Number 19-07-27. April 24, 2020.

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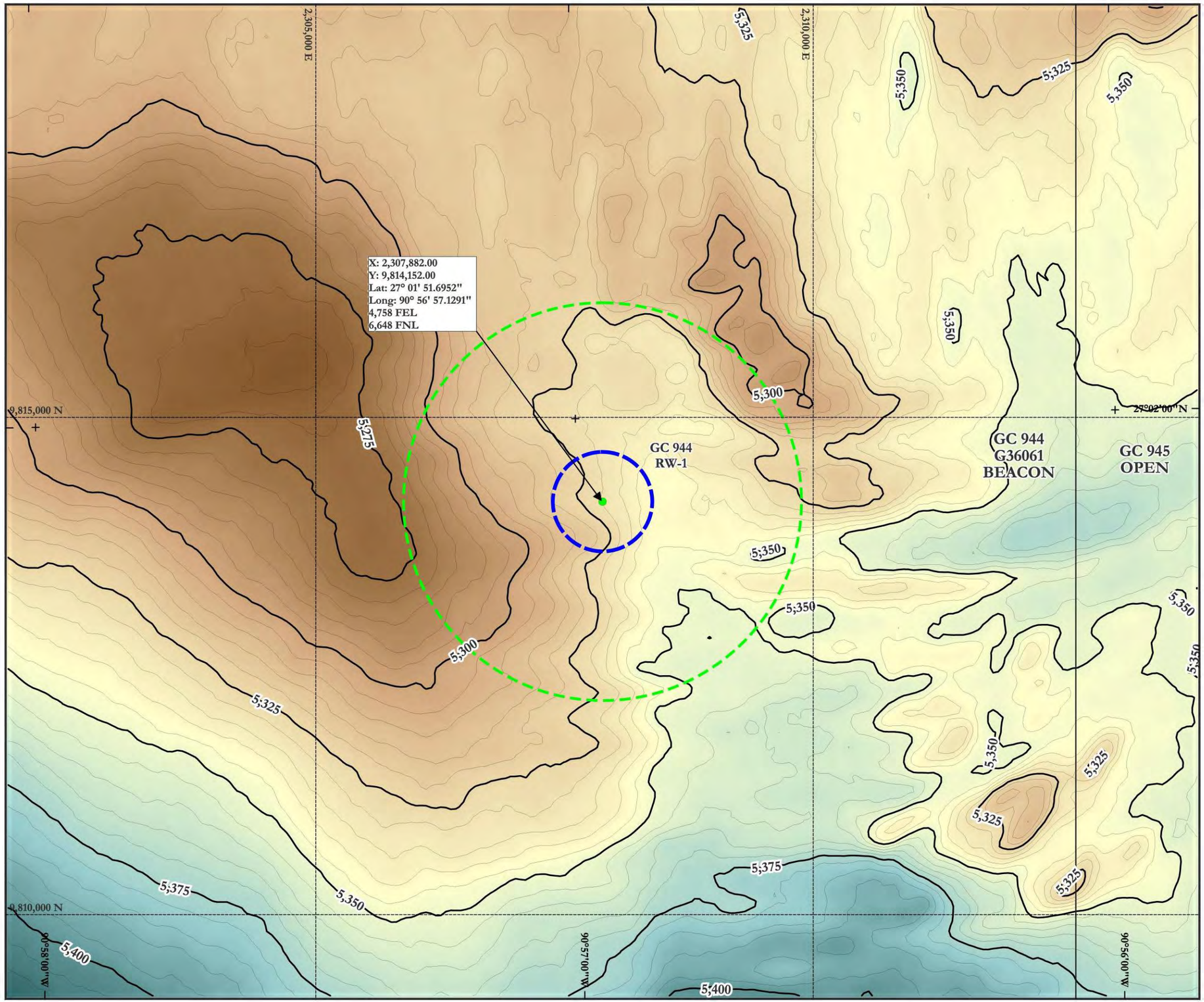


Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 5-ft Contour
- 25-ft Contour

Depth (Below Sea Level)
5,262 ft
5,414 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

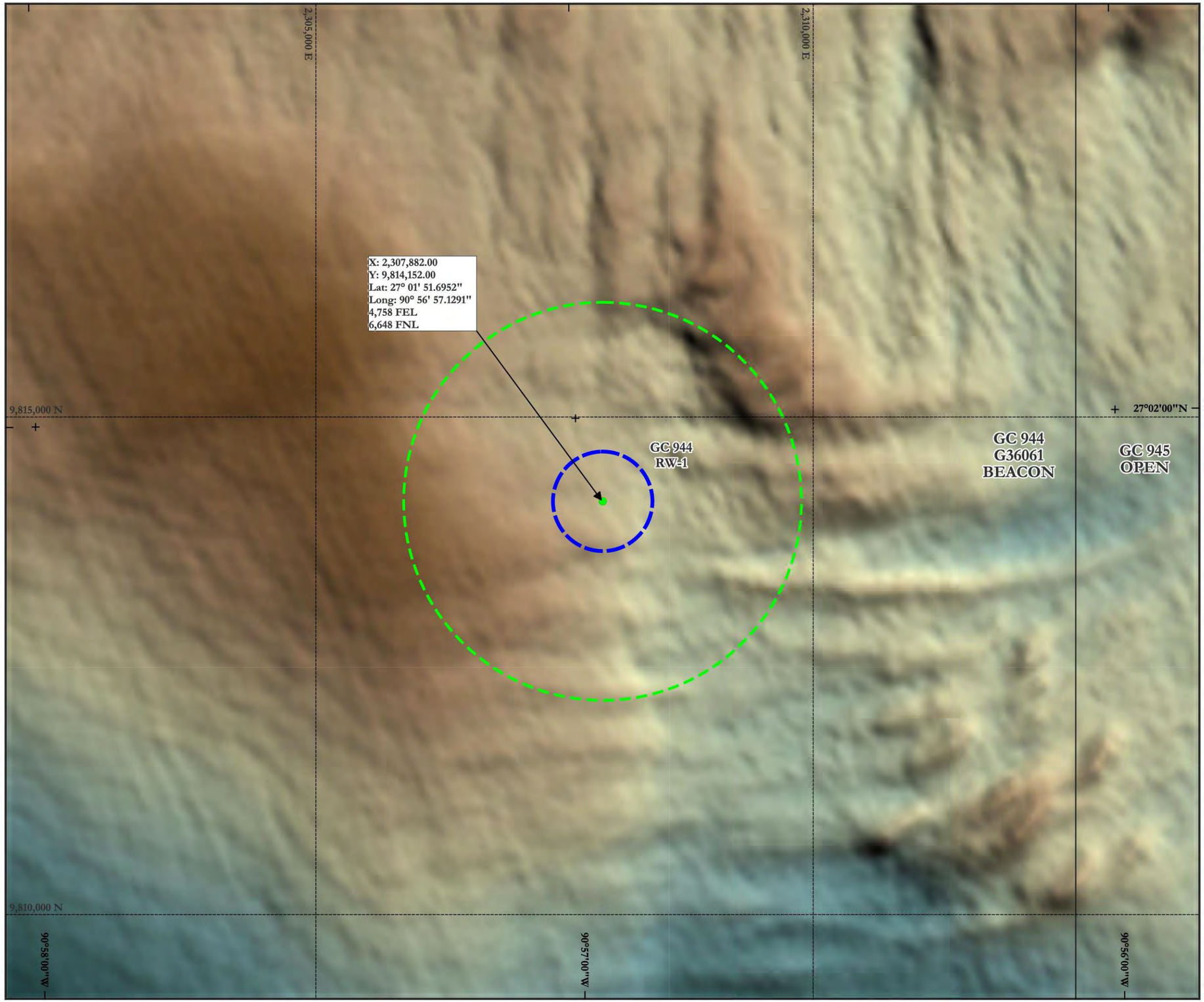
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-1
Bathymetry
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius

Depth (Below Sea Level)
5,262 ft
5,414 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

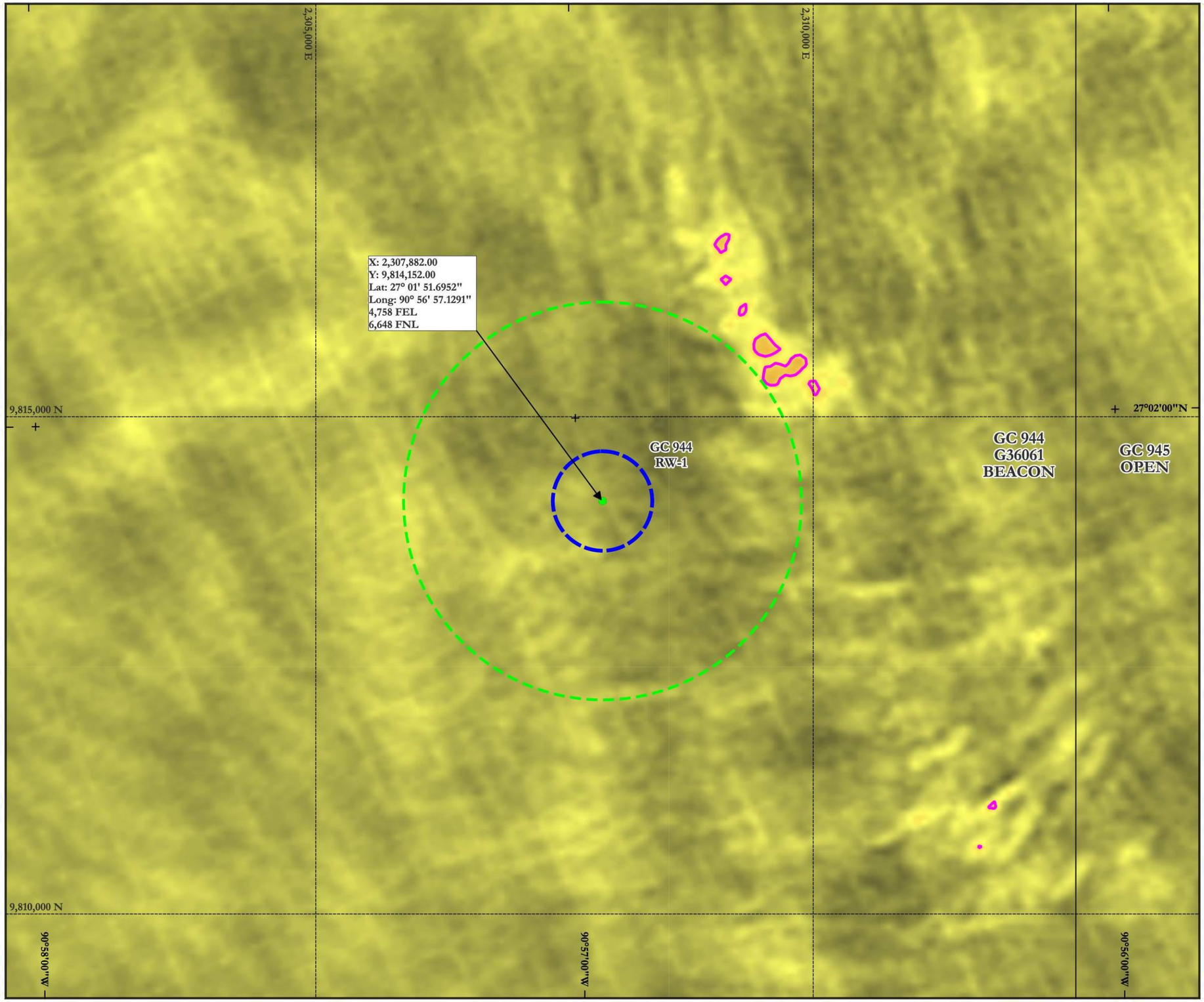
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-2
Seafloor Rendering
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude (Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-3
Seafloor Amplitude Rendering
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

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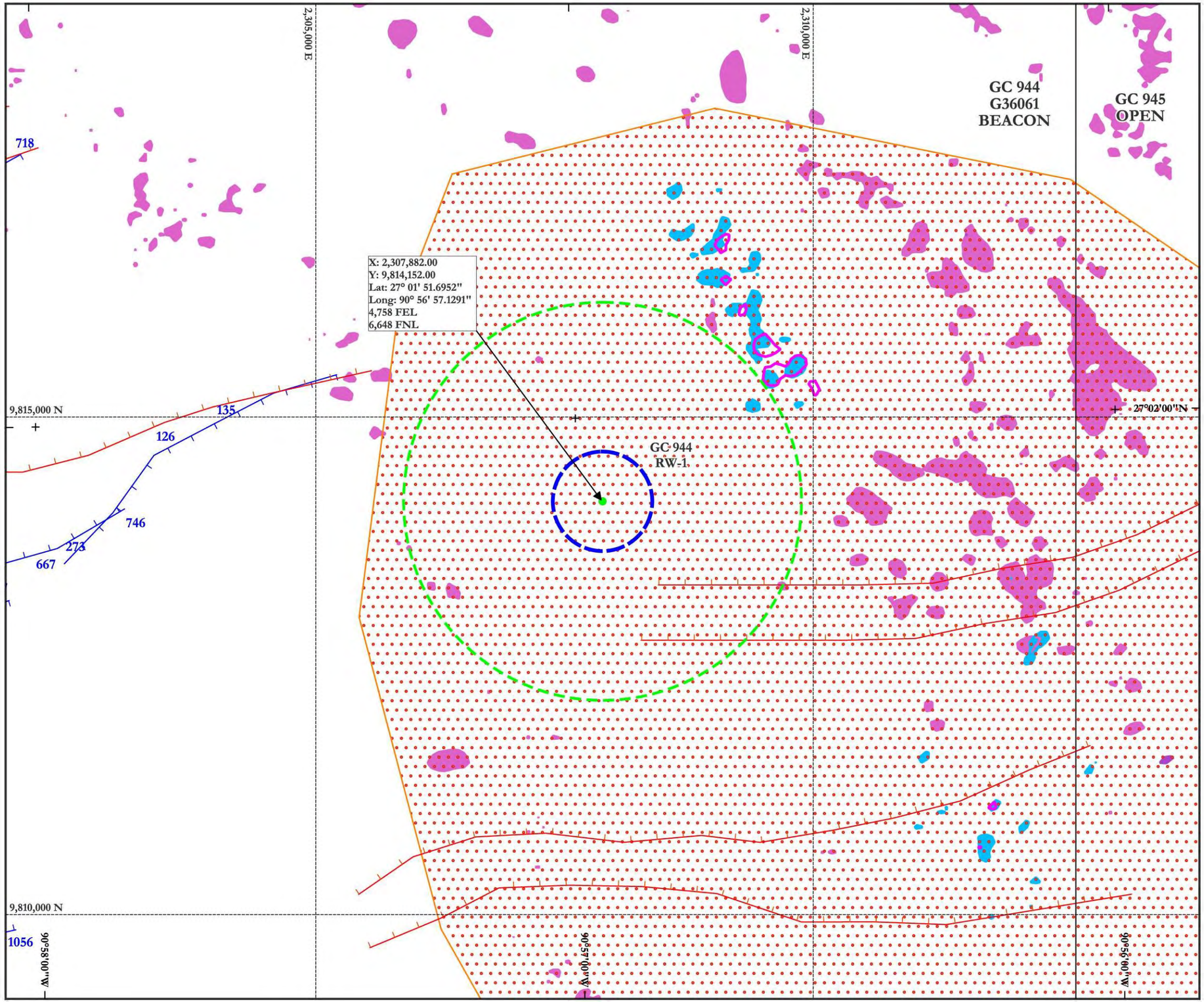


Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents dowthrown side)
- Area of Numerous Faults

3-D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

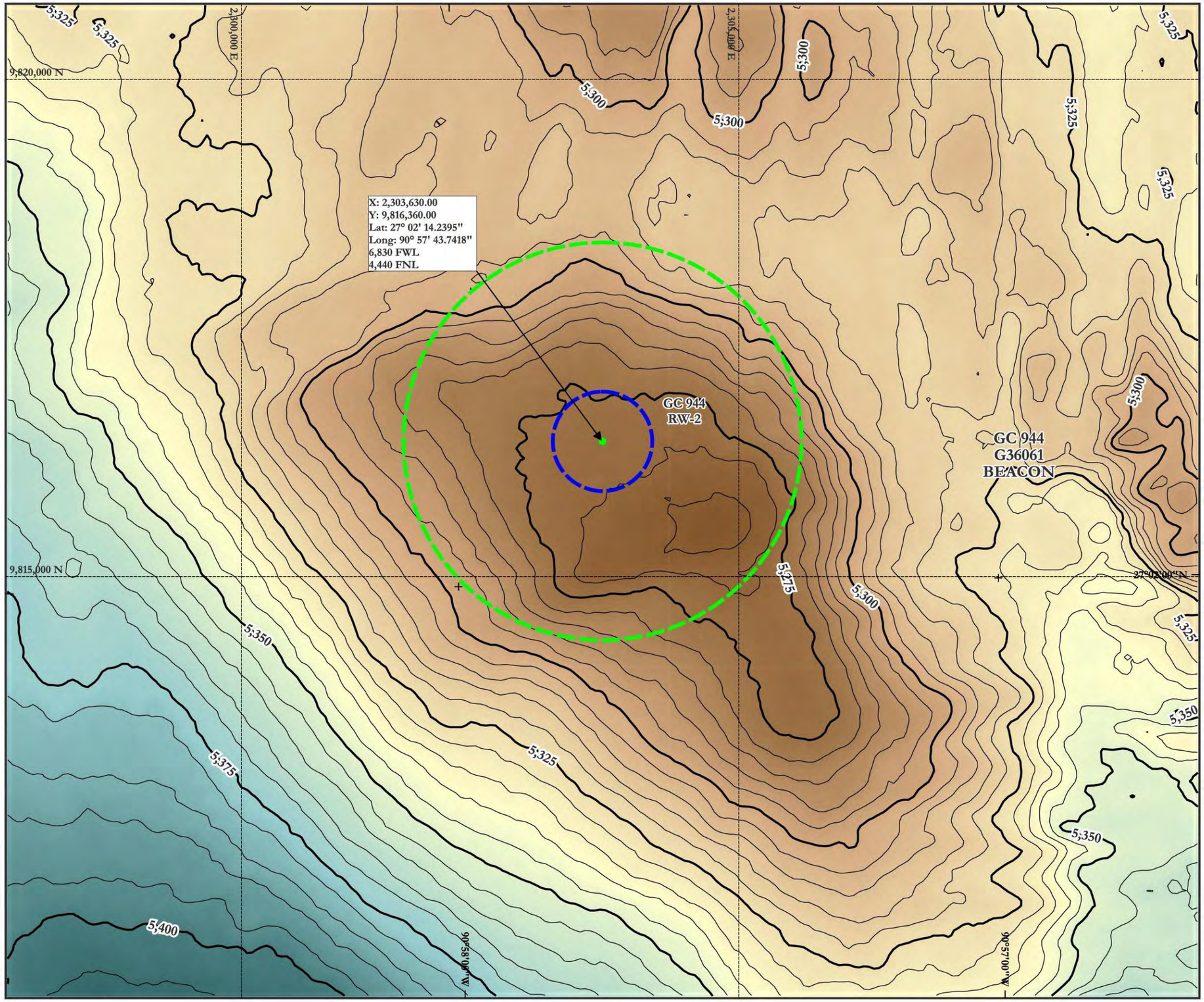
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-4
Geologic Features
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 5-ft Contour
- 25-ft Contour

Depth (Below Sea Level)
5,262 ft
5,407 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

****IMPORTANT NOTICE****
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-5
Bathymetry
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

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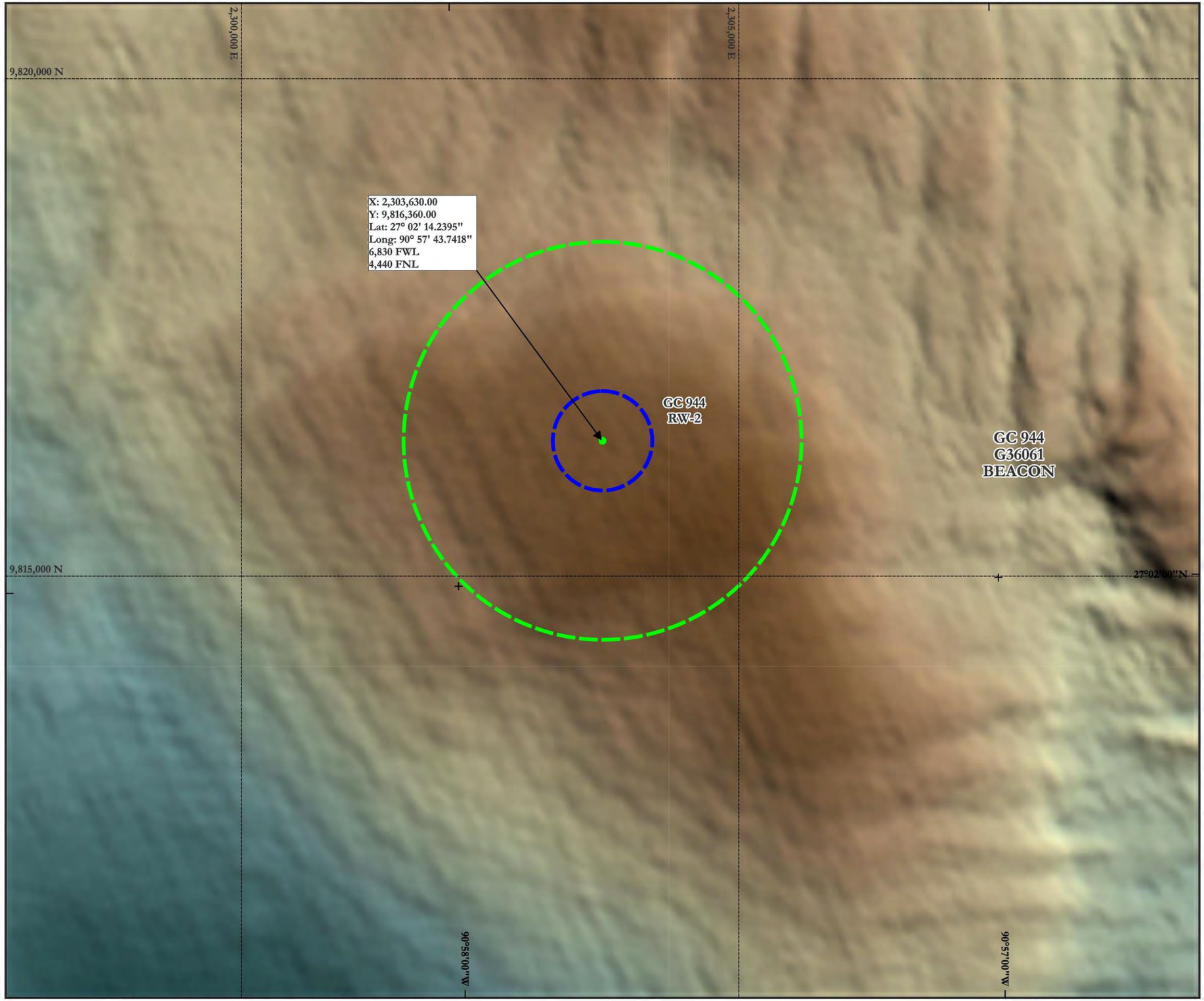

Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius

Depth
(Below Sea Level)
5,262 ft
5,407 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-6
Seafloor Rendering
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

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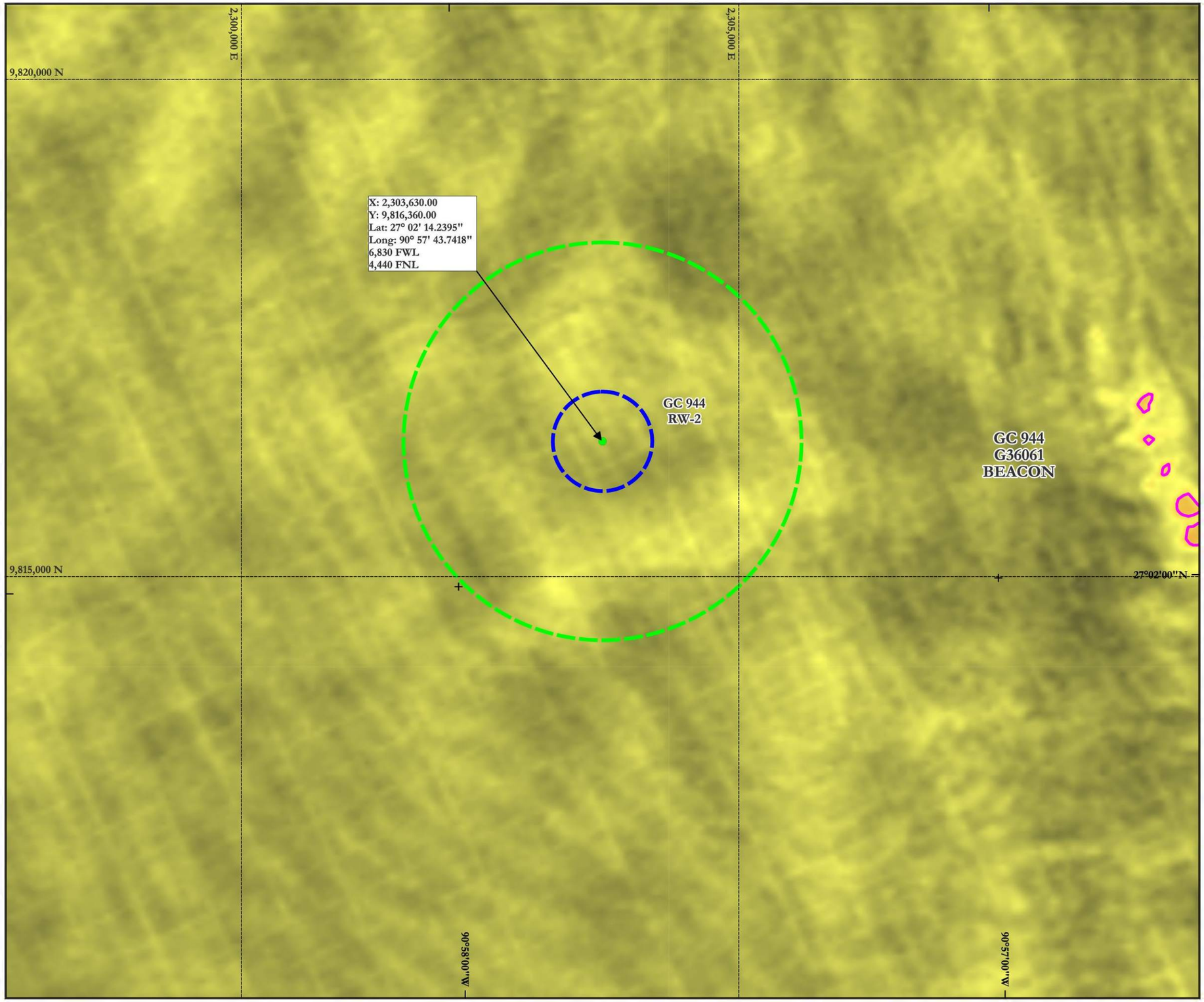


Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude (Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

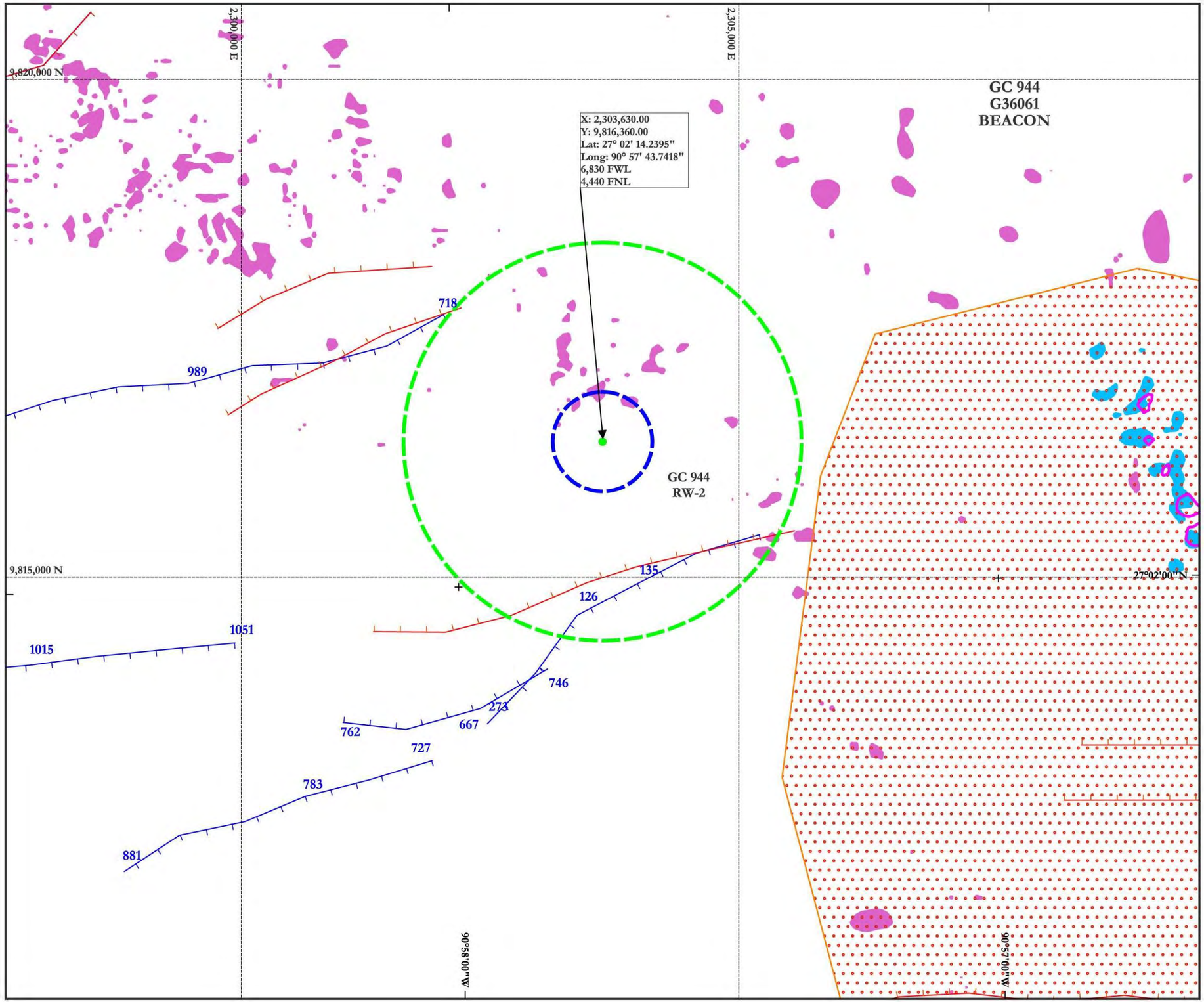
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-7
Seafloor Amplitude Rendering
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents dowthrown side)
- Area of Numerous Faults

3-D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-8
Geologic Features
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

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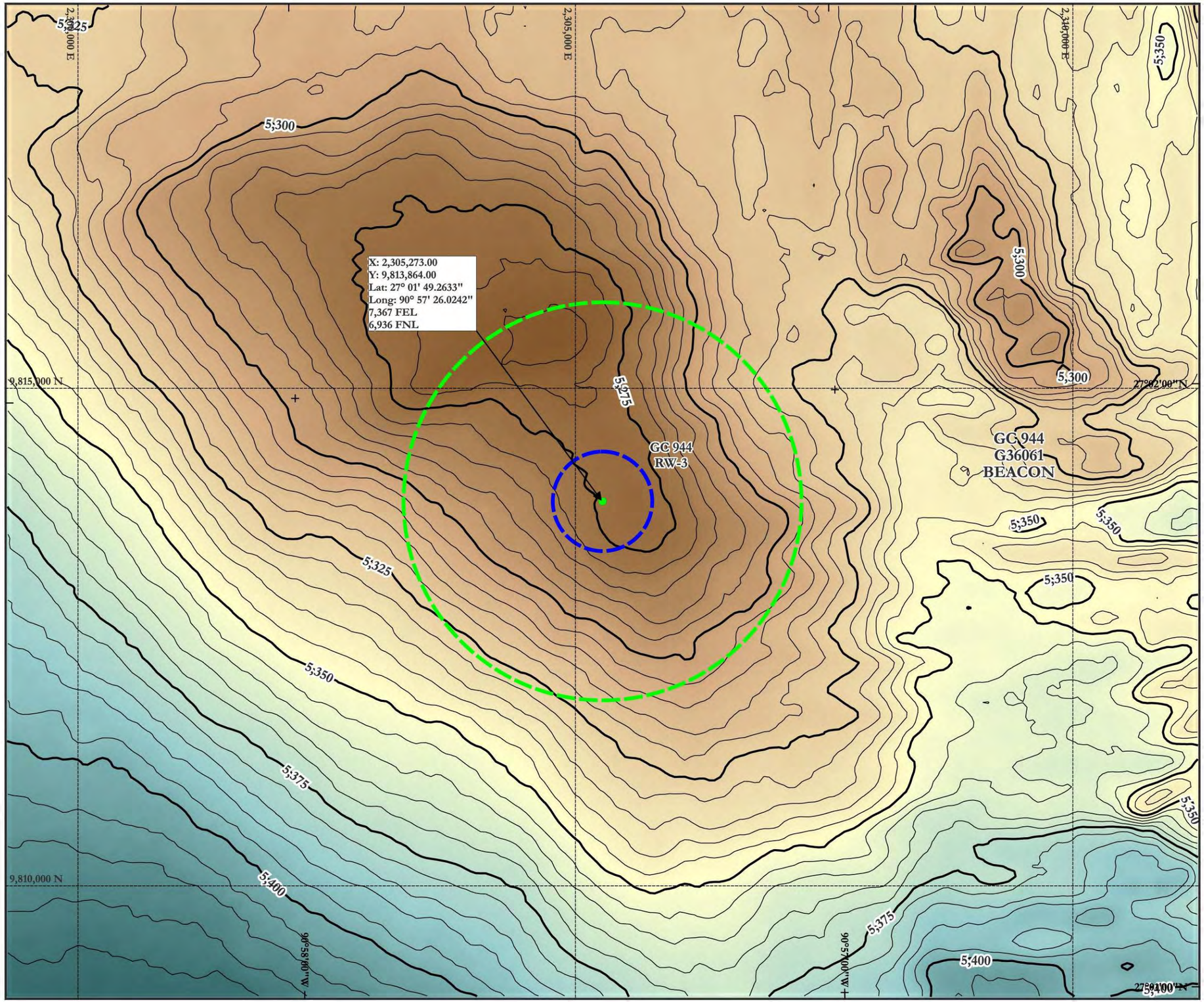


Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 5-ft Contour
- 25-ft Contour

Depth (Below Sea Level)
5,262 ft
5,424 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

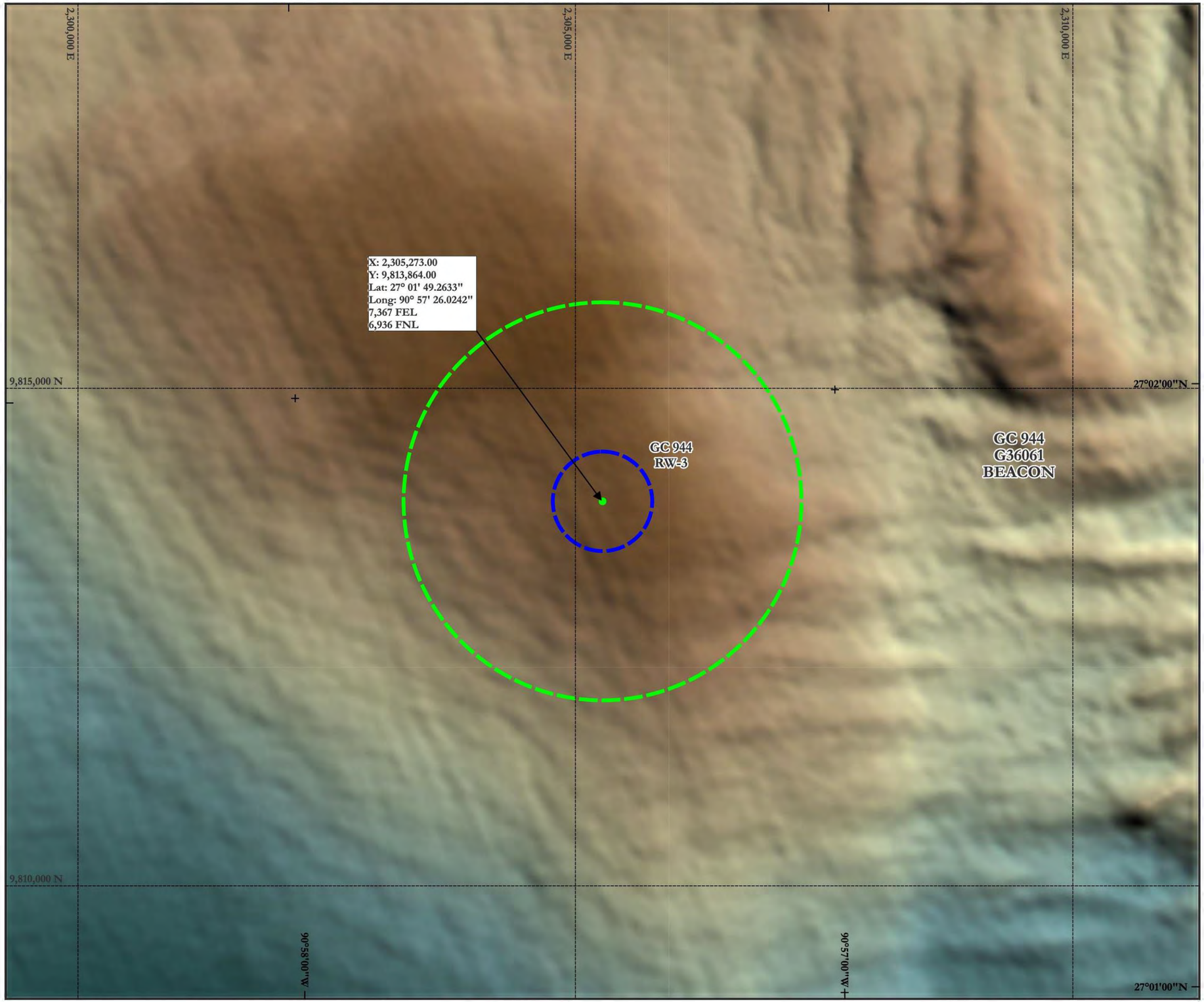
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-9
Bathymetry
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius

Depth (Below Sea Level)
5,262 ft
5,424 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

