UNITED STATES GOVERNMENT June 1, 2023
MEMORANDUM

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

Subject: Public Information copy of plan

Control #	-	N-10216
Type	-	Initial Exploration Plan
Lease(s)	-	OCS-G37200 Block - 68 Mississippi Canyon Area OCS-G37201 Block - 69 Mississippi Canyon Area
Operator	-	Talos Energy Offshore LLC
Description	-	Subsea Wells A, A1, C, and C1
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.

Leslie Wilson
Plan Coordinator

Site Type/Name	Botm Lse/Area/Blk	Surface Location	Surf Lse/Area/Blk
WELL/A	G37200/MC/68	3327 FSL, 915 FEL	G37200/MC/68
WELL/A1	G37200/MC/68	3328 FSL, 914 FEL	G37200/MC/68
WELL/C	G37201/MC/69	4083 FSL, 564 FWL	G37201/MC/69
WELL/C1	G37201/MC/69	4084 FSL, 565 FWL	G37201/MC/69

TALOS
ENERGY OFFSHORE LLC

May 22, 2023

U. S. Department of the Interior
Bureau of Ocean Energy Management
1201 Elmwood Park Blvd.
New Orleans, Louisiana 70123-2394

Attention: Ms. Leslie Wilson, Plans Section, GM 235D

RE: Updated EP for Mississippi Canyon Block 68/69, Lease OCS-G 37200/37201, OCS Federal Waters, Gulf of Mexico, Offshore, Louisiana

Ms. Wilson:

Pursuant of 30 CFR 55.231(a)(2), Talos submits the enclosed CD containing the amended proprietary and public copies of the Mississippi Canyon Block 68/69 EP.

The following amendments have been submitted:

Modified Item	Copy	Page	Date Submitted	Changes Made
Public Information Page	Public	2	3/22/2023	Corrected Location & Start-up Date
Propriety Information Page	Proprietary	2	3/22/2023	Corrected Location & Start-up Date
OCS Plan Information Form	Public		3/28/2023	Corrected Surface Location
OCS Plan Information Form	Proprietary	9-12	3/28/2023	Corrected Surface and Bottomhole Locations
Worst Case Discharge WBS	Proprietary	163	4/14/2023	WBS for WCD added
RFI items not submitted with EP Copies			4/26/2023	Geophysical SME RFI CD/DVDs with requested information submitted
OCS Plan Information Form	Public	6-10	5/22/2023	Updated for WCD
OCS Plan Information Form	Proprietary	6-10	5/22/2023	Updated for WCD
Blowout Scenario	Public	16-22	5/22/2023	Updated for WCD
Blowout Scenario	Proprietary	16-22	5/22/2023	Updated for WCD
Appendix I: Oil Spills Information Page	Public	80-81	5/22/2023	Updated for WCD & OSRP Approval Date

Appendix I: Oil Spills Information Page	Proprietary	107-108	5/22/2023	Updated for WCD & OSRP Approval Date
Oil Spills Response Discussion	Public	82-117	5/22/2023	Updated for WCD
Oil Spills Response Discussion	Proprietary	109-144	5/22/2023	Updated for WCD
WCD Calculation Documents	Proprietary	-	5/22/2023	Removed for BSEE WCD Acceptance

Should you have any questions or require any additional information, please contact Eric Berger at (713) 907-5910, (eric.berger@talosenergy.com).

Sincerely,

Eric Berger
Senior Regulatory Specialist
Talos Energy Offshore LLC

MC 68/69
Prospect: Audubon
Well(s): #1 Location A/A1 & C/C1
OCS-G 37200/G 37201
INITIAL EXPLORATION PLAN

March 20, 2023

Bureau of Ocean Energy Management
New Orleans Regional Office
ATTN: Plans Section
1201 Elmwood Park Boulevard
New Orleans, LA 70123

To Whom It May Concern:

Talos Energy has reviewed NTLs 2008-G04, BOEM 2015-N01 and other relevant NTLs and FAQs for the activities proposed herein and included in this submittal all pertinent proprietary and public information and documentation in regards to those activities.

The activities noted above are expected to commence on or about March 1, 2024.

All questions and/or correspondence regarding this plan should be submitted to Eric Berger at (713) 907-5910 or via email at eric.berger@talosenergy.com.

Your expedited review is greatly appreciated.

Respectfully,

Eric Berger
Talos Energy LLC

INITIAL EXPLORATION PLAN

PUBLIC INFORMATION

Lease Number:	**OCS-G 37200/G 37201**
Area/Block:	**MC 68/69**
Prospect:	**Audubon**
Well(s):	**#1 Location A/A1 & C/C1**
Offshore:	**Louisiana, Mississippi**
Submitted By:	**Talos Energy (03257)** **333 Clay St., Suite 3300** **Houston, Tx 77002**
Estimated Start-up Date:	**Friday, March 1, 2024**

xrLabelCoverSheetDate

MC 68/69
Prospect: Audubon
Well(s): #1 Location A/A1 & C/C1
OCS-G 37200/G 37201

INITIAL EXPLORATION PLAN

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 activities proposed herein.

Talos proposes the following activities for leases OCS-G 37200 & OCS-G 37201 as follows:

The drilling and completion of MC 68 well #1 Loc. A/A1 & MC 69 well #1 Loc. C/C1.

B) LOCATION

A map depicting the proposed surface and bottomhole locations is included in the attachments to this appendix of the proprietary information copy of this plan. A bathymetry map for each location can be found in the site clearance letters within the Geological & Geophysical appendix.

A map depicting the proposed surface locations is included in the attachments to this appendix of the public information copy of this plan.

C) SAFETY AND POLLUTION PREVENTION FEATURES

Talos Energy proposes to utilize a drillship or dynamically positioned semi-submersible for the drilling of this prospect. Rig specifications will be included in the Application for Permit to Drill.

We are also requesting permission to have the option of choosing the most appropriate/available drilling unit at the time our Application for Permit to Drill (APD) is filed. We are considering choosing one of the following drilling units; a semi-submersible or a dynamically positioned semi-submersible.

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 herein. Since the capacities for both rig types are almost identical, this table is representative of either type rig.

Type of Storage Tank	Type of Facility	Tank Capacity (bbls)	Number of Tanks	Total Capacity (bbls)	Fluid Gravity (API)
Fuel Oil	MODU	5000	6	30000	33

E) POLLUTION PREVENTION

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

F) ADDITIONAL MEASURES

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

Talos is a member fo HWCG LLC, Clean Gulf Associates, and the National Response Corporation.

G) SERVICE FEE

In accordance with 30 CFR 250.125, included in the attachments for this appendix is a copy of the pay.gov receipt for the required service fee for the activities proposed herein.

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)	X	Development Operations Coordination Document (DOCD)	

Company Name: Talos Energy Offshore LLC	BOEM Operator Number: 03247
Address:	Contact Person: Eric Berger
333 Clay Street, Suite 3300	Phone Number: (713) 907-5910
Houston, TX 77002	E-Mail Address: eric.berger@talosenergy.com

If a service fee is required under 30 CFR 550.125(a), provide the	Amount paid	$8,696.00	Receipt No.	

Project and Worst Case Discharge (WCD) Information

Lease(s): OCS-G37200/37201	Area: MC	Block(s): 68/69	Project Name (If Applicable): Audubon

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

Platform/Well Name: N/A	Total Volume of WCD: 251,455 BOPD	API Gravity: 41.1°
Distance to Closest Land (Miles): 21.92	Volume from uncontrolled blowout: 251,455 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-10216			
Do you propose to use new or unusual technology to conduct your activities?		Yes	X	No
Do you propose to use a vessel with anchors to install or modify a structure?		Yes	X	No
Do you propose any facility that will serve as a host facility for deepwater subsea development?		Yes	X	No

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

Proposed Activity	Start Date	End Date	No. of Days
Exploration drilling	03/01/2024	04/27/2024	57
Well completion	02/01/2025	03/23/2025	50
Exploration drilling	03/01/2026	04/27/2026	57
Well completion	02/01/2027	03/23/2027	50
Future Rig Operations	01/011/2028	02/20/2034	50 Days per Year (2028-2034)
Installation of production facilities			
Installation of subsea wellheads and/or manifolds			
Installation of lease term pipelines			
Commence production			
Other (Specify and attach description)			

Description of Drilling Rig

	Jackup	X	Drillship		Caisson		Tension leg platform
	Gorilla Jackup		Platform rig		Fixed platform		Compliant tower
	Semisubmersible		Submersible		Spar		Guyed tower
X	DP Semisubmersible		Other (Attach Description)		Floating production system		Other (Attach Description)

Drilling Rig Name (If Known):

Description of Lease Term Pipelines

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

Attachment A

OCS PLAN INFORMATION FORM (CONTINUED)
Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): #1 Loc. A					Previously reviewed under an approved EP or DOCD?		Yes		No X
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.				
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						X	Yes		No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 251,455 BOPD				For structures, volume of all storage and pipelines (Bbls): N/A			API Gravity of fluid 41.1°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS G37200	OCS G37200	OCS G37200 OCS
Area Name	MC	MC	MC
Block No.	68	68	68
Blockline Departures (in feet)	N/S Departure: F S ___ L 3,327.0'	N/S Departure: F S ___ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F E ___ L 915.0'	E/W Departure: F E ___ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 1,076,205.00	X:	X: X: X:
	Y: 10,489,407.0	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 53' 32.9491" N	Latitude	Latitude Latitude Latitude
	Longitude 88° 45' 49.0389" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 1,465'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:	N/A		

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

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

Attachment A

OCS PLAN INFORMATION FORM (CONTINUED)
Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): #1 Loc. A1					Previously reviewed under an approved EP or DOCD?		Yes		No X
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.				
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						X	Yes		No

WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 251,455 BOPD	For structures, volume of all storage and pipelines (Bbls): N/A	API Gravity of fluid 41.1°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS G37200	OCS G37200	OCS G37200 OCS
Area Name	MC	MC	MC
Block No.	68	68	68
Blockline Departures (in feet)	N/S Departure: F S L 3,328.0'	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 914.0'	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: 1,076,206.00	X:	X: X: X:
	Y: 10,489,408.0	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 53' 32.9492" N	Latitude	Latitude Latitude Latitude
	Longitude 88° 45' 49.0279" W	Longitude	Longitude Longitude Longitude

Water Depth (Feet): 1,465'	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 =	

Attachment A

OCS PLAN INFORMATION FORM (CONTINUED)
Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): #1 Loc. C					Previously reviewed under an approved EP or DOCD?		Yes		No X
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.				
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						X	Yes		No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 251,455 BOPD				For structures, volume of all storage and pipelines (Bbls): N/A			API Gravity of fluid 41.1°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS G37201	OCS G37201	OCS G37200 OCS
Area Name	MC	MC	MC
Block No.	69	69	69
Blockline Departures (in feet)	N/S Departure: Fs___ L 4,083.0'	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: Fw___ L 564.0'	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: 1,077,684.00	X:	X: X: X:
	Y: 10,490,163.0	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 53' 40.6510" N	Latitude	Latitude Latitude Latitude
	Longitude 88° 45' 32.5285" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 1,465'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:		N/A	

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

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

Attachment A

OCS PLAN INFORMATION FORM (CONTINUED)
Include one copy of this page for each proposed well/structure

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): #1 Loc. C1					Previously reviewed under an approved EP or DOCD?		Yes		No X
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.				
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						X	Yes		No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 251,455 BOPD				For structures, volume of all storage and pipelines (Bbls): N/A			API Gravity of fluid 41.1°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS G37201	OCS G37201	OCS G37200 OCS
Area Name	MC	MC	MC
Block No.	69	69	69
Blockline Departures (in feet)	N/S Departure: F S ___ L 4,084.0' E/W Departure: F W ___ L 565.0'	N/S Departure: F____ L E/W Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 1,077,685.00 Y: 10,490,164.0	X: Y:	X: X: X: Y: Y: Y:
Latitude/ Longitude	Latitude 28° 53' 40.6610" N Longitude 88° 45' 32.5174" W	Latitude Longitude	Latitude Latitude Latitude Longitude Longitude Longitude

Water Depth (Feet): 1,465'	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 =	

Attachment A

Eric Berger

From: notification@pay.gov
Sent: Wednesday, March 15, 2023 9:51 AM
To: Eric Berger
Subject: Pay.gov Payment Confirmation: BOEM Exploration Plan - BF

Caution: External (notification@pay.gov)

Sensitive Content Details

Talos Policy: Never send money without verbal confirmation.

Report This Email FAQ Support

An official email of the United States government

Pay.gov

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 Exploration Plan - BF
Pay.gov Tracking ID: 274ETM11
Agency Tracking ID: 76385575156
Transaction Type: Sale
Transaction Date: 03/15/2023 10:50:46 AM EDT
Account Holder Name: Melissa Sassella
Transaction Amount: $8,696.00
Card Type: MasterCard
Card Number: **********5056

Region: Gulf of Mexico
Contact: Eric Berger (713) 907-5910
Company Name/No: Talos Energy Offshore LLC, 03247
Lease Number(s): 37200, 37201
Area-Block: Mississippi Canyon MC,68: Mississippi Canyon MC,69
Surface Locations: 2

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Attachment A: Pay.gov Receipt

Attachment A: Pay.gov Receipt

MC68
OCS-G-37200
Talos Energy

MC69
OCS-G-37201
Talos Energy

PROPOSED LOCATIONS NAD27 BLM 16							
LOCATION	CALLNS	CALLEW	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE	WD
A Surf.	3,327.00' FSL	915.00' FEL	1,076,205.00'	10,489,407.00'	28°53'32.9491"N	88°45'49.0389"W	1,465'
A1 Surf.	3,328.00' FSL	914.00' FEL	1,076,206.00'	10,489,408.00'	28°53'32.9592"N	88°45'49.0279"W	1,465'
C Surf.	4,083.00' FSL	564.00' FWL	1,077,684.00'	10,490,163.00'	28°53'40.6510"N	88°45'32.5285"W	1,455'
C1 Surf.	4,084.00' FSL	565.00' FWL	1,077,685.00'	10,490,164.00'	28°53'40.6610"N	88°45'32.5174"W	1,455'

C C1

A A1

PUBLIC INFORMATION

TALOS ENERGY LLC

EXPLORATION PLAN
OCS-G-37200 / OCS-G-37201
BLOCK 68 AND 69
MISSISSIPPI CANYON AREA
GULF OF MEXICO

Geodetic Datum: NAD27
Projection: BLM 16 (NORTH)
Grid Units: US SURVEY FEET

SCALE 1:24000
0 2000
FEET

FUGRO USA MARINE, INC.
6100 Hillcroft Ave.
Houston, Texas 77081
(713) 346-3700

Job No.: 23000155 | Date: 2/24/2023 | Drwn: EA | Chart: 1 Of: 1

DWG File: 23000155_MC68-MC69_EP_A-C_G37200-G37201

2/24/2023

Attachment A: Surface Plat Public

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 herein:

Application/Permit	Issuing Agency	Status
Coastal Management Certification	LA Office of Coastal Management	Pending
Rig Emergency Evacuation Plan	USCG	Pending
Coastal Management Certification	Mississippi Coastal Resources Management	Pending
Application for Permit to Drill (APD)	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.

Listed in the table below are the major components for each synthetic/oil-based drilling fluid to be used in the operations proposed herein:

Product Name	Amount to be Used	Reference Number
Synthetic Based (SBM)	10,000	-
Water-Based (Seawater, freshwater, barite)	49,886	-

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as no oil-based drilling fluids will be utilized.

A drilling fluids constituents list will be made available upon a request from any federal and/or state agency as deemed necessary to approve this plan.

C) PRODUCTION

In accordance with NTL 2008-G04, this information is not applicable as this is an Exploration Plan.

D) OIL CHARACTERISTICS

In accordance with NTL 2008-G04, this information is not applicable as this is an Exploration Plan.

E) NEW OR UNUSUAL TECHNOLOGY

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as no new or unusual technology as defined in 30 CFR 250.200 will be utilized to carry out the proposed activities. Talos will endeavor to use the best available and safest technologies (BAST), as referred to in 30 CFR 250, provided it is proven for the well conditions anticipated and is reasonably available at the time of well operations.

F) BONDING STATEMENT

The bond requirements for the activities and facilities proposed herein are satisfied by a $3,000,000.00 areawide development bond, furninshed and maintained according to 30 CFR Part 556, Subpart I; NNTL BOEM 2015-N04 "General Financial Assurance;" and additional security under 30 CFR 556.901(d) and National NTL BOEM 2016-N01 "Requiring Additional Security."

G) OIL SPILL FINANCIAL RESPONSIBILITY

Talos Energy Offshore LLC (03247), has demonstrated oil spill financial responsibility (OSFR) for the activities/facilities proposed herein according to 30 CFR Par 553, and NTL No. 2008-N05, "Guidelines for Oil Spill Financial Responsibility for Covered Facilties."

H) DEEPWATER WELL CONTROL STATEMENT

Talos Energy Offshore LLC (03247), 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 as this is an Exploration Plan.

J) BLOWOUT SCENARIO

Provided as an attachment at the end of this section is a Worst Case Discharge (WCD) Blowout Scenario for the activities proposed in this Plan.

NTL 2015-N01 Information Requirements
Mississippi Canyon Block #69, OCS-G 37201, Loc "C"

Blowout Scenario:
The proposed well has drilled the production hole interval with all potential producible hydrocarbon sands (PPHS) exposed. A blowout occurs. As per NTL 2015-N01, the BOP is not connected to the wellhead and the wellbore is free of drill pipe, logging tools, or other similar equipment resulting in an unrestricted and uncontrolled blowout thru the borehole and wellbore. The blowout scenario assumes the rig has sunk and is displaced from the wellhead. The well is flowing uncontrolled at the mudline. A wellbore schematic with the required data and plats are included in this information package.

Worst Case Discharge: The calculated worst case discharge (WCD) rate for the scenario described above would be from three reservoir sands in the production hole interval. The calculated WCD from the three sands would be 251,455 BOPD and will be drilled with a 12.25" hole. The WCD is based on nodal analysis using field analog reservoir data.

Maximum duration of the potential blowout: The maximum duration of an uncontrolled blowout depends on the time it takes for either the well to bridge over, shut-in or contain using subsea intervention or relief well intervention. Each scenario is described in the subsequent paragraphs below. The table below summarizes the maximum duration of a potential blowout for each scenario.

Scenario	Blowout Duration	Oil Discharge*
Well Bridges Over	3 to 5 days	754,365 to 1,257,275 bbls
Subsea Intervention	6 to 16 days	1,508,730 to 4,023,280 bbls
Drill Relief Well	74 to 80 days	18,607,670 to 20,116,400 bbls

*Assumes no declining oil production, based on BOEM WCD of 251,455 BOPD.

Potential of well to bridge over: Failure 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. Blowout simulations confirm that, due to the typically large induced drawdown pressures at the sand face, wellbore pressure gradients in an open hole blowout invariably falls below the collapse gradient of the open formations. The high fluid velocities in an unrestricted scenario will likely cause the borehole to collapse and bridge over in a few days, significantly reducing flow rate out of the wellbore.

The Intra-Wellbore Flow across the three reservoir sand in the MC 69 Loc "C" well is expected to be abnormally pressured, unconsolidated and friable, therefore making "bridging" likely in a blowout event. The estimated bottom hole pressure of the sands is between 10,046 psi to 10,684 psi across the three interval sands. The wellbore is planned to be at vertical through the objective sands interval. The primary recovery energy source

in the objective reservoir is water drive and requires sand control to prevent the reservoir from "sanding up".

Subsea Control and Containment: Talos Energy Offshore LLC (Talos), as a member of HWCG Holdings LLC (HWCG), will have access to a fully integrated subsea well control and containment system that can be rapidly deployed. The equipment is designed, constructed, tested and maintained in a state of continuous readiness for rapid response.

In the event of a blowout Talos would immediately mobilize HWCG's vessels and equipment to shut-in and contain the well or flow and capture the fluids. Equipment and services required for the response beyond those provided through HWCG will be contracted directly by Talos as specified in the current and approved Regional Containment Demonstration (RCD). Talos has Master Service Contracts with equipment and service companies to respond to a blowout as described in the RCD.

Additionally, and as a member of HWCG, Talos will draw on HWCG's Mutual Aid of human resources available with the HWCG membership to support a response to a deepwater blowout. Access to this resource is provided by the Mutual Aid Agreement between the HWCG members.

HWCG response equipment resources include capping stack, "top hat", transfer hoses, tanker, IRS, ROV to remotely close the blind shear rams, vessels to begin subsea dispersant operations, and vessels to initiate debris removal / salvage operations. The Helix Q-4000 or equivalent vessel would also be immediately mobilized to assist in the response.

In the event the blind shear rams cannot be remotely closed with the ROV, the LMRP will be removed from the BOP. The HWCG 13-5/8" 15K capping stack will be deployed by the Q-4000 or other suitable vessel and installed on the BOP. The blind rams in the capping stack would then be closed to contain the well.

A top kill operation would then be initiated to kill and control the well. The proposed well design will be able to withstand the anticipated shut-in pressure at the BOP, as well as additional pressure exerted on the casing during the top kill operation. In addition, Talos would employ the expertise of Wild Well Control, Inc. to assist with all intervention options.

The estimated duration for subsea intervention requiring the deployment of the capping stack is 6 to 8 days. This case assumes the HWCG vessels and equipment will be utilized to shut-in and contain the well. In the event it is necessary to "flow and capture" the fluids, an additional 7 to 8 days is estimated. Therefore, subsea intervention time would take 6 to 16 days. Talos is a member of Clean Gulf Associates, MSRC and HWCG.

Talos has Master Service Contracts in place with Cudd Pressure Control, Superior Energy (Wild Well Control) and Halliburton (Boots & Coots), which are diversified well

control services companies offering full general contracting services with strong engineering component resources.

Relief well: In the event of an uncontrolled blowout, relief well planning, and rig availability inquiries would commence immediately. The SHL of the MC 69 Loc C is in 1450' WD is free of pipelines and other obstructions. The seafloor is free of any obstructions within 2000 ft of the proposed well center. There are currently 21 rigs in the USGOM which are "active" and capable of drilling a relief well with an open water location in ~1500' water depth in MC 69. Talos has alliances with diversified engineering consulting firms which would provide Talos relief well operations, engineering, logistical, materials management, QA/QC and well-site supervision support. Mutual Aid Agreement is in place with several USGOM operators to secure a drill ship and/or dynamically positioned semi-submersible drilling rig to drill the relief well.

There are no known rig package constraints for a relief well. All 3rd, 4th and 5th generation 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' west of the blowout well. The final rig location will be influenced by operator, contractor, BSEE and depth of intersect to ensure safety of all personnel and equipment involved in the relief well effort.

There are no suitable platforms in the area which would provide an advantage for drilling the relief well. A relief well could not be drilled from an onshore location.

The estimated time to drill a relief is summarized in the table below:

Description	Estimated Days	Cumulative Days
Site assessment	3	3
Secure rig and Mobilize Rig to Location	18	21
Jet-in 36"	2	23
Drill & Set 28" conductor	3	26
Drill & Set 22" surface casing	6	32
Certify BOPE / Run and test BOP stack	10	42
Drill & Set 18" liner	6	48
Drill & Set 14" casing	12	60
Drill & Set 11-7/8" liner	6	66
Drill and range to intercept the HC interval	8	74
R/U pumping equipment and kill well	6	80

Proposed measures to enhance the ability to prevent a blowout and reduce the likelihood of a blowout:
Preventing a blowout starts with preventing a well control incident or "kick". In order to prevent a "kick", a thorough understanding of the geology, reservoir characteristics and field/area production history is needed. Key offset wells are identified, and drilling

records of these wells are studied in great detail and used in well planning. Specifically, this information is used for lithology correlation, abnormal pressure formation prediction, mud weight schedule, casing design, and other potential geological risk identification such as depleted or weak zones, ballooning formations, sloughing shale, gumbo and hole instability. This research reduces the risk of a well control incident.

Hydrostatic control of the well will be maintained by utilizing a drilling fluid (mud) which exerts sufficient hydrostatic pressure to prevent the unintended flow of wellbore fluids or "kick" during drilling operations. All Drilling Fluid Requirements per 30 CFR 250 Subpart D 250.455 thru 250.458 will be implemented while drilling the well.

The MC 69 Loc "C" will be drilled using mud weights as per the well plan's mud weight schedule. Mud weight adjustments will be made based on observed drilling parameters including rate of penetration, cuttings quantity and appearance, chloride contamination and gas monitoring. In the event drilling parameters indicate a potential for a "kick", the drilling operations will cease, and a flow check will be performed. Penetration rate will be controlled while drilling thru any hydrocarbon sand. Two mud engineers will work 12 hr shifts providing 24 hr mud engineering support during drilling operations. Two "shaker" men working 12 hr shifts continuously monitor mud weight and returns at the shakers. Electronic PVT equipment will be utilized throughout all drilling operations.

Mud properties including viscosity and gel strengths will be adequately maintained to reduce the possibility of swab and surge during tripping operations. Displacement volumes will be monitored and recorded during all tripping operations. A heavy slug will be pumped when possible before trips so that the pipe can be pulled dry, and the hole more accurately monitored. As a minimum, a volume equal to the annular volume will be circulated before pulling out of the hole. Pipe trip speeds will also be adjusted as such not to cause swab or surge pressures.

Adequate mud and chemicals will be kept on board the rig to ensure well control at all times. Sea water or synthetic base oil will be available and ready to be pumped down hole if a high volume of loss circulation zone is encountered. This will enable immediate stabilization of the well until additional mud can be mixed. If lost circulation occurs and well conditions allow, pipe may be pulled up into the casing shoe.

Short trips and wiper trips will be performed as the hole conditions dictate or periodically during prolonged drilling intervals to monitor and assess any change in hole conditions. These trips also help reduce the risk of swab and surge related problems.

Gas-detecting equipment will monitor all drilling fluid returns. Mudlogging services will commence upon the BOP and riser installation and will be used to monitor wellbore conditions. Mudlogging service will include monitoring mud weights (in and out), drill gas, background gas, connection gas, trip gas, bottoms up gas and lithology description. This information will be used to assess any relative changes in hole conditions and aid in making mud weight adjustments.

LWD (GR/Res)/MWD services will be utilized to provide real-time directional surveying well, formation evaluation, reservoir fluid type, and formation pressures including abnormal pressure detection. LWD will enable the drilling team with real-time identification of unexpected and potential drilling hazards.

All efforts will be made to avoid a loss returns event. This includes but not limited to identification of depleted zones and faults, high quality casing seats, controlled penetration rates, controlling trip in hole speeds, staging up pumps, cement placement models, controlling casing surge pressures and solids control.

Cement programs will be designed to prevent gas influx during cement setting. All casing strings will be centralized across hydrocarbon bearing zones. Prior to cementing casing, the annulus will be circulated a minimum of 1.5 times its volume as long as mud returns are maintained. After cementing casing, the annulus will be monitored while the cement sets.

