PROJECT SUMMARY
HAMMERHEAD DEVELOPMENT, STABROEK LICENSE AREA, OFFSHORE GUYANA

Esso Exploration and Production Guyana Limited

January 2020

BACKGROUND

Esso Exploration and Production Guyana Limited (EEPGL) is the designated Operator of the Stabroek Block under a Petroleum Agreement signed by EEPGL 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 km^2 (10,350 square miles) and was executed together with a Petroleum Prospecting Licence for the Stabroek Block. In May 2015, EEPGL announced a significant discovery of high-quality oil-bearing sands with the Liza-1 well (approximately 190 km [120 miles] offshore Guyana). In January 2017, EEPGL announced another significant discovery with the Payara-1 well, and in July 2017, EEPGL announced the successful Payara-2 exploration well. Based on exploration and assessment activities, EEPGL has estimated that the Stabroek Block contains more than 6 billion barrels of oil-equivalent recoverable resource, including the recent discoveries at Yellowtail-1, Tripletail-1 and Mako-1, as well as several other successful exploration wells.

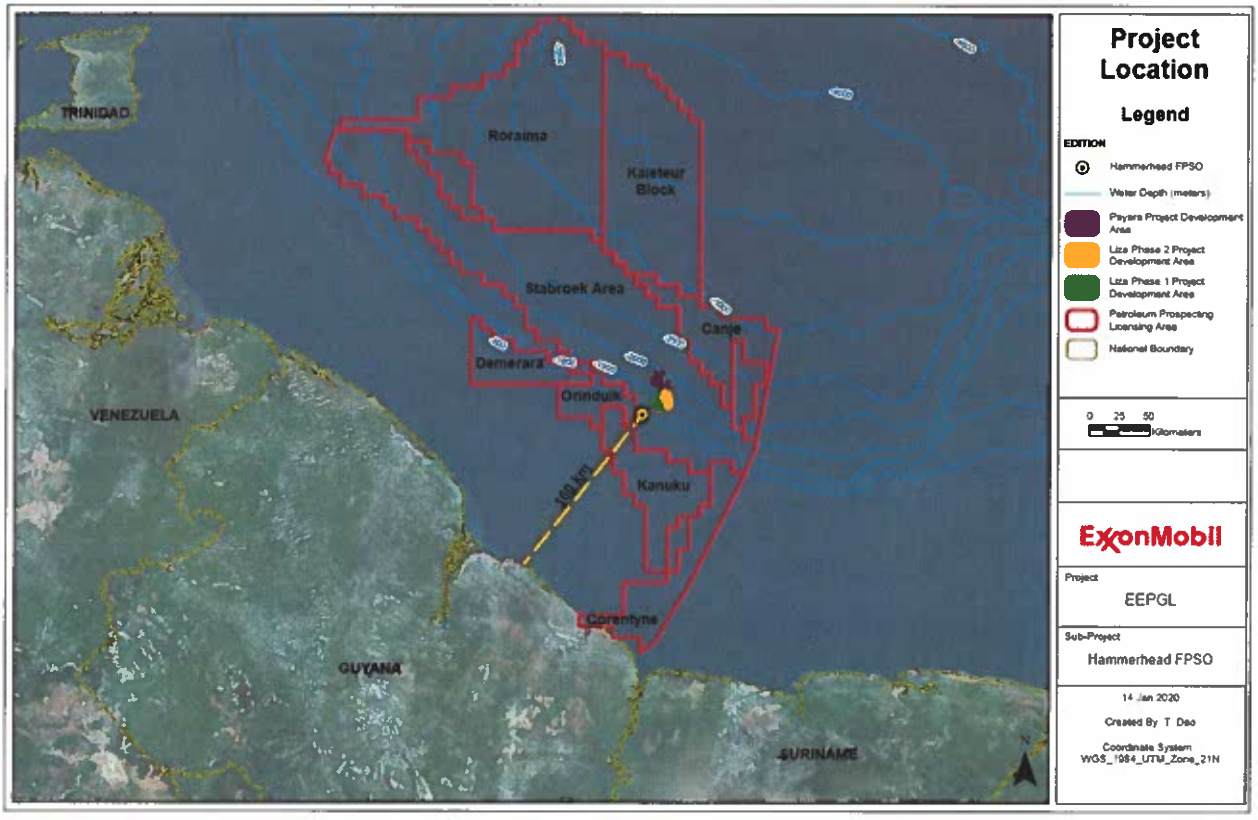
For historical context, petroleum exploration offshore Guyana began in the late 1950s and prior to the current activity by EEPGL and others, historical activity had peaked in the late 1960s. Exploration activity offshore Guyana decreased substantially from the mid-1970s through the early 2000s. Most recently, EEPGL has undertaken over four years of exploration and assessment activities in the Stabroek Block, starting with the first exploration well, Liza-1, which was drilled during the first half of 2015. Subsequent wells in the Stabroek Block have since been drilled, and EEPGL has an ongoing multi-well exploration drilling program in the Stabroek Block. In June 2017, the Ministry of Natural Resources (MNR) issued EEPGL and its co-venturers a Petroleum Production License covering certain production area in the Stabroek Block and the Environmental Protection Agency (EPA) issued an Environmental Permit for the Liza Phase 1 Development associated with such Petroleum Production License. The Liza Phase 1 Development Project (Liza Phase 1) is being executed; the Floating Production, Storage, and Offloading vessel (FPSO) for Liza Phase 1 – the Liza Destiny - is moored approximately 190 km off the north coast of Guyana and is in production. The Liza Phase 2 Development Project (Liza Phase 2) was approved in April 2019 with drilling and SURF installation activities to begin in the 1Q2020 and expected first oil by early 2022. The Payara Development Project (Payara) Environmental Impact Assessment and Field Development Plan were submitted in 2H2019 and are currently under review. A formal Payara Project execution announcement (i.e. formal decision to proceed) would be made upon receipt of these required approvals). Combined, Liza Phases 1 and 2 and Payara include up to approximately 95 subsea development wells and three FPSOs to process, store, and offload the recovered oil. EEPGL has also conducted multiple geotechnical, seismic, metocean and environmental surveys since 2014 and further surveys are planned for 2020 and 2021.

SITE, DESIGN, AND SIZE OF PROJECT

EEPGL is considering initiating a fourth development within the Stabroek Block, the Hammerhead Development Project (Hammerhead or "the Project"), which would serve as the fourth oil and gas development project in Guyana. Figure A.1 shows the proposed location of the Hammerhead FPSO within the Stabroek Block, approximately 160 km (99 miles) northeast of Georgetown, Guyana.

The Stabroek Block is located on the continental slope between Guyana's continental shelf and the deep marine plain of the tropical North Atlantic Ocean east of the Lesser Antilles. Guyana's nearshore oceanography, bathymetry, water quality, and sedimentology are largely determined by the interaction of the Amazonian waters of the Guiana Current with the marine waters of the tropical North Atlantic and discharge from the Orinoco River. The entire continental shelf, continental slope, and the adjoining portion of the abyssal plain (including the area in which Hammerhead would be developed) are part of the North Brazil Large Marine Ecosystem (LME), which has a substrate generally composed of mud and silt deposited by the North Brazil Current.