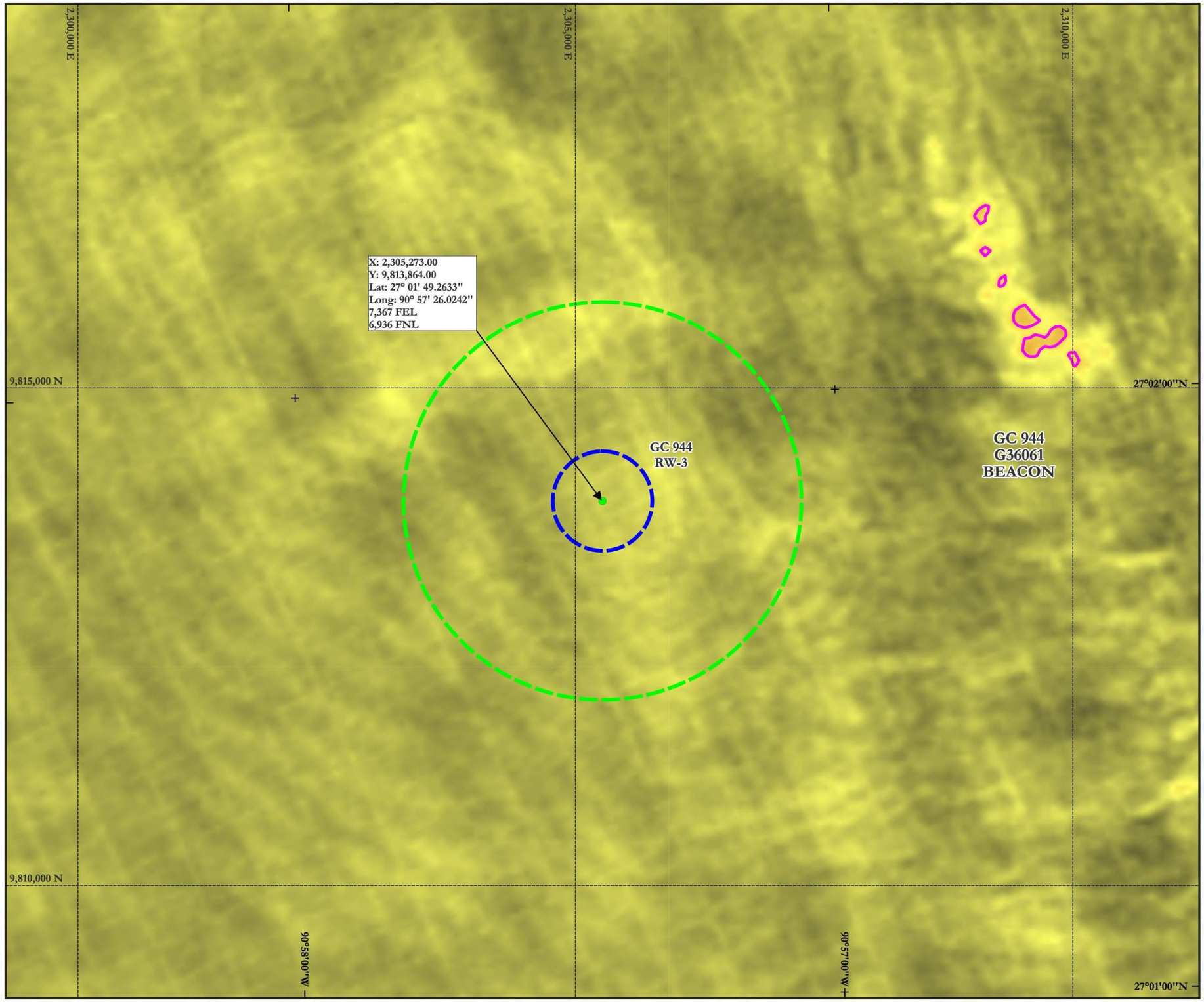
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-10
Seafloor Rendering
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude (Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

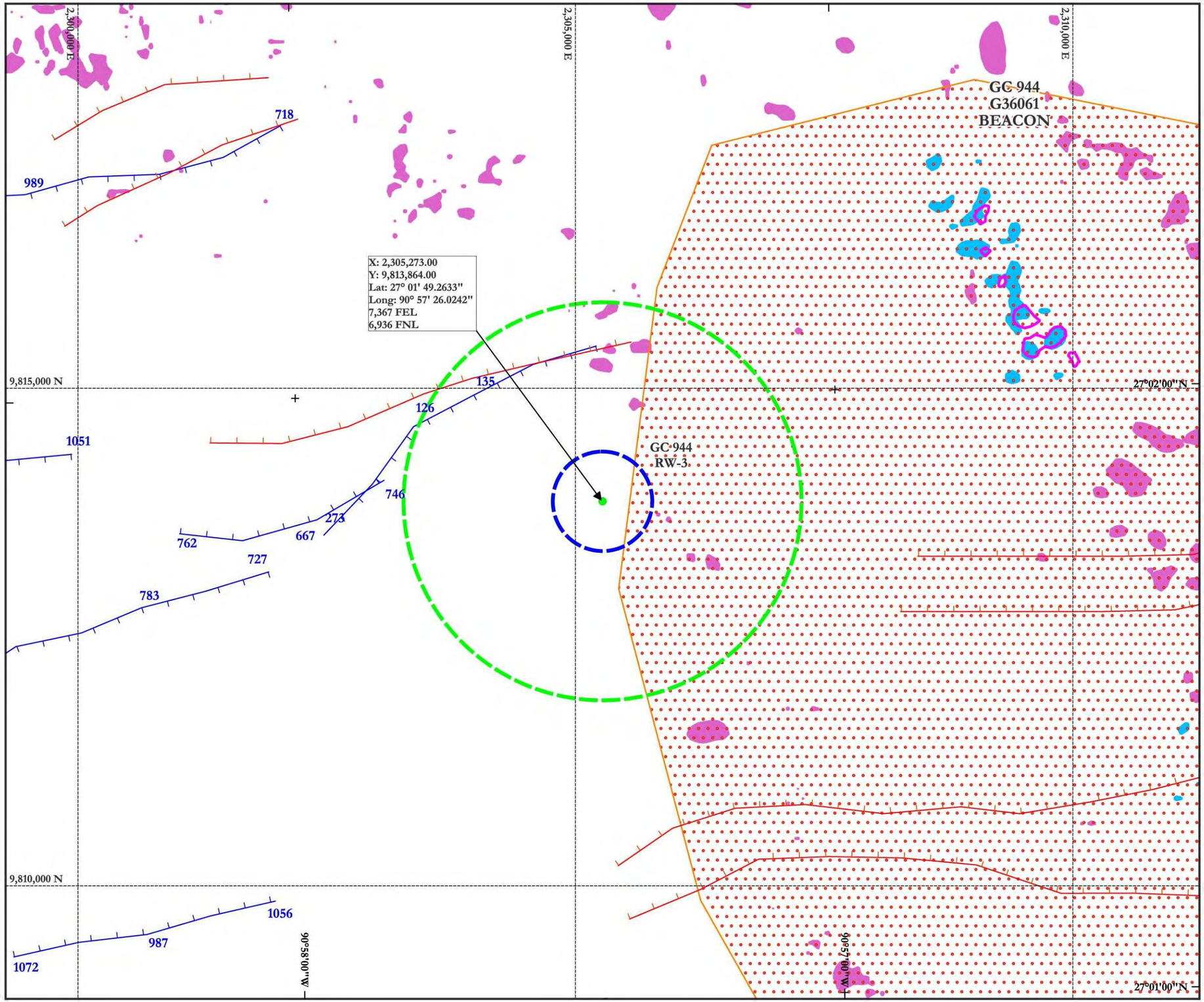
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-11
Seafloor Amplitude Rendering
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents dowthrown side)
- Area of Numerous Faults

3-D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-12
Geologic Features
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo

APPENDIX D
HYDROGEN SULFIDE INFORMATION

A) CONCENTRATION
In accordance with NTL 2008-G04, this information is not applicable as BOE Exploration & Production does not anticipate encountering any H2S while conducting the activities proposed in this plan.

B) CLASSIFICATION
In accordance with 30 CFR 250.490(c), BOE Exploration & Production is requesting the subject area and block, and lease(s), respectively be classified as an area where H2S is absent. This is based upon information from the well(s) listed in the table below.

PROPRIETARY INFORMATION

C) H2S CONTINGENCY PLAN
In accordance with NTL 2008-G04, this information is not applicable as BOE Exploration & Production does not anticipate encountering H2S while conducting the activities proposed in this plan.

D) MODELING REPORT
In accordance with NTL 2008-G04, a modeling report is not included in the attachments for this appendix as BOE Exploration & Production does not anticipate encountering H2S in concentrations greater than 500 ppm.

APPENDIX E
MINERAL RESOURCE CONSERVATION INFORMATION

A) TECHNOLOGY & RESERVOIR ENGINEERING PRACTICES & PROCEDURES
PROPRIETARY INFORMATION

B) TECHNOLOGY & RECOVERY PRACTICES & PROCEDURES
PROPRIETARY INFORMATION

C) RESERVOIR DEVELOPMENT
PROPRIETARY INFORMATION

APPENDIX F
BIOLOGICAL, PHYSICAL, & SOCIOECONOMIC INFORMATION

A) HIGH-DENSITY DEEPWATER BENTHIC COMMUNITIES INFORMATION

The activities proposed in this plan could disturb seafloor areas in water depths or 984 feet or greater.

Individual summaries of high-density deepwater benthic community analysis for well locations indicated in this plan is included below.

Green Canyon 944 Well Location WB001 / WB001-Alt

No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location. There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location. There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well. Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of the proposed location.

Green Canyon 944 Well Location WB002 / WB002-Alt

No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location. There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location. There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well. Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of the proposed location.

Green Canyon 944 Well Location RW001 / RW001-Alt

No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location. There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location. There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well. Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of the proposed location.

Green Canyon 944 Well Location RW002 / RW002-Alt

No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location. There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location. There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well. Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of the proposed location.

Green Canyon 944 Well Location RW003 RW003-Alt
No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the proposed well location. There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the proposed well location. There are no BSRs or other seismic indicators of gas hydrates within 2,000 ft of the proposed well. Features or areas that could support high-density chemosynthetic or other benthic communities are not anticipated within 2,000 ft of the proposed location.

Maps depicting wellsite-specific seafloor features for newly proposed well locations indicated in this plan are included in the attachments to this appendix.

B) TOPOGRAPHIC FEATURES MAP
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as no rig, barge or anchors, etc. will be placed within 1,000 feet of the "No Activity Zone" of an identified topographic feature.

C) TOPOGRAPHIC FEATURES STATEMENT (SHUNTING)
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as BOE Exploration & Production is not proposing to drill more than two wells from the same surface location.

D) LIVE BOTTOM (PINNACLE TREND) MAP
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the Live Bottom (Pinnacle Trend) lease stipulation is not attached to the subject lease(s).

E) LIVE BOTTOM (LOW RELIEF) MAP
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the Live Bottom (Low Relief) lease stipulation is not attached to the subject lease(s).

F) POTENTIALLY SENSITIVE BIOLOGICAL FEATURES
In accordance with NTL 2009-G39. this information is not applicable to the activities proposed in this plan as the bottom-disturbing activities are not within 100 feet of potentially sensitive biological features.

G) THREATENED & ENDANGERED SPECIES, CRITICAL HABITAT, & MARINE MAMMAL INFORMATION
The subject area(s) and block(s) is not designated as a critical habitat for any federally listed threated or endangered species. BOE Exploration & Production does not anticipate that any threatened or endangered species will be adversely affected as a result of the activities proposed in this plan. However, in the unlikely event of an accident, adverse impacts to endangered marine mammal species are possible.

In monitoring the effect of the proposed activities on marine life, BOE Exploration & Production will adhere to the information and guidelines set forth by NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination" and NTL BOEM 2016-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting" and will follow guidance resulting from the Programmatic Biological Opinion on Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico.

A list of endangered and threatened species and critical habitats found in the Gulf of Mexico is included in the attachments to this appendix.

H) ARCHAEOLOGICAL REPORT

An archaeological report incorporating Green Canyon 943 and Green Canyon 944 was submitted to BOEM in conjunction with plan control number N-10118 (Echo Offshore Project No. 19-042-41).

Pursuant to the public information in the NOAA Automated Wreck and Obstruction Information System and Navigational Charts (NOAA, 2023); there are no reported shipwrecks in GC 944.

I) AIR & WATER QUALITY INFORMATION

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the State of Florida is not an affected State.

J) SOCIOECONOMIC INFORMATION

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the State of Florida is not an affected State.

ENDANGERED AND THREATENED SPECIES IN THE GULF OF MEXICO

Threatened and Endangered Species List Gulf of Mexico

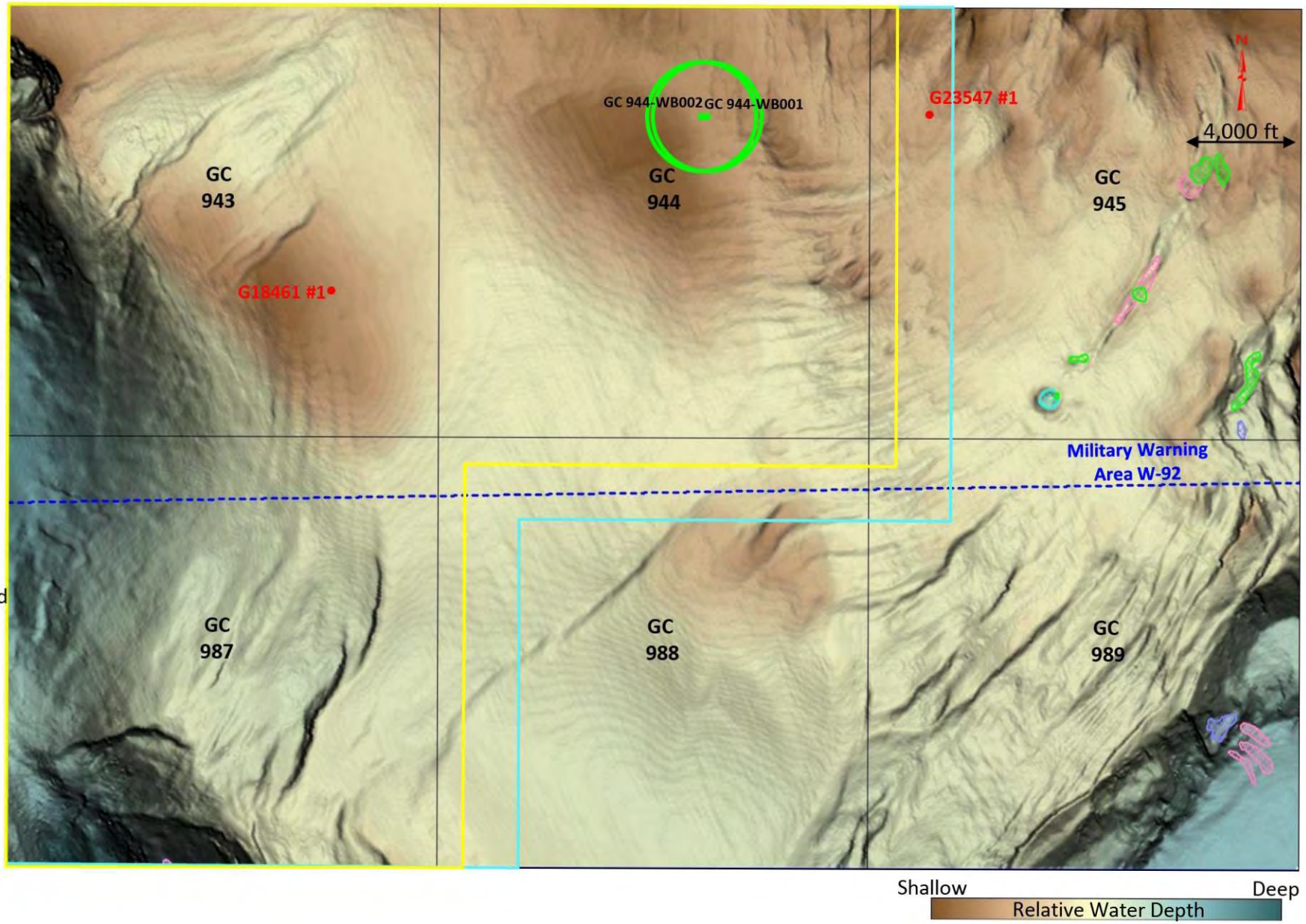
Threatened and Endangered Species and Critical Habitats Under NOAA Fisheries Jurisdiction

Species	Listing Status	Recovery Plan	Critical Habitat
Green sea turtle	Threatened - North Atlantic Distinct Population Segment (81 FR 20057; April 6, 2016)	October 1991	Proposed Rule (88 FR 46572; July 19, 2023). 63 FR 46693; September 2, 1998
Kemp's ridley sea turtle	Endangered (35 FR 18319; December 2, 1970)	September 2011	None
Leatherback sea turtle	Endangered (35 FR 8491; June 2, 1970)	April 1992	44 FR 17710; March 23, 1979
Loggerhead sea turtle	Threatened - Northwest Atlantic Ocean Distinct Population Segment (76 FR 58868; September 22, 2011)	December 2008	79 FR 39856; July 10, 2014
Hawksbill sea turtle	Endangered (35 FR 8491; June 2, 1970)	December 1993	63 FR 46693; September 2, 1998
Smalltooth sawfish	U.S. Distinct Population Segment Endangered (68 FR 15674; April 1, 2003)	January 2009	72 FR 45353; October 2, 2009

Species	Listing Status	Recovery Plan	Critical Habitat
Gulf sturgeon	Threatened (56 FR 49653; September 30, 1991)	September 1995	68 FR 13370; March 19, 2003
Nassau grouper	Threatened (81 FR 42268; June 29, 2016)	2018 Recovery Outline	Proposed Rule (87 FR 62930; October 17, 2022)
Oceanic whitetip shark	Threatened (83 FR 4153; January 30, 2018)	2018 Recovery Outline	None
Giant manta ray	Threatened (83 FR 2916; January 22, 2018)	December 2019	None
Queen conch	Proposed Threatened (87 FR 55200; September 8, 2022)	None	None
Elkhorn coral	Threatened (71 FR 26852; May 9, 2006)	March 2015	73 FR 72210; November 26, 2008
Staghorn coral	Threatened (71 FR 26852; May 9, 2006)	March 2015	73 FR 72210; November 26, 2008
Boulder star coral	Threatened (79 FR 53851; September 10, 2014)	None	88 FR 54026; August 09, 2023
Mountainous star coral	Threatened (79 FR 53851; September 10, 2014)	None	88 FR 54026; August 09, 2023
Lobed star coral	Threatened (79 FR 53851; September 10, 2014)	None	88 FR 54026; August 09, 2023
Rough cactus coral	Threatened (79 FR 53851; September 10, 2014)	None	88 FR 54026; August 09, 2023
Pillar coral	Proposed Endangered (88 FR 59494; August 29, 2023); Threatened (79 FR 53851; September 10, 2014)	None	88 FR 54026; August 09, 2023
Sperm whale	Endangered (35 FR 18319; December 2, 1970)	December 2010	None
Rice's whale	Endangered (84 FR 15446, April 15, 2019); Name Change (86 FR 47022; August 23, 2021)	September 2020 Recovery Outline	Proposed Rule (88 FR 47453, July 24, 2023)

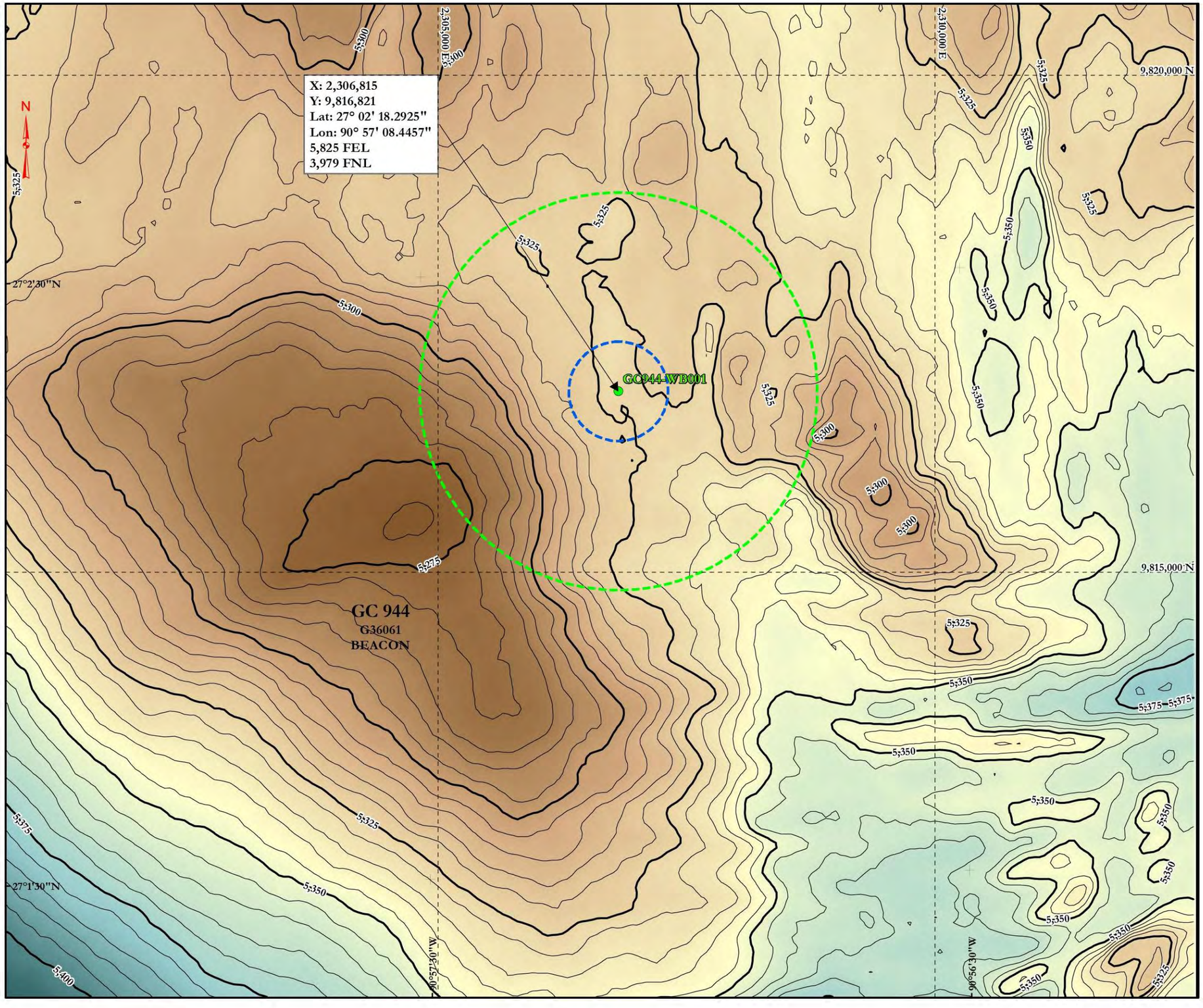
Last updated by Southeast Regional Office on September 20, 2023

WELLSITE-SPECIFIC SEAFLOOR FEATURES MAPS



Seafloor rendering showing proposed well locations

Figure W-1



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 5-ft Contours
- 25-ft Contours

Depths
(Below Sea Level)
5,268 ft
5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

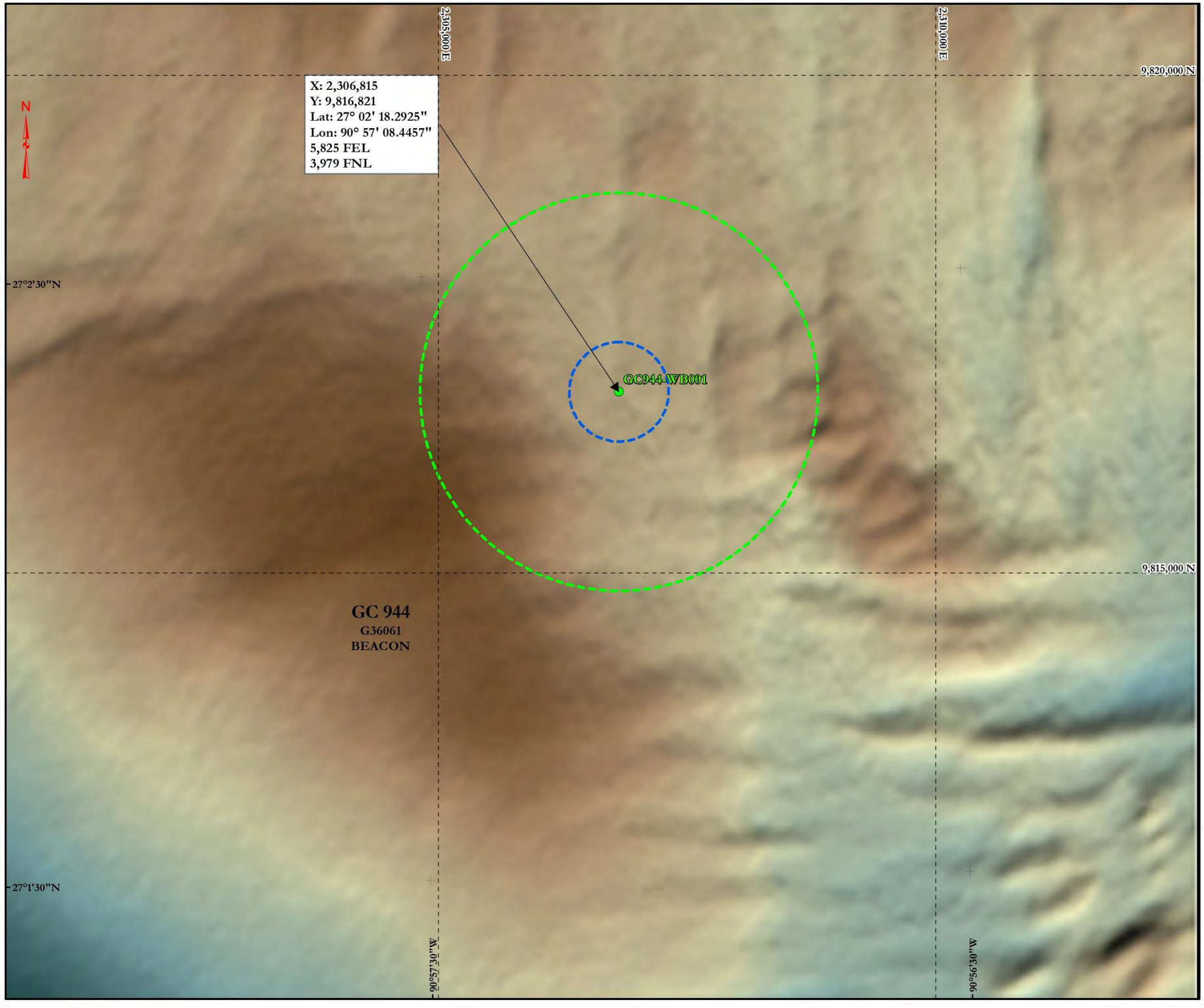
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-1
Bathymetry
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle

Depths
(Below Sea Level)
5,268 ft
5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 45°
Elevation : 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27
Projection: UTM
Zone: 15N
Grid Units: Feet

Interpretation By: P. Przybylski
Cartography: T. Nguyen
Project No.: 23-05-09
Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

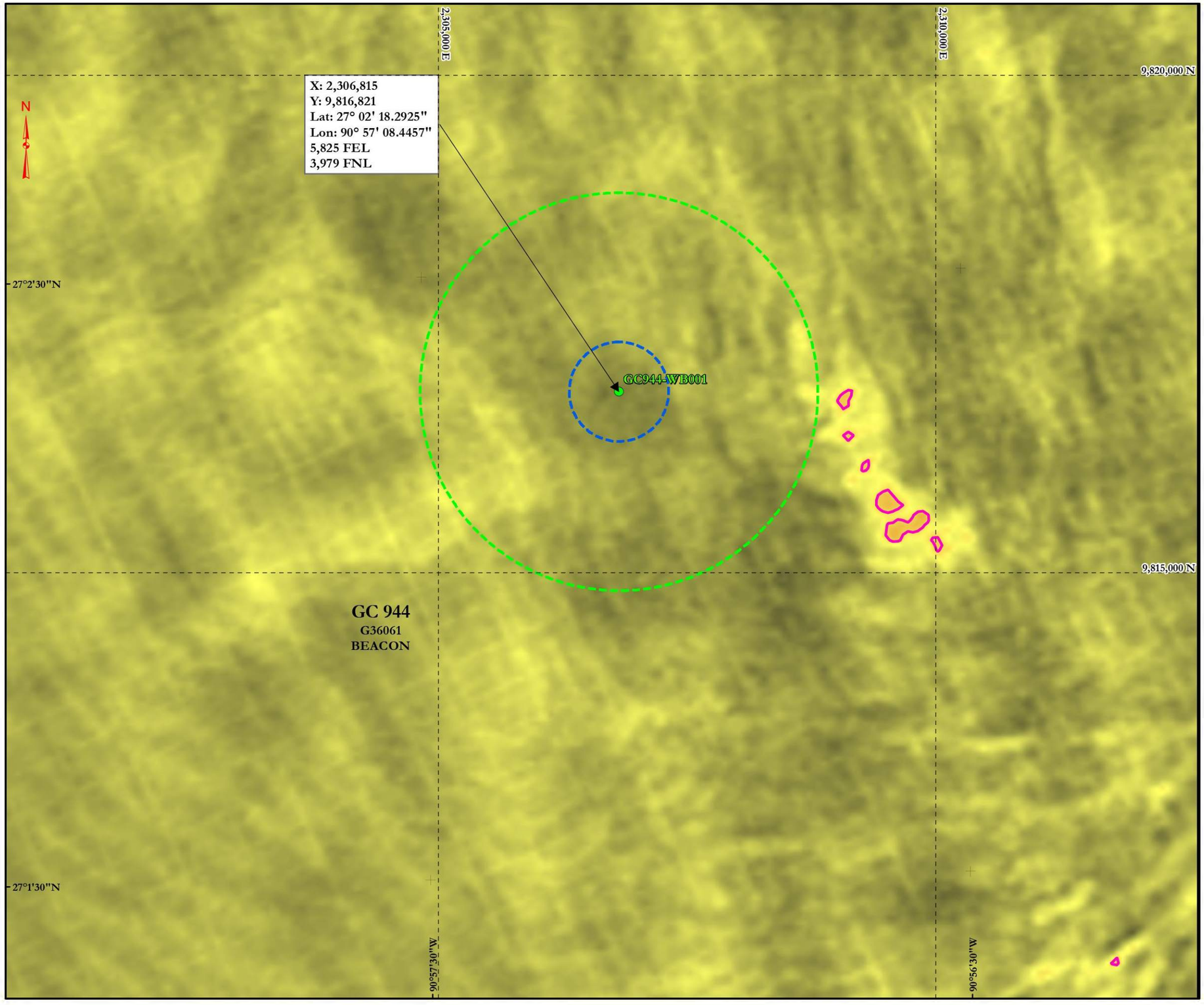
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-2
Seafloor Rendering
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude
(Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 80°
Elevation : 45°
Vertical Exaggeration: 5X

IMPORTANT NOTICE
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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27
Projection: UTM
Zone: 15N
Grid Units: Feet

Interpretation By: P. Przybylski
Cartography: T. Nguyen
Project No.: 23-05-09
Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

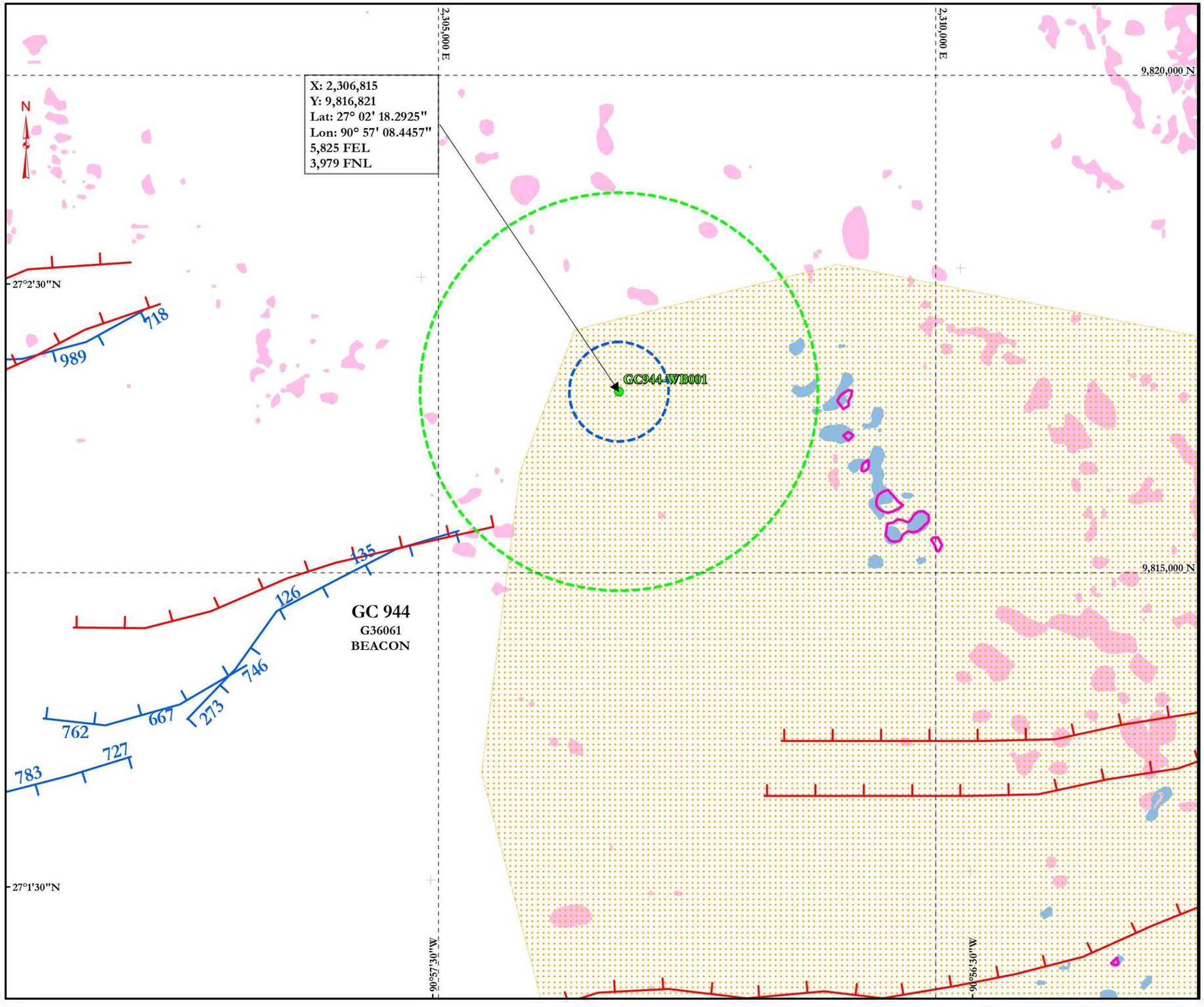
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-3
Seafloor Amplitude Rendering
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents downthrown side)
- Slump Scarp (teeth indicate slope direction)
- Area of Numerous Faults

3D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt or Limit of Investigation

IMPORTANT NOTICE
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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

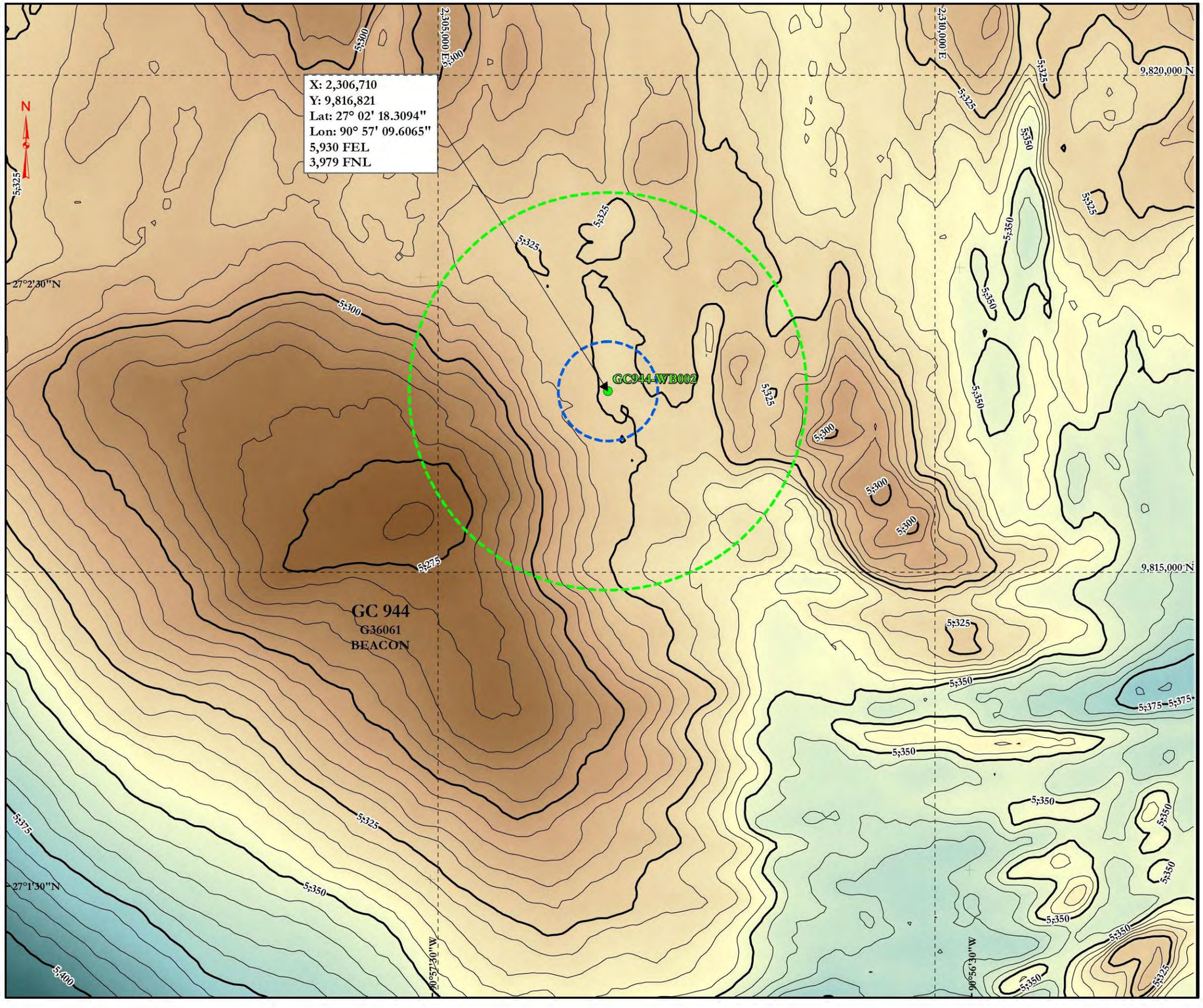
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-4
Geologic Features
Proposed Well GC 944-WB001
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 5-ft Contours
- 25-ft Contours

Depths
(Below Sea Level)
5,268 ft
5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

