

CANJE BLOCK 12-WELL EXPLORATION AND APPRAISAL DRILLING PROJECT SUMMARY, OFFSHORE GUYANA

1.0 PROJECT DESCRIPTION AND LOCATION

Esso Exploration and Production Guyana Limited (EEPGL) is the designated Operator of the Canje Block (Figure 1) under a Petroleum Agreement signed by EEPGL, Mid-Atlantic Oil & Gas, Inc. [hereinafter referred to as “MOGI”], JHI Associates (BVI), Inc. [hereinafter referred to as “JHI”] and Total E&P Guyana B.V. [hereinafter referred to as “Total”] with the Government of the Cooperative Republic of Guyana. The Petroleum Agreement covers approximately 26,806 km² (10,350 square miles) and was executed together with a Petroleum Prospecting Licence for the Canje Block.

EEPGL conducted a 3D Seismic Survey of the Canje Block in 2016 and a subsequent Environmental Baseline Survey (EBS) was conducted in 2018. A map of the survey area is provided in Figure 2. The interpretation of the data acquired from this survey continues to be performed. Based on such work through 2019, a number of perspective prospect areas were identified, numbered from 1 – 7 as reflected in Figure 2.

This Project Summary for the Canje Block 12 Well Exploration and Appraisal Project (“Project”) accompanies an Application for an Environmental Authorisation from the Guyana Environmental Protection Agency (EPA) for up to 12 exploration/appraisal wells, which will be supported by preparation of an Environmental Assessment and Management Plan (EAMP) to assess the potential environmental and socioeconomic impacts of the Project. As is customary, an Intent to Drill (ITD) will be prepared and presented to the Ministry of Natural Resources, Guyana Geology and Mines Commission and the EPA approximately one month prior to spud with a further detailed Well Specific Drilling Program (WSDP) to follow.

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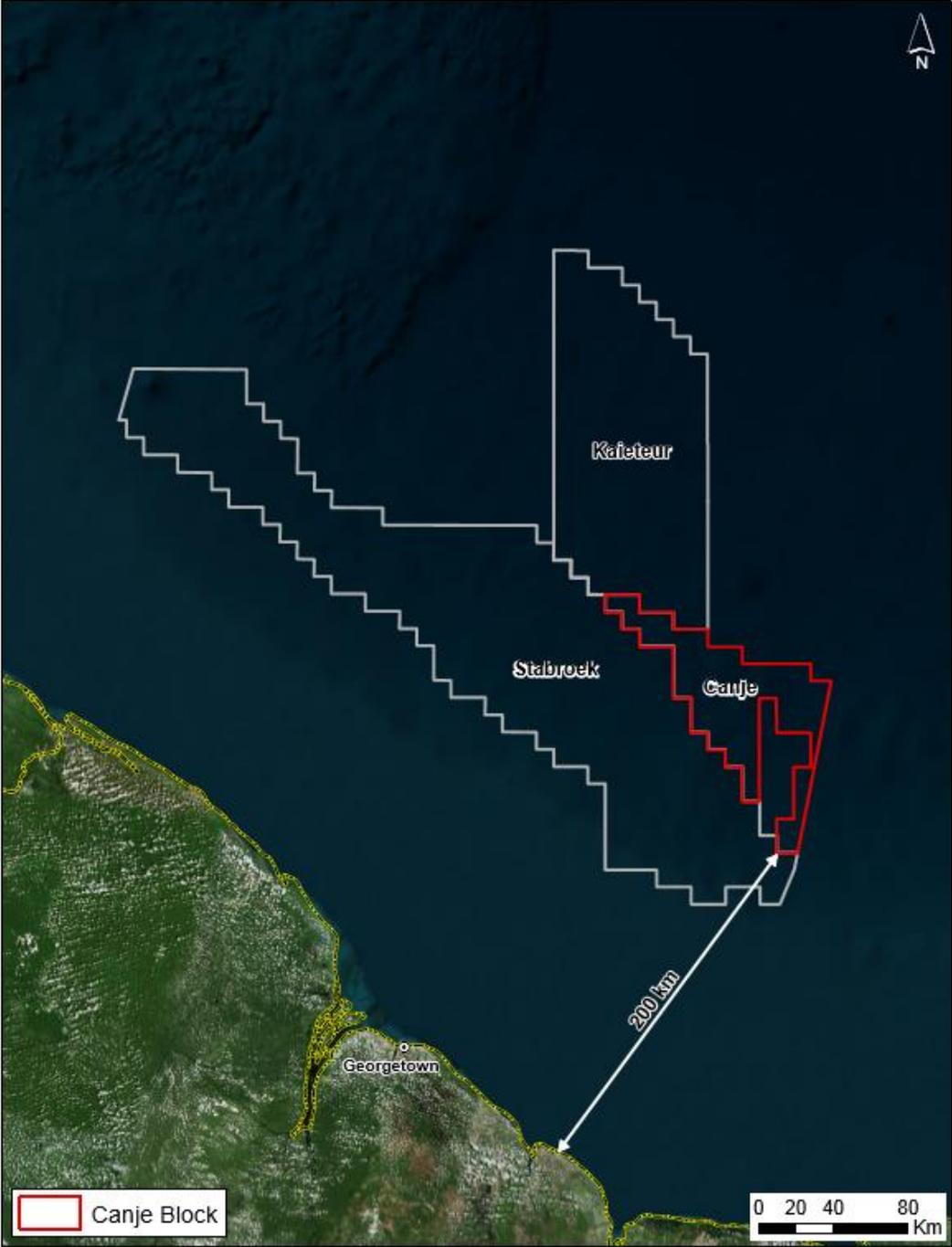


