UNITED STATES GOVERNMENT
MEMORANDUM

August 26, 2019

To: Public Information (MS 5030)

From: Plan Coordinator, FO, Plans Section (MS 5231)

Subject: Public Information copy of plan

Control # - S-07965

Type - Supplemental Development Operations Coordinations Document

Lease(s) - OCS- 00462 Block - 135 South Timbalier Area
OCS- 00498 Block - 128 South Timbalier Area

Operator - Arena Offshore, LP

Description - Wells R005, R006, R007, M - Q

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.

Robert Arpino
Plan Coordinator

Site Type/Name	Botm Lse/Area/Blk	Surface Location	Surf Lse/Area/Blk
FIXED/R		402 FSL, 396 FEL	00498/ST/128
WELL/M	00462/ST/135	400 FSL, 400 FEL	00498/ST/128
WELL/N	00498/ST/128	400 FSL, 400 FEL	00498/ST/128
WELL/O	00498/ST/128	400 FSL, 400 FEL	00498/ST/128
WELL/P	00498/ST/128	400 FSL, 400 FEL	00498/ST/128
WELL/Q	00498/ST/128	400 FSL, 400 FEL	00498/ST/128
WELL/R005	00462/ST/135	420 FSL, 414 FEL	00498/ST/128
WELL/R006	00462/ST/135	414 FSL, 413 FEL	00498/ST/128
WELL/R007	00498/ST/128	412 FSL, 407 FEL	00498/ST/128

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June 27, 2019

U.S. Department of the Interior
Bureau of Ocean Energy Management
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

Attention: Michelle Uli-Picou
Chief, Plans Section

RE: Supplemental Development Operations Coordination Document for South Timbalier Block 128, Lease OCS 00498 (South Timbalier Block 135 Unit Agreement No. 14-08-001-6669), OCS Federal Waters, Gulf of Mexico, Offshore, Louisiana

Ms. Picou:

In accordance with the provisions of Title 30 CFR 550, Subpart B, those certain Notice to Lessees (NTL) 2008-G04 and 2009-G27, Arena Offshore, LP (Arena) hereby submits for your review and approval a Supplemental Development Operations Coordination Document (Plan) for South Timbalier 128, Lease OCS 00498 (South Timbalier Block 135 Unit Agreement No. 14-08-001-6669), Offshore, Louisiana.

Enclosed are two Proprietary Information copies (one hard copy and one CD) and two Public Information copies (one hard copy and one CD) of the Plan.

Included in the original proprietary copy of this Plan is the Pay.Gov receipts totaling $25,428 for the cost recovery fee associated with the proposed activity.

Contingent upon receiving regulatory approvals, Arena is scheduled to commence activities under this Plan by January 01, 2020.

Should you have questions or require additional information, please contact the undersigned at thalverson@arenaoffshore.com or 281-210-0354 or Aimee Deady at aimee@arenaoffshore.com or 281-210-3180.

Sincerely,

Arena Offshore, LP

Teri Halverson
Sr. Regulatory Specialist

:TH

Enclosures

Amendments

Dated	Section	Comments	Amended Pages
07/22/2019	OCS Plans Forms	Corrected lease number by removing prefix "G" on all BOEM-137 Forms	Attachment A

Arena Offshore, LP
4200 Research Forest Drive, Suite 230
The Woodlands, Texas 77381

Joint Supplemental Development Operations Coordination Document

South Timbalier Blocks 128/135
(Leases OCS-G 00498/00462)

Aimee Deady
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June 2019

Public Information

Amendments

Dated	Section	Comments	Amended Pages

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Section 1 - Plan Contents
(30 CFR Part 550.241)

South Timbalier Block 128/135 (Leases OCS-G 00498/00462) was originally acquired by Gulf Oil Corporation with an effective date of December 01, 1954 and a primary term ending date of November 30, 1959. Unit Contract No. 06669 became effective December 16, 1959, with Unit Agreement 891006669 consisting of Leases OCS 461, 462, 464, 465, and 498. The surface location, South Timbalier Block 128 R Platform (Complex ID 20587-1), is an 8 pile, 12 slot structure installed in 1967.

On July 01, 1985 Chevron U.S.A. Inc. merged with Gulf Oil Corporation with the surviving corporation name of Chevron U.S.A. Inc. (Chevron) and 100% record title interest. South Timbalier Blocks 128/135 have been explored and developed over many years by Chevron under many Development Operations Coordination Documents.

Effective August 14, 2017, Chevron designated Arena Offshore, LP (Arena) as operator of Leases OCS-G 00498/00462, with assignment of record title interest transferred to Arena Energy, LP and Arena Offshore, LP.

This proposed Joint Supplemental Development Operations Coordination Document (Plan) provides for the sidetrack drilling, completion, and production of existing Wells No. R005, R006 and R007 and the drilling, completion, and production of well locations M - Q, all from the surface location of Lease OCS-G 00498, South Timbalier Block 128, R Platform (Complex ID No. 20587-1), as described below:

Proposed Well Name	Bottom hole Location	API No.
R005 (ST01BP00)	South Timbalier Block 135	17-715-01061-00
R006 (ST02BP00)	South Timbalier Block 135	17-715-01082-01
Location M	South Timbalier Block 135	Existing slot new drill
R007 (ST04BP00)	South Timbalier Block 128	17-715-40710-03
Location N	South Timbalier Block 128	Existing slot new drill
Location O	South Timbalier Block 128	Existing slot new drill
Location P	South Timbalier Block 128	Existing slot new drill
Location Q	South Timbalier Block 128	Existing slot new drill

The proposed well operations will be conducted by a typical jack-up rig, either White Fleet Drilling 250, 300, or 350 utilizing surface BOP's.

Section 1 - Plan Contents
(30 CFR Part 550.241)

A. Plan Information Form

Included as ***Attachment A*** is Form BOEM 137 "OCS Plan Information Form" which provides information concerning the activities proposed under this Plan.

B. Location

Included as ***Attachment B*** is a location plat detailing the existing surface and proposed bottomhole locations as required by NTL 2008-G04.

A bathymetry map detailing the South Timbalier Block 128, R Platform surface location for the proposed activity was previously provided by Chevron in Plan Control No. U-572 (copy enclosed) ***Attachment C***.

C. Safety and Pollution Prevention Features

Safety of personnel and protection of the environment during the proposed operations is of primary concern with Arena, and mandates regulatory compliance with the contractors and vendors associated with the proposed operations as follows:

The offices of the Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) mandate the operations in this Plan comply with well control, pollution prevention, construction, welding procedures, safety and environmental related issue, et al; as described in various Subparts of Titles 30 CFR Parts 250 and 550; and as further clarified by applicable Notices to Lessees (NTL's). BSEE conducts periodic announced and unannounced onsite inspections of offshore facilities to confirm operators are complying with lease stipulations, operating regulations, approved plans, and other conditions; as well as to assure safety and pollution prevention requirements are being met. The National Potential Incident of Noncompliance (PINC) List serves as the baseline for these inspections.

U. S. Coast Guard regulations contained in Title 33 CFR mandate the appropriate life rafts, life jackets, ring buoys, etc., be maintained on the facility at all times.

U. S. Environmental Protection Agency regulations contained in the NPDES General Permit GMG290000 mandate that supervisory and certain designated personnel on-board the facility be familiar with the effluent limitations and guidelines for overboard discharges into the receiving waters.

Arena's activities in this Plan will comply with the existing regulations and NTL's implemented by the above listed agencies.

D. Storage Tanks and Production Vessels

The following table details the storage tanks and/or production vessels that will store oil (capacity greater than 25 bbls. or more) and be used to support the proposed activities:

Type of Storage Tank	Type of Facility	Tank Capacity (bbls)	Number of Tanks	Total Capacity (bbls)	Fluid Gravity (API)
Fuel Oil	MODU	500	4	2800	No. 2 Diesel
Production	Platform R	NA	NA	NA	NA

E. Pollution Prevention Measures

Additional measures initiated by Arena beyond those measures required by Title 30 CFR Part 250 may include any and/or all of the following:

- A preliminary facility inspection by a contractor to ensure facility meets current regulatory requirements prior to commencement of operations
- Obtain historical performance history of the drill rig and/or production facility (if applicable).

F. Additional Measures

- Obtain historical performance history of the drilling and/or production contractor (if applicable).
- Safety and Environmental Briefings with offshore employee and contractor personnel to facility orientation and briefings on current operations.
- Review of Oil Spill Response Plan to ensure personnel are aware of the initial notifications and reporting requirements.
- Review of EPA NPDES General Permit with applicable personnel to ensure awareness of permit effluent limitations and reporting requirements.
- Pre-Spud and/or Pre-Production Start-Up Meetings with field personnel and contractors to discuss regulatory, environmental issues.
- SEMS Contractor Evaluations
- Safety Orientation Meetings
- Job Safety Analyses
- Management of Change Process

Section 2 - General Information
(30 CFR Part 550.243)

A. Application and Permits

The following Federal/State applications will be submitted for the activities provided for in this Plan exclusive of EPA and COE general permits.

Application/Permit	*Issuing Agency*	*Status*
Application for Permit to Sidetrack	BSEE District	Pending
Applications for Permit to Drill	BSEE District	Pending
Rig Move Reports	USCG and NGA	Pending
Commingling Modification	BSEE Region	Pending

B. Drilling Fluids

Arena plans to use the following drilling fluids for the operations proposed under this Plan:

Drilling Fluid Type	*Estimated Volume of Drilling Fluid to be used Per Well*
Water-based (seawater, freshwater, barite)	2000 bbls
Synthetic-based (internal, olefin, ester)	1300 bbls

C. Production

Arena estimates the combined life of reserves for the proposed development activity as follows:

Hydrocarbon Type	*Peak Production Rate*	*Average Production Rate*	*Life of Reservoir*

D. Oils Characteristics

According to NTL 2008-G04, oil characteristics information is not required for the proposed activities addressed in this Plan.

E. New or Unusual Technology

Arena does not plan or anticipate using any new or unusual technology as defined in Title 30 CFR 250.200 during the proposed activities addressed in this Plan. However, the best available and safest technologies (BAST), as currently referenced in Title 30 CFR Part 250 will be incorporated as a standard operational procedure.

Section 2 - General Information
(30 CFR Part 550.243)

F. Bonding Statement

The general bond requirements for the activities and facilities proposed in this Plan are satisfied by an Areawide Development Bond, furnished and maintained according to Title 30 CFR Part 556, Subpart I; NTL No. 2015-N04, "General Financial Assurance". Additional decommissioning liability assessments are currently under review per the recently issued NTL 2016-N01 "Requiring Additional Security". Arena is currently in the process of reviewing all lease, right of use and easements, and right-of-way pipelines for any associated disputes on ownership issues associated with BOEM's data; as well as decommissioning liability assessments by BSEE. Arena will continue to coordinate and respond to remaining deadlines detailed in this same NTL. Additionally, BOEM has recently changed an internal policy and will no longer require additional security prior to the approval of Exploration and Development Plans; and will assess same at the actual well permitting phase.

G. Oil Spill Financial Responsibility (OSFR)

In accordance with Title 30 CFR Part 553, and NTL 2008-N05, "Guidelines for Oil Spill Financial Responsibility for Covered Facilities", Lease OCS-G 00498, South Timbalier Block 128 is currently covered under Arena Offshore, LP (Company No. 02628) existing Oil Spill Financial Responsibility Certification .

H. Deepwater Well Control Statement

According to NTL 2008-G04, a deepwater well control statement is not required for the activities proposed in this Plan.

I. Suspensions of Production

Arena does not anticipate a need to file a suspension of production for the subject lease since both are maintained by ongoing drilling and/or production operations.