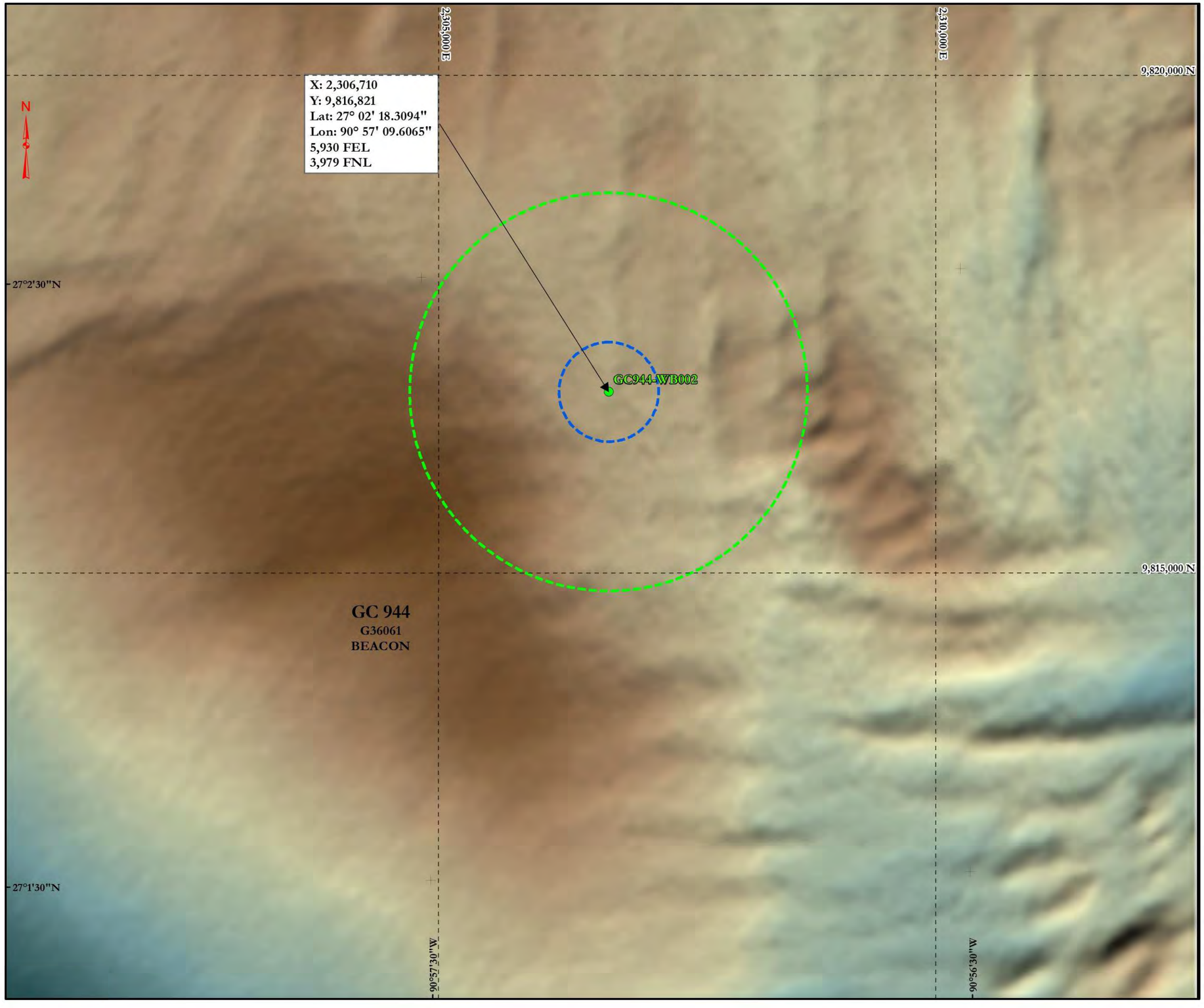
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-5
Bathymetry
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle

Depths
(Below Sea Level)

5,268 ft

5,410 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 45°
Elevation : 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27
Projection: UTM
Zone: 15N
Grid Units: Feet

Interpretation By: P. Przybylski
Cartography: T. Nguyen
Project No.: 23-05-09
Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

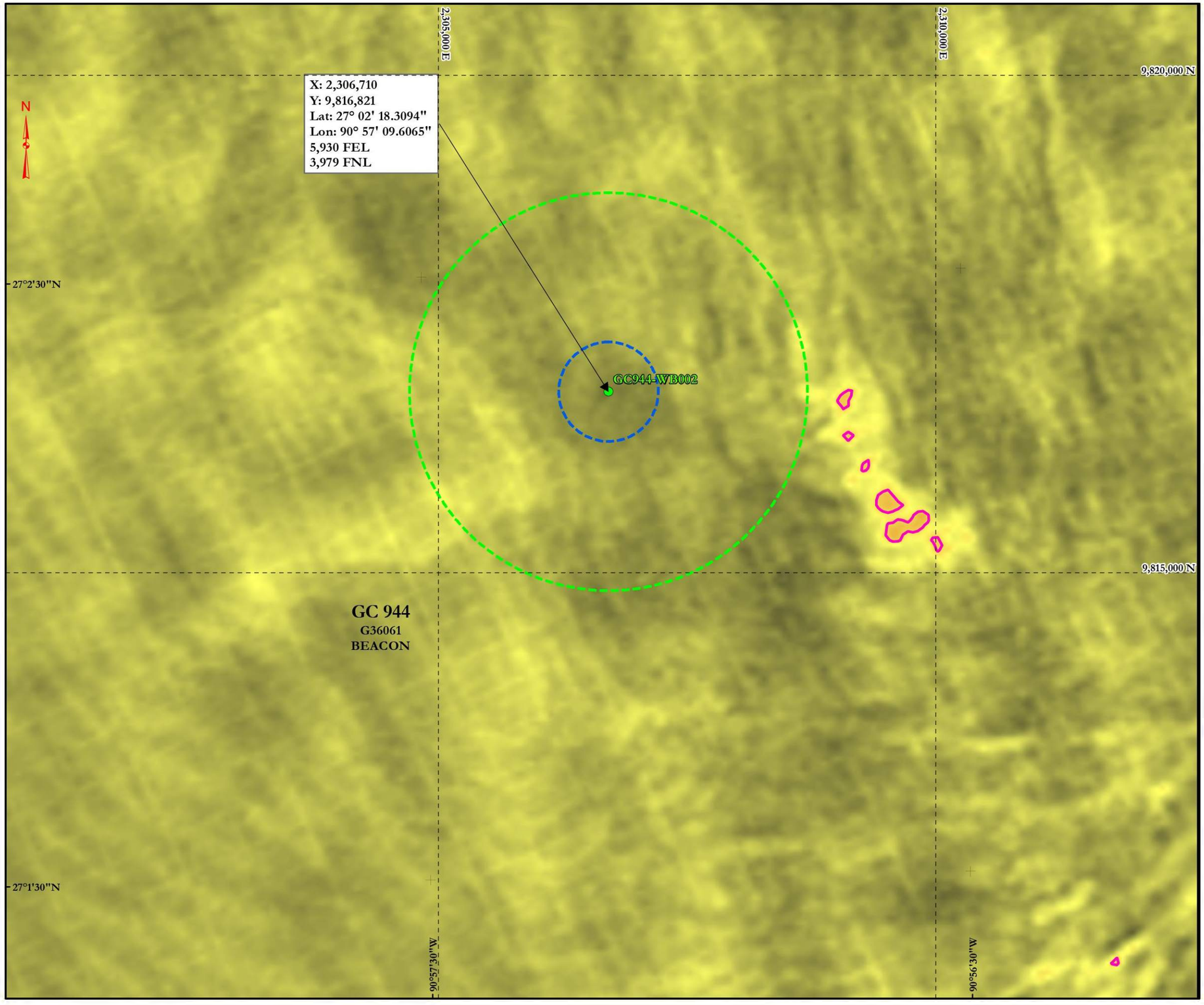
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-6
Seafloor Rendering
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude
(Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Illumination:
Azimuth: 80°
Elevation : 45°
Vertical Exaggeration: 5X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

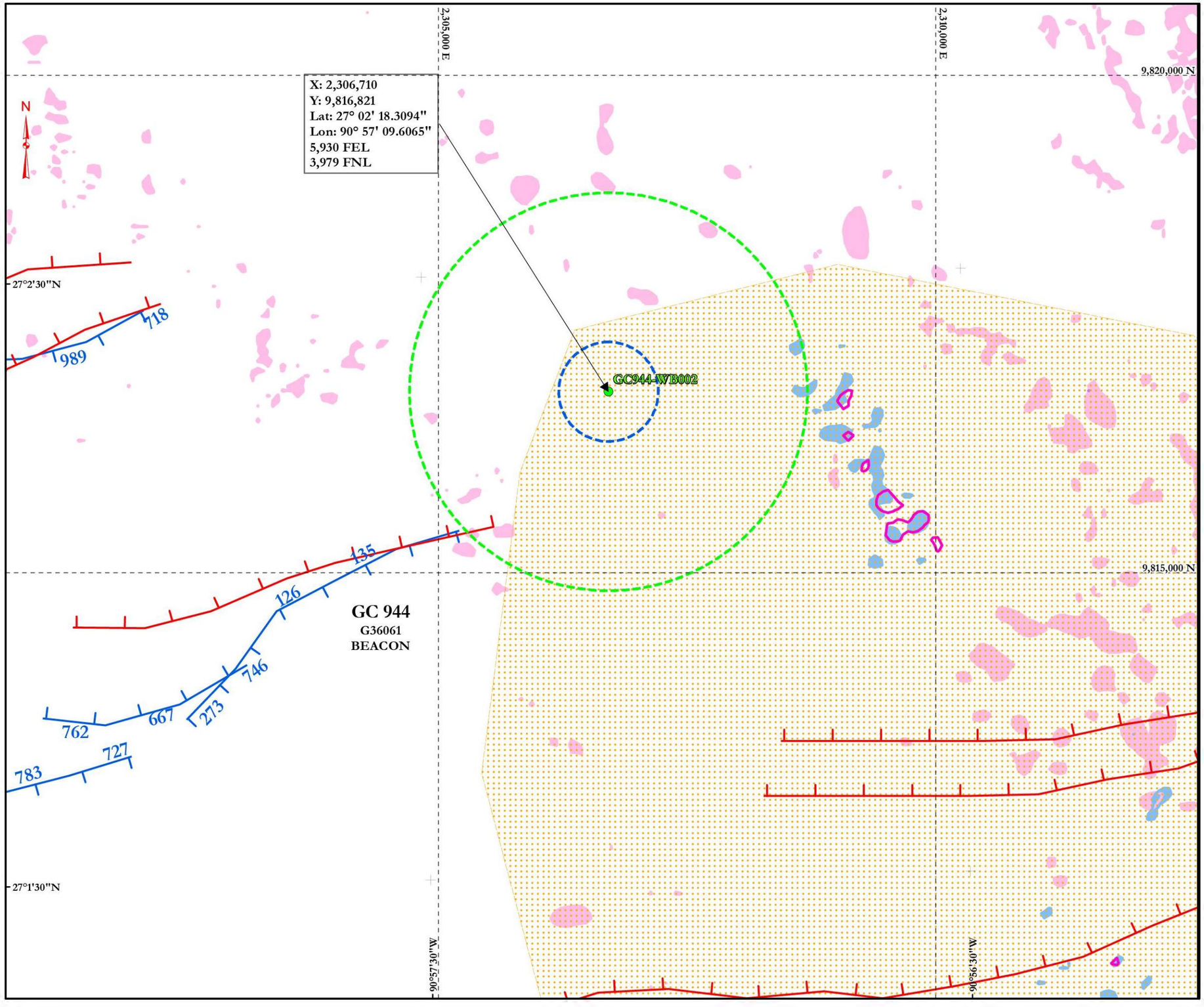
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-7
Seafloor Amplitude Rendering
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Grid Lines
- Proposed Well
- 500-ft Radius Circle
- 2,000-ft Radius Circle
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents downthrown side)
- Slump Scarp (teeth indicate slope direction)
- Area of Numerous Faults

3D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt or Limit of Investigation

IMPORTANT NOTICE
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Public information obtained from BOEM database (June 2023).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: P. Przybylski Cartography: T. Nguyen Project No.: 23-05-09 Date: June 2023

0 500 1,000 1,500 2,000 Feet

Scale = 1:12,000

BEACON OFFSHORE ENERGY

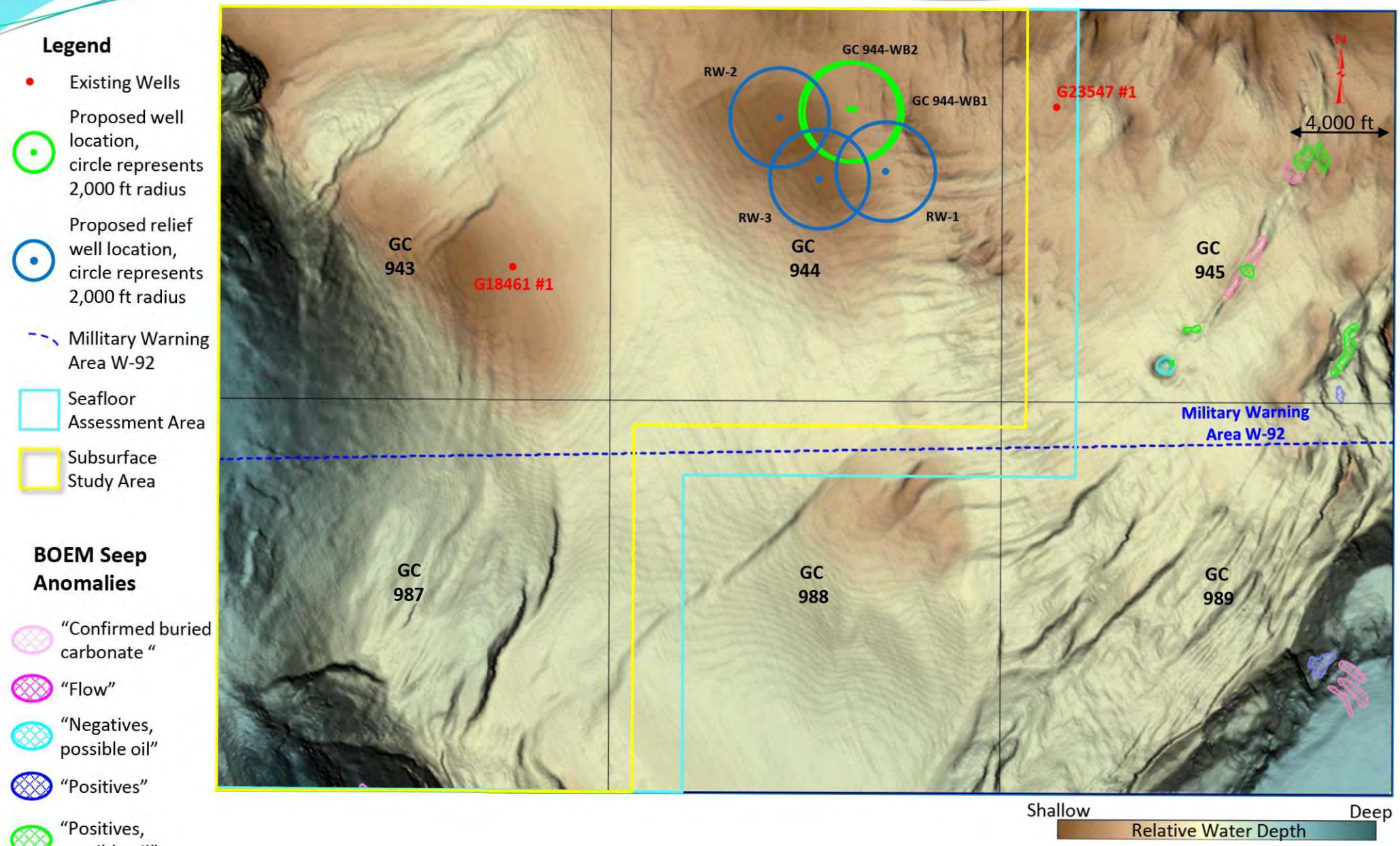
Block 944
Green Canyon Area
Gulf of Mexico

Map W-8
Geologic Features
Proposed Well GC 944-WB002
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

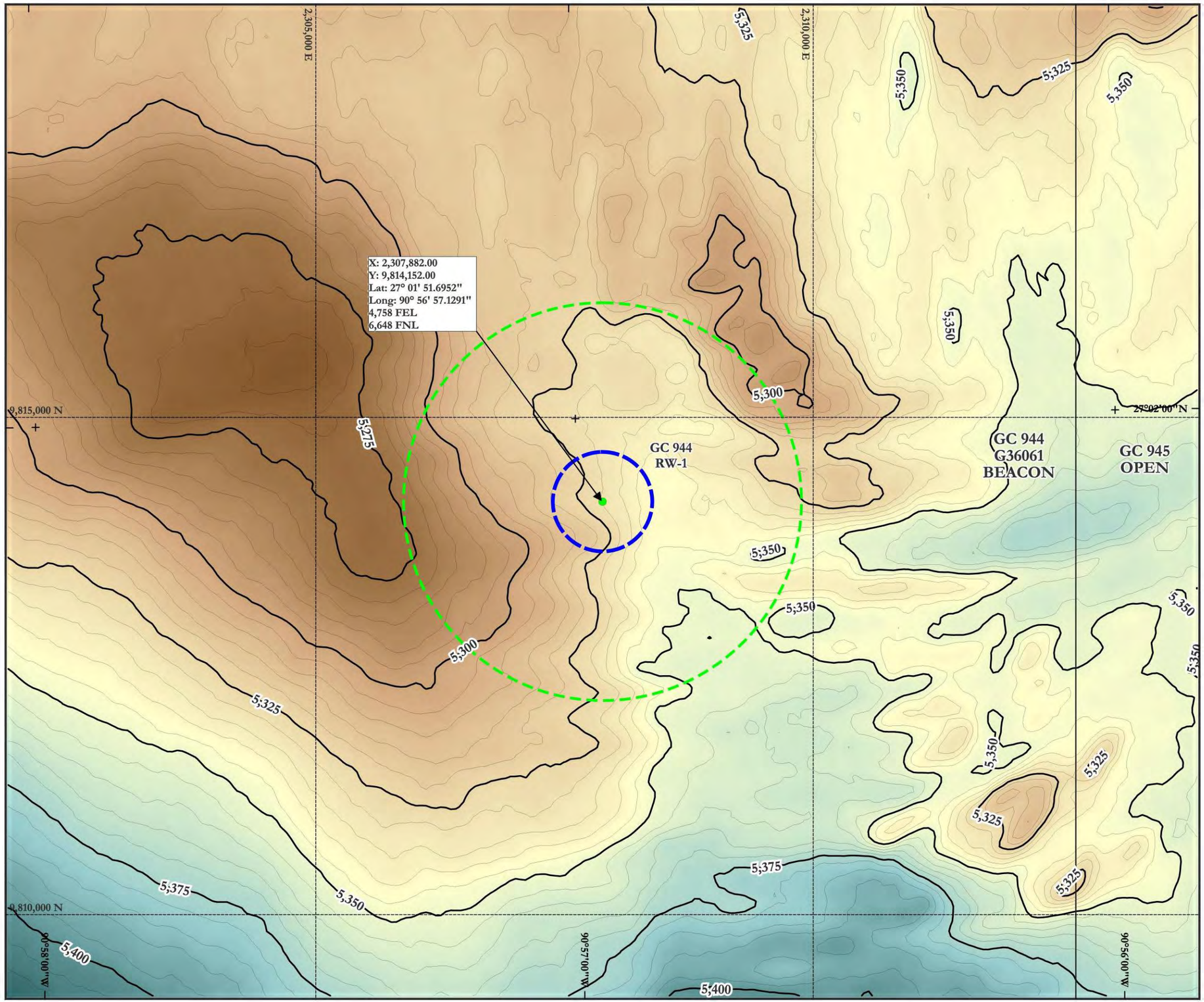
B-geO

B-geo



Seafloor rendering showing proposed relief well locations

Figure W-1



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 5-ft Contour
- 25-ft Contour

Depth (Below Sea Level)
5,262 ft
5,414 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

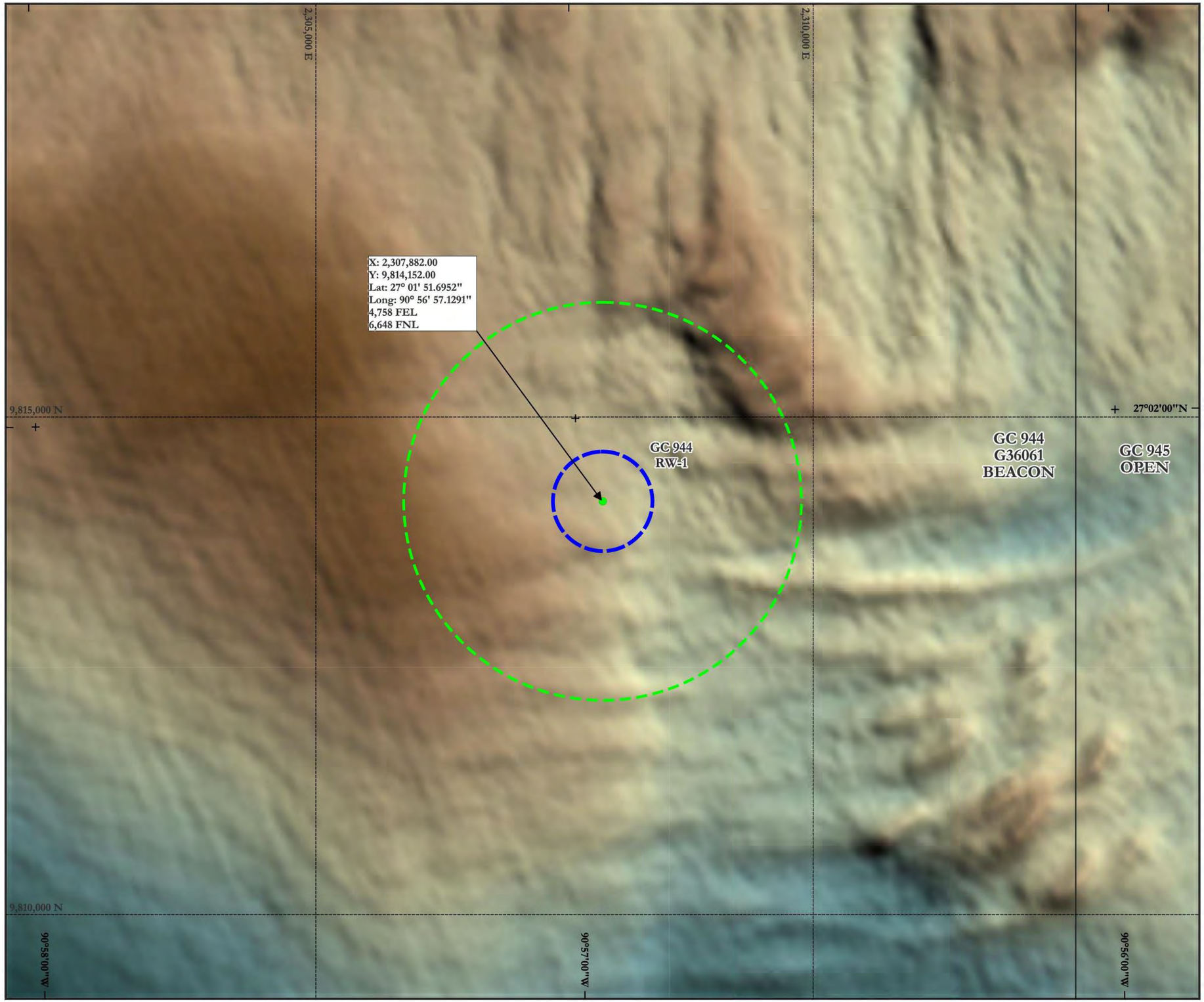
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-1
Bathymetry
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius

Depth (Below Sea Level)
5,262 ft
5,414 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

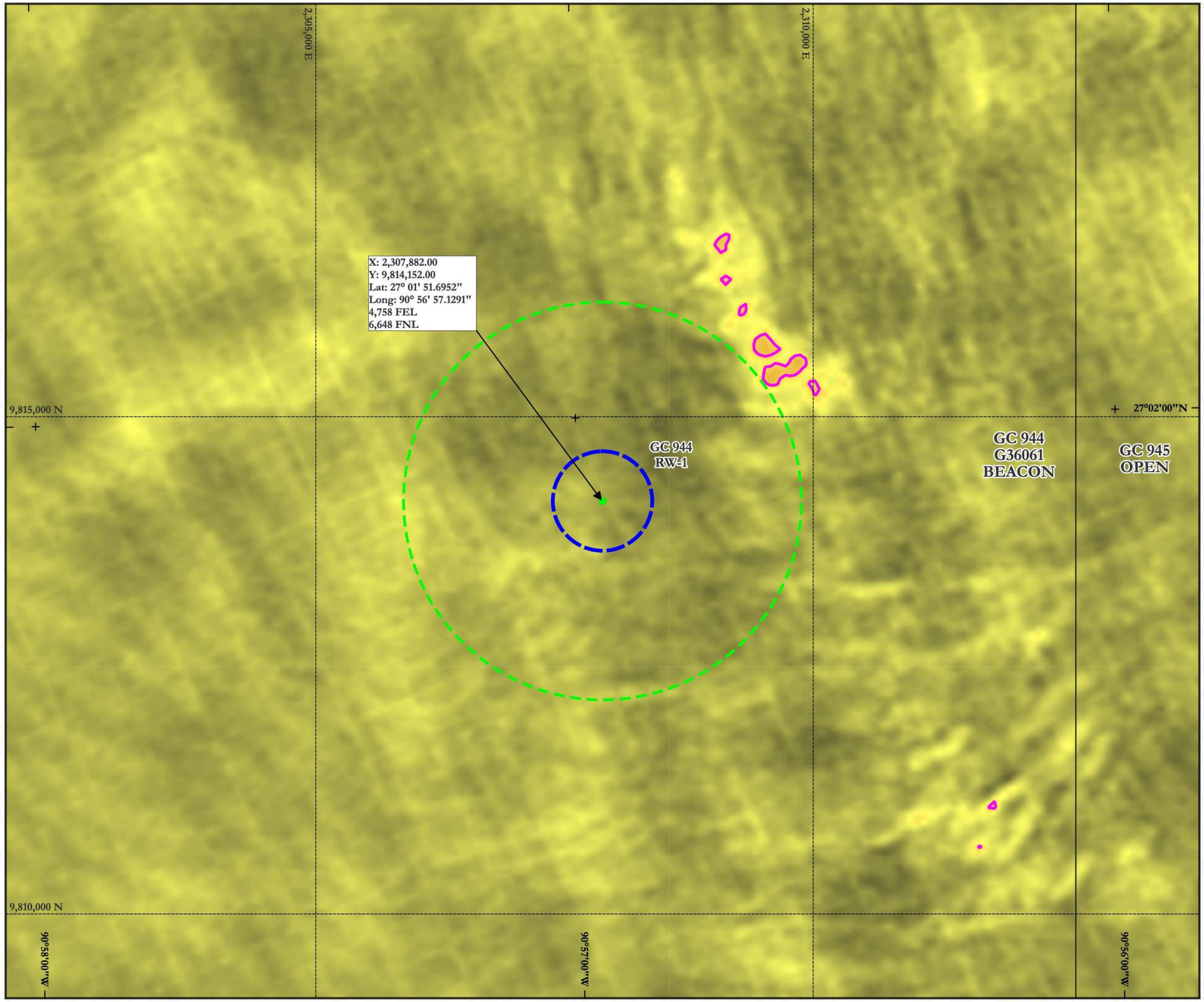
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-2
Seafloor Rendering
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude (Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

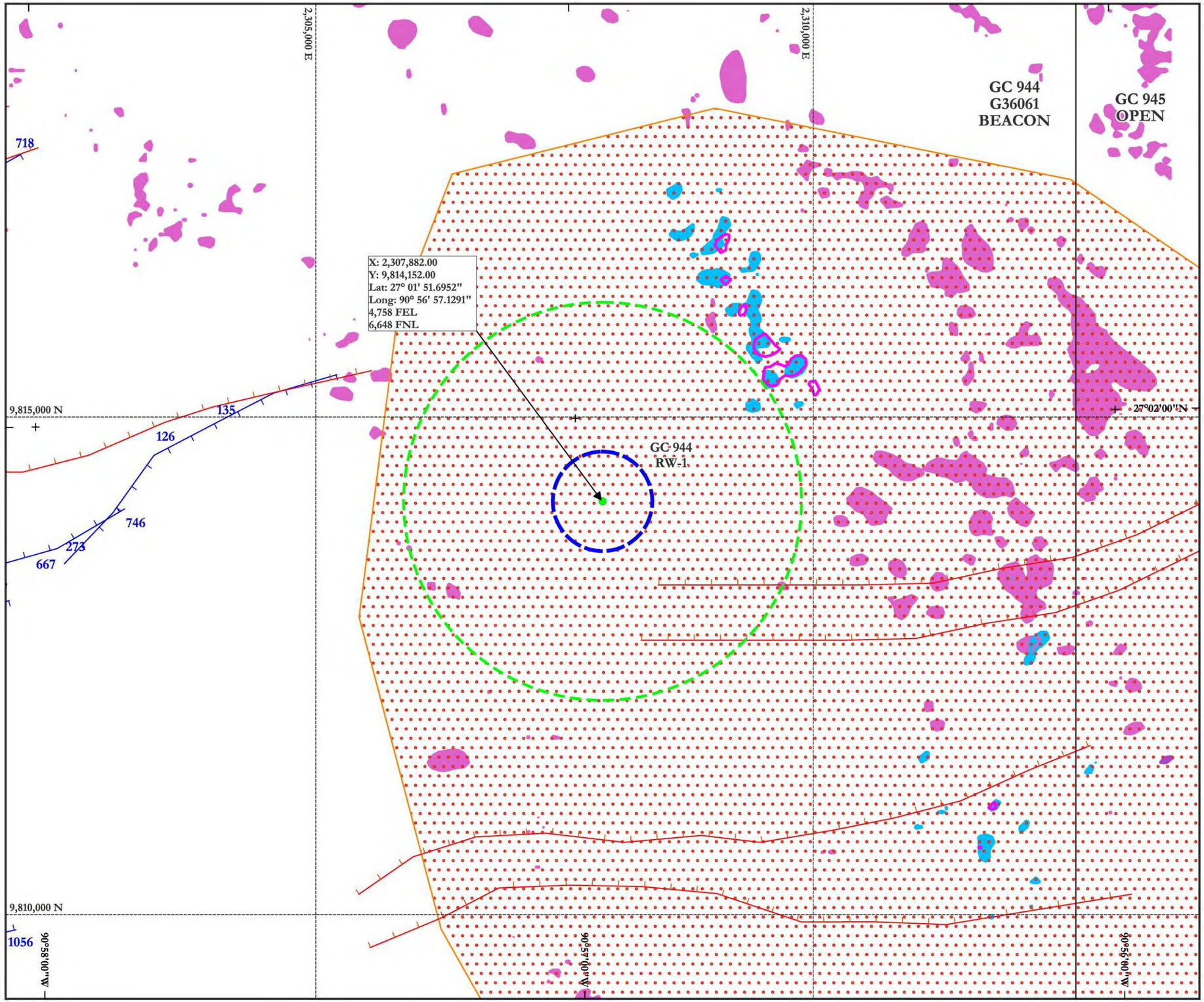
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-3
Seafloor Amplitude Rendering
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents dowthrown side)
- Area of Numerous Faults

3-D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

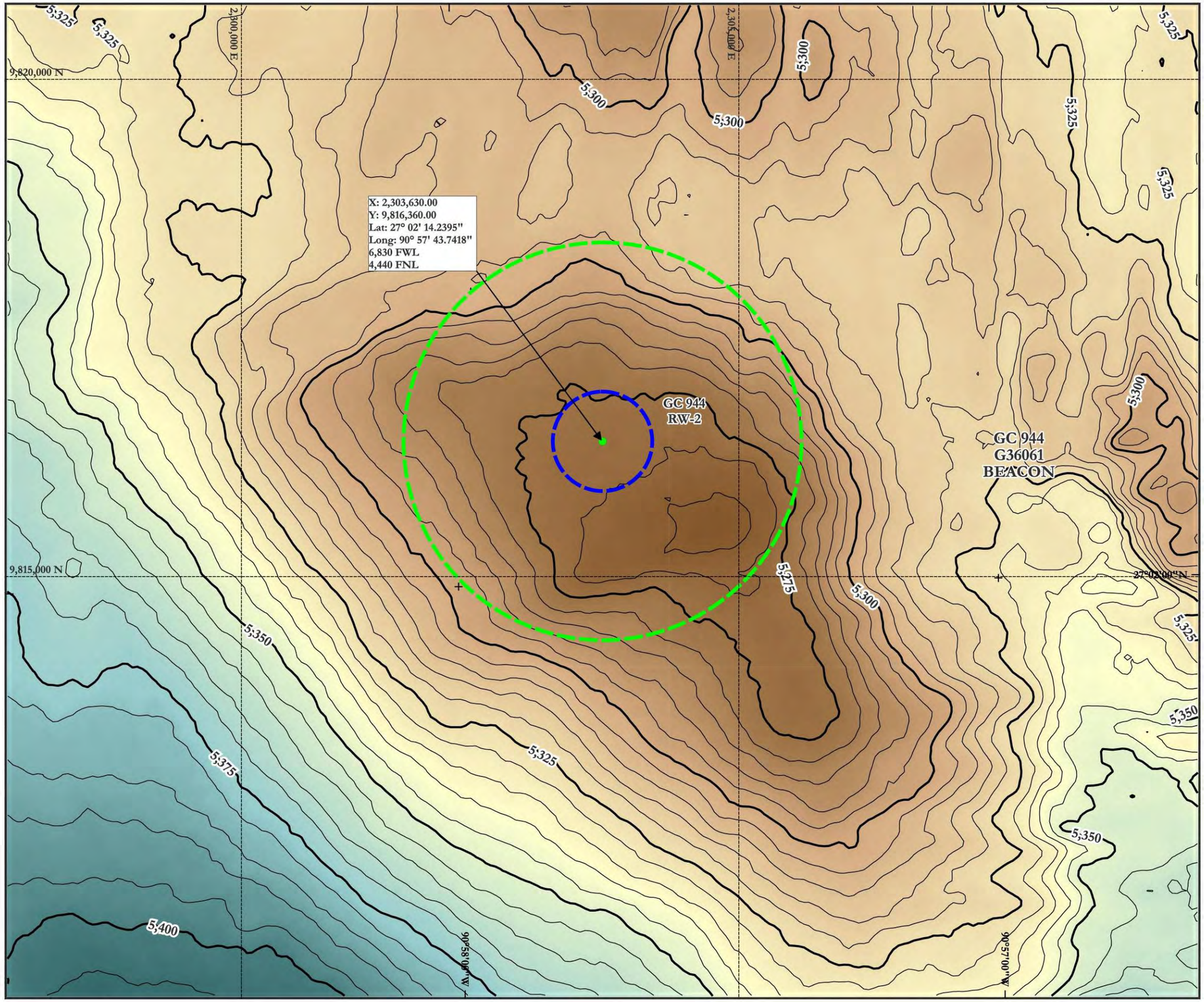
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-4
Geologic Features
Proposed Well GC 944-RW-1
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 5-ft Contour
- 25-ft Contour

Depth (Below Sea Level)
5,262 ft
5,407 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

****IMPORTANT NOTICE****
This map is not intended for navigation purposes.
Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

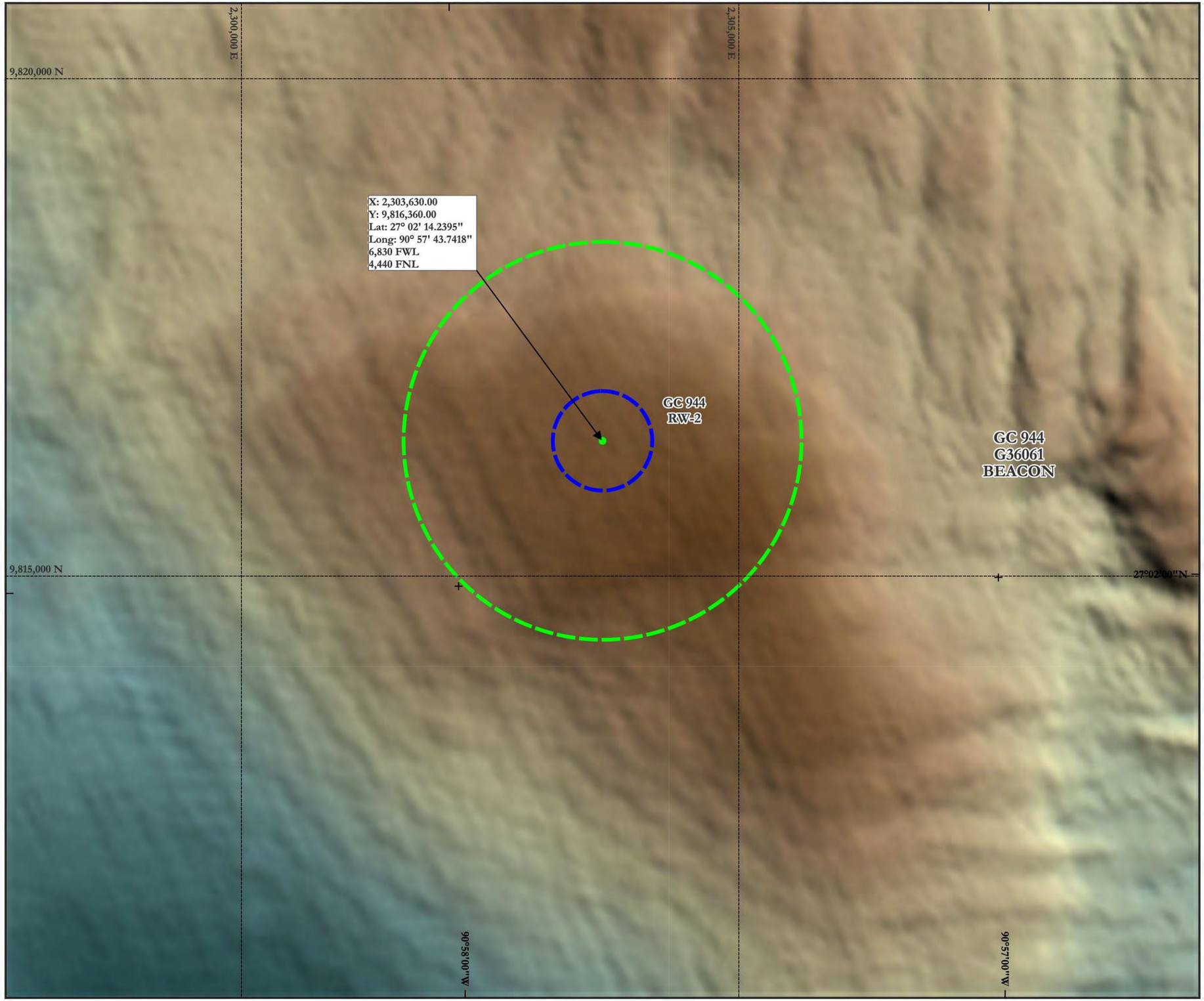
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-5
Bathymetry
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius

Depth
(Below Sea Level)
5,262 ft
5,407 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

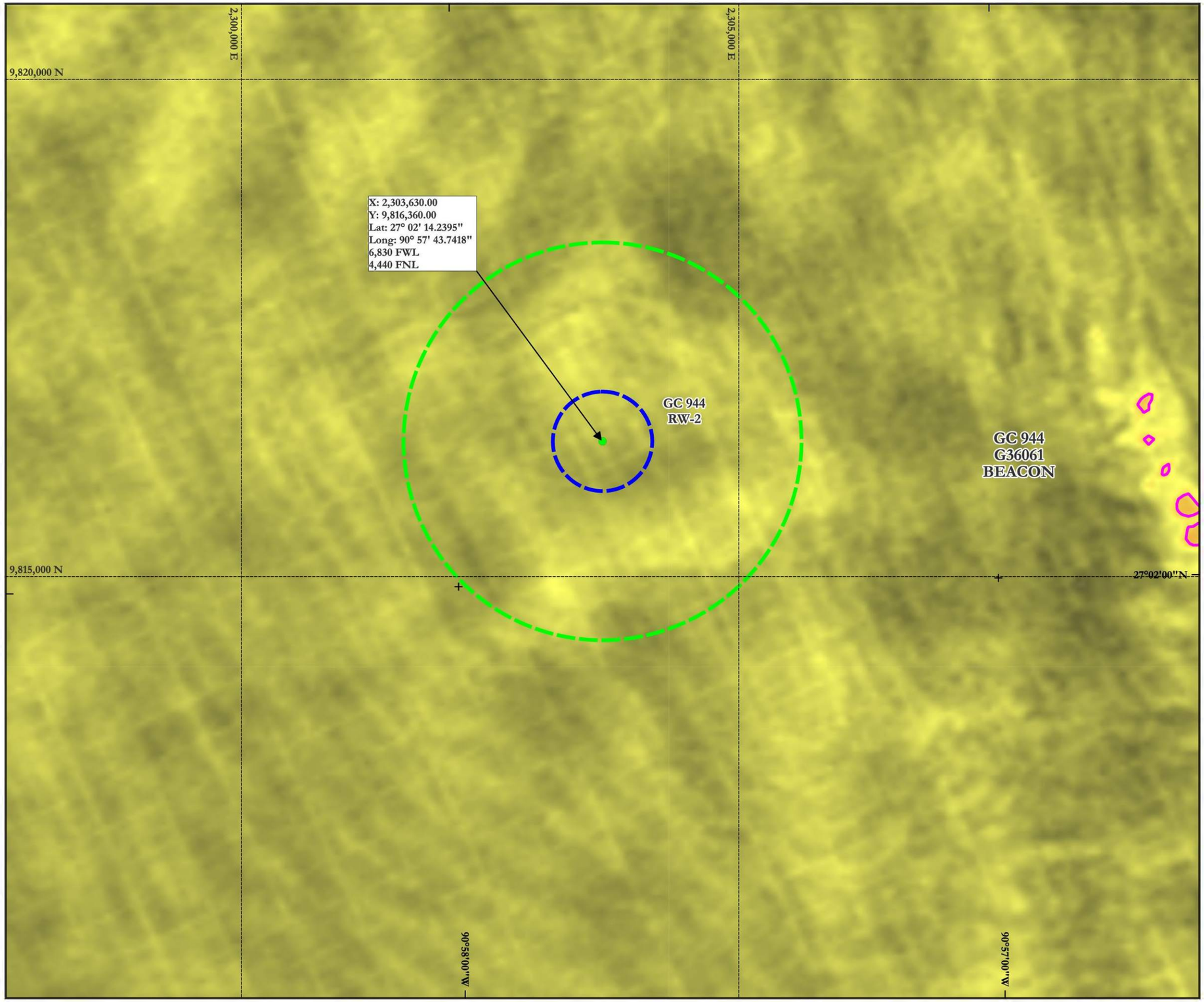
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-6
Seafloor Rendering
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude (Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