Figure 1 Location of the Canje Block

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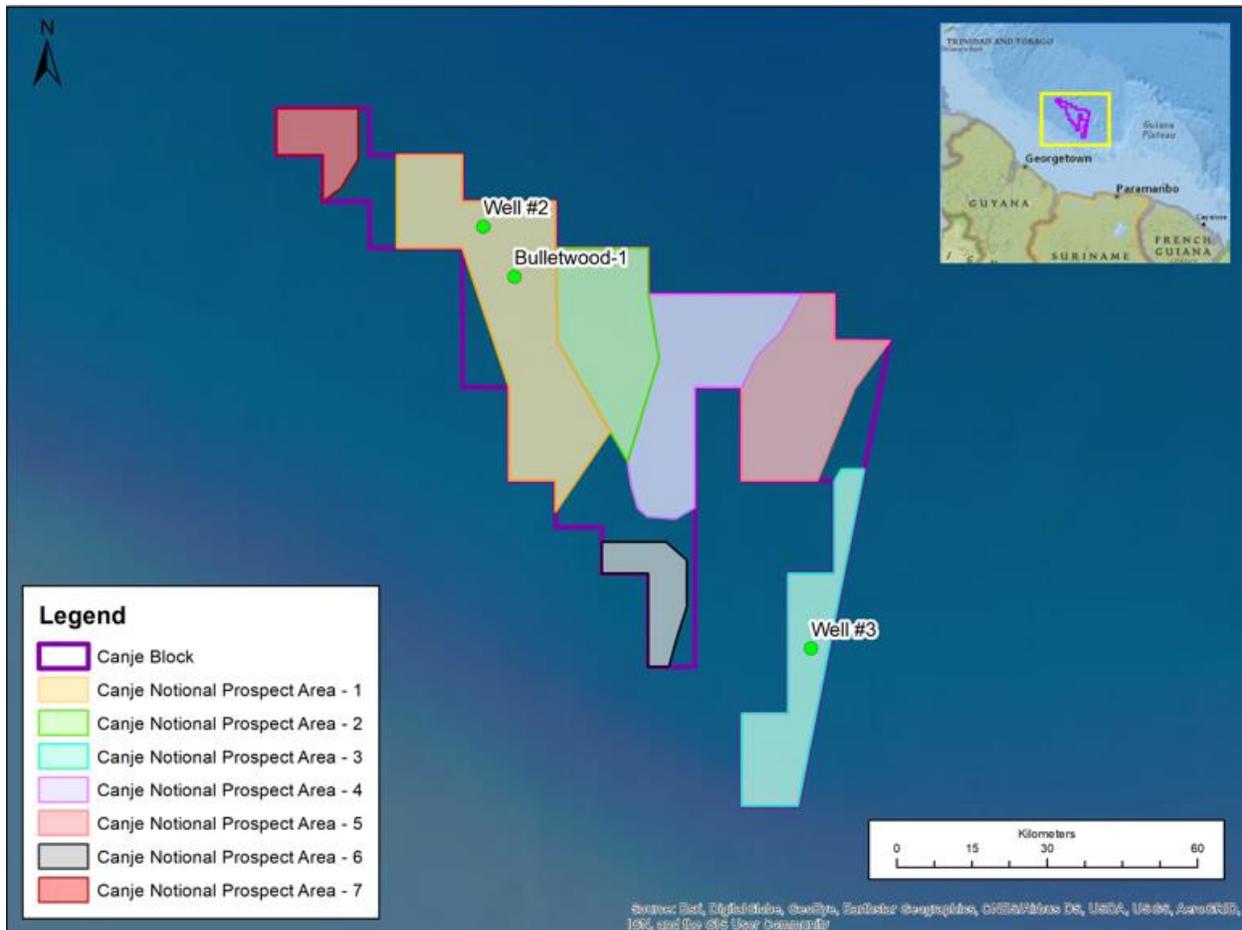


