PROJECT SUMMARY

LONGTAIL DEVELOPMENT PROJECT

STABROEK LICENCE AREA, OFFSHORE GUYANA

ExxonMobil Guyana Limited

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1. INTRODUCTION

ExxonMobil Guyana Limited (EMGL) is the designated Operator of the Stabroek Block under a Petroleum Agreement signed by EMGL and its co-venturers, Hess Guyana Exploration Limited and CNOOC Petroleum Guyana Limited, with the Government of the Cooperative Republic of Guyana. The Petroleum Agreement covers approximately 26,806 square kilometers (km^2) and was executed together with a Petroleum Prospecting License for the Stabroek Block. Pursuant to the Petroleum Agreement, EMGL has previously planned and obtained approval from the Government of Guyana for six development projects in the Stabroek Block – Liza Phase 1, Liza Phase 2, Payara, Yellowtail, Uaru and Whiptail. An Environmental Impact Assessment is currently underway for a proposed seventh development project, Hammerhead. These development projects are collectively referred to as the Stabroek Projects. The subject of this current application for Environmental Authorization is the Longtail Development Project, which will be the eighth deepwater petroleum development project in Guyana, if approved. The Longtail Development Project (referred to in this document as Longtail or the Project) will develop the Longtail, Tripletail, and Turbot non-associated gas fields, and potentially additional resources, if determined to be feasible and economically viable.

As a non-associated gas development, the primary produced fluid is non-associated gas, from which condensate will be separated on the FPSO, prior to the remaining gas stream being reinjected into the reservoir for pressure maintenance and increased recovery of condensate. The proposed depletion plan of gas re-injection with no water injection is referred to as gas-cycling. Gas may be exported from the Longtail project as demand materializes. Once gas re-injection is no longer incentivized for liquid recovery, the gas resource can be captured via primary depletion and gas export. The anticipated production capacity for the FPSO is expected to produce between 1,000 to 1,500 million Standard Cubic Feet (MMscfd) per day of non-associated gas and 200 to 290 thousand barrels of condensate per day (kbd), adding to existing daily production volumes in Guyana with the associated additional revenues to the Government of Guyana, while continuing a steady expansion of opportunities for Guyanese to participate in the petroleum industry.

Like the other Stabroek Projects, the Project will involve drilling of production and injection wells, installation, commissioning, and operations of Subsea Umbilicals, Risers, and Flowlines (SURF), and a Floating Production, Storage, and Offloading vessel (FPSO) for handling and offloading of produced hydrocarbons. The Project will utilize marine support vessels as well as onshore infrastructure, including but not limited to shorebases, warehouses, storage, and pipe yards, fabrication facilities, fuel supply facilities, and waste management facilities in Guyana. Such infrastructure will be used to support the drilling, installation, production, and decommissioning operations of the Longtail Project.

EMGL is committed to conducting business in a manner that is compatible with the environmental and economic needs of the communities in which it operates and that protects the safety, security, and health of its employees, those involved with its operations, its customers, and the public.

The Project will be designed to demonstrate a strong commitment to environmental performance. EMGL strives to excel in environmental performance through emissions controls, technology selection, and process optimizations. EMGL plans to incorporate the lessons learned from commissioning and operation of previous Stabroek Projects into future projects.

EMGL strives to operate in a manner that minimizes environmental impacts to air, water, land, and social infrastructure, to the extent practicable, and strives to protect the health of people and animals. EMGL continues to apply the learnings from starting up and operating Liza Phase 1, Liza Phase 2, and Payara and will benefit from the experiences of starting up Yellowtail, Uaru, Whiptail, and the proposed Hammerhead developments. EMGL has undertaken additional studies to obtain a more comprehensive understanding of potential impacts of effluent discharges to water, the feasibility of alternative handling of produced water, Comprehensive Waste Management study in Guyana, emergency response capabilities, and environmental monitoring and verification, among others. The learnings from current operations and environmental studies will enhance the design and implementation of the Longtail Project, increasing environmental performance and economic value.

The Longtail Project will contribute positively, directly and indirectly, to economic growth in Guyana, including increased national revenues, local procurement of select goods and services, and increased direct and indirect local employment opportunities which drive associated beneficial "multiplier" impacts throughout the local economy.

2. DESCRIPTION OF THE PROJECT

EMGL is progressing plans for the Longtail Project, located in the southeastern portion of the Stabroek Block, approximately 200 km from Georgetown and adjacent to previous Stabroek Projects (see Figure 1). Current plans include drilling via drill ships to produce non-associated gas and condensate from approximately 24 - 60 production and injection wells. Production is expected to begin in 2030 with an expected field life of thirty years.

The production facilities to be installed include subsea equipment attached to the seafloor as well as processing equipment on the ocean's surface using an FPSO (see Figure 10). The subsea equipment will be installed at a depth of approximately 1,600 – 2,000 metres (m) (see Figure 2). The main components of the subsea kit include the following: production tree, production manifold, flowlines, risers, and umbilicals. The subsea umbilicals, risers, and flowlines are commonly referred to as SURF. The hydrocarbon and water flows from the well into the production tree. The fluids are then gathered into the manifold, which then connects to the flowlines before the risers take the fluids up to the FPSO for processing. The umbilical lines support production by providing real-time control of the subsea installation from the surface by delivering fluids to facilitate the flow of hydrocarbons.

The FPSO is an industrial floating complex that continuously separates condensate from produced water and gas for onboard storage, and later for transfer to third-party tankers. The anticipated production capacity for the FPSO is expected to produce between 1,000 to 1,500 million Standard Cubic Feet (MMscfd) per day of non-associated gas and 200 to 290 thousand barrels of condensate per day (kbd). The vessel will be capable of storing approximately two million barrels of condensate. Third-party tankers will be scheduled to offload from the FPSO, making condensate available for export to global markets. The FPSO will also process, dehydrate, compress, and reinject gas produced from the reservoir with capability to export gas once full reinjection is no longer needed.

Reinjection of produced gas will help maintain reservoir pressure and allow for optimum production of hydrocarbons. In addition, some of the gas will be used as fuel on the FPSO.

The Project has been designed for no routine flaring, instead using the gas for fuel, or reinjecting it into reservoirs to improve liquid recovery, except for de minimis volumes of gas from processing equipment, which cannot feasibly be captured by vapor recovery. This design is consistent with ExxonMobil's plans to align with the World Bank's initiative to eliminate routine flaring by 2030. However, it is important to recognize that some flaring is necessary or inevitable to maintain safe and reliable operations. Such flaring will, for example, include well testing, background operational and safety flaring, planned maintenance activities, and intermittent unplanned events associated with process upsets or temporary infrastructure (equipment) malfunction. These gas streams are not the focus of the World Bank's Zero Routine Flaring (ZRF) by 2030 Initiative, which concentrates on other types of flaring[i].

The FPSO design will treat produced water before discharging overboard, consistent with good international industry practices (GIIP). In addition, the FPSO will use treated seawater for cooling, which will then be discharged overboard, consistent with GIIP.

[i] The World Bank Group. (n.d.). *Zero Routine Flaring by 2030 (ZRF) Initiative*. Retrieved from www.worldbank.org: https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030/qna (About the ZRF Initiative: Does the "Zero Routine Flaring 2030" Initiative focus on certain types of flaring?): *"The [ZRF 2030] Initiative pertains to routine flaring, defined as flaring that occurs during the normal production of oil, and in the absence of sufficient facilities to utilize the gas on-site, dispatch it to a market, or re-inject it. The typical example this initiative addresses is long-term continuous flaring for gas disposal where a gas market or injection capacity does not exist. The Initiative does not include non-routine flaring events. These can include: exploration and appraisal; initial well flow-back; well servicing; process upset; safety or emergency situations; equipment or gas handling infrastructure malfunction; or de-pressurizing equipment for maintenance. The initiative also excludes purge and pilot flaring necessary for safe flare operation, combustion of hazardous or polluting emissions, such as volatile organic compounds and hydrogen sulphide. Some flare gas sources (e.g., glycol treatment facilities, produced water treatment facilities) are so small and at such low pressure that it is environmentally more beneficial to utilize resources to reduce other flaring sources and other types of emissions."*

In addition to the processing equipment, the vessel will also have living quarters and associated utilities to support operations personnel on the FPSO.

Table 1: Longtail Key Technical Parameters

Gas Production Rate (MMscfd)	1,000 - 1,500
Condensate Production Rate (kbd)	200 – 290
Produced Water Rate (kbd)	5 - 15

The major components of the proposed Longtail Development Project are highlighted in Table 2.

Table 2: Major Components of the Longtail Development Project

Major Component	
Surface Production Facility	A single Floating Production, Storage, and Offloading (FPSO) vessel
Distance from Shore	Approx. 200 km from Georgetown
FPSO Mooring System	Spread mooring system with mooring lines connected to suction piles embedded in seafloor
FPSO Condensate Storage Capacity	Approx. 2 million barrels
Offloading Frequency by Export Tankers	Approx. every 3 - 5 days during production
Subsea Production Facility Design	Subsea production trees and gas injection trees clustered around subsea manifolds
Wells	Approx. 24 – 60 wells
Drill ships	Development wells drilled by dynamically positioned drill ships
Onshore Support including Shorebase	Onshore infrastructure includes shorebases, vessel traffic monitoring facilities, pipe yards, fabrication facilities, fuel supply facilities, and waste

Major Component	
	management facilities; potential sharing among developments
Logistics Support	Marine vessels and helicopters throughout all stages; potential sharing among developments

While much of the installation and production operations activity will be offshore, the Project will utilize onshore infrastructure, including, but not limited to, shorebases, warehouses, storage and pipe yards, fabrication facilities, fuel supply facilities, and waste management facilities in Guyana. Such infrastructure will be used to support drilling, installation, operations, production, and decommissioning operations. Additional logistical support may be provided by others outside of Guyana, as determined by the Project. Helicopters required for crew changes are planned to be operated out of the Eugene F. Correia International Airport as is currently being done for exploration drilling and for the Stabroek Projects. In some cases, crew transfers may occur by marine vessel.

The Project will generate hazardous and non-hazardous wastes and effluent discharges, as well as sanitary discharges, throughout its lifetime.

Waste and effluents generated offshore will be avoided, reduced, recycled, and treated offshore where practicable, with the remainder directed for onshore treatment, recycling, reuse, or disposal. All waste streams for the Project will be managed in accordance with EMGL's Comprehensive Waste Management Plan (CWMP) approved by the EPA. The CWMP covers the storage, handling, treatment, and disposal requirements of EMGL's wastes for the various offshore and onshore operations. The CWMP defines the waste management philosophy, responsibilities for waste management, waste management methodology and controls for various waste types and classifications, and inspection, monitoring, auditing, and reporting of waste management activities.

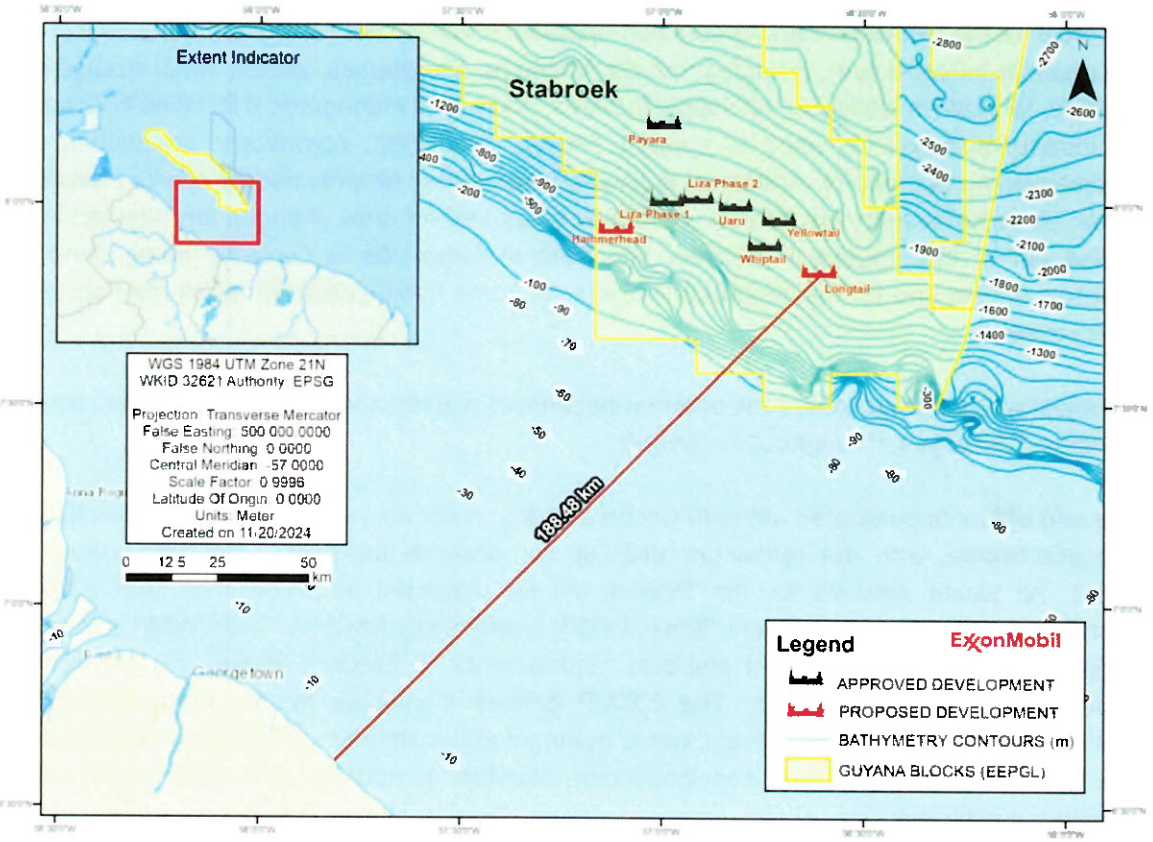
The CWMP provides both EMGL and the EPA with an efficient way to understand and reference waste management practices for all EMGL waste management activities. It is an evergreen document intended to accommodate all projects in Guyana associated with EMGL's exploration and appraisal drilling, development drilling, installation and hook-up, commissioning and start-up, office construction, onshore and offshore pipeline, production operations, and related activities; as Projects are planned or come on stream, the CWMP will be updated to address them.