Figure A.1 Location of the Hammerhead FPSO within the Stabroek Block



The development plan for Hammerhead will use an FPSO and a subsea, umbilicals, risers, and flowlines (SURF) production system similar to those of Liza Phases 1 and 2 and Payara. Although

the developments will be similar, they are independent development projects. The FPSO and subsea production system is a proven approach for deepwater oil developments and would leverage both operator and industry proven technologies and experiences from other regions (e.g., West Africa).

The major components of the proposed Hammerhead Development as well as key differences between the Liza Phase 1 and 2 and Payara Developments are highlighted in Table A.1.

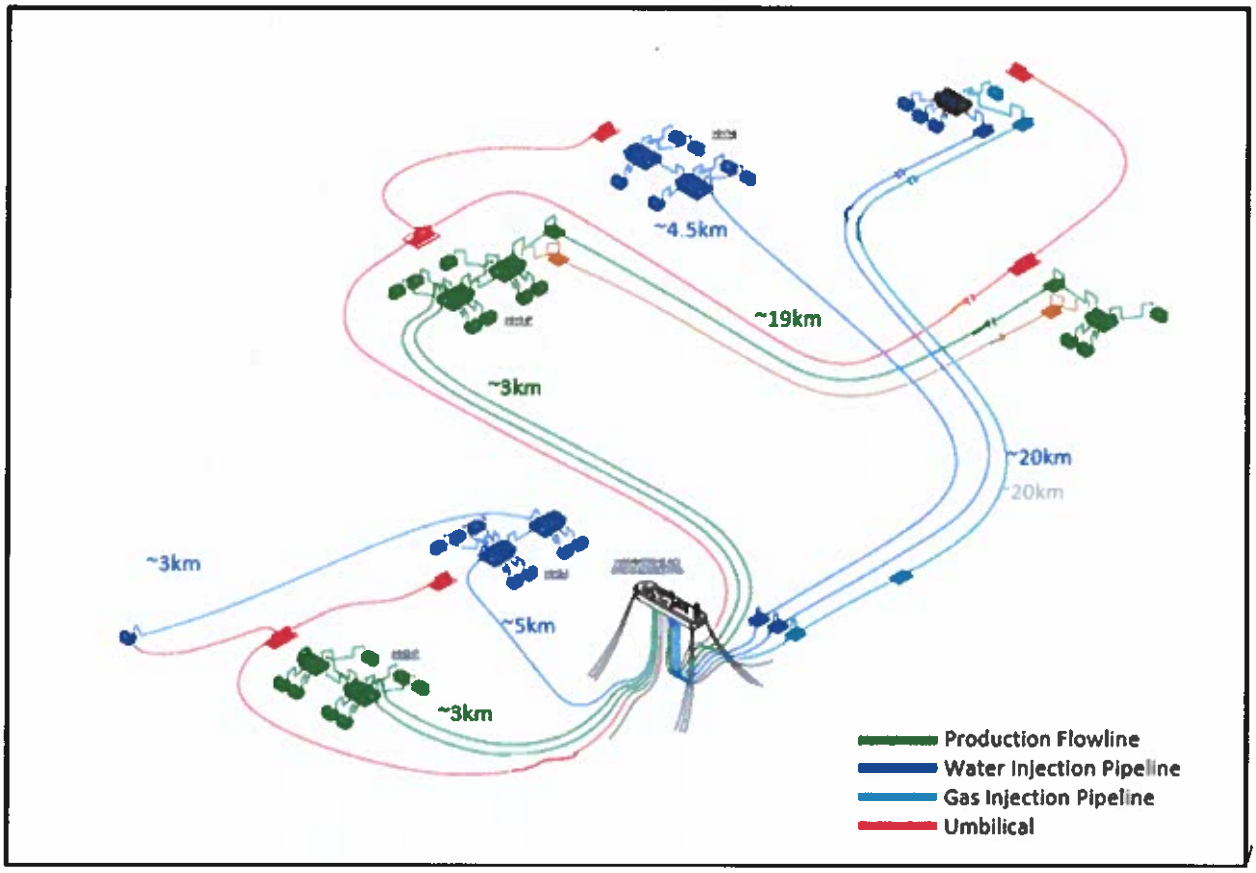
Table A.1 – Major Components of the Hammerhead, Payara, and Liza Phase 1 and 2 Developments

Major Component	Hammerhead	Payara	Liza Phase 2	Liza Phase 1
Surface Production Facility Design Concept	A single Floating Production, Storage, and Offloading (FPSO) vessel is used for each development			
Distance from Shore	160 km	Each FPSO is approx. 200 km from Georgetown		
FPSO Mooring System	Each FPSO uses a spread mooring system with mooring lines connected to anchor piles embedded in seafloor			
Oil Production Capacity (barrels per day)	Approx. 150,000 to 190,000	Approx. 180,000 to 220,000	220,000	100,000, capable of sustained peaks up to 120,000
FPSO Oil Storage Capacity	Approx. 1.6 to 2.0 million barrels	Approx. 2.0 million barrels	Approx. 2.0 million barrels	1.6 million barrels
Offloading Frequency by Export Tankers	Every 7 - 8 days	Every 4 - 6 days	Every 4 - 6 days	Every 5 - 10 days
Subsea Production Facility Design Concept	Each development uses subsea production trees, and gas/water injection trees clustered around subsea manifolds			
Wells	Approx. 26 - 30 wells	Approx. 35 - 45 wells	Approx. 33 wells	17 wells
Drill Ships	Each development may use multiple dynamically-positioned drill ships			

Onshore Support including Shorebase	Onshore infrastructure includes shorebase, pipe yards, fabrication facilities, fuel supply facilities, and waste management facilities; potential sharing among developments
Logistics Support	Marine vessels and helicopters throughout all stages; potential sharing among developments