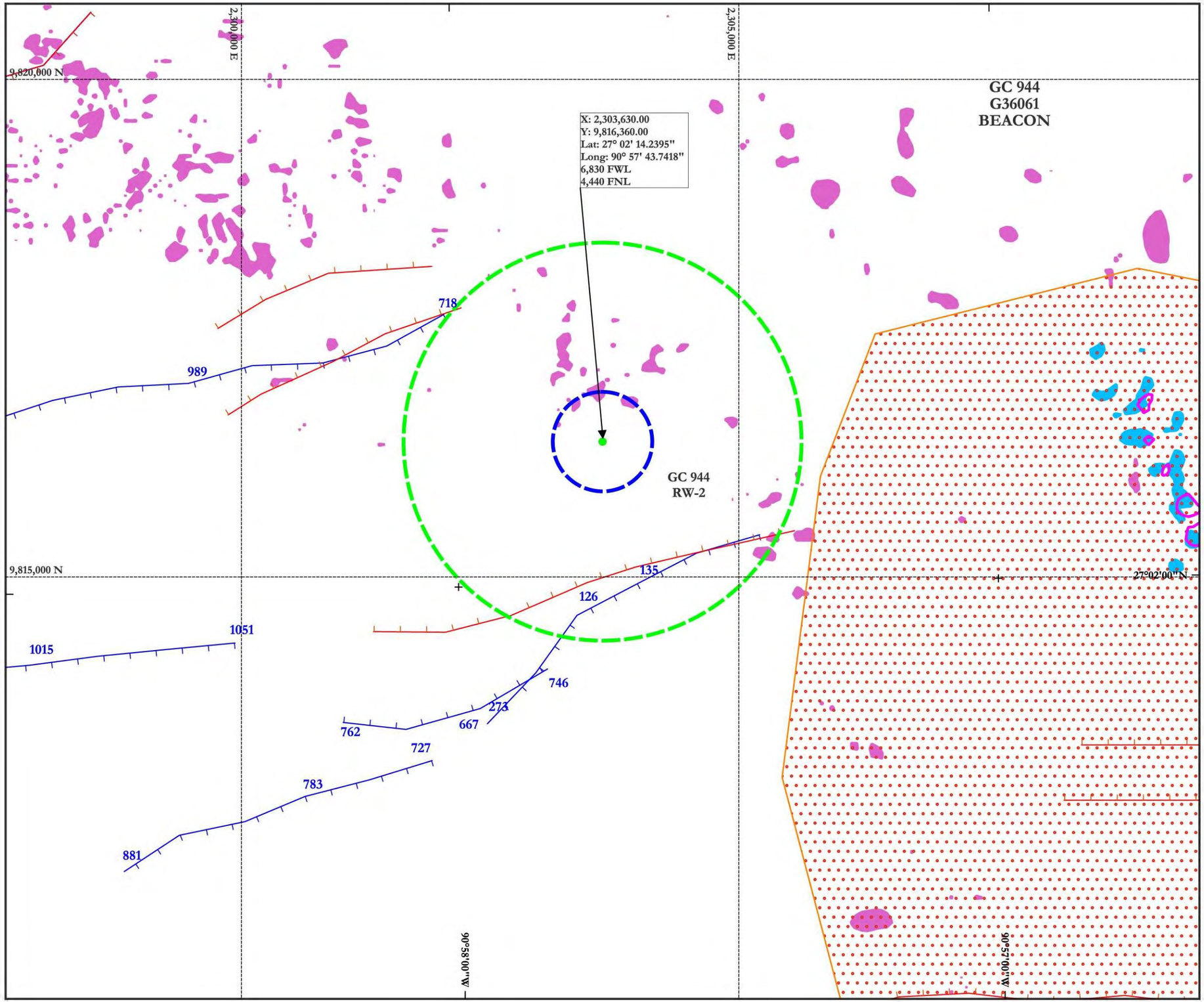
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-7
Seafloor Amplitude Rendering
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents dowthrown side)
- Area of Numerous Faults

3-D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
- Between Horizon 20 and Horizon 30
- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

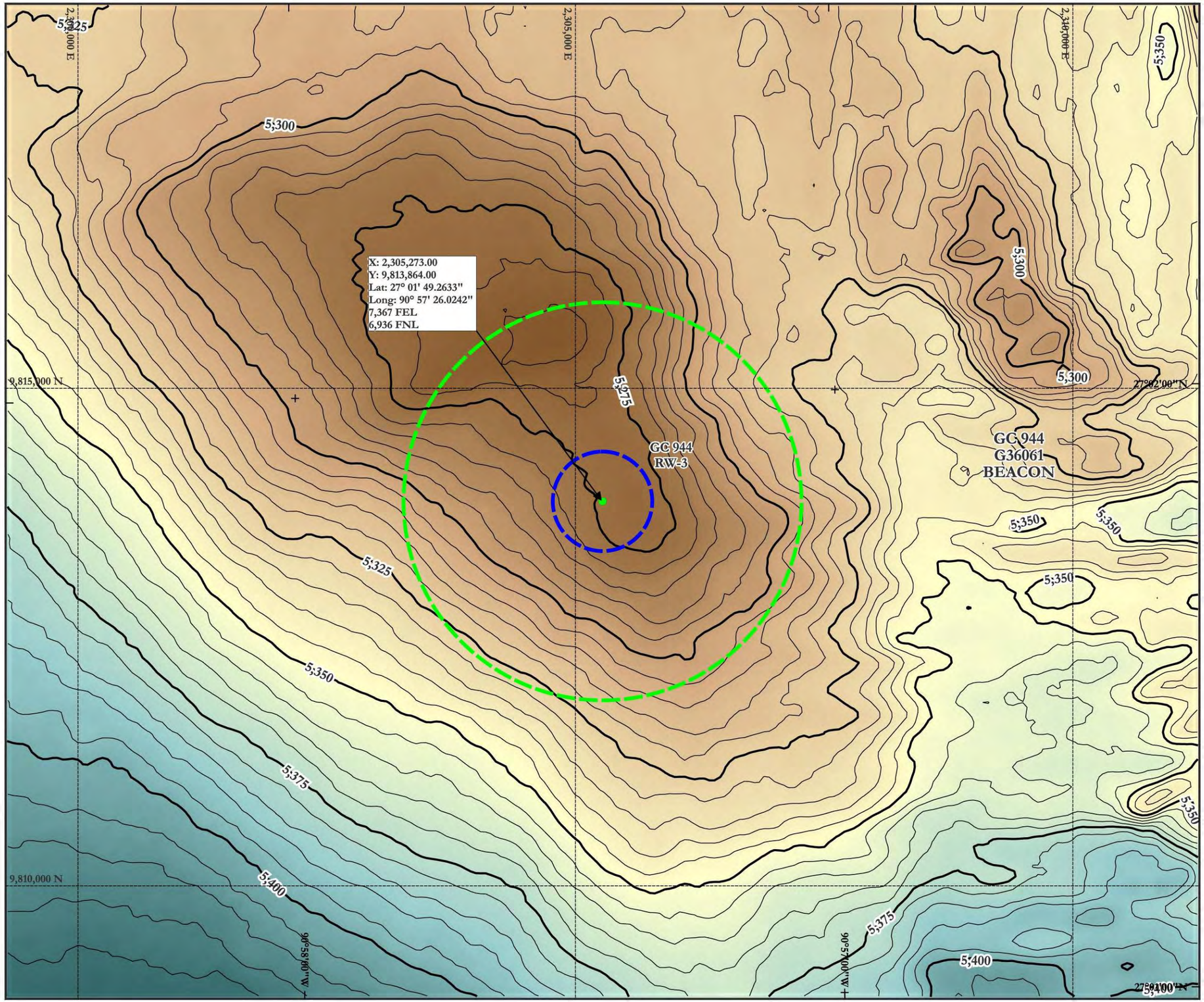
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-8
Geologic Features
Proposed Well GC 944-RW-2
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 5-ft Contour
- 25-ft Contour

Depth (Below Sea Level)
5,262 ft
5,424 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

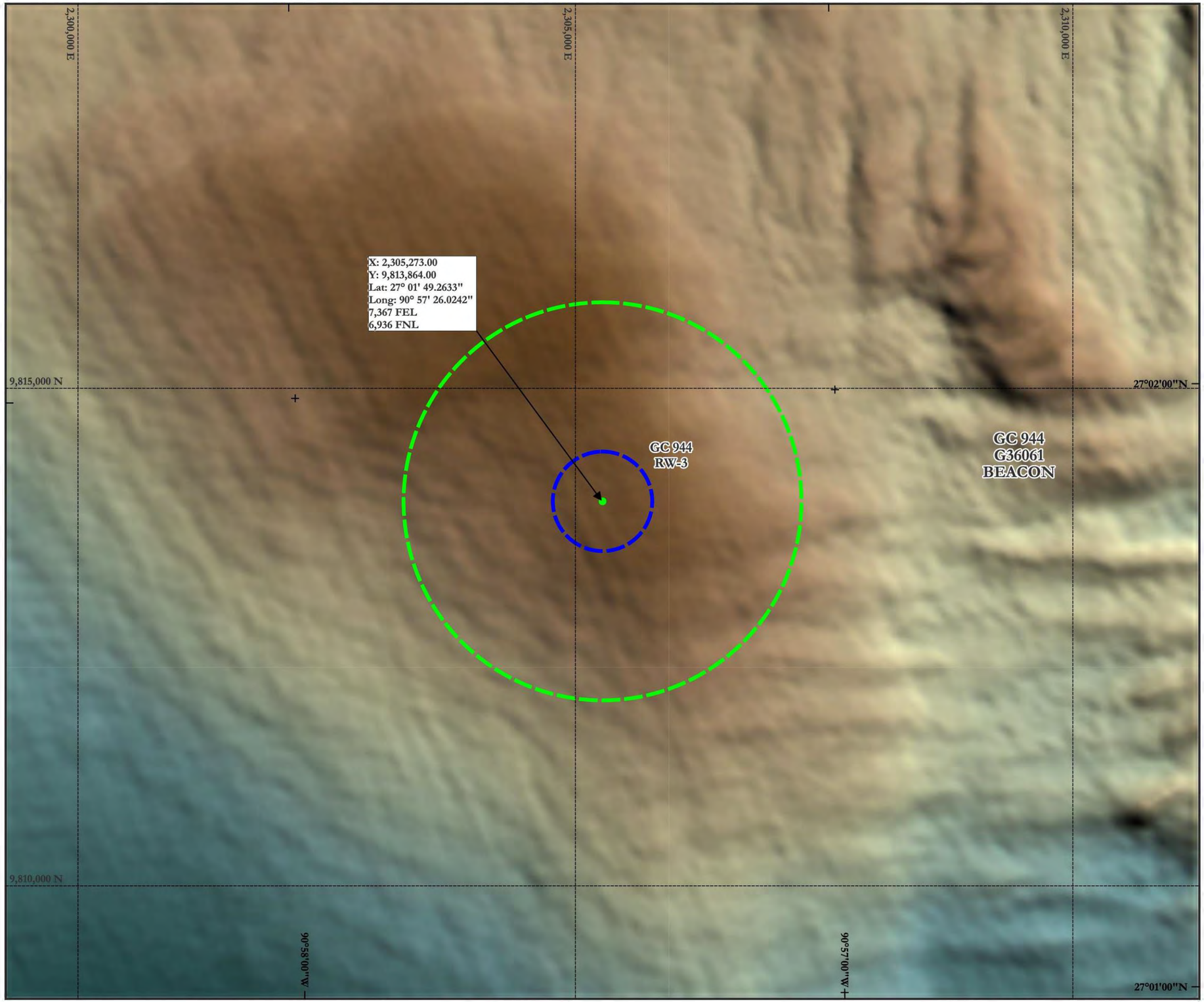
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-9
Bathymetry
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- \+ Lat/Long Grid Points
- ----- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius

Depth (Below Sea Level)
5,262 ft
5,424 ft

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

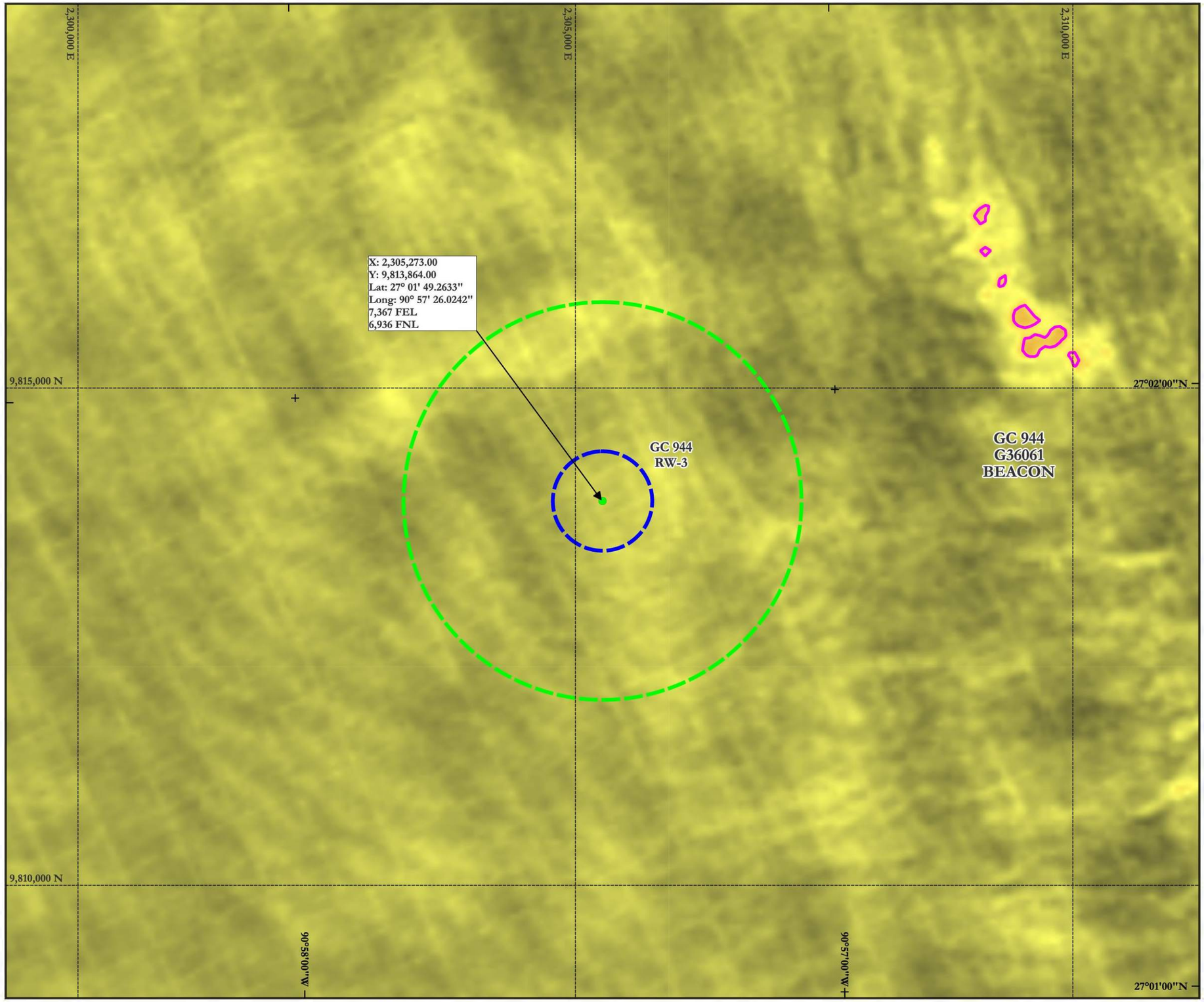
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-10
Seafloor Rendering
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly

Amplitude (Peak)
High
Low

Grid Information:
Data Source: 3-D Seismic
Method: Kriging
Spacing: 50 ft
Search Radius: 150 ft

Rendering Ilumination:
Azimuth: 45°
Elevation: 45°
Vertical Exaggeration: 3X

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

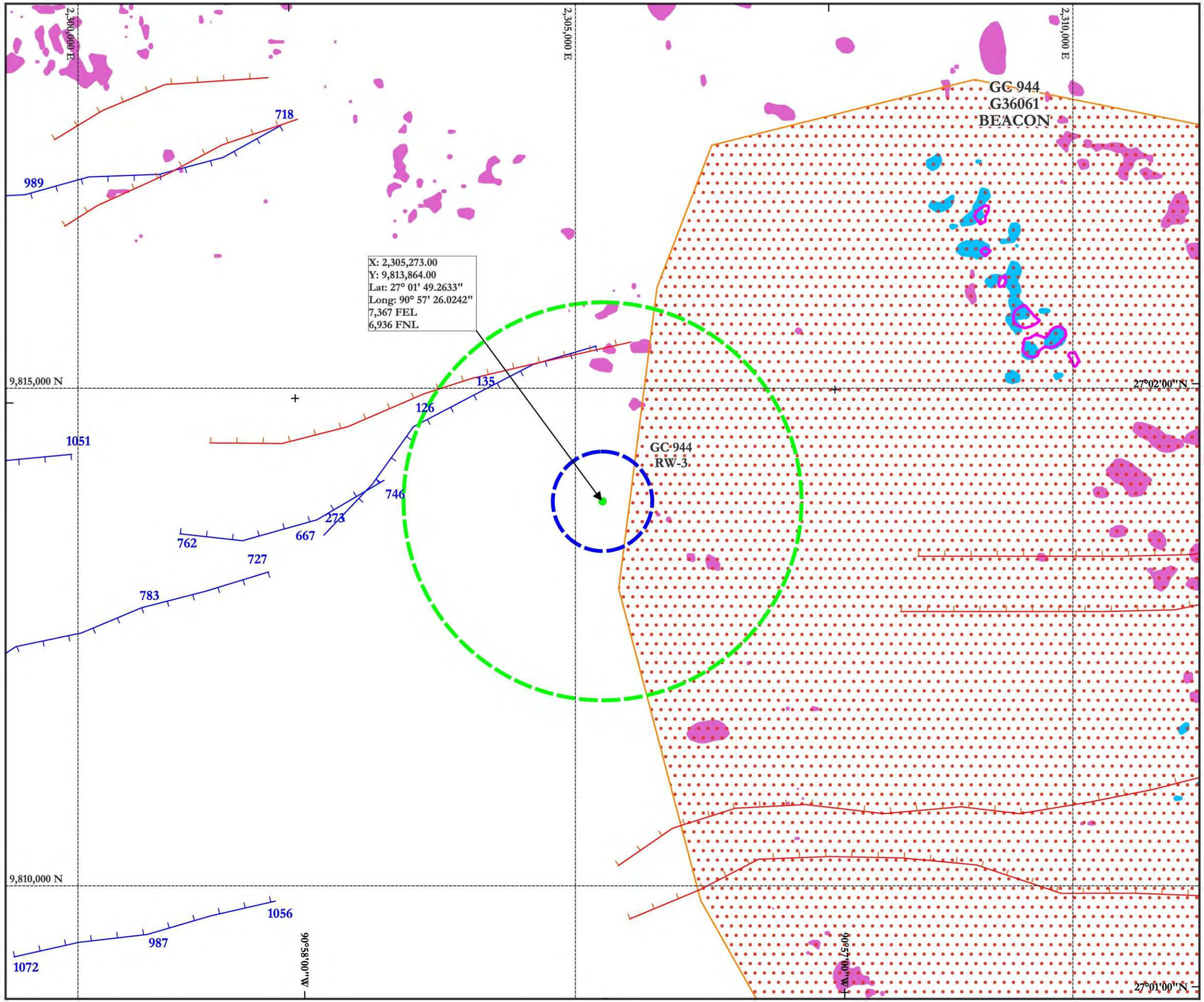
BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-11
Seafloor Amplitude Rendering
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geO



Legend

- Lat/Long Grid Points
- UTM Northing and Easting Lines
- Proposed Well
- 500-ft Radius
- 2,000-ft Radius
- 3-D Seismic Seafloor Amplitude Anomaly
- Seafloor Fault (Tic represents downthrown side)
- Top of Buried Fault with Shallowest Depth [BML] (Tic represents dowthrown side)
- Area of Numerous Faults

3-D Seismic Amplitude Anomalies

- Between Seafloor and Horizon 10
- Between Horizon 10 and Horizon 20
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- Between Horizon 30 and Horizon 40
- Between Horizon 30 and Top of Salt or Limit of Investigation
- Between Horizon 40 and Horizon 50
- Between Horizon 50 and Top of Salt

IMPORTANT NOTICE
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Public information obtained from BOEM database (January 2024).

Geodetic Datum: NAD27 Projection: UTM Zone: 15N Grid Units: Feet	Interpretation By: D. Van Hofwegen Cartography: T. Nguyen Project No.: 24-01-26 Date: February 2024

1,000 2,000 3,000 ft

Scale = 1:12,000

BEACON OFFSHORE ENERGY

Block 944
Green Canyon Area
Gulf of Mexico

Map W-12
Geologic Features
Proposed Well GC 944-RW-3
Lease No. G36061

Map Prepared by:
Berger Geosciences, LLC.

B-geo

APPENDIX G
WASTES AND DISCHARGES INFORMATION

A) PROJECTED GENERATED WASTES
A table entitled "Wastes you will transport and/or dispose of onshore" is included in the attachments to this appendix.

B) PROJECTED OCEAN DISCHARGES
A table entitled "Wastes you will generate, treat and/or downhole dispose or discharge to the GOM" is included in the attachments to this appendix.

C) MODELING REPORT
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the subject activities do not require an individual NPDES permit. Therefore, a modeling report is not required.

D) NPDES PERMITS
The subject rig and/or facility will be covered under BOE Exploration & Production's General Permit upon commencement of the activities proposed in this plan.

E) COOLING WATER INTAKES
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the associated leases are within the Gulf of Mexico Region.

WATER QUALITY SPREADSHEETS

TABLE 1. WASTES YOU WILL GENERATE, TREAT AND DOWNHOLE DISPOSE OR

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

Projected generated waste			Projected ocean discharges		Downhole Disposal
Type of Waste	**Composition**	**Projected Amount**	**Discharge rate**	**Discharge Method**	**Answer yes or no**
Will drilling occur ? If yes, fill in the muds and cuttings.					
EXAMPLE: Cuttings wetted with synthetic based fluid	*Cuttings generated while using synthetic based drilling fluid.*	*X bbl/well*	*X bbl/day/well*	*discharge overboard*	*No*
Water-based drilling fluid	Water based mud additives, barite and gel used for WBM	89,927 bbls/well	7,321 bbls/day/well	Discharge overboard	No
Cuttings wetted with water-based fluid	Cuttings generated while using water based drilling fluid.	4,989 bbls/well	406 bbls/day/well	Discharge overboard	No
Cuttings wetted with synthetic-based fluid	Cuttings generated while using synthetic based drilling fluid.	6,883 bbls/well	146 bbls/day/well	Discharge overboard	No
Will humans be there? If yes, expect conventional waste					
EXAMPLE: Sanitary waste water	Sanitary waste from living quarters	X bbl/well	X bbl/hr/well	chlorinate and discharge overboard	No
Domestic waste	Misc waste for living quarters	11,625 bbls/well	4.6 bbls/hr/well	Discharge overboard (no free oil)	No
Sanitary waste	Processed sanitary waste from living quarters	7,750 bbls/well	3.1 bbls/hr/well	Chlorinate and discharge overboard	No
Is there a deck? If yes, there will be Deck Drainage					
Deck Drainage	Accumulated drainage due to rainfall	0 to 47,261 bbls/well	0 to 167 bbls/hr/well	Test for oil and grease and discharge overboard	No
Will you conduct well treatment, completion, or workover?					
Well treatment fluids	NPDES approved treatment fluid used for well operations	100 bbls/well	20 bbls/hr/well	Test for oil and grease and discharge overboard.	No
Well completion fluids	Clear brines used for completion operations	500 bbls/well	100 bbls/hr/well	Test for oil and grease and discharge overboard. This excludes clear brines containing Zinc	No
Workover fluids	NA	NA	NA	NA	NA
Miscellaneous discharges. If yes, only fill in those associated with your activity.					
Desalinization unit discharge	Uncontaminated spent seawater used for potable water generation unit	0 to 100,000 bbls/well	60 bbls/hr/well	Discharge overboard	No
Blowout prevent fluid	Treated freshwater used control of subsea blowout preventers	0 to 100 bbls/well	5 bbls/hr/well	Discharge at seafloor	No
Ballast water	Uncontaminated seawater used for ballast control	0 to 100,000 bbls/well	16,350 bbls/hr/well	Discharge overboard	No
Bilge water	NA	NA	NA	NA	NA
Excess cement at seafloor	Excess cement slurry and mixwater used for cementing operation - NPDES allowed	300 bbls/well	360 bbls/hr/well	Discharge at mudline	No
Fire water	Uncontaminated seawater used for fire control system	0 to 10,000 bbls/well	16,350 bbls/hr/well	Discharge overboard	No
Cooling water	Uncontaminated seawater used for heat exchanger operations used to cool machinery	0 to 400,000 bbls/well	120 bbls/hr/well	Discharge overboard	No
Will you produce hydrocarbons? If yes fill in for produced water.					
Produced water	NA	NA	NA	NA	NA
Will you be covered by an individual or general NPDES permit ?		**General NPDES**	GMG 290000		
			Comply with the requirements of the NPDES permit.		

NOTE: If you will not have a type of waste, enter NA in the row.

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

Please specify whatever the amount reported is a total or per well

	Projected generated waste		Solid and Liquid Wastses Transportation	Waste Disposal		
Type of Waste	**Composition**		**Transport Method**	**Name/Location of Facility**	**Amount**	**Disposal Method**
				Newport Environmental Services Inc., Ingleside, TX	*X bbl/well*	*Recycled*
Oil-based drilling fluid or mud	NA		NA	NA	NA	NA
Synthetic-based drilling fluid or mud	Internal olifin, ester nbased mud		Barged in 25 bbls cutting boxes and / or liquid mud tanks for supply vessels	Newpark Transfer Station, Fourchon, LA	6750 bbls / well	Recycled
Cuttings wetted with Water-based fluid	NA		NA	NA	NA	NA
Cuttings wetted with Synthetic-based fluid	NA		NA	NA	NA	NA
Cuttings wetted with oil-based fluids	NA		NA	NA	NA	NA
Will you produce hydrocarbons? If yes fill in for produced sand.						
Produced sand	NA		NA	NA	NA	NA
Will you have additional wastes that are not permitted for discharge? If						
EXAMPLE: trash and debris (recylables)	*Plastic, paper, aluminum*		*barged in a storage bin*	*ARC, New Iberia, LA*	*X lb/well*	*Recycled*
Trash and debris	Plastic, paper, aluminum		Barged in a storage bin	Blanchard Landfill, Golden Meadows, LA	4000 lbs / well	Recycled
Used oil	Spent oil from machinery		Barged in USCG approved transfer tote tanks.	L&L Services, Fourchon, LA	200 bbls / well	Recycled
Wash water	Wash water w/ SBM residue and surfactants		Barged in 25 bbls cutting boxes and / or liquid mud tanks for supply vessels	Clean Waste, Fourchon, LA / R360, Fourchon, LA / Ecoserv, Fourchon, LA	2000 bbls / well	Approved disposal well injection or land farm
Chemical product wastes	Spent treatment and / or damaged chemicals used in operations		Barged in 25 bbls cutting boxes and / or cutting boxes	L&L Services, Fourchon, LA	10 bbls / well	Recycled

NOTE: If you will not have a type of waste, enter NA in the row.

APPENDIX H
AIR EMISSIONS INFORMATION

General Information
In accordance with NTL 2020-G01, air emission information in both PDF and Excel formats are included as part of this plan.

Well Operations Activity
A specific drilling unit has not been determined to conduct activities proposed in this plan.

In accordance with BOEM guidance, only one form for the type of drilling unit that has the highest potential emissions is included in the attachments to this appendix.

Multiple rig types proposed to conduct activities proposed in this plan are clarified on the title page of the attached.

In accordance with BOEM guidance, emissions associated with future well operations on the well locations proposed in this plan are included in the emissions spreadsheets in this appendix to preclude the necessity for additional plans in future years.

Well operations include those operations identified by BSEE in 30 CFR 250 Subparts D, E, F and Q, including rescheduled drilling operations and/or additional sidetrack drilling operations on well locations proposed in this plan.

Pipeline Installation Activity
Pipeline and associated subsea equipment installation scheduling is unknown at this time but will be conducted in 2025 or 2026. Accordingly, air emission information for vessels associated with that activity has been included for those years.

The Technip FMC Spoolbase located in Theodore, Alabama will be used to support lease term pipeline installation only for this project. The site of proposed development and production activity proposed in this plan is measured as 139 miles from the nearest shoreline in the state of Louisiana and 298 miles from the Theodore, Alabama onshore support base being added as part of this plan.

Accordingly, the distance of 139 miles from that site of proposed development and production activity to the adjacent state of Louisiana is used in the air emission information included as part of this plan.

Production Operations Activity
Production activity proposed in this plan will be conducted via Anadarko Petroleum Corporation-operated Green Canyon 860 A-Heidelberg production facility.

AIR EMISSION SPREADHSEETS

COMPANY	BOE Exploration & Production
AREA	GC
BLOCK	944
LEASE	OCS-G 36061
FACILITY	N/A
WELL	WB001 / WB002 and alternate or relief locations, if necessary
COMPANY CONTACT	Brandon Hebert
TELEPHONE NO.	985-666-0143
REMARKS	Proposed Rig Types: Drillship / DP Semisubmersible

LEASE TERM PIPELINE CONSTRUCTION INFORMATION:		
YEAR	NUMBER OF PIPELINES	TOTAL NUMBER OF CONSTRUCTION DAYS
2020		
2021		
2022		
2023		
2024		
2025	2	100
2026	2	100
2027		
2028		
2029		

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	AP42 3.1-1& 3.1-2a	4/00	https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s01.pdf
RECIP. 2 Cycle Lean Natural Gas	g/hp-hr		0.1293	0.1293	0.0020	6.5998	0.4082	N/A	1.2009	N/A	AP42 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	1.8949	N/A	AP42 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	11.9408	N/A	AP42 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	AP42 3.3-1	10/96	https://www3.epa.gov/ttn/chief/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	AP42 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	AP42 1.3-6; Pb and NH3: WebFIRE (08/2018)	9/98 and 5/10	https://cfpub.epa.gov/webfire/
Diesel Turbine	g/hp-hr	0.0381	0.0137	0.0137	0.0048	2.7941	0.0013	4.45E-05	0.0105	N/A	AP42 3.1-1 & 3.1-2a	4/00	https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s01.pdf
Dual Fuel Turbine	g/hp-hr	0.0381	0.0137	0.0137	0.0048	2.7941	0.0095	4.45E-05	0.3719	0.0000	AP42 3.1-1& 3.1-2a; AP42 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	3/19	
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	3/19	https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data
Vessels – Diesel Boiler	g/hp-hr	0.0466	0.1491	0.1417	0.4400	1.4914	0.0820	3.73E-05	0.1491	0.0003	USEPA 2017 NEI;TSP (units converted) refer to Diesel Boiler Reference	3/19	
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	3/19	
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	AP42 1.4-1 & 1.4-2; Pb and NH3: WebFIRE (08/2018)	7/98 and 8/18	https://www3.epa.gov/ttn/chief/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	AP42 13.5-1, 13.5-2	2/18	
Combustion Flare (light smoke)	lbs/MMscf	2.10	2.10	2.10	0.57	71.40	35.93	N/A	325.5	N/A	AP42 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	AP42 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	AP42 13.5-1, 13.5-2	2/18	
Liquid Flaring	lbs/bbl	0.42	0.0966	0.0651	5.964	0.84	0.01428	5.14E-05	0.21	0.0336	AP42 1.3-1 through 1.3-3 and 1.3-5	5/10	https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s03.pdf
Storage Tank	tons/yr/tank						4.300				2014 Gulfwide Inventory; Avg 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.apiwebstore.org/publications/item.cgi?79879e38a-8cc0-4epa-ee5c-9a623870125e
Glycol Dehydrator	tons/yr/dehydrator						19.240				2011 Gulfwide Inventory; Avg 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; Avg 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/ttn/chief/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	2009	
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	2009	
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	2009	https://www.epa.gov/moves/nonroad2008a-installation-and-updates
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	2009	
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	2009	
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	2009	
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	3/19	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	3/19	

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	%

AIR EMISSIONS CALCULATIONS - 1ST YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL				CONTACT			PHONE		REMARKS										
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary				Brandon Hebert			985-888-0143		Proposed Rig Types: Drillship / DP Semisubmersible										
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		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- 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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	0	0	--	--	--	--	--	#DIV/0!	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	0	0	--	--	--	--	--	#DIV/0!	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	0	0	--	--	--	--	--	#DIV/0!	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00	--	--	0.00	--
DRILLING WELL TEST	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
	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	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							0.00	0.00	0.00	0.00	0.00	#DIV/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
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																0.00			0.00	0.00	0.00		0.00	
	0.0																								
DRILLING	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
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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							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

AIR EMISSIONS CALCULATIONS - 2ND YEAR

COMPANY	AREA	BLOCK	LEASE	FACILITY	WELL	CONTACT	PHONE	REMARKS
BOE Exploration & Production	GC	944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary	Brandon Hebert	985-888-0143	Proposed Rig Types: Drillship / DP Semisubmersible

OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		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- 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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2021	Facility Total Emissions							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
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																0.00			0.00	0.00	0.00		0.00	
	0.0																								
DRILLING	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
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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
2021	Non-Facility Total Emissions							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

AIR EMISSIONS CALCULATIONS - 3RD YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE	REMARKS											
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary					Brandon Hebert		985-688-0143	Proposed Rig Types: Drillship / DP Semisubmersible											
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		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- 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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2022	Facility Total Emissions							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
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																0.00			0.00	0.00	0.00		0.00	
	0.0																								
DRILLING	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
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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
2022	Non-Facility Total Emissions							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

AIR EMISSIONS CALCULATIONS - 4TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL						CONTACT		PHONE		REMARKS									
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary						Brandon Hebert		985-888-0145		Proposed Rig Types: Drillship / DP Semisubmersible									
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		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- 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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	**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
2023	**Facility Total Emissions**							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
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																0.00			0.00	0.00	0.00		0.00	
	0.0																								
DRILLING	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
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	**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
2023	**Non-Facility Total Emissions**							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

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary					Brandon Hebert		985-888-0143		Proposed Rig Types: Drillship / DP Semisubmersible										
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		61600	3179.3628	76304.71	24	107	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	55.98	33.77	32.76	0.81	1341.25	38.56	0.00	210.37	0.39
	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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2024	Facility Total Emissions							43.60	26.30	25.51	0.63	1,044.59	30.03	0.00	163.84	0.30	55.98	33.77	32.76	0.81	1,341.25	38.56	0.00	210.37	0.39
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																4,628.70			4,628.70	4,628.70	4,628.70		91,233.73	
	139.0																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	6	61	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	0.93	0.56	0.54	0.01	22.27	0.64	0.00	3.49	0.01
	VESSELS - Supply Diesel		7200	370.4112	8889.87	10	92	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.34	1.41	1.37	0.03	55.96	1.61	0.00	8.78	0.02
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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
2024	Non-Facility Total Emissions							10.16	6.13	5.95	0.15	243.40	7.00	0.00	38.18	0.07	3.27	1.97	1.91	0.05	78.25	2.25	0.00	12.27	0.02

AIR EMISSIONS CALCULATIONS - 6TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS												
BOE Exploration & Production	GC		944	OCS-G 36061	N/A	WB001 / WB002 and alternate or relief locations, if necessary					Brandon Hebert		985-888-0143		Proposed Rig Types: Drillship / DP Semisubmersible												
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		61800	3179.3626	76304.71	24	250	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
	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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - Diesel		45000	2315.07	55561.68	24	100	31.75	19.15	18.58	0.46	760.62	21.87	0.00	119.30	0.22	38.10	22.98	22.29	0.55	912.75	26.24	0.00	143.16	0.27
	VESSELS - Pipeline Burying - Diesel		5500	282.953	6790.87	24	100	3.88	2.34	2.27	0.06	92.96	2.67	0.00	14.58	0.03	4.66	2.81	2.72	0.07	111.56	3.21	0.00	17.50	0.03
FACILITY INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2025	Facility Total Emissions							79.23	47.80	46.36	1.15	1,898.17	54.58	0.01	297.72	0.55	173.55	104.71	101.56	2.53	4,158.06	119.55	0.01	652.18	1.21
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																4,628.70			4,628.70	4,628.70	4,628.70		91,233.73	
	139.0																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	6	142	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.16	1.31	1.27	0.03	51.84	1.49	0.00	8.13	0.02
	VESSELS - Supply Diesel		7200	370.4112	8889.87	10	214	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	5.44	3.28	3.18	0.08	130.22	3.74	0.00	20.42	0.04
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - Crew Diesel		7200	370.4112	8889.87	24	100	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	6.10	3.68	3.57	0.09	146.04	4.20	0.00	22.91	0.04
	VESSELS - Supply Diesel		7200	370.4112	8889.87	24	100	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	6.10	3.68	3.57	0.09	146.04	4.20	0.00	22.91	0.04
FACILITY INSTALLATION	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
	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	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	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
2025	Non-Facility Total Emissions							20.32	12.26	11.89	0.30	486.80	14.00	0.00	76.35	0.14	19.79	11.94	11.58	0.29	474.14	13.63	0.00	74.37	0.14