3. SITE, DESIGN, AND SIZE OF PROJECT

3.1. SITE

The proposed location of the Longtail FPSO is within the Stabroek Block, approximately 200 km from Georgetown, Guyana is shown on Figure 1.

Figure 1: Location of the Longtail FPSO within the Stabroek Block



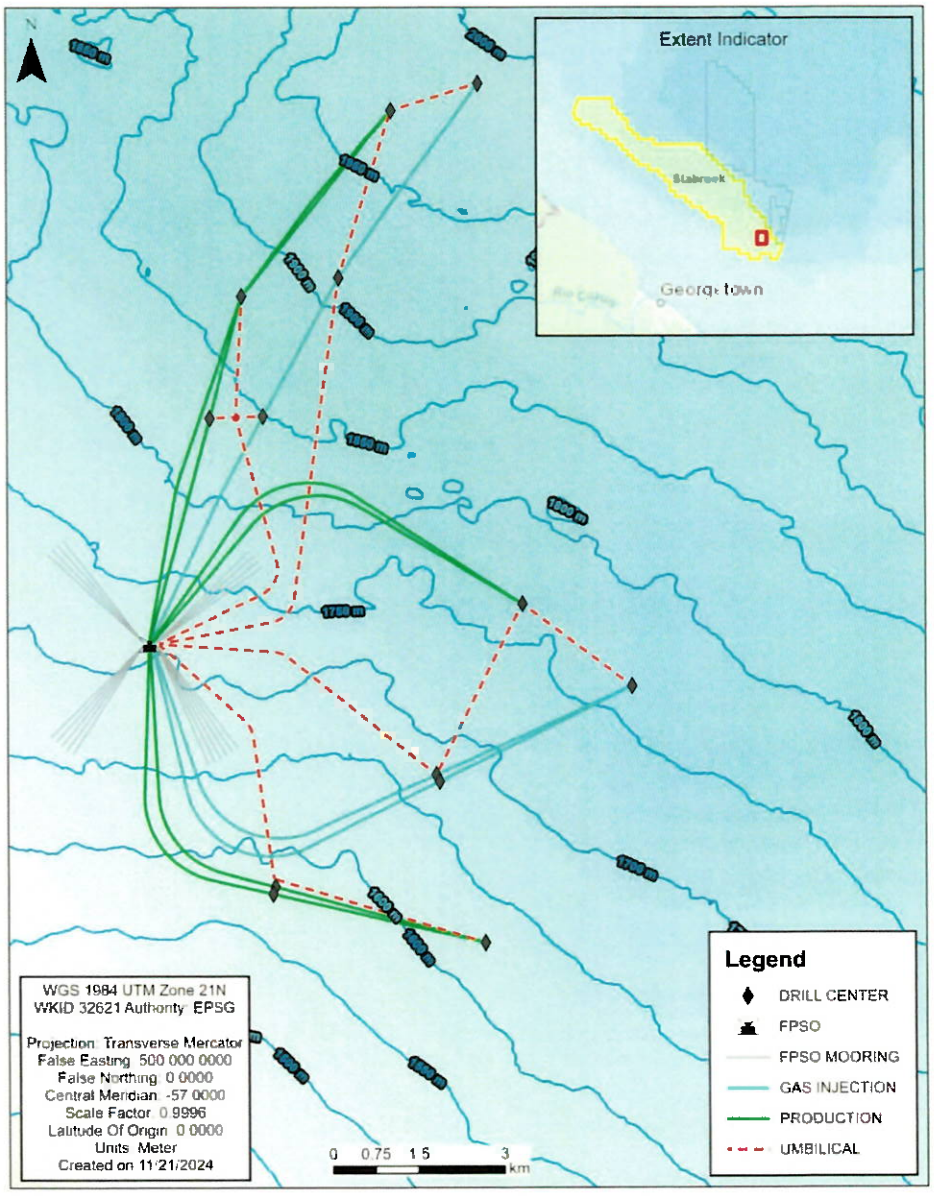
The development plan for the Project will use an FPSO and subsea umbilicals, risers, and flowlines (SURF) production system similar to those of Liza Phase 1, Liza Phase 2, Payara, Yellowtail, Uaru, Whiptail and the proposed Hammerhead development projects. Although similar in overall project design, the Longtail Development Project will be a stand-alone project.

The FPSO and subsea production system is a proven approach for deepwater developments in Guyana and will leverage both operator and industry-proven technologies, consistent with GIIP.

The FPSO for the Longtail Development Project will be approximately 39 km southeast from the current location of the Unity FPSO and 17 km from the future location of the Whiptail FPSO.

Figure 2 illustrates the preliminary conceptual area layout of the production system and the preliminary bathymetry, as the Longtail Development Project is in the preliminary design phase.

Figure 2: Preliminary Area Layout for Longtail Development



NOTE: Quantities and locations in figure subject to change

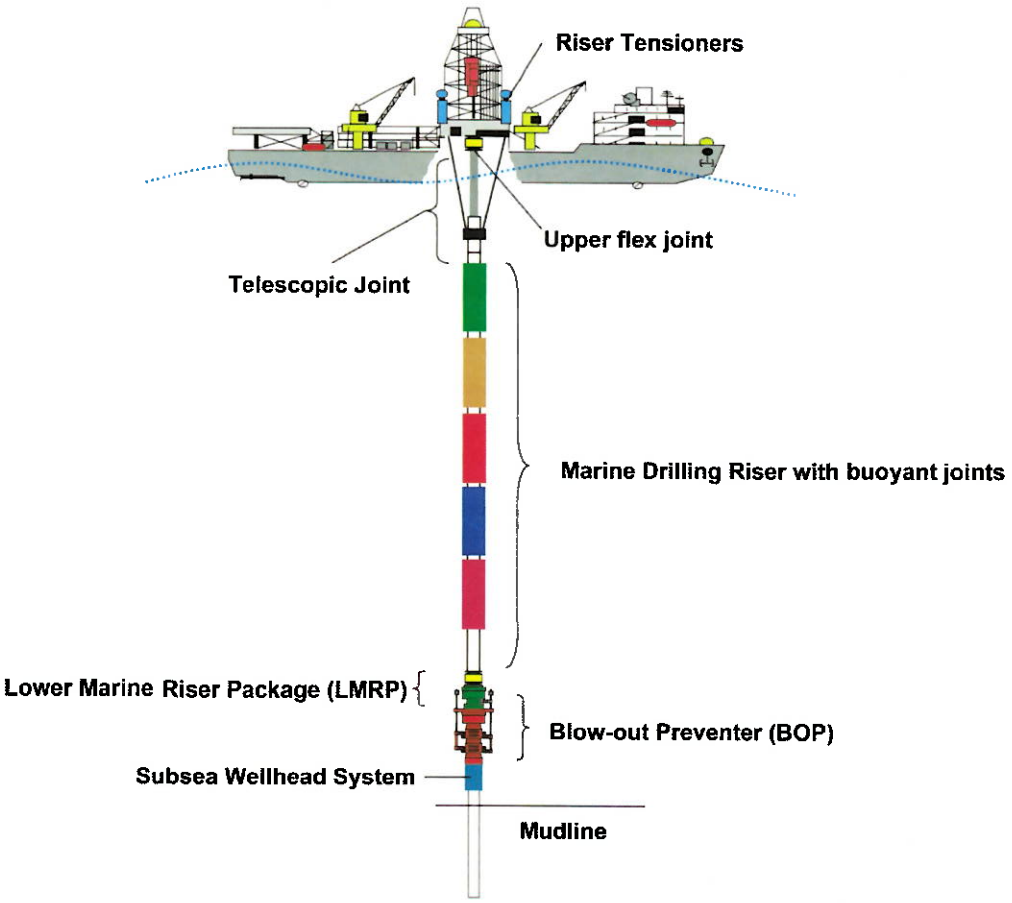
3.2. DESIGN AND SIZE OF PROJECT

3.2.1. DRILLING

Based on the water depths in the Longtail Development area, multiple dynamically positioned drill ships, as shown on Figure 3, will be used to drill the wells. A typical subsea drilling system is shown on Figure 4. The process of drilling the wells for Longtail will be similar to the process followed during exploration/appraisal well campaigns as well as the Liza Phase 1, Liza Phase 2, Payara, Yellowtail, Uaru, Whiptail, and Hammerhead drilling programs. After drilling to total depth, the wells will be completed, and the subsea production equipment will be installed.

Figure 3: Example of Drillship

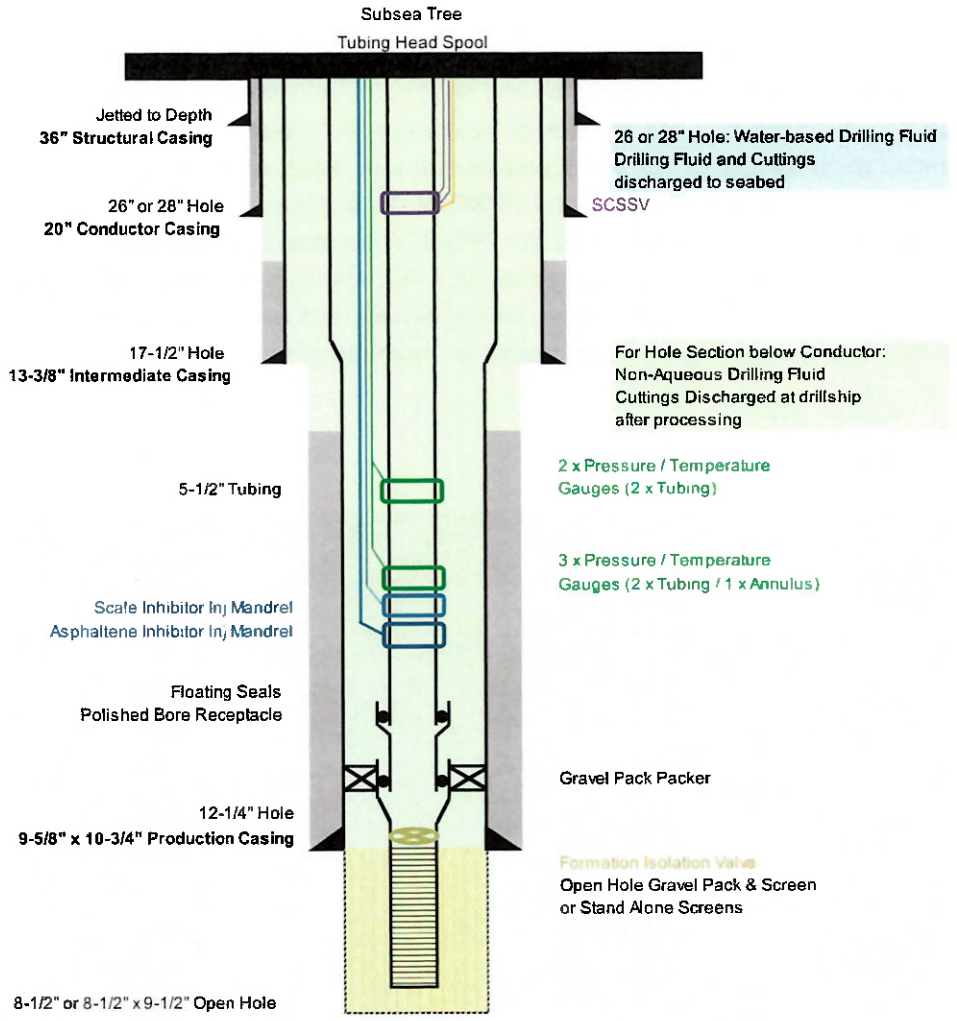
Figure 4: Typical Subsea Drilling System



The following information describes development wells for the purposes of the Project.

Once the borehole is started for a well, pipe (also known as casing) is inserted into the borehole and cemented in place to keep the well from collapsing and to seal the casing to the formation. Various-sized casings are progressively set as the well is drilled deeper. After each casing (for the conductor casing and deeper casings) is installed, pressure and integrity testing are performed according to standard industry practices. A provisional well program and design for the Longtail development-drilling program, including preliminary casing types and sizes, setting depths, drilling fluid types, and discharge locations can be found in Figure 5.