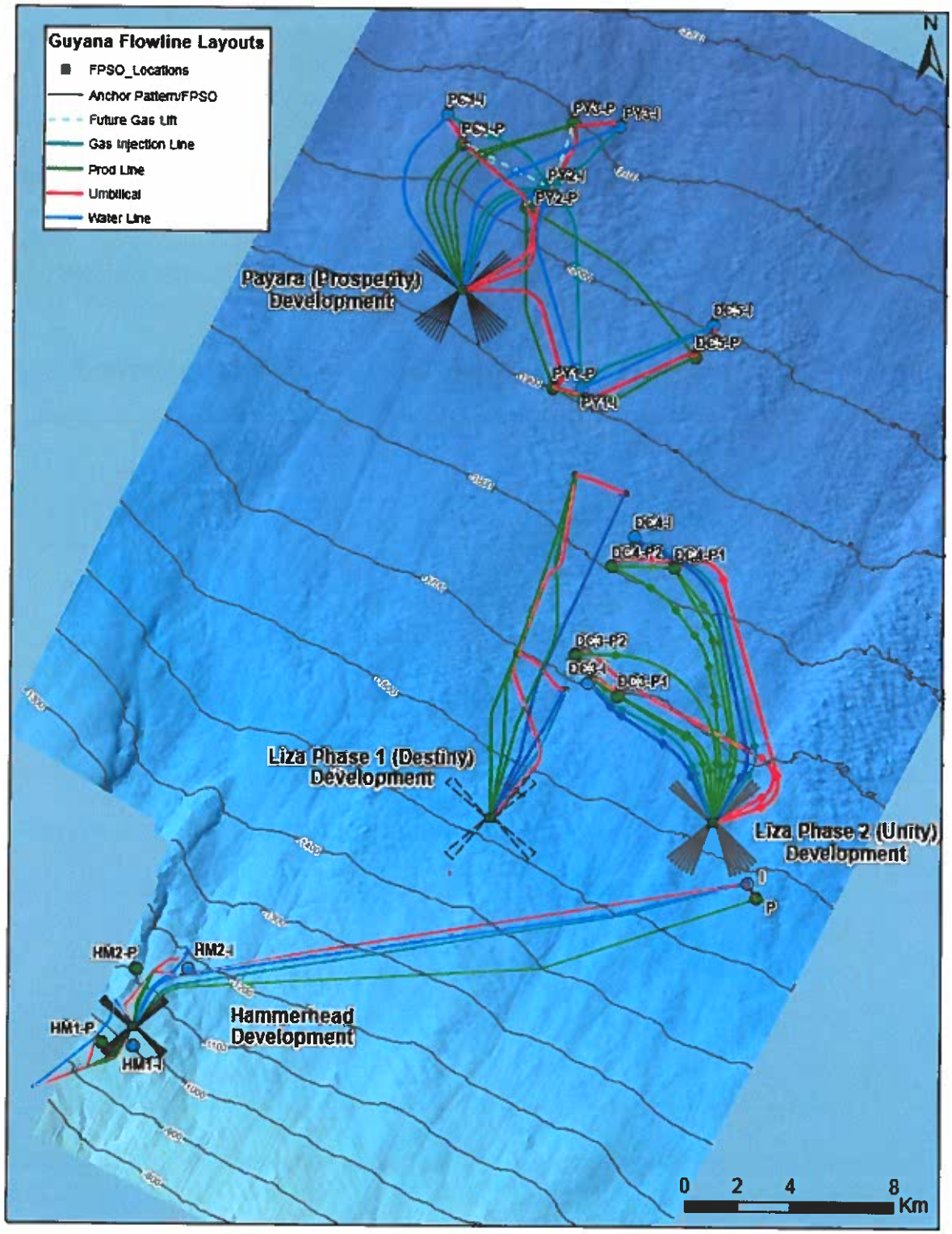
Figure A.2 illustrates the preliminary conceptual layout of the production system, as the Hammerhead Development is in the preliminary design phase. Figure A.3 illustrates the preliminary areal layout of the Hammerhead Development in relation to the Liza Phases 1 and 2 and Payara Developments. The FPSO for Hammerhead will be located approximately 16 km (10 miles) to the southwest of the FPSO for Liza Phase 1.

Figure A.2 Preliminary FPSO and SURF System Layout for Hammerhead



NOTE: Locations in figure subject to change

Figure A.3 Preliminary Areal Layout for Hammerhead Development

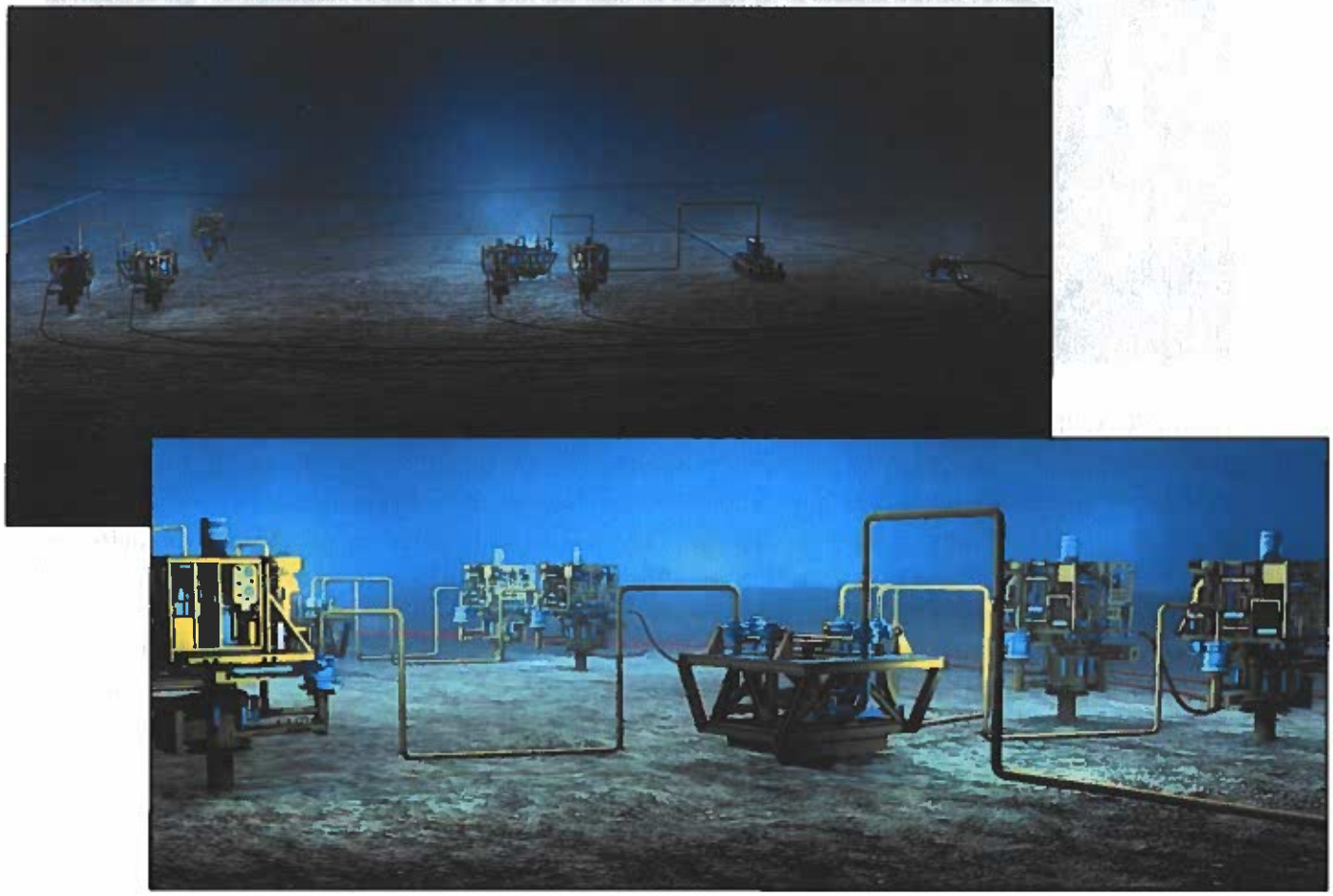


NOTE: Locations in figure subject to change

The SURF facilities for Hammerhead are composed of subsea production and injection wells clustered around subsea manifolds. Approximately 26 - 30 wells could be drilled at six subsea drill areas, consisting of a combination of producers and injectors (e.g., for the injection of water and reinjection of associated gas). Produced well stream fluids which include associated 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 A.4 represents an example of subsea facilities on the sea floor.