Diverter and BOP System Requirements as per 30 CFR 250 Subpart D 250.430 thru 250.451 will be in effect while drilling the well. BOP equipment will be installed and tested while conducting operations below surface casing. All BOPE will be tested every 14 or 21 days, as approved by BSEE. Annular and ram BOP's will be function tested every 7 days between pressure tests. BOP's will include at least two set of blind/shear rams capable of shearing the drill pipe under MASP conditions.

A minimum of two (2) offshore supervisors will be on the rig at all times to ensure 24-hour supervision of all drilling activities on the well location. These onsite supervisors will witness and review all BOP tests, casing tests and formation integrity tests. Formation integrity tests must be approved by the Talos drilling superintendent, manager or project drilling engineer prior to drilling ahead.

Talos conducts rig safety and well control system audits on every rig contracted. Each rig crew practices well control drills daily. These well control drills include pit drill, kick drill and trip drill. Each drill will emphasize "kick" recognition, confirmation, shut-in procedures and personnel assignments.

Additional measures to enhance Talos ability to prevent and reduce the likelihood of a blowout are:

Management and Direct Supervision Processes:

- Act in accordance with the latest version 2016 WCR
- Drilling Supervisors, Completion Supervisors, MODU OIM's, Drillers, and Tool Pushers, (including all personnel that may be acting in these capacities) must hold a valid well control certificate from an accredited IWCF or WellCAP organization.
- Compliance with all federal rules and regulations: CFRs, NTLs, and Final Rules

Appendix B: Blowout Scenario

- Pursuant to wellbore cementing and zonal isolation techniques, all cementing operations will be modeled and designed under the guidelines set forth in API RP 65 Part I & II.
- RP 53 for Blowout Prevention Equipment Systems for Drilling Wells and RP 16Q for Marine Drilling Risers will be used for installation, testing and maintenance of the surface and subsea marine risers and BOP systems.
- Utilization of Talos management systems: SEMS and MOC.
- Adherence to Contractors Safety Management Systems.
- Ensure proper physical barriers are in place to prevent uncontrolled flow.
- Professionally certified and peer reviewed well design (casing and cementing).
- Contractor engagement meeting to gain alignment on well plan.
- Specific procedures to execute well plan.

Well and rig equipment:

- Compliance in accordance with the latest version 2016 WCR.
- All rigs will meet all applicable rules and regulations per 30 CFR 250 and 550, as well as all Notice to Leases.
- Certified BOP equipment that is fit for purpose.
- Utilize rig and equipment that is fit for purpose.
- The working pressure and temperature rating of the BOPE and wellhead will exceed the maximum anticipated pressure and temperature.
- Accumulator controls will always be left in the power position (i.e., opened/closed; not neutral).
- Rams installed & tested to fit all sizes of drill pipe, casing, and tubing in use.
- A pressure tested fully opening safety valve (FOSV) and opening/closing wrench with appropriate threads or crossover subs for all connections will be available on the rig floor at all times.
- A drill string float valve (ported acceptable) will be installed in all drilling bottom hole assemblies (BHA's). Similar valves will be considered for well intervention and completion operations when reverse circulating is not required.
- MWD/LWD/PWD tools will be used accordingly to obtain real-time data on subsurface zones.
- Circulating trip tanks are required for all drilling operations.
- PVT and gas detection equipment will be employed for all hole sections.

Appendix B: Blowout Scenario

Drilling Practices:

- Volume measurements relative to the well will be monitored at all times.
- All critical pressure test charts (i.e., negative tests, casing tests, FIT/LOT) will be reviewed by Drilling Engineer/Drilling Supervisor prior to continuing with operations.
- During drilling operations, slow circulating rates (SCR) will be taken and recorded for each mud pump at least after BHA or mud weight changes and 500 feet of formation drilled, after the installation of BOP and riser.
- Flow checks shall be conducted after drilling breaks, prior to tripping, after or during lost circulation events, pumping out, prior to unlatching BOP's, and any other time when anomalous pit volume readings are observed. Minimum flow check duration shall be 5 minutes.
- Drilling BOP space-out and tool joint space-out diagrams shall be posted on the rig floor at all times.
- Kill sheets will be updated during each tour and posted on the rig floor.
- PVT and gas detection equipment will be employed for all hole sections.

Effective and early blowout intervention:

In the event of a blowout, the Talos OSRP will be activated. The first priority will be to quickly organize a focused team of operational and technical professionals including a blowout specialty company (BSC). The BSC will be immediately mobilized to the blowout site. The BSC will analyze the blowout situation and devise an intervention strategy. Site assessment will be used to assist in determining the relief well location options so that planning can be initiated. A suitable rig for a relief well will be sourced and preparations made for the suspension of current activities in order to mobilize to relief well site.

Appendix B: Blowout Scenario

APPENDIX C
GEOLOGICAL & GEOPHYSICAL INFORMATION

A) GEOLOGICAL DESCRIPTION
PROPRIETARY INFORMATION

B) STRUCTURE CONTOUR MAPS
PROPRIETARY INFORMATION

C) INTERPRETED 2D/3D SEISMIC CROSS SECTIONS
PROPRIETARY INFORMATION

D) GEOLOGICAL STRUCTURE CROSS SECTIONS
PROPRIETARY INFORMATION

E) SHALLOW HAZARDS REPORT
An Archaeological and Hazard Survey was prepared by Fugro Geoservices, Inc. (Report No. 2416-5094) for Mississippi Canyon Block 68 and 69 and portions of Mississippi Canyon Block 112 and 113. It was approved under a previous EP (control no. N10013).

F) SHALLOW HAZARDS ASSESSMENT
A Shallow Hazards Assessment for the proposed well(s) was approved under previously submitted EP (control no. N10013.

G) HIGH RESOLUTION SEISMIC LINES
PROPRIETARY INFORMATION

H) STRATIGRAPHIC COLUMN
PROPRIETARY INFORMATION

I) TIME VS DEPTH TABLES
PROPRIETARY INFORMATION

J) GEOCHEMICAL INFORMATION
In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein 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 herein as the subject area is within the boundaries of the Gulf of Mexico.

Proposed Relief Well MC 69 #1

Wellsite Clearance Summary | Block 69, Mississippi Canyon Area, Gulf of Mexico

02.00222691_MC69_RW_1 01 | March 16, 2023

Final

Talos Energy

Attachment C: Relief Well

Document Control

Document Information

Project Title	Wellsite Clearance Summary
Document Title	Proposed Relief Well MC 69 #1
Fugro Project No.	02.00222691
Fugro Document No.	02.00222691_MC69_RW_1
Issue Number	01
Issue Status	Final

Client Information

Client	Talos Energy
Client Address	One Allen Center, 333 Clay St Suite 3300, Houston, TX, 77002
Client Contact	Robert Ho

Revision History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
01	16 March, 2023	Final		DG	AG	DG

Project Team

Initials	Name	Role
DG	Dean Gresham	Deputy Geoscience Manager
AG	Aaron Gewecke	Project Geoscientist

Attachment C: Relief Well

FUGRO
Fugro USA Marine, Inc.
6100 Hillcroft Ave.
PO Box 740010
Houston, TX 77274
USA

Talos Energy
One Allen Center

333 Clay St. Suite 3300
Houston, TX 77002
USA

March 16, 2023

Attention: Robert Ho

Fugro USA Marine, Inc. (Fugro) was contracted by Talos Energy, Inc. to prepare a summary statement regarding potential geohazards at a prospective relief well location for Proposed Wellsite MC 68 #1 Location A and MC 69 #1 Location C. The prospective relief well has a surface location in Mississippi Canyon (MC) Block 69 (OCS-G-35629) that is 500 meters from the two proposed commercial wells and is planned to be vertical through the depth of this geohazards summary. The principal scope of this letter is to summarize specific seafloor and shallow geologic conditions in the vicinity of the proposed relief well surface location. Potential drilling hazards are summarized to a depth limit of approximately 4,000 feet below mudline (BML) (1.324 seconds two-way time below seafloor).

This site-specific hazards summary is based on the data and interpretation outlined in Fugro Document No. 2416-5094, "Shallow Geohazards and Archaeological Assessment, Audubon Prospect, Blocks 68, 69, and Portions of Blocks 112 and 113, Mississippi Canyon Area, Gulf of Mexico" (Fugro, 2016). Please refer to the above-referenced report for a comprehensive assessment of geohazards within the regional study area, as well as a description of the data used in this study, its limitations, time-depth conversions, and a complete list of references used in this investigation.

The above-referenced geohazards and archaeological assessment comply with the latest guidelines established by the Bureau of Ocean Energy Management (BOEM) in Notice to Lessees (NTLs) 2008-G04, 2022-G01, and 2009-G40 regarding shallow drilling hazards and chemosynthetic community assessments (BOEM 2008, 2022, and 2009, respectively). Additionally, the study area falls within a zone designated by the BOEM as having a high probability of containing cultural resources (historic shipwrecks) as specified in NTLs 2005-G07 and 2011-Joint-G01 (BOEM 2005 and 2011, respectively).

Attachment C: Relief Well

This letter is based upon the interpretation of 3D exploration seismic data (provided by Talos Energy) and high-resolution autonomous underwater vehicle (AUV) data collected by Fugro in 2016. Time-to-depth conversions for the sediment column are based on a second-order polynomial function derived by Fugro using checkshot data from offset well MC113 No. 1.

3D Seismic Frequency and Phase

Based on frequency spectrum analysis of the 3D seismic data at 50% power (within the upper 1.0 second two-way travel time below the seafloor), the frequency bandwidth for data covering the proposed relief well in MC 69 ranges from 30 to 63 Hz. This frequency bandwidth corresponds to a limit of separability of about 28.2 feet (using a dominant frequency of 51 Hz and an average velocity of 5,760 ft/sec in the shallow section). Additional details regarding the data descriptions and limitations are discussed in Fugro Document No. 2416-5094 (Fugro, 2016). Overall, the seismic data used in this study are judged to be of adequate quality and resolution to assess the geologic conditions and potential hazards that may constrain exploratory drilling operations within the study area. The integrated AUV and 3D seismic dataset exceeds current BOEM standards for deepwater shallow hazards identification and reporting.

Proposed Relief Well Location

The surface location for Proposed Relief Well MC 69 #1 is in the northwestern quadrant of MC69 as follows:

Table 1: Proposed Relief Well Location Summary

Proposed Relief Well MC 69 #1 Block 69, Mississippi Canyon Area CRS: NAD27, BLM Zone 16, feet	
X = 1,077,588.00 ft	Y = 10,488,526.00 ft
Latitude: 28° 53' 24.4307"N	Longitude: 88° 45' 33.3336"W
Nearest 3D Inline: 16546	Nearest 3D Crossline: 17290

Water Depth and Seafloor Gradient

The water depth at Proposed Relief Well MC 69 #1 is about -1,496 feet (based on AUV multibeam bathymetry data), with zero datum at mean lower low water (MLLW). The local seafloor gradient is about 1.6 degrees (~0.9%) to the south-southeast. The seafloor in the immediate vicinity of the proposed relief well appears to be smooth and stable.

Potential High-Density Benthic Communities

No seafloor faults or morphologic features typically associated with fluid expulsion were identified within a 2,000-foot radius of the proposed relief well location. Additionally, no anomalously high amplitudes

Attachment C: Relief Well

associated with authigenic carbonate accumulation were recognized on the 3D seismic seafloor return or in the side scan sonar data within 2,000 feet of the proposed location. Therefore, the probability of encountering high-density chemosynthetic communities within 2,000 feet of the proposed relief well is considered to be very low.

Anthropogenic Obstructions

No infrastructure or other anthropogenic features were observed in the geophysical data or reported in the Fugro database within 2,000 feet of the proposed relief well location.

Mooring Considerations

Talos plans to utilize a dynamically positioned (DP) drilling vessel at the proposed relief well; thus, seafloor clearance for anchor locations will not be addressed at this time.

Stratigraphy

AUV sub-bottom profiler records display a smooth seafloor with over 200 feet of parallel-laminated normal marine deposits with occasional sand or silt-prone layers. Stratigraphic conditions are comparable to those assessed by Fugro in the MC 68 #1 Location A and MC 69 #1 Location C wellsite clearance assessments (Fugro 2022a and 2022b, respectively). Borehole stability in the conductor zone may be more difficult to maintain in unconsolidated sand-prone intervals during jetted installation of the 36" casing string.

The horizons that were mapped in the regional geohazards study (Horizons 10, 20, and 30) divide the shallow section into four stratigraphic sequences (Sequences 1 through 4) of distinct seismic character and inferred lithology. A summary of interpreted stratigraphic conditions is provided in the table below. Data examples and other details regarding the stratigraphic sequences summarized below can be referenced in Fugro 2016, 2022a, and 2022b.

Table 2: Summary of horizons, sequences, and lithologies at proposed MC69 Relief Well #1.

Stratigraphic Sequence	Inferred Lithology
Sequence 1	Parallel-stratified clays interbedded with thin MTDs. Possible sandy or silty sections in shallower intervals.
Horizon 10	Low to moderate amplitude peak reflector.
Sequence 2	Clay prone normal marine deposits and MTDs with some poorly developed sand and/or silt stringers.
Horizon 20	Low to moderate amplitude peak reflector.
Sequence 3	Clay prone normal marine deposits and chaotically-bedded MTDs with some poorly developed sand and/or silt stringers. Deeper sections interpreted to be sand and/or silt-prone.
Horizon 30	Low to moderate amplitude peak reflector.
Sequence 4	Sand and/or silt-prone intervals separated by packages of marine clays and chaotically-bedded MTDs.

Attachment C: Relief Well

Fault Penetrations

The proposed relief well will intersect one mapped seafloor fault within the depth of investigation. The fault intersection is anticipated at approximately 3,687 feet BML (5,183 feet below sea surface). The fault strikes east–west, is downthrown to the south, and intersects the seafloor approximately 3,550 feet to the north of the proposed relief well location. Seafloor faults are interpreted to be potentially active. Continued movement along this fault may have long-term effects on subsurface installations and should be a consideration during wellbore design. Possible drilling fluid circulation interruptions should be expected when penetrating major faults and/or highly faulted zones. Additional faults below the resolution of the seismic dataset may also be encountered.

In addition to the mapped seafloor fault, one mapped buried fault will be intersected by the proposed relief well at a depth of approximately 2,922 feet BML (4,418 feet below sea surface).

Gas Hydrate and Gas Hazards

No evidence of a bottom-simulating-reflector (BSR) that may indicate the base of the gas hydrate stability (BGHS) was observed in the shallow seismic data near the proposed relief well. It is important to note that the presence of a BSR is not a requisite for the presence of gas hydrates, nor is a BSR alone necessarily indicative of gas hydrates. The seismic data cannot directly predict the distribution and quantity of hydrates within the stability zone. However, it is reasonable to expect that accumulations of gas hydrates are more likely to occur near accumulations of free-phase gas. If gas hydrates are present in the shallow sediments, they would likely occur within the predominately fine-grained interval between the seafloor and the BGHS in localized and disseminated accumulations of small crystals and nodules, lenses and partings, or thin veins. Although disseminated gas hydrates are possible, it is unlikely that this condition would constrain exploratory drilling from a dynamically positioned drilling rig.

Tophole section shallow gas risks for this relief well are comparable to those assessed by Fugro during the proposed MC 68 #1 Location A and MC 69 #1 Location C wellsite clearance assessments (Fugro 2022a and 2022b, respectively). The proposed relief well does not intersect any mapped amplitude anomalies indicative of shallow gas and the tophole section is interpreted to contain mainly fine-grained sediments; therefore, a shallow gas potential of "negligible" has been assessed throughout most of the depth of investigation. The possibly of encountering gas increases from negligible to low in Sequence 4, due to the potential for gas migration from a laterally offset amplitude anomaly near a fault plane that the proposed wellbore would intersect. The closest interpreted shallow gas accumulation is located approximately 700 feet to the northwest of the proposed relief well (within Stratigraphic Sequence 4).

Attachment C: Relief Well

The potential for encountering unresolved sand-prone sections that may contain shallow gas accumulations should be considered during well design. The potential for encountering shallow gas (and overpressured water sands) within the shallow section is assessed based on open-hole conditions with no pressure control in place. Seismic amplitude analysis is an interpretive process; therefore, any additional seismic records collected near the proposed well location should be inspected for evidence of shallow gas.

Shallow Water Flow (SWF)

Shallow geologic conditions are conducive for the induction and preservation of geopressure within sand-prone deposits in the vicinity of the proposed wellbore. Based on regional analysis, MC68 lies within a zone of moderate risk for SWF (Pelletier et al, 1999). This classification is based on the number of local SWF occurrences and their severity. The BOEM-published database on reported SWF occurrences in the Gulf of Mexico indicates that four SWF events have been reported within a 20-mile radius of the study area. The closest reported occurrence was a low-severity event in MC199 (OCS-G-32301 Well No. SS1; about 9.4 miles southwest of the proposed relief well) at a depth of 2,262 feet below mudline. Another SWF instance was reported in the vicinity (OCS-G-19931 Well No. 1; about 10.7 miles southwest of the proposed relief well) as a low-severity event at a depth of 1,379 feet below mudline. A third event occurred approximately 16.5 miles to the southeast in MC292 (OCS-G-08806 Well No. 1) as a low-severity event at 1,784 feet BML. In addition, the BOEM database reports a relatively recent low-intensity SWF event in MC29 (approximately 13 miles to the northeast). This event was recorded at -5,116 feet subsea.

Tophole section shallow water flow risks for this relief well are comparable to those assessed by Fugro during the proposed MC 68 #1 Location A and MC 69 #1 Location C wellsite clearance assessments (Fugro 2022a and 2022b, respectively). Sediments in Sequences 1 and 2 are interpreted to consist primarily of fine-grained, normally deposited material with low amounts of overburden; thus, the likelihood for SWF within these intervals is deemed “negligible”. Stratigraphic Sequence 3 is primarily fine-grained and is also assessed a SWF potential of “negligible”. The remainder of the tophole section within the depth limit of investigation (Sequences 4) is interpreted to contain sporadic lenses of potentially coarse-grained sediments that are overlain by relatively thick, rapidly deposited, fine-grained overburden; thus, the SWF potential for this interval is considered “low”.

The possibility of encountering unresolved, unconsolidated, and overpressured sandy sections at this location should be carefully considered and incorporated into the wellbore design. Real-time remotely operated vehicle (ROV) monitoring of the wellhead at the seafloor is recommended while drilling the riserless section to provide an early warning of potential shallow water flow problems. Furthermore, the drilling contractor should maintain an adequate supply of kill mud to maintain control of the well in the event of a SWF problem occurring. A small-diameter pilot hole through the riserless section is an optional pre-spud mitigation measure that may be employed to reduce the risks associated with drilling in areas

Attachment C: Relief Well

with known SWF problems. A contingency plan for SWF containment should be developed so that problems can be addressed as quickly as possible.

Archaeological Assessment Summary

This archaeological assessment summary is based on the interpretation of AUV side scan sonar and AUV bathymetric data sets. Fugro acquired the high-resolution geophysical survey data utilizing a Hugin 3000-class AUV aboard the Fugro Enterprise from February 21–27, 2016. The quality of the collected geophysical data was excellent, and the data were suitable for interpretation. Horizontal positioning of the survey vessel was accomplished with the Fugro Starfix® Differential Global Positioning System, which has a field accuracy of ±1 meter. The AUV navigated using GPS while on the surface and an inertial navigation system (INS) coupled with a Doppler velocity logger when submerged. In addition, the AUV was tracked with an ultra short baseline (USBL) system and sent position updates via an acoustic modem to continually augment the INS navigation. The AUV performed pre-programmed survey missions collecting 200 kHz multibeam bathymetry and 230 and 540 kHz chirp side scan sonar data.

The survey grid consisted of 33 primary north–south tracklines (Lines 100–132) spaced at 300-meter intervals and nine east–west tie lines (Lines 200–208) spaced at 900-meter intervals. In addition, two east–west lines (Lines 300 and 301) were run to detail an area of potential hardbottom in the south-central portion of the survey area. The AUV was maintained at an altitude of approximately 42 meters above the seafloor. Navigation fixes (shot points) were recorded at 125-meter (410-foot) intervals and annotated on all geophysical data. The AUV survey grid provided complete coverage of the seafloor with the SSS system and a representative sampling with the SBP system. Seafloor coverage with the multibeam echo sounder was nearly comprehensive; however, 75 meter-wide, north–south trending data gaps exist between primary tracklines throughout the study area. These data gaps were anticipated during the survey design and are inherent to the width of the MBES beam array and the 300-meter primary trackline spacing. For additional information concerning this AUV survey, please refer to Fugro Document No. 2416-5094. The archaeological assessment of the proposed relief well location is summarized below:

• This Archaeological Assessment was written to satisfy the Bureau of Ocean Energy Management/Bureau of Safety and Environmental Enforcement (BOEM/BSEE) regulations set forth by NTLs 2005-G07 and 2011-JOINT- G01.

• The regional probability for shipwrecks in this area is considered to be moderate; preservation of a wreck would be moderate to good (Pearson et al. 2003). Analyses of available shipwreck sources, as well as the Fugro database, indicate that no shipwrecks have been reported in the vicinity of the proposed relief well location.

• The water depth at the proposed relief well is approximately -1,496 feet MLLW.

Attachment C: Relief Well

• In general, the side scan sonar images exhibit moderate reflectivity, which is indicative of a relatively homogenous sediment distribution. Isolated areas of elevated reflectivity located over 2,000 feet to the north of the proposed location are interpreted to represent possible hardbottom areas and are not archaeologically significant.

• There were no irregular seafloor features identified in the multibeam bathymetry or side scan sonar data that could represent unidentified shipwreck remains in the vicinity of the proposed relief well. No side scan sonar contacts were mapped within 2,000 feet of the proposed relief well location.

It is possible that small features representing high probability areas for historic shipwreck materials may not be detected by the geophysical instruments used for this assessment. If evidence of historic cultural remains is encountered during subsequent work, the BOEM/BSEE archaeologists must be contacted within 48 hours to provide an assessment of these artifacts, and all operations must cease within 1,000 feet of the exposed objects.

We appreciate the opportunity to work with you on this project and look forward to continuing as your geohazards consultants. If you have any questions concerning this assessment, please do not hesitate to call me (337-268-3236).

Sincerely,

Dean Gresham, PG
Deputy Geoscience Manager

Aaron Gewecke
Project Geoscientist

Attachment C: Relief Well

References

Bureau of Ocean Energy Management, 2005. *Notice to lessees and operators of federal oil, gas, and sulfur leases in the outer continental shelf, Gulf of Mexico OCS region, Archaeological Resource Surveys and Reports.* United States Department of the Interior, Minerals Management Service, Gulf of Mexico, NTL 2005-G07.

Bureau of Ocean Energy Management, 2008. *Notice to lessees and operators of federal oil, gas, and sulfur leases in the outer continental shelf, Gulf of Mexico OCS region, Information Requirements for Exploration Plans and Development Operations Coordination Documents*. United States Department of the Interior, Minerals Management Service, Gulf of Mexico, NTL 2008-G04.

Bureau of Ocean Energy Management, 2009. *Notice to lessees and operators of federal oil, gas, and sulfur leases in the outer continental shelf, Gulf of Mexico OCS region, deepwater benthic communities*. United States Department of the Interior, Minerals Management Service, Gulf of Mexico, NTL 2009-G40.

Bureau of Ocean Energy Management, 2015. *Notice to lessees and operators (NTL) of federal oil and gas leases in the outer continental shelf (OSC), elimination of expiration dates on certain notices to lessees and operators pending review and reissuance*, United States Department of the Interior, Gulf of Mexico, NTL 2015 N02.

Bureau of Ocean Energy Management, 2022. *Notice to lessees and operators of federal oil, gas, and sulfur leases in the outer continental shelf, Gulf of Mexico OCS region, Shallow Hazards Program*. United States Department of the Interior, Minerals Management Service, Gulf of Mexico, NTL 2022-G01.

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Fugro, 2016. Shallow Hazards Assessment Audubon Prospect, Blocks 68, 69, & Portions of Blocks 112 and 113, Mississippi Canyon Area, Gulf of Mexico, Document Number 2416-5094, dated June 16, 2016.

Fugro, 2022a. Proposed Wellsite MC 68 #1 Location A, Wellsite Clearance Letter, Block 68, Mississippi Canyon Area, Gulf of Mexico. Fugro Document No. 02.00222691_MC68_1 01, October 31, 2022

Fugro, 2022b. Proposed Wellsite MC 69 #1 Location C, Wellsite Clearance Letter, Block 69, Mississippi Canyon Area, Gulf of Mexico. Fugro Document No. 02.00222691_MC69_1C 01, October 31, 2022

Attachment C: Relief Well

Proposed Wellsite MC 68 #1 Location A

Wellsite Clearance Letter | Block 68, Mississippi Canyon Area, Gulf of Mexico

02.00222691_MC68_1 01 | October 31, 2022

Final

Talos Energy

Attachment C: Site Clearance Loc A Public

Document Control

Document Information

Project Title	Wellsite Clearance Assessment
Document Title	Proposed Wellsite MC 68 #1 Location A
Fugro Project No.	02.00222691
Fugro Document No.	02.00222691_MC68_1
Issue Number	01
Issue Status	Final

Client Information

Client	Talos Energy
Client Address	One Allen Center, 333 Clay St Suite 3300, Houston, TX, 77002
Client Contact	Robert Ho

Revision History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
00	28 October, 2022	Draft	Pending Client Approval	AG	DG	DG
01	31 October, 2022	Final		AG	DG	DG

Project Team

Initials	Name	Role
DG	Dean Gresham	Deputy Geoscience Manager
AG	Aaron Gewecke	Project Geoscientist

Attachment C: Site Clearance Loc A Public

FUGRO
Fugro USA Marine, Inc.
6100 Hillcroft Ave.
PO Box 740010
Houston, TX 77274
USA

Talos Energy
One Allen Center

333 Clay St. Suite 3300
Houston, TX 77002
USA

October 31, 2022

Attention: Robert Ho

Fugro USA Marine, Inc. (Fugro) was contracted by Talos Energy, Inc. to prepare a geohazards assessment of the Audubon Prospect at Proposed Wellsite MC 68 #1 Location A. The proposed well has a surface location in Mississippi Canyon (MC) Block 68 (OCS-G-37200) and is planned to be vertical through the depth of this geohazards investigation. The principal scope of the assessment is to address specific seafloor and shallow geologic conditions in the vicinity of the proposed surface location. Potential drilling hazards in the tophole section are identified and assessed to a depth limit of approximately 4,000 feet below seafloor (1.324 seconds two-way time below seafloor).

This site-specific assessment is based on the data and interpretation outlined in Fugro Document No. 2416-5094, "Shallow Geohazards and Archaeological Assessment, Audubon Prospect, Blocks 68, 69, and Portions of Blocks 112 and 113, Mississippi Canyon Area, Gulf of Mexico". Please refer to the above-referenced report for a comprehensive assessment of geohazards within the regional study area, as well as a description of the data used in this study, its limitations, time-depth conversions, and a complete list of references used in this investigation.