Figure 5: Provisional Casing Program for Development Drilling



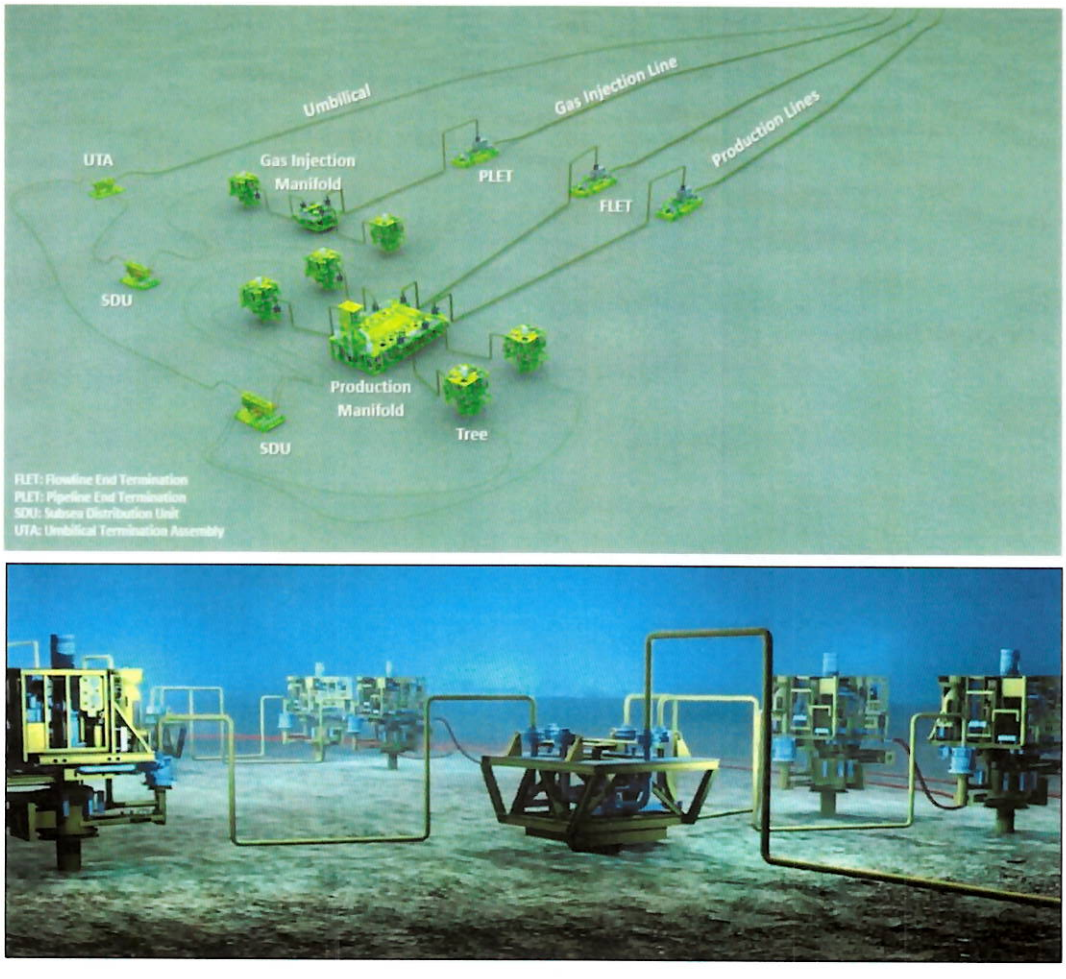
SCSSV = surface-controlled subsurface safety valve

During the drilling process, drill ships will require various materials, instruments, and devices to connect the drill bit to the drillship. Various size casings will be set as the well is drilled deeper. The drilling process will also require circulating drilling fluid to remove cuttings and control formation pressures and cement to support the casing and to isolate reservoir formations. Completion equipment and completion fluids will also be required. The raw materials above are in addition to the basic supplies required to operate the production equipment and support vessels such as fuel, food for the crews, fresh water, and industrial consumables.

3.2.2. SURF

The proposed SURF facilities for the Longtail Development Project are composed of subsea production and injection wells clustered around subsea manifolds. Approximately 24 - 60 wells could be drilled consisting of a combination of producers and injectors (i.e., for the reinjection of gas to maintain reservoir pressure). Produced well stream fluids, which are primarily gas, will be transported through subsea flowlines to the FPSO at the surface. The risers and umbilicals will connect the equipment on the sea floor to the FPSO. The subsea system will be monitored and controlled using a control system connected to the FPSO through a control umbilical, which also supplies chemicals to the subsea facilities. The hydraulic fluid for operating the subsea control system will be water-based. Figure 6 represents an example of subsea facilities on the sea floor.

Figure 6: Example Subsea Facilities (SURF)



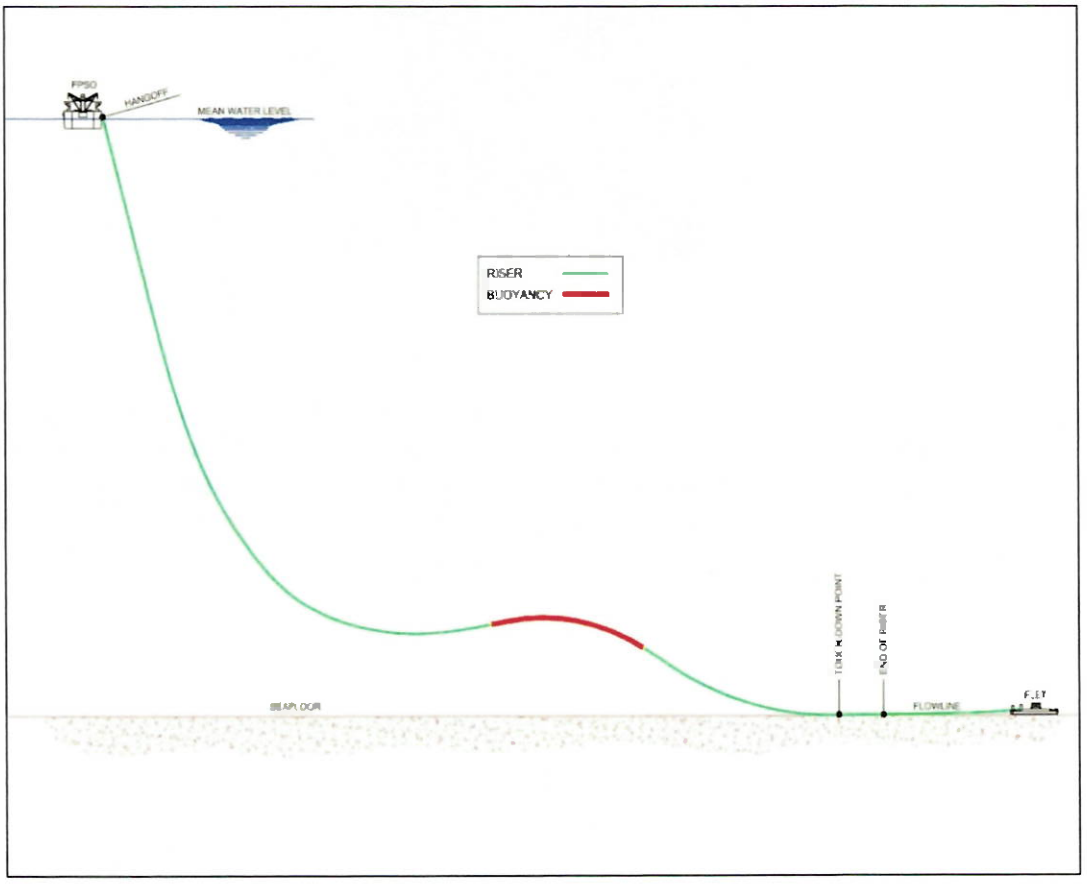
Below is the description of SURF components:

- **Risers and Flowlines**

The Project will incorporate production and gas injection flowlines and risers, as shown on Figure 6. Flowline and umbilical lengths will range from approximately 1 to 12 km, excluding risers, in water depths of approximately 1,600 – 2,000 m. The current design lengths are based on preliminary shallow hazard surveys and current field layout and may be adjusted slightly during detailed design.

The steel risers transition from the seabed to the FPSO in a "lazy wave" configuration as shown on Figure 7.

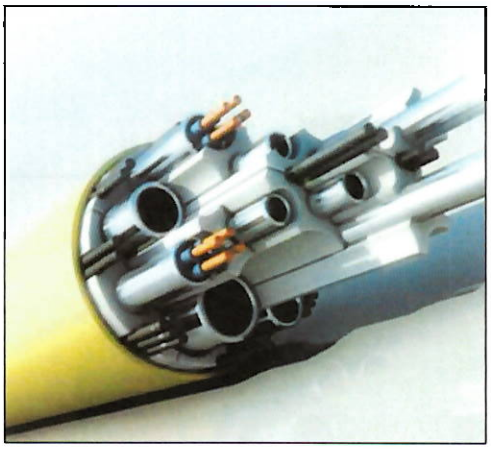
Figure 7: Representative Steel Lazy Wave Riser



- **Umbilicals**

Umbilicals will be designed as an integrated bundle of tubes and cables to serve multiple functions (see Figure 8). Three to four (3 - 4) dynamic umbilicals connected to the FPSO will service the entire Project. The remaining drill center components, composed of the subsea trees, manifolds, flying leads, and jumpers, will be connected via 6 - 10 in-field/static umbilicals.

Figure 8: Representative Dynamic Umbilical



- **Manifolds**

Manifolds are gathering points or central connections made up of valves, hubs, piping, sensors, and control modules. Manifolds include a protective structural framework that rests on a foundation on the seabed where multiple trees, jumpers, and flowlines gather to consolidate flows before they are transported either to the surface as part of production or back downhole as part of injection into the reservoir.

Figure 9: Representative Subsea Manifold

3.2.3. *FPSO*

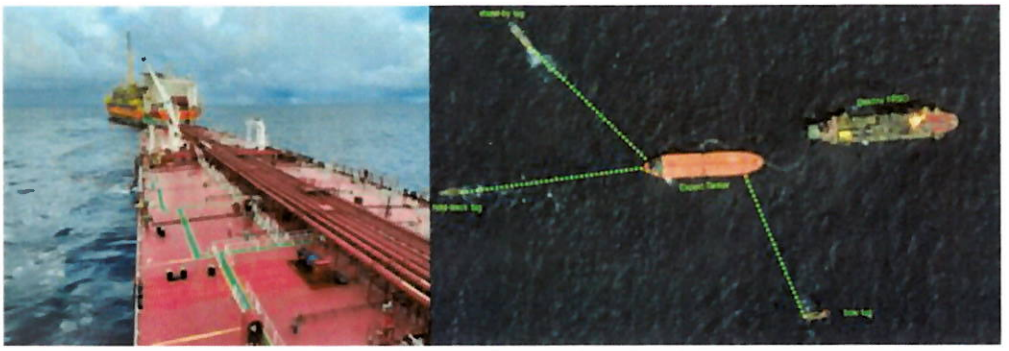
The proposed FPSO will be a newly built floating facility with double side and single bottom protection, with approximate dimensions of 334 m long by 60 m wide by 32.8 m deep, and will be moored on location, approximately 200 km offshore, some 39 km southeast of the Liza Unity FPSO.

The anticipated production capacity for the FPSO is expected to produce between 1,000 to 1,500 million Standard Cubic Feet (MMscfd) per day of non-associated gas and 200 to 290 thousand barrels of condensate per day (kbd). The FPSO will have a condensate storage capacity of approximately 2 million barrels in the cargo tanks within its hull. Its mooring system will be designed to keep the FPSO on station continuously for the duration of the Project (30 years). Condensate will be stored in the FPSO tanks prior to export to global markets via conventional tankers owned/operated by third parties. At production during Longtail operations, the FPSO may offload condensate to conventional tankers approximately every 3 - 5 days by either direct tandem offloading, or via a Dynamically Positioned Offloading Tug (DPOT). The conventional tanker will be held in position with the assistance of station keeping tug(s) to maintain a safe separation distance from the FPSO.

Figure 10: Liza Unity FPSO

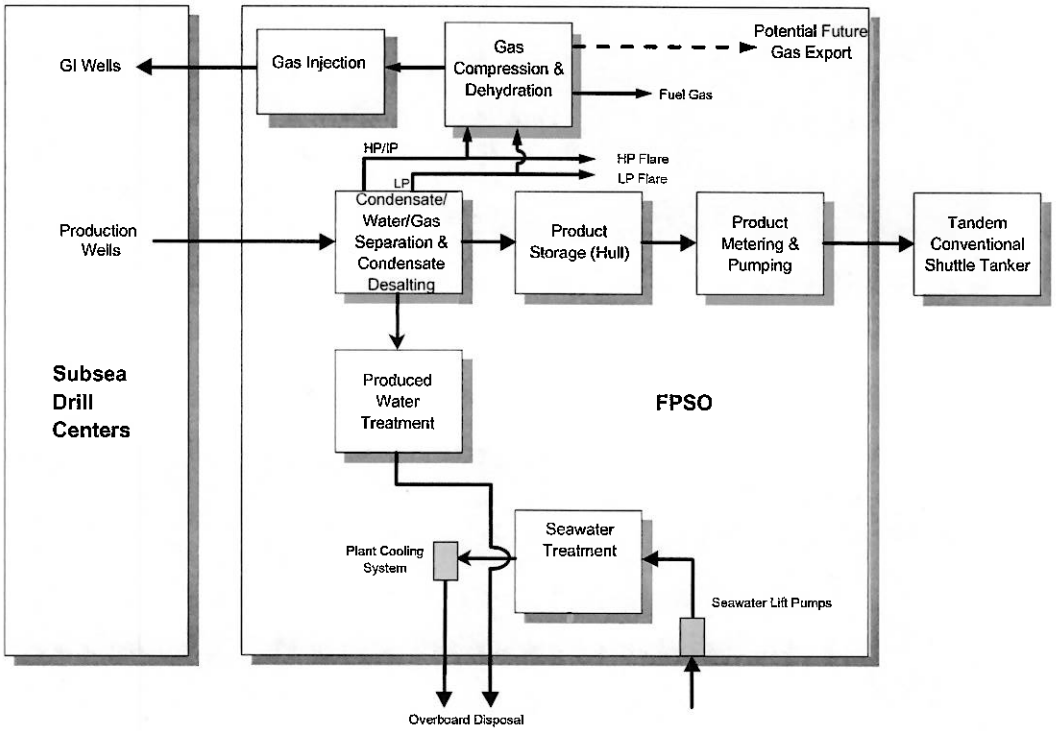
Figure 11: Typical FPSO Offloading Configuration

Figure 12: Offloading from Liza Phase 2 (Left) and Liza Phase 1 (Right)



Operating processes during production will include flowing the reservoir hydrocarbons from the wells to the FPSO, where further processing, storage, and management occurs, prior to offloading the condensate to conventional tankers. General maintenance of the production equipment will also be required. The production facilities will require the use of industry standard chemicals and additives to process condensate and prevent corrosion, scale, and hydrate formation. The preliminary chemical requirements and estimated quantities will be defined as part of the ongoing facility design work and will be addressed in more detail during environmental authorization.