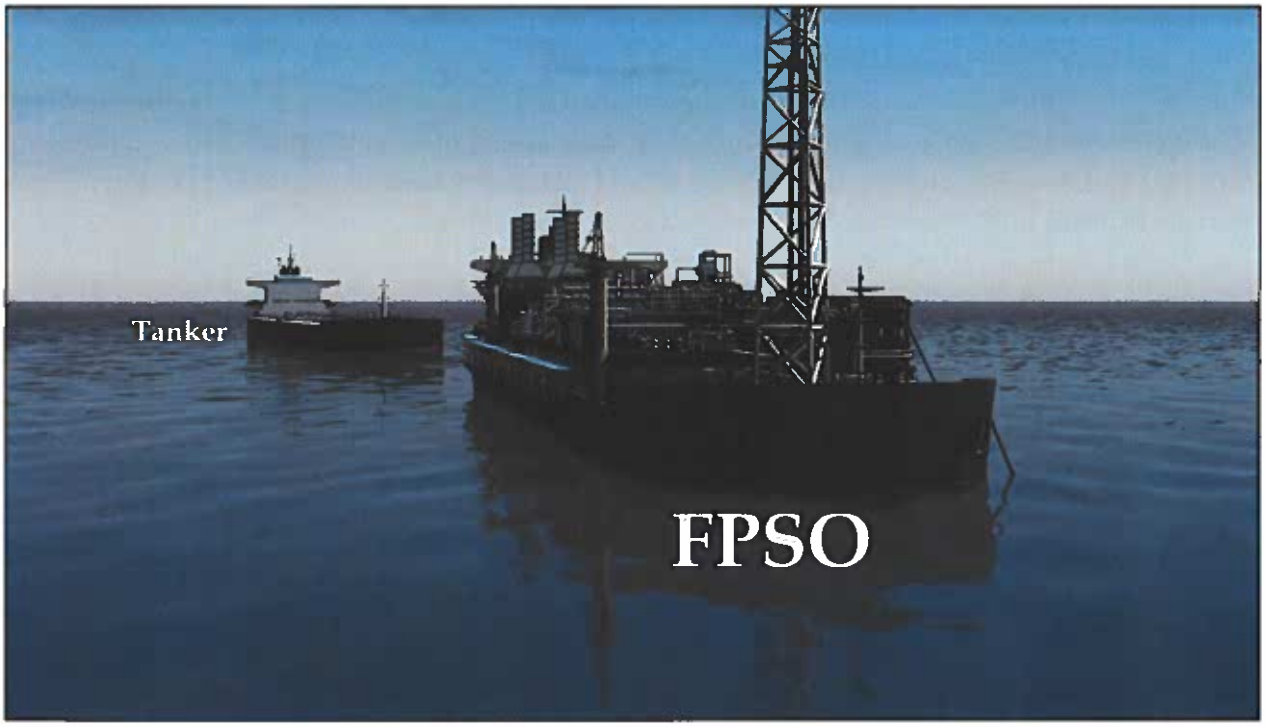
Most of the major SURF equipment will be preassembled, pre-tested, and shipped directly to the offshore Hammerhead Development Area from their points of origin. Other minor equipment, supplies, and materials may be temporarily staged at a shorebase and associated laydown yards and warehouses until transferred offshore for installation or use.

Figure A.4 Example Subsea Facilities (SURF)



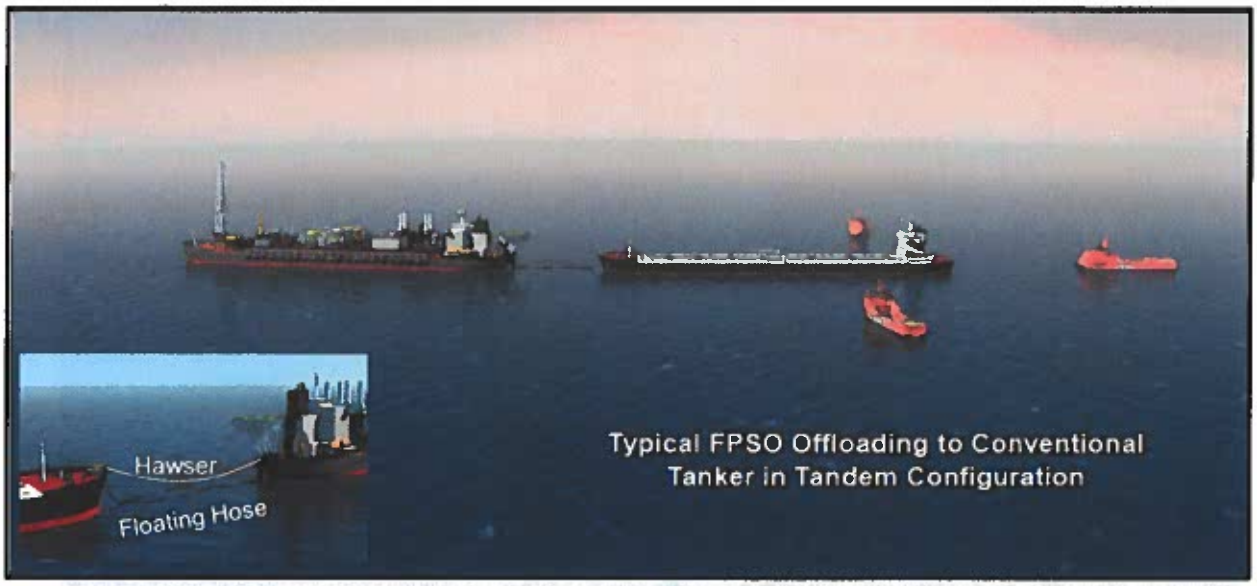
The FPSO will be a Very Large Crude Carrier (VLCC) size floating facility with double hull protection, with approximate dimensions of 340 m long by 60 m wide by 33 m deep (1,115 ft long by 197 ft wide by 108 ft deep), and will be moored on location, approximately 160 km (99 miles) offshore. See Figure A.5 for a conceptual representation of an FPSO. Oil produced from the reservoirs will be stored in the FPSO tanks prior to export. All oil produced from the FPSO will be exported to market via conventional tankers owned/operated by others.