This wellsite clearance assessment and the above-referenced geohazards and archaeological assessment comply with the latest guidelines established by the Bureau of Ocean Energy Management (BOEM) in Notice to Lessees (NTLs) 2008-G04, 2022-G01, and 2009-G40 regarding shallow drilling hazards and chemosynthetic community assessments. Additionally, the study area falls within a zone designated by the BOEM as having a high probability of containing cultural resources (historic shipwrecks) as specified in NTLs 2005-G07 and 2011-Joint-G01.

Attachment C: Site Clearance Loc A Public

This wellsite clearance assessment is based upon the interpretation of 3D exploration seismic data (provided by Talos Energy) and high-resolution Autonomous Underwater Vehicle (AUV) data collected by Fugro in 2016. Time-to-depth conversions for the sediment column are based on a second-order polynomial function derived by Fugro using checkshot data from offset well MC113 No. 1.

Graphics

A Multibeam Bathymetry Rendering and Seafloor Features Chart (1:9,000-scale) (Figure 1) showing the proposed wellsite, water depth information, man-made infrastructure, and other seafloor features accompanies this wellsite assessment. A 2,000-foot chemosynthetic community clearance radius around the proposed wellsite is shown on the chart. A seismic frequency spectrum is provided as a sample of the 3D seismic data quality in the vicinity of the proposed wellsite (Figure 2). An AUV side scan sonar mosaic is provided to show that the proposed wellsite radius is clear of potential chemosynthetic communities, archaeological resources, and man-made debris (Figure 3). An AUV sub-bottom profiler record near the wellsite displays the seafloor conditions and a high-resolution view of the shallow stratigraphy (Figure 4). The nearest 3D seismic inline and crossline profiles are attached to illustrate shallow geologic conditions in the vicinity of the proposed location (Figures 5 and 6, respectively). Shallow geologic conditions at the proposed wellsite are summarized on the attached tophole prognosis chart (Figure 7). An 8.5" x 11", 1:12,800-scale Subsurface Geologic Features Chart (Figure 8) is also included to illustrate geologic conditions in the vicinity of the proposed wellbore along with a figure displaying seafloor slope conditions (Figure 9).

3D Seismic Frequency and Phase

Based on frequency spectrum analysis of the 3D seismic data at 50% power (within the upper 1.0 second two-way travel time below the seafloor), the frequency bandwidth for data covering Proposed Wellsite MC 68 #1 Location A ranges from 30 to 63 Hz (Figure 2). This frequency bandwidth corresponds to a limit of separability of about 28.2 feet (using a dominant frequency of 51 Hz and an average velocity of 5,760 ft/sec in the shallow section). Additional details regarding the data descriptions and limitations are discussed in Fugro Document No. 2416-5094. Overall, the seismic data used in this study are judged to be of adequate quality and resolution to make an assessment of the geologic conditions and potential hazards that may constrain exploratory drilling operations within the study area. The integrated AUV and 3D seismic dataset exceeds current BOEM standards for deepwater shallow hazards identification and reporting.

Proposed Well Location

The surface location for Proposed Wellsite MC 68 #1 Location A is in the southestern quadrant of MC68 as follows:

Attachment C: Site Clearance Loc A Public

Table 1: Proposed Wellsite Location Project Information

Proposed Wellsite MC 68 #1 Location A Block 68, Mississippi Canyon Area CRS: NAD27, BLM Zone 16, feet	
X = 1,076,205.00 ft	Y = 10,489,407.00 ft
Latitude: 28° 53' 32.9491"N	Longitude: 88° 45' 49.0389"W
Nearest 3D Inline: 16540	Nearest 3D Crossline: 17328

Water Depth and Seafloor Gradient

The water depth at Proposed Wellsite MC 68 #1 Location A is about -1,465 feet (based on AUV multibeam bathymetry data), with zero datum at mean lower low water (MLLW). The local seafloor gradient is about 1.6 degrees (~0.9%) to the south-southeast. The seafloor in the immediate vicinity of the proposed wellsite appears to be smooth and stable (Figure 9).

Potential High-Density Benthic Communities

No seafloor faults or morphologic features typically associated with fluid expulsion were identified within a 2,000-foot radius of the proposed wellsite (Figure 1). Additionally, no anomalously high amplitudes associated with authigenic carbonate accumulation were recognized on the 3D seismic seafloor return or in the side scan sonar data within 2,000 feet of the proposed location (Figure 3). Therefore, the probability of encountering high-density chemosynthetic communities within 2,000 feet of the proposed wellsite is considered to be very low.

Anthropogenic Obstructions

No infrastructure was observed in the geophysical data or reported in the Fugro database within 2,000 feet of the proposed wellsite. Three drag scars were noted within 2,000 feet of the proposed wellsite (Figure 1). These anthropogenic features represent minor disturbances in the seafloor and will not pose a hazard or constraint to lease development activities.

Mooring Considerations

Talos plans to utilize a dynamically positioned (DP) drilling vessel at the proposed wellsite; thus, seafloor clearance for anchor locations will not be addressed at this time.

Stratigraphy

AUV sub-bottom profiler records display a smooth seafloor with about 210 feet of parallel-laminated normal marine deposits with occasional sand or silt-prone layers (Figure 4). Borehole stability in the

Attachment C: Site Clearance Loc A Public

conductor zone may be more difficult to maintain in unconsolidated sand-prone intervals during jetted installation of the 36" casing string.

The horizons that were mapped in the regional geohazards study (Horizons 10, 20, and 30) divide the shallow section into four stratigraphic sequences (Sequences 1 through 4) of distinct seismic character and inferred lithology (Figures 5 and 6). Predicted depths of Horizons 10, 20, and 30 (and the intervening sequence thicknesses) are displayed on the attached Tophole Prognosis Chart for Proposed Wellsite MC 68 #1 Location A (Figure 7).

Table 2: Summary of horizons, sequences, and lithologies at the proposed Wellsite MC 68 #1 Location A.

Stratigraphic Sequence	Inferred Lithology	Sequence Thickness (ft) or Horizon Depth (ft BML)
Sequence 1	Parallel-stratified clays (normal marine deposits) interbedded with thin mass transport deposits (MTDs) with possible sandy or silty sections in shallower sections.	611
Horizon 10	Low to moderate amplitude peak reflector.	611
Sequence 2	Clay prone normal marine deposits and MTDs with some poorly developed sand and/or silt stringers.	771
Horizon 20	Low to moderate amplitude peak reflector.	1,382
Sequence 3	Clay prone normal marine deposits and chaotically-bedded MTDs with some poorly developed sand and/or silt stringers. Deeper sections interpreted to be sand and/or silt-prone.	1,283
Horizon 30	Low to moderate amplitude peak reflector.	2,665
Sequence 4	Subunit 4a is interpreted to represent a sand and/or silt-prone interval. Subunit 4b is interpreted to represent principally marine clays and chaotically-bedded MTDs. Subunit 4c is interpreted to be composed of fine-grained normal marine deposits, channel-levee deposits, and MTDs, and may contain sand and/or silt prone intervals. Subunit 4d is interpreted to be primarily composed of clay, with some poorly-developed sand and/or silt stringers possible.	1,335

Fault Penetrations

The proposed wellbore will intersect one mapped seafloor fault within the depth of investigation. The fault intersection is anticipated at approximately 2,665 feet below mudline (BML) (4,130 feet below sea surface). The fault strikes east–west, is downthrown to the south, and intersects the seafloor approximately 2,362 feet to the north of Proposed Wellsite MC 68 #1 Location A. Seafloor faults are interpreted to be potentially active. Continued movement along this fault may have long-term effects on subsurface installations and should be a consideration during wellbore design. Possible drilling fluid circulation interruptions should be

Attachment C: Site Clearance Loc A Public

expected when penetrating major faults and/or highly faulted zones. Additional faults below the resolution of the seismic dataset may also be encountered.

Gas Hydrate and Gas Hazards

No evidence of a bottom-simulating-reflector (BSR) that may indicate the base of the gas hydrate stability (BGHS) was observed in the shallow seismic data near the proposed wellbore. It is important to note that the presence of a BSR is not a requisite for the presence of gas hydrates, nor is a BSR alone necessarily indicative of gas hydrates. The seismic data cannot directly predict the distribution and quantity of hydrates within the stability zone. However, it is reasonable to expect that accumulations of gas hydrates are more likely to occur near accumulations of free-phase gas. If gas hydrates are present in the shallow sediments, they would likely occur within the predominately fine-grained interval between the seafloor and the BGHS in localized and disseminated accumulations of small crystals and nodules, lenses and partings, or thin veins. Although disseminated gas hydrates are possible, it is unlikely that this condition would constrain exploratory drilling from a dynamically positioned drilling rig.

The proposed wellbore will not intersect any mapped amplitude anomalies indicative of shallow gas and the tophole section is interpreted to contain mainly fine-grained sediments; therefore, a shallow gas potential of "negligible" has been assessed throughout a majority of the depth of investigation. Subunit 4a is assessed a shallow gas potential of "moderate" due to the potential for gas migration from a deeper, laterally offset amplitude anomaly along the fault plane. The potential for encountering unresolved sand-prone sections that may contain shallow gas accumulations should be considered during well design. The potential for encountering shallow gas (and overpressured water sands) within the shallow section is assessed based on open-hole conditions with no pressure control in place. Seismic amplitude analysis is an interpretive process; therefore, any additional seismic records collected near the proposed well location should be inspected for evidence of shallow gas. All subsurface amplitude anomalies in the vicinity of the proposed wellbore are annotated on the attached 8.5" x 11", 1:12,800-scale Subsurface Geologic Features Chart (Figure 8). The closest interpreted shallow gas accumulation is located approximately 260 feet to the west of Proposed Wellsite MC 68 #1 Location A (within Stratigraphic Sequence 3).

Shallow Water Flow (SWF)

Shallow geologic conditions are conducive for the induction and preservation of geopressure within sand-prone deposits in the vicinity of the proposed wellbore. Based on regional analysis, MC68 lies within a zone of moderate risk for SWF (Pelletier et al, 1999). This classification is based on the number of local SWF occurrences and their severity. The BOEM-published database on reported SWF occurrences in the Gulf of Mexico indicates that four SWF events have been reported within a 20-mile radius of the study area. The closest reported occurrence was a low-severity event in MC199 (OCS-G-32301 Well No. SS1; about 9.4 miles southwest of the proposed wellsite) at a depth of 2,262 feet below mudline. Another SWF instance

Attachment C: Site Clearance Loc A Public

was reported in the vicinity (OCS-G-19931 Well No. 1; about 10.7 miles southwest of the proposed wellsite) as a low-severity event at a depth of 1,379 feet below mudline. A third event occurred approximately 16.5 miles to the southeast in MC292 (OCS-G-08806 Well No. 1) as a low-severity event at 1,784 feet BML. In addition, the BOEM database reports a relatively recent low-intensity SWF event in MC29 (approximately 13 miles to the northeast). This event was recorded at -5,116 feet subsea.

Sediments in Sequences 1 and 2 are interpreted to consist primarily of fine-grained, normally deposited material with low amounts of overburden; thus, the likelihood for SWF within these intervals is deemed "negligible". Stratigraphic Sequences 3a–3c are primarily fine-grained and are also assessed a SWF potential of "negligible". The remainder of the tophole section within the depth limit of investigation (Sequences 4a–4c) is interpreted to contain sporadic lenses of potentially coarse-grained sediments that are overlain by relatively large amounts of rapidly-deposited, fine- grained overburden; thus, the SWF potential for these intervals is considered "low" (Figure 7).

The possibility of encountering unresolved, unconsolidated, and overpressured sandy sections at this location should be carefully considered and incorporated into the wellbore design. Real-time remotely operated vehicle (ROV) monitoring of the wellhead at the seafloor is recommended while drilling the riserless section to provide an early warning of potential shallow water flow problems. Furthermore, the drilling contractor should maintain an adequate supply of kill mud to maintain control of the well in the event that a SWF problem occurs. A small-diameter pilot hole through the riserless section is an optional pre-spud mitigation measure that may be employed to reduce the risks associated with drilling in areas with known SWF problems. A contingency plan for SWF containment should be developed so that problems can be addressed as quickly as possible.

Archaeological Assessment Summary

This archaeological assessment summary is based on the interpretation of AUV side scan sonar and AUV bathymetric data sets. Fugro acquired the high-resolution geophysical survey data utilizing a Hugin 3000-class AUV aboard the Fugro Enterprise from February 21–27, 2016. The quality of the collected geophysical data was excellent, and the data were suitable for interpretation. Horizontal positioning of the survey vessel was accomplished with the Fugro Starfix® Differential Global Positioning System, which has a field accuracy of ±1 meter. The AUV navigated using GPS while on the surface and an inertial navigation system (INS) coupled with a Doppler velocity logger when submerged. In addition, the AUV was tracked with an ultra short baseline (USBL) system and sent position updates via an acoustic modem to continually augment the INS navigation. The AUV performed pre-programmed survey missions collecting 200 kHz multibeam bathymetry and 230 and 540 kHz chirp side scan sonar data.

The survey grid consisted of 33 primary north–south tracklines (Lines 100–132) spaced at 300-meter intervals and nine east–west tie lines (Lines 200–208) spaced at 900-meter intervals. In addition, two east–

Attachment C: Site Clearance Loc A Public

west lines (Lines 300 and 301) were run to detail an area of potential hardbottom in the south-central portion of the survey area. The AUV was maintained at an altitude of approximately 42 meters above the seafloor. Navigation fixes (shot points) were recorded at 125-meter (410-foot) intervals and annotated on all geophysical data. The AUV survey grid provided complete coverage of the seafloor with the SSS system and a representative sampling with the SBP system. Seafloor coverage with the multibeam echo sounder was nearly comprehensive; however, 75 meter-wide, north–south trending data gaps exist between primary tracklines throughout the study area. These data gaps were anticipated during the survey design and are inherent to the width of the MBES beam array and the 300-meter primary trackline spacing. For additional information concerning this AUV survey, please refer to Fugro Document No. 2416-5094. The archaeological assessment of the proposed well location is summarized below:

• This Archaeological Assessment was written to satisfy the Bureau of Ocean Energy Management/Bureau of Safety and Environmental Enforcement (BOEM/BSEE) regulations set forth by NTLs 2005-G07 and 2011-JOINT- G01.

• The regional probability for shipwrecks in this area is considered to be moderate; preservation of a wreck would be moderate to good (Pearson et al. 2003). Analyses of available shipwreck sources, as well as the Fugro database, indicate that no shipwrecks have been reported in the vicinity of the proposed well location.

• The water depth at Proposed Wellsite MC 68 #1 Location A is approximately -1,465 feet MLLW.

• In general, the side scan sonar images exhibit moderate reflectivity, which is indicative of a relatively homogenous sediment distribution. Isolated areas of elevated reflectivity located over 2,000 feet to the north of the proposed location are interpreted to represent possible hardbottom areas and are not archaeologically significant.

• There were no irregular seafloor features identified in the multibeam bathymetry or side scan sonar data that could represent unidentified shipwreck remains in the vicinity of the proposed wellsite. No side scan sonar contacts were mapped within 2,000 feet of the proposed wellsite.

It is possible that small features representing high probability areas for historic shipwreck materials may not be detected by the geophysical instruments used for this assessment. If evidence of historic cultural remains is encountered during subsequent work, the BOEM/BSEE archaeologists must be contacted within 48 hours to provide an assessment of these artifacts, and all operations must cease within 1,000 feet of the exposed objects.

We appreciate the opportunity to work with you on this project and look forward to continuing as your geohazards consultants. If you have any questions concerning this assessment, please do not hesitate to call me (337-268-3236).

Attachment C: Site Clearance Loc A Public

Sincerely,

Dean Gresham, PG
Deputy Geoscience Manager

Aaron Gewecke
Project Geoscientist

Figures

Attachment C: Site Clearance Loc A Public

References

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Bureau of Ocean Energy Management, 2022. *Notice to lessees and operators of federal oil, gas, and sulphur leases in the outer continental shelf, Gulf of Mexico OCS region, Shallow Hazards Program*. United States Department of the Interior, Minerals Management Service, Gulf of Mexico, NTL 2022-G01.

Bureau of Ocean Energy Management, 2015, "Safety Performance Review – Shallow Water Flows Can Pose Significant Hazards to Deepwater Drilling", dated March 25, 2015.

Fugro, 2016. Shallow Hazards Assessment Audubon Prospect, Blocks 68, 69, & Portions of Blocks 112 and 113, Mississippi Canyon Area, Gulf of Mexico, Document Number 2416-5094, dated June 16, 2016.

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Pelletier, J.H., Ostermeier, R.M., Winker, C.D., Nicholson, J.W., and Rambow, F.H., 1999. Shallow water flow sands in the deepwater Gulf of Mexico: some recent Shell experience. International Forum on Shallow Water Flows, League City, TX, 6-8 Oct., 1999.

Attachment C: Site Clearance Loc A Public

Proposed Wellsite MC 69 #1 Location C

Wellsite Clearance Letter | Block 69, Mississippi Canyon Area, Gulf of Mexico

02.00222691_MC69_1C 01 | October 31, 2022

Final

Talos Energy

Attachment C: Site Clearance Loc C Public

Document Control

Document Information

Project Title	Wellsite Clearance Assessment
Document Title	Proposed Wellsite MC 69 #1 Location C
Fugro Project No.	02.00222691
Fugro Document No.	02.00222691_MC69_1C
Issue Number	01
Issue Status	Final

Client Information

Client	Talos Energy
Client Address	One Allen Center, 333 Clay St Suite 3300, Houston, TX, 77002
Client Contact	Robert Ho

Revision History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
00	28 October, 2022	Draft	Pending Client Approval	AG	DG	DG
01	31 October, 2022	Final	Pending Client Approval	AG	DG	DG

Project Team

Initials	Name	Role
DG	Dean Gresham	Deputy Geoscience Manager
AG	Aaron Gewecke	Project Geoscientist

Attachment C: Site Clearance Loc C Public

FUGRO
Fugro USA Marine, Inc.
6100 Hillcroft Ave.
PO Box 740010
Houston, TX 77274
USA

Talos Energy
One Allen Center

333 Clay St. Suite 3300
Houston, TX 77002
USA

October 31, 2022

Attention: Robert Ho

Fugro USA Marine, Inc. (Fugro) was contracted by Talos Energy, Inc. to prepare a geohazards assessment of the Audubon Prospect at Proposed Wellsite MC 69 #1 Location C. The proposed well has a surface location in Mississippi Canyon (MC) Block 69 (OCS-G-37201) and is planned to be vertical through the depth of this geohazards investigation. The principal scope of the assessment is to address specific seafloor and shallow geologic conditions in the vicinity of the proposed surface location. Potential drilling hazards in the tophole section are identified and assessed to a depth limit of approximately 4,000 feet below seafloor (1.324 seconds two-way time below seafloor).

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A Multibeam Bathymetry Rendering and Seafloor Features Chart (1:9,000-scale) (Figure 1) showing the proposed wellsite, water depth information, man-made infrastructure, and other seafloor features accompanies this wellsite assessment. A 2,000-foot chemosynthetic community clearance radius around the proposed wellsite is shown on the chart. A seismic frequency spectrum is provided as a sample of the 3D seismic data quality in the vicinity of the proposed wellsite (Figure 2). An AUV side scan sonar mosaic is provided to show that the proposed wellsite radius is clear of potential chemosynthetic communities, archaeological resources, and man-made debris (Figure 3). An AUV sub-bottom profiler record near the wellsite displays the seafloor conditions and a high-resolution view of the shallow stratigraphy (Figure 4). The nearest 3D seismic inline and crossline profiles are attached to illustrate shallow geologic conditions in the vicinity of the proposed location (Figures 5 and 6, respectively). Shallow geologic conditions at the proposed wellsite are summarized on the attached tophole prognosis chart (Figure 7). An 8.5" x 11", 1:12,800-scale Subsurface Geologic Features Chart (Figure 8) is also included to illustrate geologic conditions in the vicinity of the proposed wellbore along with a figure displaying seafloor slope conditions (Figure 9).

3D Seismic Frequency and Phase

Based on frequency spectrum analysis of the 3D seismic data at 50% power (within the upper 1.0 second two-way travel time below the seafloor), the frequency bandwidth for data covering Proposed Wellsite MC 69 #1 Location C ranges from 30 to 63 Hz (Figure 2). This frequency bandwidth corresponds to a limit of separability of about 28.2 feet (using a dominant frequency of 51 Hz and an average velocity of 5,760 ft/sec in the shallow section). Additional details regarding the data descriptions and limitations are discussed in Fugro Document No. 2416-5094. Overall, the seismic data used in this study are judged to be of adequate quality and resolution to make an assessment of the geologic conditions and potential hazards that may constrain exploratory drilling operations within the study area. The integrated AUV and 3D seismic dataset exceeds current BOEM standards for deepwater shallow hazards identification and reporting.

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Proposed Well Location

The surface location for Proposed Wellsite MC 69 #1 Location C is in the southwestern quadrant of MC69 as follows:

Table 1: Proposed Wellsite Location Project Information

Proposed Wellsite MC 69 #1 Location C Block 69, Mississippi Canyon Area CRS: NAD27, BLM Zone 16, feet	
X = 1,077,684.38 ft	Y = 10,490,163.27 ft
Latitude: 28° 53' 40.6537"N	Longitude: 88° 45' 32.5243"W
Nearest 3D Inline: 16565	Nearest 3D Crossline: 17316

Water Depth and Seafloor Gradient

The water depth at Proposed Wellsite MC 69 #1 Location C is about -1,455 feet (based on AUV multibeam bathymetry data), with zero datum at mean lower low water (MLLW). The local seafloor gradient is about 0.5 degrees (~0.9%) to the south-southeast. The seafloor in the immediate vicinity of the proposed wellsite appears to be smooth and stable (Figure 9).

Potential High-Density Benthic Communities

No seafloor faults or morphologic features typically associated with fluid expulsion were identified within a 2,000-foot radius of the proposed wellsite (Figure 1). Additionally, no anomalously high amplitudes associated with authigenic carbonate accumulation were recognized on the 3D seismic seafloor return or in the side scan sonar data within 2,000 feet of the proposed location (Figure 3). Therefore, the probability of encountering high-density chemosynthetic communities within 2,000 feet of the proposed wellsite is considered to be very low.

Anthropogenic Obstructions

No infrastructure was observed in the geophysical data or reported in the Fugro database within 2,000 feet of the proposed wellsite.

Mooring Considerations

Talos plans to utilize a dynamically positioned (DP) drilling vessel at the proposed wellsite; thus, seafloor clearance for anchor locations will not be addressed at this time.

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Stratigraphy

AUV sub-bottom profiler records display a smooth seafloor with about 230 feet of parallel-laminated normal marine deposits with occasional sand or silt-prone layers (Figure 4). Borehole stability in the conductor zone may be more difficult to maintain in unconsolidated sand-prone intervals during jetted installation of the 36" casing string.

The horizons that were mapped in the regional geohazards study (Horizons 10, 20, and 30) divide the shallow section into four stratigraphic sequences (Sequences 1 through 4) of distinct seismic character and inferred lithology (Figures 5 and 6). Predicted depths of Horizons 10, 20, and 30 (and the intervening sequence thicknesses) are displayed on the attached Tophole Prognosis Chart for Proposed Wellsite MC 69 #1 Location C (Figure 7).

Table 2: Summary of horizons, sequences, and lithologies at the proposed Wellsite MC 69 #1 Location C.

Stratigraphic Sequence	Inferred Lithology	Sequence Thickness (ft) or Horizon Depth (ft BML)
Sequence 1	Parallel-stratified clays (normal marine deposits) interbedded with thin mass transport deposits (MTDs) with possible sandy or silty sections in shallower sections.	598
Horizon 10	Low to moderate amplitude peak reflector.	598
Sequence 2	Clay prone normal marine deposits and MTDs with some poorly developed sand and/or silt stringers.	749
Horizon 20	Low to moderate amplitude peak reflector.	1,347
Sequence 3	Clay prone normal marine deposits and chaotically-bedded MTDs with some poorly developed sand and/or silt stringers.	705
Horizon 30	Low to moderate amplitude peak reflector.	2,052
Sequence 4	Subunit 4a is interpreted to be composed mainly of clay-prone MTDs. Subunit 4b is interpreted to represent a sand and/or silt-prone interval. Subunit 4c is interpreted to be composed of fine-grained normal marine deposits, channel-levee deposits, and MTDs, and may contain sand and/or silt prone intervals. Subunit 4d is interpreted to be primarily composed of clay, with some poorly-developed sand and/or silt stringers possible.	1,948

Fault Penetrations

The proposed wellbore will intersect one mapped seafloor fault within the depth of investigation. The fault intersection is anticipated at approximately 2,052 feet below mudline (BML) (3,507 feet below sea surface). The fault strikes east–west, is downthrown to the south, and intersects the seafloor approximately 2,010 feet to the north of Proposed Wellsite MC 69 #1 Location C. Seafloor faults are interpreted to be potentially active. Continued movement along this fault may have long-term effects on subsurface installations and

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should be a consideration during wellbore design. Possible drilling fluid circulation interruptions should be expected when penetrating major faults and/or highly faulted zones. Additional faults below the resolution of the seismic dataset may also be encountered.

Gas Hydrate and Gas Hazards

No evidence of a bottom-simulating-reflector (BSR) that may indicate the base of the gas hydrate stability (BGHS) was observed in the shallow seismic data near the proposed wellbore. It is important to note that the presence of a BSR is not a requisite for the presence of gas hydrates, nor is a BSR alone necessarily indicative of gas hydrates. The seismic data cannot directly predict the distribution and quantity of hydrates within the stability zone. However, it is reasonable to expect that accumulations of gas hydrates are more likely to occur near accumulations of free-phase gas. If gas hydrates are present in the shallow sediments, they would likely occur within the predominately fine-grained interval between the seafloor and the BGHS in localized and disseminated accumulations of small crystals and nodules, lenses and partings, or thin veins. Although disseminated gas hydrates are possible, it is unlikely that this condition would constrain exploratory drilling from a dynamically positioned drilling rig.

The proposed wellbore will not intersect any mapped amplitude anomalies indicative of shallow gas and the tophole section is interpreted to contain mainly fine-grained sediments; therefore, a shallow gas potential of "negligible" has been assessed for Sequences 1-3 and Subunit 4b to the depth of investigation. Subunit 4a is assessed a shallow gas potential of "low" due to the possibility of communication with a downdip amplitude anomaly via the fault plane intersecting that interval. Geophysical indicators of shallow gas migration along the fault that the proposed wellbore intersects were not noted. However, the potential for encountering unresolved sand-prone sections that may contain shallow gas accumulations should be considered during well design. The potential for encountering shallow gas (and overpressured water sands) within the shallow section is assessed based on open-hole conditions with no pressure control in place. Seismic amplitude analysis is an interpretive process; therefore, any additional seismic records collected near the proposed well location should be inspected for evidence of shallow gas. All subsurface amplitude anomalies in the vicinity of the proposed wellbore are annotated on the attached 8.5" x 11", 1:12,800-scale Subsurface Geologic Features Chart (Figure 8). The closest interpreted shallow gas accumulation is located approximately 830 feet to the southeast of Proposed Wellsite MC 69 #1 Location C (within Stratigraphic Sequence 4).