J. Blowout Scenario

Arena has determined that the previously approved worst case discharge submitted in Arena's Plan Control No. S-7627 with a rate of 26,156 BOPD and an anticipated gravity of 27.5°F will still continue to be the Worst Case Discharge for these proposed operations in South Timbalier Blocks 128/135. The wellbore would most likely bridge over in less than 1 day. Arena would immediately activate its Regional Oil Spill Response Plan and Spill Management Team to initiate potential recovery of liquid hydrocarbons on the receiving water and review potential well intervention options. In the event a relief well is initiated, Arena does not anticipate any delays in acquiring a jack-up type rig to conduct the proposed operations. Dependent upon the interval the well was drilled to, and potential interval for bridging over and surface intervention; if required, it could take at least 14 days to mobilize equipment and/or a rig to the field and perform a surface intervention or drill the relief well. Based on well intervention outlined in the potential worse-case discharge scenarios, the potential for drilling a relief well and a rig not being immediately available would be a total of 59 days and a potential of 1,543,204 barrels during that time span.

Case I. ***Bridging Over*** – The sand that will be encountered is unconsolidated. Productive zones require gravel packs for sand control. All offset completions were gravel packed. It is anticipated that the severe drawdown resulting from a loss of well control will result in the hole bridging over in a matter of hours. (Less than 1 day)

Case II. ***Conventional Surface Intervention*** – It is assumed that a loss of well control from the surface will result in mobilizing 3rd party well control equipment to the rig. It is assumed that the BOP's are compromised, that the rig has not caught fire and is capable of supporting well control efforts with the assistance of a support vessel. As an example, the intervention would consist of top killing the well with kill weight mud or possibly replacing BOP's with another set to contain flow from the breached equipment. (Approximately 14 days)

Case III. ***Relief Well Intervention*** – It is assumed that a jack-up rig is immediately available to mobilize to location to commence drilling a relief well. The mobilization and estimated time to drill the relief well is based upon the actual drilling performance of offset wells drilled in this field development. (Approximately 49 days)

Case IV. ***Relief Well Intervention*** – It is assumed that a jack-up rig is not immediately available to mobilize to location to commence drilling a relief well. The estimated mobilization time of a rig to location incorporates the suspension of activities by an Operator before the rig can be released for relief well operations. The time to drill the relief well is based upon the actual drilling performance of offset wells drilled in this field development.

Assess well condition:	2 days
Suspend current operations:	10 days
Mobilize Rig:	2 days
Drill relief well:	45 days
Total:	59 days

Relief Rig Availability:

There are currently 7 rigs currently marketed in the Gulf of Mexico that are capable of drilling an open water relief well in 112' of water to the South Timbalier Block 128, R Platform.

Should the jack-up rig be damaged during the initial loss of well control, there are no offset platforms in the area that would be capable of utilizing a platform rig to reach the bottom hole location of the subject wellbores.

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

Blowout Prevention Measures:

The purpose of this document is to describe measures that Arena will take, above and beyond what is detailed in BSEE Title 30 CFR Part 250, to enhance its ability to prevent a blowout, to reduce the likelihood of a blowout, and conduct effective and early intervention in the event of a blowout on the proposed well locations.

Section 2 - General Information
(30 CFR Part 550.243)

The following measures will be taken in attempt to ensure the proposed well locations are kept under control at all times:

- An Arena onsite representative will witness and review all BOP tests, casing tests and formation integrity tests.
- An Arena Superintendent in the office will review all FIT tests prior to moving forward with drilling operations
- Prior to commencing cementing operations on any casing string, a minimum of 1½ bottoms up will be circulated with drilling mud, so long as full returns are maintained, in order enhance the ability of achieving a successful cement job.
- A liner top packer, in addition to cement, will be utilized in order to ensure the pressure integrity of the liner lap of any liner run in the well.
- All production casing strings will be centralized across hydrocarbon bearing zones in order to ensure the proper isolation of individual pay sands by cementation and to prevent the transmission of hydrocarbons up the annulus behind the production casing.
- The proposed well will be drilled on a mud weight schedule utilizing extensive offset data from offset wells in the field. Proposed drilling mud weights will allow for at a minimum, the known hydrostatic pressures required to drill the known hydrocarbon zones encountered in the original development of the field.
- Lost circulation material in the form of properly distributed particle sized mud additives (PSDs) will be added to the mud system in the form of sweeps while drilling both the intermediate and production hole sections. PSD additives will be utilized to prevent uncontrolled mud losses in the case that lower than anticipated pore pressures or fracture gradients are encountered.
- Wiper trips will be performed as hole conditions dictate in order to quantify the stability of the wellbore and determine if sufficient mud weights are being utilized to prevent influx of formation fluids, prevent swabbing of wellbore fluids while pulling pipe and prevent losses of wellbore fluids to the formation.
- Connections will be simulated while drilling into pressure transition areas in order to properly assess the current wellbore conditions.
- Mudloggers will be utilized during the drilling of the well in order to specifically evaluate wellbore conditions including, but not limited to weights of returning drilling fluids as compared to that of the fluid entering the hole, gas content of mud returns, formation characteristics and abnormalities of cuttings and estimated paleo aging of cuttings.
- Logging while drilling tools (LWD) will be utilized to evaluate and estimate lithology, formation pressures and fluid content from surface casing point to wellbore total depth. This will enable the real time identification of any changes in anticipated formation pressures and assist in the picking of intermediate casing points and wellbore total depth, potentially eliminating the possibility of drilling into unexpected formations that could cause dangerous well control situations. Log data will be regularly provided to the office for evaluation.
- Pressure While Drilling (PWD) data will be utilized to ensure the stability of, and to maintain constant monitoring of hydrostatic pressures applied to, the wellbore.

Blowout Intervention:

In the event of an uncontrolled flow of hydrocarbons Arena's Regional Oil Spill Response Plan (OSRP) as described in this Plan will be activated. In addition to the activation of this Plan, two scenarios of well intervention have been described in the Worst Case Discharge Packet (Plan Control No. S-7627) and current availability of equipment to enact both well intervention scenarios identified:

- Assuming in an uncontrolled flow situation, the MODU is intact and not sufficiently damaged, along with the wellbore and surface equipment, wellbore intervention would be performed from the MODU itself, or a barge mobilized nearby. Master Service Agreements (MSAs) have been established with Cudd Pressure Control and Wild Well Control in order to expedite response in the case of an uncontrolled flow situation. As an example, flow could be controlled from either a "top kill" method or from the removal of the surface BOP stack and subsequent replacement of the stack and the wellbore shut in.
- In the event that the MODU and/or the wellbore is irreparably damaged during a blowout scenario, wellbore intervention would be performed by contracting an additional MODU, mobilizing it to location and the subsequent spudding and drilling of a relief well. Arena currently has in place established contracts with all contractors that operate jack-up rigs in the Gulf of Mexico. Such contracts would be utilized to expedite the contracting of a rig in order to drill a relief well.

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

K. Chemical Products

According to NTL 2008-G04 information regarding products is not required to accompany EP's and DOCD's in the Gulf of Mexico.

Section 3 - Geological & Geophysical Information (30 CFR Part 550.244)

A. Geological Description

Included as ***Attachment D*** are the details of the geological targets and associated trapping features for the proposed well locations.

B. Structure Contour Maps

Included as ***Attachment E*** are current structure maps depicting the proposed bottomhole locations and applicable geological cross sections for the proposed well locations.

C. Interpreted 2-D and/or Seismic Lines

Included as ***Attachment F*** are deep seismic lines depicting the proposed well locations.

D. Geological Structure Cross-Sections

Interpreted geological cross sections depicting the proposed well locations and depths are included ***Attachment G.***

E. Shallow Hazards Report

A "Hazard Study" was performed by John E. Chance and Associates in February 1989 (Plan Control No. S-3836) and a high resolution Geophysical-Archeological Survey was conducted by Fugro Geoservices, Inc. during May, 2004 (Plan Control No. S-6543). The activities proposed in this Plan will be conducted from the existing South Timbalier Block 128, R Platform and therefore does not require an additional shallow hazards survey and report.

F. Shallow Hazards Assessment

The activities proposed in this Plan will be conducted from the existing South Timbalier Block 128, R Platform (Plan Control No. S-3836) and therefore does not require additional shallow hazards assessment.

G. High Resolution Seismic Lines

The activities proposed in this Plan will be conducted from the existing South Timbalier Block 128, R Platform (Plan Control No. S-6543) and therefore does not require additional high resolution seismic lines.

H. Stratigraphic Column

Included as ***Attachment H*** are generalized biostratigraphic/lithostratigraphic columns depicting the proposed well locations from the seafloor to total depth with each objective horizon labeled.

Section 3 - Geological & Geophysical Information (30 CFR Part 550.244)

I. Time vs. Depth Tables

Arena feels there is sufficient well control data for the target sand objectives provided for in this Plan; as such seismic time vs. depth tables are not required.

J. Geochemical Information

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

K. Future G&G Activities

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

Section 4 - Hydrogen Sulfide Information (30 CFR Part 550.245)

A. Concentration

Arena does not anticipate encountering H2S above the 20 ppm atmospheric level while conducting the proposed development operations provided under this Plan as detailed on ***Attachment D.***

B. Classification

In accordance with Title 30 CFR 250.490(c), Arena requests the activities in this Plan for South Timbalier Block 128 and 135 be classified as an area where the absence of hydrogen sulfide has been confirmed based on the following correlative wells which were drilled to the stratigraphic equivalent of the wells proposed in this Plan and detailed on ***Attachment D.***

C. H2S Contingency Plan

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

D. Modeling Report

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

Section 5 - Mineral Resource Conservation Information (30 CFR Part 550.246)

A. Technology and Reservoir Engineering Practices and Procedures

Proprietary Information

B. Technology and Recovery Practices and Procedures

Proprietary Information

C. Reservoir Development

Proprietary Information

Section 6 - Biological, Physical & Socioeconomic Information (30 CFR Part 550.247)

A. High Density Deepwater Benthic Communities Information

NTL 2009-G40 broadened the scope of a chemosynthetic communities report to cover all high density deepwater benthic communities, changed the definition of deepwater from 400 meters (1312 feet) to 300 meters (984 feet), increased the separation distance from muds and cuttings discharge locations from 1500 feet to 200 feet, and provided for an additional 1000 feet buffer area beyond the maximum anchor areas.

The activities proposed in this Plan do not disturb seafloor areas in water depths greater than 300 meters (984 feet); therefore chemosynthetic information is not required.

B. Topographic Features Map

BOEM and the National Marine Fisheries Service (NMFS) have entered into a programmatic consultation agreement for Essential Fish Habitat that requires that no bottom disturbing activities (including rig placement, and rig or construction base use of anchors, chains, cables, and wire ropes) within 305 meters (1000 feet) of a "No-Activity Zone" of a topographic feature.

If such proposed bottom disturbing activities are within 1000 feet of a no activity zone, the BOEM is required to consult with the NMFS.

The activities proposed in this Plan are not affected by a topographic feature.

C. Topographic Features Statement (Shunting)

The activities proposed in this Plan are not affected by a topographic feature; therefore, Arena is not required to shunt drill cuttings and drill fluids.

D. Live Bottoms (Pinnacle Trend) Map

Certain lease are located in areas characterized by the existence of live bottoms. Live bottom (Pinnacle trend features) are small, isolated, low to moderate relief carbonate reef features or outcrops of unknown origin or hard substrates exposed by erosion that provide surface area for the growth of sessile invertebrates and attract large number of fish. Known features occur in an area of topographic relief in the northeastern portion of the western Gulf of Mexico.

This lease would contain a Live Bottom Stipulation to ensure that impacts from nearby oil and gas activities on these live bottom areas are mitigated to the greatest extent possible.

For each affected lease, the Live Bottom Stipulation requires that you prepare a live bottom survey report containing a bathymetry map prepared by using remote sensing techniques. This report must be submitted to the BOEM Gulf of Mexico OCS Region (GOMR) before you may conduct any drilling activities or install any structure, including lease term pipelines in accordance with NTL 2009-G39.

The existing surface location in South Timbalier Block 128 is not located within 200 feet of any pinnacle trend feature with vertical relief equal to or greater than 8 feet; as such live bottom information is not required.

