



**Environmental
Protection
Agency**

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Environmental Permit

Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000

Reference No.:	20190124-PGPGP
Fee:	Medium (C2) i.e. US\$800 per year
Fee Paid:	US\$800: for One (1) year (November 2021 – October, 2022)
Addressee:	Guyana Power and Light Inc. Lot 40, Main Street, Cummingsburg Georgetown
Activity:	Operation of a Power Generation Facility Storage of Diesel and Lubricants

Guyana Power and Light Inc., hereinafter referred to as the “Permit Holder”, is hereby authorised in accordance with the Environmental Protection Act, Cap. 20:05, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, to operate a Power Generation Facility inclusive of three (3) Cummings Power Generator Set and a Caterpillar Engine, and Storage of Diesel and Lubricants at Bartica Power Station, Daag Point, Bartica, Region 7, hereinafter referred to as the “Project”, in a manner indicated in the Application for Environmental Authorisation submitted on January 24, 2019, and subject to the terms and conditions set forth herein under the Environmental Protection Act, Cap. 20:05, existing and/or forthcoming regulations made under the said Act, and/or any other applicable laws, guidelines, best practices and standards relevant to this project.

The Permit Holder, His Servants, Agents and/or Sub-Contractor(s) shall comply with the following Terms and Conditions for Operation:

1.0 OPERATION

- 1.1 The Permit Holder shall adhere to the **Occupational, Health and Safety (OHS) Act, Cap. 99:10, Laws of Guyana.**
- 1.2 Make an application to the Agency to vary this Permit in instances where it becomes necessary to:
 - i. change the construction, operation, structure, or layout of the facility and all associated buildings;
 - ii. change equipment, machine, apparatus, mechanism, system or technology serving the facility;
 - iii. change the position and design of any outlet at the point or points of discharge of effluents; or

iv. effect any other change outlined in 20(3) of the Environmental Protection (Authorisations) Regulations.

1.3 An Environmental Management Plan (EMP) for the Project shall be submitted by **June 30, 2022**. The EMP shall contain an inclusive of an Emergency Spill Response Plan (ESRP) which shall include, but not be limited to local emergency response authorities, notification of national and local authorities, coordination of clean-up activities and assessment of health hazards to humans and the environment.

1.4 Guyana Fire Service Approval shall be maintained annually and shall be submitted as a component of **the Annual Report**.

1.5 The Project shall maintain fire prevention and control equipment in accordance with the Guyana Fire Service Approval.

1.6 Make all employees, and third parties under your direction, aware of the conditions of this Environmental Permit and provide training on environmental practices.

2.0 POWER GENERATION

2.1 Commissioning Reports shall be submitted for the Caterpillar engines by **January 31, 2022**.

2.2 The most recent copy of the inspection and maintenance report of the MAN Diesel Engine shall be submitted to the EPA by **December 31, 2021**.

2.3 An Operation and Maintenance Manual shall be established for the Project to ensure that engines are operating in accordance with their optimal specifications. The Manual shall address all aspects of the on-going operation, including the required maintenance and inspection schedule, monitoring/ investigation procedures, emergency response and requirements for review of the Manual.

2.4 The Operation and Maintenance Manual shall be submitted to the EPA for review and approval by **January 31, 2022**.

2.5 The following records shall be maintained for all power generation engine identified at the Project:

- i. Megawatt thermal input
- ii. Calorific value
- iii. Fuel-oil consumption

2.6 The records outlined in condition 5.1 shall be submitted to the EPA as a component of the **Annual Report**.

2.7 A training schedule for employees shall be established and submitted to the EPA by **December 31, 2021**. This training should include, but not be limited to, training



in basic electrical theory, proper safe work procedures, hazard awareness and identification, proper use of PPE, proper lockout/tagout procedures, first aid including CPR, and proper rescue procedures.

3.0 AIR QUALITY

3.1. Adhere to the provisions of the **Environmental Protection (Air Quality) Regulations, 2000**

3.2. Conduct visual monitoring to determine the opacity of the emissions being released. Immediately respond to visible (opaque, grey to black) emissions that exceed six (6) minutes. Record the date and time of the incident and actions taken to resolve said air pollution episode. All records should be available to the Agency upon request.