Figure 13: FPSO Block Flow Diagram



GI = gas [re]injection; HP = high pressure; IP = intermediate pressure; LP = low pressure.

Examples of FPSO tank arrangements and FPSO topside layout are shown on Figure and Figure , respectively.

Example of FPSO Overall Equipment Layout is shown in Appendix 1.

Figure 13: Example of Longtail FPSO Tank Arrangements

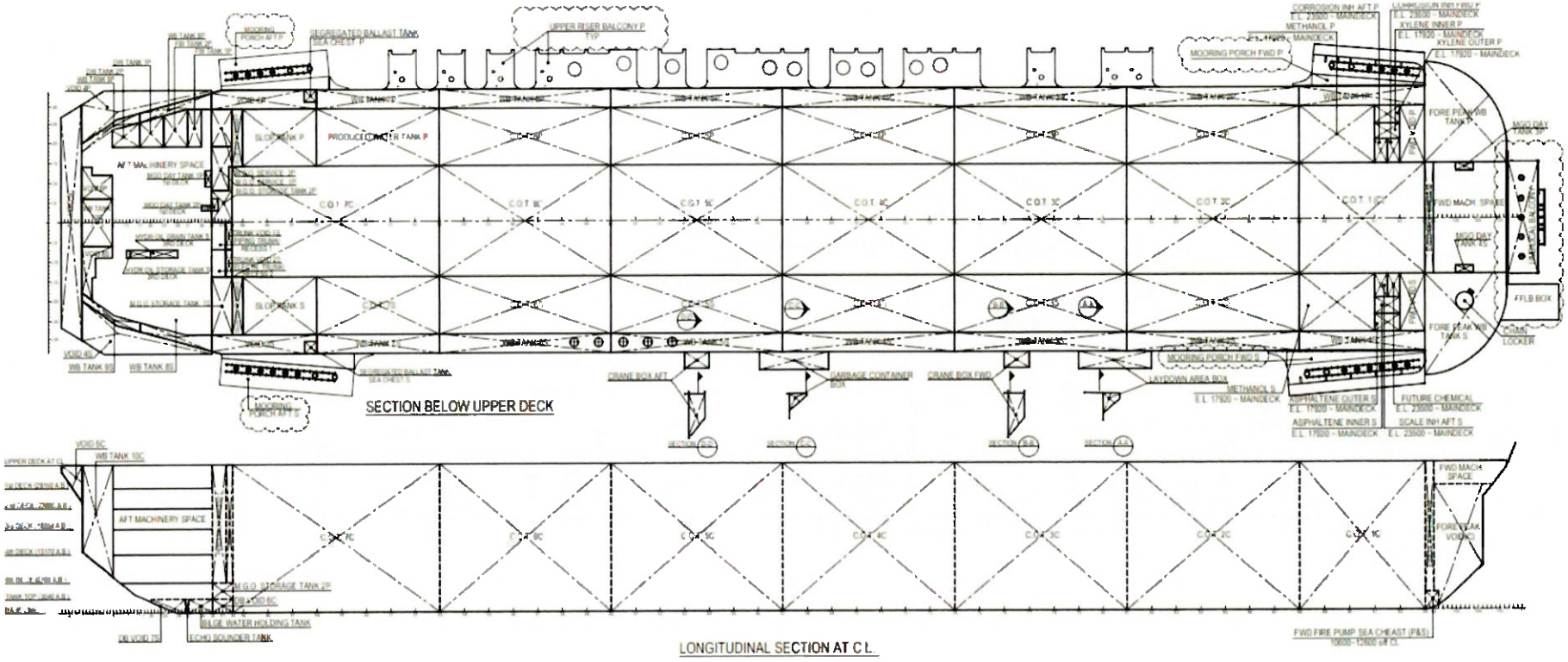
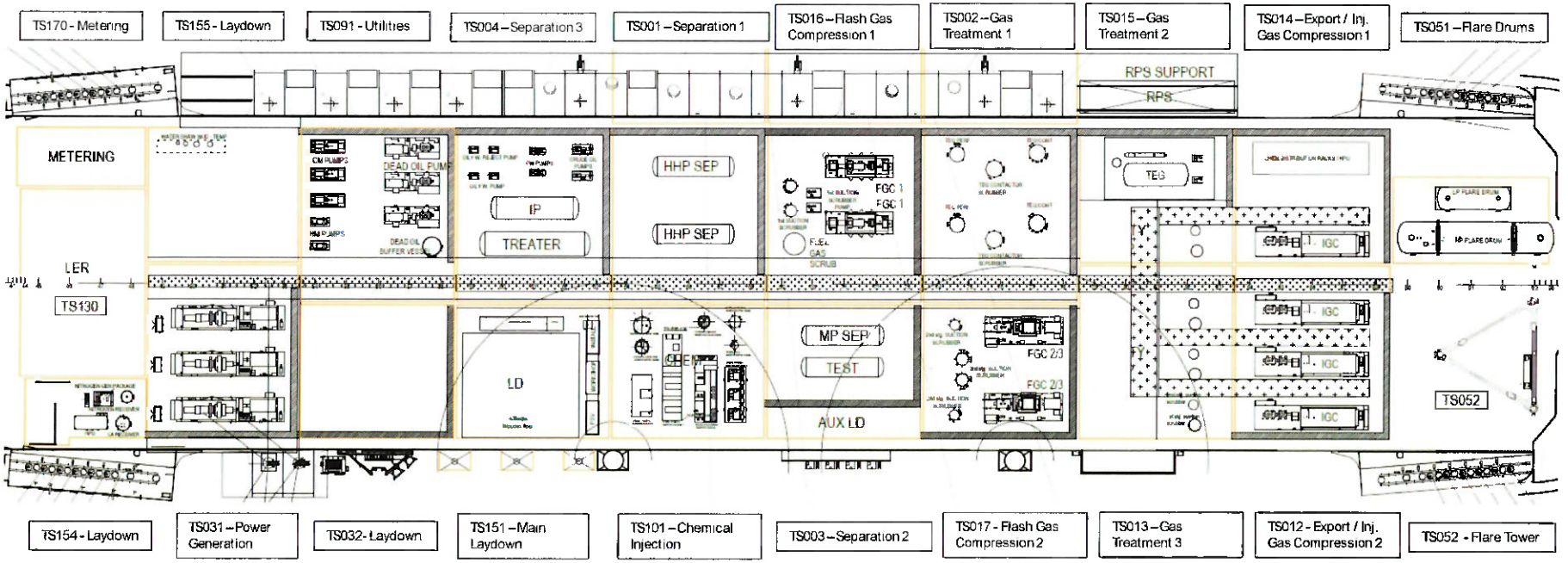


Figure 15: Example of Longtail FPSO Topside Layout



3.2.4. COMMUNICATION SYSTEMS

Telecommunications equipment will be installed on the FPSO to enable safe operation of the facilities in normal and emergency conditions. This equipment will allow communication with the offices, shorebases, support vessels, helicopters, and tankers, as well as communication within the FPSO. EMGL has previously installed the Fibre Optic Cable Project, which provides the fibre optic communication infrastructure from the Stabroek Block to shore, enabling high-speed, low-latency communications and data transfer between EMGL's FPSOs and shore. The Fibre Optic Cable Project included installation of two optical distribution units (ODUs), two main fibre optic trunk lines to shore, and fibre optic cables routed from the Liza Destiny, Liza Unity, Payara Prosperity, and Yellowtail One Guyana, Uaru Errea Wittu and Whiptail Jaguar FPSOs to the ODUs. EMGL plans to connect this Project's FPSO into the existing fibre optic infrastructure back to shore, which will consist of two fibre optic cables connected from a Longtail subsea drill center back to the existing two ODUs. From the subsea drill center, the fibre optic cable will connect to the FPSO via one of the dynamic umbilicals, which will contain fibre strands.

3.2.5. WORKFORCE

The Project is in the initial stages of planning and design, and detailed estimates of workforce requirements have not yet been developed. Preliminary workforce estimates are provided below. These estimates will be refined following selection and contracting for the drill ships, FPSO, SURF installation vessels, and support vessels. The following workforce levels in Table 3 are preliminary projections for the offshore components during each stage of the Project; some stages may occur concurrently.

Table 3: Preliminary Workforce Levels

Well Drilling	Approximately 600 persons at peak utilizing two to three drill ships (approx. 200 persons per drillship). Estimate is dependent upon final drill ships and support vessels selected.
FPSO and SURF Mobilization/ Installation/Hookup	Approximately 600 persons at peak. Estimate is dependent upon final construction/installation and support vessels selected.
Production Operations, including FPSO and support vessels	Approximately 160 - 180 persons at peak.
Decommissioning	Approximately 160 persons at peak.

In addition to the offshore components, there will be a comparatively smaller number of personnel providing shorebase and logistical support onshore, in addition to personnel already engaged in supporting other EMGL projects. The onshore staff will be expected to ramp up gradually through the mobilization and installation stage and return to the same level or slightly higher after the end of Longtail installation and drilling campaigns. The onshore workforce is expected to increase again briefly during decommissioning. Logistical support may be shared among the Liza Phases 1 and 2, Payara, Yellowtail, Uaru, Whiptail and the proposed Hammerhead Development Projects.

3.2.6. DECOMMISSIONING

A decommissioning program for Longtail will be submitted for approval by the government, in accordance with the Petroleum Agreement. The final decommissioning strategy is expected to include a comparative assessment, which is designed to evaluate the potential safety, environmental, technical, and economic impacts and associated mitigation measures in order to finalize the decommissioning program.

Subject to future comparative assessment, the expectation is that the SURF components will be detached from the FPSO and abandoned-in-place on the sea floor, consistent with GIIP at the time of decommissioning. The FPSO is expected to be towed away, and the FPSO mooring system will be disconnected and remain intact on the sea floor, consistent with standard industry practice.

4. POSSIBLE IMPACTS ON ENVIRONMENT

The potential impacts from the Project could be related to the following physical, biological, and socioeconomic (inclusive of community health) values:

- Climate and climate change
- Air quality
- Sound
- Marine geology and sediments
- Marine water quality
- Coastal habitats
- Coastal wildlife
- Protected areas and special status species
- Ecosystem structure and function
- Biodiversity
- Cultural heritage
- Community health and wellbeing
- Socioeconomic conditions
- Transportation
- Land use
- Ecosystem services
- Indigenous people
- Waste management and infrastructure
- Cumulative impacts

The potential impacts, which are expected to be similar to those identified in the Stabroek Development Environmental Impact Assessments (EIAs), could be directly and/or indirectly generated by Longtail during drilling and installation, hook-up and commissioning, production, and/or decommissioning operations, and such impacts could be adverse or positive in nature. The potential for cumulative impacts exists where impacts from Longtail overlap with those of other Stabroek Projects (or other existing or planned future activities) in space or time. As such, a robust cumulative impact assessment will be performed as part of the Longtail assessment of impacts. Additional information on potential impacts is included in Appendix 2.

Should an EIA be required by the Guyana Environmental Protection Agency (EPA) as part of the environmental authorization process, an EPA-approved EIA Consultant will scope, study, and assess potential impacts from the Longtail Development Project in an EIA per the laws of Guyana, in particular the Environmental Protection Act 1996, Cap 20:05 (as amended). Through an EIA, EMGL and the qualified independent environmental consultants chosen and approved to conduct the EIA, will identify mitigation measures and monitoring programs to address any identified potential adverse impacts of significance. Mitigation measures to minimize potential impacts are included in Appendix 3.

Appendix 4 provides a summary of the predicted residual impact significance ratings (taking into consideration proposed mitigation measures) for impacts on each of the resources that may potentially result from the planned Project activities in each Project stage (i.e., development well drilling/Subsea, Umbilicals, Risers, and Flowlines/FPSO installation, production, and

decommissioning operations). For each resource, the table shows the highest residual impact significance rating among the potential impacts relevant to each Project stage. For each resource, the table also summarizes the highest residual risk rating for potential risks to resources from unplanned events (e.g., liquid spill, vessel strike) and the priority rating for potential cumulative impacts on each resource, as determined by the cumulative impact assessment.