E. Live Bottoms (Low Relief) Map

Certain leases are located in areas characterized by the existence of live bottoms. Live bottom (Low relief features) are sea grass communities; those areas that contain biological assemblages consisting of sessile invertebrates living upon and attached to naturally occurring hard or rocky formations with rough, broken, or smooth topography; and areas where a hard substrate and vertical relief may favor the accumulation of turtles, fishes or other fauna. These features occur in the Eastern Planning Area of the Gulf of Mexico.

The existing surface location in South Timbalier Block 128 is not located within 200 feet of any pinnacle trend feature with vertical relief equal to or greater than 8 feet; as such live bottom (low relief) maps are not required.

F. Potentially Sensitive Biological Features Map

Oil and gas operations and transportation activities in the vicinity of potentially sensitive biological features may cause deleterious impacts to the sessile and pelagic communities associated with those habitats. Adverse impacts to the communities could be caused by mechanical damage from drilling rigs, platforms, pipelines and anchor employment.

The existing surface location in South Timbalier Block 128 is not located within 61 meters (200 feet) of potentially sensitive biological features; as such the biologically sensitive maps are not required.

G. Threatened or Endangered Species, Critical Habitat, and Marine Mammal Information

The BOEM revised Title 30 CFR Part 550, Subpart B to require lessees/operators to address the federally listed species with designated critical habitat as well as marine mammals which may be impacted by the proposed activities addressed under this Plan.

Section 7 of the Endangered Species Act (ESA) all federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat.

Included as ***Attachment I*** is a listing of the species under the jurisdiction of NOAA fisheries that are known to occur in the Gulf of Mexico that may be affected by the proposed action.

Arena does not anticipate that the proposed activities will occur in the presence of federally listed threatened or endangered species and critical habitat designated under the ESA and marine mammals protected under the Marine Mammal Protection Act (MMPA) based on the information is the referenced attachment.

Section 6 - Biological, Physical & Socioeconomic Information (30 CFR Part 550.247)

H. Archaeological Report

In accordance with NTL's 2011-JOINT-G01 and 2005-G07, South Timbalier Blocks 128/135 are located within an area requiring a 300-meter spacing survey.

This requirement provides protection of prehistoric and historic archaeological resources by requiring remote sensing surveys in areas designated to have a high probability for archaeological resources.

Copies of these reports have been previously submitted to the BOEM under separate cover (Plan Control No. S-6543) which provided for the now existing surface location of South Timbalier Block 128 R Platform.

I. Air and Water Quality Information

According to NTL 2008-G04, air and water quality information is not required as the proposed activities provided for in this Plan do not impact the State of Florida.

J. Socioeconomic Information

According to NTL 2008-G04, socioeconomic information is not required as the proposed activities provided for in this Plan do not impact the State of Florida.

Section 7 - Wastes and Discharges Information (30 CFR Part 550.248)

A. Projected Generated Wastes

All projected solid and liquid wastes likely to be generated by our proposed activities are included in ***Attachment J.*** This attachment includes both operational wastes permitted by the appropriate NPDES General Permit GMG290269 and any other identified wastes.

Arena does not plan to treat, store or dispose of any of the above wastes down hole at our existing location.

B. Projected Ocean Discharges

All projected solid and liquid wastes likely to be generated by our proposed activities are included in ***Attachment J,*** This attachment includes both operational wastes permitted by the appropriate NPDES General Permit GMG290269 and any other identified wastes.

C. Modeling Report

According to NTL 2008-G04, a modeling report is not required for the operations proposed in this Plan.

D. NPDES Permits

According to NTL 2008-G04 information regarding NPDES permits is not required to accompany EP's or DOCD's in the Gulf of Mexico.

E. Cooling Water Intakes

According to NTL 2008-G04 information regarding cooling water intakes is not required to accompany EP's or DOCD's in the Gulf of Mexico.

Section 8 - Air Emissions Information
(30 CFR Parts 550.249)

A. Emissions Worksheets and Screening Questions

The Projected Air Quality Emissions Report (Form BOEM-139) addresses the proposed drilling, completion and production activities proposed in this Plan.

As evidenced by ***Attachment K***, the worksheets were completed based on the proposed activities being greater than 25 miles from shore and greater than 200 kilometers of the Breton Wilderness Area.

B. Emissions Reduction Measures

The projected air emissions are within the exemption level; however, Arena utilizes ultra-low sulphur fuel which is considered an emission reduction measure and the factor has been adjusted in the worksheets.

C. Verification of Non-default Emission Factors

Arena has elected to use the default emission factors as provided in ***Attachment K***

D. Non-Exempt Activities

The proposed activities are within the exemption amount as detailed in ***Attachment K***

E. Modeling Report

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

Section 9 - Oil Spills Information
(30 CFR Part 550.250)

A. Oil Spill Response Planning

All the proposed activities and facilities in this Plan will be covered by the Regional Oil Spill Response Plan filed by Arena Offshore, LP (BOEM Company No. 02628) in accordance with Title 30 CFR Part 254 approved on April 11, 2019.

The following locations will be used in the event and oil spill occurs as a result of the proposed activities.

Primary Response Equipment Location	Pre-Planned Staging Location(s)
Leeville, LA; Harvey, LA; Houma, LA	Port Fourchon, LA

Arena utilizes Clean Gulf Associates (CGA) as its primary provider for equipment, which is an industry cooperative owning an inventory of oil spill clean-up equipment. CGA is supported by the Marine Spill Response Corporation's (MSRC), which is responsible for storing, inspecting, maintaining and dispatching CGA's equipment. The MSRC STARS network provides for the closest available personnel, as well as an MSRC supervisor to operate the equipment.

Category	Regional OSRP WCD	DOCD WCD	Regional OSRP WCD	DOCD WCD
Type of Activity	Drilling	Drilling	Production	Production
Lease Number	OCS 00463	OCS 00462/00463	OCS-G 02118	OCS 00498/00462
Facility Location	South Timbalier Block 151	South Timbalier Blocks 135/151	Eugene Island Block 338	South Timbalier Blocks 128/135
Facility Designation	Well Location B	(S-7627) Well Location B	K Platform	R Platform
Distance to Nearest Shoreline (miles)	30	30	75	27
Storage Tanks (total)	0	0	3000	0
Lease Pipelines	NA	NA	NA	274
Uncontrolled Blowout (bbls)	26,156 bbls	26,156 bbls	7,060 bbls	2250 bbls
Total Volume (bbls)	26,156 bbls	26,156 bbls	10,060 bbls	2524 bbls
Type of Oil	Crude Oil	Crude Oil	Crude Oil	Crude Oil
API Gravity	27.5° F	27.5° F	29° F	31° F

Section 9 - Oil Spills Information
(30 CFR Part 550.250)

Since Arena has the capability to respond to the appropriate worst-case spill scenario included in its Regional OSRP, most recently approved biennial update approved April 11, 2019, the worst-case scenarios determined for this Plan does not replace the worst-case scenarios in our Regional OSRP, I hereby certify that Arena has the capability to respond, to the maximum extent practicable, to a worst-case discharge, or a substantial threat of such a discharge, resulting from the activities proposed in our DOCD.

B. Oil Spill Response Discussion

In the event of an uncontrolled spill release resulting from the activities proposed in this Plan, Arena's Person-In-Charge on the platform/rig or the Shorebase Dispatcher would most likely be the initial individuals to contact the Qualified Individual (QI) or our Spill Management Team (SMT) detailed in the Regional OSRP. The QI would immediately activate the SMT to ascertain the severity of the spill incident. Arena's SMT Incident Command Center is located at O'Brien's Response Management, Inc.'s office in Slidell, Louisiana.

Dependent upon the severity of the spill incident, a trajectory analysis would be conducted utilizing the BOEM Oil Spill Risk Analysis Model (OSRAM) as referenced in our approved Regional OSRP. This trajectory would provide the required information on percentage and timing of potential impact to the shoreline impact areas. The SMT would then identify the areas of sensitivities at potential landfall segment(s), so additional planning may be conducted for shoreline protection strategies. If surveillance indicates a potential threat to shoreline; the appropriate equipment and personnel would be deployed, as outlined in our Regional OSRP.

An overflight may be conducted to determine the extent and dissipation rate of the spill, with potential sampling of the spill release. Mechanical recovery equipment may also be dispatched to the leading edge of the spill, as outlined in our Regional OSRP. If additional offshore response is required, the SMT would initiate the Dispersant Use Plan of the Regional OSRP and utilize the services of Airborne Support Inc.'s aircraft and personnel.

C. Modeling Report

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

D. NTL 2015-N01 Worst Case Discharge Data

The required NTL 2015-N01 Worst Case Discharge Data (WCD) that was submitted and approved under Plan Control No. S-7627 for Leases OCS-G 00462/00463, South Timbalier Blocks 135/151 does not supersede the proposed operations in this Plan. The WCD of 26,156 BOPD remains the WCD amongst the two leases South Timbalier Block 128 and South Timbalier Block 135. Therefore, Arena agrees that the WCD volume from S-7627 is still valid for these proposed operations.

Section 10 - Environmental Monitoring Information (30 CFR Part 550.252)

A. Monitoring Systems

Arena subscribes to StormGeo Inc. Weather Service which provides access to real-time weather conditions, and provides periodic updates on impending inclement weather conditions such as tropical depressions, storms and/or hurricanes entering the Gulf of Mexico.

Arena also relies on the National Weather Service to support the aforementioned subscribed service. During impending inclement weather conditions, Arena closely coordinates the activity with our contractors and field personnel to ensure the safety of people for evacuation; measures to prepare the facility for evacuation to ensure protection of the environment and the facility/equipment.

B. Incidental Takes

The BOEM revised regulations in Title 30 CFR Part 550, Subpart B to require lessees/operators to provide for monitoring systems if the activities provided for in this Plan have the potential to result in an incidental take of any federally listed species and/or marine mammals.

Arena does not anticipate the incidental taking of any species as a result of the proposed activities based on the implementation of, and adherence to the BOEM Notice to Lessees NTL 2016-G02 "Implementation of Seismic Mitigation Measures and Protected Species Observer Program", BOEM Notice to Lessees NTL 2016-G01 and BSEE's corresponding Notice to Lessees NTL 2012-BSEE-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"; and BSEE's Notice to Lessees NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination".

Section 11 - Lease Stipulations/Special Conditions Information (30 CFR Part 550.253)

Under the Outer Continental Shelf Lands Act, both BOEM and BSEE are charged with the responsibility of managing and regulating the exploration and development on the OCS.

As part of the regulatory process, an Environmental Impact Statement (EIS) is prepared for each lease sale, at which time mitigation measures are addressed in the form of lease stipulations, which then become part of the oil and gas lease terms and are therefore enforceable as part of that lease.

As part of this process, the designated operator proposing to conduct related exploratory and development activities, must review the applicable lease stipulations, as well as other special conditions, which may be imposed by the BOEM, and other governing agencies.

The existing surface location in South Timbalier Block 128 (Lease OCS 00498) is subject to the following lease stipulations and special conditions:

- **Marine Protected Species**

The BOEM revised regulations in Title 30 CFR Part 550, Subpart B to require lessees/operators to provide for monitoring systems if the activities provided for in this Plan have the potential to result in an incidental take of any federally listed species and/or marine mammals.

Arena does not anticipate the incidental taking of any species as a result of the proposed activities based on the implementation of, and adherence to the BOEM Notice to Lessees NTL 2016-G02 "Implementation of Seismic Mitigation Measures and Protected Species Observer Program", BOEM Notice to Lessees NTL 2016-G01 and BSEE's corresponding Notice to Lessees NTL 2012-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"; and BSEE's Notice to Lessees NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination".

- **Military Warning Area**

The Military Areas Stipulation reduces potential impacts, particularly in regards to safety, but does not reduce or eliminate the actual physical presence of oil and gas operations in areas where military operations are conducted. As detailed in NTL 2014-G04, the existing surface disturbance in South Timbalier Block 128 is not located within a Military Warning Area.