3.3 Monitor ambient air quality at the boundary of the property to assess compliance with the requisite standards below:

No.	Air Pollutant	Averaging Time	Maximum Permissible Level	Type of Monitoring	Frequency of Monitoring
1.	Carbon Monoxide	1 h	35ppm	Ambient	Annual
2.	Nitrogen Dioxide	1 h	200µg/m ³	Ambient	Annual
3.	Sulphur Dioxide	24 h	20 µg/m ³	Ambient	Annual
4.	PM _{2.5}	24	25 µg/m ³	Ambient	Bi Annual
5.	PM ₁₀	24h	50µg/m ³	Ambient	Bi Annual

3.4 Monitoring shall be conducted during normal operations by trained personnel utilizing calibrated equipment. Results of all monitoring exercises should be maintained and submitted in the Annual Report.

3.5 Stack emission testing shall be conducted once every five (5) years for engines older than five (5) years and the incinerator to determine compliance with the requisite standards outlined below:

No.	Air Pollutant	Maximum Permissible Level	Type of Monitoring
1.	Carbon Monoxide	1000mg/m ³	Stack
2.	Oxides of Nitrogen	350mg/m ³	Stack
3.	Sulphuric Trioxide	100mg/m ³	Stack
4.	Particulate Matter	100mg/m ³	Stack

Monitoring shall be conducted on a regular basis (**determined by the Permit Holder and approved by the EPA**) by trained personnel using calibrated equipment. Records of all monitoring exercises shall be maintained and submitted as part of the **Annual Report**.


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3.6. The results from the monitoring exercises inclusive of the GPS point(s) of each monitoring location shall be submitted as a component of the project's **Annual Report**.

3.7. The calibration certificates shall be submitted to the EPA as a component of the project's **Annual Report**.

3.8. Calculate annual emissions of carbon dioxide and carbon dioxide equivalent from the operation of the engines using the formula below and the emission factors as outlined in the US EPA AP 42 Section 3.3 Gasoline and Diesel Industrial Engines. The results of all calculations should be submitted in the Annual Report.

where:

- $E = A \times EF \times (1 - ER/100)$
- E = emissions;
- A = activity rate;
- EF = emission factor, and
- ER = overall emission reduction efficiency, %

4.0. NOISE MANAGEMENT

4.1. Adhere to the provisions of the **Environmental Protection (Noise Management) Regulations, 2000**

4.2 All significant noise-producing equipment, such as generators, shall be equipped with silencers or mufflers and/or be enclosed in suitable acoustic enclosures where necessary, to reduce noise levels impacting the surrounding environment to achieve compliance with Guyana National Bureau of Standards (GNBS) requirement.

4.3 Noise emissions from the operation shall be monitored at the property boundary to determine compliance with the Guyana National Bureau of Standards (GNBS) Guidelines for Noise Emission into the Environment.

Industrial Limits: 100 dB (Day-time (06:00 h - 18:00 h))
80 dB (Night- time (18:00 h - 06:00 h))

4.4 Monitoring should be conducted bi-annually by trained personnel using calibrated Type 2 Sound Level Meters. Records of all monitoring exercises should be maintained and submitted as part of the Annual Report.

4.5 Respond to all complaints from the public regarding noise disturbance. Maintain a record of the complaint and the action taken to resolve same. All records should be available to the Agency upon request.

5.0 FUEL HANDLING AND STORAGE

5.1 A register of the types and quantities of fuel and associated hazardous materials stored onsite shall be established and maintained. A summary of the registered information shall be submitted to the Agency as a component of the **Annual**



Report.

- 5.2 Emergency spill cleanup kits shall be maintained at the Project for response to potential spills. Kits should contain absorbent materials, drain seals and other appropriate tools for clean-up.
- 5.3 Fuel shall at all times be stored above-ground, away from ignition sources. **'No Smoking'** signs shall be posted where fuel is handled or stored.