5. NON-TECHNICAL EXPLANATION OF PROPOSED PROJECT

EMGL is proposing a project to develop the non-associated gas resources of Longtail, Tripletail, and Turbot in the offshore waters of Guyana. The Longtail Development Project (Longtail or the Project) will be in the southeastern portion of the Stabroek Block, approximately 200 km from Georgetown).

Hydrocarbon production from the Project is expected to last approximately 30 years.

EMGL will drill approximately 24 – 60 wells offshore to support extraction of the hydrocarbon from below the sea floor. Each well will be drilled using a drillship.

EMGL will install some of the hydrocarbon production facilities on the sea floor at approximately 1,600 – 2,000 m water depth. These subsea facilities include various types of pipes and hardware. The subsea facilities allow the non-associated gas hydrocarbons from the wells to be gathered and moved to the surface of the ocean for further processing.

EMGL will install other hydrocarbon production facilities on a vessel which floats on the surface of the ocean. The vessel is called a Floating Production, Storage, and Offloading vessel (FPSO). The FPSO will be moored on location in approximately 1,750 m of water depth and will remain on location throughout the production stage. Production facilities on the FPSO will further process the hydrocarbon extracted from below the sea floor.

The FPSO processes the non-associated gas hydrocarbons, from which condensate will be separated, prior to the remaining gas stream being reinjected into the reservoir for pressure maintenance and increased recovery of condensate. In addition to the ability to reinject the produced non-associated gas, the FPSO can export gas as demand materializes; however, this export may reduce liquid recovery in the project and across the Stabroek block.

The anticipated production capacity for the FPSO is expected to produce between 1,000 to 1,500 million Standard Cubic Feet (MMscfd) per day of non-associated gas and 200 to 290 thousand barrels of condensate per day (kbd).

Condensate will be stored in cargo tanks inside the FPSO hull, which have the capacity to hold approximately 2 million barrels. During production, approximately every 3 - 5 days, the stored condensate will be pumped from the FPSO to a conventional tanker, which is owned/operated by third parties. The tanker will then export the product to buyers.

EMGL will utilize onshore support facilities to support drilling the wells, installing the offshore production facilities, and operating the offshore production facilities. This will include, but is not limited to, shorebases, warehouses, storage and pipe yards, fabrication facilities, fuel supply

facilities, and waste management facilities in Guyana. Helicopters and supply boats will also be needed to support the Project.

At peak, EMGL will be supported by approximately 1,200 offshore personnel during the well-drilling and production installation stages. This number will decrease to fewer than 200 personnel during the production phase. A smaller number of personnel will be utilized at the onshore support facilities.

At the end of the life of the Project, EMGL will decommission the offshore production facilities in accordance with the abandonment plan approved by the government.

Longtail Key Design Details (Preliminary)

- FPSO Gas Production Rates:
  - Longtail Project gas production rate will be approximately 1,000 to 1,500 MMscfd.
- FPSO Condensate Production Rates:
  - Longtail Project condensate production rate will be approximately 200 to 290 kbd.
- FPSO Condensate Storage Volume:
  - Longtail Project storage volume will be approximately 2 million barrels of condensate.
- Number of Wells:
  - Longtail Project will have approximately 24 to 60 wells.
- Offloading Frequency:
  - Condensate will be offloaded from the Longtail FPSO approximately every 3 - 5 days during production.

The Project activities may have the following potential impacts on People, Wildlife, and the Environment:

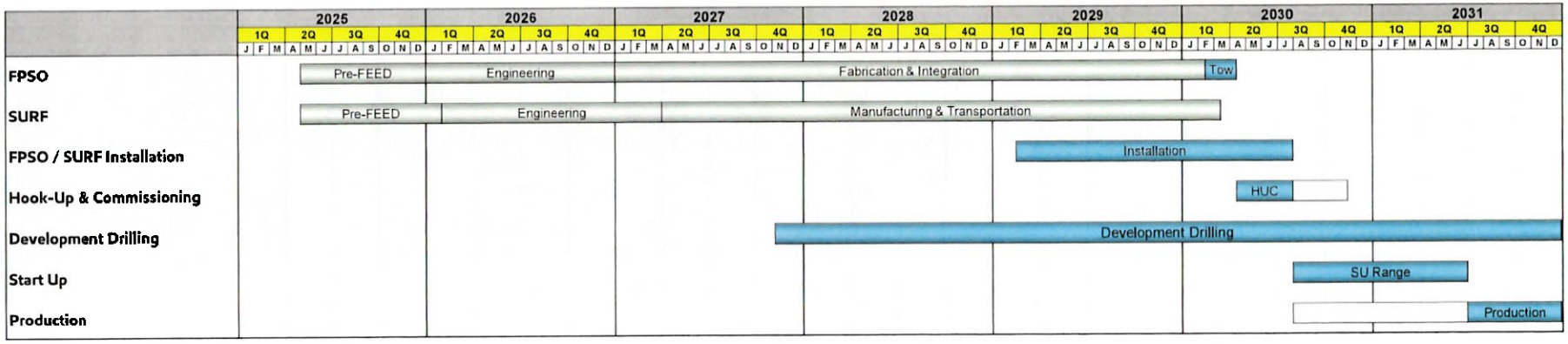
- Changes in quality of air and increases in greenhouse gas emissions
- Changes in sound and light levels
- Disturbance to seabed and changes in quality of ocean water
- Potential impacts to whales, dolphins, sea turtles, fish, marine birds, and marine protected species
- Potential impacts to coastal wildlife and/or coastal habitat
- Changes in food sources for fish and wildlife
- Increase in number of available local jobs
- Increase in government revenue
- Increase in foreign workers
- Increased demand for local goods and services
- Increased demand for local accommodations
- Increased road and vessel traffic and use of local shorebases
- Restriction on fishing around drill ships (temporary) and FPSO
- In the unlikely event of a condensate spill, impacts to the environment (e.g., marine waters, coastline, protected areas), indigenous communities, and livelihoods of farmers and fishermen
- Cumulative impacts

6. DURATION OF PROJECT

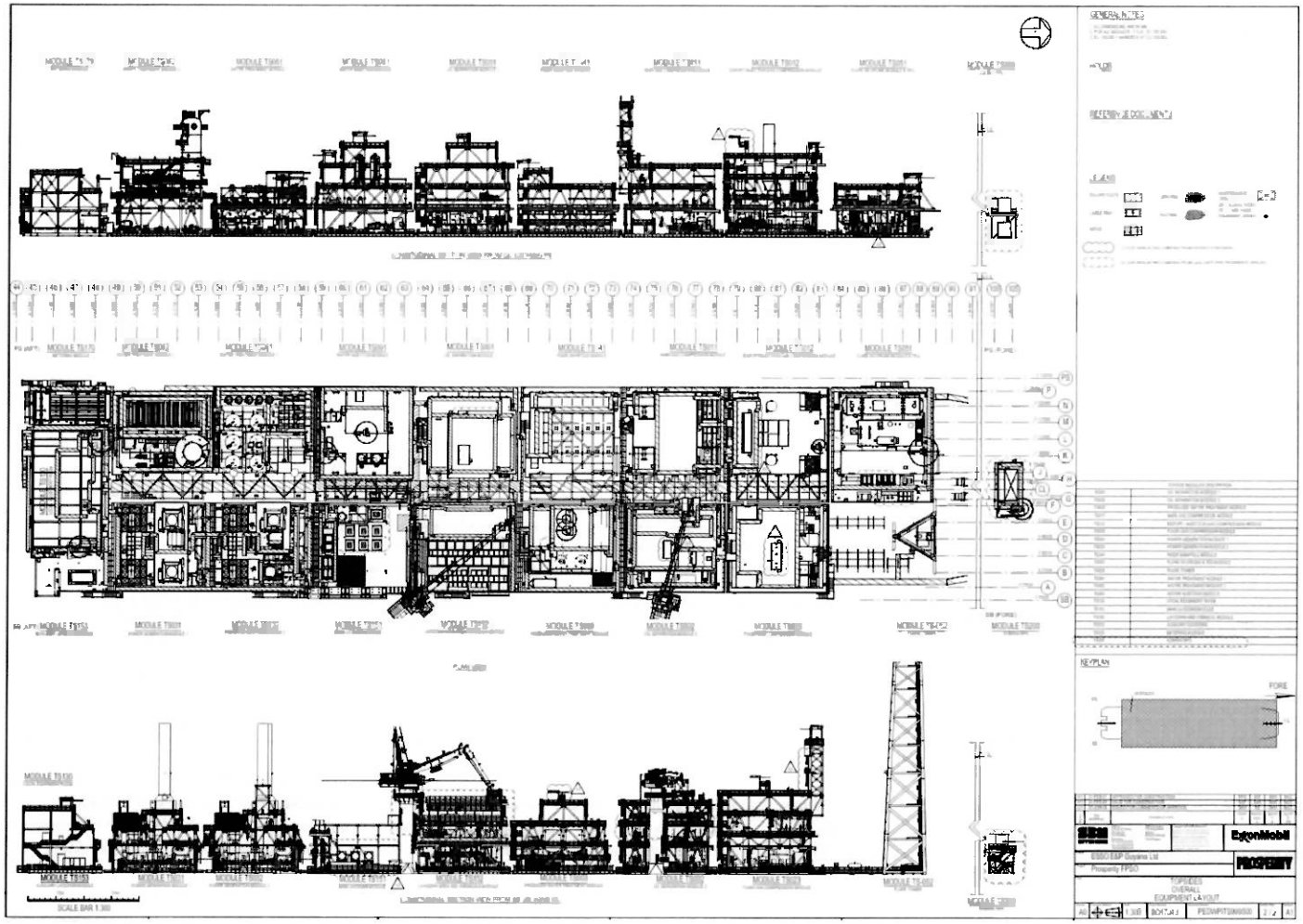
The lifecycle for the Project will include engineering, construction, installation, commissioning, start-up, operations and maintenance, and decommissioning. The engineering phase will include conceptual design, Front-End Engineering and Design (FEED), and detailed engineering. The construction phase will include procurement, fabrication and construction, followed by offshore installation, hook-up and commissioning, and start-up. Operations and maintenance will follow commissioning and start-up and will be the longest phase of the Project, with a duration of 30 years. Subject to applicable regulatory approvals and Project sanction, start-up of the facilities is expected to occur in approximately 2030.

Figure 16 provides a preliminary schedule with major scheduling milestones for the engineering, construction, installation, and commissioning of the SURF and FPSO scopes, as well as other (drilling, start-up) scopes for the Development Project; however, this schedule is still being refined and is subject to change.

Figure 16: Preliminary Project Schedule



APPENDIX 1: EXAMPLE OF FPSO OVERALL EQUIPMENT LAYOUT



APPENDIX 2: POTENTIAL IMPACTS OF THE LONGTAIL DEVELOPMENT

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Physical Resources			
Climate and Climate Change	GHG emissions from the Project may increase the GHG concentrations in the atmosphere.	• Power generation • Other marine vessel and support aircraft combustion sources • Non-routine, temporary flaring, including periodic maintenance flaring • Flaring of pilot gas • Other *de minimis* low pressure emission streams • Fugitive emissions from hydrocarbon storage and offloading • Miscellaneous fuel combustion sources, including firewater pumps, an essential generator, and emergency generators	Climate and Climate Change
Air Quality	Air emissions resulting from the Project have the potential to change ambient air quality in the Project area of interest (AOI) on a localized basis.	• Power generation • Other marine vessel and support aircraft combustion sources • Non-routine, temporary flaring, including periodic maintenance flaring • Flaring of pilot gas • Other *de minimis* low pressure emission streams • Fugitive emissions from hydrocarbon storage and offloading • Miscellaneous fuel combustion sources, including firewater pumps, an essential generator, and emergency generators	Localized, increased concentrations of criteria pollutants, in ambient air could contribute to health concerns in exposed humans and wildlife. Combustion of hydrocarbons from Project activities could contribute to GHG emissions.
Marine Geology and Sediments	The Project has the potential to affect marine geology and sediments on a localized basis in the proposed development area (PDA) and could potentially impact sediment quality from permitted discharges	• Drilling of development wells including drilling mud and cuttings discharge • Installation of FPSO mooring lines and SURF components	Disturbance of the seabed during offshore drilling and installation activities has the potential to affect benthic habitat and cause death/injury of benthic fauna.
Marine Water Quality	The Project could have localized impacts to marine water quality in the PDA from discharge of drilling mud and cuttings and from routine operational and hydrotesting discharges. The Project could potentially impact marine water quality in the Project AOI as a result of non-routine, unplanned events	• Drilling of development wells (discharge of drilling mud and cuttings) • Effluent discharges (e.g. cooling water discharges, produced water) • Hydrotesting discharges • Non-routine, unplanned event	Increased total suspended solids concentrations, chemical concentrations, or temperature in water column has a potential to affect marine water quality and marine habitat quality and affect wildlife.
Biological Resources/Receptors			