Figure A.5 Example of FPSO and Export Tanker



The FPSO will have a production capacity of approximately 150,000 - 190,000 barrels of oil per day. During the early stage of production operations, the project is anticipated to produce an average of approximately 4,500,000 - 5,200,000 barrels of crude oil per month. These estimates are preliminary and are subject to change. The FPSO will have an oil storage capacity of approximately 1.6 – 2.0 million barrels of oil within its hull. Its mooring system will be designed to keep the FPSO on station continuously for at least 20 years. At peak production during Hammerhead operations, the FPSO will offload oil to conventional tankers approximately every 7 – 8 days. The conventional tanker will be held in position with the assistance of tug(s) to maintain a safe separation distance from the FPSO. Figure A.6 shows an example of a potential FPSO offloading configuration.

Figure A.6 Example of a Potential FPSO Offloading Configuration



Based on the water depths in the Hammerhead Development Area, multiple dynamically-positioned drill ships, as shown in Figure A.7, would be used to drill the wells. The process of drilling the wells for Hammerhead will be similar to the process followed during exploration/appraisal well campaigns (e.g., Payara-1, Payara-2, Pacora-1), as well as the Liza Phases 1 and 2 and Payara Development drilling programs. After drilling to total depth, the wells will be completed and the subsea production equipment will be installed.

During the drilling process, drill ships will require various materials, instruments, and devices to connect the drill bit to the drill ship. Various size casings will be set as the well is drilled deeper. The drilling process will also require 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 be 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.

Figure A.7 Example of Drill Ship

Operating processes during production operations will include flowing the reservoir hydrocarbons from the wells to the FPSO, where further processing, storage, and management occurs prior to offloading the oil to the conventional tankers. General maintenance of the production equipment will also be required. Some industry standard chemicals will be required as part of the processing of the oil. The production facilities will also require the use of industry standard additives to 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 during environmental authorization.

Hazardous and non-hazardous wastes as well as sanitary discharges will be produced throughout the Hammerhead Development. Garbage/Waste Management Plans that address the types and quantities of waste to be generated as a result of offshore operations will be utilized. EEPGL has a Waste Management Plan for Guyana Development Projects. The objective of the Waste Management Plan is to facilitate management of wastes in accordance with internationally accepted standards and applicable Guyana laws and regulations. Discharges of bilge water and other wastewaters from all vessels utilized for the Project will be managed in accordance with MARPOL (International Convention for the Prevention of Pollution from Ships).

The Project will utilize onshore infrastructure which may include 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 operations, and decommissioning stages. Additional logistical support may be provided by others outside of Guyana, as determined by the Project contractors. 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 Liza Phase 1 and 2 and Payara. In some cases, crew transfers may occur by marine vessel.

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 A.2 are preliminary projections for the offshore components during each stage of Hammerhead; some stages may occur concurrently.

Table A.2 – Preliminary Workforce Levels

Well Drilling	Approximately 600 persons at peak utilizing at least two Drill Ships (approx. 300 persons per Drill Ship). 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 conventional tanker	Approximately 100 - 140 persons at peak, with an additional 25 - 30 persons onboard the tanker. Estimate is dependent upon conventional tanker schedule.
Decommissioning	Approximately 60 persons at peak.

In addition to the offshore components, there will be a comparatively smaller number of personnel providing shorebase and logistical support onshore. The onshore staff will be expected to ramp up gradually through the mobilization and installation stage until reaching a maximum level during the drilling campaign and installation activities, and then diminishing during production operations. The onshore workforce is expected to increase again briefly during decommissioning. Logistical support may be shared among the Liza Phases 1 and 2, Payara, and Hammerhead Developments.

Prior to the end of the term of the Petroleum Production Licence, a decommissioning program for Hammerhead will be submitted for approval by the government, in accordance with the Petroleum Agreement. EEPGL will select, in consultation with the appropriate Guyanese agencies, the final decommissioning strategy based on 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.

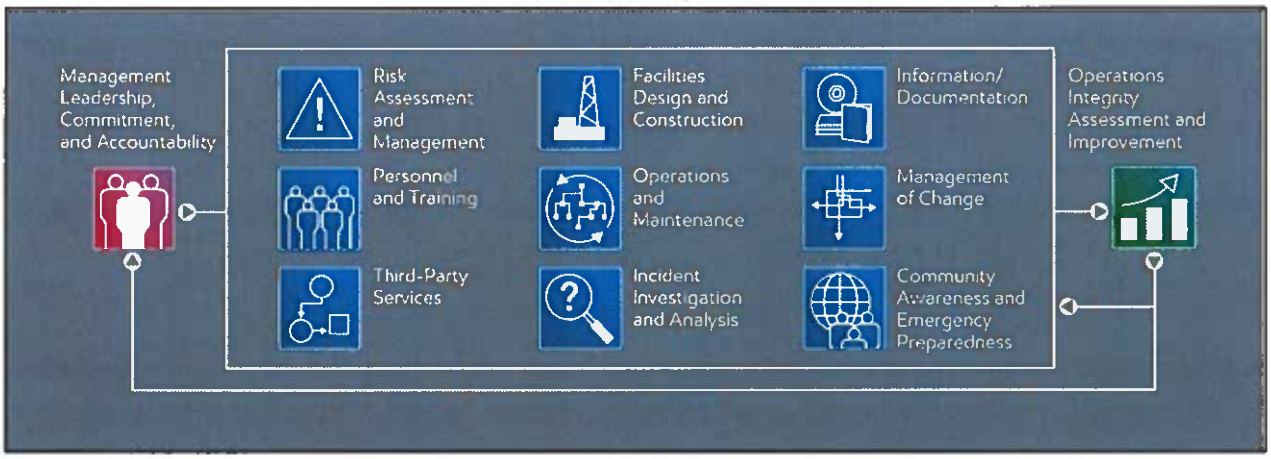
Subject to future comparative assessment, the expectation is that the SURF components would be detached from the FPSO and abandoned-in-place on the sea floor, consistent with standard industry practice. Flowlines, risers, and umbilicals would be flushed before being abandoned and wells would also be plugged and abandoned consistent with standard industry practice. The FPSO is expected to be towed away, and the FPSO mooring system would be disconnected and abandoned on the sea floor, consistent with standard industry practice.

EEPGL 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. These commitments are documented in its Safety, Security, Health, Environmental, and Product Safety policies.

These policies are put into practice through a disciplined management framework called the Operations Integrity Management System (OIMS). ExxonMobil's OIMS Framework establishes common expectations used by its affiliates worldwide for addressing risks inherent in its business. The term Operations Integrity is used to address all aspects of its business that can impact personnel and process safety, security, health, and environmental performance.