Figure 2 Future Perspective Prospect Areas within the Canje Block

2.0 DRILL SHIPS AND LOGISTICAL SUPPORT

The same processes that have been safely and successfully used for the exploration wells authorized and drilled to date by EEPGL (as designated Operator on behalf of itself and on behalf of the parties comprising the Contractor under the Canje Petroleum Agreement and Petroleum Prospecting Licence), including mobilization, drilling, ancillary processes (possibly including sidetracks, well tests, and/or vertical seismic profiles), and demobilization will also be followed for the proposed Project.

Well planning also incorporates selection and procurement of a drill rig or, in this case, a drill ship. EEPGL currently has six drill ships operating offshore, the *Stena Carron*, the *Stena DrillMAX*, the *Noble Bob Douglas*, the *Noble Tom Madden*, the *Noble Don Taylor* and the *Noble Sam Croft*. The wells could be drilled by any one of the six drill ships currently operating in offshore Guyana. A preliminary schedule is provided in Table 2 as reference.

All drill ships are fully equipped for such drilling operations. However, only the *Stena Carron* drill ship has the equipment required to perform a well test. If such a well test is determined to be warranted for the Project, the well would be temporarily abandoned in place to schedule the return of the *Stena Carron* drill ship in order to re-enter the well and complete the well test at a later date, if applicable.

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The same or similar support vessels that are being used to support current exploration and development drilling activities in the Stabroek Block will be used to support the drilling of the additional 12 exploration wells in the Canje Block. Table 1 identifies the current vessels and their primary roles, taking into consideration that all support vessels will be shared across other ongoing operations in the Stabroek, Canje and Kaieteur Blocks.

In terms of aviation assets, the existing fleet of six helicopters will continue to be utilized to support the six drill ships as well as on-going Liza Phase 2 Offshore Subsea Umbilical Riser and Flowline (SURF) installation operations. Additional crews are also being added in order to have the ability to fly simultaneous crew change flights.

Shorebase activities required to support the continued exploration and development drilling campaign are sufficient and will be consistent with the activities associated with prior exploration and development drilling operations to date.

Table 1 Shared Support Vessels and Functions

Vessel Types	Numbers of Vessels (supporting 6 rigs and 1 FPSO)	Numbers of Vessels (supporting 6 rigs and 2 FPSO's)
Offshore Supply (PSV)	16	16
Chemical PSV	1	2
FSV	2	2
Shallow water PSV	1	1
Gravel Pack PSV	1	1
Multi-purpose	3	3
Tug Boats	3	6
Total	27	31

Note: Frequent substitutions of one or more vessels may commonly occur as a result of scheduled maintenance and other scheduling and contracting changes. However, the associated air emissions, wastewater discharges, and waste generation by individual vessels have been conservatively based on the maximum number of vessels and associated crew members per such vessel types and classes.

The Project is planned to begin by 1Q2022. If a discovery is made, a well test may be performed. Conclusion of the proposed drilling project is expected by 1Q2025.