- **Special Conditions**

The proposed surface disturbance activity in South Timbalier Block 128 will not be affected by any special conditions and/or multiple uses, such as designated shipping/anchorage areas, lightering zones, rigs-to-reef zone, and ordnance disposal zones.

Section 12 - Environmental Mitigation Measures Information (30 CFR Part 550.254)

A. Measures Taken to Avoid, Minimize, and Mitigate Impacts

The activities proposed in this Plan do not have an impact on the State of Florida; as such this section is not applicable.

B. Incidental Takes

BOEM revised regulations in Title 30 CFR Part 550, Subpart B to require lessees/operators to provide for monitoring systems if the activities provided for in this Plan have the potential to result in an incidental take of any federally listed species and/or marine mammals.

Arena does not anticipate the incidental taking of any species as a result of the proposed activities based on the implementation of, and adherence to the:

- NTL 2015-G03 "Marine Trash and Debris Awareness Training and Elimination"
- NTL 2016-G01 and NTL 2012-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting".
- NTL 2016-G02 "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program".

Section 13 - Decommissioning Information (30 CFR Part 550.255)

The information at Title 30 CFR Part 550.255 regarding decommissioning is not required to accompany EP's and DOCD's submitted for the Gulf of Mexico.

Section 14 - Related Facilities & Operation Information (30 CFR Part 550.256)

A. Related OCS Facilities and Operations

The existing South Timbalier Block 128 R Platform structure was installed in 1967 in a water depth of 112 feet. The separated gas production from the R Platform will flow to South Timbalier 134 S Platform via an 8-inch pipeline (Segment No. 18187), connecting to 4-inch gas lift pipeline (Segment N0. 19722), then to a 6-inch gas lift SSTI (Segment No. 19721) in South Timbalier 134 with final flow to 10-inch pipeline (Segment No. 11331) in South Timbalier 151 CP Platform for commingling and measurement. Gas production may be delivered from South Timbalier 151 Compressor (CP) platform to shore via the Venice Gathering System (Operations System 35.1/Q00) or on the South Timbalier 151 Production 2 (P-2) platform for delivery to shore via Sea Robin East Pipeline System (Operations System No. 25.0/XE0).

Oil production will flow via an 8-inch pipeline (Segment No. 2148) to a 10-inch SSTI located within South Timbalier 128 (Segment No. 2150) to South Timbalier 151 P-2 Platform for commingling and measurement. Oil production will be delivered to shore via Operations System No. 36.0

B. Transportation System

Arena does not anticipate installation of any new and/or modified onshore facilities to accommodate the additional production from the South Timbalier Block 128 lease.

C. Produced Liquid Hydrocarbon Transportation Vessels

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

Section 15 - Support Vessels and Aircraft Information (30 CFR Part 550.257)

A. General

Personnel involved in the proposed operations will typically use their own vehicles as transportation to and from the selected onshore base; whereas the selected vendors will transport the equipment by a combination of trucks, boats and/or helicopters to the onshore base. The personnel and equipment will then be transported to the platform/rig taking the most direct route feasible as mandated by weather and traffic conditions. The table below provides for the maximum capacities, numbers and trip frequency used during the construction, drilling and production phases:

Type	Maximum Fuel Tank Storage Capacity	Maximum No. in Area at Any Time	Trip Frequency or Duration
Tug Boats	3,000 bbls	2	Mobilization on/off during platform install and drilling
Supply Boats	500 bbls	1	Two trips per week
Crew Boat	500 bbls	1	Five trips per week
Aircraft	330 gals	1	As needed

B. Diesel Oil Supply Vessels

The following table details the vessels to be used for purposes other than fuel (i.e., corrosion control):

Size of Fuel Supply Vessel	Capacity of Fuel Supply Vessel	Frequency of Fuel Transfers	Route Fuel Supply Vessel Will Take
180' feet	1,500 bbls	Weekly	From the shorebase in Port Fourchon, LA to ST 128

C. Drilling Fluids Transportation

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

D. Solid and Liquid Wastes Transportation

Included as ***Attachment J*** is a listing of the solid and liquid wastes associated with the proposed activities in this Plan, detailing the types of waste and approximate composition, total amount, name and location, rate and transport method.

E. Vicinity Map

A Vicinity Plat detailing the surface location in South Timbalier Block 128 relative to the shoreline and onshore base is included as ***Attachment L.***

Section 16 - Onshore Support Facilities Information (30 CFR Part 550.258)

A. General

The existing surface disturbance in South Timbalier Block 128 is located approximately 27 miles from the nearest Louisiana shoreline and approximately 31 miles to the support base located in Port Fourchon, LA. Arena will utilize an existing helipad 53 miles away from Platform R, Bristow, in New Iberia, LA on an as-needed basis.

Arena will utilize the existing Grande Isle Shipyard (GIS) located in Port Fourchon, LA to accomplish the following routine operations:

- Loading/Offloading point for equipment supporting the offshore operations,
- Dispatching personnel and equipment, and does not anticipate the need for any expansion of the selected facilities as a result of the activities proposed in this Plan,
- Temporary storage for materials and equipment
- 24-Hour Dispatcher

B. Support Base Construction or Expansion

The proposed operations do not require any immediate action to acquire additional land or to expand existing base facilities.

C. Support Base Construction or Expansion Timetable

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

D. Waste Disposal

Included as ***Attachment J*** is a listing of waste disposal facilities to be utilized as part of the associated activities in this Plan; detailing the types of waste, amount, rate and disposal method to be sent to shore.

E. Air Emissions

According to NTL 2008-G04 information regarding air emissions generated by onshore support facilities is not required to accompany EP's and DOCD's for the Gulf of Mexico.

F. Unusual Solid and Liquid Wastes

According to NTL 2008-G04 information regarding unusual solid and liquid wastes generated by onshore support facilities is not required to accompany EP's and DOCD's for the Gulf of Mexico.

Section 17 - Sulphur Operations Information (30 CFR Part 550.259)

A. Bleedwater

Arena does not propose any sulphur related operations during the activities proposed in this Plan.

B. Subsidence

Arena does not propose any sulphur related operations during the activities proposed in this Plan.

Section 18 - Coastal Zone Management Information (30 CFR Part 550.260)

Under 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.

A. Consistency Certification

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

B. Other Information

According to NTL 2008-G04, this Section of the Plan is not applicable to the proposed operations.

Section 19 – Environmental Impact Analysis
(30 CFR Part 550.261)

A. Impact Producing Factors (IPF's) From Proposed Activities

The following matrix is utilized to identify the affected environments that could be impacted by these IPF's. An "x" has been marked for each IPF category that Arena has determined may impact a particular environment as a result of the proposed activities. For those cells which are footnoted, a statement is provided as to the applicability of the proposed activities, and where there may be an effect, an analysis of the effect is provided.

Environmental Resources	**Impact Producing Factors (IPFs)**					
	Emissions (air, noise, light, etc.)	**Effluents (muds, cuttings, other discharges to the water column or seafloor)**	**Physical disturbances to the seafloor (rig or anchor placement, etc.)**	**Wastes sent to shore for treatment or disposal**	**Accidents (e.g. oil spills, chemical spills, H_2S release)**	**Other IPFs you identify**
Site Specific at Offshore Location						
Designated topographic features		(1)	(1)		(1)	
Pinnacle Trend area live bottoms		(2)	(2)		(2)	
Eastern Gulf live bottoms		(3)	(3)		(3)	
Chemosynthetic communities			(4)			
Water quality						
Fisheries						
Marine mammals	(8)				(8)	
Sea turtles	(8)				(8)	
Air quality	(9)					
Shipwreck sites (known or potential)			(7)			
Prehistoric archaeological sites			(7)			
Vicinity of Offshore Location						
Essential fish habitat					(6)	
Marine and pelagic birds						
Public health and safety					(5)	

Section 19 – Environmental Impact Analysis
(30 CFR Part 550.261)

Environmental Resources	Impact Producing Factors (IPFs)					
	Emissions (air, noise, light, etc.)	**Effluents (muds, cuttings, other discharges to the water column or seafloor)**	**Physical disturbances to the seafloor (rig or anchor placement, etc.)**	**Wastes sent to shore for treatment or disposal**	**Accidents (e.g. oil spills, chemical spills, H_2S release)**	**Other IPFs you identify**
Coastal & Onshore						
Beaches					(6)	
Wetlands					(6)	
Shorebirds and coastal nesting birds					(6)	
Coastal wildlife refuges						
Wilderness areas						

Section 19 – Environmental Impact Analysis (30 CFR Part 550.261)

Footnotes for Environmental Impact Analysis Matrix

1. Activities that may affect a marine sanctuary or topographic feature. Specifically, if the well or platform site or any anchors will be on the seafloor within the:
   (a) 4-mile zone of the Flower Gardens Banks, or the 3-mile zone of Stetson Bank;
   (b) 1000-m, 1-mile or 3-mile zone of any topographic feature (submarine bank) protected by the Topographic Features Stipulation attached to an OCS lease;
   (c) Essential Fish Habitat (EFH) criteria of 500 ft from any no-activity zone; or
   (d) Proximity of any submarine bank (500 ft buffer zone) with relief greater than 2 meters that is not protected by the Topographic 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 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.

B. Impact Analysis

Site Specific at Offshore Location

- **Designation Topographic Features**

  There are no anticipated emissions, effluents, physical disturbances to the seafloor, wastes transported to shore, and/or accidents from the proposed activities that could cause impacts to topographic features. The surface disturbance within South Timbalier Block 128 is located approximately 24 miles away from the Fishnet Bank. The crests of designated topographic features in the northern Gulf are found below 10 m. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by the currents moving around the bank; thereby avoiding the sessile biota.

- **Pinnacle Trend Area Live Bottoms**

  There are no anticipated emissions, effluents, physical disturbances to the seafloor, wastes sent to shore, and/or accidents from the proposed activities that could cause impacts to a pinnacle trend area. The proposed surface disturbance within South Timbalier Block 128 is located a significant distance (> 100 miles) from the closest pinnacle trend live bottom stipulated block. The crests of the pinnacle trend area are much deeper than 20 m. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by currents moving around the bank; and thus not impacting the pinnacles.

- **Eastern Gulf Live Bottoms**

  There are no anticipated emissions, effluents, emissions physical disturbances to the seafloor, wastes sent to shore, and/or accidents from the proposed activities that could cause impacts to Eastern Gulf live bottoms. The proposed surface disturbance within South Timbalier Block 128 is located a significant distance (>100 miles) from the closest pinnacle Eastern Gulf live bottom stipulated block. In the event of an accidental oil spill from the proposed activities, the gravity of such oil (high gravity condensate and/or diesel fuel) would rise to the surface, quickly dissipate, and/or be swept clear by currents moving around the bank; and would not be expected to cause adverse impacts to Eastern Gulf live bottoms because of the depth of the features and dilutions of spills.

- **Chemosynthetic Communities**

  Water depths at the surface location in South Timbalier Block 128 is approximately 112 feet. Therefore, the proposed activities are not located within the vicinity of any known chemosynthetic communities, which typically occur in water depths greater than 300 meters. Based on the water depth, there are no anticipated emissions, effluents, emissions physical disturbances to seafloor, wastes sent to shore, and/or accidents from the proposed activities that could impact these types of communities.