Shallow Water Flow (SWF)

Shallow geologic conditions are conducive for the induction and preservation of geopressure within sand-prone deposits in the vicinity of the proposed wellbore. Based on regional analysis, MC 69 lies within a zone of moderate risk for SWF (Pelletier et al, 1999). This classification is based on the number of local SWF occurrences and their severity. The BOEM-published database on reported SWF occurrences in the Gulf of

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Mexico indicates that four SWF events have been reported within a 20-mile radius of the study area. The closest reported occurrence was a low-severity event in MC199 (OCS-G-32301 Well No. SS1; about 9.7 miles southwest of the proposed wellsite) at a depth of 2,262 feet below mudline. Another SWF instance was reported in the vicinity (OCS-G-19931 Well No. 1; about 11.2 miles southwest of the proposed wellsite) as a low-severity event at a depth of 1,379 feet below mudline. A third event occurred approximately 16.5 miles to the southeast in MC292 (OCS-G-08806 Well No. 1) as a low-severity event at 1,784 feet BML. In addition, the BOEM database reports a relatively recent low-intensity SWF event in MC29 (approximately 13 miles to the northeast). This event was recorded at -5,116 feet subsea.

Sediments in Sequences 1 and 2 are interpreted to consist primarily of fine-grained, normally deposited material with low amounts of overburden; thus, the likelihood for SWF within these intervals is deemed "negligible". Stratigraphic Sequences 3a–3c are primarily fine-grained and are also assessed a SWF potential of "negligible". The remainder of the tophole section within the depth limit of investigation (Sequences 4a–4d) is interpreted to contain sporadic lenses of potentially coarse-grained sediments that are overlain by relatively large amounts of rapidly-deposited, fine-grained overburden; thus, the SWF potential for these intervals is considered "low" (Figure 7).

The possibility of encountering unresolved, unconsolidated, and overpressured sandy sections at this location should be carefully considered and incorporated into the wellbore design. Real-time remotely operated vehicle (ROV) monitoring of the wellhead at the seafloor is recommended while drilling the riserless section to provide an early warning of potential shallow water flow problems. Furthermore, the drilling contractor should maintain an adequate supply of kill mud to maintain control of the well in the event that a SWF problem occurs. A small-diameter pilot hole through the riserless section is an optional pre-spud mitigation measure that may be employed to reduce the risks associated with drilling in areas with known SWF problems. A contingency plan for SWF containment should be developed so that problems can be addressed as quickly as possible.

Archaeological Assessment Summary

This archaeological assessment summary is based on the interpretation of AUV side scan sonar and AUV bathymetric data sets. Fugro acquired the high-resolution geophysical survey data utilizing a Hugin 3000-class AUV aboard the Fugro Enterprise from February 21–27, 2016. The quality of the collected geophysical data was excellent, and the data were suitable for interpretation. Horizontal positioning of the survey vessel was accomplished with the Fugro Starfix® Differential Global Positioning System, which has a field accuracy of ±1 meter. The AUV navigated using GPS while on the surface and an inertial navigation system (INS) coupled with a Doppler velocity logger when submerged. In addition, the AUV was tracked with an ultra short baseline (USBL) system and sent position updates via an acoustic modem to continually augment the

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INS navigation. The AUV performed pre-programmed survey missions collecting 200 kHz multibeam bathymetry and 230 and 540 kHz chirp side scan sonar data.

The survey grid consisted of 33 primary north–south tracklines (Lines 100–132) spaced at 300-meter intervals and nine east–west tie lines (Lines 200–208) spaced at 900-meter intervals. In addition, two east–west lines (Lines 300 and 301) were run to detail an area of potential hardbottom in the south-central portion of the survey area. The AUV was maintained at an altitude of approximately 42 meters above the seafloor. Navigation fixes (shot points) were recorded at 125-meter (410-foot) intervals and annotated on all geophysical data. The AUV survey grid provided complete coverage of the seafloor with the SSS system and a representative sampling with the SBP system. Seafloor coverage with the multibeam echo sounder was nearly comprehensive; however, 75 meter-wide, north–south trending data gaps exist between primary tracklines throughout the study area. These data gaps were anticipated during the survey design and are inherent to the width of the MBES beam array and the 300-meter primary trackline spacing. For additional information concerning this AUV survey, please refer to Fugro Document No. 2416-5094. The archaeological assessment of the proposed well location is summarized below:

• This Archaeological Assessment was written to satisfy the Bureau of Ocean Energy Management/Bureau of Safety and Environmental Enforcement (BOEM/BSEE) regulations set forth by NTLs 2005-G07 and 2011-JOINT- G01.

• The regional probability for shipwrecks in this area is considered to be moderate; preservation of a wreck would be moderate to good (Pearson et al. 2003). Analyses of available shipwreck sources, as well as the Fugro database, indicate that no shipwrecks have been reported in the vicinity of the proposed well location.

• The water depth at Proposed Wellsite MC 69 #1 Location C is approximately -1,455 feet MLLW.

• In general, the side scan sonar images exhibit moderate reflectivity, which is indicative of a relatively homogenous sediment distribution. Isolated areas of elevated reflectivity located over 2,000 feet to the north of the proposed location are interpreted to represent possible hardbottom areas and are not archaeologically significant.

• There were no irregular seafloor features identified in the multibeam bathymetry or side scan sonar data that could represent unidentified shipwreck remains in the vicinity of the proposed wellsite. No side scan sonar contacts were mapped within 2,000 feet of the proposed wellsite.

It is possible that small features representing high probability areas for historic shipwreck materials may not be detected by the geophysical instruments used for this assessment. If evidence of historic cultural remains is encountered during subsequent work, the BOEM/BSEE archaeologists must be contacted within

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48 hours to provide an assessment of these artifacts, and all operations must cease within 1,000 feet of the exposed objects.

We appreciate the opportunity to work with you on this project and look forward to continuing as your geohazards consultants. If you have any questions concerning this assessment, please do not hesitate to call me (337-268-3236).

Sincerely,

Dean Gresham, PG
Deputy Geoscience Manager

Aaron Gewecke
Project Geoscientist

Figures

Attachment C: Site Clearance Loc C Public

References

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APPENDIX D
HYDROGEN SULFIDE INFORMATION

A) CONCENTRATION

In accordance with NTL 2008-G04, this information is not applicable to this plan as Talos Energy does not anticipate encountering any H2S during the operations proposed herein.

B) CLASSIFICATION

In accordance with 30 CFR 250.490(c), Talos Energy is requesting the subject area and block, and lease(s), respectively be classified by the DOI as an area absent of H2S. 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 to this plan as Talos Energy does not anticipate encountering H2S during the activities proposed herein.

D) MODELING REPORT

In accordance with NTL 2008-G04, this information is not applicable to this plan as Talos Energy does not anticipate encountering H2S during the activities proposed herein.

APPENDIX E
MINERAL RESOURCE CONSERVATION INFORMATION

A) TECHNOLOGY & RESERVOIR ENGINEERING PRACTICES & PROCEDURES

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as this is an Exploration Plan.

B) TECHNOLOGY & RECOVERY PRACTICES & PROCEDURES

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as this is an Exploration Plan.

C) RESERVOIR DEVELOPMENT

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as this is an Exploration Plan.

APPENDIX F
BIOLOGICAL, PHYSICAL, & SOCIOECONOMIC INFORMATION

A) CHEMOSYNTHETIC COMMUNITIES REPORT

The activities proposed herein could disturb seafloor areas in water depths of 984 feet or greater. Therefore, in accordance with NTL 2008-G04 and NTL 2009-G40, attached within the Geological & Geophysical appendix is the Archaelogical Assesment Report containing the chemosynthetic information for Deepwater Benthic Communities.

B) TOPOGRAPHIC FEATURES MAP

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein 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 herein as Talos Energy 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 herein 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 herein 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 herein as the bottom-disturbing activities are not within 100 feet of potentially sensitive biological features.

G) REMOTELY OPERATED VEHICLE (ROV) SURVEYS

This is not applicable as NTL No. 2008-G06 has expired.

H) THREATENED & ENDANGERED SPECIES, CRITICAL HABITAT, & MARINE MAMMAL INFORMATION

Endangered marine mammal species as listed under the Endangered Species Act that might occur in the Gulf of Mexico are the Gulf of Mexico Bryde's Whale (Balaenoptera edeni), Oceanic Whitetip Shark (Carcharhinus longimanus), Giant Manta Ray (Manta birostris), West Indian manatee (Trichechus manatus), northern right whale (Eubalaena glacialis), fin whale (Balaenoptera physalus), humpback whale (Megaptera novaiangliae), sei whale (Balaenoptera borealis), sperm whale (Physeter macrocephalus), and blue whale (Balaenoptera musculus). Endangered or threatened sea turtle species that might occur in the Gulf of Mexico are Kemp's ridley (Lepidochelys kempii), green turtle (Chelonia mydas), hawksbill (Eretmochelys imbricate), leatherback (Demochelys coriacea), and loggerhead (Caretta caretta) (USDOI, OCS EIS/EA MMS 2007-2012). The only listed threatened fish species in the Gulf of Mexico is the Gulf sturgeon (Ancipenser oxyrincus desotoi).The subject area(s) and block(s) is not designated as a critical habitat for any of these species. Talos Energy does not anticipate that any threatened or endangered species will be adversely affected as a result of the activities proposed herein. However, in the unlikely event of an accident, adverse impacts to endangered marine mammal species are possible.

Talos Energy will adhere to the requirements as set forth in the following Notices to Lessees and guidelines, as applicable, to avoid or minimize impacts to any of the species listed in the ESA as a result of the operations conducted herein:

- NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination"
- BOEM NTL 2016-G01 "Vessel Strike Avoidance and Injured/ Dead Protected Species Reporting
- BOEM NTL 2016-G02 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program" Biological Opinion 2020:
- Appendix A: Seismic Survey Mitigation and Protected Species Observer Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13,2020
- Appendix B: Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13,2020
- Appendix C: Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13,2020
- Appendix J: Sea Turtle Handling and Resuscitation Guidelines, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13,2020

I) ARCHAEOLOGICAL REPORT

An assessment of the archaeological resources associated with the subject lease area is included with the Shallow Hazards and Archaeological Assessment made part of this plan and in the site-specific seafloor and

subsurface assessments for each proposed well included in the attachment(s) to the Geological & Geophysical appendix.

J) AIR & WATER QUALITY INFORMATION

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

K) SOCIOECONOMIC INFORMATION

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

APPENDIX G
WASTES AND DISCHARGES INFORMATION

A) PROJECTED GENERATED WASTES

In accordance with 30 CFR 550.217 and 30 CFR 550.248, information must be provided on all projected solid and liquid wastes likely to be generated by an operator's proposed activities including operational wastes permitted by the appropriate NPDES permit and any other identified wastes. Attached to this appendix is a table entitled "Wastes you will transport and/or dispose of onshore" which satisfies the requirements set forth by NTL 2008-G04 and the aforementioned CFRs.

B) PROJECTED OCEAN DISCHARGES

In accordance with 30 CFR 550.217 and 30 CFR 550.248, information must be provided on all projected solid and liquid wastes likely to be generated by an operator's proposed activities including operational wastes permitted by the appropriate NPDES permit and any other identified wastes. Attached to this appendix is a table entitled "Wastes you will generate, treat, and downhole dispose or discharge to the GOM" which satisfies the requirements set forth by NTL 2008-G04 and the aforementioned CFRs.

C) MODELING REPORT

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as the subject activities do not require an individual NPDES permit. Therefore, a modeling report is not mandated.

D) NPDES PERMITS

The subject rig and/or facility will be covered under Talos Energy's General Permit upon commencement of the activities proposed herein.

E) COOLING WATER INTAKES

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as the associated leases are within the Gulf of Mexico Region.

TABLE 1. WASTES YOU WILL GENERATE, TREAT AND DOWNHOLE DISPOSE OR DISCHARGE TO THE GOM - MC 69 Loc "C"

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

Projected generated waste			Projected ocean discharges	
Type of Waste	**Composition**	**Projected Amount**	**Discharge rate**	**Discharge Method**
Will drilling occur ? If yes, you should list muds and cuttings		**Yes**		
Water-based drilling fluid	**Water based drilling fluids used while drilling riserless**	**59,344 bbls/well**	**5,934 bbls/day/well**	**discharge at seafloor during riserless operations**
Cuttings wetted with water-based fluid	**Cuttings generated while using water based drilling fluids in riserless operations**	**4,217 bbls/well**	**422 bbls/day/well**	**discharge at seafloor during riserless operations**
Cuttings wetted with synthetic-based fluid	**Cuttings generated while using synthetic based drilling fluid**	**2,837 bbls/well**	**71 bbls/day/well**	**dried & discharge overboard**
Will humans be there? If yes, expect conventional waste				
Domestic waste	**grey water from living quarters**	**6,450 bbls/well**	**5.4 bbls/hr/well**	**USCG approved MSD with chlorination and discharge overboard**
Sanitary waste	**treated sanitary waste from living quarters**	**6,850 bbls/well**	**5.7 bbls/hr/well**	**USCG approved MSD with chlorination and discharge overboard**
Is there a deck? If yes, there will be Deck Drainage				
Deck Drainage	**washwater, rain water and deck drainage**	**3125 bbls/well**	**2.6 bbls/hr/well**	**discharge overboard**
Will you conduct well treatment, completion, or workover?				
Well treatment fluids	**N/A**	**N/A**	**N/A**	**N/A**
Well completion fluids	**Calcium Bromide & Glycol**	**10,000 bbls**	**N/A**	**Completion fluid is recyled from well to well and is not discharged**
Workover fluids	**N/A**	**N/A**	**N/A**	**N/A**
Miscellaneous discharges. If yes, only fill in those associated with your activity.				
Desalinization unit discharge	**desalinization unit water**	**2250 bbls/well**	**45 bbls/day/well**	**discharge overboard**
Blowout prevent fluid	**Water-based hydraulic control fluid**	**77.5 bbls/well**	**1.55 bbls/day/well**	**discharged from vent ports on BOP stack**
Uncontaminated Ballast water	**Uncontaminated seawater**	**28,000 bbls/well**	**400 bbls/day/well**	**per MARPOL regulations**
Rig Wash Water	**Fresh Water & Soap**	**3500 bbls/well**	**50 bbls/day/well**	**discharge overboard**
Uncontaminated Bilge water	**Uncontaminated bilge water**	**1400 bbls/well**	**20 bbls/day/well**	**discharge overboard**
Excess cement at seafloor	**Water, CaCl Class H cement & rheological modifiers**	**800 bbls/well**	**800 bbls/day for 2 days/well (only when the 28" & 20" casing are run)**	**discharge at seafloor**
Cement Spacer	**Water base fluid, viscosifier, barite & gel**	**100 bbls/well**	**100 bbls/day for 2 days/well (only when the 28" & 20" casing are run)**	**discharge at seafloor**
Fire water	**Seawater**	**NA**	**NA**	**discharge overboard**
Uncontaminated Cooling water	**Seawater**	**NA**	**NA**	**discharge overboard**
Will you produce hydrocarbons? If yes fill in for produced water.				
Produced water (During Well Test)	**N/A**	**N/A**	**N/A**	**N/A**
Will you be covered by an individual or general NPDES permit ?		**General Permit**		

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

Attachment G

TABLE 1. WASTES YOU WILL GENERATE, TREAT AND DOWNHOLE DISPOSE OR DISCHARGE TO THE GOM - MC 69 Loc "C"

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

Projected generated waste			Projected ocean discharges		Projected Downhole Disposal
Type of Waste	Composition	Projected Amount	Discharge rate	Discharge Method	Answer yes or no
drilling occur ? If yes, you should list muds and cuttings		Yes			
Water-based drilling fluid	Water based drilling fluids used while drilling riserless	59,344 bbls/well	5,934 bbls/day/well	discharge at seafloor during riserless operations	No
Cuttings wetted with water-based fluid	Cuttings generated while using water based drilling fluids in riserless operations	4,217 bbls/well	422 bbls/day/well	discharge at seafloor during riserless operations	No
Cuttings wetted with synthetic-based fluid	Cuttings generated while using synthetic based drilling fluid	2,837 bbls/well	71 bbls/day/well	dried & discharge overboard	No
humans be there? If yes, expect conventional waste					
Domestic waste	grey water from living quarters	6,450 bbls/well	5.4 bbls/hr/well	USCG approved MSD with chlorination and discharge overboard	No
Sanitary waste	treated sanitary waste from living quarters	6,850 bbls/well	5.7 bbls/hr/well	USCG approved MSD with chlorination and discharge overboard	No
ere a deck? If yes, there will be Deck Drainage					
Deck Drainage	washwater, rain water and deck drainage	3125 bbls/well	2.6 bbls/hr/well	discharge overboard	No
you conduct well treatment, completion, or workover?					
Well treatment fluids	N/A	N/A	N/A	N/A	N/A
Well completion fluids	Calcium Bromide & Glycol	10,000 bbls	N/A	Completion fluid is recyled from well to well and is not discharged	No
Workover fluids	N/A	N/A	N/A	N/A	N/A
cellaneous discharges. If yes, only fill in those associated with your activity.					
Desalinization unit discharge	desalinization unit water	2250 bbls/well	45 bbls/day/well	discharge overboard	N/A
Blowout prevent fluid	Water-based hydraulic control fluid	77.5 bbls/well	1.55 bbls/day/well	discharged from vent ports on BOP stack	NA
Uncontaminated Ballast water	Uncontaminated seawater	28,000 bbls/well	400 bbls/day/well	per MARPOL regulations	NA
Rig Wash Water	Fresh Water & Soap	3500 bbls/well	50 bbls/day/well	discharge overboard	NA
Uncontaminated Bilge water	Uncontaminated bilge water	1400 bbls/well	20 bbls/day/well	discharge overboard	NA
Excess cement at seafloor	Water, CaCl Class H cement & rheological modifiers	800 bbls/well	800 bbls/day for 2 days/well (only when the 28" & 20" casing are run)	discharge at seafloor	NA
Cement Spacer	Water base fluid, viscosifier, barite & gel	100 bbls/well	100 bbls/day for 2 days/well (only when the 28" & 20" casing are run)	discharge at seafloor	NA
Fire water	Seawater	NA	NA	discharge overboard	NA
Uncontaminated Cooling water	Seawater	NA	NA	discharge overboard	NA
you produce hydrocarbons? If yes fill in for produced water.					
Produced water (During Well Test)	N/A	N/A	N/A	N/A	N/A
you be covered by an individual or general NPDES permit ?		General Permit			
TE: If you will not have a type of waste, enter NA in the row.					

Attachment G

TABLE 1. WASTES YOU WILL GENERATE, TREAT AND DOWNHOLE DISPOSE OR DISCHARGE TO THE GOM - MC 69 Loc "C"

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

Projected generated waste			Projected ocean discharges	
Type of Waste	**Composition**	**Projected Amount**	**Discharge rate**	**Discharge Method**
drilling occur ? If yes, you should list muds and cuttings		**Yes**		
Water-based drilling fluid	**Water based drilling fluids used while drilling riserless**	**59,344 bbls/well**	**5,934 bbls/day/well**	**discharge at seafloor during riserless operations**
Cuttings wetted with water-based fluid	**Cuttings generated while using water based drilling fluids in riserless operations**	**4,217 bbls/well**	**422 bbls/day/well**	**discharge at seafloor during riserless operations**
Cuttings wetted with synthetic-based fluid	**Cuttings generated while using synthetic based drilling fluid**	**2,837 bbls/well**	**71 bbls/day/well**	**dried & discharge overboard**
humans be there? If yes, expect conventional waste				
Domestic waste	**grey water from living quarters**	**6,450 bbls/well**	**5.4 bbls/hr/well**	**USCG approved MSD with chlorination and discharge overboard**
Sanitary waste	**treated sanitary waste from living quarters**	**6,850 bbls/well**	**5.7 bbls/hr/well**	**USCG approved MSD with chlorination and discharge overboard**
ıere a deck? If yes, there will be Deck Drainage				
Deck Drainage	**washwater, rain water and deck drainage**	**3125 bbls/well**	**2.6 bbls/hr/well**	**discharge overboard**
you conduct well treatment, completion, or workover?				
Well treatment fluids	**N/A**	**N/A**	**N/A**	**N/A**
Well completion fluids	**Calcium Bromide & Glycol**	**10,000 bbls**	**N/A**	**Completion fluid is recyled from well to well and is not discharged**
Workover fluids	**N/A**	**N/A**	**N/A**	**N/A**
cellaneous discharges. If yes, only fill in those associated with your activity.				
Desalinization unit discharge	**desalinization unit water**	**2250 bbls/well**	**45 bbls/day/well**	**discharge overboard**
Blowout prevent fluid	**Water-based hydraulic control fluid**	**77.5 bbls/well**	**1.55 bbls/day/well**	**discharged from vent ports on BOP stack**
Uncontaminated Ballast water	**Uncontaminated seawater**	**28,000 bbls/well**	**400 bbls/day/well**	**per MARPOL regulations**
Rig Wash Water	**Fresh Water & Soap**	**3500 bbls/well**	**50 bbls/day/well**	**discharge overboard**
Uncontaminated Bilge water	**Uncontaminated bilge water**	**1400 bbls/well**	**20 bbls/day/well**	**discharge overboard**
Excess cement at seafloor	**Water, CaCl Class H cement & rheological modifiers**	**800 bbls/well**	**800 bbls/day for 2 days/well (only when the 28" & 20" casing are run)**	**discharge at seafloor**
Cement Spacer	**Water base fluid, viscosifier, barite & gel**	**100 bbls/well**	**100 bbls/day for 2 days/well (only when the 28" & 20" casing are run)**	**discharge at seafloor**
Fire water	**Seawater**	**NA**	**NA**	**discharge overboard**
Uncontaminated Cooling water	**Seawater**	**NA**	**NA**	**discharge overboard**
you produce hydrocarbons? If yes fill in for produced water.				
Produced water (During Well Test)	**N/A**	**N/A**	**N/A**	**N/A**
you be covered by an individual or general NPDES permit ?		**General Permit**		
TE: If you will not have a type of waste, enter NA in the row.				

Attachment G

TABLE 2. WASTES YOU WILL TRANSPORT AND /OR DISPOSE OF ONSHORE, MC69 Loc "C"

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

Projected generated waste		Solid and Liquid Wastes transportation	Waste Disposal		
Type of Waste	**Composition**	**Transport Method**	**Name/Location of Facility**	**Amount**	**Disposal Method**
Will drilling occur ? If yes, fill in the muds and cuttings.					
Oil-based drilling fluid or mud	N/A	N/A	N/A	N/A	N/A
Synthetic-based drilling fluid or mud	Used SBM consisting of base oil (isomerized alpha olefin), barite, CaCl, Acrylate Copolymer, Limestone, Lime, and invert emulsifiers and wetting agent, assuming surface volume only	Below deck storage tanks on offshore support vessels	Mud Supplier Facility, Fourchon, LA	6000 bbls/well	Returned to Mud Supplier Facility in Fourchon and reconditioned for future use
Synthetic-based drilling fluid or mud	Contaminated used synthetic-based drilling fluid	Below deck storage tanks on offshore support vessels	ECOSERV/Fourchon	Varies	Recycle / Injection well
Cuttings wetted with Water-based fluid	N/A	N/A	N/A	N/A	N/A
Cuttings wetted with Synthetic-based fluid	Formation cuttings, SBM Base oil (isomerized alpha olefin), barite, CaCl, Acrylate Copolymer, LCM, Limestone, Lime, and invert emulsifiers and wetting agent contaminated with formation oil	Cuttings boxes on supply vessels	ECOSERV/Fourchon	750 bbls/well	Recycle / Injection well
Cuttings wetted with oil-based fluids	N/A	N/A	N/A	N/A	N/A
Displacement Pills & Interface	Base oil, barite, water wetting agents, surfactants & viscosifyers	Hull Storage tanks or DOT tanks on supply vessels	R360 Environmental Solutions/Fourchon	500 bbls/well	Injection well or recycled
Excess Water Base Mud	Freshwater, CaCl, NaCl, Barite, Bentonite, Lime, XCD Polymer	Below deck storage tanks on offshore support vessels	Mud Supplier Facility, Fourchon, LA	10000 bbls/well	Returned to Mud Supplier Facility in Fourchon and reconditioned for future use
Will you produce hydrocarbons? If yes fill in for produced sand.					
Produced sand	N/A	N/A	N/A	N/A	N/A
Will you have additional wastes that are not permitted for discharge? If yes, fill in the appropriate rows.					
Trash and debris	Domestic trash, plastic, paper, aluminum	40 cu ft super sacks transported by boat	Progresso Galliano Waste	800 lbs/week/well	Landfill or recycled and disposed per classification
Contaminated pills & interface	Base oil, barite, water wetting agents, surfactants & viscosifyers, contaminated mud and brine with formation oil	Transport to shore by boat in drums or DOT tanks for disposal at an approved disposal facility	R360 Environmental Solutions/Fourchon	400 bbls/well	Recycle or Injection well
Used oil	Oil	550 gal tote tank transported by boat	Martin Energy/Fourchon	10 bbls/mo/well	Recycle
Wash water from mud tanks	Water, surfactants & solids from mud system if zero discharge	Hull Storage tanks or DOT tanks on supply vessels	R360 Environmental Solutions/Fourchon	1500 bbls/mo/well	Recycle or Injection well
Chemical Product Wastes	Paint & thinner waste	Drums or tote tanks on supply vessels	EDI Environmental Services/ Lafayette LA	7 bbls/mo/well	Recycle
Drums of oily rags & filters	Oily rags and filters impregnated with oil & grease	DOT drums transported by boat	Martin Energy/Fourchon	1 drums/mo/well	Recycle

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

Attachment G

APPENDIX H
AIR EMISSIONS INFORMATION

A) Offshore air emissions related to these proposed activities result mainly from drilling operations, helicopters and vessels. These emissions occur mainly from burning fuels and natural gas and from venting or evaporation of hydrocarbons. The combustion of fuel occurs primarily on diesel-powered generators, pumps or motors and from lighter fuel motors.

The primary air pollutants associated with OCS activities are nitrogen oxides, carbon monoxide, sulphur oxides, volatile organic compounds and suspended particulates.

You are being provided summary information regarding the peak year emissions that have been generated by and associated with the Plan Emissions or Complex Total Emissions.

(A) AQR SCREENING QUESTIONS –

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

COMPANY	Talos Energy Offshore LLC
AREA	Mississippi Canyon
BLOCK	MC 68/69
LEASE	OCS-G 37200 & OCS-G 37201
FACILITY	N/A
WELL	A & C
COMPANY CONTACT	Eric Berger
TELEPHONE NO.	(713) 907-5910
REMARKS	Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.