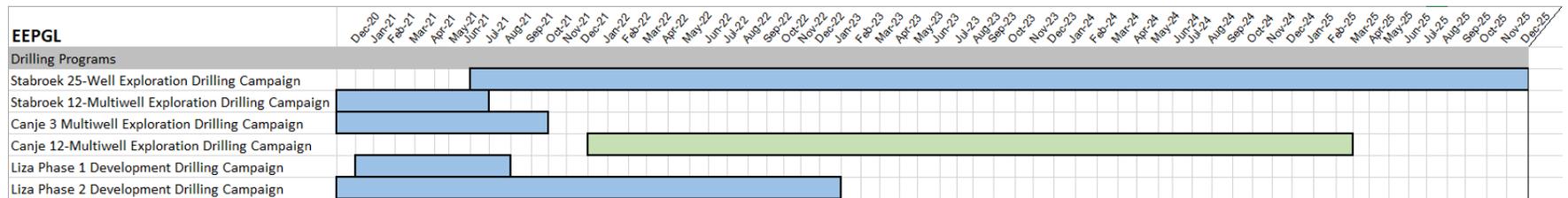
Operations and activities in the Canje block will continue to be performed under the terms of the Petroleum Agreements, Licences and relevant permits.

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Factors that can influence this notional schedule include new discoveries, determination of the need for sidetracks and/or well tests that would extend the drilling period for such exploration wells as well as influence the location and sequence of subsequent wells.

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Table 2 **Current Proposed Exploration and Development Drilling Campaigns**



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3.0 WELL PLANNING, DRILLING PROCESSES, AND WELL PLUGGING AND ABANDONMENT

3.1 Well Planning

Well planning incorporates all of the preparations required to design and complete the wells. This stage typically involves geotechnical site investigations, pressure predictions, choosing casing points and designing a drilling fluid program, designing well data collection and well logging programs, designing casing and wellhead equipment, and selection of Blowout Prevention Equipment (BOPE).

Well planning also incorporates selection and procurement of a drill rig, or in the case of the continued drilling program, a drill ship. It has been determined that any of the 6 drill ships currently operating offshore will be utilised.

3.2 Drilling Process

Consistent with previous documents provided to the EPA, the process of drilling a well is multifaceted and involves deploying the drill ship to the site, spudding the well, advancing the drill string into the well, managing drilling fluids using a dedicated fluid handling system, solids control, and fluid recovery (to enable removal of solids and/or gas entrained in the fluid during the drilling phase and to recycle the drilling fluid). A key aspect of the drilling process is well control.

As indicated in the past EAMPs, EEPGL uses a standardized, integrated well control system that includes designing wells and drilling procedures based on site-specific data, planning fluid densities to control reservoir pressure, use of BOPE as a secondary well control mechanism, specialized training, equipment and procedures that meet or exceed regulatory requirements, use of redundant well flow monitoring devices, and implementation of strict well monitoring practices. Should an influx occur, standard well control procedure will be followed. This will likely consist of weighting up the mud system and safely circulating out the influx using the rig's well control equipment.

3.3 Well Plugging and Abandonment

Once exploration drilling activity is completed, each well will be plugged and abandoned. Cement will be used to secure the well casing and isolate the wellbore from the formation. A cement plug will also be set near the surface to cap the well. Notice of the intent to abandon each well and the specific techniques to be used will be provided to the EPA and Guyana Geology and Mines Commission (GGMC) initially in the presentation of the ITD, receipt of prior consent in the form of no-objection and then in greater detail in the Well Specific Drilling Program (WSDP) for each exploration well in accordance with the Guyana Petroleum (Exploration and Production) Act 1986 requirements.

4.0 ANCILLARY PROCESSES

The Project could entail one or more ancillary processes such as vertical seismic profiling (VSP), sidetracking, or well testing. A brief description of each of these processes are provided in Table 3. None of these activities are currently confirmed for a specific well at this stage, but they are all critical diagnostic tools required to help determine the physical properties, productive capacity,

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pressure, permeability, or extent (or a combination of these) of a hydrocarbon reservoir. These activities have been previously assessed on multiple occasions in support of the on-going Stabroek and Canje exploration drilling campaigns.