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Coastal Habitats	The Project is not expected to impact beaches, mangroves, or wetlands in the Project AOI as a result of routine, planned activities. The Project could potentially impact beaches, mangroves, and wetland habitats in Project AOI as a result of non-routine, unplanned events	• Non-routine, unplanned event	An unplanned event could potentially impact beaches, mangroves, and wetlands as wildlife habitat, or could result in declines in fisheries productivity, and/or affect other ecosystem services.
Coastal Wildlife	The development is not expected to impact coastal wildlife or shorebirds in the Project AOI as a result of routine, planned activities in the Project AOI. The Project could potentially impact coastal wildlife and shorebirds in the Project AOI as a result of non-routine, unplanned events.	• Non-routine, unplanned event	An unplanned event could potentially impact coastal wildlife including chronic sub-lethal effects such as decreased vigor or reproductive impacts from direct exposure or ingestion of contaminated prey items.
Protected Areas and Special Status Species	The Project is not expected to impact protected areas as a result of routine, planned activities in the Project AOI. The Project could potentially impact protected areas in the Project AOI as a result of non-routine, unplanned events. The Project could potentially impact some special status species (e.g., listed endangered or threatened species) as a result of underwater sound, light, seawater withdrawal, and/or changes in marine water quality. The Project could potentially impact special status species in the Project AOI as a result of non-routine, unplanned events.	• Underwater sound generated by marine component operations • Lighting on offshore facilities (e.g., FPSO, drill ships) • Seawater intake by FPSO • Effluent discharges (e.g., cooling water, produced water • Drilling of development wells (discharge of drilling mud and cuttings) • Hydrotesting discharges • Vessel movements • Non-routine, unplanned event	Reduction in wildlife habitat quality and disturbance, injury, or mortality of wildlife. Potential declines in local abundance of some species within the Project area caused by decreased water quality and entrainment of early life stages of special status fish species, auditory impacts on noise-sensitive species, injury/death from vessel collisions, and habitat degradation and loss.
Marine Benthic Habitats	The Project could potentially disturb benthic habitat in a localized manner in the PDA.	• Drilling of development wells (discharge of drilling mud and cuttings) • Installation of FPSO (mooring structures) and SURF components • Non-routine, unplanned event	
Seabirds	The Project could potentially impact seabirds in a localized manner as a result of light and other offshore marine operations. The Project could potentially impact seabirds in the Project AOI as a result of non-routine, unplanned events.	• Drill ships, FPSO and support vessel operations • Lighting on offshore facilities • Non-routine, temporary flaring • Non-routine, unplanned event	Possible direct mortality and injury of seabirds related to attraction to offshore light sources and possible direct mortality and injury related to vessel (ship or air) strikes may occur.
Marine Mammals	The Project could potentially impact marine mammals and marine turtles in a localized manner in the Project AOI as a result of Project-related underwater sound, light, and/or changes in marine water quality. The	• Underwater sound generated by marine component operations • Changes in forage availability • Lighting on offshore facilities (e.g., FPSO, drill ships) • Effluent discharges (e.g., cooling water, produced water) • Drilling of development wells (discharge of drilling mud and cuttings) • Hydrotesting discharges	Potential auditory injury to or disturbance of marine organisms from Project-related noise could occur. Potential injury/mortality of marine mammals or marine turtles from collisions with Project-related vessel traffic may occur. Non-routine/unplanned events (e.g., spill or release) could potentially cause a range of

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Marine Turtles	Project could potentially impact marine mammals in the Project AOI as a result of non-routine, unplanned events.	• Non-routine, unplanned event	effects from acute and/or chronic sub-lethal toxic effects to mortality throughout the indirect AOI depending on the magnitude of the event.
Marine Fish	The Project could potentially impact marine fish as a result of underwater sound, light, changes to seabed habitat, seawater intake, and changes in marine water quality in the PDA. The Project could potentially impact marine fish in the Project AOI as a result of non-routine, unplanned events.	• Underwater sound generated by marine operations • Changes in forage availability • Changes in seabed habitat • Lighting on offshore facilities (e.g., FPSO, drill ships) • Seawater intake by FPSO • Effluent discharges • Drilling of development wells (discharge of drilling mud and cuttings) • Cooling water discharges • Produced water discharges • Hydrotesting discharges • Non-routine, unplanned event • Decommissioning	Minor potential impacts from decreased water quality on all taxa could occur from changes in water quality in the AOI. Entrainment of early life stages of fish, and potential trophic effects associated with concentration of prey species around artificial lights could occur. Non-routine/unplanned events (e.g., spill or release) could potentially cause a range of effects from acute and/or chronic sub-lethal toxic effects to mortality throughout the indirect AOI depending on the magnitude of the event.
Riverine Mammals	The Project is not expected to impact riverine mammals in the Project AOI as a result of routine, planned activities. The Project could potentially impact riverine mammals in the Project AOI as a result of non-routine, unplanned events (i.e., diesel fuel release, vessel strikes).	• Project-related vessel operations • Increased vessel traffic • Non-routine, unplanned event (e.g., diesel fuel release, vessel strike)	Potential disturbance of riverine mammals from Project-related vessel movements near shorebases could occur. Potential injury/mortality of riverine mammals from collisions with Project-related vessel traffic may occur.
Marine Benthos	The Project has the potential to affect some benthic organisms in a localized area within the Project area.	• Drilling of development wells (discharge of drilling mud and cuttings) • Installation of FPSO (mooring structures) and SURF components • Non-routine, unplanned event	Disturbance of benthic habitat in the Project area and potential smothering of benthos within footprint of SURF and sediment deposition zones.
Ecosystem Structure and Function	The Project could have potential indirect impacts on the marine nutrient cycle through its impacts on marine water quality and/or on gene flow if it impacts large-scale current patterns, alters the geological boundaries of ocean basins, or prevents site-specific reproductive events.	• Underwater sound generated by marine operations • Lighting on offshore facilities (e.g., FPSO, drill ships) • Seawater intake by FPSO • Installation of FPSO and SURF components • Effluent discharges • Ballast water discharges • Offshore waste incineration • Non-routine, unplanned event	Ecological impacts to marine resources could potentially have ramifications for commercial and/or subsistence fisheries.
Biodiversity	The Project could have potential indirect impacts on biodiversity if the relative abundance or distribution of various taxonomic groups or special status species are altered.	• Underwater sound generated by marine operations • Lighting on offshore facilities (e.g., FPSO, drill ships) • Seawater intake by FPSO • Installation of FPSO and SURF components • Effluent discharges • Ballast water discharges • Offshore waste incineration • Non-routine, unplanned event	

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Socioeconomic Resources/Receptors			
Socioeconomic Conditions, Employment, and Livelihoods	The Project is generally anticipated to have a positive impact on the economy of Guyana as a result of government revenue sharing from the Project, as well as employment and local procurement opportunities. The Project is also expected to build capacity in the local labor force, increase demand for skilled labor, and increase demand for service industries. Potential adverse impacts may include potential increases in the cost of living as a result of increased demand for specific goods and services and limited adverse impacts on fishing activities (and livelihoods stemming from those activities) as a result of marine safety exclusion zones or marine traffic. Potential adverse impacts on income from agriculture and fisheries could also occur as a result of non-routine, unplanned events.	• Government revenue sharing from Project • Local Project purchases of select materials, goods, and services • Limited local Project employment (direct and indirect) • Increased spending on selects materials, goods, and services • Marine safety exclusion zones • Project-related marine traffic • Aspects of Project operations relating to occupational health and safety for Project workforce • Non-routine, unplanned event	Positive economic impacts throughout the country, which could potentially affect all segments of the population. Positive effects related to local purchasing and employment could potentially affect all segments of the population. Direct and indirect employment for the Project will enhance livelihoods and family incomes but could result in some competition with other businesses for skilled workers. Marine safety exclusion zones for the FPSO, drillship, and major installation vessels, and Project-related vessel traffic could potentially interfere with fishing activities in certain areas.
Cultural Heritage	The Project has the potential to disturb undocumented archaeological or historic resources of the subsea PDA. Such resources could have conservation, cultural, and other value to stakeholders. The Project also could potentially impact cultural heritage resources outside of the subsea PDA as a result of non-routine, unplanned events.	• Drilling of development wells • Installation of FPSO (mooring lines) and SURF components • Non-routine, unplanned event	Disturbance of the seabed could potentially affect submerged archaeological resources (e.g., shipwrecks).
Community Health and Wellbeing	Most Project activities will be located offshore and will have no direct impacts on communities in Guyana. Project-related increases in vehicular and marine traffic could increase the potential for accidents. Introduction of limited levels of foreign labor for the Project workforce could potentially have community health and wellbeing impacts due to an increased risk of communicable diseases. The Project workforce could result in an increased use of medical and health resources in the Georgetown area, resulting in the potential to overburden those resources. The overall presence of the Project and other related activities as a new industry in the country could lead to a level of public anxiety. Non-routine unplanned events could potentially impact health	• Vehicular and marine traffic as a result of Project activities • Social interaction between foreign Project workers and residents, with respect to transmission of communicable diseases • Public anxiety from perceptions of risk associated with the oil and gas sector • Non-routine, unplanned event	Increased demand for limited emergency and health services in Guyana, and a slight increased risk of communicable disease transmission could potentially result from Project activities and influence community health and wellbeing.

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
	and wellbeing of communities via impacts on resources on which these communities depend.		

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Transportation	The Project may result in increased marine-related traffic, which could potentially contribute to marine vessel congestion in port areas as well as increasing the risk of unplanned events (i.e., marine vessel collisions).	• Project-related marine vessel operations • Non-routine, unplanned event	Increased vessel traffic could result in localized potential congestion near shorebase and marine safety exclusion zones around the FPSO, drillship, and major installation vessels will restrict access by unauthorised vessels.
Social Infrastructure and Services	The Project will increase use public infrastructure and services and thus could potentially compete with other existing businesses and consumers across a range of services (e.g., roads, airports accommodation, and utilities). The Project may result in increased vehicular traffic in Georgetown, which could potentially contribute to vehicular congestion in certain areas.	• Project demand requirements for lodging, housing and utilities • Shorebase operations and other Project-related onshore transportation of materials and personnel • Project-related use of helicopters and airports	Increased demand for public infrastructure, services, and housing by the Project workforce could influence the availability of these services; and increased Project-related traffic could result in localized traffic congestion.
Ecosystem Services	Project-related impacts on natural resources could lead to potential short-term direct or indirect impacts on the services and/or values derived from natural resources and ecosystems in the Project AOI.	• Potential direct or indirect impacts derived from one or more of the impacts on physical, biological, or socioeconomic resources described above • Non-routine, unplanned event	If resources affected by the Project provide ecosystem services, this could result in indirect effects to these services. As an example, such effects to resources could potentially affect provisioning services particularly for communities that rely on fishing, hunting, and harvesting activities for subsistence and livelihoods. In addition, coastal flood protection services offered by mangrove forests could be affected. Cultural services could also be affected for some communities that make use of the seashore in traditional and/or religious ceremonies.
Indigenous People	The Project is not expected to directly cause any changes to population and demographics in indigenous communities. The Project could potentially impact Indigenous Peoples as a result of non-routine, unplanned events.	• Non-routine, unplanned event	If resources affected by the Project are used by indigenous peoples, this could result in indirect effects to these individuals or populations.
Waste Management and Infrastructure	The Project will increase the demand for hazardous and non-hazardous waste management services and infrastructure in Guyana and thus could potentially compete with other existing waste generators for limited waste management capacity.	• Project demand requirements for hazardous and non-hazardous transportation, treatment, and disposal services	If the capacity in Guyana to properly treat, store, or dispose of waste is overburdened by Project demands, this could affect the ability to properly accommodate treatment, storage, or dispose.

APPENDIX 3: POTENTIAL EMBEDDED CONTROLS AND MITIGATIONS

A 3.1 Development Well Drilling and Subsea, Umbilicals, Risers, and Flowlines (SURF)/FPSO Installation and Commissioning

Embedded Controls	Resources/Receptors Benefited
Use Water-Based Drilling Fluids (WBDFs) to the extent reasonably practicable (upper sections of the wells). For well sections requiring Non-Aqueous Drilling Fluid (NADF), use only low toxicity, International Association of Oil & Gas Producers III base fluid.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, seabirds, marine benthos
When Non-Aqueous Drilling Fluids (NADF) is used, use a solids control and cuttings dryer system to treat drill cuttings such that end-of-well maximum weighted mass ratio averaged over all well sections drilled using NADF does not exceed 6.9 percent wet weight base fluid retained on cuttings.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, seabirds, marine benthos, marine benthic habitats
Install a Blow Out Preventer (BOP) system that can be closed rapidly in the event of an uncontrolled influx of formation fluids and that allows the well to be circulated to safety by venting the gas at surface and routing condensate so that it may be contained.	Marine geology and sediments, marine water quality, coastal habitats, marine mammals, marine turtles, marine fish, seabirds, marine benthos
Test Blow Out Preventer (BOP) equipment at installation, after disconnection or repair of any pressure containment seal, and at regular intervals (at least every 21 days or as operations allow).	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, seabirds, marine benthos
Install subsea Blow Out Preventer (BOP) systems consisting of one annular preventer, two shear ram preventers – one of which must be sealing, and two pipe ram preventers, and equip them with choke and kill lines and failsafe choke and kill close valves.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Use a Blow Out Preventer (BOP) that is able to close on the maximum outside diameter drill pipe string used for the drilling operations and that contains a safety system to secure the well in the event of a loss of control signal and hydraulic supply from the surface to the BOP. At a	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds