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/ttnchie1/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/ttnchie1/ap42/ch03/final/c03s03.pdf
Diesel Recip. > 600 hp	g/hp-hr	0.32	0.182	0.178	0.0055	10.9	0.29	N/A	2.5	N/A	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://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf 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/ttnchie1/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/ttnchie1/ap42/ch01/final/c01s04.pdf https://cfpub.epa.gov/webfire/
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/ttnchie1/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.api.org/
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/ttnchie1/ap42/ch02/final/c02s01.pdf
On-Ice – Loader	lbs/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. <600 reference	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	
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	https://www.epa.gov/moves/nonroad2008a-installation-and-updates
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	https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data

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

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

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

AIR EMISSIONS CALCULATIONS - 1ST YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT	PHONE	REMARKS
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200	N/A	A & C					Eric Berger	(713) 907-5910	Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.

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	3179.3628	76304.71	24	57	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	29.82	17.99	17.45	0.43	714.50	20.54	0.00	112.07	0.21
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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**	**29.82**	**17.99**	**17.45**	**0.43**	**714.50**	**20.54**	**0.00**	**112.07**	**0.21**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26.630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	55	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.51	1.52	1.47	0.04	60.24	1.73	0.00	9.45	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	80	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	3.40	2.05	1.99	0.05	81.54	2.34	0.00	12.79	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
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**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**5.92**	**3.57**	**3.46**	**0.09**	**141.78**	**4.08**	**0.00**	**22.24**	**0.04**

AIR EMISSIONS CALCULATIONS - 2ND YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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**							**43.60**	**26.30**	**25.51**	**0.63**	**1,044.59**	**30.03**	**0.00**	**163.84**	**0.30**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS - 3RD YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	57	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	29.82	17.99	17.45	0.43	714.50	20.54	0.00	112.07	0.21
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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**							**43.60**	**26.30**	**25.51**	**0.63**	**1,044.59**	**30.03**	**0.00**	**163.84**	**0.30**	**29.82**	**17.99**	**17.45**	**0.43**	**714.50**	**20.54**	**0.00**	**112.07**	**0.21**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	55	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.51	1.52	1.47	0.04	60.24	1.73	0.00	9.45	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	80	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	3.40	2.05	1.99	0.05	81.54	2.34	0.00	12.79	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
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**5.92**	**3.57**	**3.46**	**0.09**	**141.78**	**4.08**	**0.00**	**22.24**	**0.04**

AIR EMISSIONS CALCULATIONS - 4TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT	PHONE	REMARKS
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger	(713) 907-5910	Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.

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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS - 5TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS - 6TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS												
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.												
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18		
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
FACILITY 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		
			BPD																								
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
WELL TEST	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**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**		
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**			
	21.9																										
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02		
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01		
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
INSTALLATION	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**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**		

AIR EMISSIONS CALCULATIONS - 7TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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
2030	**Facility Total Emissions**							**43.60**	**26.30**	**25.51**	**0.63**	**1,044.59**	**30.03**	**0.00**	**163.84**	**0.30**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26.630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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
2030	**Non-Facility Total Emissions**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS - 8TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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
2031	**Facility Total Emissions**							**43.60**	**26.30**	**25.51**	**0.63**	**1,044.59**	**30.03**	**0.00**	**163.84**	**0.30**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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
2031	**Non-Facility Total Emissions**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS - 9TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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
2032	**Facility Total Emissions**							**43.60**	**26.30**	**25.51**	**0.63**	**1,044.59**	**30.03**	**0.00**	**163.84**	**0.30**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	VESSELS - Material Tug Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	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
2032	**Non-Facility Total Emissions**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS - 10TH YEAR

COMPANY	AREA		BLOCK	LEASE	FACILITY	WELL					CONTACT		PHONE		REMARKS										
Talos Energy Offshore LLC	Mississippi Canyon		MC 68/69	OCS-G 37200 &	N/A	A & C					Eric Berger		(713) 907-5910		Drilling & completion of 2 wells (#1 Location A & #1 Location C) using drillship or DP Semisubmersible. This includes potential rig emissions each year for recompletions.										
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	3179.3628	76304.71	24	50	43.60	26.30	25.51	0.63	1044.59	30.03	0.00	163.84	0.30	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS- Drilling - Propulsion Engine - Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels - Diesel Boiler		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vessels – Drilling Prime Engine, Auxiliary		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
			BPD																						
DRILLING	Liquid Flaring		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	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
2033	**Facility Total Emissions**							**43.60**	**26.30**	**25.51**	**0.63**	**1,044.59**	**30.03**	**0.00**	**163.84**	**0.30**	**26.16**	**15.78**	**15.31**	**0.38**	**626.75**	**18.02**	**0.00**	**98.30**	**0.18**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**																**729.94**			**729.94**	**729.94**	**729.94**		**26,630.09**	
	21.9																								
DRILLING	VESSELS- Crew Diesel		7200	370.4112	8889.87	18	50	5.08	3.06	2.97	0.07	121.70	3.50	0.00	19.09	0.04	2.29	1.38	1.34	0.03	54.76	1.57	0.00	8.59	0.02
	VESSELS - Supply Diesel		6700	344.6882	8272.52	18	50	4.73	2.85	2.77	0.07	113.25	3.26	0.00	17.76	0.03	2.13	1.28	1.24	0.03	50.96	1.47	0.00	7.99	0.01
	VESSELS - Tugs Diesel		0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY 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
2033	**Non-Facility Total Emissions**							**9.81**	**5.92**	**5.74**	**0.14**	**234.95**	**6.76**	**0.00**	**36.85**	**0.07**	**4.41**	**2.66**	**2.58**	**0.06**	**105.73**	**3.04**	**0.00**	**16.58**	**0.03**

AIR EMISSIONS CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	FACILITY	WELL	
Talos Energy Offshore LLC	MC 68/69	OCS-G 37200 & OCS-G 37201	N/A	N/A	A & C	

Year	Facility Emitted Substance								
	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3
2024	29.82	17.99	17.45	0.43	714.50	20.54	0.00	112.07	0.21
2025	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2026	29.82	17.99	17.45	0.43	714.50	20.54	0.00	112.07	0.21
2027	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2028	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2029	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2030	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2031	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2032	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
2033	26.16	15.78	15.31	0.38	626.75	18.02	0.00	98.30	0.18
Allowable	729.94			729.94	729.94	729.94		26630.09	

APPENDIX I
OIL SPILLS INFORMATION

A) OIL SPILL RESPONSE PLANNING

Pursuant to CFR 250.219 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 Talos Energy's Regional OSRP. A site specific OSRP nor a subregional OSRP is not required with this plan, as the State of Florida is not an affected State for the activities proposed herein.

1) REGIONAL OR SUBREGIONAL OSRP INFORMATION

All of the proposed activities and facilities in this Plan will be covered by the Regional Oil Spill Response Plan filed by Talos ERT LLC (BOEM Company No. 02899) in accordance with 30 CFR 254 and approved on August 14, 2017, OSRP Control No. O-647. By letter dated June 22, 2020, the latest OSRP nonregulatory revision was found to be in compliance. As of letter dated November 18, 2020, BSEE acknowledged that the following operators are covered under this OSRP:

Talos ERT LLC (02899)
Talos Energy LLC (01834)
Talos Energy Offshore LLC (03247)
Talos Oil and Gas LLC (03269)
Talos Third Coast LLC (03619)
Talos Gulf Coast Onshore, LLC (22691)
Talos Gulf Coast Offshore LLC (03201)

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 herein.

Primary Response Equipment Location	Pre-planned Staging Location
Houma, LA; Harvey, LA; Leeville, LA	Houma, LA; Harvey, LA; Leeville, LA; Fourchon, LA

3) OIL SPILL REMOVAL ORGANIZATION (OSRO) INFORMATION

Talos Energy's primary equipment providers are Clean Gulf Associates (CGA). The Marine Spill Response Corporation's (MSRC) STARS network will provide closest available personnel, as well as a MSRC supervisor to operate the equipment. CGA and MSRC have equipment pre-staged around the Gulf of Mexico. The major locations of this equipment are Lake Charles, Houma, Fort Jackson, and Venice, Louisiana; Galveston and Ingleside, Texas; and Pascagoula, Mississippi.

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 herein. 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**	**EP WCD**
Type of Activity	EXPLORATORY DRILLING	EXPLORATORY DRILLING
Facility Location (Area/Block)	GC 281	MC 69
Facility Designation	Well SS001	Well #1 Location C
Distance to Shore (miles)	91	21.92
Volume Lease Term Pipelines Uncontrolled Blowout Flowlines (on facility)	370000.00	251455.00

Worst Case Discharge Comparison Chart		
Category	**Regional OSRP WCD**	**EP WCD**
Type of Activity	EXPLORATORY DRILLING	EXPLORATORY DRILLING
Storage **Total Volume**	**370000.00**	**251455.00**
Type of Oil(s) (crude, condensate, diesel)	Crude Oil	Crude Oil
API Gravity	33	41.1

Since Talos Energy has the capacity to respond to the worst case spill scenario included in our Regional OSRP approved on August 14, 2017 and determined in compliance January 13, 2022, and since the worst case scenario determined for our Plan does not replace the worst case scenario in our Regional OSRP, Talos hereby certifies that we have the capacity to respond, to the maximum extent practicable, to a worst case discharge, or substantial threat of such a discharge, resulting from the activities proposed in this Plan.

5) WORST CASE DISCHARGE SCENARIOS AND ASSUMPTIONS

As a basis for discussion in this section, it is assumed that a subsea blowout with uncontrollable release of formation fluids could result in liquid hydrocarbons being released into OCS waters at any time during the life cycle of a well.

6) OIL SPILL RESPONSE DISCUSSION

Attached to this appendix is an Oil Spill Response Discussion for the activities proposed in this Plan.

SPILL RESPONSE DISCUSSION

For the purpose of NEPA and Coastal Zone Management Act analysis, the largest spill volume originating from the proposed activity would be a well blowout during drilling operations, estimated to be 251,455 barrels of crude oil with an API gravity of 41.1°.

Land Segment and Resource Identification

Trajectories of a spill and the probability of it impacting a land segment have been projected utilizing information in the BOEM Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on the BOEM website. The results are shown in **Figure 1.** The BOEM OSRAM identifies a 14% probability of impact to the shorelines of Plaquemines Parish, Louisiana within 10 days. Plaquemines Parish includes Barataria Bay, the Mississippi River Delta, Breton Sound and the affiliated islands and bays. This region is an extremely sensitive habitat and serves as a migratory, breeding, feeding and nursery habitat for numerous species of wildlife. Beaches in this area vary in grain particle size and can be classified as fine sand, shell or perched shell beaches. Sandy and muddy tidal flats are also abundant.

Response

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

Using the estimated chemical and physical characteristics of crude oil, an ADIOS weathering model was run on a similar product from the ADIOS oil database. The results indicate 45% or approximately 113,155 barrels of crude oil would be evaporated/dispersed within 24 hours, with approximately 138,300 barrels remaining.

Natural Weathering Data: MC 69, Well 1 Location C	**Barrels of Oil**
WCD Volume	251,455
Less 45% natural evaporation/dispersion	113,155
Remaining volume	138,300

Figure 2 outlines equipment, personnel, materials and support vessels as well as temporary storage equipment available to respond to the worst case discharge. The volume accounts for the amount remaining after evaporation/dispersion at 24 hours. The list estimates individual

times needed for procurement, load out, travel time to the site and deployment. **Figure 2** also indicates how operations will be supported.

Talos's Oil Spill Response Plan includes alternative response technologies such as dispersants and in-situ burn. Strategies will be decided by Unified Command based on an operations safety analysis, the size of the spill, weather and potential impacts. If aerial dispersants are utilized, 8 sorties (9,600 gallons) from two of the DC-3 aircrafts and 4 sorties (8,000 gallons) from the Basler aircraft would provide a daily dispersant capability of 7,540 barrels. If the conditions are favorable for in-situ burning, the proper approvals have been obtained and the proper planning is in place, in-situ burning of oil may be attempted. Slick containment boom would be immediately called out and on-scene as soon as possible. Offshore response strategies may include attempting to skim utilizing CGA's and MSRC's spill response equipment with a total derated skimming capacity of 473,994 barrels. Temporary storage associated with skimming equipment equals 244,996 barrels. If additional storage is needed, various tank barges with a total of 708,000+ barrels of storage capacity may be mobilized and centrally located to provide temporary storage and minimize off-loading time. **Safety is first priority. Air monitoring will be accomplished and operations deemed safe prior to any containment/skimming attempts.**

If the spill went unabated, shoreline impact in Plaquemines Parish, Louisiana would depend upon existing environmental conditions. Shoreline protection would include the use of CGA's and MSRC's near shore and shallow water skimmers with a totaled derated skimming capacity of 280,606 barrels. Temporary storage associated with skimming equipment equals 7,837 barrels. If additional storage is needed, various tank barges with a total of 403,000+ barrels of storage capacity may be mobilized and centrally located to provide temporary storage and minimize off-loading time. Onshore response may include the deployment of shoreline boom on beach areas, or protection and sorbent boom on vegetated areas. Contracts with AMPOL, Miller, and OMI will ensure access to 243,450 feet of 18" shoreline protection boom. **Figure 2** outlines individual times needed for procurement, load out, travel time to the site and deployment. Strategies would be based upon surveillance and real time trajectories that depict areas of potential impact given actual sea and weather conditions. Applicable Area Contingency Plans (ACPs), Geographic Response Plans (GRPs), and Unified Command (UC) will be consulted to ensure that environmental and special economic resources are correctly identified and prioritized to ensure optimal protection. Shoreline protection strategies depict the protection response modes applicable for oil spill clean-up operations. As a secondary resource, the State of Louisiana Initial Oil Spill Response Plan will be consulted as appropriate to provide detailed shoreline protection strategies and describe necessary action to keep the oil spill from entering Louisiana's coastal wetlands. The UC should take into consideration all appropriate items detailed in the Tactics discussion of this Appendix. The UC and their personnel have the option

to modify the deployment and operation of equipment to allow for a more effective response to site-specific circumstances. Talos's contract Incident Management Team has access to the applicable ACP(s) and GRP(s).

Based on the anticipated worst case discharge scenario, Talos can be onsite with contracted oil spill recovery equipment with adequate response capacity to contain and recover surface hydrocarbons, and prevent land impact, to the maximum extent practicable, within an estimated 75 hours (based on the equipment's Effective Daily Recovery Capacity (EDRC)).

Initial Response Considerations

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

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

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

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

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

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

- Information will be confirmed
- An assessment will be made and initial objectives set
- OSROs and appropriate agencies will be notified
- ICS 201, Initial Report Form completed
- Initial Safety plan will be written and published

- Unified Command will be established
  - Overall safety plan developed to reflect the operational situation and coordinated objectives
  - Areas of responsibility established for Source Control and each surface operational site
  - On-site command and control established

Offshore Response Actions

Equipment Deployment

Surveillance

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

Dispersant application assets

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

Containment boom

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

Oceangoing Boom Barge

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

In-situ Burn assets

- Determine appropriateness of in-situ burn operation in coordination with the FOSC and affected SOSC
- Determine availability of fire boom and selected ignition systems

- Start ordering fire boom stocks required for expected operations
- Contact boom manufacturer to provide training & tech support for operations, if required
- Determine assets to perform on water operation
- Build operations into safety plan
- Conduct operations in accordance with an approved plan
- Initial test burn to ensure effectiveness

Dedicated offshore 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 offshore as safely possible

CGA FRUs

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

T&T Koseq Skimming Systems

- To the area of the thickest oil
- Use as far offshore as allowed
- VOOs with a minimum of 2,000 bbls storage capacity
- VOOs at least 200' in length

- VOOs with deck space of 100’ x 40’ to provide space for arms, tanks, and crane
- VOOs for shallow water should be deck barges with a draft of <10 feet when fully loaded

Storage Vessels

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

Adverse Weather Operations:

In adverse weather, when seas are $\geq$ 3 feet, the use of larger recovery and storage vessels, oleophilic skimmers, and large offshore boom will be maximized. KOSEQ Arm systems are built

for rough conditions, and they should be used until their operational limit (9.8' seas) is met. Safety will be the overriding factor in all operations and will cease at the order of the Unified Command, vessel captain, or in an emergency, "stop work" may be directed by any crew member.

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

Maximization of skimmer-oil encounter rate

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

Maximize skimmer system efficiency

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

Recovered Oil Storage

- Smaller barges in larger quantities will increase flexibility for multi-location skimming operations
- Place barges in skimming task forces, groups, etc., to reduce recovered oil offloading time

- Procure and deploy the maximum number of portable tanks to support Vessel of Opportunity Skimming Systems if onboard storage is not available
- Maximize use of the organic recovered oil storage capacity of the skimming vessel

Command, Control, and Communications (C^3)

- Publish, implement, and fully evaluate 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 aircraft 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 O_2, LEL, H_2S, CO, VOC, and Benzene are all within the permissible limits, oil recovery operations may begin.

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

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

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

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

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

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

Initial set-up and potential actions:

- A 1,000 meter safety zone has been established around the incident location for vessels involved in Source Control
- The HOSS Barge is positioned facing the incident location just outside of this safety zone or at the point where the freshest oil is reaching the surface
- The HOSS Barge engages its Oil Spill Detection (OSD) system to locate the heaviest oil and maintains that ability for 24-hour operations
- The HOSS Barge deploys 1,320' of 67" Sea Sentry boom on each side, creating a swath width of 800'
- The Breton Island and H.I. Rich skim nearby, utilizing the same OSD systems as the HOSS Barge to locate and recover oil
- Two FRUs join this group and it becomes TF1
- The remaining 7 FRUs are split into a 2 and 3 vessel task force numbered TF2 and TF3
- A 95' FRV is placed in each TF
- The boom barge (CGA 300) is positioned nearby and begins deploying auto boom in sections between two utility vessels (1,000' to 3,000' of boom, depending on conditions) with chain-link gates in the middle to funnel oil to the skimmers
- The initial boom support vessels position in front of TF2 and TF3
- A 100,000+ barrel offshore tank barge is placed with each task force as necessary to facilitate the immediate offload of skimming vessels

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

TF 1

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

TF 2

- 1 – 95' FRV
- 4 – FRUs
- 1 – 100,000+ barrel tank barge and associated tug(s)
- 1 – Dedicated air asset for tactical direction
- 10 – 500' sections of auto boom with gates

- 10 – Boom-towing vessels
- 2 – Support vessels (crew/utility)

TF 3

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

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

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

TF 4

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

TF 5

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

TF 6

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

TF 7

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

CGA Minimum Acceptable Capabilities for Vessels of Opportunity (VOO)

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

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

Tactical use of Vessels of Opportunity (VOO): Talos 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 the 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 are 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 $\leq$ 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 $\leq$ 1 knot.

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

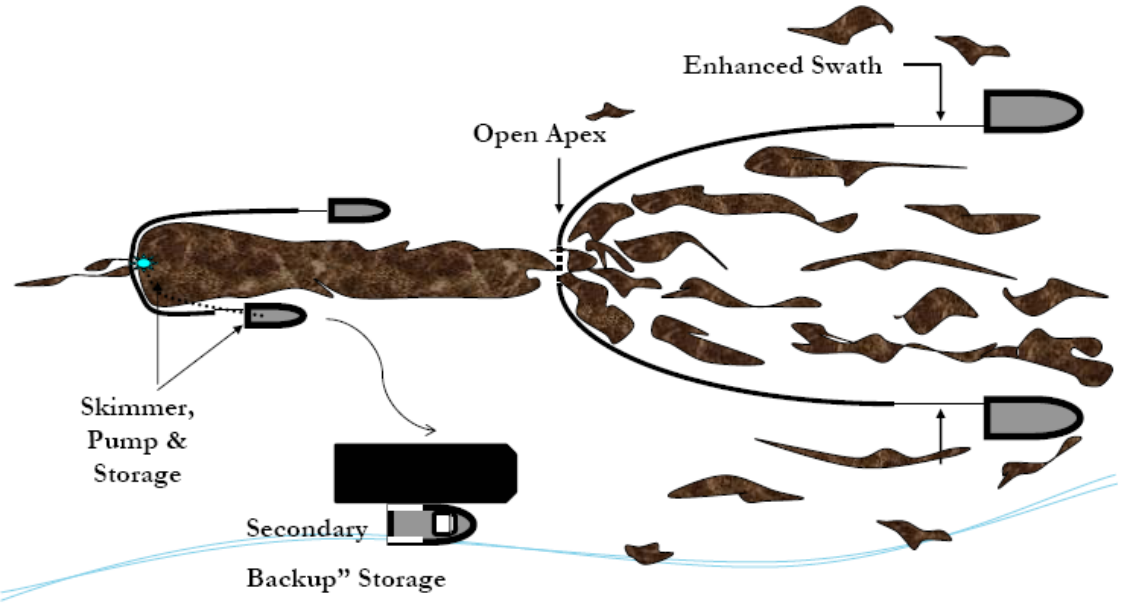
Tactical Overview

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

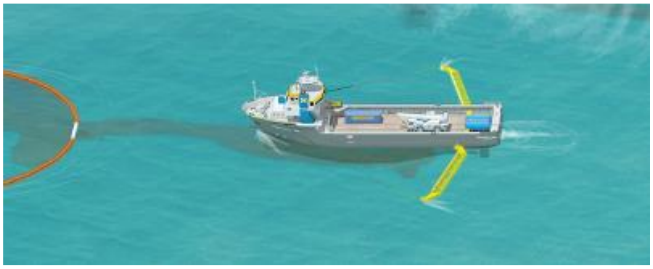
Maximum Sea Conditions - Under most circumstances the larger OSVs are capable of remaining on scene well past the Skimming Arms maximum sea state of 9.8'. Ultimately it will be the decision of the VOO Captain, with input from the T&T Supervisor onboard, to determine when the sea conditions have exceeded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

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

Possible Task Force Configuration (Multiple Koseq VOOs can be deployed in a task force)
1 – ≥ 200' Offshore Supply Vessels (OSV) with set of Koseq Arms
2 to 4 portable storage tanks (500 bbl)
1 – Modular Crane Pedestal System set (MCPS) or 30 cherry picker (crane) for deployment
1 – Tank barge (offshore) for temporary storage
1 – Utility/Crewboat (supply)
1 – Designated spotter aircraft
4 – Personnel (4 T&T OSRO)



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



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

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

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

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

Near Shore Response Actions

Timing

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

Considerations

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

Surveillance

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

Dispersant Use

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

Dedicated Near Shore skimming systems

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

VOO

- Use Talos'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 that 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., landowners, 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 cleanup of marshes should be 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 roadways
- Discuss and gain approval prior cutting or moving vessels through vegetation
- Discuss use of vessels that may disturb wildlife, i.e, airboats
- Safe movement of vessels through narrow cuts and blind curves
- Consider the possibility that no response in a marsh may be best
- In the deployment of any response asset, actions will be taken to ensure the safest, most efficient operations possible. This includes, but is not limited to:
    - Placement of recovered oil or waste storage as near to vessels or beach cleanup crews as possible.
    - Planning for stockage of high use items for expeditious replacement
    - Housing of personnel as close to the work site as possible to minimize travel time
    - Use of shallow water craft
    - Use of communication systems appropriate ensure command and control of assets
    - Use of appropriate boom in areas that I can offer effective protection
    - Planning of waste collection and removal to maximize cleanup efficiency
- Consideration or on-site remediation of contaminated soils to minimize replacement operations and impact on the area

Decanting Strategy

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

CGA Equipment Limitations

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

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

Environmental Conditions in the GOM

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

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

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

FIGURE 1
TRAJECTORY BY LAND SEGMENT

Trajectory of a spill and the probability of it impacting a land segment have been projected utilizing Talos's WCD and information in the BOEM Oil Spill Risk Analysis Model (OSRAM) for the Central and Western Gulf of Mexico available on the BOEM website using 10 day impact. The results are tabulated below.