- **Water Quality**

  Routine operational discharges authorized by EPA's Region VI NPDES General Permit GMG290000 are regulated based on volume discharge rate limitations, and certain testing requirements for oil and grease and toxicity limitations. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

  Accidental oil spill release from the proposed activities, and cumulative similar discharge activity within the vicinity could potentially cause impacts to water quality. It is unlikely that an accidental oil spill release would occur from the proposed activities. In the event of such a release, the water quality would be temporarily affected by the dissolved components and small droplets. Currents and microbial degradation would remove the oil from the water column or dilute the constituents to background levels.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Fisheries**

  Accidental oil spill release from the proposed activities, and cumulative similar discharge activity within the vicinity may potentially cause some detrimental effects on fisheries. It is unlikely a spill would occur; however, such a release in open waters closed to mobile adult finfish or shellfish would likely be sub-lethal and the extent of damage would be reduced to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

  Arena will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

- **Marine Mammals**

As a result of the proposed activities, marine mammals may be adversely impacted by emissions, effluents, waste sent to shore, and/or accidents.

Chronic and sporadic sub-lethal effects could occur that may stress and/or weaken individuals of a local group or population and make them more susceptible to infection from natural or anthropogenic sources. Few lethal effects are expected from accidental oil spill, chance collisions with service vessels and ingestion of plastic material.

The net results of any disturbance would depend on the size and percentage of the population affected, ecological importance of the disturbed area, environmental and biological parameters that influence an animal's sensitivity to disturbance and stress, and the accommodation time in response to prolonged disturbance (Geraci and St. Aubin, 1980). Collisions between cetaceans and ship could cause serious injury or death (Laist et al., 2001).

Sperm whales are one of 11 whale species that are hit commonly by ships (Laist et al., 2001). Collisions between OCS vessels and cetaceans within the project area are expected to be unusual events.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

Arena will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

Additionally, Arena does not anticipate the incidental taking of any marine mammals as a result of the proposed activities. The proposed activities will be conducted by our company and its contractors under the additional criteria addressed by the BOEM Notice to Lessees NTL 2016-G02 "Implementation of Seismic Mitigation Measures and Protected Species Observer Program", BOEM Notice to Lessees NTL 2016-G01 and BSEE's corresponding Notice to Lessees NTL 2012-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"; and BSEE's Notice to Lessees NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination".

- **Sea Turtles**

As a result of the proposed activities, sea turtles may be adversely impacted by emissions, effluents, waste sent to shore, and/or accidents.

Small numbers of turtles could be killed or injured by chance collision with service vessels or by eating indigestible trash, particularly plastic items accidentally lost from drilling rigs, production facilities and service vessels. Drilling rigs and project vessels (construction barges) produce noise that could disrupt normal behavior patterns and create some stress to sea turtles, making them more susceptible to disease. Accidental oil spill release are potential threats which could have lethal effects on turtles. Contact and/or consumption of this released material could seriously affect individual sea turtles. Most OCS related impacts on sea turtles are expected to be sub-lethal. Chronic and/or avoidance of effected areas could cause declines in survival or productivity, resulting in gradual population declines. In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

Arena will conduct the proposed activities under EPA's Region VI NPDES General Permit GMG290000 which authorizes the discharge of certain effluents, subject to certain limitations, prohibitions and recordkeeping requirements. As such, it is not anticipated these discharges will cause significant adverse impacts to water quality.

Additionally, Arena does not anticipate the incidental taking of any sea turtles as a result of the proposed activities. The proposed activities will be conducted by our company and its contractors under the additional criteria addressed by the BOEM Notice to Lessees NTL 2016-G02 "Implementation of Seismic Mitigation Measures and Protected Species Observer Program", BOEM Notice to Lessees NTL 2016-G01 and BSEE's corresponding Notice to Lessees NTL 2012-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"; and BSEE's Notice to Lessees NTL 2015-G03 "Marine Trash and Debris Awareness and Elimination".

- **Air Quality**

The proposed activities are located approximately 27 miles to the nearest Louisiana shoreline. There would be a limited degree of air quality degradation in the immediate vicinity of the proposed activities. Air quality analyses of the proposed activities are below the BOEM exemption level. As such, Arena does not anticipate any IPF's as a result of the proposed activities.

- **Ship Wreck Sites (Known or Potential)**

There are no physical disturbances to the seafloor which could impact known or potential shipwreck sites, as the review of high resolution shallow hazards data indicate there are no known or potential shipwreck sites located within the surveyed area. As such, Arena does not anticipate any IPF's as a result of the proposed activities.

- **Prehistoric Archaeological Sites**

  There are no physical disturbances to the seafloor which could cause impacts to prehistoric archaeological sites, as the review of high resolution shallow hazards data and supporting studies did not reflect the occurrence of prehistoric archaeological sites. As such, Arena does not anticipate any IPF's as a result of the proposed activities.

Vicinity of Offshore Location

- **Essential Fish Habitat**

  As a result of the proposed activities, essential fish habitat may be adversely impacted by effluents and/or accidents.

  An accidental oil spill that may occur as a result of the proposed activities has potential to cause some detrimental effects on essential fish habitat. It is unlikely that an accidental oil spill release would occur; however, if a spill were to occur in close proximity to finfish or shellfish, the effects would likely be sub-lethal and the extent of damage would be reduced to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Marine and Pelagic Birds**

  As a result of the proposed activities, marine and pelagic birds may be adversely impacted by an accidental oil spill, by the birds coming into contact with the released oil. It is unlikely that an accidental oil spill release would occur.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Public Health and Safety**

  There are no anticipated emissions, effluents, wastes sent to shore, and/or accidents from the proposed activities that could cause impacts to the public health and safety. Arena has requested BOEM approval to classify the proposed objective area as absent of hydrogen sulfide.

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Coastal and Onshore

- **Beaches**

  As a result of the proposed activities, beaches may be adversely impacted by an accidental oil spill. However, due to the distance from shore (approximately 27 miles to nearest Louisiana shoreline), and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA BOEM 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Wetlands**

  As a result of the proposed activities, wetlands may be adversely impacted by an accidental oil spill. However, due to the distance from shore (approximately 27 miles to the nearest Louisiana shoreline) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA BOEM 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Shore Birds and Coastal Nesting Birds**

  As a result of the proposed activities, shore birds and coastal nesting birds may be adversely impacted by an accidental oil spill. However, due to the distance from shore (approximately 27 miles to the nearest Louisiana shoreline) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA BOEM 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Coastal Wildlife Refuges**

  As a result of the proposed activities, coastal wildlife refuges may be adversely impacted by an accidental oil spill. However, due to the distance from shore (approximately 27 miles to the nearest Louisiana shoreline) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA BOEM 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

- **Wilderness Areas**

  As a result of the proposed activities, wilderness areas may be adversely impacted by an accidental oil spill. However, due to the distance to the nearest area (approximately 27 miles to the nearest Louisiana shoreline) and the response capabilities that would be implemented, no significant adverse impacts are expected. Both historical spill data and the combined trajectory/risk calculations referenced in the publication of OCS EIA /EA BOEM 2002-052 indicate there is little risk of contact or impact to the coastline and associated environmental resources.

  In the event of an unanticipated blowout resulting in an oil spill, it is unlikely to have an impact based on the industry wide standards for using proven equipment and technology for such responses, implementation of Arena's Regional Oil Spill Response Plan which addresses available equipment and personnel, techniques for containment and recovery, and removal of the oil spill.

Other Resources Identified

Arena has not identified any other environmental resources other than those addressed above.

C. Impacts on Proposed Activities

Arena does not anticipate any impacts on the offshore site specific locations, offshore vicinity, and/or coastal and onshore environmental conditions.

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D. Environmental Hazards

South Timbalier Block 128 is not located within a geographic area impacted by strong environmental phenomena, other than potential hurricanes in the Gulf of Mexico. The permanent structure has been designed to meet the current regulations and design criteria for these hurricane events. To mitigate potential impacts to the facility and/or wells during impending hurricanes, Arena will take precautionary measures to secure the facility, shutting in the wells and evacuating personnel for evacuation as further detailed in our U.S. Coast Guard Emergency Evacuation Plan.

E. Alternatives

There are no alternatives other than those required by regulation to the considered to reduce the environmental impacts of the activities proposed in this Plan.

F. Mitigation Measures

No mitigation measures other than those required by regulations will be considered to avoid, lessen or eliminate potential impacts on environmental resources.

G. Consultation

Arena has not contacted any agencies or persons for consultation regarding potential impacts associated with the proposed activities. Therefore, a list of such entities is not being provided.

H. Preparer

Questions or requests for additional information should be made to Arena's authorized representative/preparer of this Plan:

Teri Halverson
Arena Offshore, LP
4200 Research Forest Drive, Suite 230
The Woodlands, Texas 77381
281-210-3180 (Phone)
thalverson@arenaoffshore.com

Section 19 - Environmental Impact Analysis (30 CFR Part 550.261)

I. References

The following documents were utilized in preparing the Environmental Impact Assessment (though not necessarily cited in the document):

Document	*Author*	*Dated*
Hazards Study	John E. Chance and Associates	1989
OCS EIA/EA BOEM 2002-052	Bureau of Ocean Energy Management	2002
Geophysical / Archeological Survey	Fugro Services	2004
NTL 2005-G07 "Archaeological Resource Surveys and Reports"	Bureau of Ocean Energy Management	2005
Environmental Impact Statement Report No. 2007-003	Bureau of Ocean Energy Management	2007
NTL 2008-G05 "Shallow Hazards Program"	Bureau of Ocean Energy Management	2008
NTL 2009-G04 "Significant OCS Sediment Resources in the Gulf of Mexico	Bureau of Ocean Energy Management	2009
NTL 2009-N11 "Air Quality Jurisdiction on the OCS"	Bureau of Ocean Energy Management	2009
NTL 2009-G26 "U.S. Air Force Communication Towers"	Bureau of Ocean Energy Management	2009
NTL 2009-G27 "Submitting Exploration Plans and Development Operations Coordination Documents"	Bureau of Ocean Energy Management	2009
NTL 2009-G29 "Implementation Plan for Transition from North American Datum 27 to North American Datum 83	Bureau of Ocean Energy Management	2009
NTL 2009-G31 "Hydrogen Sulfide"	Bureau of Safety and Environmental Enforcement	2009
NTL 2009-G34 "Ancillary Activities"	Bureau of Ocean Energy Management	2009
NTL 2009-G40 "Deepwater Benthic Communities"	Bureau of Ocean Energy Management	2009
NTL 2011-G01 "Revision to the List of OCS Lease Blocks Requiring Archaeological Resource Surveys and Reports"	Bureau of Ocean Energy Management and Bureau of Safety and Environmental Enforcement	2011
BSEE NTL 2012-G01 "Marine Trash & Debris Awareness & Elimination"	Bureau of Safety and Environmental Enforcement	2012
NTL 2012-G02 "Implementation of Seismic Mitigation Measures & Protected Species Observer Program"	Bureau of Ocean Energy Management and Bureau of Safety and Environmental Enforcement	2012

Section 19 - Environmental Impact Analysis
(30 CFR Part 550.261)

Document	*Author*	*Dated*
NTL 2012-G01 "Drilling Windows, Eastern Gulf of Mexico"	Bureau of Ocean Energy Management	2012
NTL 2014-G04 "Military Warning and Water Test Areas	Bureau of Ocean Energy Management	2014
NTL 2015-N01 "Information Requirements for Exploration Plans, Development & Production Plans, and Development Operations Coordination Documents on the OCS for Worst Case Discharge and Blowout Scenarios"	Bureau of Ocean Energy Management	2015
NTL 2015-N04 "General Financial Assurance"	Bureau of Ocean Energy Management	2015
NTL 2015-N06 "Procedures and Requirements for Right-of-Use and Easement Requests for Platforms, Artificial Island, Installations and Other Devices Attached to the Seabed"	Bureau of Ocean Energy Management	2015
NTL 2016-N01 – Requiring Additional Security	Bureau of Ocean Energy Management	2016
NTL 2016-G01 "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting"	Bureau of Ocean Energy Management	2016
NPDES General Permit GMG290000	EPA – Region VI	2017
Title 30 CFR Part 250	Bureau of Safety and Environmental Enforcement	2018
Title 30 CRF Part 550	Bureau of Ocean Energy Management	2018
Regional Oil Spill Response Plan	J. Connor Consulting	2019