Table 3 Ancillary Processes

Process	Function
Vertical Seismic Profiling (VSP)	VSP may be performed to improve velocity modelling and reduce uncertainty in reservoir mapping, correlate the surface-seismic data to physical data obtained from drilling the well, or improve knowledge and understanding of the structure and stratigraphy of the reservoir.
Side Tracking	A sidetrack may be drilled for mechanical reasons when it becomes impractical to continue drilling the initial wellbore, or it may be implemented to gather additional samples or information not gathered in the initial wellbore.
Well Testing	A well test may be performed to acquire dynamic rate through time, pressure, and fluid property data and/or to provide an indication of how the well will perform under a range of flow conditions.

4.1 Waste Generation

The proposed exploration drilling campaign would generate hazardous and non-hazardous wastes. Table 4 presents estimates of the quantities for major categories of wastes that would be generated based on the class of drill ships that would be used; anticipated number of support vessels and typical crew sizes normally used for deep water well drilling of this type; the planned duration of the drilling campaign, as described above; and experience gained on previous exploration wells drilled in the Canje Block.

Table 4 Estimated Waste Volumes Generated per Well

Waste Type	Quantity
Hazardous waste ¹	30.85 - 77.54 metric tonnes
Non-Hazardous	46.36 – 100 metric tonnes
Sanitary and domestic wastes	2,500-4500 m ³

¹includes oily residues

4.2 Air Emissions

Air emissions from the exploration drilling campaign have been estimated from actual experience to date. These preliminary estimates of monthly emissions are presented in Table 5.

Table 5 Preliminary Estimates of Air Emissions: Canje Block 12 Well Campaign

Emissions Source	NOx	SO₂	PM	CO	H₂S
	Emissions in tonnes/month				
2 Drill Ships ^a	161	5	11	33	<0.1
Flaring	11	18	0.3	58	0.3
Support Vessels	28	1	2	6	<0.1
Helicopter Flights	<0.1	<0.1	<0.1	<0.1	<0.1
Incineration	<0.1	<0.1	<0.1	<0.1	<0.1

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Total Monthly emissions	200	24	14	97	0.3
	Emissions in tonnes/year				
2 Drill Ships ^a	1928	65	136	402	<0.5
Flaring	128	216	4	696	3
Support Vessels	338	11	24	70	<0.5
Helicopter Flights	<0.5	<0.5	<0.5	<0.5	<0.5
Incineration	<0.5	<0.5	<0.5	<0.5	<0.5
Total Annual Emissions	2394	292	163	1169	3

NO_x = oxides of nitrogen; CO = carbon monoxide; H₂S = hydrogen sulfide; PM = particulate matter; SO₂ = sulfur dioxide

^a Based on 5,044 kilo gallons of diesel per year per drill ship / 12 months per year = 420 kilo gallons/month

Notes:

1. The annual estimated totals generally reflect the current preliminary Project parameters and remain subject to adjustment. The totals shown here reflect two drill ships conducting Project exploration drilling activities.

2. Emissions were calculated based on 2 drill ships operating in the block, 2 well tests per year, 13 supply vessel trips per month per ship, and 15 helicopter trips per month per ship

4.3 Drill Cuttings

Drill cutting discharge modeling was conducted as part of the EAMP for the Stabroek 25 well multiwell request (ERM, 2020) and is referenced below.

Depositional modeling was conducted to assess the degree to which cumulative impacts could result from simultaneous drilling of wells (either exploration or development). Modeling was performed to predict the extent of drill cuttings deposition above 2.5 centimeters in thickness (half of the 5 centimeters depositional thickness threshold used for impact assessment, assuming that deposition from two wells—if overlapping—would combine to exceed 5 centimeters). The greatest modeled distance for deposition of 2.5 centimeters for an individual well was 145 meters. This distance is significantly smaller than the smallest distance between any two wells, indicating no cumulative impacts to marine benthos from drill cuttings deposition.

Table 6 Summary of Modeling Results of deposition for both deep and shallow wells under different currents

Scenarios	Area (km ²) above 5 cm	Maximum Length (m) of Mound exceeding 5 cm	Area (km ²) above 2.5 cm	Maximum Length (m) of mound exceeding 2.5 cm
Shallow A-Minimum Currents	0.0048	100	0.010	130
Shallow A- Maximum Currents	0.0052	100	0.013	145
Deep F- Minimum Currents	0.0048	100	0.011	140
Deep F-Maximum Currents	0.005	100	0.01	130

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5.0 ADMINISTRATIVE FRAMEWORK

5.1 Legal and Policy Framework

The EAMP that would be prepared by a qualified independent environmental consultant will describe the administrative framework under which exploratory well drilling activities will be completed.