Area/Block	OCS-G	Launch Area	Land Segment and/or Resource	Conditional Probability (%)
MC 69, Well 1 Location C *22 miles from shore*	G37200	C057	Terrebonne, LA Lafourche, LA **Plaquemines, LA** St. Bernard, LA	1 1 **14** 1

WCD Scenario– <u>BASED ON WELL BLOWOUT DURING DRILLING OPERATIONS</u> (22 miles from shore)
138,300 bbls of crude oil (Volume considering natural weathering)
API Gravity 41.1°

FIGURE 2 – Equipment Response Time to MC 69, Well 1 Location C

Dispersants/Surveillance

Dispersant/Surveillance	Dispersant Capacity (gal)	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to site	Total Hrs
ASI							
Basler 67T	2000	2	Houma	2	2	0.6	4.6
DC 3	1200	2	Houma	2	2	0.8	4.8
Aero Commander	NA	2	Houma	2	2	0.6	4.6
MSRC							
737-500	4,125	4	Weyers Cave	4	0	1.8	5.8

Offshore Response

Offshore Equipment Pre-Determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
HOSS Barge	76285	4000	3 Tugs	8	Harvey	6	0	10	4	2	22
95’ FRV	22885	249	NA	6	Galveston	2	0	2	18	1	23
95’ FRV	22885	249	NA	6	Leeville	2	0	2	2	1	7
95’ FRV	22885	249	NA	6	Venice	2	0	2	1	1	6
95’ FRV	22885	249	NA	6	Vermilion	2	0	2	7	1	12
Boom Barge (CGA-300) 42” Auto Boom (25000’)	NA	NA	1 Tug 50 Crew	4 (Barge) 2 (Per Crew)	Leeville	8	0	4	4	2	18

Recovered Oil Storage 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
Enterprise Marine Services LLC (Available through contract with CGA)											
CTCo 2603	NA	25000	1 Tug	6	Amelia	31	0	6	10	1	48
CTCo 2604	NA	20000	1 Tug	6	Amelia	31	0	6	10	1	48
CTCo 2605	NA	20000	1 Tug	6	Amelia	31	0	6	10	1	48
CTCo 2606	NA	20000	1 Tug	6	Amelia	31	0	6	10	1	48
CTCo 2607	NA	23000	1 Tug	6	Amelia	31	0	6	10	1	48

Recovered Oil Storage 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
Kirby Offshore (available through contract with CGA)											
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	80000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	100000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	100000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	160000+	1 Tug	6	Venice	51	0	4	4	1	60

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	2	1	4	2	1	10
MSRC 452 Offshore Barge 1 Crucial Disk 88/30*2,640' 67" Curtain Pressure Boom*	11122	45000	3 Tugs	9	Fort Jackson, LA	4	1	6	3	1	15
Mississippi Responder 1 Transrec 350 *2,640' 67" Curtain Pressure Boom*	10567	4000	NA	10	Pascagoula, MS	2	1	2	5	1	11
MSRC 402 Offshore Barge 1 Crucial Disk 88/30 *2,640' 67" Curtain Pressure Boom*	11122	40300	3 Tugs	9	Pascagoula, MS	4	1	3	7	1	16
S.T. Benz Responder 1 LFF 100 Brush *2,640' 67" Curtain Pressure Boom*	18086	4000	NA	10	Grand Isle, LA	3	1	1	4	1	10

Gulf Coast Responder 1 Transrec 350 2,640' 67" Curtain Pressure Boom	10567	4000	NA	10	Lake Charles, LA	2	1	4	24	1	32
Texas Responder 1 Transrec 350 2,640' 67" Curtain Pressure Boom	10567	4000	NA	10	Galveston, TX	2	1	1	33	1	38
MSRC 570 Offshore Barge 1 Crucial Disk 88/30 2,640' 67" Curtain Pressure Boom	11122	56900	3 Tugs	9	Galveston, TX	4	1	2	48	1	56
MSRC 360 Offshore Barge 1 Crucial Disk 88/30 1,320' 67" Curtain Pressure Boom	11122	36000	3 Tugs	9	Tampa, FL	4	1	3	46	1	55

Offshore Equipment With Staging	EDRC	Storage Capacity	VOO	Persons Req.	From	Hrs to Procure	Hrs to Loadout	Travel to Staging	Travel to Site	Hrs to Deploy	Total Hrs
T&T Marine (available through direct contract with CGA)											
Aqua Guard Triton RBS (1)	22323	2000	1 Utility	6	Galveston	4	12	13	33	2	64
Aqua Guard Triton RBS (1)	22323	2000	1 Utility	6	Harvey	4	12	2	6	2	26
Koseq Skimming Arms (2)	45770	12000	2 OSV	12	Harvey	24	24	2	13	2	75
Koseq Skimming Arms (4)	72652	24000	4 OSV	24	Harvey	24	24	2	13	2	75
CGA											
FRU (2) + 100 bbl Tank (4)	8502	400	2 Utility	12	Vermilion	2	5	7	10	1	25
FRU (3) + 100 bbl Tank (6)	12753	600	3 Utility	18	Leeville	2	5	4.5	5	1	17.5
FRU (2) + 100 bbl Tank (4)	8502	400	2 Utility	12	Venice	2	5	2	2	1	12
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Galveston	2	5	13	33	1	54
FRU (1) + 100 bbl Tank (2)	4251	200	1 Utility	6	Aransas Pass	2	5	18	36	1	62

** Utility Boats, Crew Boats, Supply Boats, or Fishing Vessels*

Staging Area: Venice

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	2	6	6	38
MSRC											
67" Curtain Pressure Boom	NA	NA	80*	160	Houston	1	2	12	36	1	53
1000' Fire Resistant Boom	NA	NA	3*	6	Galveston	1	4	13	28	6	52
16000' Fire Resistant Boom	NA	NA	3*	6	Houston	1	4	12	32	6	55
2000' Hydro Fire Boom	NA	NA	8*	8	Lake Charles	1	4	8	20	6	39

Nearshore Response

Nearshore Equipment Pre-determined Staging	EDRC	Storage Capacity	VOO	Persons Required	From	Hrs to Procure	Hrs to Loadout	Hrs to GOM	Travel to Spill Site	Hrs to Deploy	Total Hrs
CGA											
Mid-Ship SWS	22885	249	NA	4	Leeville	2	0	N/A	48	1	51
Mid-Ship SWS	22885	249	NA	4	Venice	2	0	N/A	48	1	51
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	Lake Charles	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	19	1	24
46' FRV	15257	65	NA	4	Leeville	2	0	2	2	1	7
46' FRV	15257	65	NA	4	Lake Charles	2	0	2	10	1	15
46' FRV	15257	65	NA	4	Venice	2	0	2	2	1	7
MSRC											
MSRC Lightning 2 LORI Brush Pack	5000	50	NA	6	Tampa	2	0	1	20	1	24
MSRC Quick Strike 2 LORI Brush Pack	5000	50	NA	6	Lake Charles	2	0	1	10	1	14
Enterprise Marine Services LLC (Available through contract with CGA)											
CTCo 2608	NA	23000	1 Tug	6	Amelia	25	0	6	16	1	48
CTCo 2609	NA	23000	1 Tug	6	Amelia	25	0	6	16	1	48
CTCo 5001	NA	47000	1 Tug	6	Amelia	25	0	6	16	1	48
Kirby Offshore (available through contract with CGA)											
RO Barge	NA	150000+	1 Tug	6	Venice	51	0	4	4	1	60
RO Barge	NA	160000+	1 Tug	6	Venice	51	0	4	4	1	60

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	13	2	1	20
SWS Egmopol	1810	100	NA	3	Leeville	2	2	4.5	2	1	11.5
SWS Marco	3588	20	NA	3	Vermilion	2	2	8	2	1	15
SWS Marco	3588	34	NA	3	Leeville	2	2	4.5	2	1	11.5
SWS Marco	3588	34	NA	3	Venice	2	2	2	2	1	9

Foilex Skim Package (TDS 150)	1131	50	NA	3	Vermilion	4	12	8	2	2	28
Foilex Skim Package (TDS 150)	1131	50	NA	3	Galveston	4	12	13	2	2	33
Foilex Skim Package (TDS 150)	1131	50	NA	3	Harvey	4	12	2	2	2	22
4 Drum Skimmer (Magnum	680	100	1 Crew	3	Vermilion	2	2	8	2	1	15
4 Drum Skimmer (Magnum	680	100	1 Crew	3	Harvey	2	2	2	2	1	9
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Vermilion	2	2	8	2	1	15
2 Drum Skimmer (TDS 118)	240	100	1 Crew	3	Harvey	2	2	2	2	1	9
MSRC											
30 ft. Kvichak *Marco I Skimmer*	3588	24	NA	2	Ingleside	1	1	18	2	1	23
30 ft. Kvichak *Marco I Skimmer*	3588	24	NA	2	Galveston	1	1	13	2	1	18
30 ft. Kvichak *Marco I Skimmer*	3588	24	NA	2	Belle Chasse	1	1	2	2	1	7
30 ft. Kvichak *Marco I Skimmer*	3588	24	NA	2	Pascagoula	1	1	5.5	2	1	10.5
AardVac Skimmer (1)	3840	400	1 Utility	4	Lake Charles	1	1	8	2	1	13
AardVac Skimmer (1)	3840	400	1 Utility	4	Pascagoula	1	1	5.5	2	1	10.5
Queensboro Skimmer (1)	905	400	1 Utility	4	Galveston	1	1	13	2	1	18
Queensboro Skimmer (5)	4525	2000	5 Utility	20	Lake Charles	1	1	8	2	1	13
Queensboro Skimmer (1)	905	400	1 Utility	4	Belle Chasse	1	1	2	2	1	7
Queensboro Skimmer (1)	905	400	1 Utility	4	Pascagoula	1	1	5.5	2	1	10.5
WP 1 Skimmer (1)	3017	400	1 Utility	4	Pascagoula	1	1	5.5	2	1	10.5
WP 1 Skimmer (1)	3017	400	1 Utility	4	Tampa	1	1	21	2	1	26

Shoreline Protection

Shoreline Protection Boom	VOO	Persons Req.	Storage/Warehouse Location	Hrs to Procure	Hrs to Loadout	Travel to Venice	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	6	2	12	24
16,000' 18" Boom	7 Crew	14	Chalmette, LA	2	2	2.5	2	6	14.5
900' 18" Boom	1 Crew	2	Morgan City, LA	2	2	4.5	2	2	12.5
11,800' 18" Boom	5 Crew	10	Gonzales, LA	2	2	0	2	2	8
16,000' 18" Boom	7 Crew	14	Port Arthur, TX	2	2	10	2	6	22

Shoreline Protection Boom	VOO	Persons Req.	Storage/Warehouse Location	Hrs to Procure	Hrs to Load Out	Travel to Venice	Travel to Deployment Site	Hrs to Deploy	Total Hrs
Miller Environmental (available through Letter of Intent)									
14,000' 18" Boom	6 Crew	12	Sulphur, LA	1	1	8.5	2	2	14.5
14,000' 18" Boom	6 Crew	12	Beaumont, TX	1	1	10	2	2	16
10,000' 18" Boom	5 Crew	10	Corpus Christi, TX	1	1	18.5	2	2	24.5
12,000' 18" Boom	5 Crew	10	Houston, TX	1	1	12.5	2	2	18.5
1,000' 18" Boom	5 Crew	10	Three Rivers, TX	1	1	18	2	2	24

Shoreline Protection Boom	VOO	Persons Req.	Storage/Warehouse Location	Hrs to Procure	Hrs to Loadout	Travel to Venice	Travel to Deployment Site	Hrs to Deploy	Total Hrs
OMI Environmental (available through Letter of Intent)									
3,500' 18" Boom	2 Crew	4	Belle Chasse, LA	1	1	2	2	3	9
2,000' 18" Boom	1 Crew	2	Sulfur, LA	1	1	4	2	3	11
4,100' 18" Boom	1 Crew	2	Gonzalez, LA	1	1	4	2	3	11
10,000' 18" Boom	5 Crew	10	Harvey, LA	1	1	2	2	3	9
14,000' 18" Boom	6 Crew	12	Cut Off, LA	1	1	4	2	3	11
2,300' 18" Boom	2 Crew	4	Morgan City, LA	1	1	5	2	3	12
32,200' 18" Boom	10 Crew	20	New Iberia, LA	1	1	6	2	3	13
3,500' 18" Boom	1 Crew	2	Venice, LA	1	1	0	2	3	7

16,000’ 18” Boom	6 Crew	12	Deer Park, TX	1	1	12	2	3	19
6,100’ 18” Boom	3 Crew	6	La Marque, TX	1	1	13	2	3	20
20,000’ 18” Boom	6 Crew	12	Port Arthur, TX	1	1	10	2	3	17

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	2	1	2	9
Bird Scare Guns (24)	NA	NA	NA	2	Harvey	2	2	2	1	2	9
Bird Scare Guns (12)	NA	NA	NA	2	Galveston	2	2	13	1	2	20
Bird Scare Guns (12)	NA	NA	NA	2	Aransas Pass	2	2	18	1	2	25
Bird Scare Guns (24)	NA	NA	NA	2	Vermilion	2	2	8	1	2	15
Bird Scare Guns (24)	NA	NA	NA	2	Leeville	2	2	4.5	1	2	11.5

Response Asset	Total (bbls)
Offshore EDRC	473,994
Offshore Recovered Oil Storage	952,996+
Nearshore / Shallow Water EDRC	280,606
Nearshore / Shallow Water Recovered Oil Storage	410,837+

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 National Data Buoy Center website.

B) INCIDENTAL TAKES

There is no reason to believe that any of the endangered species or marine mammals as listed in the ESA will be "taken" as a result of the operations proposed under this plan.To date, it has been documented that the use of explosives and/or seismic devices can affect marine life. Operations proposed in this plan will not be utilizing either of these devices. Operations in this plan will also not be utilizing pile driving. The pipeline proposed in this plan will not be making landfall.

Talos Energy will adhere to the requirements as set forth in the following Notices to Lessees and guidelines, as applicable, to avoid or minimize impacts to any of the species listed in the ESA as a result of the operations conducted herein:

- NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination"
- BOEM NTL 2016-G01 "Vessel Strike Avoidance and Injured/ Dead Protected Species Reporting"
- BOEM NTL 2016-G02 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program"

2020 Biological Opinion:

- Appendix A: Seismic Survey Mitigation and Protected Species Observer Protocols, found in the Biological Opinion issued by the NAtional Marine Fisheries Service on March 13, 2020
- Appendix B: Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020
- Appendix C: Gulf of Mexico Vessel STrike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020
- Appendix J: Sea Turtle Handling and Resuscitation Guidelines, found in the Biological Opinion issued by the National Marine Fisheries Services on March 13, 2020

C) FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein 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

A) Lease stipulations are developed and implemented on a sale by sale basis and are applied to individual leases based on specific instructions in the applicable Final Notice of Sale Package. Stipulations place restrictions and operating requirements on lessees. This may involve protection of environmentally sensitive organisms or communities that exist in the area covered by the lease, conflicts with other uses such as military operations, LNG or sand extraction. The activities proposed herein are subject to the following stipulations attached to the subject lease(s).

As per Lease Sale 257 Final Notice of Sale Stipluations, Stipulation No. 4 applies to the MC 68 and MC 69 Leases. Stipulation No. 4: Protected Species

Lease Stipulation No. 4 is meant to reduce the potential taking of protected threatened and endangered species. Talos Energy will cComply 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 (2020 NMFS BiOp), as amended. This includes mitigation, particularly any appendices to Terms and Conditions applicable to the activity, as well as record-keeping and reporting sufficient to allow BOEM and BSEE to comply with reporting and monitoring requirements under the BiOp; and any additional reporting required by BOEM or BSEE developed as a result of implementation of the 2020 NMFS BiOp and 2021 Amended Incidental Take Statement (ITS) and Revised Appendices.Immediately report all sightings and locations of injured or dead protected species (e.g., marine mammals and sea turtles) to the appropriate hotlines listed at https://www.fisheries.noaa.gov/report (phone numbers vary by state), as required in the 2020 NMFS BiOp and 2021 Revised Appendix C. If oil and gas industry activity is responsible for the injured or dead animal (e.g., injury or death was caused by a vessel strike, entrapment or entanglement), the responsible parties must notify BOEM and BSEE within 24 hours of the strike or entanglement/entrapment by email to protectedspecies@boem.gov and protectedspecies@bsee.gov, respectively.Immediately report all sightings and locations of injured or dead protected species (e.g., marine mammals and sea turtles) to the appropriate hotlines listed at https://www.fisheries.noaa.gov/report (phone numbers vary by state), as required in the 2020 NMFS BiOp and 2021 Revised Appendix C. If oil and gas industry activity is responsible for the injured or dead animal (e.g., injury or death was caused by a vessel strike, entrapment or entanglement), the responsible parties must notify BOEM and BSEE within 24 hours of the strike or entanglement/entrapment by email to protectedspecies@boem.gov and protectedspecies@bsee.gov, respectively.

Unless previously approved by BOEM or BSEE through a plan or permit issuedUnless previously approved by BOEM or BSEE through a plan or permit issued under this lease, notify BOEM at least 15 days prior to any proposed vessel transit of the Bryde's Whale area, and receive prior approval for that transit from BOEM. The Bryde’s whale area, as described in the 2020 NMFS BiOp, includes the area from 100- to 400-meter isobaths from 87.5° W to 27.5° N as described in the status review (Rosel, 2016), plus an additional 10 kilometers around that area. The lessee and its operators, personnel, and subcontractors, while undertaking activities authorized under this lease, must implement and comply with the specific mitigation measures outlined in the following Appendices of the 2020 NMFS BiOp and 2021 Amended ITS and Revised Appendices: • Appendix A: “Seismic Survey Mitigation and Protected Species Observer Protocols” • Appendix B: “Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols” • Appendix C: “Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols” • Appendix I: “Explosive Removal of Structure Measures” • Appendix J: “Sea Turtle Handling and Resuscitation Guidelines” Certain post-lease approvals (e.g., for activities proposing new and unusual technologies, certain seismic surveys) will require a step-down review by NMFS, as provided by the 2020 NMFS BiOp and 2021 Amended ITS, and additional mitigations to protect ESA-listed species may be applied at that time. At the lessee’s option, the lessee, its operators, personnel, and contractors may comply with the most current measures to protect species in place at the time an activity is undertaken under this lease, including but not limited to, new or updated versions of the 2020 NMFS BiOp, the 2021 ITS, and Appendices, or through new or activity-specific consultations. The most current applicable terms and conditions and reasonable and prudent measures from the 2020 NMFS BiOp, 2021 Amended ITS and Appendices or other relevant consultations will be applied to post-lease approvals. The lessee and its operators, personnel, and subcontractors will be required to comply with the mitigation measures identified in the above referenced 2020 NMFS BiOp and 2021 Amended ITS (including the Appendices), and additional measures in the conditions of approvals for their plans or permits.under this lease, notify BOEM at least 15 days prior to any proposed vessel transit of the Bryde's Whale area, and receive prior approval for that transit from BOEM. The Bryde’s whale area, as described in the 2020 NMFS BiOp, includes the area from 100- to 400-meter isobaths from 87.5° W to 27.5° N as described in the status review (Rosel, 2016), plus an additional 10 kilometers around that area. The lessee and its operators, personnel, and subcontractors, while undertaking activities authorized under this lease, must implement and comply with the specific mitigation measures outlined in the following Appendices of the 2020 NMFS BiOp and 2021 Amended ITS and Revised Appendices: • Appendix A: “Seismic Survey Mitigation and Protected Species Observer Protocols” • Appendix B: “Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols” • Appendix C: “Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols” • Appendix I: “Explosive Removal

of Structure Measures" • Appendix J: "Sea Turtle Handling and Resuscitation Guidelines" Certain post-lease approvals (e.g., for activities proposing new and unusual technologies, certain seismic surveys) will require a step-down review by NMFS, as provided by the 2020 NMFS BiOp and 2021 Amended ITS, and additional mitigations to protect ESA-listed species may be applied at that time. At the lessee's option, the lessee, its operators, personnel, and contractors may comply with the most current measures to protect species in place at the time an activity is undertaken under this lease, including but not limited to, new or updated versions of the 2020 NMFS BiOp, the 2021 ITS, and Appendices, or through new or activity-specific consultations. The most current applicable terms and conditions and reasonable and prudent measures from the 2020 NMFS BiOp, 2021 Amended ITS and Appendices or other relevant consultations will be applied to post-lease approvals. The lessee and its operators, personnel, and subcontractors will be required to comply with the mitigation measures identified in the above referenced 2020 NMFS BiOp and 2021 Amended ITS (including the Appendices), and additional measures in the conditions of approvals for their plans or permits.

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 herein as the State of Florida is not an affected State.

B) INCIDENTAL TAKES

Talos Energy 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 operations conducted herein:NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination"BOEM NTL 2016-G01 "Vessel Strike Avoidance and Injured/ Dead Protected Species Reporting"BOEM NTL 2016-G02 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program"Biological Opinion 2020:Appendix A: Seismic Survey Mitigation and Protected Species Observer Protocols, found in the Biological Opinion issued by the NAtional Marine Fisheries Service on March 13, 2020Appendix B: Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020Appendix C: Gulf of Mexico Vessel STrike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols, found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020Appendix J: Sea Turtle Handling and Resuscitation Guidelines, found in the Biological Opinion issued by the National Marine Fisheries Services on March 13, 2020Note: The proposed operations will not utilize a casing hammer to drive pipe. Talos does not propose any new pipelines that will make landfall.

Talos will utilize a Drilling Rig with a typical moonpool that is used in all Deepwater Dynamically Positioned Drillships and Semi-submersibles. The moonpool is located on or about the center of the rig. The moonpool's purpose is to allow access to the water level to drill, complete and workover wells. This also allows access to run the Blowout Preventers, Marine Riser and ancillary equipment to the seafloor. There is no closing mechanism for the moonpool area as it is always open to the sea.

In the extremely rare instance that marine life would get entrapped or entangled by equipment in the moonpool, or by any other equipment on the rig, below are mitigations that will be put in place to protect the marine life in case of an incident:

- Talos will provide a dedicated crew member to survey the moonpool area for marine life while moving any equipment in or out of that area.
- If marine life is detected in the moonpool area, we will cease all operations until it is free and clear.
- Monitor video from the camera(s) that is focused on the moonpool area.
- If endangered marine life is seen in the area, a live video feed can be streamed real-time for additional coverage.
- If marine life is entrapped or entangled, we can safely lower someone into the moonpool to free it.

APPENDIX M
RELATED FACILITIES & OPERATIONS INFORMATION

A) RELATED OCS FACILITIES AND OPERATIONS

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as this is an Exploration Plan.

B) TRANSPORTATION SYSTEM

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as this is an Exploration Plan.

C) PRODUCED LIQUID HYDROCARBONS TRANSPORTATION VESSELS

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as no liquid hydrocarbons will 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	Maximun Fuel Tank Capacity	Maximun Number in Area at Any Time	Trip Frequency or Duration
Helicopter	260 gallons	1	3 trips per week
Crew boats	1,700 bbls	1	4 trips per week
Supply Boat	6,000 bbls	2	3 trips per week
Helicopter	125 gallons	1	Daily

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
320 feet	6,000 bbls	Weekly	Most direct route from shorebase

C) DRILLING FLUID TRANSPORTATION

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

Type of Material	Quantity Being Transported	Transportation Method
SBM	10,000 bbls	Supply Boat

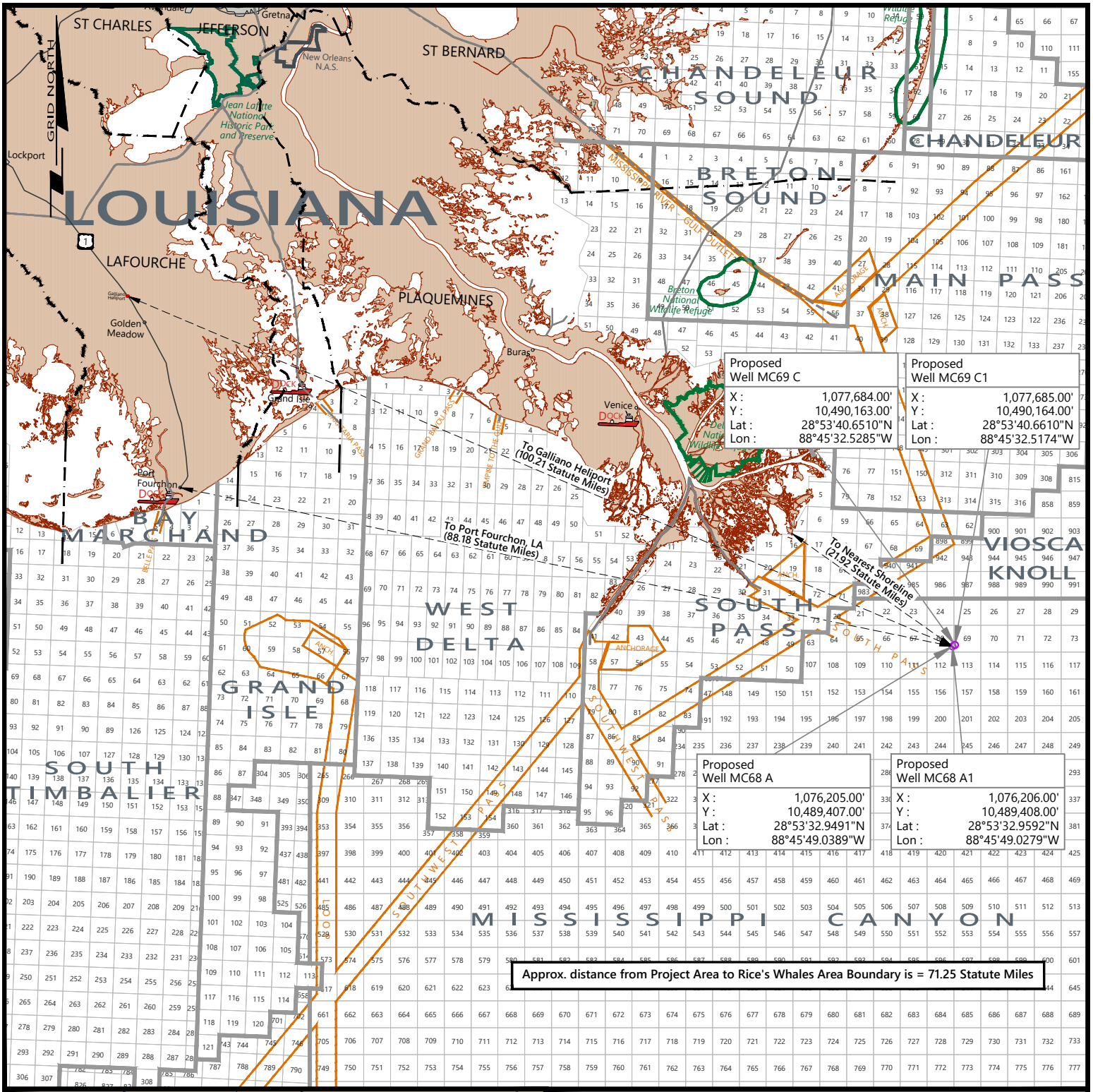
D) SOLID AND LIQUID WASTE TRANSPORTATION

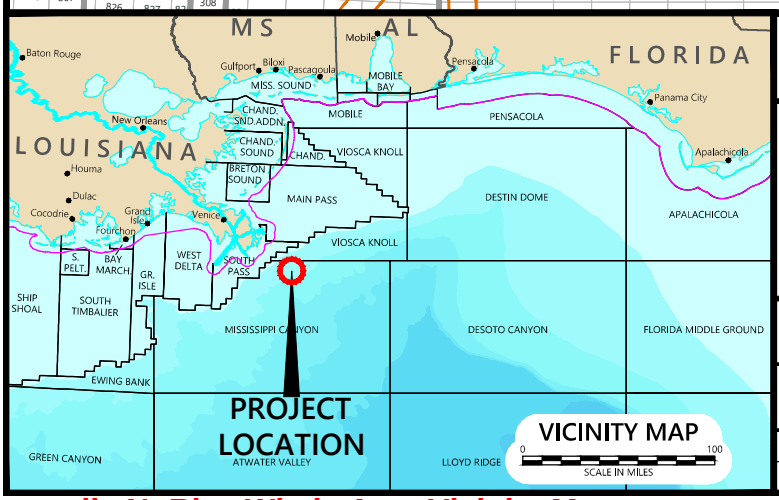
In accordance with BOEM guidance, the required data regarding the solid and liquid waste which will be transported from the site of the activities proposed herein has been incorporated into the Waste & Discharge tables which are included in the attachment(s) to the Waste & Discharge Information appendix.

E) VICINITY MAP

Enclosed as an attachment to this appendix is a vicinity map for the activities proposed herein depicting the location 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.

The vessels, supply boats, etc. utilized for the proposed activities will not transit the Rice/Bryde's whale area.