Section 20 - Administrative Information
(30 CFR Part 550.262)

A. Exempted Information Description (Public Information Copies Only)

Excluded from the Public Information copies are the following:

a. Proposed bottomhole location information
b. Proposed total well depths (measured and true vertical depth)
c. Production Rates and Life of Reserves
d. New and Unusual Technology
e. Mineral Resource Conservation Information
f. Geological and Geophysical Attachments
g. Correlative well information used to justify H2S classification request

B. Bibliography

The following documents were utilized in preparing the Plan:

Document	*Author*	*Dated*
Supplemental Development Operations Coordination Document (Plan Control No. S-3836)	Chevron U.S.A. Inc.	1996
Supplemental Development Operations Coordination Document (Plan Control No. S-6543)	Chevron U.S.A. Inc.	2004
BOEM Environmental Impact Statement Report No. 2007-003	Bureau of Ocean Energy Management	2007
Revised Development Operations Coordination Document (Control No. S-7627)	Arena Offshore, LP	2013
Regional Oil Spill Response Plan	J. Connor Consulting	2019

OCS Plans Form

Attachment A
(Public Information)

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

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

OCS PLAN INFORMATION FORM

General Information

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

Company Name: Arena Offshore, LP	BOEM Operator Number: 02628
Address:	Contact Person: Aimee P. Deady
4200 Research Forest Drive, Suite 230	Phone Number: 281-210-3180
The Woodlands, Texas 77381	E-Mail Address: aimee@arenaoffshore.com

If a service fee is required under 30 CFR 550.125(a), provide the	Amount paid	$25,428	Receipt No.	26ICK8JN/26ICK8T8

Project and Worst Case Discharge (WCD) Information

Lease(s): OCS 00498	Area: ST	Block(s): 128	Project Name (If Applicable):

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

Platform/Well Name: R / R Wells	Total Volume of WCD: 26,156 bbls	API Gravity: 27.5°
Distance to Closest Land (Miles): 27	Volume from uncontrolled blowout: 26,156 bbls	

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	S-7627			
Do you propose to use new or unusual technology to conduct your activities?		Yes	X	No
Do you propose to use a vessel with anchors to install or modify a structure?		Yes	X	No
Do you propose any facility that will serve as a host facility for deepwater subsea development?		Yes	X	No

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

Proposed Activity	Start Date	End Date	No. of Days
Exploration drilling			
Development drilling	01/01/2020	12/31/2023	855 Total Days (554 Total Drilling Days)
Well completion	included in above	included in above	
Well test flaring (for more than 48 hours)			
Installation or modification of structure			
Installation of production facilities			
Installation of subsea wellheads and/or manifolds			
Installation of lease term pipelines			
Commence production	03/01/2020	12/31/2030	10 years
Other (Specify and attach description)			

Description of Drilling Rig

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

Drilling Rig Name (If Known):

Description of Structure

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

Description of Lease Term Pipelines

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

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): Platform R				Previously reviewed under an approved EP or DOCD?	X	Yes	No
Is this an existing well or structure?		Yes X	No	If this is an existing well or structure, list the Complex ID or API No.	20587-1		
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						Yes	X No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): NA			For structures, volume of all storage and pipelines (Bbls): 274 bbls		API Gravity of fluid 31°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F S ___ L 401.72'	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 396.10'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,974.12'	X:	X: X: X:
	Y: 1,909.36'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.5014" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.3745" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112		MD (Feet): / TVD (Feet):	MD (Feet): MD (Feet): MD (Feet): / TVD (Feet): TVD (Feet): TVD (Feet):
Anchor Radius (if applicable) in feet:			

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

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): Location M			Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.		
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						Yes	X No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)		For structures, volume of all storage and pipelines (Bbls): NA			API Gravity of fluid	27.5°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 400.00'	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F_E_ L 400.00'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,970.22'	X:	X: X: X:
	Y: 1,907.64'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.4848" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.4184" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet):	TVD (Feet):	MD (Feet): MD (Feet): MD (Feet):	TVD (Feet): TVD (Feet): TVD (Feet):
Anchor Radius (if applicable) in feet:					

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

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): Location N			Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.		
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						Yes	X	No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)		For structures, volume of all storage and pipelines (Bbls): NA			API Gravity of fluid	27.5°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 400.00'	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F_E_ L 400.00'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,970.22'	X:	X: X: X:
	Y: 1,907.64'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.4848" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.4184" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet):	TVD (Feet):	MD (Feet): MD (Feet): MD (Feet):	TVD (Feet): TVD (Feet): TVD (Feet):
Anchor Radius (if applicable) in feet:					

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

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): Location O			Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.		
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						Yes	X No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)		For structures, volume of all storage and pipelines (Bbls): NA			API Gravity of fluid	27.5°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 400.00'	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F_E_ L 400.00'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,970.22'	X:	X: X: X:
	Y: 1,907.64'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.4848" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.4184" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet):	TVD (Feet):	MD (Feet): MD (Feet): MD (Feet):	TVD (Feet): TVD (Feet): TVD (Feet):
Anchor Radius (if applicable) in feet:					

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

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): Location P			Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.		
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						Yes	X No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)		For structures, volume of all storage and pipelines (Bbls): NA			API Gravity of fluid	27.5°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 400.00'	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F_E_ L 400.00'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,970.22'	X:	X: X: X:
	Y: 1,907.64'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.4848" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.4184" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:			

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

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): Location Q			Previously reviewed under an approved EP or DOCD?		Yes	X	No
Is this an existing well or structure?		Yes		No X	If this is an existing well or structure, list the Complex ID or API No.		
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?						Yes	X No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)		For structures, volume of all storage and pipelines (Bbls): NA			API Gravity of fluid	27.5°

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 400.00'	N/S Departure: F____ L	N/S Departure: F____ L N/S Departure: F____ L N/S Departure: F____ L
	E/W Departure: F_E_ L 400.00'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,970.22'	X:	X: X: X:
	Y: 1,907.64'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.4848" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.4184" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet):	TVD (Feet):	MD (Feet): MD (Feet): MD (Feet):	TVD (Feet): TVD (Feet): TVD (Feet):
Anchor Radius (if applicable) in feet:					

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

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

OCS PLAN INFORMATION FORM (CONTINUED)

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): R005 (ST00BP00)		Previously reviewed under an approved EP or DOCD?	X Yes		No
Is this an existing well or structure?	Yes X	No	If this is an existing well or structure, list the Complex ID or API No.	17-715-01061-00	
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?		Yes	X	No	
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)	For structures, volume of all storage and pipelines (Bbls): NA	API Gravity of fluid	27.5°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498 (R005 ST01BP00)	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 419.77'	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 414.34'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,955.88'	X:	X: X: X:
	Y: 1,927.41'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.6818" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.5772" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:			

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

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

OCS PLAN INFORMATION FORM (CONTINUED)

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): R006 (ST01BP00)	Previously reviewed under an approved EP or DOCD?	X	Yes		No
Is this an existing well or structure?	Yes X	No	If this is an existing well or structure, list the Complex ID or API No.	17-715-01082-01	
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?		Yes	X	No	
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)	For structures, volume of all storage and pipelines (Bbls): NA	API Gravity of fluid	27.5°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498 (R006 ST02BP00)	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 414.43'	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 413.00'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,957.22'	X:	X: X: X:
	Y: 1,922.07'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.6289" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.5628" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:			

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

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

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

Proposed Well/Structure Location

Well or Structure Name/Number (If renaming well or structure, reference previous name): R007 (ST03BP00)		Previously reviewed under an approved EP or DOCD?	X Yes		No
Is this an existing well or structure?	Yes X	No	If this is an existing well or structure, list the Complex ID or API No.	17-715-40710-03	
Do you plan to use a subsea BOP or a surface BOP on a floating facility to conduct your proposed activities?			Yes	X	No
WCD info	For wells, volume of uncontrolled blowout (Bbls/day): 26,156 bbls (S-7627)	For structures, volume of all storage and pipelines (Bbls): NA	API Gravity of fluid	27.5°	

	Surface Location	**Bottom-Hole Location (For Wells)**	**Completion (For multiple completions, enter separate lines)**
Lease No.	OCS 00498 (R006 ST02BP00)	OCS	OCS OCS
Area Name	South Timbalier		
Block No.	128		
Blockline Departures (in feet)	N/S Departure: F_S_ L 411.45'	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 407.10'	E/W Departure: F____ L	E/W Departure: F____ L E/W Departure: F____ L E/W Departure: F____ L
Lambert X-Y coordinates	X: 2,348,963.12'	X:	X: X: X:
	Y: 1,919.09'	Y:	Y: Y: Y:
Latitude/ Longitude	Latitude 28° 40' 02.5988" N	Latitude	Latitude Latitude Latitude
	Longitude 90° 14' 43.4969" W	Longitude	Longitude Longitude Longitude
Water Depth (Feet): 112'		MD (Feet): / TVD (Feet):	MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet): MD (Feet): / TVD (Feet):
Anchor Radius (if applicable) in feet:			

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 =	

Well Location Plat

Attachment B
(Public Information)

ST128
OCS- 00498
Arena

ST129
OCS- 00465
Arena

GRID NORTH

PROPOSED LOCATIONS NAD27 LOUISIANA SOUTH									
LOCATION	CALLNS	CALLEW	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE	WD	TVD	MD
Structure R	401.72' FSL	396.10' FEL	2,348,974.12'	1,909.36'	28°40'02.5014"N	90°14'43.3745"W	112'		
R5 Surf. Slot F	419.77' FSL	414.34' FEL	2,348,955.88'	1,927.41'	28°40'02.6818"N	90°14'43.5772"W	112'		
R6 Surf. Slot G	414.43' FSL	413.00' FEL	2,348,957.22'	1,922.07'	28°40'02.6289"N	90°14'43.5628"W	112'		
R7 Surf. Slot L	411.45' FSL	407.10' FEL	2,348,963.12'	1,919.09'	28°40'02.5988"N	90°14'43.4969"W	112'		
Slot M	400.00' FSL	400.00' FEL	2,348,970.22'	1,907.64'	28°40'02.4848"N	90°14'43.4184"W	112'		
Slot N	400.00' FSL	400.00' FEL	2,348,970.22'	1,907.64'	28°40'02.4848"N	90°14'43.4184"W	112'		
Slot O	400.00' FSL	400.00' FEL	2,348,970.22'	1,907.64'	28°40'02.4848"N	90°14'43.4184"W	112'		
Slot P	400.00' FSL	400.00' FEL	2,348,970.22'	1,907.64'	28°40'02.4848"N	90°14'43.4184"W	112'		
Slot Q	400.00' FSL	400.00' FEL	2,348,970.22'	1,907.64'	28°40'02.4848"N	90°14'43.4184"W	112'		

ST135
OCS- 00462
Arena

ST134
OCS- 00461
Arena

ARENA OFFSHORE

DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

OCS-00498 / OCS-00462 BLOCK 128 AND 135
SOUTH TIMBALIER AREA
GULF OF MEXICO

Geodetic Datum: NAD27
Projection: LOUISIANA SOUTH
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.: 19010286 | Date: 3/28/2019 | Drwn: EA | Chart: 1 Of: 1

DWG File: 19010286_ST128_R_DOCD_OCS-00498-00462

3/29/2019

PUBLIC INFORMATION

Bathymetry Map

Attachment C
(Proprietary Information)

Geological Description

Attachment D
(Proprietary Information)

Structure Contour Maps

Attachment E
(Proprietary Information)

Interpreted 2D and/or Deep Seismic Lines

Attachment F
(Proprietary Information)

Geological Structure Cross-Sections

Attachment G
(Proprietary Information)

Stratigraphic Column

Attachment H
(Proprietary Information)

NOAA Endangered Species List

Attachment I
(Public Information)

NOAA FISHERIES
Southeast Region
Protected Resources Division

Gulf of Mexico's Threatened and Endangered Species

For more information on listed species please visit:
http://www.nmfs.noaa.gov/pr/species/esa/listed.htm
http://sero.nmfs.noaa.gov/protected_resources/index.html