AIR EMISSIONS CALCULATIONS - 7TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL				CONTACT			PHONE		REMARKS										
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary				Brandon Hebert			985-888-0143		Proposed Rig Types: Drillship / DP Semisubmersible										
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		61800	3179.3626	76304.71	24	250	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
	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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - Diesel		45000	2315.07	55561.68	24	100	31.75	19.15	18.58	0.46	760.62	21.87	0.00	119.30	0.22	38.10	22.98	22.29	0.55	912.75	26.24	0.00	143.16	0.27
	VESSELS - Pipeline Burying - Diesel		5500	282.953	6790.87	24	100	3.88	2.34	2.27	0.06	92.96	2.67	0.00	14.58	0.03	4.66	2.81	2.72	0.07	111.56	3.21	0.00	17.50	0.03
FACILITY INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	0	0	--	--	--	--	--	#DIV/0!	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	0	0	--	--	--	--	--	#DIV/0!	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	0	0	--	--	--	--	--	#DIV/0!	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2026	Facility Total Emissions							79.23	47.80	46.36	1.15	1,898.17	#DIV/0!	0.01	297.72	0.55	173.55	104.71	101.56	2.53	4,158.06	119.55	0.01	652.18	1.21
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																4,628.70			4,628.70	4,628.70	4,628.70		91,233.73	
	139.0																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	6	142	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.16	1.31	1.27	0.03	51.84	1.49	0.00	8.13	0.02
	VESSELS - Supply Diesel		7200	370.4112	8889.87	10	214	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	5.44	3.28	3.18	0.08	130.22	3.74	0.00	20.42	0.04
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - Crew Diesel		7200	370.4112	8889.87	24	100	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	6.10	3.68	3.57	0.09	146.04	4.20	0.00	22.91	0.04
	VESSELS - Supply Diesel		7200	370.4112	8889.87	24	100	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	6.10	3.68	3.57	0.09	146.04	4.20	0.00	22.91	0.04
FACILITY INSTALLATION	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
	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	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	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
2026	Non-Facility Total Emissions							20.32	12.26	11.89	0.30	486.80	14.00	0.00	76.35	0.14	19.79	11.94	11.58	0.29	474.14	13.63	0.00	74.37	0.14

AIR EMISSIONS CALCULATIONS - 8TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE			REMARKS									
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary					Brandon Hebert		985-888-0143			Proposed Rig Types: Drillship / DP Semisubmersible									
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		61600	3179.3628	76304.71	24	250	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
	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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2027	Facility Total Emissions							43.60	26.30	25.51	0.63	1,044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3,133.76	90.10	0.01	491.52	0.91
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																4,628.70			4,628.70	4,628.70	4,628.70		91,233.73	
	139.0																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	6	142	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.16	1.31	1.27	0.03	51.84	1.49	0.00	8.13	0.02
	VESSELS - Supply Diesel		7200	370.4112	8889.87	10	214	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	5.44	3.28	3.18	0.08	130.22	3.74	0.00	20.42	0.04
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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
2027	Non-Facility Total Emissions							10.16	6.13	5.95	0.15	243.40	7.00	0.00	38.18	0.07	7.60	4.56	4.45	0.11	182.06	5.23	0.00	28.56	0.05

AIR EMISSIONS CALCULATIONS - 9TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE	REMARKS											
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary					Brandon Hebert		985-888-0143	Proposed Rig Types: Drillship / DP Semisubmersible											
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		61800	3179.3626	76304.71	24	250	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
	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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2028	Facility Total Emissions							43.60	26.30	25.51	0.63	1,044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3,133.76	90.10	0.01	491.52	0.91
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																4,628.70			4,628.70	4,628.70	4,628.70		91,233.73	
	139.0																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	6	142	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.16	1.31	1.27	0.03	51.84	1.49	0.00	8.13	0.02
	VESSELS - Supply Diesel		7200	370.4112	8889.87	10	214	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	5.44	3.28	3.18	0.08	130.22	3.74	0.00	20.42	0.04
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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
2028	Non-Facility Total Emissions							10.16	6.13	5.95	0.15	243.40	7.00	0.00	38.18	0.07	7.60	4.58	4.45	0.11	182.06	5.23	0.00	28.56	0.05

AIR EMISSIONS CALCULATIONS - 10TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
BOE Exploration & Production	GC		944	OCS-G 38061	N/A	WB001 / WB002 and alternate or relief locations, if necessary					Brandon Hebert		985-888-0143		Proposed Rig Types: Drillship / DP Semisubmersible										
OPERATIONS	EQUIPMENT	EQUIPMENT ID	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		61800	3179.3626	76304.71	24	250	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
	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
PIPELINE INSTALLATION	VESSELS - Pipeline Laying Vessel - 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 - Pipeline Burying - 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 INSTALLATION	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
PRODUCTION	RECIP.<600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	RECIP.>600hp Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00	--
	VESSELS - Shuttle Tankers		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 - Well Stimulation		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
	Natural Gas Turbine		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	--
	Diesel Turbine		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	--
	Dual Fuel Turbine		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
	RECIP. 2 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Lean Natural Gas		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	--
	RECIP. 4 Cycle Rich Natural Gas		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	--
	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
	Natural Gas Heater/Boiler/Burner		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
	MISC.		BPD	SCF/HR	COUNT																				
	STORAGE TANK				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	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	--
	COLD VENT				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	FUGITIVES				0	0	0	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	GLYCOL DEHYDRATOR				0	1	1	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	0.00	--	--	--
	WASTE INCINERATOR		0			0	0	--	0.00	0.00	0.00	0.00	--	--	0.00	--	--	0.00	0.00	0.00	0.00			0.00	
DRILLING WELL TEST	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
	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	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
2029	Facility Total Emissions							43.60	26.30	25.51	0.63	1,044.59	30.03	0.00	163.84	0.30	130.80	78.91	76.54	1.90	3,133.76	90.10	0.01	491.52	0.91
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES																4,628.70			4,628.70	4,628.70	4,628.70		91,233.73	
	139.0																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	6	142	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.16	1.31	1.27	0.03	51.84	1.49	0.00	8.13	0.02
	VESSELS - Supply Diesel		7200	370.4112	8889.87	10	214	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	5.44	3.28	3.18	0.08	130.22	3.74	0.00	20.42	0.04
	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
PIPELINE INSTALLATION	VESSELS - Support Diesel, Laying		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 - Support Diesel, Burying		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 - 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
FACILITY INSTALLATION	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
	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	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	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
2029	Non-Facility Total Emissions							10.16	6.13	5.95	0.15	243.40	7.00	0.00	38.18	0.07	7.60	4.58	4.45	0.11	182.06	5.23	0.00	28.56	0.05

AIR EMISSIONS CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	FACILITY	WELL	
BOE Exploration & Production	944	OCS-G 36061	N/A	WB001 / WB002 and alternate or relief locations, if necessary		

Year	Facility Emitted Substance								
	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	55.98	33.77	32.76	0.81	1341.25	38.56	0.00	210.37	0.39
2025	173.55	104.71	101.56	2.53	4158.06	119.55	0.01	652.18	1.21
2026	173.55	104.71	101.56	2.53	4158.06	119.55	0.01	652.18	1.21
2027	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
2028	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
2029	130.80	78.91	76.54	1.90	3133.76	90.10	0.01	491.52	0.91
Allowable	0.00			0.00	0.00	0.00		0.00	

APPENDIX I
OIL SPILLS INFORMATION

A) OIL SPILL RESPONSE PLANNING

Pursuant to 30 CFR 550.219 and NTL BOEM 2015-N01, this appendix provides information regarding any potential oil spill(s), the assumptions and calculations used to determine the worst-case discharge (WCD) measures scenario.

Below is a reference to and status of BOE Exploration & Production's Regional OSRP. A site specific OSRP nor a sub-regional OSRP is not required with this plan, as the State of Florida is not an affected State for the activities proposed in this plan.

1) REGIONAL OR SUBREGIONAL OSRP INFORMATION

Activities proposed in this plan will be covered by oil spill response plan number O-1039, originally approved via letter dated September 17, 2019, and subsequent updates and modifications. The most recent OSRP update was found in compliance via letter dated December 28, 2023.

The below operators are covered under oil spill response plan number O-1039:

- BOE Exploration & Production LLC (03572)
- Beacon Growthco Operating Company, L.L.C. (03567)

2) SPILL RESPONSE SITES

The table below provides information on the location of the primary spill response equipment and the location of the planned staging area(s) that would be used should an oil spill occur resulting from the activities proposed in this plan.

Primary Response Equipment Location	Pre-Planned Staging Location
Houma, LA	Venice, LA

3) OIL SPILL REMOVAL ORGANIZATION (OSRO) INFORMATION

The O'Brien Group will provide trained personnel capable of providing supervisory oil spill response management in addition to contacting and deploying cleanup personnel and equipment.

BOE Exploration & Production's primary equipment provider is Clean Gulf Associates (CGA). CGA is supported by the Marine Spill Response Corporation (MSRC), which is responsible for storing, inspecting, maintaining and dispatching CGA equipment. The MSRC STARs network provides for the closest available personnel as well as an MSRC supervisor to operate the equipment.

4) WORST CASE SCENARIO COMPARISON

The table below provides a comparison of the worst-case discharge scenario from the above referenced Regional OSRP with the worst-case scenario from the activities proposed in this plan. Please note the Regional OSRP distance to shore scenarios are approximate and will be updated as required with modifications to the OSRP. The distance to shore for the proposed activities is accurate and based on survey data.

Worst Case Discharge Comparison Chart

Category	Regional OSRP WCD	Plan WCD	Regional OSRP WCD	Plan WCD
Type of Activity	Drilling	Drilling	Production	Production
Facility (Area/Block)	WR 51	GC 988	WR 52	GC 860
Facility Designation	Well SA011	Location A	FPS	A
Distance to Shore (miles)	154	140	154	120
Volume				
Flowlines (on facility)	0	0	1688 bbls	0
Lease Term Pipelines	0	0	13,456 bbls	0
Storage	0	0	600 bbls	0
Uncontrolled Blowout	372,400 BOPD	144,100 BOPD	39,750 BOPD	16,500 BOPD
Total Volume	**372,400 BOPD**	**144,100 BOPD**	**55,494 BOPD**	**16,500 BOPD**
Type of Oil	Crude	Crude	Crude	Crude
API Gravity	36.6°	31°	36.6°	31°

The Plan WCD for Drilling activity shown above for the Winterfell project area were initially submitted and found acceptable via plan control number N-10114 and re-validated via subsequent plan control numbers and this plan. Area(s) / block(s) included in those plans were Green Canyon blocks 943 (OCS-G 36060), 944 (OCS-G 36061) and 988 (OCS-G 35417).

Production activity proposed in this plan will be conducted via Anadarko Petroleum Corporation-operated Green Canyon 860 A-Heidelberg production facility. In accordance with BOEM guidance for WCD volumes if the host platform belongs to another operator, the Plan WCD for Production activity shown above reflects a manifold leak volume only to confirm that the operator has the capability to respond in the event of a leak at that location.

BOE Exploration & Production has the capability to respond to the worst-case spill scenario included in its regional OSRP, originally approved via letter dated September 17, 2019, and most recent OSRP non-regulatory update found in compliance via letter dated December 28, 2023, and since the worst-case scenario determined for the subject DOCD does not replace the worst-case scenario in its regional OSRP, BOE Exploration & Production hereby certifies that it has the capability to respond, to the maximum extent practicable, to a worst-case discharge, or a substantial threat of such a discharge, resulting from the activities proposed in the subject DOCD.

5) WORST CASE DISCHARGE ASSUMPTIONS AND CALCULATIONS

Worst case discharge assumptions and calculations for the Winterfell project area WCD volume of 144,100 BOPD were initially submitted and found acceptable via plan control number N-10114 and re-validated via subsequent plan control numbers and this plan. Area(s) / block(s) included in those plans were Green Canyon blocks 943 (OCS-G 36060), 944 (OCS-G 36061) and 988 (OCS-G 35417).

6) OIL SPILL RESPONSE DISCUSSION

An oil spill response discussion is included in the attachments to this appendix.

OIL SPILL RESPONSE DISCUSSION

BOE Exploration & Production LLC will make every effort to respond to the Worst Case Discharge as effectively as possible.

Based on the anticipated worst case discharge scenario, BOE Exploration & Production LLC can be onsite with all contracted oil spill recovery equipment with adequate response capacity to contain and recover surface hydrocarbons and prevent land impact, to the maximum extent practicable, within an estimated 97 hours, based on the equipment's Estimated Daily Recovery Capacity (EDRC).

General Considerations for all Oil Spill Recovery Operations

BOE Exploration & Production LLC will use all appropriate measures possible to safely and efficiently recover all oil spills from its facilities. These include but are not limited to:

- Conducting detailed safety analyses on all operations and preparing/disseminating resulting safety plans to all response personnel
- Use of tactics described in the most current MSRC Gulf Area Tactics Guide Book and any other appropriate tactics developed during the event
- Configuring all surface recovery systems to achieve maximum throughput and recovery efficiency rates:
    - Maximization of the use of advanced and adverse weather recovery systems to increase oil to recovery system encounter rates
    - Use of vessels with the largest possible on-board recovered oil storage to minimize off-load times
    - Use of appropriate vessels to deploy ocean boom to form the widest practical width to maximize oil to recovery system encounter rate
    - Use of appropriate recovery systems to maximize recovery rate in all operable environmental conditions
- Early deployment of MSRC's Responder class OSRVs (4,000 bbl storage) and large OSRBs (minimum of 36,000 bbl storage) to recover and store oil while minimizing rig/derig and transit time, maximizing on-board storage and on-station time
- Obtaining early approval for decanting of oil to maximize storage capacity
- Use of most efficient, high volume pumps for oil recovery and decanting, offloading and lightering
- Use of advanced technology (such as thermal infrared and multi-spectral cameras) to detect oil on the water's surface and classify it as recoverable or non-recoverable. This will allow more efficient use of on-water recovery task forces, maximize recovery rates and expand operational windows. This advanced technology is effective in both day and night time surveillance activities depending upon atmospheric conditions
- Early consideration of advanced oil removal methods (e.g. dispersant application and in-situ burning) and coordination/consultation with the USCG and appropriate Regional Response Team for obtaining permission to proceed as necessary
- Providing effective communication systems to allow for the command and control of deployed resources to ensure safety, reduce response times, and collect information necessary to develop a comprehensive, timely, and accurate Common Operating Picture (COP)

Figure H.3 outlines equipment, personnel, materials and support vessels as well as temporary storage equipment available to respond to the worst case discharge. The volume accounts for the amount remaining after evaporation/dispersion at 24 hours. The list estimates individual times needed for procurement, load out, travel time to the site and deployment. **Figure H.3** also indicates how operations will be supported.

Figure H.3 outlines equipment, personnel, materials and support vessels as well as temporary storage equipment available to respond to the worst case discharge. The volume accounts for the amount remaining after evaporation/dispersion at 24 hours. The list estimates individual times needed for procurement, load out, travel time to the site and deployment. **Figure H.3** also indicates how operations will be supported.

E. Tactics

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

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

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

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

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

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

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

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

Offshore Response Actions

Equipment Deployment

Surveillance

- Aerial Observation:
  - Surveillance Aircraft: deployment within two hours of QI notification, or at first light
  - Provide trained observer to provide on site status reports
  - Provide aerial photography and visual confirmation
- Provide command and control platform at the site if needed
- Remote Sensing:
  - Use of thermal infrared and multi-spectral sensing systems or other technology to detect oil and classify it as recoverable or non-recoverable to enhance on-water recovery capability
  - Surveillance platforms should be appropriate for weather and atmospheric conditions to provide the greatest altitude (e.g. aircraft, aerostats or ship mounted)
  - Continued surveillance of oil movement by remote sensing systems
- Continual monitoring of vessel assets using vessel monitoring systems

Dispersant application assets

- Put aerial dispersant providers on standby
- With the FOSC, conduct analysis to determine appropriateness of dispersant application (refer to Section 18)
- Gain FOSC approval for use of dispersants on the surface
- Deploy aircraft in accordance with a plan developed for the actual situation
- Coordinate deployment of a Special Monitoring of Applied Response Technologies (SMART) team as required
- Coordinate movement of dispersants, aircraft, and support equipment and personnel
- Confirm dispersant availability for current and long range operations
- Consider ordering dispersant stocks required for expected operations

Containment boom

- Call out early and expedite deployment to be on scene ASAP
- Ensure boom handling and mooring equipment is deployed with boom
- Provide continuing reports to vessels to expedite their arrival at sites that will provide for their most effective containment
- Use Vessels of Opportunity (VOO) to deploy and maintain boom
- MSRC OSRVs and OSRBs have on-board ocean boom inventories and additional significant stockpiles are available in MSRC warehouses

Dedicated off-shore skimming systems

General

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

CGA HOSS Barge

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

CGA 95' Fast Response Vessels (FRVs)

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

- Use as far off-shore as safely possible

CGA FRUs

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

Koseq Skimming Systems

- To the area of the thickest oil
- PIDVs with a minimum of 6,000 bbls storage capacity
- PIDVs at least 220' in length
- PIDVs with deck space of 100' x 50' to provide space for arms, tanks, and crane
- PIDVs for shallow water should be deck barges with a draft of <10 feet when fully loaded

MSRC Responder Class Vessels / Oil Spill Response Vessels (OSRV)

- Use in areas with heaviest oil concentrations
- Use as near-shore as allowed by draft of vessel
- Use as far off-shore as needed
- Consider for use in areas of known debris (seaweed and other floating materials)

MSRC Oil Spill Response Barges (OSRB)

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

MSRC PSV-VOO Skimming Systems

- Use in areas with heaviest oil concentrations
- Use as near-shore as allowed by draft of vessel
- Use as far off-shore as needed
- Expected 24-hour mobilization
- Expected length of 200 foot or greater
- PSV-VOO with deck space of 150' x 40' to provide space for skimmer, marine storage tanks and boom
- PSV-VOO with 2,000-20,000 bbl below deck storage supplemented with two or more 500 bbl marine portable tanks depending on below deck storage compatibility with flashpoint of recovered product

Storage Vessels

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

Vessels of Opportunity (VOO)

- Use BOE Exploration & Production LLC's contracted resources as applicable
- Industry vessels are ideal for deployment of Vessel of Opportunity Skimming Systems (VOSS)
- Acquire additional resources as needed
- Consider use of local assets, i.e. fishing and pleasure craft
- Expect mission specific and safety training to be required
- Plan with the US Coast Guard/ABS for vessel inspections

- Place VOOs in Division or Groups as needed
- Use organic on-board storage if appropriate
- Maximize non-organic storage appropriate to vessel limitations
- Decant as appropriate after approval to do so has been granted
- Assign bulk storage barges to each Division/Group
- Position bulk storage barges as close to skimming units as possible
- Utilize large skimming vessel (e.g. barges) storage for smaller vessel offloading
- Maximize skimming area (swath) to the optimum width given sea conditions and available equipment
- Maximize use of oleophilic skimmers in all operations, but especially offshore
- Nearshore, use shallow water barges and shuttle to skimming units to minimize offloading time
- Plan and equip to use all offloading capabilities of the storage vessel to minimize offloading time

In-situ Burn assets

- Determine appropriateness of in-situ burn operation in coordination with the FOSC and affected SOSC
- Determine availability of fire boom and selected ignition systems
- Start ordering fire boom stocks required for expected operations
- Ensure VOO crew members are trained prior to operations
- Determine assets to perform on water operation
- Build operations into safety plan
- Conduct operations in accordance with an approved plan
- Initial test burn to ensure effectiveness

Adverse Weather Operations:

In adverse weather, when seas are ≥ 3 feet, the use of larger recovery and storage vessels, oleophilic skimmers, and large offshore boom will be maximized. Safety will be the overriding factor in all operations and will cease at the order of the Unified Command, vessel captain, or in an emergency, "stop work" may be directed by any crew member.

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

Maximization of skimmer-oil encounter rate

- Place barges in skimming task forces, groups, etc., to reduce recovered oil offloading time
- Place barges alongside skimming systems for immediate offloading of recovered oil when practicable
- Use two vessels, each with heavy sea boom, in an open-ended "V" configuration to funnel surface oil into a trailing skimming unit's organic, V-shaped boom and skimmer (see page 7, *CGA Equipment Guide Book and Tactic Manual* (CGATM)
- Use secondary vessels and heavy sea boom to widen boom swath beyond normal skimming system limits (see page 15, CGATM)
- Consider night-time operations, first considering safety issues
- Utilize all available advanced technology systems (IR, X-Band Radar, etc.) to determine the location of, and move to, recoverable oil
- Confirm the presence of recoverable oil prior to moving to a new location

Maximize skimmer system efficiency

- Place weir skimming systems in areas of calm seas and thick oil
- Maximize the use of oleophilic skimming systems in heavier seas
- Place less mobile, high EDRC skimming systems (e.g. HOSS Barge) in the largest pockets of the heaviest oil

- Maximize onboard recovered oil storage for vessels.
- Obtain authorization for decanting of recovered water as soon as possible
- Use smaller, more agile skimming systems to recover streamers of oil normally found farther from the source. Place recovered oil barges nearby

Recovered Oil Storage

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

Command, Control, and Communications (C^3)

- Publish, implement, and fully test an appropriate communications plan
- Design an operational scheme, maintaining a manageable span of control
- Designate and mark C^3 vessels for easy aerial identification
- Designate and employ C^3 aircraft for task forces, groups, etc.
- Use reconnaissance air craft and Rapid Response Teams (RAT) to confirm the presence of recoverable oil

On Water Recovery Group

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

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

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

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

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

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

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

Initial set-up and potential actions:

- A 1,000 meter safety zone has been established around the incident location for vessels involved in Source Control
- The HOSS Barge is positioned facing the incident location just outside of this safety zone or at the point where the freshest oil is reaching the surface
- The HOSS Barge engages its Oil Spill Detection (OSD) system to locate the heaviest oil and maintains that ability for 24-hour operations
- The HOSS Barge deploys 1,320' of 67" Sea Sentry boom on each side, creating a swath width of 800'
- The Breton Island and H.I. Rich skim nearby, utilizing the same OSD systems as the HOSS Barge to locate and recover oil
- Two FRUs join this group and it becomes TF1
- The remaining 7 FRUs are split into a 2 and 3 vessel task force numbered TF2 and TF3
- A 95' FRV is placed in each TF
- The boom barge (CGA 300) is positioned nearby and begins deploying auto boom in sections between two utility vessels (1,000' to 3,000' of boom, depending on conditions) with chain-link gates in the middle to funnel oil to the skimmers
- The initial boom support vessels position in front of TF2 and TF3
- A 100,000+ barrel offshore tank barge is placed with each task force as necessary to facilitate the immediate offload of skimming vessels

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

TF 1

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

TF 2

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

TF 3

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

Offshore skimming equipment continues to arrive in accordance with the ETA data listed in **Figure H.3**; this equipment includes 2 AquaGuard skimmers and 22 Koseq Rigid Skimming Arms. These high-volume heavy weather capable systems will be divided into functional groups and assigned to specific areas by the Operations Section of the Unified Command. Upon arrival of the Koseq Arms and assignment into TFs, the 95' FRVs can be moved to the Koseq TF's to allow for 24 hour operations if needed.

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

TF 4

- 4 – Individual Koseq Rigid Skimming Arms w/ associated 220'+ PIDVs
- 1 – AquaGuard Skimmer
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 10 – 500' sections of auto boom with gates
- 10 – Boom-towing vessels

TF 5

- 6 – Individual Koseq Rigid Skimming Arms w/ associated 220'+ PIDVs
- 1 – AquaGuard Skimmer
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 14 – 500' sections of auto boom with gates
- 14 – Boom-towing vessels

TF 6

- 6 – Individual Koseq Rigid Skimming Arms w/ associated 220'+ PIDVs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 12 – 500' sections of auto boom with gates
- 12 – Boom-towing vessels

TF 7

- 6 – Individual Koseq Rigid Skimming Arms w/ associated 200'+ PIDVs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 2 – Support vessels (crew/utility)
- 12 – 500' sections of auto boom with gates
- 12 – Boom-towing vessels

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

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

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

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

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

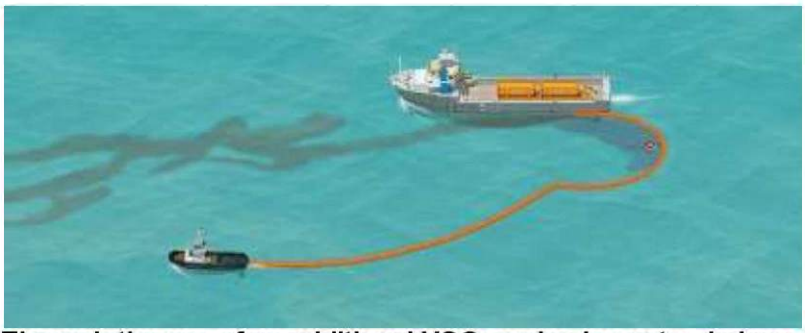
Tactical Overview

Mechanical Recovery – The FRU is designed to provide fast response skimming capability in the offshore and nearshore environment in a stationary or advancing mode. It provides a rated daily recovery capacity of 4,100 barrels. An additional boom reel with 440' of offshore boom can be deployed along with the FRU, and a second support vessel for boom towing, to extend the swath width when attached to the end of the fixed boom. The range and sustainability offshore is dependent on the VOO that the unit is placed on, but generally these can stay offshore for extended periods. The FRU works well independently or assigned with other on-water recovery assets in a task force. In either case, it is most effective when a designated aircraft is assigned to provide tactical direction to ensure the best placement in recoverable oil.

Maximum Sea Conditions – Under most circumstances the FRU can maintain standard oil spill recovery operations in 2' to 4' seas. Ultimately, the Coast Guard licensed Captain in charge of the VOO (with input from the CGAS Supervisor assigned) will be responsible to determine when the sea conditions have surpassed the vessel's safe operating capabilities.

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

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



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

The Koseq Rigid Sweeping Arm: A skimming system deployed on a vessel of opportunity. It requires a large Offshore or Platform Supply Vessel (OSV/PSV), greater than 220' with at least 100' x 50' of free deck space. On one side of the vessel, a 50' long rigid framed Arm is deployed that consists of pontoon chambers to provide buoyancy, a smooth nylon face, and a hydraulically adjustable mounted weir skimmer. The Arm floats independently of the vessel and is attached by a tow bridle and a lead line. The movement of the vessel forward draws the rubber end seal of the arm against the hull to create a collection point for free oil directed to the weir or brush skimmer by the Arm face. The weir or brush is adjusted to maximize the oil encounter rate. A transfer pump (combination of positive displacement, screw type and centrifuge suited for highly viscous oils) pump the recovered liquid to portable tanks and/or dedicated fixed storage tanks onboard the vessel. After being allowed to sit and separate, with approval from the Coast Guard, the water can be decanted (pumped off) in front of the collection arm to be reprocessed through the system. Once full with as much pure recovered oil as possible, the oil is transferred to the vessels liquid mud tanks in accordance with the vessel COI. Once the vessel is full, oil can be offloaded to a temporary storage barge where it can be disposed of in accordance with an approved disposal plan.

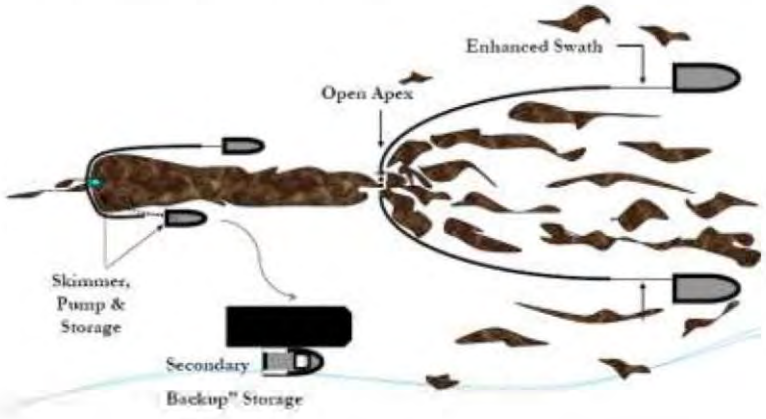
Tactical Overview

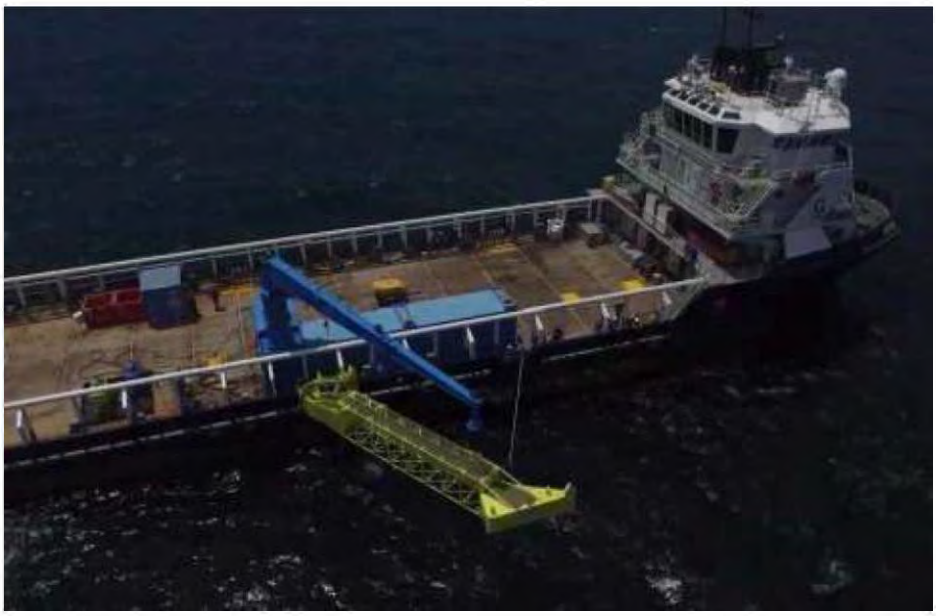
Mechanical Recovery – Deployed on large vessels of opportunity (VOO) the Koseq Rigid Sweeping Arms are high volume surge capacity deployed to increase recovery capacity at the source of a large oil spill in the offshore and outer nearshore environment of the Gulf of Mexico. They are highly mobile and sustainable in rougher sea conditions than normal skimming vessels (9.8' seas). The large Offshore Supply Vessels (OSV) required to deploy the Arms are able to remain on scene for extended periods, even when sea conditions pick up. Temporary storage on deck in portable tanks usually provides between 1,000 and 3,000 bbls. Additionally, the OSV will be able to pump 20% of its deadweight into the liquid mud tanks in accordance with the vessels Certificate of Inspection (COI), for an approximate total storage capability of at least 6,000 bbls. All storage can be offloaded utilizing the vessels liquid transfer system.

Maximum Sea Conditions - Under most circumstances the larger OSVs are capable of remaining on scene well past the Skimming Arms maximum sea state of 9.8'. Ultimately it will be the decision of the VOO Captain, with input from the on-deck Supervisor onboard, to determine when the sea conditions have exceeded the safe operating conditions of the vessel.
Command and Control – The large OSVs in many cases have state of the art communication and electronic systems, as well as the accommodations to support the function of directing all skimming operations offshore and reporting back to the command post.

Possible Task Force Configuration (Multiple Koseq VOOs can be deployed in a task force)
1 – ≥ 200' Offshore Supply Vessels (OSV) per Koseq Arm
2 to 4 portable storage tanks (500 bbl)
1 – Modular Crane Pedestal System set (MCPS) or 30 cherry picker (crane) for deployment
1 – Tank barge (offshore) for temporary storage
1 – Utility/Crewboat (supply)
1 – Designated spotter aircraft
4 – Personnel (4 T&T OSRO)

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





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

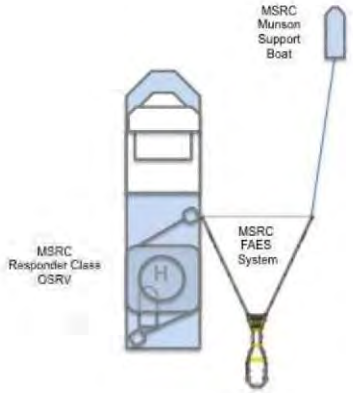
- CGA has procedures in place for CGA member companies to acquire vessels of opportunity (VOOs) from an existing CGA member's contracted fleet or other sources for the deployment of CGA portable skimming equipment including Koseq Arms, Fast Response Units (FRUs) and any other portable skimming system(s)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

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

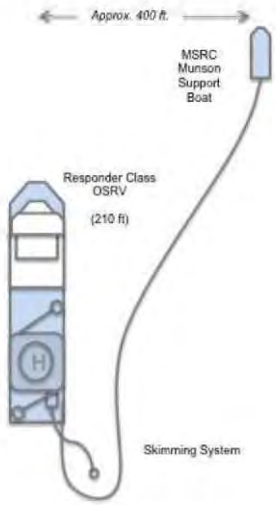
Typical On-Water Oil Recovery and Removal Tactics *(See MSRC Gulf Area Tactics Guidebook for more information)*

Mechanical Recovery
Large Scale Resources

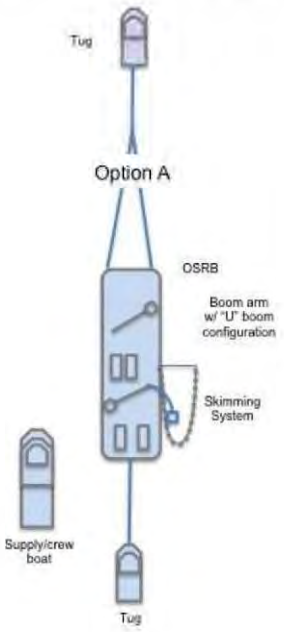
Option A – OSRV FAES Deployment (Example)



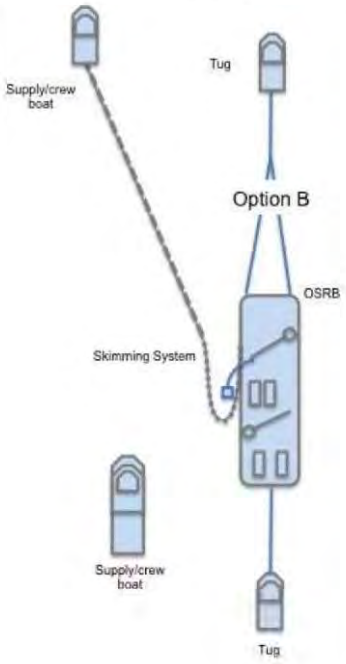
Option B – OSRV Ocean Boom in a "J" Configuration (Example)



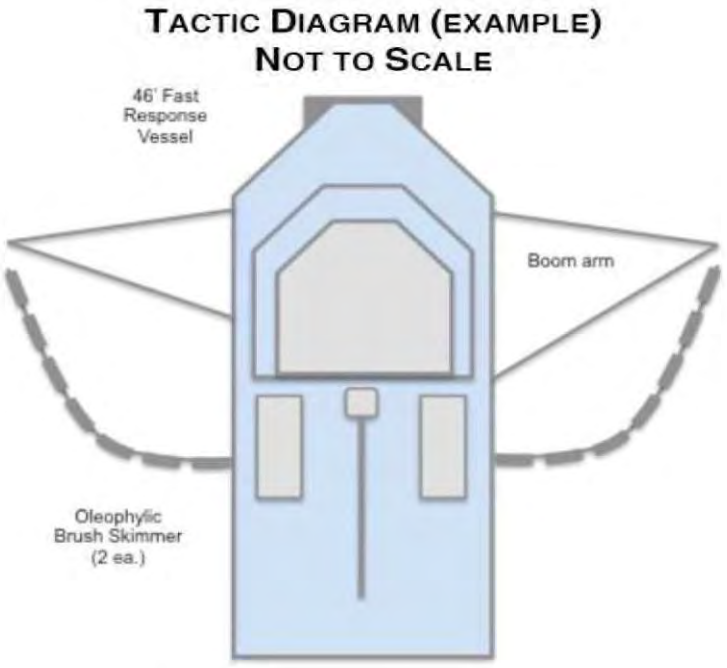
Option A – OSRB in a "U" Configuration

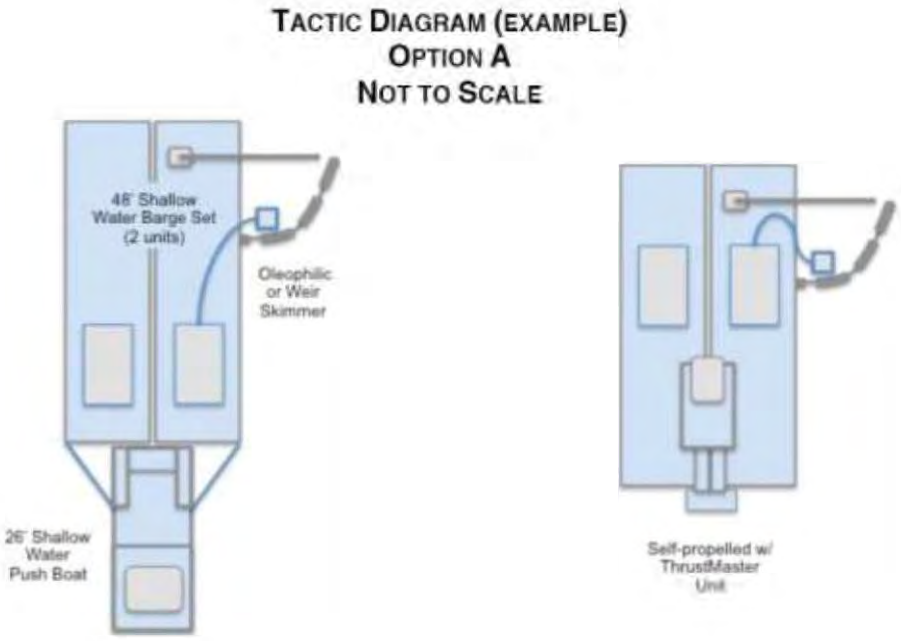


Option B – OSRB in a "J" Configuration

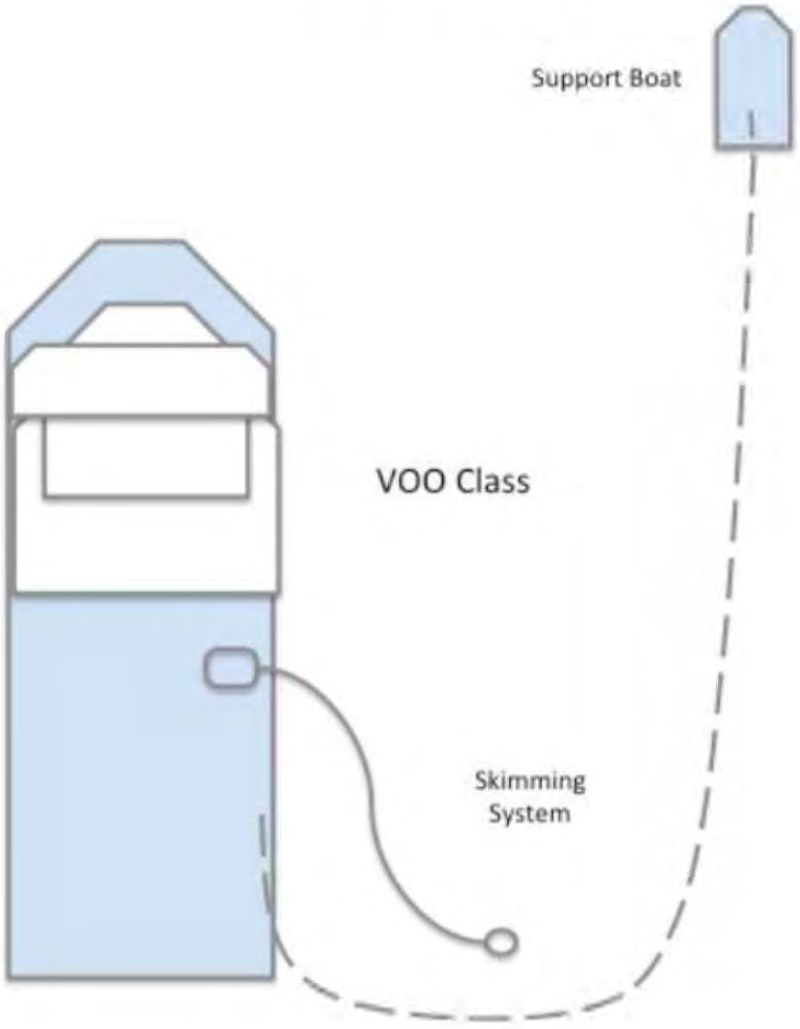


Small Scale Resources

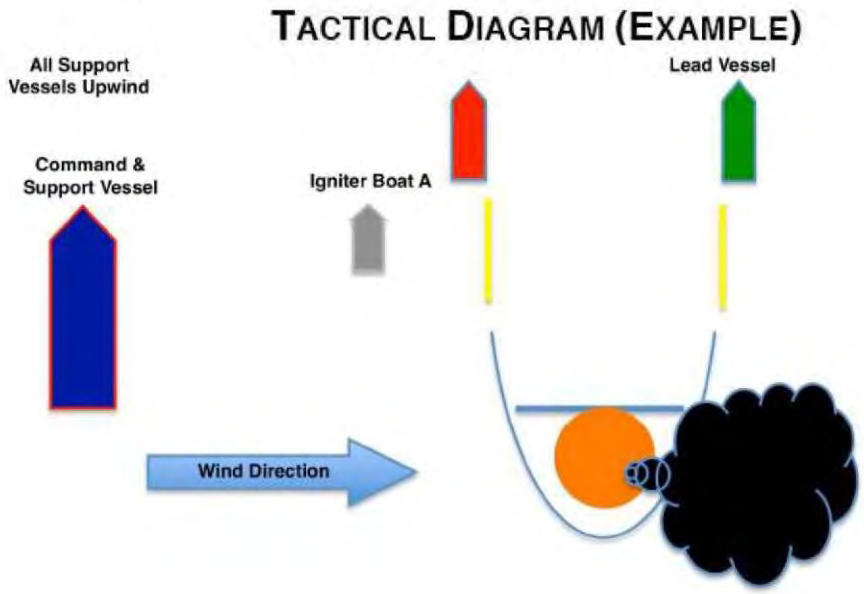




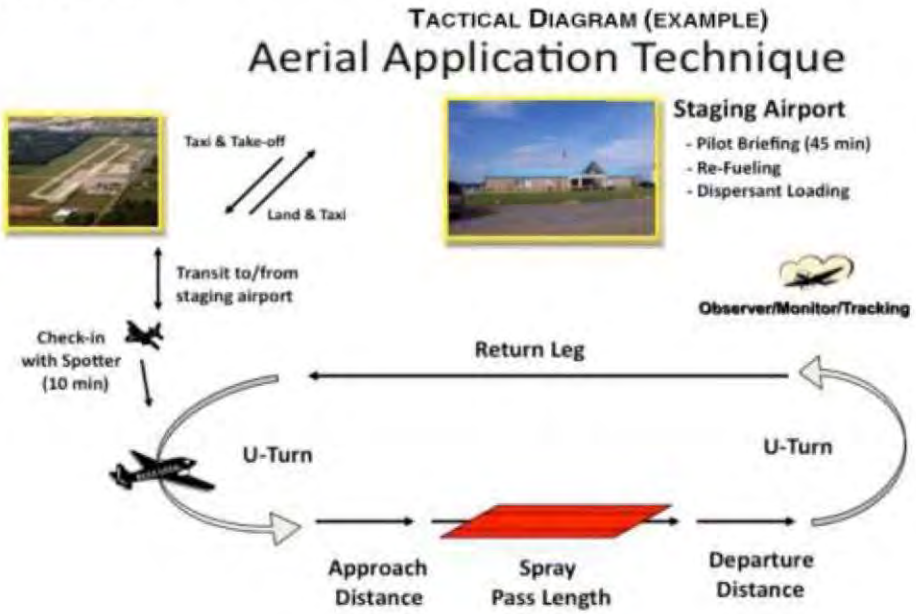
TACTIC DIAGRAM (EXAMPLE)
NOT TO SCALE



In-situ Burn (ISB)