Application of the OIMS Framework is required across all of ExxonMobil's affiliates, with particular emphasis on design, construction, and operations. Management is responsible for ensuring that management systems satisfying the OIMS Framework are in place. Management system implementation will be consistent with the risks associated with the business activities being planned and performed. A graphical model of OIMS is shown in Figure A.8.

Figure A.8 Operations Integrity Management System (OIMS)



POSSIBLE IMPACTS ON ENVIRONMENT

EEPGL's environmental consultants have identified potential impacts from the Project which are related to physical, biological, and socioeconomic (inclusive of community health) values. Potential impacts could potentially be related to:

- Air quality and climate
- Sound
- Marine geology and sediments
- Marine water quality
- Coastal habitats
- Coastal wildlife
- Protected areas and special status species
- Seabirds
- Marine mammals
- Riverine mammals
- Marine turtles
- Marine fish
- Marine benthos
- Ecological balance and ecosystems
- Cultural heritage
- Community health and wellbeing
- Employment and livelihoods
- Marine use and transportation
- Social infrastructure and services
- Land use
- Ecosystem services
- Indigenous people and traditional use of resources and land
- Economy/economic conditions
- Waste management infrastructure capacity
- Cumulative impacts

The potential impacts, which are expected to be similar to those identified in the Liza Phase 1 and 2 and Payara EIAs, could be directly and/or indirectly generated by Hammerhead during drilling and installation, hook-up and commissioning, production operations, and/or decommissioning, and such impacts could be adverse or positive in nature. The potential for cumulative impacts exists where impacts from Hammerhead overlap with those of Liza Phases 1 and 2 and Payara (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 Hammerhead assessment of impacts. Additional information on potential impacts is included in Attachment A.

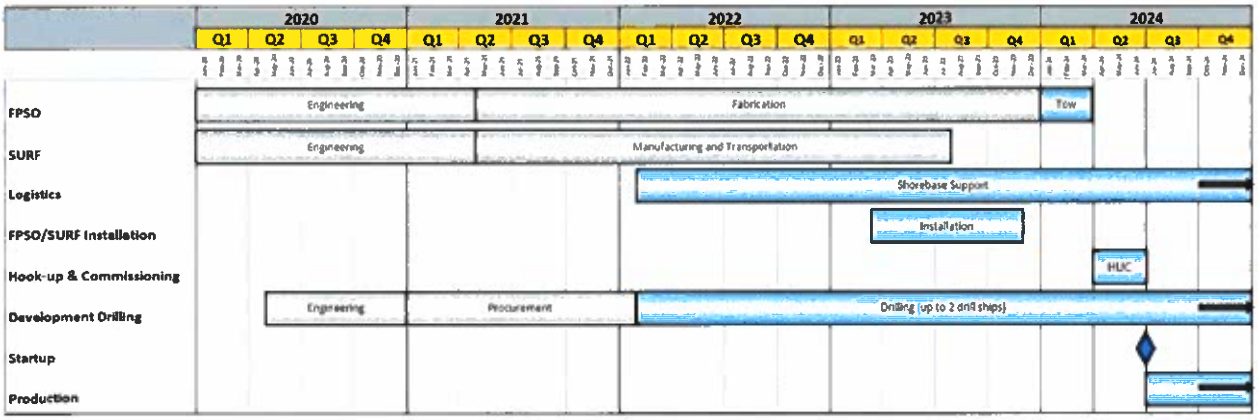
Should an Environmental Impact Assessment (EIA) be required by the Guyana Environmental Protection Agency (EPA) as part of the environmental authorization process, EEPGL will scope, study, and assess potential impacts from the Hammerhead Development in an EIA per the laws of Guyana, in particular the Environmental Protection Act 1996. Through an EIA, EEPGL and those qualified independent environmental consultants chosen and approved to conduct the EIA would study and assess the significance of potential impacts generated by the Project, and would identify mitigation measures and monitoring programs to address any identified adverse impacts of significance.

DURATION OF PROJECT

The lifecycle for Hammerhead 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, drilling, installation, and hook-up. Operations and maintenance will follow commissioning and start-up, and will be the longest phase of the Project with a duration of at least 20 years. Subject to applicable regulatory approvals and Project sanction, startup of the facilities is expected to occur in approximately mid-2024.

Figure A.9 provides a preliminary sequence of major scheduling milestones for the construction, installation, and commissioning of the SURF and FPSO for the Hammerhead Development; however, this schedule is still being refined and is subject to change.

Figure A.9 Preliminary Project Schedule



NON-TECHNICAL EXPLANATION OF PROPOSED PROJECT

EEPGL is proposing to develop an oil production facility in the offshore waters of Guyana. The Hammerhead Development Project (Hammerhead) will be located in the eastern portion of the Stabroek Block, approximately 160 km (99 miles) from Georgetown. See Figure A.1.

Oil production from Hammerhead is expected to last at least 20 years.

EEPGL will drill approximately 26 - 30 wells offshore to support extraction of the oil from below the sea floor. Each well will be drilled using a floating drill ship (see Figure A.7). Each well will be directionally drilled to specific reservoir targets generally 3,500 – 5,300 meters (m) below the sea level.

EEPGL will install some of the oil production facilities on the sea floor at approximately 800 - 1,500 m (2,600 - 4,950 ft) water depth. These subsea facilities include various types of pipes and hardware. The subsea facilities allow the oil from the wells to be gathered and moved to the surface of the ocean for further processing. See Figure A.4.

EEPGL will install other oil 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). See Figure A.5. The FPSO will be moored on location in approximately 1,100 m (3,600 ft) of water depth and will remain on location throughout the production operations stage. Oil production facilities on the FPSO will further process the oil extracted from below the sea floor.

The FPSO will have the capacity to produce up to approximately 150,000 – 190,000 barrels of oil per day. During the early stage of production operations, the FPSO is anticipated to produce up to an average of approximately 4,500,000 - 5,200,000 barrels of crude oil per month. These estimates are preliminary and are subject to change.

Processed oil will be stored in tanks in the FPSO hull which have the capacity to hold approximately 1.6 to 2.0 million barrels of oil. Approximately every 7 - 8 days, the oil will be pumped from the FPSO to a conventional oil tanker which is owned/operated by others. The tanker will then bring the oil to buyers. Figure A.6 shows an example of an FPSO and a tanker while oil is being offloaded.

EEPGL will utilize onshore support facilities to support drilling the wells, installing the offshore production facilities, and operating the offshore production facilities. This may include a shorebase, storage facilities, fabrication facilities, and waste management facilities. Helicopters and supply boats will also be needed to support the Project.

At peak, EEPGL will utilize approximately 1,200 personnel offshore during the stage where the wells are being drilled and the offshore oil production facilities are being installed. This number will decrease to less than 200 personnel during the production operations phase. A smaller number of personnel will be utilized at the onshore support facilities.

At the end of the life of the Project (at least 20 years), EEPGL would decommission the offshore production facilities in accordance with the abandonment plan approved by the government.