Marine Mammal Species	Scientific Name	Status
fin whale	*Balaenoptera physalus*	Endangered
sei whale	*Balaenoptera borealis*	Endangered
sperm whale	*Physeter macrocephalus*	Endangered
Gulf of Mexico Bryde's whale	*Balaenoptera edeni - subspecies*	Proposed - Endangered
Sea Turtle Species		
green sea turtle	*Chelonia mydas*	Threatened[1]
hawksbill sea turtle	*Eretmochelys imbricata*	Endangered
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered
leatherback sea turtle	*Dermochelys coriacea*	Endangered
loggerhead sea turtle	*Caretta caretta*	Threatened[2]
Fish Species		
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	Threatened
Nassau grouper	*Epinephelus striatus*	Threatened
smalltooth sawfish	*Pristis pectinata*	Endangered[3]
oceanic whitetip shark	*Carcharhinus longimanus*	Threatened
giant manta ray	*Manta birostris*	Threatened
Invertebrate Species		
rough cactus coral	*Mycetophyllia ferox*	Threatened[4]
pillar coral	*Dendrogyra cylindrus*	Threatened[4]
lobed star coral	*Orbicella annularis*	Threatened
mountainous star coral	*Orbicella faveolata*	Threatened
boulder star coral	*Orbicella franksi*	Threatened
staghorn coral	*Acropora cervicornis*	Threatened[4]
elkhorn coral	*Acropora palmata*	Threatened[5]

[1] North Atlantic and South Atlantic Distinct Population Segments.
[2] Northwest Atlantic Distinct Population Segment.
[3] U.S. Distinct Population Segment
[4] Colonies located at Dry Tortugas National Park.
[5] Colonies located at Flower Garden Banks National Marine Sanctuary and Dry Tortugas National Park.

Critical Habitat Designations

For final rules, maps, and GIS data please visit:
http://sero.nmfs.noaa.gov/maps_gis_data/protected_resources/critical_habitat/index.html

Loggerhead sea turtle: There are 38 designated marine areas that occur throughout the Southeast Region.

Gulf sturgeon: There are 14 marine and estuarine units located in Northwest Florida, Alabama, Mississippi, and eastern Louisiana.

Smalltooth sawfish: There are two habitat units located in Charlotte Harbor and in the Ten Thousand Islands/Everglades, Florida.

Species Proposed for Listing Under the Endangered Species Act

Federal action agencies are encouraged to include species proposed for listing under the Endangered Species Act (ESA) in their Section 7 consultation requests. Species that are proposed for listing are those which have been found to warrant federal protection under the ESA, but a final rule formally listing the species has not yet published. By including these species in your Section 7 consultation, reinitiating consultation after the ESA listing is finalized may not be necessary.

For more information on species proposed for listing under the ESA, please visit:
http://www.nmfs.noaa.gov/pr/species/esa/candidate.htm#proposed

Generated Waste and Discharge Tables

Attachment J
(Public Information)

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

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

Projected generated waste			Projected ocean discharges		Projected Downhole Disposal
Type of Waste and Composition	**Composition**	**Projected Amount**	**Discharge rate**	**Discharge Method**	**Answer yes or no**
Will drilling occur ? If yes, you should list muds and cuttings					
Water-based drilling fluid	barite, additives	2000 bbls/well	1000 bbls/day/well	discharge overboard	No
Cuttings wetted with water-based fluid	water-based fluids	1700 bbls/well	200 bbls/day/well	discharge overboard	No
Cuttings wetted with synthetic-based fluid	Cuttings generated while using synthetic based drilling fluid.	1300 bbls/well	50 bbls/day/well	Shunt through downpipe	No
Brine	Brine	10,000 bbls total	<1000 bbl/hr	discharge overboard	
Will humans be there? If yes, expect conventional waste					
Domestic waste (kitchen water, shower water)	grey water	30 gal/person/day	NA	Remove floating solids and discharge	No
Sanitary waste (toilet water)	treated sanitary waste	20 gal/person/day	NA	Chlorinate and discharge	No
Is there a deck? If yes, there will be Deck Drainage					
Deck Drainage	wash water and rainwater	1000 bbl (dependent on rainfall)	15 bbl/hr	discharge overboard	No
Will you conduct well treatment, completion, or workover?					
well treatment fluids	NA	NA	NA	NA	NA
well completion fluids	Calcium Chloride	200 bbls/well	25 bbls/hr (1 day per well)	NA	NA
workover fluids	NA	NA	NA	NA	NA
Miscellaneous discharges. If yes, only fill in those associated with your activity.					
Desalinization unit discharge	NA	NA	NA	NA	NA
Blowout prevent fluid	NA	NA	NA	NA	NA
Ballast water	NA	NA	NA	NA	NA
Bilge water	NA	NA	NA	NA	NA
Excess cement at seafloor	NA	NA	NA	NA	NA
Fire water	NA	NA	NA	NA	NA
Cooling water	NA	NA	NA	NA	NA
Will you produce hydrocarbons? If yes fill in for produced water.					
Produced water	formation water	None Discharged	NA	NA	No
Will you be covered by an individual or general NPDES permit ?			**GENERAL PERMIT**	GMG290269	

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

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

Projected generated waste		Solid and Liquid Wastes transportation	Waste Disposal		
Type of Waste	Composition	Transport Method	Name/Location of Facility	Amount	Disposal Method
Will drilling occur ? If yes, fill in the muds and cuttings.					
Oil-based drilling fluid or mud	NA	NA	NA	NA	NA
Synthetic-based drilling fluid or mud	used SBF and additives	cuttings boxes on supply boat	Newpark Environmental in Fourchon, LA	35 bbls/well	Recycled
Cuttings wetted with Water-based fluid	NA	NA	NA	NA	NA
Cuttings wetted with Synthetic-based fluid	NA	NA	NA	NA	NA
Cuttings wetted with oil-based fluids	NA	NA	NA	NA	NA
Will you produce hydrocarbons? If yes fill in for produced sand.					
Produced sand	NA	NA	NA	NA	NA
Will you have additional wastes that are not permitted for discharge? If yes, fill in the appropriate rows.					
trash and debris	trash and debris	storage bins on supply boat	Grand Isle Shipyard, Port Fourchon, LA	500 cu ft total	landfill
used oil	NA	drums on supply boat	NA	NA	NA
wash water	NA	NA	NA	NA	NA
chemical product wastes	NA	NA	NA	NA	NA

Projected Air Emissions Report

Attachment K
(Public Information)

DOCD AIR QUALITY SCREENING CHECKLIST

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

COMPANY	Arena Offshore, LP
AREA	South Timbalier
BLOCKS	128/135
LEASES	OCS 00498/00462
PLATFORM	R
WELLS	R5-R7, Locations M-Q
COMPANY CONTACT	Teri Halverson
TELEPHONE NO.	281-210-0354
REMARKS	Sidetrack drill, complete and produce wells R5 - R7; drill, complete and produce well locations M - Q.

LEASE TERM PIPELINE CONSTRUCTION INFORMATION:

YEAR	NUMBER OF PIPELINES	TOTAL NUMBER OF CONSTRUCTION DAYS
2020		None
2021		
2022		
2023		
2024		
2025		
2026		
2027		
2028		
2029		
2030		

AIR EMISSIONS CUMPUTATION FACTORS

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

Equipment/Emission Factors	units	PM	SOx	NOx	VOC	CO	REF.	DATE
NG Turbines	gms/hp-hr		0.00247	1.3	0.01	0.83	AP42 3.2-1& 3.1-1	10/96
NG 2-cycle lean	gms/hp-hr		0.00185	10.9	0.43	1.5	AP42 3.2-1	10/96
NG 4-cycle lean	gms/hp-hr		0.00185	11.8	0.72	1.6	AP42 3.2-1	10/96
NG 4-cycle rich	gms/hp-hr		0.00185	10	0.14	8.6	AP42 3.2-1	10/96
Diesel Recip. < 600 hp.	gms/hp-hr	1	0.1835	14	1.12	3.03	AP42 3.3-1	10/96
Diesel Recip. > 600 hp.	gms/hp-hr	0.32	0.1835	11	0.33	2.4	AP42 3.4-1	10/96
Diesel Boiler	lbs/bbl	0.084	0.3025	0.84	0.008	0.21	AP42 1.3-12,14	9/98
NG Heaters/Boilers/Burners	lbs/mmscf	7.6	0.593	100	5.5	84	P42 1.4-1, 14-2, & 14	7/98
NG Flares	lbs/mmscf		0.593	71.4	60.3	388.5	AP42 11.5-1	9/91
Liquid Flaring	lbs/bbl	0.42	6.83	2	0.01	0.21	AP42 1.3-1 & 1.3-3	9/98
Tank Vapors	lbs/bbl				0.03		E&P Forum	1/93
Fugitives	lbs/hr/comp.				0.0005		API Study	12/93
Glycol Dehydrator Vent	lbs/mmscf				6.6		La. DEQ	1991
Gas Venting	lbs/scf				0.0034			

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

Screening Questions for DOCD's	Yes	No
Is any calculated Complex Total (CT) Emission amount (in tons associated with your proposed exploration activities more than 90% of the amounts calculated using the following formulas: $CT = 3400D^{2/3}$ for CO, and $CT = 33.3D$ for the other air pollutants (where D = distance to shore in miles)?		X
Does your emission calculations include any emission reduction measures or modified emission factors?		X
Does or will the facility complex associated with your proposed development and production activities process production from eight or more wells?	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 in excess of the criteria set forth under 250.1105(a)(2) and (3)?		X
Do you propose to burn produced hydrocarbon liquids?		X
Are your proposed development and production activities located within 25 miles from shore?		X
Are your proposed development and production activities located within 200 kilometers of the Breton Wilderness Area?		X

Air Pollutant		Plan Emission Amounts[1] (tons)	Calculated Exemption Amounts[2] (tons)		Calculated Complex Total Emission Amounts[3] (tons)
Carbon monoxide (CO)		159.37	30600.00		159.37
Particulate matter (PM)		21.25	899.10		21.25
Sulphur dioxide (SO_2)		12.18	899.00		12.18
Nitrogen oxides (NOx)		730.45	899.10		730.45
Volatile organic compounds (VOC)		24.11	899.10		24.11

[1] For activities proposed in your EP or DOCD, list the projected emissions calculated from the worksheets.

[2] List the exemption amounts in your proposed activities calculated using the formulas in 30 CFR 250.303(d).

[3] List the complex total emissions associated with your proposed activities calculated from the worksheets.

AIR EMISSIONS CALCULATIONS - FIRST YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS
Arena Offshore, LP	South Timbalier	128/135	OCS 00498/004	R	R5-R7, Locations M-Q		Teri Halverson	281-210-0354	#REFI

OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	8800	425.04	10200.96	24	255	6.20	3.56	213.22	6.40	46.52	18.98	10.88	652.44	19.57	142.35
WFD 250, 300,	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
or 350	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	2600	125.58	3013.92	8	180	1.83	1.05	63.00	1.89	13.74	1.32	0.76	45.36	1.36	9.90
	VESSELS>600hp diesel(supply)	2600	125.58	3013.92	8	72	1.83	1.05	63.00	1.89	13.74	0.53	0.30	18.14	0.54	3.96
	VESSELS>600hp diesel(tugs)	4600	222.18	5332.32	12	2	3.24	1.86	111.45	3.34	24.32	0.04	0.02	1.34	0.04	0.29
PIPELINE	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY 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
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel (Crane)	137	6.6171	158.81	4	8	0.30	0.06	4.22	0.34	0.91	0.00	0.00	0.07	0.01	0.01
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	2600	125.58	3013.92	8	52	1.83	1.05	63.00	1.89	13.74	0.38	0.22	13.10	0.39	2.86
	TURBINE nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.2 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle rich nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	**BPD**	**SCF/HR**	**COUNT**												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			1000.0		365				0.50					2.19	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
2020 YEAR TOTAL							**15.24**	**8.62**	**517.88**	**16.25**	**112.98**	**21.25**	**12.18**	**730.45**	**24.11**	**159.37**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**											**899.10**	**899.10**	**899.10**	**899.10**	**30600.00**
	27.0															

AIR EMISSIONS CALCULATIONS - SECOND YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS
Arena Offshore, LP	South Timbalier	128/135	OCS 00498/004	R	R5-R7, Locations M-Q		Teri Halverson	281-210-0354	#REF!

OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	8800	425.04	10200.96	24	200	6.20	3.56	213.22	6.40	46.52	14.89	8.54	511.72	15.35	111.65
WFD 250, 300, or	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
350	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	2600	125.58	3013.92	8	145	1.83	1.05	63.00	1.89	13.74	1.06	0.61	36.54	1.10	7.97
	VESSELS>600hp diesel(supply)	2600	125.58	3013.92	8	58	1.83	1.05	63.00	1.89	13.74	0.43	0.24	14.61	0.44	3.19
	VESSELS>600hp diesel(tugs)	4600	222.18	5332.32	12	2	3.24	1.86	111.45	3.34	24.32	0.04	0.02	1.34	0.04	0.29
PIPELINE	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY 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
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel (Crane)	137	6.6171	158.81	4	8	0.30	0.06	4.22	0.34	0.91	0.00	0.00	0.07	0.01	0.01
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	2600	125.58	3013.92	8	52	1.83	1.05	63.00	1.89	13.74	0.38	0.22	13.10	0.39	2.86
	TURBINE nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.2 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle rich nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	**BPD**	**SCF/HR**	**COUNT**												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			1000.0		365				0.50					2.19	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
2021	**YEAR TOTAL**						**15.24**	**8.62**	**517.88**	**16.25**	**112.98**	**16.80**	**9.63**	**577.38**	**19.51**	**125.97**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**											**899.10**	**899.10**	**899.10**	**899.10**	**30600.00**
	27.0															

AIR EMISSIONS CALCULATIONS - THIRD YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS
Arena Offshore, LP	South Timbalier	128/135	OCS 00498/004	R	R5-R7, Locations M-Q		Teri Halverson	281-210-0354	#REF!

OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	8800	425.04	10200.96	24	200	6.20	3.56	213.22	6.40	46.52	14.89	8.54	511.72	15.35	111.65
WFD 250, 300,	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
or 350	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	2600	125.58	3013.92	8	145	1.83	1.05	63.00	1.89	13.74	1.06	0.61	36.54	1.10	7.97
	VESSELS>600hp diesel(supply)	2600	125.58	3013.92	8	58	1.83	1.05	63.00	1.89	13.74	0.43	0.24	14.61	0.44	3.19
	VESSELS>600hp diesel(tugs)	4600	222.18	5332.32	12	2	3.24	1.86	111.45	3.34	24.32	0.04	0.02	1.34	0.04	0.29
PIPELINE	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY 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
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel (Crane)	137	6.6171	158.81	4	8	0.30	0.06	4.22	0.34	0.91	0.00	0.00	0.07	0.01	0.01
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	2600	125.58	3013.92	8	52	1.83	1.05	63.00	1.89	13.74	0.38	0.22	13.10	0.39	2.86
	TURBINE nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.2 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP.4 cycle rich nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	BPD	SCF/HR	COUNT												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			1000.0		365				0.50					2.19	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
2022	YEAR TOTAL						**15.24**	**8.62**	**517.88**	**16.25**	**112.98**	**16.80**	**9.63**	**577.38**	**19.51**	**125.97**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**											**899.10**	**899.10**	**899.10**	**899.10**	**30600.00**
	27.0															

AIR EMISSIONS CALCULATIONS - FOURTH YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS
Arena Offshore, LP	South Timbalier	128/135	OCS 00498/004	R	R5-R7, Locations M-Q		Teri Halverson	281-210-0354	#REF!

OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	8800	425.04	10200.96	24	200	6.20	3.56	213.22	6.40	46.52	14.89	8.54	511.72	15.35	111.65
WFD 250, 300,	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
or 350	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	2600	125.58	3013.92	8	145	1.83	1.05	63.00	1.89	13.74	1.06	0.61	36.54	1.10	7.97
	VESSELS>600hp diesel(supply)	2600	125.58	3013.92	8	58	1.83	1.05	63.00	1.89	13.74	0.43	0.24	14.61	0.44	3.19
	VESSELS>600hp diesel(tugs)	4600	222.18	5332.32	12	2	3.24	1.86	111.45	3.34	24.32	0.04	0.02	1.34	0.04	0.29
PIPELINE	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY 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
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INSTALLATION	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel (Crane)	137	6.6171	158.81	4	8	0.30	0.06	4.22	0.34	0.91	0.00	0.00	0.07	0.01	0.01
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	2600	125.58	3013.92	8	52	1.83	1.05	63.00	1.89	13.74	0.38	0.22	13.10	0.39	2.86
	TURBINE nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 2 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	**BPD**	**SCF/HR**	**COUNT**												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			1000.0		365				0.50					2.19	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WELL TEST	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
2023	**YEAR TOTAL**						**15.24**	**8.62**	**517.88**	**16.25**	**112.98**	**16.80**	**9.63**	**577.38**	**19.51**	**125.97**
EXEMPTION CALCULATION	**DISTANCE FROM LAND IN MILES**											**899.10**	**899.10**	**899.10**	**899.10**	**30600.00**
	27.0															

AIR EMISSIONS CALCULATIONS - FIFTH YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS
Arena Offshore, LP	South Timbalier	128/135	OCS 00498/004	R	R5-R7, Locations M-Q		Teri Halverson	281-210-0354	#REF!

OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	Burners	MMBTU/HR	SCF/HR	SCF/D	HR/D	D/YR	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(tugs)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PIPELINE INSTALLATION	PIPELINE LAY 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
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PIPELINE BURY 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
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY INSTALLATION	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
	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel (Crane)	137	6.6171	158.81	4	8	0.30	0.06	4.22	0.34	0.91	0.00	0.00	0.07	0.01	0.01
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	2600	125.58	3013.92	8	52	1.83	1.05	63.00	1.89	13.74	0.38	0.22	13.10	0.39	2.86
	TURBINE nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 2 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle lean nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0	0.00	0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	BURNER nat gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	BPD	SCF/HR	COUNT												
	TANK-	0			0	0				0.00					0.00	
	FLARE-		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
	PROCESS VENT-		0		0	0				0.00					0.00	
	FUGITIVES-			1000.0		365				0.50					2.19	
	GLYCOL STILL VENT-		0		0	0				0.00					0.00	
DRILLING WELL TEST	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	GAS FLARE		0		0	0		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
2024 - 2030 YEAR TOTAL							2.13	1.11	67.22	2.73	14.66	0.39	0.22	13.17	2.59	2.87
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											899.10	899.10	899.10	899.10	30600.00
	27.0															

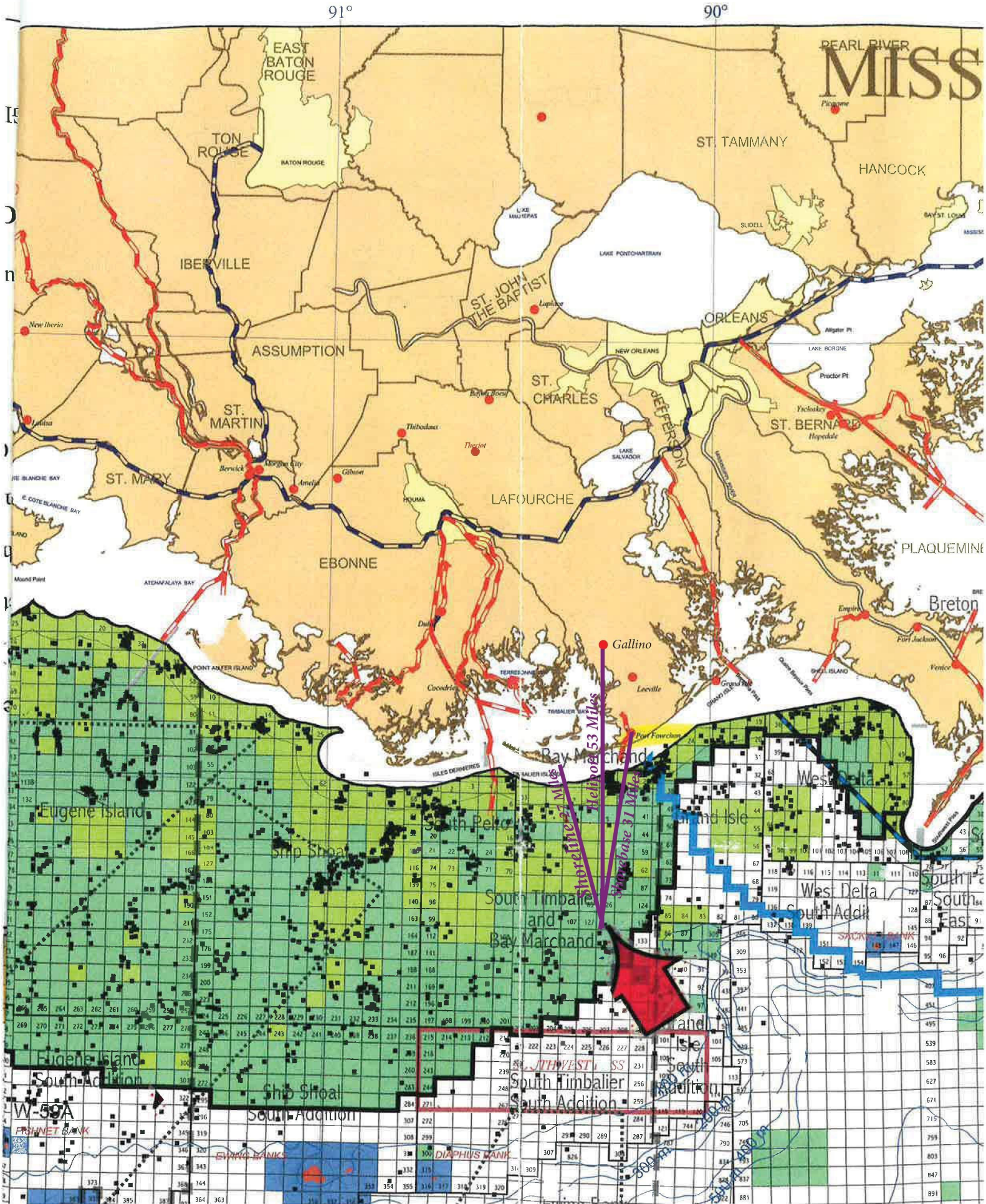
AIR EMISSIONS CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
Arena Offshore,	South Timbalier	128/135	OCS 00498/00462	R	R5-R7, Locations M-Q

Year	Emitted Substance				
	PM	SOx	NOx	VOC	CO
2020	21.25	12.18	730.45	24.11	159.37
2021	16.80	9.63	577.38	19.51	125.97
2022	16.80	9.63	577.38	19.51	125.97
2023	16.80	9.63	577.38	19.51	125.97
2024	0.39	0.22	13.17	2.59	2.87
2025	0.39	0.22	13.17	2.59	2.87
2026	0.39	0.22	13.17	2.59	2.87
2027	0.39	0.22	13.17	2.59	2.87
2028	0.39	0.22	13.17	2.59	2.87
2029	0.39	0.22	13.17	2.59	2.87
Allowable	899.10	899.10	899.10	899.10	30600.00

Vicinity Plat

Attachment L
(Public Information)

Arena Offshore, LP
South Timbalier Blk 128

-Shoreline = 27 miles
-Shorebase = 31 miles Port Fourchon, LA
-Bristow Heliport = 53 miles Gallino, LA