Aerial Dispersant



Near Shore Response Actions

Timing

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

Considerations

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

Equipment Deployment
Surveillance

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

Dispersant Use

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

Vessel Deployment

Dedicated Near Shore skimming systems

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

VOO

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

Shoreline Protection Operations

Response Planning Considerations

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

Placement of boom

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

Beach Preparation
Considerations and Actions

- Use of a 10 mile go/no go line to determine timing of beach cleaning
- SCAT reports and recommendations
- Determination of archeological sites and gaining authority to enter
- Monitoring of tide tables and weather to determine extent of high tides
- Pre cleaning of beaches by moving waste above high tide lines to minimize waste
- Determination of logistical requirements and arranging of waste removal and disposal
- Staging of equipment and housing of response personnel as close to the job site as possible to maximize on-site work time
- Boom tending, repair, replacement and security (use of local assets may be advantageous)
- Constant awareness of weather and oil movement for resource re-deployment as necessary
- Earthen berms and shoreline protection boom may be considered to protect sensitive inland areas
- Requisitioning of earth moving equipment

- Plan for efficient and safe use of personnel, ensuring:
    - A continual supply of the proper Personal Protective Equipment
    - Heating or cooling areas when needed
    - Medical coverage
    - Command and control systems (i.e. communications)
    - Personnel accountability measures
- Remediation requirements, i.e., replacement of sands, rip rap, etc.
- Availability of surface washing agents and associated protocol requirements for their use (see National Contingency Plan Product Schedule for list of possible agents)
- Discussions with all stakeholders, i.e., land owners, refuge/park managers, and others as appropriate, covering the following:
    - Access to areas
    - Possible response measures and impact of property and ongoing operations
    - Determination of any specific safety concerns
    - Any special requirements or prohibitions
    - Area security requirements
    - Handling of waste
    - Remediation expectations
    - Vehicle traffic control
    - Domestic animal safety concerns
    - Wildlife or exotic game concerns/issues

Inland and Coastal Marsh Protection and Response Considerations and Actions

- All considered response methods will be weighed against the possible damage they may do to the marsh. Methods will be approved by the Unified Command only after discussions with local Stakeholder, as identified above.
    - In-situ burn may be considered when marshes have been impacted
- Passive clean up of marshes should considered and appropriate stocks of sorbent boom and/or sweep obtained.
- Response personnel must be briefed on methods to traverse the marsh, i.e.,
    - use of appropriate vessel
    - use of temporary walkways or road ways
- Discuss and gain approval prior cutting or moving vessels through vegetation
- Discuss use of vessels that may disturb wildlife, i.e, airboats
- Safe movement of vessels through narrow cuts and blind curves
- Consider the possibility that no response in a marsh may be best
- In the deployment of any response asset, actions will be taken to ensure the safest, most efficient operations possible. This includes, but is not limited to:
    - Placement of recovered oil or waste storage as near to vessels or beach cleanup crews as possible.
    - Planning for stockage of high use items for expeditious replacement
    - Housing of personnel as close to the work site as possible to minimize travel time
    - Use of shallow water craft
    - Use of communication systems appropriate ensure command and control of assets
    - Use of appropriate boom in areas that I can offer effective protection
    - Planning of waste collection and removal to maximize cleanup efficiency
- Consideration or on-site remediation of contaminated soils to minimize replacement operations and impact on the area

F. Wildlife Protection

In the event an oil spill does occur, first response efforts are improved by pre-identifying resources at risk, such as beaches, waterfowl, other marine and shoreline resources and areas of special economic or environmental importance that could be impacted. Area Contingency Plans will be referenced, including mapping resources identifying environmentally sensitive areas. Refer to **SECTION 12** for additional resource identification information.

Principle objectives during spill response and cleanup are to:

- Protect wildlife and habitats from oiling
- Document for the Unified Command the resources at risk and the impacts to marine wildlife
- Protect wildlife and habitats from adverse effects of response measures
- Minimize unavoidable injuries to wildlife and habitats
- Rescue and rehabilitate the maximum number of impacted wildlife possible

The best time to prevent wildlife impacts after a spill has occurred is during the earliest stages of the spill response. Early aerial, ground, and on-water reconnaissance of the wildlife in the spill area will allow more recovery and rehabilitation of impacted wildlife. Overall typical strategic response planning objectives and strategy examples are detailed in **SECTION 10**.

An example of recovering and rehabilitating injured wildlife could include:

- Establish oiled wildlife reporting hotline
- Conduct injured wildlife search and rescue operations
- Set up primary care unit for injured wildlife, through wildlife specialist organizations (Refer to **SECTION 17** for additional information.)

A spill will have the least impact on an environment if it is contained in open water and not allowed to contact the shore, if possible. Federal and State agencies will be contacted when there is a possibility that a wildlife habitat will be affected by a discharge. Refer to **SECTION 13** for further details resource protection methods. Steps will be taken to:

- Stop further pollution at the source
- Contain the pollutant discharge released
- Remove the product

Priority will be given to the safety of endangered or threatened wildlife, designated wildlife refuges, known wildlife concentrations, oyster seed grounds, and fisheries. Vegetated swamps, marshes, and shorelines and the wildlife that inhabits those areas will also be evaluated, and cared for as needed.

G. Environmental Conditions/Operational Limitations

Environmental Conditions in the GOM

Louisiana is situated between the easterly and westerly wind belts, and therefore, experiences westerly winds during the winter and easterly winds in the summer. Average wind speed is generally 14-15 mph along the coast. Wave heights average 4 and 5 feet. However, during hurricane season, Louisiana has recorded wave heights ranging from 40 to 50 feet high and winds reaching speeds of 100 mph. Because much of southern Louisiana lies below sea level, flooding is prominent. Surface water temperature ranges between 70 and 80 ° F during the summer months. During the winter, the average temperature will range from 50 and 60 ° F.

Prevailing winds, waves and currents along the Texas coast are from the southeast and northeast quadrants. Ten to 20 foot waves may occur during hurricanes. The combined effect of the winds, surface currents, and waves refracting shoreward produce the prevailing westerly longshore currents. Tides are semi-diurnal and diurnal, and range in height from less than 1 foot to 2.5 feet. The direction, force, and duration of the wind has a considerable effect on the tides and currents. Fifteen foot tides may be expected during severe hurricanes and very low tides may accompany strong northerlies of long duration. Surface water temperature averages slightly less than 90° F and ranges between 80 and 100° F during the late summer. During the winter the average is slightly less than 60° F and the range is between 35 and 80° F.

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

Equipment Limitations

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

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

H. Blowout Lasting 30+ Days

1) Ocean Barge to transport recovered oil from offshore skimming systems and temporary storage barges to onshore disposal sites (identified in Area Contingency Plans and approved by the State)
2) Additional OSRO personnel to relieve equipment operators
3) Vessels for supporting offshore operations
4) Field safety personnel
5) Continued surveillance and monitoring of oil movement
6) Helicopter, video cameras
7) Infra red (night time spill tracking) capabilities, including the potential use of X-band radar
8) Oil Spill Detection Systems, such as the MIROS OSD and/or the APTOMAR SECurus system
9) Logistics needed to support equipment:
   - Parts trailers and mechanics to maintain skimmers and boom
   - Staging areas
   - Fueling facilities
   - Decontamination stations
   - Dispersant stockpile transported from Houston to Houma
   - Communications equipment and technicians
10) Logistics needed to support responder personnel:
   - Food
   - Berthing
   - Additional clothing/safety supplies
   - Decontamination stations
   - Medical aid stations
   - Safety personnel

I. Long Term Supplies of Fire Containment Boom and Dispersants

Fire Containment Boom

CGA and MSRC own fire containment boom which should be sufficient to conduct up to 6-14 burns per set. If conditions indicate that in-situ burning is a viable long-term option, BOE Exploration & Production LLC has pre-identified fire boom owners and manufacturers in order to acquire additional assets (refer to **SECTION 19**).

To ensure that a continuous supply of fire containment boom is available throughout the worst-case planning period of 30+ days, providers will be contacted at least six weeks before the available supply is expected to be depleted to allow for production and transportation of replacement materials.

Dispersants

CGA has an inventory of dispersants in the GOM and an agreement with other equipment providers to share their dispersant stockpiles. MSRC has an inventory of dispersants throughout the US.

If conditions indicate that dispersant use is a viable long-term option, BOE Exploration & Production LLC has pre-identified owners and manufacturers of dispersants in order to acquire (refer to **SECTION 18**).

BOE Exploration & Production LLC will contact manufacturers as soon as it is apparent projected dispersant use will exhaust currently available stocks. This will be done to ensure that a continuous supply of dispersants is available throughout a planning period of 30+ days.

FIGURE 1
TRAJECTORY BY LAND SEGMENT

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

Area/Block	OCS-G	Launch Area	Land Segment and/or Resource	Conditional Probability (%)
GC 944	G36061	C45	Calhoun, TX	1
			Matagorda, TX	1
			Brazoria, TX	1
			Galveston, TX	2
			Jefferson, TX	1
			Cameron, LA	4
			Vermilion, LA	2
			Iberia, LA	1
			Terrebonne, LA	2
			Lafourche, LA	1
			Plaquemines, LA	2

Figure H.3 — Equipment Response Time

Surveillance Aircraft

Name/Type	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to site	Total Hrs
ASI (available through contract with CGA)						
Aero Commander	2	Houma, LA	2	2	1	5
T&T Marine (available through contract with CGA)						
CJ3 Citation	2	Houston/Galveston, TX	2	2	1.4	5.4

Dispersant Aircraft

Name/Type	Dispersant Capacity (gal)	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to site	Total Hrs
ASI (available through contract with CGA)							
Basler 67T	2000	2	Houma, LA	2	2	1	5
DC 3	1200	2	Houma, LA	2	2	1.3	5.3
MSRC							
737-500	4,125	3	Weyers Cave, VA	2	0.5	2.5	5
737-500	4,125	3	Moses Lake, WA	2	0.5	4.5	7

Offshore Response

Offshore Equipment Pre-Determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
95' FRV	22885	249	NA	6	Leeville	2	0	2	9	1	14
95' FRV	22885	249	NA	6	Venice	2	0	3	10	1	16
95' FRV	22885	249	NA	6	Vermilion	2	0	3	8	1	14
95' FRV	22885	249	NA	6	Galveston	2	0	3	13	1	18
HOSS Barge	76285	4000	3 Tugs	8	Harvey, LA	6	0	12	24	2	44
Boom Barge (CGA-300) 42" Auto Boom (25000')	NA	NA	1 Tug 50 Crew	4 (Barge) 2 (Per Crew)	Leeville, LA	8	0	4	24	2	38
Genesis Marine (Available through contract with CGA)											
GM 6506	NA	65000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 6507	NA	65000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 6508	NA	65000	1 Tug	6	Port Arthur	24	12	0	30	0	66

Offshore Equipment Pre-determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
MSRC											
Louisiana Responder 1 Transrec 350 *2,640' 67" Curtain Pressure Boom*	10567	4000	NA	10	Fort Jackson, LA	12	12	4	6.5	1	35.5
MSRC 401 Offshore Barge 1 Crucial Disk 88/30 *2,640' 67" Curtain Pressure Boom*	11122	40000	3 Tugs	9	Fort Jackson, LA	12	12	6	11	1	42
S.T. Benz Responder 1 LFF 100 Brush *2,640' 67" Curtain Pressure Boom*	18086	4000	NA	10	Grand Isle, LA	12	12	1	9	1	35

Staging Area: Fourchon

Offshore Equipment With Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
					CGA						
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Vermilion	2	6	5.5	14	1	28.5
FRU (3) + 100 bbl Tank (6)	12753	600	3 Utility	18	Leeville	2	6	2	14	1	25
FRU (2) + 100 bbl Tank (4)	8502	400	2 Utility	12	Venice	2	6	5	14	1	28
Hydro-Fire Boom	NA	NA	8 Utility	40	Harvey	0	24	3	14	6	47

Nearshore / Shoreline Response

Nearshore Equipment Pre-determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
Mid-Ship SWS	22885	249	NA	4	Galveston	2	0	N/A	48	1	51
Mid-Ship SWS	22885	249	NA	4	Leeville	2	0	N/A	48	1	51
Trinity SWS	21500	249	NA	4	Vermilion	2	0	N/A	48	1	51
46' FRV	15257	65	NA	4	Leeville	2	0	2	8	1	13
46' FRV	15257	65	NA	4	Vermilion	2	0	2	2.5	1	7.5
Golding Barge Line (Available through contract with CGA)											
GBL 1030	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1130	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1230	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1330	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43

Staging Area: Cameron

Nearshore Equipment With Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Load Out	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
CGA											
SWS Egmopol	1810	100	NA	3	Galveston	2	2	5	2	1	12
SWS Egmopol	1810	100	NA	3	Leeville	2	2	7	2	1	14
SWS Marco	3588	20	NA	3	Vermilion	2	2	2.5	2	1	9.5
SWS Marco	3588	34	NA	3	Leeville	2	2	7	2	1	14
SWS Marco	3588	34	NA	3	Venice	2	2	9.5	2	1	16.5
Foilex Skim Package (TDS 150)	1131	50	NA	3	Vermilion	4	12	2.5	2	2	22.5
Foilex Skim Package (TDS 150)	1131	50	NA	3	Galveston	4	12	5	2	2	25
Foilex Skim Package (TDS 150)	1131	50	NA	3	Harvey	4	12	7	2	2	27
4 Drum Skimmer (Magnum 100)	680	100	1 Crew	3	Vermilion	2	2	2.5	2	1	9.5
4 Drum Skimmer (Magnum 100)	680	100	1 Crew	3	Harvey	2	2	7	2	1	14
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Vermilion	2	2	2.5	2	1	9.5
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Harvey	2	2	7	2	1	14

Staging Area: Cameron

Shoreline Protection Boom	VOO	Persons Req.	Storage/Warehouse Location	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
AMPOL (available through Letter of Intent)									
34,050' 18" Boom	13 Crew	26	New Iberia, LA	2	2	3.5	2	12	21.5
16,000' 18" Boom	7 Crew	14	Chalmette, LA	2	2	7.5	2	6	19.5
900' 18" Boom	1 Crew	2	Morgan City, LA	2	2	5	2	2	13
11,800' 18" Boom	5 Crew	10	Gonzales, LA	2	2	9	2	2	17
16,000' 18" Boom	7 Crew	14	Port Arthur, TX	2	2	1.5	2	6	13.5
2,700' 18" Boom	2 Crew	4	Decatur, GA	2	2	20	2	6	32

Wildlife Response	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
					CGA						
Wildlife Support Trailer	NA	NA	NA	2	Harvey	2	2	7	1	2	14
Bird Scare Guns (24)	NA	NA	NA	2	Harvey	2	2	7	1	2	14
Bird Scare Guns (12)	NA	NA	NA	2	Galveston	2	2	5	1	2	12
Bird Scare Guns (12)	NA	NA	NA	2	Aransas Pass	2	2	9.5	1	2	16.5
Bird Scare Guns (24)	NA	NA	NA	2	Vermilion	2	2	2.5	1	2	9.5
Bird Scare Guns (24)	NA	NA	NA	2	Leeville	2	2	7	1	2	14

Response Asset	Total
Offshore EDRC	233,106
Offshore Recovered Oil Capacity	249,196
Nearshore / Shallow Water EDRC	117,401
Nearshore / Shallow Water Recovered Oil Capacity	119,315

Surveillance Aircraft

Name/Type	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to site	Total Hrs
ASI (available through contract with CGA)						
Aero Commander	2	Houma, LA	2	2	1	5
T&T Marine (available through contract with CGA)						
CJ3 Citation	2	Houston/Galveston, TX	2	2	1.4	5.4

Dispersant Aircraft

Name/Type	Dispersant Capacity (gal)	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to site	Total Hrs
ASI (available through contract with CGA)							
Basler 67T	2000	2	Houma, LA	2	2	1	5
DC 3	1200	2	Houma, LA	2	2	1.3	5.3
MSRC							
737-500	4,125	3	Weyers Cave, VA	2	0.5	2.5	5
737-500	4,125	3	Moses Lake, WA	2	0.5	4.5	7

Offshore Response

Offshore Equipment Pre-Determined Staging	EDRC	Storage Capacity	Support Vessel(s)	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
95' FRV	22885	249	NA	6	Galveston	2	0	2	13	1	18
95' FRV	22885	249	NA	6	Leeville	2	0	2	9	1	14
95' FRV	22885	249	NA	6	Venice	2	0	3	10	1	16
95' FRV	22885	249	NA	6	Vermilion	2	0	3	8	1	14
Boom Barge (CGA-300) **42" Auto Boom (25000')**	NA	NA	1 Tug 50 Crew	4 (Barge) 2 (Per Crew)	Leeville, LA	8	0	4	24	2	38
HOSS Barge	76285	4000	3 Tugs	8	Harvey, LA	6	0	12	24	2	44

Offshore Equipment Pre-determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
MSRC											
Louisiana Responder 1 Transrec 3502,640'67" Curtain Pressure Boom	10567	4000	NA	10	Fort Jackson, LA	12	12	4	6.5	1	35.5
MSRC 401 Offshore Barge 1 Crucial Disk 88/302,640' 67" Curtain Pressure Boom	11122	40000	3 Tugs	9	Fort Jackson, LA	12	12	6	11	1	42
Mississippi Responder 1 Transrec 350 2,640' 67" Curtain Pressure Boom	10567	4000	NA	10	Pascagoula, MS	12	12	2	8	1	35
MSRC 402 Offshore Barge 1 Crucial Disk 88/30 2,640' 67" Curtain Pressure Boom	11122	40300	3 Tugs	9	Pascagoula, MS	12	12	3	14	1	42
S.T. Benz Responder 1 LFF 100 Brush 2,640' 67" Curtain Pressure Boom	18086	4000	NA	10	Grand Isle, LA	12	12	1	9	1	35
Gulf Coast Responder 1 Transrec 350 2,640' 67" Curtain Pressure Boom	10567	4000	NA	10	Lake Charles, LA	12	12	4	24	1	53
Texas Responder 1 Transrec 350 2,640' 67" Curtain Pressure Boom	10567	4000	NA	10	Galveston, TX	12	12	1	29	1	55
MSRC 570 Offshore Barge 1 Crucial Disk 88/30 2,640' 67" Curtain Pressure Boom	11122	56900	3 Tugs	9	Galveston, TX	12	12	2	50	1	77
Southern Responder 1 Transrec 350 2,640' 67" Curtain Pressure Boom	10567	4000	NA	10	Ingleside, TX	12	12	2	39	1	66
MSRC 403 Offshore Barge 1 Crucial Disk 88/30 2,640' 67" Curtain Pressure Boom	11122	40300	3 Tugs	9	Ingleside, TX	12	12	3	69	1	97

Offshore Equipment Pre-determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
MSRC											
Florida Responder 1 Transrec 350 *2,640' 67" Curtain Pressure Boom*	10567	4000	NA	10	Miami, FL	12	12	1	47	1	73
MSRC 360 Offshore Barge 1 Crucial Disk 88/30 *1,320' 67" Curtain Pressure Boom*	11122	36000	3 Tugs	9	Tampa, FL	12	12	3	44	1	72

Offshore Recovered Oil Storage Pre-determined Staging	EDRC	Storage Capacity	Support Vessel(s)	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
Genesis Marine (available through contract with CGA)											
GM 11103	NA	111,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 11104	NA	111,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 11105	NA	111,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 13501	NA	135,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 13502	NA	135,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 6506	NA	65,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 6507	NA	65,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 6508	NA	65,000	1 Tug	6	Port Arthur	24	12	0	30	0	66
GM 8001	NA	80,000	1 Tug	6	Port Arthur	24	12	0	30	0	66

Staging Area: Fourchon

Offshore Equipment Preferred Staging	EDRC	Storage Capacity	Support Vessel(s)	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
CGA											
FRU (2) + 100 bbl Tank (4)	8502	400	2 Utility	12	Vermilion	2	6	5.5	14	1	28.5
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Galveston	2	6	12	14	1	35
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Aransas Pass	2	6	16.5	14	1	39.5
FRU (3) + 100 bbl Tank (6)	12753	600	3 Utility	18	Leeville	2	6	2	14	1	25
FRU (2) + 100 bbl Tank (4)	8502	400	2 Utility	12	Venice	2	6	5	14	1	28
T&T Marine (available through direct contract with CGA)											
Aqua Guard Triton RBS (1)	22323	2000	1 Utility	6	Galveston	4	12	12	14	2	44
Aqua Guard Triton RBS (1)	22323	2000	1 Utility	6	Harvey	4	12	3	14	2	35
Koseq Skimming Arms (10) Lamor brush	228850	60000	10 OSV	60	Galveston	24	24	12	14	2	76
Koseq Skimming Arms (6) Lamor brush	137310	36000	6 OSV	36	Harvey	24	24	3	14	2	67
Koseq Skimming Arms (6) MariFlex 150 HF	108978	36000	6 OSV	36	Harvey	24	24	3	14	2	67

Offshore Equipment Preferred Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
CGA											
Hydro-Fire Boom	NA	NA	8 Utility	40	Harvey	0	24	3	14	6	47
MSRC											
67" Curtain Pressure Boom (53570')	NA	NA	80*	160	Houston	12	12	11	14	1	50
1000' Fire Resistant Boom	NA	NA	3*	6	Galveston	12	12	12	14	6	56
16000' Fire Resistant Boom	NA	NA	3*	6	Houston	12	12	11	14	6	55
2000' Hydro Fire Boom	NA	NA	8*	8	Lake Charles	12	12	7	14	6	51

** Utility Boats, Crew Boats, Supply Boats, or Fishing Vessels*

Staging Area: Fourchon

Offshore Equipment Preferred Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
MSRC											
Crucial Disk 56/30 Skimmer (1) ***330' 67" Curtain Pressure Boom***	5671	500	2 Utility	5	Ingleside	12	12	17	14	1	56
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Ingleside	12	12	17	14	1	56
Foilex 250 Skimmer (1) ***330' 67"** Curtain Pressure Boom*	3977	500	2 Utility	5	Ingleside	12	12	17	14	1	56
Stress I Skimmer (1) ***330' 67" Curtain Pressure Boom***	15840	500	2 Utility	5	Ingleside	12	12	17	14	1	56
Walosep 4 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Ingleside	12	12	17	14	1	56
Crucial Disk 88/30 Skimmer (1) ***330' 67" Curtain Pressure Boom***	11122	500	2 Utility	5	Galveston	12	12	12	14	1	51
GT-185 Skimmer w Adaptor (2) ***660' 67" Curtain Pressure Boom***	2742	1000	4 Utility	10	Galveston	12	12	12	14	1	51
Walosep 4 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Galveston	12	12	12	14	1	51
Foilex 250 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3977	500	2 Utility	5	Galveston	12	12	12	14	1	51
Stress I Skimmer (1) ***330' 67" Curtain Pressure** Boom*	15840	500	2 Utility	5	Galveston	12	12	12	14	1	51
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Port Arthur	12	12	9	14	1	48
Desmi Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Lake Charles	12	12	7	14	1	46
Foilex 250 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3977	500	2 Utility	5	Lake Charles	12	12	7	14	1	46
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Lake Charles	12	12	7	14	1	46

Offshore Equipment Preferred Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
MSRC											
Stress I Skimmer (2) ***330' 67" Curtain Pressure Boom***	31680	1000	2 Utility	10	Lake Charles	12	12	7	14	1	46
LFF 100 Brush Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	18086	1000	1 PSV + 1 Support Vessel	9	Lake Charles	12	12	7	14	1	46
LFF 100 Brush Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	18086	1000	1 PSV + 1 Support Vessel	9	Lake Charles	12	12	7	14	1	46
LFF 100 Brush Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	18086	1000	1 PSV + 1 Support Vessel	9	Lake Charles	12	12	7	14	1	46
Transrec 350 Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	10567	1000	1 PSV + 1 Support Vessel	9	Lake Charles	12	12	7	14	1	46
Transrec 350 Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	10567	1000	1 PSV + 1 Support Vessel	9	Lake Charles	12	12	7	14	1	46
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Baton Rouge	12	12	4	14	1	43
Stress I Skimmer (1) ***330' 67" Curtain Pressure Boom***	15840	500	2 Utility	5	Grand Isle	12	12	1	14	1	40
LFF 100 Brush Skimmer (1) *1,320' 67" Curtain Pressure Boom*	18086	1000	1 PSV + 1 Support Vessel	9	Houma	12	12	2	14	1	41
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Belle Chasse	12	12	3	14	1	42
Walosep W4 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Belle Chasse	12	12	3	14	1	42
Foilex 250 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3977	500	2 Utility	5	Belle Chasse	12	12	3	14	1	42
Foilex 200 Skimmer (1) ***330' 67" Curtain Pressure Boom***	1989	500	2 Utility	5	Belle Chasse	12	12	3	14	1	42
Crucial Disk 56/30 Skimmer (1) ***330' 67" Curtain Pressure Boom***	5671	500	2 Utility	5	Belle Chasse	12	12	3	14	1	42

Offshore Equipment Preferred Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
MSRC											
Desmi Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Fort Jackson	12	12	5	14	1	44
Stress I Skimmer (1) ***330' 67" Curtain Pressure Boom***	15840	500	2 Utility	5	Fort Jackson	12	12	5	14	1	44
Crucial Disk 88/30 Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	11122	1000	1 PSV + 1 Support Vessel	9	Fort Jackson	12	12	5	14	1	44
Crucial Disk 88/30 Skimmer (1) ***1,320' 67" Curtain Pressure Boom***	11122	1000	1 PSV + 1 Support Vessel	9	Fort Jackson	12	12	5	14	1	44
GT-185 Skimmer (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Pascagoula	12	12	6	14	1	45
Crucial Disk 88/30 Skimmer (1) ***330' 67" Curtain Pressure Boom***	11122	500	2 Utility	5	Pascagoula	12	12	6	14	1	45
Stress I Skimmer (1) ***330' 67" Curtain** Pressure Boom*	15840	500	2 Utility	5	Pascagoula	12	12	6	14	1	45
Stress II Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Pascagoula	12	12	6	14	1	45
Stress I Skimmer (1) ***330' 67" Curtain Pressure Boom***	15840	500	2 Utility	5	Tampa	12	12	22	14	1	61
Crucial Disk 56/30 Skimmer (1) ***330' 67" Curtain Pressure Boom***	5671	500	2 Utility	5	Tampa	12	12	22	14	1	61
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Tampa	12	12	22	14	1	61
GT-185 Skimmer w Adaptor (1) ***330' 67" Curtain Pressure Boom***	1371	500	2 Utility	5	Miami	12	12	28	14	1	67
Walosep W4 Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Miami	12	12	28	14	1	67
Desmi Skimmer (1) ***330' 67" Curtain Pressure Boom***	3017	500	2 Utility	5	Miami	12	12	28	14	1	67
Stress I Skimmer (1) ***330' 67" Curtain Pressure Boom***	15840	500	2 Utility	5	Miami	12	12	28	14	1	67

Nearshore / Shoreline Response

Nearshore Equipment	EDRC	Storage Capacity	Support Vessel(s)	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Staging	Hrs to Deploy	Total Hrs
CGA											
Mid-Ship SWS	22885	249	NA	4	Leeville	2	0	N/A	48	1	51
Mid-Ship SWS	22885	249	NA	4	Venice	2	0	N/A	48	1	51
Mid-Ship SWS	22885	249	NA	4	Galveston	2	0	N/A	48	1	51
Trinity SWS	21500	249	NA	4	Leeville	2	0	N/A	48	1	51
Trinity SWS	21500	249	NA	4	Venice	2	0	N/A	48	1	51
Trinity SWS	21500	249	NA	4	Vermilion	2	0	N/A	48	1	51
Trinity SWS	21500	249	NA	4	Galveston	2	0	N/A	48	1	51
46' FRV	15257	65	NA	4	Aransas Pass	2	0	2	16	1	21
46' FRV	15257	65	NA	4	Leeville	2	0	2	8	1	13
46' FRV	15257	65	NA	4	Vermilion	2	0	2	2.5	1	7.5
46' FRV	15257	65	NA	4	Venice	2	0	2	11	1	16
MSRC											
MSRC Lightning 2 LORI Brush Pack	5000	50	NA	6	Tampa	2	0	1	25	1	29
MSRC Quick Strike 2 LORI Brush Pack	5000	50	NA	6	Lake Charles	2	0	1	2	1	6
Golding Barge Line (available through contract with CGA)											
GBL 1030	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1130	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1230	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1330	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 1930	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 2030	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 2130	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 2230	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43
GBL 2330	NA	29400	1 Tug	6	Port Arthur	24	12	0	7	0	43

Staging Area: Cameron

Nearshore and Inland Skimmers With Staging	EDRC	Storage Capacity	Support Vessel(s)	Persons Req.	From	Hrs to Procure	Hrs to Load Out	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
CGA											
SWS Egmopol	1810	100	NA	3	Galveston	2	2	5	2	1	12
SWS Egmopol	1810	100	NA	3	Leeville	2	2	7	2	1	14
SWS Marco	3588	20	NA	3	Vermilion	2	2	2.5	2	1	9.5
SWS Marco	3588	34	NA	3	Leeville	2	2	7	2	1	14
SWS Marco	3588	34	NA	3	Venice	2	2	9.5	2	1	16.5
Foilex Skim Package (TDS 150)	1131	50	NA	3	Vermilion	4	12	2.5	2	2	22.5
Foilex Skim Package (TDS 150)	1131	50	NA	3	Galveston	4	12	5	2	2	25
Foilex Skim Package (TDS 150)	1131	50	NA	3	Harvey	4	12	7	2	2	27
4 Drum Skimmer (Magnum 100)	680	100	1 Crew	3	Vermilion	2	2	2.5	2	1	9.5
4 Drum Skimmer (Magnum 100)	680	100	1 Crew	3	Harvey	2	2	7	2	1	14
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Vermilion	2	2	2.5	2	1	9.5
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Harvey	2	2	7	2	1	14
MSRC											
AardVac Skimmer (1)	3840	400	1 Utility	4	Lake Charles	1	1	2	2	1	7
AardVac Skimmer (1)	3840	400	1 Utility	4	Pascagoula	1	1	10	2	1	15
AardVac Skimmer (2)	7680	800	2 Utility	8	Miami	1	1	31	2	1	36
Queensboro Skimmer (1)	905	400	1 Utility	4	Galveston	1	1	5	2	1	10
Queensboro Skimmer (5)	4525	2000	5 Utility	20	Lake Charles	1	1	2	2	1	7
Queensboro Skimmer (1)	905	400	1 Utility	4	Belle Chasse	1	1	7	2	1	12
Queensboro Skimmer (1)	905	400	1 Utility	4	Pascagoula	1	1	10	2	1	15

Staging Area: Cameron

Shoreline Protection Boom	VOO	Persons Req.	Storage/Warehouse Location	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
AMPOL (available through Letter of Intent)									
34,050' 18" Boom	13 Crew	26	New Iberia, LA	2	2	3.5	2	12	21.5
16,000' 18" Boom	7 Crew	14	Chalmette, LA	2	2	7.5	2	6	19.5
900' 18" Boom	1 Crew	2	Morgan City, LA	2	2	5	2	2	13
11,800' 18" Boom	5 Crew	10	Gonzales, LA	2	2	9	2	2	17
16,000' 18" Boom	7 Crew	14	Port Arthur, TX	2	2	1.5	2	6	13.5
2,700' 18" Boom	2 Crew	4	Decatur, GA	2	2	20	2	6	32

Wildlife Response	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Deployment	Hrs to Deploy	Total Hrs
					CGA						
Wildlife Support Trailer	NA	NA	NA	2	Harvey	2	2	7	1	2	14
Bird Scare Guns (24)	NA	NA	NA	2	Harvey	2	2	7	1	2	14
Bird Scare Guns (12)	NA	NA	NA	2	Galveston	2	2	5	1	2	12
Bird Scare Guns (12)	NA	NA	NA	2	Aransas Pass	2	2	9.5	1	2	16.5
Bird Scare Guns (24)	NA	NA	NA	2	Vermilion	2	2	2.5	1	2	9.5
Bird Scare Guns (24)	NA	NA	NA	2	Leeville	2	2	7	1	2	14

Response Asset Totals	Total (bbls)
Offshore EDRC	1,216,248
Offshore Recovered Oil Storage	1,288,796
Nearshore / Shallow Water EDRC	267,900
Nearshore / Shallow Water Recovered Oil Storage	272,341

APPENDIX J
ENVIRONMENTAL MONITORING INFORMATION

A) MONITORING SYSTEMS

The proposed drilling units are equipped with Acoustic Doppler Current Profile (ADCP) monitoring equipment. Data from these meters are reported to the Gulf Coast Ocean Observing System (GCOOS).

B) INCIDENTAL TAKES

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols
- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

When vessels transit the expanded Rice's whale area, BOE Exploration & Production and its vessel support contractors are aware of the recommendations and guidance provided in NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS" during the period when the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The recommended measures provided in this NTL will be implemented, as practicable, when engaged in oil and gas activity within the expanded Rice's Whale area while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

C) FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the subject area and block(s) are not located within the Protective Zones of the Flower Garden Banks and Stetson Bank.

APPENDIX K
LEASE STIPULATIONS INFORMATION

Stipulation 3 - Military Areas
Lease Stipulation No. 3 consists of the following:

A. Hold and Save Harmless
Whether compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, BOE Exploration & Production assumes all risks of damage or injury to persons or property that occur in, on, or above the Outer Continental Shelf (OCS), and to any persons or property of any person or persons who are agents, employees, or invitees of the lessee, its agents, independent contractors, or sub- contractors doing business with the lessee in connection with any activities being performed by the lessee in, on or above the OCS, if such injury or damage to such person or property occurs by reason of the activities of any agency of the United States (U.S.) Government, its contractors, subcontractors, or any of its officers, agents or employees, being conducted as a part of, or in connection with, the programs and activities of the command headquarters.

B. Electromagnetic Emissions
BOE Exploration & Production agrees to control its own electromagnetic emissions and those of its agents, employees, invitees, independent contractors, or subcontractors emanating from individual designated defense warning areas in accordance with requirements specified by the commander of the command headquarters to the degree necessary to prevent damage to, or unacceptable interference with, Department of Defense flight, testing, or operational activities conducted within individual designated warning areas.

C. Operational
BOE Exploration & Production, when operating or causing to be operated on its behalf, a boat, ship, aircraft traffic into the individual designated warning areas shall enter into an agreement with the commander of the individual command headquarters, upon utilizing an individual designated warning area prior to commencing such traffic. Such an agreement will provide for positive control of boats, ships, and aircraft operating into the warning areas at all times.

Stipulation 8 - Protected Species
Lease Stipulation No. 8 is designed to reduce the potential taking of federally protected species in conjunction with activity conducted on the Outer Continental Shelf (OCS).

BOE Exploration & Production and its operators, personnel, contractors and subcontractors will operate in accordance with NTL BOEM 2016-G01, "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting," NTL 2015-G03, "Marine Trash and Debris Awareness and Elimination" and NTL BOEM 2016-G02, "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program" and any additional measures in conditions of approval for corresponding plans and permits in satisfying this condition of the subject lease relating to its proposed activity.

APPENDIX L
ENVIRONMENTAL MITIGATION MEASURES INFORMATION

A) MEASURES TAKEN TO AVOID, MINIMIZE, AND MITIGATE IMPACTS

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the State of Florida is not an affected State.

B) INCIDENTAL TAKES

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols
- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

When vessels transit the expanded Rice's whale area, BOE Exploration & Production and its vessel support contractors are aware of the recommendations and guidance provided in NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS" during the period when the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The recommended measures provided in this NTL will be implemented, as practicable, when engaged in oil and gas activity within the expanded Rice's Whale area while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

Additionally, BOE Exploration & Production will adhere to the requirements as set forth in the following Notices to Lessees, as applicable, to avoid or minimize impacts to any of the species listed in the ESA as a result of the proposed operations:

- NTL BOEM 2016-G01, "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"
- NTL 2015-G03, "Marine Trash and Debris Awareness and Elimination"

- NTL BOEM 2016-G02, "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program"

APPENDIX M
RELATED FACILITIES & OPERATIONS INFORMATION

A) RELATED OCS FACILITIES AND OPERATIONS

Production activity proposed in this plan will be conducted via Anadarko Petroleum Corporation-operated Green Canyon 860 A-Heidelberg production facility.