TALOS ENERGY LLC

VICINITY MAP
PROPOSED WELLS A, A1, C AND C1

BLOCK 68 AND 69
MISSISSIPPI CANYON AREA
GULF OF MEXICO

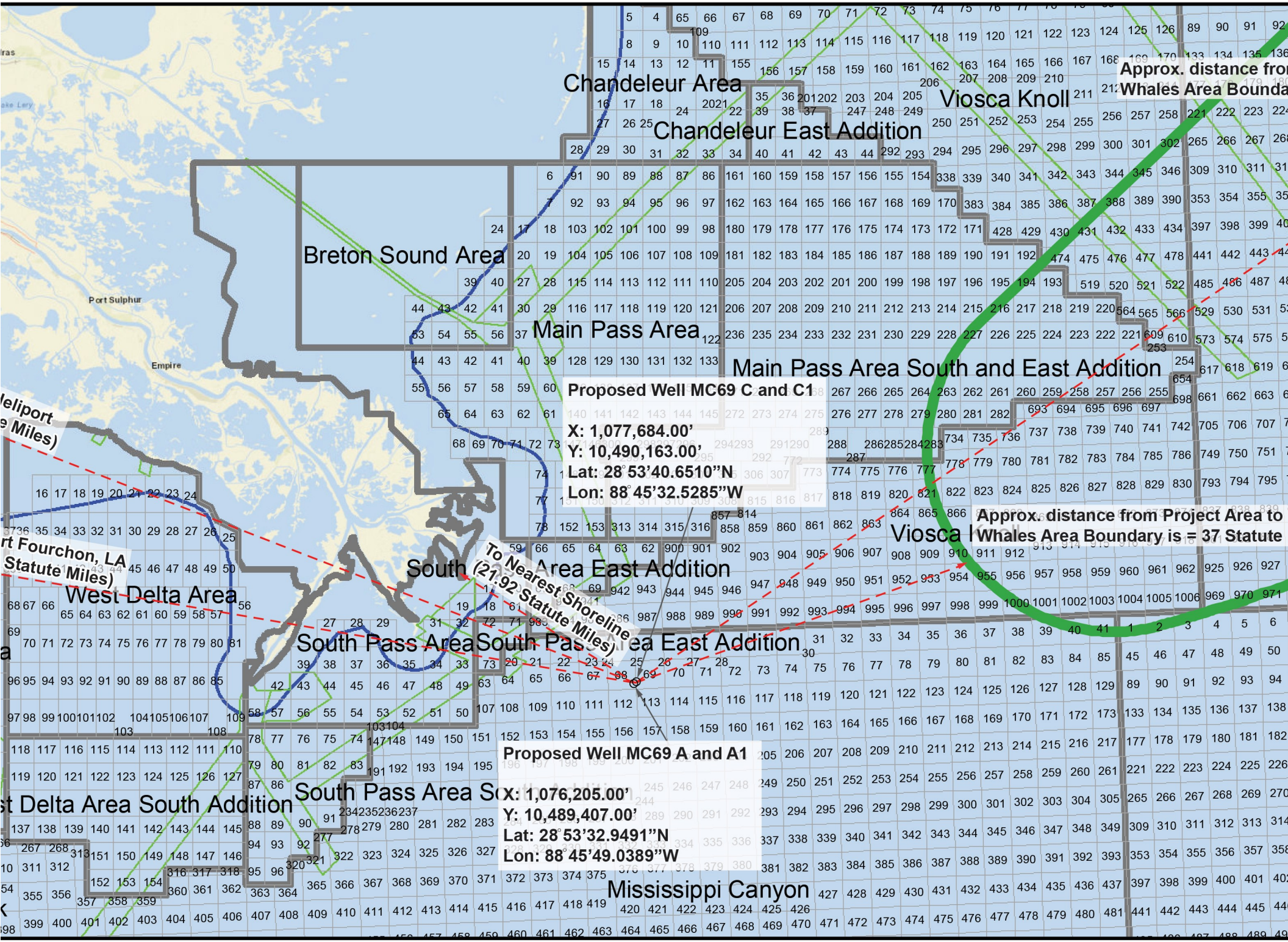
Geodetic Datum: NAD27
Projection: BLM 16 (NORTH)
Grid Units: US SURVEY FEET

SCALE 1:960000
0 80000
FEET

FUGRO USA MARINE, INC.
6100 Hillcroft Ave.
Houston, Texas 77081
(713) 346-3700

Job No.: 23000155	Date: 2/24/2023	Drwn: EA	Chart: 1 Of: 1
DWG File: 23000155_RWA_Vicinity			2/24/2023

Appendix N: Rice Whale Area Vicinity Map



Appendix N: Rice Whale Area Vicinity Map II

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 herein.

Name of Shorebase	Location	Existing/New/Modified
Heliport-RCL Galliano Base	Galliano, LA	Existing
Martin Terminal North	Port Fourchon, LA	Existing

B) SUPPORT BASE CONSTRUCTION OR EXPANSION

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein as Talos Energy will use an existing onshore base facility and will not need to expand or modify those facilities to accomodate the operations proposed herein.

C) SUPPORT BASE CONSTRUCTION OR EXPANSION TIMETABLE

In accordance with NTL 2008-G04, this information is not applicable to the activities proposed herein 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 herein 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 activites proposed herein 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 appliable to the activities proposed herein 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

A) Under the direction of the Coastal Zone Management Act (CZMA), the states of Alabama, Florida, Louisiana, Mississippi, and Texas developed Coastal Zone Management Programs (CZMP) to allow for the supervision of significant land and water use activities that take place within or that could significantly impact their respective coastal zones.

Relevant enforceable policies were considered in certifying consistency for (Louisiana and Mississippi).

A certificate of Coastal Zone Management Consistency for each of the states listed above is enclosed as **Attachment P**.

COASTAL ZONE MANAGEMENT CONSISTENCY CERTIFICATION

INITIAL EXPLORATION PLAN

Mississippi Canyon 162

OCS-G 36880

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

Talos Petroleum LLC
Lessee or Operator

Certifying Official

02/07/2023
Date

The activities proposed in this plan are based in the MC 162 block. As such, Mississippi's water resources should not be impacted by the proposed activities. Activities occurring at the sites in the OCS will be conducted in accordance with the Talos Petroleum LLC Regional Oil Spill Response Plan referenced in Appendix F of this plan.

Goal 6: To preserve the state's historical and archaeological resources, to prevent their destruction, and to enhance these resources wherever possible.

Goal 6 is addressed in Appendix B, General Information, and Appendix H, Environmental Impact Analysis.

Goal 7: To encourage the preservation of natural scenic qualities in the coastal area.

Goal 7 is addressed in Appendix E, Waste Discharges Information, Appendix F, Oil Spill Information, Appendix G, Air Emissions Information, and Appendix H, Environmental Impact Analysis.

Goal 8: To assist local governments in the provision of public facilities services in a manner consistent with the coastal program.

As the proposed activities are located 103 miles from the Mississippi coast and are based out of a shorebase in Port Fourchon, Louisiana, local governments should not be affected.

As authorized by the Federal Coastal Zone Management Act (CZMA), The State of Mississippi developed a Coastal Management Program (CMP) to allow for the review of proposed Federal license and permit activities affecting any coastal use or resources, in or outside of the Mississippi Coastal Zone.

The OCS related oil and gas exploratory and development activities having potential impact on the Mississippi Coastal Zone are based on the location of the proposed facilities, access to those sites, best practical techniques for drilling locations, drilling equipment guidelines for the prevention of adverse environmental effects, effective environmental protection, emergency plans and contingency plans.

Below are goals identified by the State of Mississippi and our comments and/or corresponding cross references:

Mississippi Coastal Program (MCP) Enforceable Policies

Goal 1: To provide for reasonable industrial expansion in the coastal area and to ensure the efficient utilization of waterfront industrial sites so that suitable sites are conserved for water dependent industry.

The activities proposed in this plan are based out of Port Fourchon, Louisiana. The activities will not provide any industrial expansion on the coastal area of Mississippi. Therefore Mississippi coastal areas will be conserved for water dependent industry.

Goal 2: To favor the preservation of the coastal wetlands and ecosystems, except where a specific alteration of specific coastal wetlands would serve a higher public interest in compliance with the public purposes of the public trust in which the coastal wetlands are held.

Goal 2 is addressed in Appendix H, Environmental Impact Analysis. The nearest proposed activities will be 103 miles from the Mississippi coast.

Goal 3: To protect, propagate and conserve the state's seafood and aquatic life in connection with the revitalization of the seafood industry of the State of Mississippi.

Goal 3 is addressed in Appendix H, Environmental Impact Analysis. Little impact to the seafood industry can be expected due to the activities occurring 103 miles from the Mississippi coast.

Goal 4: To conserve the air and waters of the state, and to protect, maintain and improve the quality thereof for public use, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses.

Goal 4 is addressed in Appendix B, General Information, Appendix G, Air Emissions Information, and Appendix H, Environmental Impact Analysis.

Goal 5: To put to beneficial use to the fullest extent of which they are capable the water resources of the state, and to prevent the waste, unreasonable use, or unreasonable method of use of water.

COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION

INITIAL EXPLORATION PLAN

Mississippi Canyon 162

OCS-G 36880

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

Applicant
Lessee or Operator

Certifying Official

2/7/2023
Date

APPENDIX Q
ENVIRONMETAL IMPACT ANALYSIS

A) In accordance with NTL 2008-G04, Talos Energy has included with this plan an Environmental Impact Analysis which addresses the activities proposed herein. A copy of the Environmental Impact Analysis is included as an attachment to this appendix.

Talos Energy Offshore LLC (Talos)

Initial Exploration Plan
Mississippi Canyon Blocks 68 and 69
OCS-G 37200 / OCS-G 37201

(A) Impact Producing Factors

ENVIRONMENTAL IMPACT ANALYSIS WORKSHEET

Environment Resources	Impact Producing Factors (IPFs) Categories and Examples Refer to recent GOM OCS Lease Sale EIS for a more complete list of IPFs					
	Emissions (air, noise, light, etc.)	**Effluents (muds, cutting, other discharges to the water column or seafloor)**	**Physical disturbances to the seafloor (rig or anchor emplacements, etc.)**	**Wastes sent to shore for treatment or disposal**	**Accidents (e.g., oil spills, chemical spills, H_2S releases)**	**Discarded Trash & Debris**
Site-specific at Offshore Location						
Designated topographic features		(1)	(1)		(1)	
Pinnacle Trend area live bottoms		(2)	(2)		(2)	
Eastern Gulf live bottoms		(3)	(3)		(3)	
Benthic communities			(4)			
Water quality		X			X	
Fisheries		X			X	
Marine Mammals	X(8)	X			X(8)	X
Sea Turtles	X(8)	X			X(8)	X
Air quality	X(9)					
Shipwreck sites (known or potential)			(7)			
Prehistoric archaeological sites			(7)			
Vicinity of Offshore Location						
Essential fish habitat		X			X(6)	
Marine and pelagic birds					X	X
Public health and safety					(5)	
Coastal and Onshore						
Beaches					X(6)	X
Wetlands					X(6)	
Shore birds and coastal nesting birds					X6)	
Coastal wildlife refuges						
Wilderness areas						

Attachment Q: Environmental Impact Analysis

Footnotes for Environmental Impact Analysis Matrix

1) Activities that may affect a marine sanctuary or topographic feature. Specifically, if the well or platform site or any anchors will be on the seafloor within the:
   - 4-mile zone of the Flower Garden Banks, or the 3-mile zone of Stetson Bank;
   - 1000-meter, 1-mile or 3-mile zone of any topographic feature (submarine bank) protected by the Topographic Features Stipulation attached to an OCS lease;
   - Essential Fish Habitat (EFH) criteria of 500 feet from any no-activity zone; or
   - Proximity of any submarine bank (500-foot buffer zone) with relief greater than two meters that is not protected by the Topographic Features Stipulation attached to an OCS lease.
2) Activities with any bottom disturbance within an OCS lease block protected through the Live Bottom (Pinnacle Trend) Stipulation attached to an OCS lease.
3) Activities within any Eastern Gulf OCS block where seafloor habitats are protected by the Live Bottom (Low-Relief) Stipulation attached to an OCS lease.
4) Activities on blocks designated by the BOEM as being in water depths 300 meters or greater.
5) Exploration or production activities where H_2S concentrations greater than 500 ppm might be encountered.
6) All activities that could result in an accidental spill of produced liquid hydrocarbons or diesel fuel that you determine would impact these environmental resources. If the proposed action is located a sufficient distance from a resource that no impact would occur, the EIA can note that in a sentence or two.
7) All activities that involve seafloor disturbances, including anchor emplacements, in any OCS block designated by the BOEM as having high probability for the occurrence of shipwrecks or prehistoric sites, including such blocks that will be affected that are adjacent to the lease block in which your planned activity will occur. If the proposed activities are located a sufficient distance from a shipwreck or a prehistoric site that no impact would occur, the EIA can note that in a sentence or two.
8) All activities that you determine might have an adverse effect on endangered or threatened marine mammals or sea turtles or their critical habitats.
9) Production activities that involve transportation of produced fluids to shore using shuttle tankers or barges.

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[1]	--	None	GOM
Whale, Bryde's[4]	*Balaenoptera brydei/edeni*	E	X	--	None	Eastern GOM
Whale, Fin	*Balaenoptera physalus*	E	X[1]	--	None	GOM
Whale, Humpback	*Megaptera novaeangliae*	E	X[1]	--	None	GOM
Whale, North Atlantic Right	*Eubalaena glacialis*	E	X[1]	--	None	GOM
Whale, Rice's[4]	*Balaenoptera ricei*	E	X	--	None	GOM
Whale, Sei	*Balaenopiera borealis*	E	X[1]	--	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

Species	Scientific Name	Status	Potential Presence		Critical Habitat Designated in the Gulf of Mexico	Gulf of Mexico Range
			Lease Area	Coastal		
Knot, Red	*Calidris canutus rufa*	T	-	X	None	Coastal GOM
Stork, Wood	*Mycteria americana*	T	-	X	None	Coastal Alabama and Florida
Reptiles						
Sea Turtle, Green	*Chelonia mydas*	T/E[3]	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 pectinate	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[2]	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 faveolate*	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

1 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.

2 According to the 2017 EIS, Elkhorn Coral, while uncommon, has been found in the Flower Garden Banks. (BOEM 2017-009)

3 Green Sea Turtles are considered threatened throughout the Gulf of Mexico; however, the breeding population off the coast of Florida is considered endangered.

4 The Bryde's whale, also known as the Bryde's whale complex, is a collection of baleen whales that are still being researched to determine if they are the same species or if they are individual species of whales. In 2021, the Rice's whale, formerly known as the Gulf of Mexico Bryde's whale, was determined to be a separate species. There are less than 100 Rice's whales living in the Gulf of Mexico year-round. These whales retain all the protections of the Gulf of Mexico Bryde's whale under the Endangered Species Act while the regulations are being updated to reflect the name change. Other Bryde's whales are migratory and may enter the Gulf of Mexico; however, the migratory Bryde's whales are rare or extralimital in the Gulf of Mexico and are unlikely to be present in the lease area.

(B) Analysis

Site-Specific at Mississippi Canyon Blocks 68 and 69

Proposed operations consist of the drilling, completion, and temporary abandonment of MC 68 #1 Loc A and MC 69 #1 Loc C. Well locations MC 68 #1 Loc A1 Re-spud and MC 69 #1 Loc C1 Re-spud are also included as potential alternative re-spud locations.

The operations will be conducted with a drillship or semi-submersible rig.

1. Designated Topographic Features

Potential IPFs to topographic features as a result of the proposed operations include physical disturbances to the seafloor, effluents, and accidents.

Physical disturbances to the seafloor: Mississippi Canyon Blocks 68 and 69 are 49.8 miles and 52.6 miles, respectively, from the closest designated Topographic Features Stipulation Block (Sackett Bank); therefore, no adverse impacts are expected. Additionally, a drillship or semi-submersible rig is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed.

Effluents: Mississippi Canyon Blocks 68 and 69 are 49.8 miles and 52.6 miles, respectively, from the closest designated Topographic Features Stipulation Block (Sackett Bank); therefore, no adverse impacts are expected.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities (refer to statistics in **Item 5**, Water Quality). Oil spills cause damage to benthic organisms only if the oil contacts the organisms. Oil from a surface spill can be driven into the water column; measurable amounts have been documented down to a 10-meter depth. At this depth, the oil is found only at concentrations several orders of magnitude lower than the amount shown to have an effect on corals. Because the crests of topographic features in the Northern Gulf of Mexico are found below 10 meters, oil from a surface spill is not expected to reach their sessile biota. Oil from a subsurface spill is not applicable due to the distance of these blocks from a topographic area. The activities proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

If dispersants were utilized as a response method, the fate and effects of spilled oil would be impacted. Dispersants have been utilized in previous spill response efforts and were used extensively in the response to the Deepwater Horizon oil spill, with both surface and sub-surface applications. Reports on dispersant usage on surface oil indicate that a majority of the dispersed oil remains in the top 10 meters of the water column, with 60 percent of the oil in the top two meters of water (McAuliffe et al, 1981; Lewis and Aurand, 1997; OCS Report BOEM 2017-007). Lubchenco et al. (2010) report that most chemically dispersed surface oil from the Deepwater

Horizon explosion and oil spill remained in the top six meters of the water column where it mixed with surrounding waters and biodegraded (BOEM 2017-007). None of the topographic features or potentially sensitive biological features in the GOM are shallower than 10 meters (33 feet), and only the Flower Garden Banks are shallower than 20 meters (66 feet).

In one extraordinary circumstance with an unusual combination of meteorological and oceanographic conditions, a tropical storm forced a large volume of Deepwater Horizon oil spill-linked surface oil/dispersant mixture to as deep as 75 meters (246 feet), causing temporary exposure to mesophotic corals in the Pinnacle Trend area and leading to some coral mortality and sublethal impacts (Silva et al., 2015; BOEM 2017-007).

Additionally, concentrations of dispersed and dissolved oil in the Deepwater Horizon oil-spill subsea plume were reported to be in the parts per million range or less and were generally lower away from the water's surface and away from the well head (Adcroft et al., 2010; Haddad and Murawski, 2010; Joint Analysis Group, 2010; Lubchenco et al, 2010; BOEM 2017-007).

In the case of subsurface spills like a blowout or pipeline leak, dispersants may be injected at the seafloor. This will increase oil concentrations near the source but tend to decrease them further afield, especially at the surface. Marine organisms in the lower water column will be exposed to an initial increase of water-soluble oil compounds that will dilute in the water column over time (Lee et al., 2013a; NAS 2020).

Dispersant application involves a trade-off between decreasing the risk to the surface and shoreline habitat and increasing the risk beneath the surface. The optimal trade-off must account for various factors, including the type of oil spilled, the spill volume, the weather and sea state, the water depth, the degree of turbulence, and the relative abundance and life stages of organisms (NRC, 2005; NAS 2020).

Chemical dispersants may increase the risk of toxicity to subsurface organisms by increasing bioavailability of the oil. However, it is important to note that at the 1:20 dispersant-to-oil ratio recommended for use during response operations, the dispersants currently approved for use are far less acutely toxic than oil is. Toxicity of chemically dispersed oil is primarily due to the oil itself and its enhanced bioavailability (Lee et al., 2015; NAS 2020).

With the exception of special Federal management areas or designated exclusion areas, dispersants have been preapproved for surface use, which provides the USCG On-Scene Coordinator with the authority to approve the use of dispersants. However, that approval would only be granted upon completion of the protocols defined in the appropriate Area Contingency Plan (ACP) and the Regional Response Team (RRT) Dispersant Plan. The protocols include conducting an environmental benefit analysis to determine if the dispersant use will prevent a substantial threat to the public health or welfare or minimize serious environmental damage. The Regional Response Team would be notified immediately to provide technical support and guidance in determining if the dispersant use meets the established criteria and provide an environmental benefit.

Additionally, there is currently no preapproval for subsea dispersant injection and the USCG On-Scene Coordinator must approve use of this technology before any subsea application. Due to the unprecedented volume of dispersants applied for an extended period of time, the U.S. National Response Team has developed guidance for atypical dispersant operations to ensure that planning and response activities will be consistent with national policy (BOEM 2017-007).

Dispersants were used extensively in the response to the Deepwater Horizon oil spill, both surface and sub-surface applications. However, during a May 2016 significant oil spill (approximately 1,926 barrels) in the Gulf of Mexico dispersants were not utilized as part of the response. The Regional Response Team was consulted and recommended that dispersants not be used, despite acknowledging the appropriate protocols were correctly followed and that there was a net environmental benefit in utilizing dispersants. This demonstrates that the federal authorities (USCG and RRT) will be extremely prudent in their decision-making regarding dispersant use authorizations.

Due to the distance of these blocks from a topographic area and the coverage of the activities proposed in this plan by Talos's Regional OSRP (refer to information submitted in **Appendix H**), impacts to topographic features from surface or sub-surface oil spills are not expected.

There are no other IPFs (including emissions and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact topographic features.

2. Pinnacle Trend Area Live Bottoms

Potential IPFs to pinnacle trend area live bottoms from the proposed operations include physical disturbances to the seafloor, emissions (noise / sound), effluents, and accidents.

Physical disturbances to the seafloor: Mississippi Canyon Blocks 68 and 69 are 28.7 miles and 26.9 miles, respectively, from the closest live bottom (pinnacle trend) area; therefore, no adverse impacts are expected. Additionally, a drillship or semi-submersible rig 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. Although there is little information available on sound detection and sound-mediated behaviors for marine invertebrates, the overall impacts on pinnacle and low-relief feature communities from anthropogenic noise are expected to be negligible (BOEM 2017-009). Additionally, Mississippi Canyon Blocks 68 and 69 are 28.7 miles and 26.9 miles, respectively, from the closest live bottom (pinnacle trend) area; therefore, no adverse impacts are expected.

Effluents: Mississippi Canyon Blocks 68 and 69 are 28.7 miles and 26.9 miles, respectively, from the closest live bottom (pinnacle trend) area; therefore, no adverse impacts are expected.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities (refer to statistics in **Item 5**, Water Quality). Oil spills have the potential to foul benthic communities and cause lethal and sublethal effects on live bottom organisms. Oil from a surface spill can be driven into the water column; measurable amounts have been documented down to a 10-meter depth. At this depth, the oil is found only at concentrations several orders of magnitude lower than the amount shown to have an effect on marine organisms. Oil from a subsurface spill is not expected to impact pinnacle trend area live bottoms due to the distance of these blocks from a live bottom (pinnacle trend) area and the coverage of the activities proposed in this plan by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

If dispersants were utilized as a response method, the fate and effects of spilled oil would be impacted. A detailed discussion on dispersants, their usage during the Deepwater Horizon oil spill, and their impacts on different levels of benthic communities can be found in **Item 1**.

There are no other IPFs (including wastes sent to shore for treatment or disposal) from the proposed activities that are likely to impact a live bottom (pinnacle trend) area.

3. Eastern Gulf Live Bottoms

Potential IPFs on Eastern Gulf live bottoms from the proposed operations include physical disturbances to the seafloor, emissions (noise / sound), effluents, and accidents.

Physical disturbances to the seafloor: Mississippi Canyon Blocks 68 and 69 are not located in an area characterized by the existence of live bottoms, and this lease does not contain a Live-Bottom Stipulation requiring a photo documentation survey and survey report. Additionally, a drillship or semi-submersible rig 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. Although there is little information available on sound detection and sound-mediated behaviors for marine invertebrates, the overall impacts on pinnacle and low-relief feature communities from anthropogenic noise are expected to be negligible (BOEM 2017-009). Additionally, Mississippi Canyon Blocks 68 and 69 is not located in an area characterized by the existence of live bottoms; therefore, no adverse impacts are expected.

Effluents: Mississippi Canyon Blocks 68 and 69 are not located in an area characterized by the existence of live bottoms; therefore, no adverse impacts are expected.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed activities (refer to statistics in **Item 5**, Water Quality). Oil spills cause damage to live bottom organisms only if the oil contacts the organisms. Oil from a surface spill can be driven into the water column; measurable amounts have been documented down to a 10-meter depth. At this depth, the oil is found only at concentrations several orders of magnitude lower than the amount shown to have an effect on marine invertebrates. Oil from a subsurface spill is not expected to impact Eastern Gulf live bottoms due to the distance of these blocks from a live bottom area and coverage of the activities proposed in this plan by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

If dispersants were utilized as a response method, the fate and effects of spilled oil would be impacted. A detailed discussion on dispersants, their usage during the Deepwater Horizon oil spill, and their impacts on different levels of benthic communities can be found in **Item 1**.

There are no other IPFs (including wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact an Eastern Gulf live bottom area.

4. Deepwater Benthic Communities

There are no IPFs (including emissions (noise / sound), physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, and accidents) from the proposed operations that are likely to cause impacts to deepwater benthic communities.

Mississippi Canyon Blocks 68 and 69 are located in water depths of 984 feet (300 meters) or greater. At such depth high-density, deepwater benthic communities may sometimes be found. However, Mississippi Canyon Blocks 68 and 69 are approximately 16.5 miles and 13.6 miles, respectively, from a known deepwater benthic community site (Mississippi Canyon Block 118), listed in NTL 2009-G40. Additionally, a drillship or semi-submersible rig is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed. Due to the distance from the closest known deepwater benthic community and because physical disturbances to the seafloor will be minimized by the use of a drillship or semi-submersible rig, Talos's proposed operations in Mississippi Canyon Blocks 68 and 69 are not likely to impact deepwater benthic communities.

Deepwater benthic communities would potentially be subject to detrimental effects from a catastrophic seafloor blowout due to sediment and oiled sediment from the initial event (BOEM 2017-007). However, this is unlikely due to the distancing requirements described in NTL 2009-G40. Additionally, the potential impacts would be localized due to the directional movement of oil plumes by water currents and the scattered, patchy distribution of sensitive habitats. Although

widely dispersed, biodegraded particles of a passing oil plume might impact patchy habitats, no significant impacts would be expected to the Gulfwide population. Most deepwater benthic communities are expected to experience no impacts from a catastrophic seafloor blowout due to the directional movement of oil plumes by the water currents and their scattered, patchy distribution. Impacts may be expected if a spill were to occur close to a deepwater benthic habitat, however, beyond the localized area of impact particles would become increasingly biodegraded and dispersed. Localized impacts to deepwater benthic organisms would be expected to be mostly sublethal (BOEM 2017-007).

5. Water Quality

Potential IPFs that could result in water quality degradation from the proposed operations in Mississippi Canyon Blocks 68 and 69 include disturbances to the seafloor, effluents, 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 drillship or semi-submersible rig 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: IPFs related to OCS oil- and gas-related accidental events primarily involve drilling fluid spills, chemical 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 barrels, while large chemical spills occurred at an average annual volume of 758 barrels. 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 barrels) 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 barrels), 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 eight billion barrels of oil and spilled 0.062 percent of this oil, or one 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. This results 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 moves into the top six meters 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 an RRT Preapproved Dispersant Use Manual and with any conditions outlined within an 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).

The operations proposed in this plan will be covered by Talos's Regional Oil Spill Response Plan, which discusses potential response actions in more detail (refer to information submitted in **Appendix H**).

There are no other IPFs (including emissions, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact water quality.

6. Fisheries

There are multiple species of fish in the Gulf of Mexico, including the endangered and threatened species listed in **Table 1** at the beginning of this Environmental Impact Assessment. More information regarding the endangered gulf sturgeon (**Item 20.2**), oceanic whitetip shark (**Item 20.3**), and giant manta ray (**Item 20.4**) can be found below. Potential IPFs to fisheries as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 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 drillship or semi-submersible rig 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 fishes 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 fishes 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 fishes 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 fishes 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 fishes and invertebrates are 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 fishes 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 fishes and invertebrate resources. The overall impact to fishes 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 meters 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).

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.