The national environmental legal framework, which consists of laws that apply to environmental matters in a general context such as the Constitution of Guyana, as well as specific national laws that focus specifically on environmental issues;

The national policy framework, to the extent applicable, consisting of strategies and policies regarding offshore drilling and onshore marine support activities; and

International conventions and protocols that were relevant and applicable to the Project.

Similar to the previous exploration drilling operations, the proposed drilling campaign will be conducted in accordance with applicable national laws, international best practice, and industry norms.

5.2 Corporate Requirements and Guidelines

5.2.1 Operations Integrity Management System (OIMS)

EEPGL is committed to conducting business in a manner that is compatible with the environmental and socioeconomic 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 OIMS. ExxonMobil's OIMS Framework establishes common expectations 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 has been adopted by all ExxonMobil affiliates, with particular emphasis on design, construction, and operations. EEPGL's management is responsible for ensuring that management systems that satisfy the OIMS Framework are in place. Implementation is consistent with the risks associated with the business activities being planned and performed. Figure 3 provides a high-level description of the OIMS Framework and its 11 essential Elements.

Lloyd's Register Quality Assurance (LRQA) has issued an Attestation Statement for OIMS confirming that the system design and implementation meets the ISO 14001 and OHSAS 18001 international standards for Environmental Management Systems and Occupational Health and Safety Management Systems, respectively. The most recent attestation is dated January 2017.

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Figure 3 Operations Integrity Management System

5.2.2 Risk Assessments and Hazard Recognition

Comprehensive risk assessments are used to reduce safety, health, environmental, and security risks and mitigate the consequences of incidents by providing essential information for decision-making. Risk is managed by identifying hazards, assessing consequences and probabilities, and evaluating and implementing prevention and mitigation measures. Consistent with the previous exploration drilling operations, the proposed Canje exploration drilling operations will undergo a risk assessment in order to identify and address potential hazards to personnel, facilities, the public and the environment. Assessed risks are addressed by specified levels of management appropriate to the nature and magnitude of the risk, and decisions are clearly documented. A follow-up process is in place to ensure that risk management decisions are implemented.

6.0 ENVIRONMENTAL AND SOCIOECONOMIC SETTING

EEPGL and its environmental contractors have collected a substantial body of physical, biological, and socioeconomic data over the course of the last four years including ongoing environmental baseline data within the Stabroek Block. Acquired baseline data relates to air quality, coastal and oceanic habitat (specifically related to marine sediments), marine water quality, marine mammals, marine reptiles, seabirds, benthic resources, marine finfish, and navigation and marine infrastructure.

6.1 ENVIRONMENTAL BASELINE DATA

An EBS campaign was conducted in 2018 in the Canje Block (see Figure 4). The report described the physical, chemical, and biological (benthic community) properties of sediment and the water column to document baseline conditions in the block.

The 2018 EBS sampled eight sediment stations for physical-chemical parameters and benthic macrofauna. Water column physical structure (salinity, temperature, density, dissolved oxygen, turbidity) and selected chemical concentrations in near-surface, mixed layer (30-38 m depth), and near-bottom waters were characterized at each of the eight stations. In addition, underwater video of the seafloor was acquired at each station.

Offshore sediments collected from the Canje block had metal and hydrocarbon concentrations generally lower than those reported for undeveloped coastal environments, except for barium, which may be locally enriched from barite transported downslope from distant drilling operations, and arsenic through mineral deposits. Biological results indicated a low abundance but relatively diverse macrofauna relative to offshore marine habitats of similar water depth and latitude.

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Potential impacts to the macrofauna from petroleum development offshore are unlikely to be significant if restricted to the immediate area, and a steep species accumulation curve should be realized as conditions return to normal. However, there is the potential for pollutant transport from drilling and operations into sensitive areas of nearshore shallow zones from the dominant longshore current. It is important to note that Canje is potentially vulnerable to offshore transport of pollutants and human related substances, such as sewage and suspended material, from the Essequibo and Orinoco rivers, which empty to the west.