Lease term pipelines and associated subsea equipment to support the activity proposed in this plan consists of the following:

- Two (2) 8-inch pipelines originating at each well location proposed in this plan and each terminating at a new Green Canyon 944 In-Line Structure (ILS).
    - Each proposed pipeline is estimated at 100 feet in length.

Maximum anticipated flow rate for the proposed pipelines is approximately 10000 BOPD. Anticipated shut-in time for the proposed pipelines is forty-five (45) seconds.

Installation of proposed pipelines and associated subsea equipment to support activity proposed in this plan will be conducted via dynamically positioned installation vessels.

B) TRANSPORTATION SYSTEM

Production activity proposed in this plan will be conducted via Anadarko Petroleum Corporation-operated Green Canyon 860 A-Heidelberg production facility. Production will be transported for further processing via existing departing pipelines.

Termination for oil transportation includes the existing Poseidon or Cameron Highway pipeline systems for further delivery. Termination for gas transportation includes the existing Discovery or Trunkline pipeline systems for further delivery.

BOE Exploration & Production does not anticipate installation or expansion of onshore facilities as a result of activities proposed in this plan.

C) PRODUCED LIQUID HYDROCARBONS TRANSPORTATION VESSELS

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan. Produced liquid hydrocarbons will not be transported by means other than a pipeline.

APPENDIX N
SUPPORT VESSELS AND AIRCRAFT INFORMATION

A) GENERAL

The most practical and direct route from the shorebase as permitted by weather and traffic conditions will be utilized. The table below provides information on vessels and aircraft that will be used to support the proposed activities.

Type	Maximum Fuel Tank Capacity	Maximum Number in Area at Any Time	Trip Frequency or Duration
Supply Boat	1900 bbls	1	6x/week
Crew Boat	1700 bbls	1	4x/week
Aircraft	250 gals	1	As Needed
Supply Boat	1900 bbls	1	100 days/yr (2025 or 2026)
Crew Boat	1700 bbls	1	100 days/yr (2025 or 2026)
Pipeline Lay Barge	10000 bbls	1	100 days/yr (2025 or 2026)
Pipeline Support Vessel	8805 bbls	1	100 days/yr (2025 or 2026)

B) DIESEL OIL SUPPLY VESSELS

The table below provides information on the vessels that will be used to supply diesel oil. It also includes all vessels that will transfer diesel oil that will be used for purposes other than fuel.

Size of Fuel Supply Vessel	Capacity of Fuel Supply Vessel	Frequency of Fuel Transfers	Route Fuel Supply Vessel Will Take
180 feet	1900 bbls	Weekly	Most direct route from shorebase to site

C) DRILLING FLUID TRANSPORTATION

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the State of Florida is not an affected State.

D) SOLID AND LIQUID WASTE TRANSPORTATION

In accordance with BOEM guidance, the required data regarding the solid and liquid waste which will be transported from the site of the activities proposed in this plan has been incorporated into the Waste & Discharge tables which are included in the attachment(s) to the Waste & Discharge Information appendix.

E) VICINITY MAP

Enclosed as an attachment to this appendix is a vicinity map for the activities proposed in this plan depicting the surface location(s) of same relative to the shoreline with the distance of the proposed activities from the shoreline and the primary route(s) of the support vessels and aircraft which will be used when traveling between the onshore support facilities and the proposed operations.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

When vessels transit the expanded Rice's whale area, BOE Exploration & Production and its vessel support contractors are aware of the recommendations and guidance provided in NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS" during the period when the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The recommended measures provided in this NTL will be implemented, as practicable, when engaged in oil and gas activity within the expanded Rice's Whale area while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

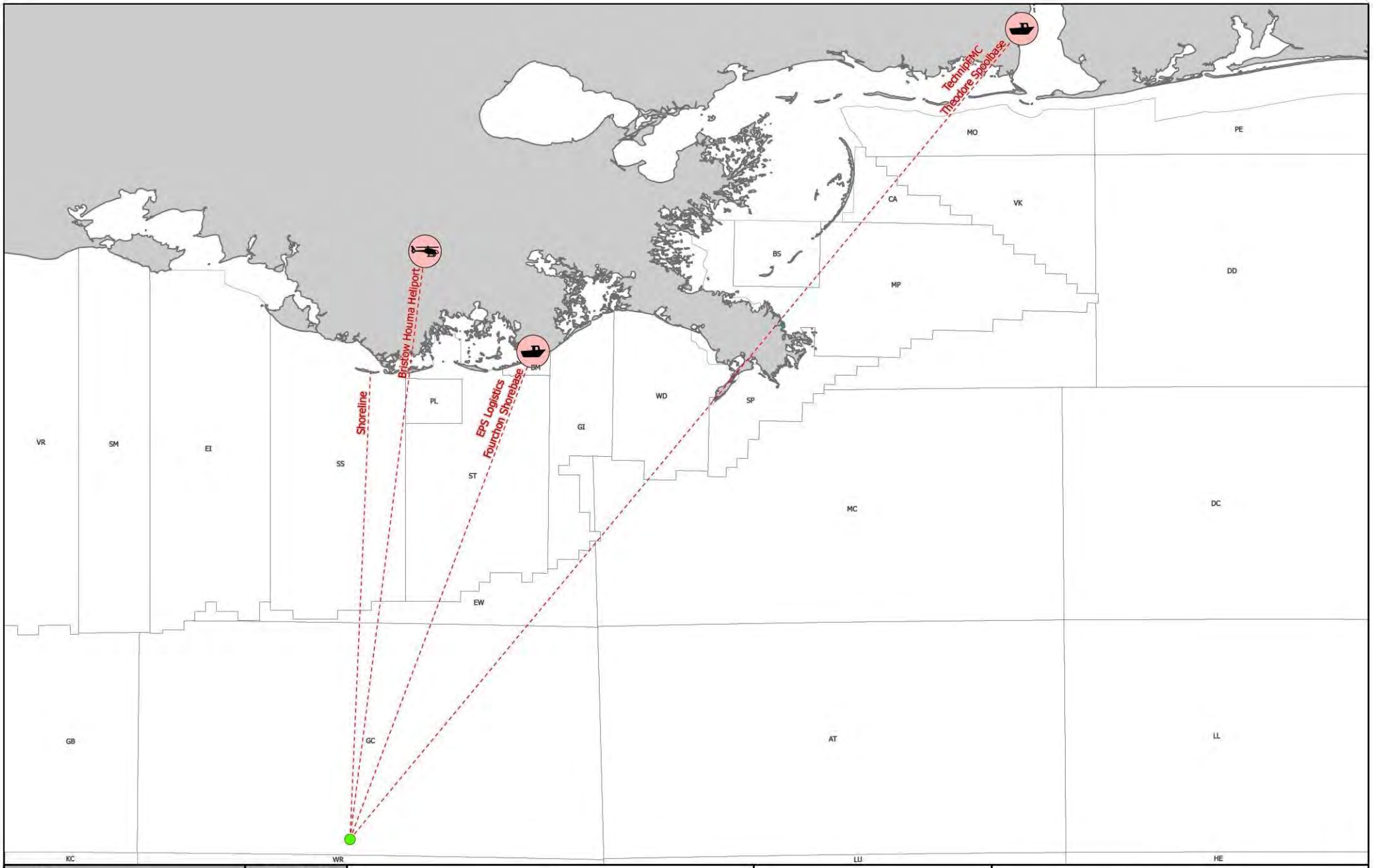
B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

VICINITY MAP



Location	Distance (mi)
TechnipFMC Theodore Spoolbase	298.0
EPS Logistics Fourchon Shorebase	153.0
Bristow Houma Heliport	176.0
Shoreline	139.0

GC943 WINTERFELL

0 100,000 200,000 300,000 400,000 Feet

0 12.5 25 50 75 100 Miles

GCS: GCS NORTH AMERICAN 1927
DATUM: NORTH AMERICAN 1927
UNITS: DEGREE

1:2,400,000
1 INCH = 200,000 FEET

VICINITY MAP
GC943 WINTERFELL
LEASE G36060
GREEN CANYON - GULF OF MEXICO

PAGE:	AUTHOR:	PROJECT:	DATE:
8.5X11	MBRANDT SOURCE: DHUFFMAN	WINTERFELL VICINITY MAP	8/8/2023

BEACON OFFSHORE ENERGY

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APPENDIX O
ONSHORE SUPPORT FACILITIES INFORMATION

A) GENERAL
The table below is a list of the onshore facilities that will be used to provide supply and service support for the activities proposed in this plan.

Name of Shorebase	Location	Existing/New/Modified
EPS Dock	Fourchon, LA	Existing
Bristow Heliport	Houma, LA	Existing
Technip FMC Spoolbase	Theodore, AL	Existing

B) SUPPORT BASE CONSTRUCTION OR EXPANSION
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as BOE Exploration & Production will use an existing onshore base facility and will not need to expand or modify those facilities to accommodate the operations proposed in this plan.

C) SUPPORT BASE CONSTRUCTION OR EXPANSION TIMETABLE
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as no land is being acquired to construct or expand an onshore support base.

D) WASTE DISPOSAL
In accordance with BOEM guidance, the required data regarding the facilities that will be used to store and dispose of any solid and liquid wastes generated by the activities proposed in this plan has been incorporated into the Waste & Discharge tables which are included in the attachment(s) to the Waste & Discharge Information appendix.

E) AIR EMISSIONS
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the air emissions information in this section is not required for plans where the activities being proposed are within the boundaries of the Gulf of Mexico Region.

F) UNUSUAL SOLID AND LIQUID WASTES
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed in this plan as the unusual solid and liquid wastes information generated by onshore support facilities is not required for plans that propose activities that fall within the boundaries of the Gulf of Mexico Region.

APPENDIX P
COASTAL ZONE MANAGEMENT (CZMA) INFORMATION

In accordance with NTL 2008-G04, this information for the state of Louisiana is not applicable to the activities proposed in this plan as no new multi-well structures for which Louisiana, Mississippi and Texas would be an affected state is being proposed.

Relevant enforceable policies were considered in certifying consistency for the state of Alabama as part of this plan.

A certificate of Coastal Zone Management Consistency for the state of Alabama is included in the attachments to this appendix.

COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATION

COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATION

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

GREEN CANYON 944
OCS-G 36061

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

BOE Exploration & Production LLC
Lessee or Operator

Certifying Official

February 15, 2024

Date

ALABAMA COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION
SUPPLEMENTAL DEVELOPMENT OPERATIONS
COORDINATION DOCUMENT
GREEN CANYON BLOCK 944
OCS-G 36061

The OCS related oil and gas development activities having potential impact on the Alabama Coastal Zone are based on the location of the proposed facilities, access to those sites, best practical techniques for operations and production equipment, guidelines for the prevention of adverse environmental effects, effective environmental protection, emergency plans and contingency plans. Alabama policies have been addressed below or are cross referenced to the appropriate sections of the Plan:

Topic	Cross Reference	Comments
Coastal Resource Use Policies		
Coastal Development		Existing dock and port facilities in Alabama will be used to support subsea equipment installation only as part of this development project. There will be no new construction, dredging or filling in Alabama state waters. There will be no new commercial development or capital improvements in Alabama's coastal zone, nor will there be any employment effects. For reference only, existing dock and port facilities in Louisiana will be used to support well operations as part of this development project.
Mineral Resource Exploration and Extraction		Proposed development operations will be conducted 298 statute miles from dock and port facilities in Alabama being used to support subsea equipment installation only as part of this development project. Mineral resource exploration and extraction will be conducted 139 miles from the Louisiana shoreline.
Commercial Fishing	Appendix Q	This information included within Appendix Q of this plan.
Hazard Management	Appendix C (N-10191)	A Shallow Hazards Report was previously submitted to BOEM in order to identify and assess the seafloor and shallow geologic conditions in this area This report was included within Appendix C as part of Initial DOCD N-10191.
Shoreline Erosion	Appendix Q	Proposed development operations will take place 298 statute miles from existing dock and port facilities in Alabama will be used to support subsea equipment installation as part of this development project.
Recreation	Appendix Q	This information included within Appendix Q of this plan.
Transportation	Appendix N	This information included within Appendix N of this plan.
Natural Resource Protection Policies		
Biological Productivity	Appendix Q	This information included within Appendix Q of this plan.
Water Quality	Appendix G	This information included within Appendix G of this plan.
Water Resources	Appendix Q	This information included within Appendix Q of this plan.
Air Quality	Appendix H	This information included within Appendix H of this plan.
Wetlands and Submerged Grassbeds	Appendix Q	This information included within Appendix Q of this plan.
Beach and Dune Protection	Appendix Q	This information included within Appendix Q of this plan.

Wildlife Habitat Protection	Appendix Q	This information included within Appendix Q of this plan.
Endangered Species	Appendix Q	This information included within Appendix Q of this plan.
Cultural Resources Protection	Appendix F	No evidence of intact shipwreck sites was observed within GC 944. No targets of potential archaeological significance were identified within 2,000 feet of any proposed well site(s) that are part of this development project. An archaeological report was submitted to BOEM under separate cover.

APPENDIX Q
ENVIRONMETAL IMPACT ANALYSIS

An Environmental Impact Analysis is included in the attachments to this appendix.

ENVIRONMETAL IMPACT ANALYSIS

ENVIRONMENTAL IMPACT ANALYSIS WORKSHEET

Identify the IPF's that can cause impacts to the listed environmental resources by placing an "x" in the space under each IPF category associated with your proposed activities that may impact a particular environmental resource. If you determine an IPF would not impact a particular environmental resource, leave the space blank. For those cells that are footnoted, provide a statement as to the applicability to your proposed operations, and, where there may be an effect, provide an analysis of the effect. If you are aware of other environmental resources at or near your activity's site that are not included on the worksheet, address them too.

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 (muds, cuttings, other discharges to the water column or seafloor)**	**Physical disturbances to the seafloor (rig or anchor emplacements, etc.)**	**Wastes sent to shore for treatment or disposal**	**Accidents (e.g., oil spills, chemical spills, H_2S releases)**	**Other IPFs you identify**
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		x	x(4)		x	
Water quality		x	x	x	x	
Fisheries		x	x		x	
Marine mammals	x(8)	x	x		x(8)	
Sea turtles	x(8)	x	x		x(8)	
Air quality	x(9)				x	
Shipwreck sites (known or potential)			x(7)			
Prehistoric archaeological sites			x(7)			
Vicinity of Offshore Location						
Essential fish habitat		x	x		x(6)	
Marine and pelagic birds	x				x	
Public health and safety					(5)	
Coastal and Onshore						
Beaches					x(6)	
Wetlands					x(6)	
Shore birds and coastal nesting birds					x(6)	
Coastal wildlife refuges					x	
Wilderness areas					x	
Other Resources You Identify						

NOTE: The numbers in parentheses refer to the footnotes on page 2 of this form.

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 ft from any no-activity zone; or
   (d) Proximity of any submarine bank (500 ft buffer zone) with relief greater than 2 meters that is not protected by the Topographic Features Stipulation attached to an OCS lease.
2. Activities with any bottom disturbance within an OCS lease block protected through the Live Bottom (Pinnacle Trend) Stipulation attached to an OCS lease.
3. Activities within any Eastern Gulf OCS block where seafloor habitats are protected by the Live Bottom (Low- Relief) Stipulation attached to an OCS lease.
4. Activities on blocks designated by the BOEM as being in water depths 400 meters or greater.
5. Exploration or production activities where H2S concentrations greater than 500 ppm might be encountered.
6. All activities that could result in an accidental spill of produced liquid hydrocarbons or diesel fuel that you determine would impact these environmental resources. If the proposed action is located a sufficient distance from a resource that no impact would occur, the EIA can note that in a sentence or two.
7. All activities that involve seafloor disturbances, including anchor emplacements, in any OCS block designated by the BOEM as having high-probability for the occurrence of shipwrecks or prehistoric sites, including such blocks that will be affected that are adjacent to the lease block in which your planned activity will occur. If the proposed activities are located a sufficient distance from a shipwreck or prehistoric site that no impact would occur, the EIA can note that in a sentence or two.
8. All activities that you determine might have an adverse effect on endangered or threatened marine mammals or sea turtles or their critical habitats.
9. Production activities that involve transportation of produced fluids to shore using shuttle tankers or barges.

Paperwork Reduction Act of 1995 (PRA) Statement: The PRA (44 U.S.C. 3501et seq.) requires us to inform you that BOEM collects this information as part of an applicant's Exploration Plan (EP) or Development Operations Coordination Document (DOCD) submitted for BOEM approval. We use the information in our review and data entry for OCS plans. Reponses are mandatory (43 U.S.C 1334). 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. The public reporting burden for this form is included in the burden for preparing EPs and DOCDs. We estimate that burden to average 600 hours per response for EPs and 700 hours per response for DOCDs, 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, 381 Elden Street, Herndon, VA 20170.

TABLE 1: THREATENED AND ENDANGERED SPECIES, CRITICAL HABITAT, AND MARINE MAMMAL INFORMATION

The federally listed endangered and threatened species potentially occurring in the lease area and along the Gulf Coast are provided in the table below.

Species	Scientific Name	Status	Potential Presence		Critical Habitat Designated in the Gulf of Mexico	Gulf of Mexico Range
			Lease Area	Coastal		
Marine Mammals						
Manatee, West Indian	*Trichechus manatus latirostris*	T	--	X	Florida (peninsular)	Coastal Louisiana, Mississippi, Alabama, and Florida
Whale, Blue	*Balaenoptera masculus*	E	X*	--	None	GOM
Whale, Bryde's	*Balaenoptera edeni*	E	X	--	None	Eastern GOM
Whale, Fin	*Balaenoptera physalus*	E	X*	--	None	GOM
Whale, Humpback	*Megaptera novaeangliae*	E	X*	--	None	GOM
Whale, North Atlantic Right	*Eubalaena glacialis*	E	X*	--	None	GOM
Whale, Sei	*Balaenopiera borealis*	E	X*	--	None	GOM
Whale, Sperm	*Physeter catodon (=macrocephalus)*	E	X	--	None	GOM
Terrestrial Mammals						
Mouse, Beach (Alabama, Choctawatchee, Perdido Key, St. Andrew)	*Peromyscus polionotus*	E	-	X	Alabama, Florida (panhandle) beaches	Alabama, Florida (panhandle) beaches
Birds						
Plover, Piping	*Charadrius melodus*	T	-	X	Coastal Texas, Louisiana, Mississippi, Alabama and Florida (panhandle)	Coastal GOM
Crane, Whooping	*Grus Americana*	E	-	X	Coastal Texas	Coastal Texas and Louisiana
Crane, Mississippi sandhill	*Grus canadensis pulla*	E	-	X	Coastal Mississippi	Coastal Mississippi
Curlew, Eskimo	*Numenius borealis*	E	-	X	none	Coastal Texas
Falcon, Northern Aplomado	*Falco femoralis septentrionalis*	E	-	X	none	Coastal Texas
Knot, Red	*Calidris canutus rufa*	T	-	X	None	Coastal GOM
Stork, Wood	*Mycteria americana*	T	-	X	None	Coastal Alabama and Florida

Species	Scientific Name	Status	Potential Presence		Critical Habitat Designated in the Gulf of Mexico	Gulf of Mexico Range
			Lease Area	Coastal		
Reptiles						
Sea Turtle, Green	*Chelonia mydas*	T/E***	X	X	None	GOM
Sea Turtle, Hawksbill	*Eretmochelys imbricata*	E	X	X	None	GOM
Sea Turtle, Kemp's Ridley	*Lepidochelys kempli*	E	X	X	None	GOM
Sea Turtle, Leatherback	*Dermochelys coriacea*	E	X	X	None	GOM
Sea Turtle, Loggerhead	*Caretta caretta*	T	X	X	Texas, Louisiana, Mississippi, Alabama, Florida	GOM
Fish						
Sturgeon, Gulf	*Acipenser oxyrinchus (=oxyrhynchus) desotoi*	T	X	X	Coastal Louisiana, Mississippi, Alabama and Florida (panhandle)	Coastal Louisiana, Mississippi, Alabama and Florida (panhandle)
Shark, Oceanic Whitetip	Carcharhinus longimanus	E	X	_	None	GOM
Sawfish, Smalltooth	Pristis pectinata	E	-	X	None	Florida
Grouper, Nassau	Epinephelus striatus	T	-	X	None	Florida
Ray, Giant Manta	Manta birostris	E	X	--	None	GOM
Corals						
Coral, Elkhorn	*Acopora palmate*	T	X**	X	Florida Keys and Dry Tortugas	Flower Garden Banks, Florida, and the Caribbean
Coral, Staghorn	*Acopora cervicornis*	T	X	X	Florida	Flower Garden Banks, Florida, and the Caribbean
Coral, Boulder Star	*Orbicella franksi*	T	X	X	none	Flower Garden Banks and Florida
Coral, Lobed Star	*Orbicella annularis*	T	X	X	None	Flower Garden Banks and Caribbean
Coral, Mountainous Star	*Orbicella faveolata*	T	X	X	None	Flower Garden Banks and Gulf of Mexico
Coral, Rough Cactus	*Mycetophyllia ferox*	T	-	X	None	Florida and Southern Gulf of Mexico

Abbreviations: E = Endangered; T = Threatened

˟ The Blue, Fin, Humpback, North Atlantic Right, and Sei Whales are rare or extralimital in the Gulf of Mexico and are unlikely to be present in the lease area.

** According to the 2017 EIS, Elkhorn Coral, while uncommon, has been found in the Flower Garden Banks. (BOEM 2017-009)

*** Green Sea Turtles are considered threatened throughout the Gulf of Mexico; however, the breeding population off the coast of Florida is considered endangered.

Site-Specific at Green Canyon 944
Activity proposed in this plan includes well operations at the subject area/block. Well operations will be conducted via drillship or dynamically positioned semi-submersible.

Installation of proposed pipelines and associated subsea equipment to support activity proposed in this plan will be conducted via dynamically positioned installation vessels.

The site of proposed production and development activities is located 139 miles from the nearest shoreline in the state of Louisiana and 298 miles from the Theodore, Alabama onshore support base being utilized to support lease term pipeline installation only.

- DESIGNATED TOPOGRAPHIC FEATURES

There are no impacts to designated topographic features expected from the proposed project including Impact Producing Factors (IPFs) such as emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, accidents, or other factors or resources identified.

The proposed project location is not located in an area characterized by the existence of topographic features and associated no activity zones. The subject lease does not contain a topographic features stipulation. The nearest stipulated topographic features area is located a significant distance from the proposed project location.

- PINNACLE TREND AREA LIVE BOTTOMS

There are no impacts to a pinnacle trend area expected from the proposed project IPFs such as emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, accidents, or other factors or resources identified.

The proposed project location is not located in an area characterized by the existence of live bottoms. The subject lease does not contain a live bottom stipulation. The nearest stipulated live bottom pinnacle trend area is located a significant distance from the proposed project location.

- EASTERN GULF LIVE BOTTOMS

There are no impacts to a live bottom low relief area expected from the proposed project including IPFs such as emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, accidents, or other factors or resources identified.

The proposed project location is not located in an area characterized by the existence of live bottoms. The subject lease does not contain a live bottom stipulation. The nearest stipulated live bottom low relief area is located a significant distance from the proposed project location.

- CHEMOSYNTHETIC COMMUNITIES

IPFs that have the potential to cause impacts to high density deepwater benthic communities from the proposed project include effluents, physical disturbances to the seafloor, and accidents.

No high-density benthic communities or confirmed organisms are reported within 2,000 ft of the

GC 944 WB001 or WB002 well locations or their alternate locations or RW001, RW002, and RW003 or their alternate locations. There are no seafloor amplitude anomalies or BOEM water bottom anomalies located within 2,000 ft of the GC 944 WB001 or WB002 well locations or their alternate locations or RW001, RW002, and RW003 or their alternate locations.

Effluents: Discharges from the proposed project will be in compliance with NPDES permit and NTL No. 2009-G40 conditions and are expected to have minimal impact on high density deepwater benthic communities in the area.

Physical Disturbances to the Seafloor: Bottom disturbances to the seafloor from the proposed project could include rig placement, drilling of wells, and installation of pipelines and platforms. Impacts to water column turbidity and distribution of disturbed sediments and associated nutrients could affect high density deepwater benthic communities in the area. The project will adhere to the requirements of NTL No. 2009-G40 to minimize impacts to high density deepwater benthic communities from seafloor disturbances.

Accidents: An accidental spill or well blowout from the proposed project could cause temporary and possibly long term impacts to high density deepwater benthic communities. Accidental spills would be expected to be small in in size, expeditiously recovered from the surface, and droplets in the water table microbiologically degraded, resulting in short term impacts. An accidental blowout of the well could have both short term and long term effects depending on the size and complexity of the event. In the event of a spill or blowout, the operator will immediately implement the Regional Oil Spill Response Plan and active controls and countermeasures to minimize the impact to high density deepwater benthic communities.

There are no other impacts to high density deepwater benthic communities expected from the proposed project including IPFs such as emissions, wastes sent to shore for treatment or disposal, or other factors or resources identified.

- WATER QUALITY

IPFs that have the potential to cause impacts to water quality from the proposed project include effluents, physical disturbances to the seafloor, wastes sent to shore for treatment and disposal, and accidents.

Physical disturbances to the seafloor: Bottom area disturbances resulting from the emplacement of drill rigs, the drilling of wells and the installation of platforms and pipelines would increase water-column turbidity and re-suspension of any accumulated pollutants, such as trace metals and excess nutrients. This would cause short-lived impacts on water quality conditions in the immediate vicinity of the emplacement operations. Additionally, a dynamically positioned semi-submersible or drillship is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed.

Effluents: Levels of contaminants in drilling muds and cuttings and produced water discharges, discharge-rate restrictions and monitoring and toxicity testing are regulated by the EPA NPDES permit, thereby eliminating many significant biological or ecological effects. Operational discharges are not expected to cause significant adverse impacts to water quality. Additionally, an analysis of the best available information from the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico

(NMFS, 2020) concludes that exposures to toxicants in discharges from oil and gas activities are not likely to adversely affect ESA-listed species.

Accidents: Impact-producing factors related to OCS oil- and gas-related accidental events primarily involve drilling fluid spills, chemical and waste spills, and oil spills.

Drilling Fluid Spills

Water-based fluid (WBF) and Synthetic-based fluid (SBF) spills may result in elevated turbidity, which would be short term, localized, and reversible. The WBF is normally discharged to the seafloor during riserless drilling, which is allowable due to its low toxicity. For the same reasons, a spill of WBF would have negligible impacts. The SBF has low toxicity, and the discharge of SBF is allowed to the extent that it adheres onto drill cuttings. Both USEPA Regions 4 and 6 permit the discharge of cuttings wetted with SBF as long as the retained SBF amount is below a prescribed percent, meets biodegradation and toxicity requirements, and is not contaminated with the formation oil or PAH. A spill of SBF may cause a temporary increase in biological oxygen demand and locally result in lowered dissolved oxygen in the water column. Also, a spill of SBF may release an oil sheen if formation oil is present in the fluid. Therefore, impacts from a release of SBF are considered to be minor. Spills of SBF typically do not require mitigation because SBF sinks in water and naturally biodegrades, seafloor cleanup is technically difficult, and SBF has low toxicity. (BOEM 2017-009)

Chemical Spills

Accidental chemical spills could result in temporary localized impacts on water quality, primarily due to changing pH. Chemicals spills are generally small volume compared with spills of oil and drilling fluids. During the period of 2007 to 2014, small chemical spills occurred at an average annual volume of 28 bbl, while large chemical spills occurred at an average annual volume of 758 bbl. These chemical spills normally dissolve in water and dissipate quickly through dilution with no observable effects. Also, many of these chemicals are approved to be commingled in produced water for discharge to the ocean, which is a permitted activity. Therefore, impacts from chemical spills are considered to be minor and do not typically require mitigation because of technical feasibility and low toxicity after dilution (BOEM 2017-009).

Oil Spills

Oil spills have the greatest potential of all OCS oil-and gas-related activities to affect water quality. Small spills (<1,000 bbl) are not expected to substantially impact water quality in coastal or offshore waters because the oil dissipates quickly through dispersion and weathering while still at sea. Reasonably foreseeable larger spills (≥1,000 bbl), however, could impact water quality in coastal and offshore waters (BOEM 2017-007). However, based on data provided in the BOEM 2016 Update of Occurrence Rates for Offshore Oil Spills, it is unlikely that an accidental surface or subsurface spill of a significant volume would occur from the proposed activities. Between 2001 and 2015 OCS operations produced 8 billion barrels of oil and spilled 0.062 percent of this oil, or 1 barrel for every 1,624 barrels produced. (The overall spill volume was almost entirely accounted for by the 2010 Deepwater Horizon blowout and subsequent discharge of 4.9 million barrels of oil. Additional information on unlikely scenarios and impacts from very large oil spills are discussed in the Catastrophic Spill Event Analysis white paper (BOEM 2017-007).

If a spill were to occur, the water quality of marine waters would be temporarily affected by the dissolved components and small oil droplets. Dispersion by currents and microbial degradation would remove the oil from the water column and dilute the constituents to background levels. Historically, changes in offshore water quality from oil spills have only been detected during the life of the spill and up to several months afterwards. Most of the components of oil are insoluble in water and therefore float. Dispersants will only be used if approved by the Regional Response Team in coordination with the RRT Dispersant Plan and RRT Biological Assessment for Dispersants.

Oil spills, regardless of size, may allow hydrocarbons to partition into the water column in a dissolved, emulsion, and/or particulate phase. Therefore, impacts from reasonably foreseeable oil spills are considered moderate. Mitigation efforts for oil spills may include booming, burning, and the use of dispersants (BOEM 2017-009).

These methods may cause short-term secondary impacts to water quality, such as the introduction of additional hydrocarbon into the dissolved phase through the use of dispersants and the sinking of hydrocarbon residuals from burning. Since burning and the use of dispersants put additional hydrocarbons into the dissolved phase, impacts to water quality after mitigation efforts are still considered to be moderate, because dissolved hydrocarbons extend down into the water column resulting in additional exposure pathways via ingestion and gill respiration, and may result in acute or chronic effects to marine life (BOEM 2017-009).

Most oil-spill response strategies and equipment are based upon the simple principle that oil floats. However, as evident during the Deepwater Horizon explosion, oil spill, and response, this is not always true. Sometimes it floats and sometimes it suspends within the water column or sinks to the seafloor (BOEM 2017-009).

Oil that is chemically dispersed at the surface move into the top 20 ft (6 m) of the water column where it mixes with surrounding waters and begins to biodegrade (U.S. Congress, Office of Technology Assessment, 1990). Dispersant use, in combination with natural processes, breaks up oil into smaller components that allows them to dissipate into the water and degrade more rapidly (Nalco, 2010). Dispersant use must be in accordance with a Regional Response Team's (RRT) Preapproved Dispersant Use Manual and with any conditions outlined within a RRT's site- specific, dispersant approval given after a spill event. Consequently, dispersant use must be in accordance with the restrictions for specific water depths, distances from shore, and monitoring requirements. At this time, neither the Region IV nor the Region VI RRT dispersant use manuals, which cover the GOM region, give preapproval for the application of dispersant use subsea (BOEM 2017-009).

There are no other IPFs that have the potential to cause impact to water quality from the proposed project including emissions, or other factors or resources identified.

- FISHERIES

There are multiple species of fish in the Gulf of Mexico, including the endangered and threatened species listed at the beginning of this Environmental Impact Assessment. More information regarding the endangered gulf sturgeon, oceanic whitetip shark, and giant manta ray can be found below. IPFs that could cause impacts to fisheries as a result of the proposed operations include physical disturbances to the seafloor, emissions (noise / sound), effluents, and accidents.

Physical disturbances to the seafloor: The emplacement of a structure or drilling rig results in minimal loss of bottom trawling area to commercial fishermen. Pipelines cause gear conflicts which result in losses of trawls and shrimp catch, business downtime and vessel damage. Most financial losses from gear conflicts are covered by the Fishermen's Contingency Fund (FCF). The emplacement and removal of facilities are not expected to cause significant adverse impacts to fisheries. Additionally, a dynamically positioned semi-submersible or drillship is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed.

Emissions (noise / sound): All routine OCS oil-and gas-related activities have some element of sound generation. Common sound sources include propeller cavitation, rotating machinery, and reciprocating machinery, which are associated with routine OCS oil-and gas-related activities such as vessel traffic, drilling, construction, and oil and gas production, processing, and transport. Sound introduced into the marine environment as a result of human activities has the potential to affect marine organisms by stimulating behavioral response, masking biologically important signals, causing temporary or permanent hearing loss (Popper et al., 2005; Popper et al., 2014), or causing physiological injury (e.g., barotrauma) resulting in mortality (Popper and Hastings, 2009). The potential for anthropogenic sound to affect any individual organism is dependent on the proximity to the source, signal characteristics, received peak pressures relative to the static pressure, cumulative sound exposure, species, motivation, and the receiver's prior experience. In addition, environmental conditions (e.g., temperature, water depth, and substrate) affect sound speed, propagation paths, and attenuation, resulting in temporal and spatial variations in the received signal for organisms throughout the ensonified area (Hildebrand, 2009).

Sound detection capabilities among fish vary. For most fish species, it is reasonable to assume hearing sensitivity to frequencies below 500 Hertz (Hz) (Popper et al., 2003 and 2014; Popper and Hastings, 2009; Slabbekoorn et al., 2010; Radford et al., 2014). The band of greatest interest to this analysis, low-frequency sound (30-500 Hz), has come to be dominated by anthropogenic sources and includes the frequencies most likely to be detected by most fish species. For example, the noise generated by large vessel traffic typically results from propeller cavitation and falls within 40-150 Hz (Hildebrand, 2009; McKenna et al., 2012). This range is similar to that of fish vocalizations and hearing, and could result in a masking effect.

Masking occurs when background noise increases the threshold for a sound to be detected; masking can be partial or complete. If detection thresholds are raised for biologically relevant signals, there is a potential for increased predation, reduced foraging success, reduced reproductive success, or other effects. However, fish hearing and sound production may be adapted to a noisy environment (Wysocki and Ladich, 2005). There is evidence that fish are able to efficiently discriminate between signals, extracting important sounds from background noise (Popper et al., 2003; Wysocki and Ladich, 2005). Sophisticated sound processing capabilities and filtering by the sound sensing organs essentially narrows the band of masking frequencies, potentially decreasing masking effects. In addition, the low-frequency sounds of interest propagate over very long distances in deep water, but these frequencies are quickly lost in water depths between ½ and ¼ the wavelength (Ladich, 2013). This would suggest that the potential for a masking effect from low-frequency noise on behaviors occurring in shallow coastal waters may be reduced by the receiver's distance from sound sources, such as busy ports or construction activities.

Pulsed sounds generated by OCS oil-and gas-related activities (e.g., impact-driven piles and airguns) can potentially cause behavioral response, reduce hearing sensitivity, or result in physiological injury to fish and invertebrate resources. However, there are no pulsed sound generation activities proposed for these operations.

Support vessel traffic, drilling, production facilities, and other sources of continuous sounds contribute to a chronic increase in background noise, with varying areas of effect that may be influenced by the sound level, frequencies, and environmental factors (Hildebrand, 2009; Slabbekoorn et al., 2010; McKenna et al., 2012). These sources have a low potential for causing physiological injury or injuring hearing in fish and invertebrates (Popper et al., 2014). However, continuous sounds have an increased potential for masking biologically relevant sounds than do pulsed signals. The potential effects of masking on fish and invertebrates is difficult to assess in the natural setting for communities and populations of species, but evidence indicates that the increase to background noise as a result of OCS oil and gas operations would be relatively minor. Therefore, it is expected that the cumulative impact to fish and invertebrate resources would be minor and would not extend beyond localized disturbances or behavioral modification.

Despite the importance of many sound-mediated behaviors and the potential biological costs associated with behavioral response to anthropogenic sounds, many environmental and biological factors limit potential exposure and the effects that OCS oil-and gas-related sounds have on fish and invertebrate resources. The overall impact to fish and invertebrate resources due to anthropogenic sound introduced into the marine environment by OCS oil-and gas- related routine activities is expected to be minor.

Effluents: Effluents such as drilling fluids and cuttings discharges contain components and properties which are detrimental to fishery resources. Moderate petroleum and metal contamination of sediments and the water column can occur out to several hundred meters down-current from the discharge point. Offshore discharges are expected to disperse and dilute to very near background levels in the water column or on the seafloor within 3,000 m of the discharge point, and are expected to have negligible effect on fisheries. Additionally, an analysis of the best available information from the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico (NMFS, 2020) concludes that exposures to toxicants in discharges from oil and gas activities are not likely to adversely affect ESA-listed species.

Accidents: Collisions between support vessels and ESA-listed fish, would be unusual events, however, should one occur, death or injury to ESA-listed fish is possible. Contract vessel operators can avoid protected aquatic species and reduce potential deaths by maintaining a vigilant watch and a distance of 50 meters or greater, with the exception of animals that approach the vessel. Vessel personnel should use a Gulf of Mexico reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., Endangered Species Act listed species such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark) that may be encountered in the Gulf of Mexico Outer Continental Shelf (OCS).

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols
- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the Bryde's whale area.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

An accidental oil spill has the potential to cause some detrimental effects on fisheries; however, it is unlikely that such an event would occur from the proposed activities. The effects of oil on mobile adult finfish or shellfish would likely be sublethal and the extent of damage would be reduced to the capacity of adult fish and shellfish to avoid the spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

There are no IPFs from wastes sent to shore for disposal from the proposed activities which could cause impacts to fisheries.

- MARINE MAMMALS

The latest population estimates for the Gulf of Mexico revealed that cetaceans of the continental shelf and shelf-edge were almost exclusively bottlenose dolphin and Atlantic spotted dolphin. Squid eaters, including dwarf and pygmy killer whale, Risso's dolphin, rough- toothed dolphin, and Cuvier's beaked whale, occurred most frequently along the upper slope in areas outside of anticyclones. The Bryde's whale is the only commonly occurring baleen whale in the northern Gulf of Mexico and has been sighted off western Florida and in the De Soto Canyon region. Florida manatees have been sighted along the entire northern GOM but are mainly found in the shallow coastal waters of Florida, which are unassociated with the proposed actions. A complete list of all endangered and threatened marine mammals in the GOM may be found at the beginning of this Environmental Impact Assessment.

Emissions (noise / sound): Noises from drilling activities, support vessels and helicopters (i.e. nonimpulsive anthropogenic sound) may elicit a startle reaction from marine mammals. This reaction may lead to disruption of marine mammals' normal activities. Stress may make them more vulnerable to parasites, disease, environmental contaminants, and/or predation (Majors and Myrick, 1990). Responses to sound exposure may include lethal or nonlethal injury, temporary hearing impairment, behavioral harassment and stress, or no apparent response. Noise-induced stress is possible, but it is little studied in marine mammals. Tyack (2008) suggests that a more significant risk to marine mammals

from sound are these less visible impacts of chronic exposure. There is little conclusive evidence for long-term displacements and population trends for marine mammals relative to noise.

Vessels are the greatest contributors to increases in low-frequency ambient sound in the sea (Andrew et al. 2011). Sound levels and tones produced are generally related to vessel size and speed. Larger vessels generally emit more sound than smaller vessels, and vessels underway with a full load, or those pushing or towing a load, are noisier than unladen vessels. Cetacean responses to aircraft depend on the animals' behavioral state at the time of exposure (e.g., resting, socializing, foraging or traveling) as well as the altitude and lateral distance of the aircraft to the animals (Luksenburg and Parsons 2009). The underwater sound intensity from aircraft is less than produced by vessels, and visually, aircraft are more difficult for whales to locate since they are not in the water and move rapidly (Richter et al. 2006). Perhaps not surprisingly then, when aircraft are at higher altitudes, whales often exhibit no response, but lower flying aircraft (e.g., approximately 500 m or less) have been observed to elicit short-term behavioral responses (Luksenburg and Parsons 2009; NMFS 2017b; NMFS 2017f; Patenaude et al. 2002; Smultea et al. 2008a; Wursig et al. 1998). Thus, aircraft flying at low altitude, at close lateral distances and above shallow water elicit stronger responses than aircraft flying higher, at greater lateral distances and over deep water (Patenaude et al. 2002; Smultea et al. 2008a). Routine OCS helicopter traffic would not be expected to disturb animals for extended periods, provided pilots do not alter their flight patterns to more closely observe or photograph marine mammals. Helicopters, while flying offshore, generally maintain altitudes above 700 ft during transit to and from a working area, and at an altitude of about 500 ft between platforms. The duration of the effects resulting from a startle response is expected to be short-term during routine flights, and the potential effects will be insignificant to sperm whales and Bryde's whales. Therefore, we find that any disturbance that may result from aircraft associated with the proposed action is not likely to adversely affect ESA-listed whales.