Embedded Controls	Resources/Receptors Benefited
minimum, subsea BOP systems should allow closure of one set of pipe rams and blind-shearing type rams by ROV intervention if required.	
Visually check and take appropriate measures to mitigate occurrence of free oil resulting from discharge of Non-Aqueous Drilling Fluids (NADF) drill mud and cuttings.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, seabirds, marine benthos, marine benthic habitats
Employ trained Marine Mammal Observers or Protected Species Observers during the conduction of seismic-related activities.	Protected areas and special status species, marine mammals, marine turtles, marine fish
Conduct a continuous observation of a mitigation zone (500 metres around the sound source) to verify whether it is clear of marine mammals and marine turtles before commencing sound-producing seismic operations. Do not conduct sound-producing seismic operations (including soft starts) if marine mammals or turtles are sighted within the mitigation zone during the 30 minutes prior to commencing sound-producing operations in water depths less than 200 metres, or 60 minutes prior to commencing sound-producing operations in water depths greater than 200 metres.	Protected areas and special status species, marine mammals, marine turtles, marine fish
Where reasonably practicable, equip sound-making devices or equipment with silencers or mufflers that are enclosed, and/or use soft-start procedures (e.g., pile driving, vertical seismic profiling, etc.) to reduce noise to levels that do not cause material harm or injury to marine species.	Protected areas and special status species, marine mammals, marine turtles, marine fish
Adhere to the Joint Nature Conservation Committee guidelines (JNCC 2017) during the conduct of seismic-related activities.	Protected areas and special status species, marine mammals, marine turtles

Embedded Controls	Resources/Receptors Benefited
If well testing[2] is performed, implement the following measures: • Flow only the minimum volume of hydrocarbons required for the test and reduce the test duration to the extent practical. • Record volumes of hydrocarbons flared during well drilling in End of Well Reports and make available to the EPA upon request • Provide adequate gas sensors that are appropriately located during testing operations, so that all sources of gas can be detected. • Monitor pipes and joints on a daily basis for leakages and fugitive emissions. Burn all collected gaseous streams in high-efficiency flares and implement and maintain a leak detection and repair program. • Keep the well test to the minimum practical time, in keeping with a pre-approved schedule with the EPA. Notify the EPA immediately in case of any deviation/variation to the well test • Provide sufficient compressed air to the oil burner for efficient flaring assignment.	Climate and climate change, air quality
To prevent non-routine, unplanned events during the drilling stage: • Change transfer hoses periodically; • Use dry-break connections on condensate bulk transfer hoses; • Use a liquid hydrocarbon checklist before every bulk hydrocarbon transfer; • Perform required inspections and testing of all equipment prior to deployment/installation; • Use overbalanced drilling fluids to control wells while drilling;	Marine geology and sediments, marine water quality, protected areas and special status species, coastal habitats, coastal wildlife, marine benthic habitats; marine benthos, marine mammals; marine turtles, marine fish, ecosystem structure and function, biodiversity

[2] While well testing is not planned for the Project, there is the potential it could be needed, in which case EMGL will implement these measures

Embedded Controls	Resources/Receptors Benefited
• Perform operational training certification (including well-control training) for drill ship supervisors and engineers; • Use controls for mitigating a failure of the Dynamic Positioning (DP) system on the drill ships and maintaining station-keeping, which include the following: o Use of a Class 3 DP system, which includes numerous redundancies; o Rigorous personnel qualifications and training; o Sea trials and acceptance criteria; o Continuous DP proving trials; o System Failure Mode and Effects Analysis; o Continuous DP failure consequence analysis; and o Establishment of well-specific operations guidelines.	
Maintain marine safety exclusion zones to be issued through MARAD with a 500-metre (radius around drill ships, major installation vessels and the FPSO, and a 2-nautical mile (approximately 3,704-metre) radius around the FPSO during offloading operations to prevent unauthorised vessels from entering areas with an elevated risk of collision.	Marine geology and sediments, marine water quality, marine benthic habitats, marine benthos, marine birds, marine mammals; marine turtles, marine fish, transportation
For all vessel effluent discharges (e.g., storage displacement water, ballast water, bilge water, deck drainage, etc.,) comply with International Maritime Organization (IMO) and International Convention for the Prevention of Pollution by Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78) requirements.	Marine geology and sediments, marine water quality, protected areas and special status species, coastal habitats, coastal wildlife, marine benthic habitats, marine benthos, marine mammals, marine turtles, marine fish, ecosystem structure and function, biodiversity
Use leak-detection systems for equipment, treatment, and storage facilities (fuel, chemical, etc.) on drill ships in accordance with GIIP.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Use leak-detection controls during installation and operation of SURF equipment (e.g., pigging and pressure testing of lines, periodic remotely operated vehicle surveys of subsea trees, manifolds, flowlines, and risers).	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds

Have facility personnel conduct bi-weekly well-control drills, or as operations allow, which should be attended by key personnel.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds

A3.2 Production

Potential Embedded Controls	Resources/Receptors Benefited
Use aero-derivative turbines instead of industrial turbines on the FPSO.	Climate and climate change, air quality
Provide installed compression sparing to minimize non-routine flaring during compression trips and maintenance.	Climate and climate change, air quality
Install waste heat recovery units (WHRUs) on turbine generators, where feasible, to reduce the demand of more power generation or fired heaters, thus decreasing fuel gas consumption.	Climate and climate change, air quality
Use of heat integration to recover heat from the process, instead of using a fired heater.	Climate and climate change, air quality
Use of deep seawater intake (~250 m water depth) enables use of lower temperature seawater for process cooling, which reduces seawater pumping requirements and power consumption.	Climate and climate change, air quality
Where practical, use large, high-voltage motors, which are more efficient than industry-standard machines.	Climate and climate change, air quality
Implement an FPSO topsides LDAR program to reduce fugitive emissions.	Climate and climate change, air quality
Develop a flare management plan to document the design measures and operational practices that minimize non-routine flaring during Project FPSO operations.	Climate and climate change, air quality
Instead of continuous flaring of gas reinject gas that is not used as fuel gas on the FPSO—excluding other de minimis sources not captured by the Vapor Recovery Unit (VRU)	Climate and climate change, air quality
Install Vapor Recovery Unit (VRU) on the FPSO cargo tanks, which results in a reduction in FPSO cargo tank emissions.	Climate and climate change, air quality
Install Vapor Recovery Unit (VRU) for low-flow process streams from produced water and TEG regeneration, resulting in a reduction in emissions to the atmosphere.	Climate and climate change, air quality

Potential Embedded Controls	Resources/Receptors Benefited
Optimize gas turbine maintenance so that gas turbines are not overhauled more often than needed, and also to ensure overhauls are completed at the right time, in alignment with other FPSO maintenance activities to reduce the need to flare.	Climate and climate change, air quality
Record volumes of hydrocarbons flared and make available to the EPA upon request.	Climate and climate change, air quality
Use highly efficient combustion equipment that utilizes recovery heat systems as part of the heat and power production.	Climate and climate change, air quality
With respect to the operation of the flare, the following measures will be implemented: • Properly inspect, maintain, monitor, certify, and function-test flare equipment prior to and throughout operations. • Design and build combustion equipment to appropriate engineering codes and standards. • Use flare tip of a non-pollutant type and a burning efficiency high enough to support low hydrocarbon emissions to the atmosphere. • Minimise risk of pilot blowout by ensuring sufficient exit velocity and provision of wind guards. • Use a reliable pilot ignition system. • Install safety instrumented systems, as appropriate, to reduce overpressure events and avoid or reduce non-routine flaring situations. • Minimise liquid carryover and entrainment in the gas flare stream, with a suitable liquid separation system, with sufficient holding capacity for liquids that may accumulate, and which is designed in accordance with GIIP (World Bank 2015). • Equip liquid separation system (e.g., knockout drum) with high-level facility shutdown or high-level alarms, and empty as needed to increase flare combustion efficiency. • Implement source gas reduction measures (i.e., gas re-injection into reservoir) to the extent possible to avoid or reduce flaring from the FPSO. • Minimise flaring from purges and pilots without compromising safety through measures such as installation of purge gas reduction devices, VRUs,	Climate and climate change, air quality

Potential Embedded Controls	Resources/Receptors Benefited
inert purge gas, and soft seat-valve technology where appropriate, and installation of safety pilots on the flare. • Minimise flame lift off and/or flame lick.	
Employ reasonable efforts and execute a maintenance program to minimize equipment breakdowns and plant upsets that could result in non-routine flaring and make provisions for equipment sparing and plant turn-down protocols where practical.	Climate and climate change, air quality
Implement inspection, maintenance, and surveillance programs to identify and prevent unplanned emissions to atmosphere onboard the FPSO.	Climate and climate change, air quality
Limit flaring during commissioning and start-up to three months (i.e., 90 cumulative days).	Climate and climate change, air quality
Avoid routine venting (excludes atmospheric tank flashing emissions, standing/ working/breathing losses, secondary sealing) except during safety and emergency conditions.	Climate and climate change, air quality
Adopt GIIP as far as practicable, in facility design to address venting and flaring options under emergency or upset conditions.	Climate and climate change, air quality
Implement a corrosion management system to monitor risks and identify corrective actions in the atmospheric zone, splash zone, submerged zone, and internal zone.	Marine geology and sediments, marine water quality, marine benthic habitats, marine benthos, marine birds, marine mammals, marine turtles, marine fish
Treat produced water on board the FPSO to an acceptable specification prior to discharging. Limit oil content of discharged produced water to both the daily maximum of less than or equal to 42 mg/L and the monthly average less than or equal to 29 mg/L. If oil content of produced water is observed to exceed these limits, route it to an appropriate storage tank on the FPSO until the treatment system is restored and the discharge meets the noted specification.	Marine water quality, protected areas ad special status species, Marine benthic habitats, marine mammals, marine turtles, marine fish, marine benthos, seabirds, ecosystem structure and function, biodiversity
Limit oil content of discharged slop water to both the daily maximum of less than or equal to 42 mg/L and the monthly average less than or equal to 29 mg/L.	Marine water quality, protected areas ad special status species, Marine benthic habitats, marine mammals, marine turtles, marine fish, marine benthos, seabirds,

Potential Embedded Controls	Resources/Receptors Benefited
If slop water is comingled with bilge water, compliance criteria will be whichever is more stringent.	ecosystem structure and function, biodiversity
Overboard discharges require periodic monitoring to ensure environmental conditions are met. Requirements include: • All continuous overboard streams shall have a way to measure temperature as close to the discharge point as possible. Streams that are heated above ambient surface seawater temperature shall have a continuous temperature measurement. Streams that are not heated (e.g., select seawater treatment overboard lines) shall be confirmed through as-needed checks of metal skin temperature. • All continuous overboard streams shall have a sample collection point. The type of sample collection point shall be confirmed as some from the seawater system could be via drain valve.	Marine water quality, protected areas and special status species, marine mammals, marine turtles, marine fish, marine benthos, seabirds, ecosystem and function, biodiversity
Design cooling water discharges from FPSO to avoid increases in ambient water temperature of more than 3°C at 100 metres from discharge point.	Marine water quality, protected areas and special status species, marine mammals, marine turtles, marine fish, marine benthos, seabirds, ecosystem and function, biodiversity
Install temperature probes on effluent locations to allow for real-time remote and on-site monitoring of water temperature before discharge including data trending in control system and Petroleum Information system.	Marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds, ecosystem and function, biodiversity
Consider evaluating available alternatives for antifouling chemical dosing to prevent	Marine water quality, protected areas and special status species, marine mammals, marine turtles, marine fish, marine benthos, seabirds, ecosystem and function, biodiversity
Perform daily visual inspections on the FPSO of discharge points to verify that there are no floating solids or discoloration of the surrounding waters	Marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds,

Potential Embedded Controls	Resources/Receptors Benefited
	ecosystem and function, biodiversity
Establish dedicated Vessel Traffic Control Center (VTCC) to monitor and advise vessel traffic supporting FPSO operations.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Establish dedicated vessel traffic fairways from centralized traffic hubs to reduce risk of vessel collisions and subsequent environmental impacts.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Employ a dedicated Mooring Master to supervise offloading activities, according to the conditions of the sea. The conditions and characteristics of the export tankers will be assessed by the Mooring Master and reported to the offshore installation manager, or equivalent, prior to commencing offloading operations. Use only properly registered and well-maintained double-hull vessels.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, marine benthic habitats, seabirds
Use support tugs to aid tankers in maintaining station during approach/departure from the FPSO and during offloading operations.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Use a hawser with a quick-release mechanism to moor the FPSO to the tanker at a safe separation distance during offloading operations.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Establish operating conditions for FPSO offloading to tankers to support safe operations. In the event that adverse weather occurs during offloading operations that is beyond the baseline environmental levels, the tanker will cease offloading operations and may disconnect and safely maneuver away from the FPSO as appropriate.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Use breakaway couplers on offloading hoses that will stop the flow of condensate from the FPSO during an emergency disconnect scenario.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds

Potential Embedded Controls	Resources/Receptors Benefited
Use leak-detection controls during FPSO offloading (e.g., for breach of floating hose, instrumentation/procedures to perform volumetric checks).	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, marine benthic habitats, seabirds
Use a liquid hydrocarbon checklist before every bulk transfer.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Use a load-monitoring system in the FPSO control room to support FPSO offloading.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Use procedures for loading, storage, processing, and offloading operations, either for consumables (i.e., fuel, drilling fluids, and additives) or for liquid products, to minimize spill risks. Inspect pumps, hoses, and valves on a monthly basis, and perform maintenance as needed.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, marine benthic habitats, seabirds
Adopt risk assessment processes (e.g., hazard and operability study, hazard identifications study, etc.) to assess risks associated with process upset and loss-of-containment events which could impact the environment.	Transportation, marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds

A3.3 General Measures

Potential Embedded Controls	Resources/Receptors Benefited
Regularly maintain equipment, marine vessels, vehicles, and helicopters and operate them in accordance with manufacturers' specifications and at their optimal levels to minimize atmospheric emissions and sound levels to the extent reasonably practicable.	Air quality, climate and climate change, sound, marine water quality, marine mammals, marine turtles, riverine mammals
Use low-sulfur (less than 0.5% sulfur content) fuels and/or natural gas on all Project vessels in turbines, reciprocating engines, or boilers used for heat or power generation or to drive machinery such as compressors or pumps.	Climate and climate change, air quality

Potential Embedded Controls	Resources/Receptors Benefited
Adhere to operational controls regarding material storage, wash-downs, and drainage systems.	Marine water quality, protected area and special status species, marine benthic habitats, marine benthos, marine mammals, marine turtles, marine fish, seabirds, ecosystem structure and function, biodiversity
Implement an Environmental Effects Monitoring program with the intent to monitor water and sediments across the direct Area of Influence (AOI).	Marine water quality, protected area and special status species, marine benthic habitats, marine benthos, marine mammals, marine turtles, marine fish, seabirds, ecosystem structure and function, biodiversity
When selecting a new chemical, implement chemical selection processes and principles that exhibit recognized industry safety, health, and environmental standards. Use low-hazard substances. The chemical selection process is aligned with applicable Guyanese laws and regulations and includes: • Review of Safety Data Sheets; • Evaluation of alternate chemicals; • Consideration of hazard properties in the selection of chemicals that reduce potential environmental impact, while balancing operational effectiveness and meeting performance criteria, including: o Using the minimum effective dose of required chemicals; o Minimum safety risk relative to flammability and volatility; and o Risk evaluation using hazard and risk quotients for chemical releases into the environment.	Climate and climate change, air quality, marine water quality, marine geology and sediments, marine mammals, marine turtles, riverine mammals, marine fish, marine benthos, seabirds
Use low-toxicity chemicals/materials where practical. Each chemical/material should be managed in accordance with the associated Safety Data Sheet.	Climate and climate change, air quality, marine water quality, marine geology and sediments, marine mammals, marine turtles, riverine

Potential Embedded Controls	Resources/Receptors Benefited
	mammals, marine fish, marine benthos, marine benthic habitats, seabirds
Shut down (or throttle down) combustion equipment in intermittent use where reasonably practicable in order to reduce air emissions.	Climate and climate change, air quality
Use secondary containment for storage of bulk fuel, drilling fluids, and hazardous materials, were reasonably practicable.	Marine water quality
For effluent released from the onboard sewage treatment plant, comply with aquatic discharge standards in accordance with MARPOL 73/78 regulations.	Marine geology and sediments, marine water quality, protected areas and special status species, marine mammals, marine turtles, marine fish, marine benthos, marine benthic habitats, seabirds
Treat food waste in accordance with MARPOL 73/78 (e.g., food comminuted to 25-millimeter-diameter particle size or less) prior to discharge.	Marine geology and sediments, marine water quality, protected areas and special status species, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Treat bilge water in accordance with MARPOL 73/78 to comply with an oil- content of less than 15 parts per million, as applicable.	Marine geology and sediments, marine water quality, marine mammals, marine turtles, marine fish, marine benthos, seabirds
Provide awareness training to Project-dedicated marine personnel to recognize signs of marine mammals and riverine mammals at the sea surface. Provide standing instruction to Project-dedicated vessel masters to avoid rafting marine birds, marine mammals, riverine mammals, and marine turtles while underway and reduce speed or deviate from course, when possible, to reduce probability of collisions.	Marine mammals, marine turtles, riverine mammals, seabirds
Provide screening for seawater intakes to reduce risk of debris entering cooling and ballast water systems.	Protected areas and special status species, marine fish

Potential Embedded Controls	Resources/Receptors Benefited
Provide standing instructions to EMGL-contracted vessel masters to reduce their speed within 300 metres of observed marine mammals and marine turtles, and to not approach the animals closer than 100 metres.	Marine turtles, marine mammals
Observe standard international and local navigation procedures in and around the Georgetown Harbour and Demerara River, as well as best ship-keeping and navigation practices while at sea.	Transportation
Equip Project vessels with radar systems and communication mechanisms to communicate with third-party mariners.	Transportation
Coordinate with relevant aviation authorities and stakeholders to understand peak Project-related utilization rates.	Transportation
Where practicable, direct lighting on FPSO and major Project vessels to required operational areas rather than at the sea surface or skyward consistent with applicable maritime safety regulations/standards.	Protected areas and special status species, seabirds, marine turtles
Employ Guyanese citizens having the appropriate qualifications and experience, where reasonably practicable.	Socioeconomic conditions, employment and livelihoods
Partner with select local institutions and agencies to support workforce-development programs targeted to in-demand skillsets, and proactively message Project-related employment opportunities.	Socioeconomic conditions, employment and livelihoods
Provide full, fair, and transparent opportunities for Guyanese businesses in the procurement of Project goods and services.	Socioeconomic conditions, employment and livelihoods
Procure Project goods and services from Guyanese suppliers when available on a timely basis, and when they meet minimum standards and are commercially competitive.	Socioeconomic conditions, employment and livelihoods
Provide health screening and testing procedures to Project workers to reduce risks of transmitting communicable diseases.	Community health and wellbeing
Develop and implement a Stakeholder Engagement Plan.	Community health and wellbeing

Potential Embedded Controls	Resources/Receptors Benefited
Implement a transparent, accessible, and consistent Community Grievance Mechanism (CGM) early on, prior to onset of Project activities.	Community health and wellbeing
Monitor grievances received and resolved by the CGM; adjust CGM and other management measures, as appropriate.	Community health and wellbeing
Implement a community safety program for potentially impacted schools and neighborhoods to increase awareness and minimize potential for community impacts due to vehicle incidents.	Transportation, community health and wellbeing
Implement EMGL's general transportation procedures to mitigate increased risk of vehicular accidents associated with Project-related ground transportation activities: • Typical, primary travel routes for ground transportation in Georgetown area; • Onshore logistics/journey management plans to reduce potential conflicts with local road traffic when transporting goods to/from onshore support facilities; • Required driver training for Project-dedicated drivers, including (but not limited to) defensive driving, loading/unloading procedures, and safe transport of passengers, as applicable; • Enforcement of speed limits through speed governors, global positioning system, or other monitoring systems for Project-dedicated vehicles; • Avoidance of deliveries during typical peak-traffic hours, as well as scheduled openings of the Demerara Harbour Bridge, to the extent reasonably practicable; • Monitoring and management of driver fatigue; • Vehicle inspection and maintenance protocols that include all applicable safety equipment for Project-dedicated vehicles; and • Community outreach to communicate information relating to major delivery events or periods.	Transportation community health and wellbeing
Coordinate with relevant aviation authorities and stakeholders to understand peak Project-related utilization rates.	Transportation

Potential Embedded Controls	Resources/Receptors Benefited
Use an established Safety, Security, Health, and Environment program to which all Project workers and contractors will be required to adhere to in order to mitigate occupational hazards. Train workers and contractors on implementation of these principles and the requirement to adhere to them in the daily execution of their duties.	Occupational health and safety
Maintain an Oil Spill Response Plan (OSRP) to effectively respond to an oil release, including maintaining the equipment and other resources specified in the OSRP. Conduct periodic inspections, training, and drills including monthly inspection of oil spill response equipment, quarterly test runs of oil spill response equipment, annual preventive maintenance program execution, and annual exercise and deployment of oil spill response equipment to test readiness and response capability.	All resources and receptors potentially impacted by an oil release
Develop a waste profile for each waste stream to document the waste	Waste management and infrastructure
For wastes that cannot be reused, treated, or discharged/disposed on the drill ships or FPSO, properly manifest and transfer such wastes to appropriate onshore facilities for management.	Waste management and infrastructure
For transport of hazardous and non-hazardous wastes off site for treatment or disposal, confirm the waste is accompanied by a manifest signed by the hazardous waste generator, transporter, and receiving facility.	Waste management and infrastructure

Potential Embedded Controls	Resources/Receptors Benefited
Avoid, reduce, and reuse/recycle wastes preferentially prior to disposal in accordance with waste-management hierarchy.	Waste management and infrastructure
Sample and perform analytical testing as needed to properly classify waste.	Waste management and infrastructure
Secure and contain fuel, oils, and chemicals in accordance with their Safety Data Sheet recommendations.	Waste management and infrastructure
Perform onshore waste treatment for certain categories of waste, thereby reducing	Waste management and infrastructure
Provide for adequate onshore waste-management equipment and facilities for the proper management of waste in accordance with local regulation and GIIP.	Waste management and infrastructure

Adopt and implement, as needed, a Chance Find Procedure that describes the requirements in the event of a potential chance find of heritage or cultural heritage resources. Include training for Project and contractor personnel with the potential to identify underwater chance finds.	Cultural heritage
Implement Cultural Heritage Monitoring Program for activities that disturb the sea floor.	Cultural heritage

APPENDIX 4: SUMMARY OF RESIDUAL IMPACT SIGNIFICANCE RATINGS, RESIDUAL RISK RATINGS, AND CUMULATIVE IMPACT PRIORITY RATINGS

Resource	Highest Residual Impact Significance Rating (Planned Project Activities)			Highest Residual Risk Rating (Unplanned Events)	Cumulative Impact Priority Rating
	Drilling and Installation	Production	Decommissioning		
Air Quality, Climate, and Climate Change	Negligible	Moderate	Negligible	Minor	Low (Air Quality) Medium (Climate)
Sound [a]	None	None	None	None	NA
Marine Geology and Sediments	Negligible	None	None	Moderate	NA
Marine Water Quality	Minor	Negligible	Negligible	Moderate	Low
Protected Areas	None	None	None	Moderate	NA
Special Status Species: [b]					
• Terrestrial species and coastal marine fish	Negligible	Negligible	Negligible	Minor	Low
• Critically Endangered and Endangered Offshore Marine Fish	Moderate	Negligible	Negligible	Minor	Low
• Vulnerable offshore marine fish	Minor	Negligible	Negligible	Minor	Low
• Near threatened seabirds and endangered Black-capped Petrel (*Pterodroma hasitata*)	Negligible	Minor [d]	Negligible	Minor	Low
• Vulnerable Leach's Storm-Petrel (*Oceanodroma leucorhoa*)	Negligible	Minor [d]	Negligible	Moderate [e]	Low
Coastal Habitats	None	None	None	Moderate	NA
Coastal Wildlife	None	None	None	Minor	NA
Seabirds [c]	Negligible	Minor	Negligible	Minor	NA
Marine Mammals	Minor	Minor	Negligible	Moderate	Medium
Riverine Mammals	Minor	Minor	Minor	Minor	Low
Marine Turtles	Negligible	Negligible	Negligible	Moderate	Low
Marine Fish [f]	Minor	Negligible	Negligible	Minor	Low
Marine Benthos	Negligible	Positive	Positive	Minor	NA
Ecosystem and Function	Minor	Minor	Minor	Minor	Low
Socioeconomic Conditions [g]	Minor	Minor	Minor	Minor	Low

Resource	Highest Residual Impact Significance Rating (Planned Project Activities)			Highest Residual Risk Rating (Unplanned Events)	Cumulative Impact Priority Rating
	Drilling and Installation	Production	Decommissioning		
Employment and Livelihoods [h]	Minor	Minor	Minor	Minor	Low
Community Health and Wellbeing	Minor	Minor	Minor	Minor to Moderate	Low
Transportation:					
• Commercial cargo	Negligible	Negligible	Negligible	Minor	Low
• Commercial fishing	Minor	Minor	Minor	Minor	Low
• Subsistence fishing	Minor	Minor	Minor	Minor	Low
Social Infrastructure and Services:					
• Lodging	Minor	Negligible	Negligible	Minor	Low
• Housing and utilities	Minor	Negligible	Negligible	Minor	Low
• Ground transportation	Minor	Minor	Minor	Minor	Low
• Air transportation	Negligible	Negligible	Negligible	Minor	Low
Waste Management Infrastructure Capacity	Minor	Minor	Minor	Minor	Medium
Cultural Heritage	Negligible	None	None	Minor	NA
Land Use	Negligible	Negligible	Negligible	Minor	NA
Ecosystem Services	None	None	None	Minor	NA
Indigenous Peoples	None	None	None	Minor	NA

NA = not applicable (not assessed in cumulative impact assessment); scoped out as potentially eligible

[a] Potential underwater sound-related impacts on marine mammals, marine turtles, and marine fish are assessed in the resource-specific sections for those resources.

[b] Includes only seabirds and marine fish. Excludes listed marine turtles, listed marine mammals, and listed riverine mammals, which are covered in the Marine Turtles, Marine Mammals, and Riverine Mammals resource categories, respectively.

[c] Excludes listed seabirds, which are covered in the Special Status Species resource category.

[d] Based on the 20-year presence of the FPSO (as a lighted attractant), the potential impact significance to special status marine birds during the production stage is considered Minor.

[e] The residual risk rating for Leach's Storm-Petrel is considered Moderate based on the results of marine bird surveys in 2017, 2018, and 2019, which documented the importance of the offshore zone as a migratory corridor for this special status marine bird.

[f] Excludes listed marine fish, which are covered in the Special Status Species resource category.

[g] Reflects the highest residual impact significance rating for impacts to lower income subpopulation, although other impacts will be beneficial and therefore Positive.

[h] Reflects the highest residual impact significance rating for impacts to fisherfolk, although other impacts will be beneficial and therefore Positive.