Key Differences between Hammerhead, Payara, and Liza Phases 1 and 2:

- Oil Production Rates:
  - Hammerhead production rate will be approximately 150,000 to 190,000 barrels of oil per day.
  - Payara production rate will be approximately 180,000 to 220,000 barrels of oil per day.
  - Liza Phase 2 production rate will be 220,000 barrels of oil per day.

- Liza Phase 1 production rate is 100,000 barrels of oil per day with ability to operate at sustained peaks of 120,000 barrels per day.

- FPSO Oil Storage Volume:
  - Hammerhead volume will be approximately 1.6 to 2.0 million barrels.
  - Payara storage volume will be approximately 2.0 million barrels.
  - Phase 2 storage volume is approximately 2.0 million barrels.
  - Phase 1 storage volume is 1.6 million barrels.

- Number of Wells:
  - Hammerhead will have approximately 26 to 30 wells.
  - Payara will have approximately 35 to 45 wells.
  - Liza Phase 2 will have up to 33 wells.
  - Liza Phase 1 has 17 wells.

- Oil Offloading Frequency:
  - Oil will be offloaded from the Hammerhead FPSO approximately every 7 to 8 days.
  - Oil will be offloaded from the Payara FPSO approximately every 4 to 6 days.
  - Oil will be offloaded from the Liza Phase 2 FPSO every 4 to 6 days.
  - Oil will be offloaded from the Liza Phase 1 FPSO every 5 to 10 days.

Potential Impacts on People, Wildlife, and the Environment:

- Changes in quality of air
- Changes in noise and light levels
- Disturbance of seabed
- Changes in quality of ocean water
- Impacts to whales, dolphins, sea turtles, fish, marine birds, and marine protected species
- Impacts to coastal wildlife and/or coastal habitat
- Changes in food sources for fish and wildlife
- Increase in number of available 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 an oil spill, impacts to the environment (e.g., marine waters, coastline, protected areas), indigenous communities, and livelihoods of farmers and fishermen
- Cumulative impacts

Attachment A – Possible Effects of the Hammerhead Development

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Physical Resources			
Air Quality and Climate	Air emissions resulting from the development have the potential to change ambient air quality in the Project Area of Influence (AOI). Greenhouse gas (GHG) emissions from the Project may increase the GHG concentrations in the atmosphere.	• Power generation • Other combustion sources • Non-routine, temporary flaring • Fugitive emissions and venting	Increased concentrations of pollutants in ambient air could contribute to health concerns to exposed humans and wildlife. Combustion of hydrocarbons in support of Project activities is anticipated to generate GHG emissions. The potential influence of the Project's GHG emissions on climate is not measurable with an acceptable level of confidence.
Sound	Subsea sound could cause impacts to sensitive marine fauna (e.g., whales, turtles, and fish) in the Project Development Area (PDA).	• Drilling of development wells • Vertical seismic profiling • Offshore pile driving operations • Installation of FPSO and SURF components • FPSO operations	Exposure to humans and wildlife to increased sound could result in potential damage/behavioral concerns.
Marine Geology and Sediments	The development will could disturb marine geology and sediments on a localized basis in the PDA and could impact sediment quality from non-aqueous base fluid (NABF) on drill cuttings discharges.	• Drilling of development wells • Installation of FPSO and SURF components	Changes to sea floor morphology from drill cuttings accumulation, installation of subsea infrastructure, or impacts on sediment quality from drill cuttings could potentially and cause death/injury of marine organisms.
Marine Water Quality	The development could have localized impacts to marine water quality in the PDA from discharge of drill cuttings and from routine operational and hydrotesting discharges. The development could potentially impact marine water quality in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Drilling of development wells (cuttings and fluid discharge) • Cooling water discharges • Sulfate removal and potable water processing brines • Installation of FPSO and SURF components • Wastewater discharges • Produced water discharges • Hydrotesting discharges • Ballast water discharges • Non-routine, unplanned event (e.g., spill or release)	Increased total suspended solids concentrations, chemical concentrations, or temperature in water column could potentially cause marine wildlife death/injury, or could displace marine wildlife.

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Biological Resources			
Coastal Habitats	The development is not expected to impact beaches, mangroves, or wetlands in the Project AOI during routine, planned operations and activities. The development could potentially impact beaches, mangroves, and wetland habitats in Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Non-routine, unplanned event (e.g., spill or release)	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 (e.g., flood control).
Coastal Wildlife	The development is not expected to impact coastal wildlife during routine, planned operations and activities in the Project AOI. The development could impact coastal wildlife in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Non-routine, unplanned event (e.g., spill or release)	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 development is not expected to impact Protected Areas during routine, planned operations and activities in the Project AOI. The development could potentially impact Protected Areas in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release). The development could potentially impact some special status species (e.g., endangered or listed species) in a localized manner in the PDA as a result of underwater sound, light, seawater withdrawal, and changes in marine water quality. The development could potentially impact special status species in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Underwater sound generated by marine component operations and activities • Lighting on offshore facilities (e.g., FPSO, drill ships) • Seawater intake by FPSO • Wastewater discharges • Drilling of development wells (cuttings and fluid discharge) • Cooling water discharges • Produced water discharges • Hydrotesting discharges • Ballast water discharges • Vessel movements • Non-routine, unplanned event (e.g., spill or release)	Possible negative effects on general wildlife habitat quality, sea turtle nesting activities, tourism, and foraging/gathering activities of local communities might occur. The Project could cause potential declines in local abundance of some species within the direct AOI caused by decreased water quality and entrainment of early life stages of special status fish species, auditory impacts on noise-sensitive species, and injury/death from vessel collisions. 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.
Seabirds	The development could potentially impact seabirds in a localized manner in the PDA as a result of light (i.e., disorientation). The development could potentially impact seabirds in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Lighting on offshore facilities (e.g., FPSO, drill ships) • Non-routine, temporary flaring • Non-routine, unplanned event (e.g., spill or release) • Indirect effects on prey availability due to changes in distribution of fish in vicinity of FPSO	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. Potential minor benefits from Project to seabirds could occur from use of FPSO, drill ship, and installation vessels for rest or shelter during adverse weather conditions and, if such vessels acts as consistent attractants for seabird prey, providing a reliable food resource for seabirds. 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 indirect AOI, depending on magnitude of event.