Drilling and production noise would contribute to increases in the ambient noise environment of the GOM, but they are not expected in amplitudes sufficient to cause either hearing or behavioral impacts (BOEM 2017-009). There is the possibility of short-term disruption of movement patterns and/or behavior caused by vessel noise and disturbance; however, these are not expected to impact survival and growth of any marine mammal populations in the GOM. Additionally, the National Marine Fisheries Service published a final recovery plan for the sperm whale, which identified anthropogenic noise as either a low or unknown threat to sperm whales in the GOM (USDOC, NMFS, 2010b). Sirenians (i.e. manatees) are not located within the area of operations. Additionally, there were no specific noise impact factors identified in the latest BOEM environmental impact statement for sirenians related to GOM OCS operations (BOEM 2017-009).

Impulsive sound impacts (i.e. pile driving, seismic surveys) are not included among the activities proposed under this plan.

Effluents: Drilling fluids and cuttings discharges contain components which may be detrimental to marine mammals. Most operational discharges are diluted and dispersed upon release. Any potential impact from drilling fluids would be indirect, either as a result of impacts on prey items or possibly through ingestion in the food chain (API, 1989).

Discarded trash and debris: Both entanglement in, and ingestion of debris have caused the death or serious injury of marine mammals (Laist, 1997; MMC, 1999). The limited amount of marine debris, if

any, resulting from the proposed activities is not expected to substantially harm marine mammals. 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).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video (or Microsoft PowerPoint presentation), "Think About It" (*previously "All Washed Up: The Beach Litter Problem"*). Thereafter, all personnel will view the marine trash and debris training video annually. Offshore personnel will also receive an explanation from BOE Exploration & Production management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE.

Accidents: Collisions between support vessels and marine mammals, including cetaceans, would be unusual events, however, should one occur, death or injury to marine mammals is possible. Contract vessel operators can avoid marine mammals and reduce potential deaths by maintaining a vigilant watch for marine mammals and maintaining a safe distance of 500 meters or greater from baleen whales, 100 meters or greater from sperm whales, and a distance of 50 meters or greater from all other aquatic protected species, with the exception of animals that approach the vessel. If unable to identify the marine mammal, the vessel will act as if it were a baleen whale and maintain a distance of 500 meters or greater. If a manatee is sighted, all vessels in the area will operate at "no wake/idle" speeds in the area, while maintaining proper distance. When assemblages of cetaceans are observed, including mother/calf pairs, vessel speeds will be reduced to 10 knots or less. Vessel personnel should use a Gulf of Mexico reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., Endangered Species Act listed species such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark) that may be encountered in the Gulf of Mexico Outer Continental Shelf (OCS).

Contract vessel operators will comply with the measures included in Appendix C of the NMFS Biological Opinion and requirements of the Protected Species Lease Stipulation, except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols
- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the Bryde's whale area.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

Oil spills have the potential to cause sublethal oil-related injuries and spill-related deaths to marine mammals. However, it is unlikely that an accidental oil spill would occur from the proposed activities. Oil spill response activities may increase vessel traffic in the area, which could add to changes in cetacean behavior and/or distribution, thereby causing additional stress to the animals. The effect of oil dispersants on cetaceans is not known. Removing oil from the surface would reduce the likelihood of oil adhering to marine mammals. Laboratory experiments have shown that the dispersants used during the Deepwater Horizon response are cytotoxic to sperm whale cells; however it is difficult to determine actual exposure levels in the GOM. Therefore, dispersants will only be used if approved by the Regional Response Team in coordination with the RRT Dispersant Plan and RRT Biological Assessment for Dispersants.

The NMFS Office of Protected Resources coordinates agency assessment of the need for response and leads response efforts for spills that may impact cetaceans. If a spill may impact cetaceans, NMFS Protected Resources Contacts should be notified (see contact details below), and they will initiate notification of other relevant parties.

NMFS Protected Resources Contacts for the Gulf of Mexico:

- Marine mammals – Southeast emergency stranding hotline 1-877-433-8299
- Other endangered or threatened species – ESA section 7 consulting biologist: nmfs.ser.emergency.consult@noaa.gov

There are no other IPFs (including physical disturbances to the seafloor) from the proposed activities which could impact marine mammals.

- SEA TURTLES

GulfCet II studies sighted most loggerhead, Kemp's ridley and leatherback sea turtles over shelf waters. Historically these species have been sighted up to the shelf's edge. They appear to be more abundant

east of the Mississippi River than they are west of the river (Fritts et al., 1983b; Lohoefener et al., 1990). Deep waters may be used by all species as a transitory habitat. A complete list of endangered and threatened sea turtles in the GOM may be found at the beginning of this Environmental Impact Assessment. IPFs that could cause impacts to sea turtles as a result of the proposed operations include emissions (noise / sound), effluents, discarded trash and debris, and accidents.

Emissions (noise / sound): Noise from drilling activities, support vessels, and helicopters (i.e. nonimpulsive anthropogenic sound) may elicit a startle reaction from sea turtles, but this is a temporary disturbance. Responses to sound exposure may include lethal or nonlethal injury, temporary hearing impairment, behavioral harassment and stress, or no apparent response. Vessels are the greatest contributors to increases in low-frequency ambient sound in the sea (Andrew et al. 2011). Sound levels and tones produced are generally related to vessel size and speed. Larger vessels generally emit more sound than smaller vessels, and vessels underway with a full load, or those pushing or towing a load, are noisier than unladen vessels. Routine OCS helicopter traffic would not be expected to disturb animals for extended periods, provided pilots do not alter their flight patterns to more closely observe or photograph marine mammals. Helicopters, while flying offshore, generally maintain altitudes above 700 ft during transit to and from a working area, and at an altitude of about 500 ft between platforms. The duration of the effects resulting from a startle response is expected to be short-term during routine flights and the potential effects will be insignificant to sea turtles. Therefore, we find that any disturbance that may result from aircraft associated with the proposed action is not likely to adversely affect sea turtles. Construction and operational sounds other than pile driving should have insignificant effects on sea turtles; effects would be limited to short-term avoidance of construction activity itself rather than the sound produced. As a result, sound sources associated with support vessel movement as part of the proposed operations are insignificant and therefore are not likely to adversely affect sea turtles.

Overall noise impacts on sea turtles from the proposed activities are expected to be negligible to minor depending on the location of the animal(s) relative to the sound source and the frequency, intensity, and duration of the source. Appendix C of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion explains how operators must implement measures to minimize the risk of vessel strikes to protected species and report observations of injured or dead protected species. This guidance should also minimize the chance of sea turtles being subject to the increased noise level of a service vessel in very close proximity.

Effluents: Drilling fluids and cuttings discharges are not known to be lethal to sea turtles. Most operational discharges are diluted and dispersed upon release. Any potential impact from drilling fluids would be indirect, either as a result of impacts on prey items or possibly through ingestion in the food chain (API, 1989).

Discarded trash and debris: Both entanglement in, and ingestion of debris have caused the death or serious injury of marine mammals (Laist, 1997; MMC, 1999). The limited amount of marine debris, if any, resulting from the proposed activities is not expected to substantially harm marine mammals. 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).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video (or Microsoft PowerPoint presentation), "Think About It" (*previously "All Washed Up: The Beach Litter Problem"*). Thereafter, all personnel will view the marine trash and debris training video annually. Offshore personnel will also receive an explanation from BOE Exploration & Production management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE.

Accidents: Collisions between support vessels and marine mammals, including cetaceans, would be unusual events, however, should one occur, death or injury to marine mammals is possible. Contract vessel operators can avoid marine mammals and reduce potential deaths by maintaining a vigilant watch for marine mammals and maintaining a safe distance of 500 meters or greater from baleen whales, 100 meters or greater from sperm whales, and a distance of 50 meters or greater from all other aquatic protected species, with the exception of animals that approach the vessel. If unable to identify the marine mammal, the vessel will act as if it were a baleen whale and maintain a distance of 500 meters or greater. If a manatee is sighted, all vessels in the area will operate at "no wake/idle" speeds in the area, while maintaining proper distance. When assemblages of cetaceans are observed, including mother/calf pairs, vessel speeds will be reduced to 10 knots or less. Vessel personnel should use a Gulf of Mexico reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., Endangered Species Act listed species such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark) that may be encountered in the Gulf of Mexico Outer Continental Shelf (OCS).

Contract vessel operators will comply with the measures included in Appendix C of the NMFS Biological Opinion and requirements of the Protected Species Lease Stipulation, except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols

- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the Bryde's whale area.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

- AIR QUALITY

The site of proposed production and development activities is located 139 miles from the nearest shoreline in the state of Louisiana and 298 miles from the Theodore, Alabama onshore support base being utilized to support lease term pipeline installation only.

There would be a limited degree of air quality degradation in the immediate vicinity of the proposed activities. Plan Emissions for the proposed activities do not exceed the annual exemption levels as set forth by BOEM. Accidents and blowouts can release hydrocarbons or chemicals, which could cause the emission of air pollutants. However, these releases would not impact onshore air quality because of the prevailing atmospheric conditions, emission height, emission rates, and the distance of proposed operations from the coastline. There are no other IPFs (including effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal) from the proposed activities which would impact air quality.

- SHIPWRECK SITES

IPFs that have the potential to cause impacts to known or possible shipwreck sites from the proposed project include physical disturbances to the seafloor.

Physical Disturbances to the Seafloor: The project location is not located in designated stipulation blocks for Joint NTL No. 2011-G01 requiring Archaeological Resource Surveys and Reports. High-resolution digital side-scan sonar, subbottom profiler, and multibeam bathymetry data were collected using Fugro's *Hugin 3000* (Kongsberg) AUV for an archaeological assessment prepared by Fugro USA Marine Inc. (Fugro Report No. 2414-5060). The archaeological assessment delineated twenty-four (24) unidentified side-scan sonar contacts in the Study Area.

No evidence of intact shipwreck sites was observed within the GC 943 / GC 944 project area. No targets of potential archaeological significance were identified within 2,000 feet of any proposed well site(s).

There are no physical disturbances to the seafloor which could impact known or potential shipwreck sites, as the review of high-resolution shallow hazards data indicate there are no known or potential shipwreck sites located within the survey area. Accordingly, BOE Exploration & Production does not anticipate any IPF's as a result of the proposed activities.

- PRE-HISTORIC ARCHAEOLOGICAL SITES

IPFs that have the potential to cause impacts to known or pre-historic archaeological sites from the proposed project include physical disturbances to the seafloor.

Physical Disturbances to the Seafloor: The project location is not located in designated stipulation blocks for Joint NTL No. 2011-G01 requiring Archaeological Resource Surveys and Reports. High-resolution digital side-scan sonar, subbottom profiler, and multibeam bathymetry data were collected using Fugro's *Hugin 3000* (Kongsberg) AUV for an archaeological assessment prepared by Fugro USA Marine Inc. (Fugro Report No. 2414-5060). The archaeological assessment delineated twenty-four (24) unidentified side-scan sonar contacts in the Study Area.

No evidence of intact shipwreck sites was observed within the GC 943 / GC 944 project area. No targets of potential archaeological significance were identified within 2,000 feet of any proposed well site(s).

There are no physical disturbances to the seafloor which could impact known or potential shipwreck sites, as the review of high-resolution shallow hazards data indicate there are no known or potential shipwreck sites located within the survey area. Accordingly, BOE Exploration & Production does not anticipate any IPF's as a result of the proposed activities.

VICINITY IMPACTS

- ESSENTIAL FISH HABITATS

IPFs that could cause impacts to EFH as a result of the proposed operations include physical disturbances to the seafloor, effluents, and accidents. EFH includes all estuarine and marine waters and substrates in the Gulf of Mexico.

Physical disturbances to the seafloor: Turbidity and sedimentation resulting from the bottom disturbing activities included in the proposed operations would be short term and localized. Fish are mobile and would avoid these temporarily suspended sediments. Additionally, the Live Bottom Low Relief Stipulation, the Live Bottom (Pinnacle Trend) Stipulation, and the Eastern Gulf Pinnacle Trend Stipulation have been put in place to minimize the impacts of bottom disturbing activities. Additionally, a dynamically positioned semi-submersible or drillship is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed. Therefore, the bottom disturbing activities from the proposed operations would have a negligible impact on EFH.

Effluents: The Live Bottom Low Relief Stipulation, the Live Bottom (Pinnacle Trend) Stipulation, and the Eastern Gulf Pinnacle Trend Stipulation would prevent most of the potential impacts on live-bottom communities and EFH from operational waste discharges. Levels of contaminants in drilling muds and cuttings and produced-water discharges, discharge-rate restrictions, and monitoring and toxicity testing are regulated by the EPA NPDES permit, thereby eliminating many significant biological or ecological effects. Operational discharges are not expected to cause significant adverse impacts to EFH.

Accidents: An accidental oil spill has the potential to cause some detrimental effects on EFH. Oil spills that contact coastal bays and estuaries, as well as OCS waters when pelagic eggs and larvae are present, have the greatest potential to affect fisheries. However, it is unlikely that an oil spill would occur from the proposed activities.

There are no other IPFs (including emissions or wastes sent to shore for treatment or disposal) from the proposed activities which could impact essential fish habitat.

- MARINE AND PELAGIC BIRDS

IPFs that could impact marine birds as a result of the proposed activities include emissions (air, noise / sound), accidental oil spills, and discarded trash and debris from vessels and the facilities.

Emissions:
Air Emissions
Emissions of pollutants into the atmosphere from these activities are far below concentrations which could harm coastal and marine birds.

Noise / Sound Emissions
The OCS oil-and gas-related helicopters and vessels have the potential to cause noise and disturbance. However, flight altitude restrictions over sensitive habitat, including that of birds, may make serious disturbance unlikely. Birds are also known to habituate to noises, including airport noise. It is an assumption that the OCS oil-and gas-related vessel traffic would follow regular routes; if so, seabirds would find the noise to be familiar. Therefore, the impact of OCS oil-and gas-related noise from helicopters and vessels to birds would be expected to be negligible.

The use of explosives for decommissioning activities may potentially kill one or more birds from barotrauma if a bird (or several birds because birds may occur in a flock) is present at the location of the severance. For the impact of underwater sound, a threshold of 202 dB sound exposure level (SEL) for injury and 208 dB SEL for barotrauma was recommended for the Brahyramphus marmoratus, a diving seabird (USDOI, FWS, 2011). However, the use of explosive severance of facilities for decommissioning are not included in these proposed operations, therefore these impacts are not expected.

Accidents: An oil spill would cause localized, low-level petroleum hydrocarbon contamination. However, it is unlikely that an oil spill would occur from the proposed activities. Marine and pelagic birds feeding at the spill location may experience chronic, nonfatal, physiological stress. It is expected that few, if any, coastal and marine birds would actually be affected to that extent.

Discarded trash and debris: Both entanglement in, and ingestion of debris have caused the death or serious injury of marine mammals (Laist, 1997; MMC, 1999). The limited amount of marine debris, if any, resulting from the proposed activities is not expected to substantially harm marine mammals. 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).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video (or Microsoft PowerPoint presentation), "Think About It" (*previously "All Washed Up: The Beach Litter Problem"*). Thereafter, all personnel will view the marine trash and debris training video annually. Offshore personnel will also receive an explanation from BOE Exploration & Production management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE.

ESA bird species: Seven species found in the GOM are listed under the ESA. BOEM consults on these species and requires mitigations that would decrease the potential for greater impacts due to small population size.

There are no other IPFs (including effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities which could impact marine and pelagic birds.

- PUBLIC HEALTH AND SAFETY

There are no IPFs that have the potential to cause impact to public health and safety from the proposed project including emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, accidents, or other factors or resources identified. The project location is located 139 miles from the nearest shoreline. A prior hydrogen sulfide determination has been performed in the area of the proposed drilling operations has been classified as hydrogen sulfide absent.

COASTAL AND ONSHORE IMPACTS

- BEACHES

IPFs that have the potential to cause impact to beaches from the proposed project location include accidents.

Accidents: An accidental spill or well blowout from the proposed project could cause impacts to beaches. Accidental spills would be expected to be small in in size, expeditiously recovered from the surface, and droplets in the water table microbiologically degraded, resulting in short term impacts. An accidental blowout of the well could have both short term and long term effects on beaches depending on the size and complexity of the event. The worst discharge probability estimates the highest chances of catastrophic event making onshore impact at Cameron Parish at 0% based on 3 days from spill, 1% based on 10 days from spill, and 7% based on 30 days from spill. Due to the activity distance from shore and the capacity to respond to a worst case discharge, no significant impacts to beaches would be expected. In the event of a spill or blowout, the operator will immediately implement the Regional Oil Spill Response Plan and active controls and countermeasures to minimize the impact to beaches.

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans,

manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

There are no other IPFs that have the potential to cause impact to beaches from the proposed project including emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or other factors or resources identified.

- WETLANDS

IPFs that have the potential to cause impact to wetlands from the proposed project location include accidents.

Accidents: An accidental spill or well blowout from the proposed project could cause impacts to wetlands. Accidental spills would be expected to be small in in size, expeditiously recovered from the surface, and droplets in the water table microbiologically degraded, resulting in short term impacts. An accidental blowout of the well could have both short term and long term effects on wetlands depending on the size and complexity of the event. The worst discharge probability estimates the highest chances of catastrophic event making onshore impact at Cameron Parish at 0% based on 3 days from spill, 1% based on 10 days from spill, and 7% based on 30 days from spill. Due to the activity distance from shore and the capacity to respond to a worst case discharge, no significant impacts to wetlands would be expected. In the event of a spill or blowout, the operator will immediately implement the Regional Oil Spill Response Plan and active controls and countermeasures to minimize the impact to beaches.

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

There are no other IPFs that have the potential to cause impact to beaches from the proposed project including emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or other factors or resources identified.

- SHORE AND COASTAL NESTING BIRDS

IPFs that have the potential to cause impacts to shore and nesting birds from the proposed project include accidents. Shore and coastal nesting birds found in the gulf coast include Terns, Pelicans, Plovers, Skimmers, Cranes and Gulls. Piping Plover (Charadrius melodus) and Whooping Crane (Grus americana) are listed by the Endangered Species Act (ESA) as threatened and have critical habitat designated in the coastal areas and beaches.

Accidents: An accidental spill or well blowout from the proposed project could cause impacts to shore and coastal nesting birds. Accidental spills would be expected to be small in in size, expeditiously recovered from the surface, and droplets in the water table microbiologically degraded, resulting in short term impacts. An accidental blowout of the well could have both short term and long term effects on birds depending on the size and complexity of the event. The worst discharge probability estimates the highest chances of catastrophic event making onshore impact at Cameron Parish at 0% based on 3 days from spill, 1% based on 10 days from spill, and 7% based on 30 days from spill. Due to the activity distance from shore and the capacity to respond to a worst case discharge, no significant impacts to shore and coastal nesting birds would be expected. In the event of a spill or blowout, the operator will immediately implement the Regional Oil Spill Response Plan and active controls and countermeasures to minimize the impact to birds.

Marine debris has the potential to impact shore and coastal nesting birds through entanglement or ingestion causing serious injury or death. To minimize the impact potential to birds, the proposed project will abide by the guidelines of BSEE NTL No. 2015-G03 (Marine Trash and Debris Awareness and Elimination).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

There are no other IPFs that have the potential to cause impact to shore and coastal nesting birds from the proposed project including emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or other factors or resources identified.

- COASTAL WILDLIFE REFUGES

IPFs that have the potential to cause impacts to coastal wildlife refuges from the proposed project include accidents. The nearest wildlife refuges to the proposed project location are the Delta National Wildlife Refuge and the Breton National Wildlife Refuge.

Accidents: An accidental spill or well blowout from the proposed project could cause impacts to wildlife refuges. Accidental spills would be expected to be small in in size, expeditiously recovered from the surface, and droplets in the water table microbiologically degraded, resulting in short term impacts. An accidental blowout of the well could have both short term and long term effects on refuges depending on the size and complexity of the event. The worst discharge probability estimates the highest chances of catastrophic event making onshore impact at Cameron Parish at 0% based on 3 days from spill, 1% based on 10 days from spill, and 7% based on 30 days from spill. Due to the activity distance from shore and the capacity to respond to a worst case discharge, no significant impacts to wildlife refuges would be expected. In the event of a spill or blowout, the operator will immediately implement the Regional Oil Spill Response Plan and active controls and countermeasures to minimize the impact to refuges.

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

There are no other IPFs that have the potential to cause impact to coastal wildlife refuges from the proposed project including effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or other factors or resources identified.

- WILDERNESS AREAS

IPFs that have the potential to cause impacts to coastal wilderness areas from the proposed project include accidents. The nearest designated wilderness area to the proposed project location is the Breton Wilderness Area.

Accidents: An accidental spill or well blowout from the proposed project could cause impacts to wilderness areas. Accidental spills would be expected to be small in in size, expeditiously recovered from the surface, and droplets in the water table microbiologically degraded, resulting in short term impacts. An accidental blowout of the well could have both short term and long term effects on wilderness areas depending on the size and complexity of the event. The worst discharge probability estimates the highest chances of catastrophic event making onshore impact at Cameron Parish at 0% based on 3 days from spill, 1% based on 10 days from spill, and 7% based on 30 days from spill. Due to the activity distance from shore and the capacity to respond to a worst case discharge, no significant impacts to wilderness areas would be expected. In the event of a spill or blowout, the operator will immediately implement the Regional Oil Spill Response Plan and active controls and countermeasures to minimize the impact to wilderness areas.

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

There are no other IPFs that have the potential to cause impact to wilderness areas from the proposed project including effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, or other factors or resources identified.

OTHER ENVIRONMENTAL RESOURCES IDENTIFIED

Rice's / Bryde's Whale

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

Should vessels transit the proposed expanded Rice's / Bryde's whale area, BOE Exploration and its vessel support contractors are aware of the interim recommendations and guidance proposed in pending NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS," while the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The following measures will be considered while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

Gulf Sturgeon

The gulf sturgeon resides primarily in inland estuaries and rivers from Louisiana to Florida and a small population of the species enters the Gulf of Mexico seasonally in western Florida. IPFs from the

proposed activities that could cause impacts to the gulf sturgeon include accidents (oil spills) and discarded trash and debris.

Accidents: Collisions between support vessels and the Gulf sturgeon would be unusual events, however, should one occur, death or injury to the Gulf sturgeon is possible. Contract vessel operators can avoid protected aquatic species and reduce potential deaths by maintaining a vigilant watch and a distance of 50 meters or greater, with the exception of animals that approach the vessel. Vessel personnel should use a Gulf of Mexico reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., Endangered Species Act listed species such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark) that may be encountered in the Gulf of Mexico Outer Continental Shelf (OCS).

Contract vessel operators will comply with the measures included in Appendix C of the NMFS Biological Opinion and requirements of the Protected Species Lease Stipulation, except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of

whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols
- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

Should vessels transit the proposed expanded Rice's / Bryde's whale area, BOE Exploration and its vessel support contractors are aware of the interim recommendations and guidance proposed in pending NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS," while the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The following measures will be considered while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

Emissions (noise / sound): All routine OCS oil-and gas-related activities have some element of sound generation. Common sound sources include propeller cavitation, rotating machinery, and reciprocating machinery, which are associated with routine OCS oil-and gas-related activities such as vessel traffic, drilling, construction, and oil and gas production, processing, and transport. Sound introduced into the marine environment as a result of human activities has the potential to affect marine organisms. The National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion found that construction and operational sounds other than pile driving will have insignificant effects on Gulf sturgeon (NMFS, 2020). There are no pile driving activities associated with the proposed operations, therefore noise impacts are not expected to significantly affect Gulf Sturgeon.

Discarded trash and debris: Both entanglement in, and ingestion of debris have caused the death or serious injury of marine mammals (Laist, 1997; MMC, 1999). The limited amount of marine debris, if any, resulting from the proposed activities is not expected to substantially harm marine mammals. 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).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video (or Microsoft PowerPoint presentation), "Think About It" (*previously "All Washed Up: The Beach Litter Problem"*). Thereafter, all personnel will view the marine trash and debris training video annually. Offshore personnel will also receive an explanation from BOE Exploration & Production management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE.

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities which could impact the gulf sturgeon.

Oceanic Whitetip Shark

Oceanic whitetip sharks may be found in tropical and subtropical waters around the world, including the Gulf of Mexico (Young 2016). According to the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, Essential Fish Habitat (EFH) for the oceanic whitetip shark includes localized areas in the central Gulf of Mexico and Florida Keys. Oceanic whitetip sharks were listed under the Endangered Species Act in 2018 due to worldwide overfishing. Oceanic whitetip sharks had an abundant worldwide population, which has been threatened in recent years by inadequate regulatory measures governing fisheries; therefore, there is little research regarding the impact of oil and gas operations on oceanic whitetip sharks (NMFS, 2020). IPFs that have been determined by NMFS to be discountable to oceanic whitetip sharks include vessel strike, emissions (noise / sound), discharges, entanglement and entrapment, and marine debris. IPFs that could cause impacts to oceanic whitetip sharks as a result of the proposed operations.

Accidents: Collisions between support vessels and the oceanic whitetip shark would be unusual events, however, should one occur, death or injury to the oceanic whitetip shark is possible. Contract vessel operators can avoid protected aquatic species and reduce potential deaths by maintaining a vigilant watch and a distance of 50 meters or greater, with the exception of animals that approach the vessel. Vessel personnel should use a Gulf of Mexico reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., Endangered Species Act listed species such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark) that may be encountered in the Gulf of Mexico Outer Continental Shelf (OCS).

Contract vessel operators will comply with the measures included in Appendix C of the NMFS Biological Opinion and requirements of the Protected Species Lease Stipulation, except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring

will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
- Appendix C, Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols
- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

Should vessels transit the proposed expanded Rice's / Bryde's whale area, BOE Exploration and its vessel support contractors are aware of the interim recommendations and guidance proposed in pending NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS," while the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The following measures will be considered while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

Discarded trash and debris: There is little available information on the effects of marine debris on oceanic whitetip sharks. Since these sharks are normally associated with surface waters, they may be susceptible to entanglement. However, due to the small, widely dispersed, and highly mobile population in the Gulf of Mexico, and the localized and patchy distribution of marine debris, it is extremely unlikely that oceanic whitetip sharks would be impacted by marine debris.

There will only be a limited amount of marine debris, if any, resulting from the proposed activities. 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).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video (or Microsoft PowerPoint presentation), "Think About It" (*previously "All Washed Up: The Beach Litter Problem"*). Thereafter, all personnel will view the marine trash and debris training video annually. Offshore personnel will also receive an explanation from BOE Exploration & Production management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE.

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities which could impact the oceanic whitetip sharks.

Giant Manta Ray

According to the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, the giant manta ray lives in tropical, subtropical, and temperate oceanic waters and productive coastlines throughout the Gulf of Mexico. While uncommon in the Gulf of Mexico, there is a population of approximately 70 giant manta rays in the Flower Garden Banks National Marine Sanctuary (Miller and Klimovich 2017). Giant manta rays were listed under the Endangered Species Act in 2018 due to worldwide overfishing. Giant manta rays had an abundant worldwide population, which has been threatened in recent years by inadequate regulatory measures governing fisheries; therefore, there is little research regarding the impact of oil and gas operations on giant manta rays (NMFS, 2020). IPFs that have been determined by NMFS to be discountable to giant manta rays include vessel strike, emissions (noise / sound), discharges, entanglement and entrapment, and marine debris. IPFs that could cause impacts to giant manta rays as a result of the proposed operations.

Accidents: Collisions between support vessels and the giant manta ray would be unusual events, however, should one occur, death or injury to the giant manta ray is possible. Contract vessel operators can avoid protected aquatic species and reduce potential deaths by maintaining a vigilant watch and a distance of 50 meters or greater, with the exception of animals that approach the vessel. Vessel personnel should use a Gulf of Mexico reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., Endangered Species Act listed species such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark) that may be encountered in the Gulf of Mexico Outer Continental Shelf (OCS).

Contract vessel operators will comply with the measures included in Appendix C of the NMFS Biological Opinion and requirements of the Protected Species Lease Stipulation, except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

Operations proposed in this plan may utilize a moon pool(s) to conduct various subsea activities.

Accordingly, BOE Exploration & Production and/or its contractor representatives will comply with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) on March 13, 2020.

Moon pool(s) will be regularly monitored while open to the water column and when the vessel is not underway. If water conditions are such that observers are unable to see within a meter of the surface, operations requiring lowering or retrieval of equipment through the moon pool will be conducted at a rate that will minimize potential harm, if safety allows.

Prior to and following hull door closure, the moon pool will be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual Endangered Species Act (ESA) listed species is trapped within the hull closed moon pool doors. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring will be conducted prior to hull door closure. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool will be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no ESA listed species are present in the moon pool area.

If an ESA listed species is observed in the moon pool, the vessel will not be moved and equipment will not be deployed or retrieved, to the extent practicable, unless the safety of crew or vessel requires

otherwise. NMFS will be contacted immediately at nmfs.psoreview@noaa.gov. If the observed animal leaves the moon pool, activities will commence.

Should an ESA listed species be observed in a moon pool prior to activity commencement, recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. No action will be taken except at the direction of and after contact with NMFS.

Should an interaction with equipment or entanglement/entrapment of any ESA listed species occur (e.g., the animal cannot or does not leave the moon pool on its own volition), the interaction will be reported immediately. Any observation of a leatherback sea turtle within a moon pool, regardless of whether interaction with equipment or entanglement/entrapment is observed, will be reported immediately to the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov).

Further, any interaction with equipment or entanglement/entrapment of any ESA listed species (i.e., the animal cannot or does not leave the pool of its own volition) will be reported immediately. For assistance with marine mammals and sea turtles, the stranding network listed at www.fisheries.noaa.gov/report and BSEE at protectedspecies@bsee.gov will be contacted for additional guidance on continued monitoring requirements, recovery assistance needs (if required), and incidental report information. Other ESA listed species (e.g., giant manta ray) will be reported to relevant state agency wildlife lines, the ESA Section 7 biologist, and BSEE at protectedspecies@bsee.gov. The vessel will not be moved and equipment will not be deployed or retrieved to/from the pool, to the extent practicable, until NMFS and BSEE are contacted and provide input on how to proceed.

Any ESA listed species observed within a moon pool that then leaves the moon pool of its own volition will be reported within 24 hours to NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov. If the observed animal is no longer observed in the moon pool, monitoring will take place for at least 30 minutes to ensure it has left the moon pool. After 30 minutes, activities will commence.

Additionally, BOE Exploration & Production and/or its contractor representatives will follow guidance provided under various appendices found in the Biological Opinion issues by NMFS on March 13, 2020 regarding the following when conducting activity proposed in this plan:

- Appendix B, Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols
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- Appendix J, Sea Turtle Handling and Resuscitation Guidelines

There are no seismic surveys, pile driving, decommissioning activities, or pipelines making landfall associated with the activity proposed in this plan.

Vessels associated with and/or utilized to support activity proposed in this plan will take the most direct route when transiting from onshore support facilities to a well site(s). Vessels associated with and/or utilized to support activity proposed in this plan will not transit the currently document Rice's / Bryde's whale area.

Should vessels transit the proposed expanded Rice's / Bryde's whale area, BOE Exploration and its vessel support contractors are aware of the interim recommendations and guidance proposed in pending NTL 2023-G01, "Expanded Rice's Whale Protection Efforts During Reinitiated Consultation with NMFS," while the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are engaged in reinitiated consultation with the National Marine Fisheries Service (NMFS) on the 2020 Biological Opinion regarding this area.

The following measures will be considered while the reinitiated consultation is ongoing and until a new or amended BiOp is issued and implemented:

A. Use trained visual observers to monitor the vessel strike avoidance zone (500 m). Such observers may be either third-party observers or crew members but crew members responsible for these duties should be provided with sufficient training to distinguish aquatic protected species to broad taxonomic groups.

B. If transiting within the Expanded Rice's Whale Area (as described in this NTL), document and retain records for three years on details of transit, including what port is used for mobilization and demobilization.

C. Observe on all vessels, regardless of size, at all times a 10-knot or less, year-round speed restriction in the Expanded Rice's Whale Area (as described in this NTL and Figure 1). This recommendation would not apply when compliance would place the safety of the vessel or crew, or the safety of life at sea, in doubt. To the maximum extent practicable, lessees and operators should avoid transit through the Expanded Rice's Whale Area after dusk and before dawn, and during other times of low visibility to further reduce the risk of vessel strike of Rice's whales.

D. Maintain on all vessels a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator should assume that the whale is a Rice's whale and take appropriate action.

E. Include a functioning Automatic Identification System (AIS) onboard all vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) that is operating at all times, as required by the U.S. Coast Guard. If the vessel does not require AIS, it is strongly encouraged that the operator document and retain records of the transit, including trackline (e.g., time and speed) data and visual marine mammal sightings.

BOE Exploration & Production and/or its contractor representatives and vessels associated with and/or utilized to support activity proposed in this plan will not utilize flexible, small diameter nylon, plastic or fiber lines to support operations proposed in this plan.

Discarded trash and debris: There is little available information on the effects of marine debris on giant manta rays. Since these sharks are normally associated with surface waters, they may be susceptible to entanglement. However, due to the small, widely dispersed, and highly mobile population in the Gulf of Mexico, and the localized and patchy distribution of marine debris, it is extremely unlikely that oceanic whitetip sharks would be impacted by marine debris.

There will only be a limited amount of marine debris, if any, resulting from the proposed activities. 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).

BOE Exploration & Production will operate in accordance with the regulations, agency guidance, and Appendix B of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, and also avoid accidental loss of solid waste items by maintaining waste management plans, manifesting trash sent to shore, and using special precautions such as covering outside trash bins to prevent accidental loss of solid waste. 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. BOE Exploration & Production will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on all vessels and facilities having sleeping or food preparation capabilities. All offshore personnel, including contractors and other support services-related personnel (e.g. helicopter pilots, vessel captains and boat crews) will be indoctrinated on waste procedures, and will view the video (or Microsoft PowerPoint presentation), "Think About It" (*previously "All Washed Up: The Beach Litter Problem"*). Thereafter, all personnel will view the marine trash and debris training video annually. Offshore personnel will also receive an explanation from BOE Exploration & Production management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE.

There are no other IPFs (emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed activities which could impact the giant manta ray.

Loggerhead Sea Turtle

The loggerhead sea turtles are large sea turtles that inhabit continental shelf and estuarine environments throughout the temperate and tropical regions of the Atlantic Ocean, with nesting beaches along the northern and western Gulf of Mexico. NMFS issued a Final Rule in 2014 (79 FR 39855) designating a critical habitat including 38 marine areas within the Northwest Atlantic Ocean, with seven of those areas residing within the Gulf of Mexico. These areas contain one or a combination of habitat types: nearshore reproductive habitats, winter areas, breeding areas, constricted migratory corridors, and/or *Sargassum* habitats.

Considering the information from the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, BOE Exploration & Production does not expect proposed operations to affect Sargassum's ability to support adequate prey abundance and cover for loggerhead turtles.

Protected Corals

Protected coral habitats in the Gulf of Mexico range from Florida, the Flower Garden Banks National Marine Sanctuary, and into the Caribbean, including Puerto Rico, the U.S. Virgin Islands, and Navassa Island. Four counties in Florida (Palm Beach, Broward, Miami-Dade, and Monroe Counties) were designated as critical habitats for elkhorn (Acropora palmata) and staghorn (Acropora cervicornis) corals. These coral habitats are located outside of the planning area and are not expected to be impacted by the proposed actions. Elkhorn coral can also be found in the Flower Garden Banks along

with three additional coral species, boulder star coral (Orbicella franksi), lobed star coral (Orbicella annularis), and mountainous star coral (Orbicella faveolatta). IPFs from the proposed activities that could cause impacts to protected corals include accidents (oil spills).

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities. Oil spills cause damage to corals only if the oil contacts the organisms. Accordingly, no adverse impacts are expected.

There are no other IPFs (including emissions, effluents, physical disturbances to the seafloor, and wastes sent to shore for disposal) from the proposed activities which could impact protected corals.

Endangered Beach Mice

There are four subspecies of endangered beach mouse that are found in the dune systems along parts of Alabama and northwest Florida. Due to the distance from shore of the activity proposed in this plan and the beach mouse critical habitat (above the intertidal zone), there are no IPFs that could impact endangered beach mice.

OTHER IDENTIFIED IMPACTS

No significant impacts are expected to environmental resources from the proposed project based on Impact Producing Factors identified in the Environmental Impact Analysis Worksheet discussed in this report and prior operations and development in the proposed project location.

POTENTIAL IMPACTS FROM ENVIRONMENTAL CONDITIONS

Potential impacts from environmental conditions for the proposed project include hazards to operations, equipment, and personnel from potential adverse weather conditions from significant storm systems during the hurricane season of June through November.

ALTERNATIVES CONSIDERED TO REDUCE IMPACTS

No alternatives to the proposed project to reduce impacts were considered beyond applicable requirements of Lease Sale Stipulations, Notice to Lessees and Operators, and Regulatory Authorities.

MITIGATION MEASURES

No mitigation measures to the proposed project to avoid or reduce impacts are to be implemented beyond applicable requirements of Lease Sale Stipulations, Notice to Lessees and Operators, and Regulatory Authorities.

AGENCIES AND PERSONS CONSULTED

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

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APPENDIX R
ADMINISTRATIVE INFORMATION

A) EXEMPTED INFORMATION DESCRIPTION

Proprietary information included in the proprietary copy of this plan is listed below.

- BHL, TVD, and MD information on Form 137
- WCD sand and depth information on Form 137 and supporting documentation
- Certain items and enclosures under Geological and Geophysical information
- Correlative well information used to justify the H2S classification
- Casing summary information
- Charts containing sand tops and bases in the analog wells
- Directional Survey
- Wellbore Schematics

B) BIBLIOGRAPHY

Below is a listing of all referenced material used to development this plan.

- Notice to Lessees No. 2008-G04
- Notice to Lessees No. BOEM 2015-N01
- Notice to Lessees No. 2009-G40
- Notice to Lessees No. 2009-G39
- Notice to Lessees No. 2008-G06
- Notice to Lessees No. 2005-G07
- Notice to Lessees No. 2006-G07
- Notice to Lessees No. 2007-G04
- Notice to Lessees No. BOEM 2016-G01
- Notice to Lessees No. 2015-G03
- Notice to Lessees No. BOEM 2016-G02
- Initial Exploration Plan N-10114
- Initial Exploration Plan N-10118
- Initial Development Operations Coordination Document N-10191
- Berger Geosciences, Shallow Hazards Assessment and Benthic Communities Evaluation, Blocks 943, 944 and 987, Green Canyon Area, Project No. 19-07-27
- Echo Offshore, AUV Archaeological Investigation, block 944 and portions of blocks 943 & 987, Green Canyon Area, Project No. 19-042-41
- Berger Geosciences, Wellsite Discussion, GC 944 WB001 and GC 944 WB002, Project No. 23-05-09
- Berger Geosciences, Wellsite Discussion, GC 944 RW-1, RW-2, RW-3, Project No. 24-01026