With the preparation and completion of the Liza Phase 1, Liza Phase 2 and Payara EIAs and the supporting EBSs and studies that have been conducted since the approval of the current existing multiwell authorization, the overall knowledge and understanding of the Guyana coast habitats and marine environment has increased substantially over the past 6 years.

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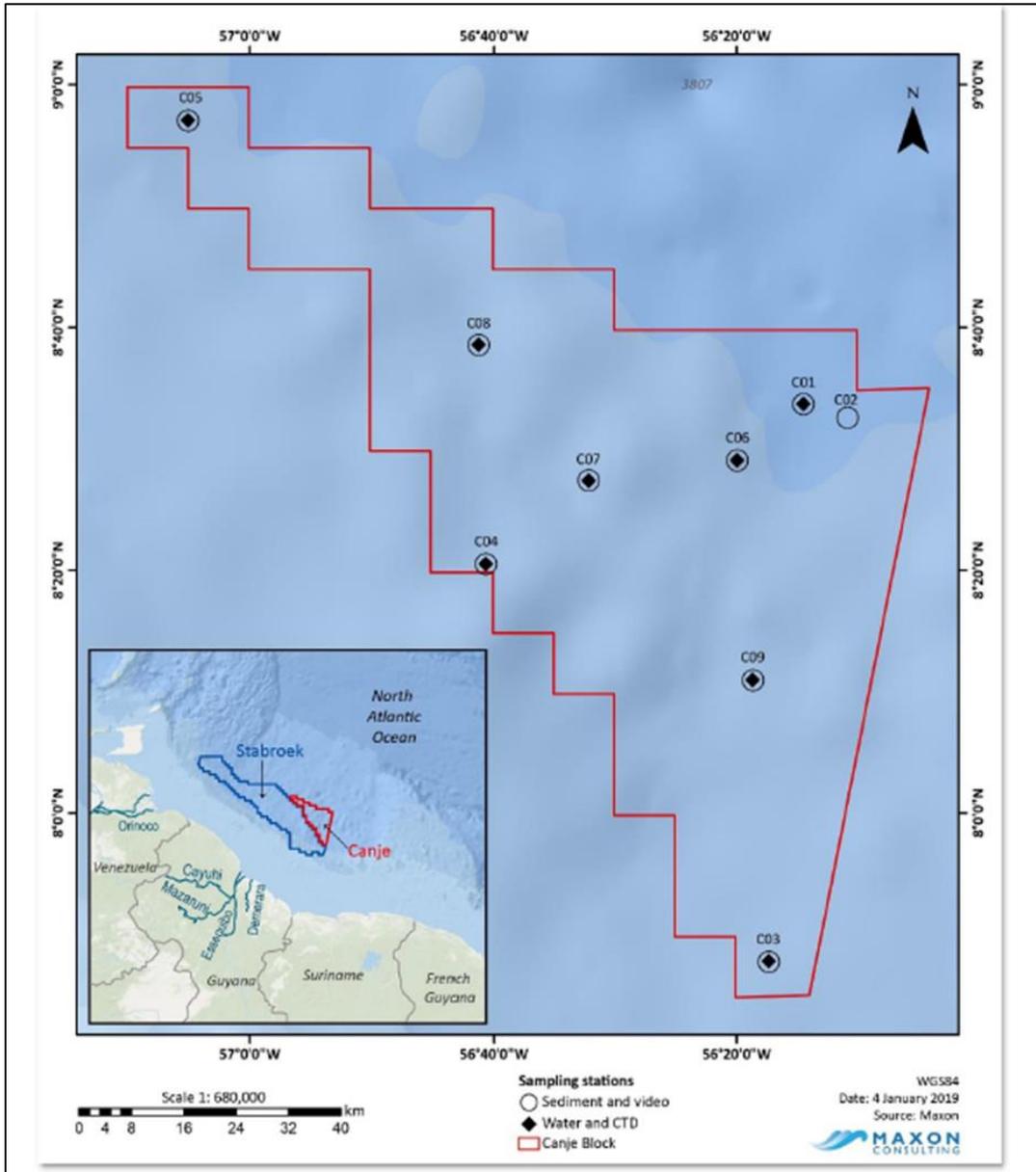


Figure 4 2018 EBS Study Locations – Canje Block