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Marine Mammals	The development could potentially impact some marine mammals in a localized manner as a result of underwater sound and marine water quality changes. The development could potentially impact marine mammals in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release, vessel strikes).	• Underwater sound generated by marine component operations and activities • Changes in forage availability • Lighting on offshore facilities (e.g., FPSO, drill ships) • Seawater intake by FPSO • Wastewater discharges • Drilling of development wells (cuttings and fluid discharge) • Cooling water discharges • Produced water discharges • Hydrotesting discharges • Ballast water discharges • Non-routine, unplanned event (e.g., spill or release, vessel strikes)	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. 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.
Marine Turtles	The development could potentially impact some marine turtles in a localized manner in the Project AOI as a result of underwater sound, marine water quality changes, and light. The development could potentially impact marine turtles in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release, vessel strikes).		
Marine Fish	The development could potentially impact some marine fish as a result of underwater sound, light, seawater withdrawal, and changes in marine water quality in the PDA. The development could potentially impact marine fish in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).		
Riverine Mammals	The development 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).	• 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 development could potentially disturb some benthic habitat and organisms in a localized manner in the PDA.	• Drilling of development wells (cuttings discharge and deposition) • Installation of FPSO (mooring structures) and SURF components	Potential disturbance of benthic habitat in the PDA and smothering of benthos within footprint of cuttings deposition zones.
Ecological Balance and Ecosystems	The development could cause localized changes in nutrient cycles, gene flow, and biodiversity.	• Indirect impacts on the base of the marine foodweb (phytoplankton) due to localized changes in water quality • Indirect physiochemical barriers to migration, breeding, or dispersal/colonization occur due to localized changes in water quality, acoustic impacts, or general human activity • Introduction of invasive species • Non-routine, unplanned event (e.g., spill or release)	Ecosystem-level impacts could potentially have ramifications on commercial and/or subsistence fisheries, as well as direct impacts on marine organisms.

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Socioeconomic Resources			
Cultural Heritage	The development has the potential to adversely impact cultural heritage through localized disturbance of archaeological or historical sites related to Project development. These resources have conservation, cultural, and other values to stakeholders. The development could potentially impact cultural heritage in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Drilling of development wells • Installation of FPSO and SURF components • Non-routine, unplanned event (e.g., spill or release)	Disturbance of the seabed could potentially affect submerged archaeological resources (e.g., shipwrecks).
Community Health and Wellbeing	Most Project activities will be located offshore in the PDA and would have no direct impacts on communities in Guyana. Introduction of limited levels of foreign specialized labor could potentially have community health and wellbeing impacts. The development could potentially impact community health and wellbeing in the Project AOI due to onshore traffic, social interaction, or as a result of non-routine, unplanned events (e.g. spill or release).	• Increased traffic as a result of Project activities at the Guyana shorebase locations • Social interaction between Project workers and residents • Pressure on wages from introduction of foreign workers and increased competition for skilled labor • Noise and light near shore by Project marine and aviation operations • Non-routine, unplanned event (e.g., spill or release)	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.

Employment and Livelihoods	The development is expected to build capacity in the local labor force, increase demand for skilled labor, and increase demand for service industries (beneficial impact). There is also the potential for limited adverse impacts to fishing activities as a result of marine safety exclusion zones or marine traffic, and non-routine, unplanned events (e.g., spill or release).	• Local employment for:
		  ○ Drill ships
		  ○ Installation vessels
		  ○ FPSO operations
		  ○ Marine support and supply vessels
		  ○ Aviation operations
		  ○ Other related service industries
		• Marine safety exclusion zones
		• Project-related marine traffic
		• Drilling; FPSO/SURF installation, hookup and commissioning; and FPSO and support vessel operations (aspects relating to occupational health and safety for Project workforce)
		• Non-routine, unplanned event (e.g., spill or release)
			Direct and indirect employment for the Project would enhance livelihoods and family incomes, but could result in some competition with other businesses for skilled workers. Marine safety exclusion zones for the FPSO, drill ship, and major installation vessels, and Project-related vessel traffic could potentially interfere with fishing activities in certain areas.

Marine Use and Transportation	The development may result in increased marine-related traffic, which could potentially contribute to marine vessel congestion in port areas.	• Marine vessel operations	Increased vessel traffic could result in localized potential congestion near shorebase and marine safety exclusion zones around the FPSO, drill ship, and major installation vessels would restrict access by unauthorized vessels.

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Social Infrastructure and Services	The development will use public infrastructure and services and thus could potentially compete with other existing businesses and consumers across a range of services (e.g., roads, accommodation, and utilities). The development may result in increased vehicular traffic in Georgetown, which could potentially contribute to vehicular congestion in certain areas.	• Project demand requirements for selected infrastructure and services which could overburden existing capacity and supply • Shorebase operations • Ground transportation operations	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.
Land Use	No new Project-dedicated land disturbance is planned. There is the potential that third-party onshore facilities may elect to expand or impact adjacent land as a result of supporting Project-related needs; however, these impacts are outside the scope of the Project.	• Shorebase operations • Pipe yards • Warehouses • Fabrication facilities • Bulk fuel storage and transfers • Onshore recycling of materials, waste treatment, and disposal facilities	Potential development or expansion of shorebases by third-parties could affect nearby properties. Some Project solid wastes will be treated/disposed at permitted third-party facilities onshore.
Ecosystem Services	The development will not have measurable impacts on ecosystem services during its planned, routine activities. The development could potentially impact ecosystem services in the coastal areas of Guyana as a result of non-routine, unplanned events (e.g. spill or release).	• Non-routine, unplanned event (e.g. spill or release)	In the unlikely event that some oil from a large Marine Oil Spill reaches the Guyana shoreline, provisioning services, particularly for indigenous communities that rely on fishing, hunting, and harvesting activities for subsistence and livelihoods, could be affected potentially. 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 and Traditional Use of Resources and Land	The development is not expected to directly cause any changes to population and demographics in indigenous communities. The development could potentially impact indigenous peoples in the Project AOI as a result of non-routine, unplanned events (e.g. spill or release).	• Non-routine, unplanned event (e.g. spill or release)	In the unlikely event that some oil from a large Marine Oil Spill would reach the Guyana shoreline, some natural resources used by indigenous people for sustenance or their livelihoods could be potentially affected.

Resource or Receptor	Potential Impact	Primary Sources of Potential Impacts	How Potential Impacts Could Impact Human Life and Environment
Economy/ Economic Conditions	The development is generally anticipated to have a positive impact on the economy of Guyana as a result of government revenue sharing, as well as employment and local procurement opportunities. Potential adverse impacts may include potential shorter-term increases in the cost of living as a result of increased demand for specific goods and services. Potential adverse impacts on income from agriculture and fisheries could also occur as a result of non-routine, unplanned events (i.e., oil spill or release).	• Government revenue sharing • Local purchases of select materials, goods and services • Limited local employment (direct and indirect) • Increased spending on select materials, goods and services (indirect multiplier impacts for local/regional population)	Positive economic impacts throughout the country, which could potentially affect all segments of the population.
Waste Management Infrastructure Capacity	There is one engineered landfill in Georgetown that is equipped to receive nonhazardous wastes, and limited capacity for the treatment of hazardous waste in Guyana. The Project could potentially stress the limited existing capacity to manage wastes in Guyana.	• Project demand requirements for infrastructure and services which could potentially overburden existing waste management capacity	If the capacity to properly treat or dispose of waste is overwhelmed by Project demands, a potential shortage of landfill space or treatment capacity could lead to improper disposal of wastes by other parties.