Should an ESA-listed fish (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon) be entrapped, entangled, or injured, personnel should contact the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov) and report all incidents to takereport.nmfsser@noaa.gov. After making the appropriate notifications, Talos may call BSEE at (985) 722-7902 for questions or additional guidance on recovery assistance needs, continued monitoring requirements, and incidental report information which at minimum is detailed below. Additional information may be found at the following website: https://www.fisheries.noaa.gov/report. Any injured or dead protected species should also be reported to takereport.nmfsser@noaa.gov. In addition, if the injury or death was caused by a collision with the operator's vessel, an entrapment within the operator's equipment or vessel (e.g. moon pool), or an entanglement within the operator's equipment, the operator must further notify BOEM and BSEE within 24 hours of the strike or entrapment/entanglement by email to protectedspecies@boem.gov and protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

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 (refer to **Item 5**, Water Quality). 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. The activities proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

There are no other IPFs (including wastes sent to shore for treatment or disposal) from the proposed operations that are likely to cause impacts to fisheries.

7. 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 Rice's whale (née Gulf of Mexico 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 in **Table 1** at the beginning of this Environmental Impact Assessment. More

information regarding the endangered Rice's whale can be found in **Item 20.1** below. Potential IPFs to marine mammals as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 include emissions (noise / sound), effluents, discarded trash and debris, and accidents.

Emissions (noise / sound): Noises from drilling activities, support vessels and helicopters (i.e., non-impulsive 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 meters 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 feet during transit to and from a working area, and at an altitude of about 500 feet 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 Rice'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). See **Item 20.1** for details on the Rice's whale.

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, 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).

Talos 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. Talos 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 Talos 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.

Vessel personnel must report sightings of any injured or dead protected marine mammal species immediately, regardless of whether the injury or death is caused by their vessel, to the NMFS Southeast Marine Mammal Stranding Hotline at (877) WHALE-HELP (877-942-5343). Additional information may be found at the following website: https://www.fisheries.noaa.gov/report. Any injured or dead protected species should also be reported to takereport.nmfsser@noaa.gov. In addition, if the injury or death was caused by a collision with the operator's vessel, an entrapment within the operator's equipment or vessel (e.g. moon pool), or an entanglement within the operator's equipment, the operator must further notify BOEM and BSEE within 24 hours of the strike or entrapment/entanglement by email to protectedspecies@boem.gov and protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

These proposed operations may utilize a moon pool(s) to conduct various subsea activities. Talos's contractor or company representative will provide a dedicated crew member to monitor and continually survey the moon pool area during the operations for marine mammals. If any marine mammal is detected in the moon pool, Talos will cease operations and contact NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov and 985-722-7902 for additional guidance and incident report information. See **Appendix L** for additional details on operations of moon pool(s) and monitoring of moon pool(s) for marine mammals.

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 (refer to **Item 5**, Water Quality). Oil spill response activities may increase vessel traffic in the area, which could impact 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 acute toxicity of oil dispersant chemicals included in Talos's OSRP is considered to be low when compared with the constituents and fractions of crude oils and diesel products. The activities proposed in this plan will be covered by Talos's OSRP (refer to information submitted in accordance with **Appendix H**).

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 operations that are likely to impact marine mammals.

8. 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 in **Table 1** at the beginning of this Environmental Impact Assessment. Additional details regarding the loggerhead sea turtle's critical habitat in the GOM are located in **Item 20.5**. Potential IPFs 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., non-impulsive 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 feet during transit to and from a working area, and at an altitude of about 500 feet 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. The National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion Appendix C 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 sea turtles (Balazs, 1985). The limited amount of marine debris, if any, resulting from the proposed activities is not expected to substantially harm sea turtles. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V, 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).

Talos 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. Talos 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 Talos 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 sea turtles would be unusual events; however, should one occur, death or injury to sea turtles is possible. Contract vessel operators can avoid sea turtles and reduce potential deaths by maintaining a vigilant watch for sea turtles and maintaining a safe distance of 50 meters or greater when they are sighted, with the exception of sea turtles that approach the vessel. Vessel crews should use a reference guide to help identify the five species of sea turtles that may be encountered in the Gulf of Mexico OCS as well as other marine protected species (i.e., Endangered Species Act listed species). 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.

Vessel crews must report sightings of any injured or dead protected sea turtle species immediately, regardless of whether the injury or death is caused by their vessel, to the State Coordinators for the Sea Turtle Stranding and Salvage Network (STSSN) at http://www.sefsc.noaa.gov/species/turtles/stranding_coordinators.htm (phone numbers vary by state). Additional information may be found at the following website: https://www.fisheries.noaa.gov/report. Any injured or dead protected species should also be reported to takereport.nmfsser@noaa.gov. In addition, if the injury or death was caused by a collision with the operator's vessel, an entrapment within the operator's equipment or vessel (e.g. moon pool), or an entanglement within the operator's equipment, the operator must further notify BOEM and BSEE within 24 hours of the strike or entrapment/entanglement by email to protectedspecies@boem.gov and protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

These proposed operations may utilize a moon pool(s) to conduct various subsea activities. Talos's contractor or company representative will provide a dedicated crew member to monitor and continually survey the moon pool area during the operations for sea turtles. If any sea turtle is detected in the moon pool, Talos will cease operations and contact NMFS at nmfs.psoreview@noaa.gov and BSEE at protectedspecies@bsee.gov and 985-722-7902 for additional guidance and incidental report information. The procedures found in Appendix J of the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion will be employed to free entrapped or entangled marine life safely. See **Appendix L** for additional details on operations of moon pool(s) and monitoring of moon pool(s) for sea turtles.

All sea turtle species and their life stages are vulnerable to the harmful effects of oil through direct contact or by fouling of their food. Exposure to oil can be fatal, particularly to juveniles and

hatchlings. However, it is unlikely that an accidental oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). Oil spill response activities may increase vessel traffic in the area, which could add to the possibility of collisions with sea turtles. The activities proposed in this plan will be covered by Talos's Regional Oil Spill Response Plan (refer to information submitted in accordance with **Appendix H**).

The NMFS Office of Protected Resources coordinates agency assessment of the need for response and leads response efforts for spills that may impact sea turtles. If a spill may impact sea turtles, the following NMFS Protected Resources Contacts should be notified, and they will initiate notification of other relevant parties.

- Dr. Brian Stacy at brian.stacy@noaa.gov and 352-283-3370 (cell); or
- Stacy Hargrove at stacy.hargrove@noaa.gov and 305-781-7453 (cell)

There are no other IPFs (including physical disturbances to the seafloor) from the proposed operations that are likely to impact sea turtles.

9. Air Quality

Potential IPFs to air quality as a result of the proposed operations include accidents.

Mississippi Canyon Blocks 68 and 69 are located 45.2 miles and 46.8 miles, respectively, from the Breton Wilderness Area and 22 miles from shore. Applicable emissions data is included in **Appendix G** of the Plan.

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 Mississippi Canyon Blocks 68 and 69 from the coastline.

There are no other IPFs (including effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact air quality.

10. Shipwreck Sites (known or potential)

In accordance with BOEM NTL 2005-G07, Talos will submit an archaeological resource report per 30 CFR 550.194 if directed to do so by the Regional Director. Talos obtained shallow hazard surveys for proposed locations in Mississippi Canyon Blocks 68 and 69, dated October 31, 2022, indicating that there are no shipwrecks present.

Potential IPFs to known or unknown shipwreck sites as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 include physical disturbances to the seafloor and accidents.

Physical disturbances to the seafloor: A drillship or semi-submersible rig is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed. Because physical disturbances to the seafloor will be minimized by the use of a drillship or semi-submersible rig, Talos's proposed operations in Mississippi Canyon Blocks 68 and 69 are not likely to impact shipwreck sites.

Additionally, Mississippi Canyon Blocks 68 and 69 is not located in or adjacent to an OCS block designated by BOEM as having a high probability for occurrence of shipwrecks. Should Talos discover any evidence of a shipwreck, they will immediately halt operations within a 1000-foot radius, report to BOEM within 48 hours, and make every reasonable effort to preserve and protect that cultural resource.

Accidents: An accidental oil spill has the potential to cause some detrimental effects to shipwreck sites if the release were to occur subsea. However, it is unlikely that an accidental oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). The activities proposed in this plan will be covered by Talos's Regional Oil Spill Response Plan (refer to information submitted in accordance with **Appendix H**).

There are no other IPFs (including emissions, effluents, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact shipwreck sites.

11. Prehistoric Archaeological Sites

In accordance with BOEM NTL 2005-G07, Talos will submit an archaeological resource report per 30 CFR 550.194 if directed to do so by the Regional Director. Talos obtained shallow hazard surveys for proposed locations in Mississippi Canyon Blocks 68 and 69, dated October 31, 2022, indicating that there are no prehistoric archaeological sites present.

Potential IPFs to prehistoric archaeological sites as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 include disturbances to the seafloor and accidents. Mississippi Canyon Blocks 68 and 69 are located outside the Archaeological Prehistoric high probability line, therefore, no adverse impacts are expected. Should Talos discover any object of prehistoric archaeological significance, they will immediately halt operations within a 1000-foot radius, report to BOEM within 48 hours, and make every reasonable effort to preserve and protect that cultural resource.

Physical disturbances to the seafloor: A drillship or semi-submersible rig is being used for the proposed activities; therefore, only an insignificant amount of seafloor will be disturbed. Because physical disturbances to the seafloor will be minimized by the use of a drillship or semi-

submersible rig, Talos's proposed operations in Mississippi Canyon Blocks 68 and 69 are not likely to cause impacts to prehistoric archaeological sites.

Accidents: An accidental oil spill has the potential to cause some detrimental effects to prehistoric archaeological sites if the release were to occur subsea. However, it is unlikely that an accidental oil spill would occur from the proposed activities (refer to **Item 5**, Water Quality). The activities proposed in this plan will be covered by Talos's Regional Oil Spill Response Plan (refer to information submitted in accordance with **Appendix H**).

There are no other IPFs (including emissions, effluents, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact prehistoric archeological sites.

Vicinity of Offshore Location

12. Essential Fish Habitat (EFH)

Potential IPFs to EFH as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 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 drillship or semi-submersible rig 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 (refer to **Item 5**, Water Quality). The activities proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

There are no other IPFs (including emissions and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact essential fish habitat.

13. Marine and Pelagic Birds

Potential IPFs to 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 (refer to **Item 5**, Water Quality). 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. The activities proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

Discarded trash and debris: Marine and pelagic birds could become entangled and snared in discarded trash and debris, or ingest small plastic debris, which can cause permanent injuries and death. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V, 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).

Talos 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. Talos 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 Talos management or the designated lease operator management that emphasizes their commitment to waste management in accordance with NTL No. 2015-G03-BSEE. Debris, if any, from these proposed activities will seldom interact with marine and pelagic birds; therefore, the effects will be negligible.

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, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact marine and pelagic birds.

14. Public Health and Safety Due to Accidents.

There are no IPFs (including emissions, effluents, physical disturbances to the seafloor, wastes sent to shore for treatment or disposal, and accidents, including an accidental H_2S release) from the proposed activities that are likely to impact public health and safety. In accordance with NTL No.'s 2008-G04, 2009-G27, and 2009-G31, sufficient information is included in **Appendix D** to justify our request that our proposed operations be classified by BSEE as H_2S absent.

Coastal and Onshore

15. Beaches

Potential IPFs to beaches from the proposed operations include accidents and discarded trash and debris.

Accidents: Oil spills contacting beaches would have impacts on the use of recreational beaches and associated resources. Due to the response capabilities that would be implemented, no significant adverse impacts are expected. The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

Discarded trash and debris: Trash on the beach is recognized as a major threat to the enjoyment and use of beaches. 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, 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).

Talos 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. Talos 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 Talos 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 (including emissions, effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact beaches.

16. Wetlands

Salt marshes and seagrass beds fringe the coastal areas of the Gulf of Mexico. Due to the distance from shore (22 miles), accidents and discarded trash and debris represent IPFs to these resources from the proposed operations.

Accidents: Level of impact from an oil spill will depend on oil concentrations contacting vegetation, type of oil spilled, types of vegetation affected, season of the year, pre-existing stress level of the vegetation, soil types, and numerous other factors. Light-oiling impacts will cause plant die-back with recovery within two growing seasons without artificial replanting. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water quality). If a spill were to occur, response capabilities as outlined in Talos's Regional OSRP (refer to information submitted in **Appendix H**) would be implemented.

Discarded trash and 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, 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).

Talos 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. Talos 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 Talos 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 (including emissions, effluents, physical disturbances to the seafloor, or wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact wetlands.

17. Shore Birds and Coastal Nesting Birds

Pass A Loutre WMA (19.4 miles and 22 miles, respectively, from Mississippi Canyon Blocks 68 and 69) is a highly productive habitat for wildlife. Thousands of shore birds use the refuge as a wintering area. Also, wading birds nest on the refuge. The Pass A Loutre WMA provides habitat for colonies of nesting wading birds and seabirds as well as wintering shorebirds and waterfowl. The most abundant nesters are brown pelicans, laughing gulls, and royal, Caspian, and sandwich terns. Potential IPFs to shore birds and coastal nesting birds from the proposed operations include accidents and discarded trash and debris.

Accidents: Oil spills could cause impacts to shore birds and coastal nesting birds. The birds most vulnerable to direct effects of oiling include those species that spend most of their time swimming on and under the sea surface, and often aggregate in dense flocks (Piatt et al., 1990; Vauk et al., 1989). Coastal birds, including shorebirds, waders, marsh birds, and certain waterfowl, may be the hardest hit indirectly through destruction of their feeding habitat and/or food source (Hansen, 198l; Vermeer and Vermeer, 1975). Direct oiling of coastal birds and certain seabirds is usually minor; many of these birds are merely stained as a result of their foraging behaviors. Birds can ingest oil when feeding on contaminated food items or drinking contaminated water.

Oil-spill cleanup operations will result in additional disturbance of coastal birds after a spill. However, it is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water quality). Due to the distance from shore (22 miles), Talos would immediately implement the response capabilities outlined in their Regional OSRP (refer to information submitted in **Appendix H**).

Discarded trash and debris: Shore birds and coastal nesting birds are highly susceptible to entanglement in floating, submerged, and beached marine debris: specifically, plastics. Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V, 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).

Talos 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. Talos will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on vessels and every facility that has 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 Talos 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 (including emissions, effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact shore birds and coastal nesting birds.

18. Coastal Wildlife Refuges

Mississippi Canyon Blocks 68 and 69 are approximately 19.4 miles and 22 miles, respectively, from the Pass A Loutre WMA. Management goals of the Pass A Loutre WMA are waterfowl habitat management, marsh restoration, providing sanctuary for nesting and wintering seabirds, and providing sandy beach habitat for a variety of wildlife species. Potential IPFs to this coastal wildlife refuge from the proposed operations are accidents and discarded trash and debris.

Impacts to shore birds and coastal nesting birds and to the beach are discussed in **Items 15 and 17**. Other wildlife species found on the refuges include nutria, rabbits, raccoons, alligators, and loggerhead turtles. Impacts to loggerhead turtles are discussed in **Item 20.5.**

Accidents: It is unlikely that an oil spill would occur from the proposed activities (refer to **Item 5**, Water quality). Due to the response capabilities that would be implemented, no impacts are expected. The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

Discarded trash and debris: Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V, 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).

Talos 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. Talos will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on vessels and every facility that has 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 Talos 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 (including emissions, effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact coastal wildlife refuges.

19. Wilderness Areas

Potential IPFs to wilderness areas as a result of the proposed operations include accidents and discarded trash and debris.

Accidents: An accidental oil spill from the proposed activities could cause impacts to wilderness areas. However, it is unlikely that an oil spill would occur from the proposed operations (refer to **Item 5**, Water Quality). Due to the distance from the nearest designated Wilderness Area (45.2 and 46.8 miles) and the response capabilities that would be implemented, no significant adverse impacts are expected. The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H).**

Discarded trash and debris: Operators are prohibited from deliberately discharging debris as mandated by MARPOL-Annex V, 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).

Talos 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. Talos will also collect and remove flotsam resulting from activities related to proposed operations.

Informational placards will be posted on vessels and every facility that has 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 Talos 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 (including emissions, effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact wilderness areas.

20. Other Environmental Resources Identified

20.1 – Rice's Whale (née Gulf of Mexico Bryde's Whale)

The Bryde's whale, also known as the Bryde's whale complex, is a collection of baleen whales that are still being researched to determine if they are the same species or if they are individual species of whales. In 2021, the Rice's whale, formerly known as the Gulf of Mexico Bryde's whale, was determined to be a separate species from other Bryde's whales. There are less than 100 Rice's whales living in the Gulf of Mexico year-round. These whales retain all the protections of the Gulf of Mexico Bryde's whale under the Endangered Species Act while the regulations are being updated to reflect the name change.

The Rice's whale (née Gulf of Mexico 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. The Rice's whale area is over 37.6 miles and 34.9 miles, respectively, from the proposed operations. Additionally, vessel traffic associated with the proposed operations will not flow through the Rice's whale area. Therefore, there are no IPFs from the proposed operations that are likely to impact the Rice's whale. Additional information on marine mammals may be found in **Item 7**.

20.2 – 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. Potential IPFs to the Gulf sturgeon from the proposed operations include accidents, emissions (noise / sound), and discarded trash and debris. Additional information on ESA-listed fish may be found in **Item 6**.

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.

Should an ESA-listed fish (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon) be entrapped, entangled, or injured, personnel should contact the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov) and report all incidents to takereport.nmfsser@noaa.gov. After making the appropriate notifications, Talos may call BSEE at (985) 722-7902 for questions or additional guidance on recovery assistance needs, continued monitoring requirements, and incidental report information which at minimum is detailed below. Additional information may be found at the following website: https://www.fisheries.noaa.gov/report. Any injured or dead protected species should also be reported to takereport.nmfsser@noaa.gov. In addition, if the injury or death was caused by a collision with the operator's vessel, an entrapment within the operator's equipment or vessel (e.g. moon pool), or an entanglement within the operator's equipment, the operator must further notify BOEM and BSEE within 24 hours of the strike or entrapment/entanglement by email to protectedspecies@boem.gov and protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

Due to the distance from the nearest identified Gulf sturgeon critical habitat (83.2 and 85 miles) and the response capabilities that would be implemented during a spill, no significant adverse impacts are expected to the Gulf sturgeon. Considering the information from the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, the location of this critical habitat in relation to proposed operations, the likely dilution of oil reaching nearshore areas, and the on-going weathering and dispersal of oil over time, we do not anticipate the effects from oil spills will appreciably diminish the value of Gulf sturgeon designated critical habitat for the conservation of the species. The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H)**.

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: Trash and debris are not expected to impact the Gulf sturgeon. 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, 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).

Talos 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. Talos 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 Talos 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 (including effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact the Gulf sturgeon.

20.3 – 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 as threatened 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. Potential IPFs to oceanic whitetip sharks as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 include accidents. Additional information on ESA-listed fish may be found in **Item 6**.

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.

Should an ESA-listed fish (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon) be entrapped, entangled, or injured, personnel should contact the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov) and report all incidents to takereport.nmfsser@noaa.gov. After making the appropriate notifications, Talos may call BSEE at (985) 722-7902 for questions or additional guidance on recovery assistance needs, continued monitoring requirements, and incidental report information which at minimum is detailed below. Additional information may be found at the following website: https://www.fisheries.noaa.gov/report. Any injured or dead protected species should also be reported to takereport.nmfsser@noaa.gov. In addition, if the injury or death was caused by a collision with the operator's vessel, an entrapment within the operator's equipment or vessel (e.g. moon pool), or an entanglement within the operator's equipment, the operator must further notify BOEM and BSEE within 24 hours of the strike or entrapment/entanglement by email to protectedspecies@boem.gov and protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

There is little information available on the impacts of oil spills or dispersants on oceanic whitetip sharks. It is expected that exposure of oil or dispersants to oceanic whitetip sharks would likely result in effects similar to other marine species, including fitness reduction and the possibility of mortality (NMFS, 2020). Due to the sparse population in the Gulf of Mexico, it is possible that a small number of oceanic whitetip sharks could be impacted by an oil spill. However, it is unlikely that such an event would occur from the proposed activities (refer to **Item 5**, Water Quality). The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

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, 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).

Talos 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. Talos 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 Talos 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 IPFs (including effluents, physical disturbances to the seafloor, and wastes sent to shore for treatment or disposal) from the proposed operations that are likely to impact oceanic whitetip sharks.

20.4 – 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 as threatened 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. Potential IPFs to giant manta rays as a result of the proposed operations in Mississippi Canyon Blocks 68 and 69 include accidents. Additional information on ESA-listed fish may be found in **Item 6**.

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.

Should an ESA-listed fish (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon) be entrapped, entangled, or injured, personnel should contact the ESA Section 7 biologist at (301) 427-8413 (nmfs.psoreview@noaa.gov) and report all incidents to takereport.nmfsser@noaa.gov. After making the appropriate notifications, Talos may call BSEE at (985) 722-7902 for questions or additional guidance on recovery assistance needs, continued monitoring requirements, and incidental report information which at minimum is detailed below. Additional information may be found at the following website: https://www.fisheries.noaa.gov/report. Any injured or dead protected species should also be reported to takereport.nmfsser@noaa.gov. In addition, if the injury or death was caused by a collision with the operator's vessel, an entrapment within the operator's equipment or vessel (e.g. moon pool), or an entanglement within the operator's equipment, the operator must further notify BOEM and BSEE within 24 hours of the strike or entrapment/entanglement by email to protectedspecies@boem.gov and protectedspecies@bsee.gov. If the vessel is the responsible party, it is required to remain available to assist the respective salvage and stranding network as needed.

There is little information available on the impacts of oil spills or dispersants on giant manta rays. It is expected that exposure of oil or dispersants to giant manta rays would likely result in effects similar to other marine species, including fitness reduction and the possibility of mortality (NMFS, 2020). It is possible that a small number of giant manta rays could be impacted by an oil spill in the Gulf of Mexico. However, due to the distance to the Flower Garden Banks (201.8 miles and 204.7 miles, respectively), the low population dispersed throughout the Gulf of Mexico, and the response capabilities that would be implemented during a spill, no significant adverse impacts are expected to impact giant manta rays. Additionally, it is unlikely that such an event would occur from the proposed activities (refer to **Item 5**, Water Quality). The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

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, 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).

Talos 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. Talos 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 Talos 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 (including effluents, physical disturbances to the seafloor, and wastes sent to shore for disposal) from the proposed operations that are likely to impact giant manta rays.

20.5 – 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.

There are multiple IPFs that may impact loggerhead sea turtles (see **Item 8**). However, the closest loggerhead critical habitat is located 91.9 miles and 90.8 miles, respectively, from Mississippi Canyon Blocks 68 and 69; therefore, no adverse impacts are expected to the critical habitat.

Additionally, considering the information from the National Marine Fisheries Service Endangered Species Act (ESA) Section 7 Biological Opinion, we do not expect proposed operations to affect the ability of *Sargassum* to support adequate prey abundance and cover for loggerhead turtles.

20.6 - 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). Potential IPFs to protected corals from the proposed operations include accidents.

Accidents: It is unlikely that an accidental surface or subsurface spill would occur from the proposed operations (refer to statistics in **Item 5**, Water Quality). Oil spills cause damage to corals only if the oil contacts the organisms. Due to the distance from the Flower Garden Banks (201.8 miles and 204.7 miles) and other critical coral habitats, no adverse impacts are expected. The operations proposed in this plan will be covered by Talos's Regional OSRP (refer to information submitted in **Appendix H**).

There are no other IPFs (including emissions, effluents, physical disturbances to the seafloor, and wastes sent to shore for disposal) from the proposed operations that are likely to impact protected corals.

20.7 - 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 location of Mississippi Canyon Blocks 68 and 69 and the beach mouse critical habitat (above the intertidal zone), there are no IPFs that are likely to impact endangered beach mice.

20.8 - Navigation

The current system of navigation channels around the northern GOM is believed to be generally adequate to accommodate traffic generated by the future Gulfwide OCS Program. As exploration and development activities increase on deepwater leases in the GOM, port channels may need to be expanded to accommodate vessels with deeper drafts and longer ranges. However, current navigation channels will not be changed, and new channels will not be required as a result of the operations proposed in this plan.

(C) IMPACTS ON PROPOSED ACTIVITIES

The site–specific environmental conditions have been taken into account for the proposed activities. No impacts are expected on the proposed operations from site-specific environmental conditions.

(D) ENVIRONMENTAL HAZARDS

During the hurricane season, June through November, the Gulf of Mexico is impacted by an average of ten tropical storms (39-73 mph winds), of which six become hurricanes (> 74 mph winds). Due to their locations in the Gulf, Mississippi Canyon Blocks 68 and 69 may experience hurricane and tropical storm force winds and related sea currents. These factors can adversely impact the integrity of the operations covered by this plan. A significant storm may present physical hazards to operators and vessels, damage exploration or production equipment, or result in the release of hazardous materials (including hydrocarbons). Additionally, the displacement of equipment may disrupt the local benthic habitat and pose a threat to local species.

The following preventative measures included in this plan may be implemented to mitigate these impacts:

1. Drilling & completion
    a. Secure well
    b. Secure rig / platform
    c. Evacuate personnel

Drilling activities will be conducted in accordance with NTL No.'s 2008-G09, 2009-G10, and 2010-N10.

2. Structure Installation
   Operator will not conduct structure installation operations during Tropical Storm or Hurricane threat.

(E) ALTERNATIVES

No alternatives to the proposed operations were considered to reduce environmental impacts.

(F) MITIGATION MEASURES

No mitigation measures other than those required by regulation will be employed to avoid, diminish, or eliminate potential impacts on environmental resources.

(G) CONSULTATION

No agencies or persons were consulted regarding potential impacts associated with the proposed operations. Therefore, a list of such entities has not been provided.

(H) PREPARER(S)

Audrey Montalbano
J. Connor Consulting, Inc.
19219 Katy Freeway, Suite 200
Houston, Texas 77094
281-578-3388
Audrey.Montalbano@jccteam.com

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Although not cited, the following were utilized in preparing this EIA:

- Hazard Surveys

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.

- BOEM Notice to Lessees No. 2016-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"
- BOEM Notice to Lessees No. 2016-G02 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program"
- BOEM Notice to Lessees No. 2016-N01 "Requiring Additional Security"
- BOEM Notice to Lessees No. 2015-N01 "Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS for Worst Case Discharge and Blowout Scenarios"
- Notice to Lessees No. 2015-G03 "Marine Trash and Debris Awareness and Elimination"
- Notice to Lessees No. 2011-G01 (Joint) "Revisions to the List of OCS Lease Blocks Requiring Archaeological Resource Surveys and Reports"
- Notice to Lessees No. 2009-G40 "Deepwater Benthic Communities"
- Notice to Lessees No. 2009-G39 "Biologically-Sensitive Underwater Features and Areas"
- Notice to Lessees No. 2008-G04 "Information Requirements for Exploration Plans and Development Operations Coordination Documents"
- Notice to Lessees No. 2008-G05 "Shallow Hazards Program"
- Notice to Lessees No. 2005-G07 "Archaeological Resource Surveys and Reports"