Secondary Containment

- 5.4 Earthen berms or dikes shall be constructed with clay or other low permeability soil (at least 35% clay). A width to height ratio of 3:1 is required for the berm to ensure the dike strength and durability.
- 5.5 Existing secondary containment around the fuel tank shall be inspected monthly for cracks and breakage to ensure they are liquid tight to withstand hydrostatic pressure of any contained liquid when full. A summarised inspection report shall be submitted to the Agency as a component of the **Annual Report**.
- 5.6 Containment bunds shall remain sealed and all piping must enter or exit the bund over the wall. Bunds shall provide total containment, and no part of the tank infrastructure (e.g. dispenser, filling hoses and valves) shall protrude outside the bund.

Fuel Tank and Pipeline Maintenance

- 5.7 Fuel storage tanks shall be visually inspected to verify their integrity. A summarised inspection report shall be compiled and submitted to the EPA as part of the **Annual Report**.
- 5.8 Protection measures such as painting and coating shall be maintained to minimise corrosion of the fuel tanks.
- 5.9 Maintenance and/or repair of fittings, pipes and hoses shall be conducted in accordance with manufacturer's specifications. A summarised inspection report shall be compiled and submitted to the Agency as part of the **Annual Report**.
- 5.10 The following labels shall be posted on ALL fuel storage tanks in accordance with the Global Harmonization Standards (GHS) by **December 31, 2021**:
- i. The name of the fuel stored,
 - ii. The tank capacity
 - iii. Warning signs ("Danger", "no-Smoking", etc.)

Overfill Protection & Leak Detection

- 5.11 Overfill protection shall be installed and maintained on all fuel tanks by **January**

31, 2022. This may include an automatic shut off device or an audible or visible overfill alarm.

- 5.12 The safe fill level shall be clearly identified on the gauge and set at 90% to prevent overfilling. In the event of overfilling, all discharges shall be released into the containment bund.
- 5.13 Dispensing equipment shall be designed with the Best Available Technology (BAT) to minimise spills e.g. suction, pressure or gravity systems.

Fuel Transfer

- 5.14 The Best Available Technology/ Technique (BAT) shall be employed to capture fuel lost during the unloading of fuel to storage tanks and refuelling of equipment.
- 5.15 Secondary containment, drip trays or other overflow and drip containment measures shall be installed and maintained at connection points or other possible overflow points.
- 5.16 A Standard Operating Procedure (SOP) for fuel transfer operations including a checklist of measures to follow during filling operations shall be established and maintained. A copy of this SOP shall be submitted to the EPA as a component of the **Annual Report**.
- 5.17 All employees shall be trained on the SOP outlined in **condition 4.17** An Annual training schedule shall be submitted to the EPA as a component of the **Annual Report**.

6.0 LUBRICANT HANDLING AND STORAGE

- 6.1 The Storage Area shall be clearly labeled with "Danger, Hazardous Storage Area-Authorized Personnel Only" where applicable as a spill control measure.
- 6.2 Flammable materials shall be stored away from ignition sources. 'No Smoking' signs shall be posted where these materials are handled and stored.
- 6.3 Secondary containment (bund area) shall be established and maintained around storage areas of all liquid chemicals by December 31, 2021. The secondary containment (bund area) shall possess 110% of the volume of liquid stored within the largest storage container and walls shall be constructed of impermeable materials.
- 6.4 Lubricants shall be stored in accordance with the manufacturer's directions or Safety Data Sheet (SDS) instructions.
- 6.5 Safety Data Sheets shall be readily available and easily accessible at all times at the Project.



- 6.6 Lubricants shall be stored away from non-hazardous materials.
- 6.7 Storage containers shall be clearly labelled in accordance with the Globally Harmonized System of Classification and Labelling. The following must be evident:
- Signal Word;
 - GHS Symbols- (Hazard Pictograms);
 - Manufacturer Information;
 - Precautionary Statements/ First Aid;
 - Hazard Statements; and
 - Product Name or Identifiers.
- 6.8 Storage containers shall be inspected for signs of leakage or corrosion and damaged containers shall be replaced immediately. Inspection reports must be maintained and signed by the appropriately qualified inspecting officer and his/her supervisor.
- 6.9 Container inspection reports shall be summarised and submitted to the Agency as part of the Annual Report.
- 6.10 Materials shall not be stored on damaged, or inadequately secured racking or on damaged pallets to minimise the risk of spills.
- 6.11 A register of the quantities of lubricants stored at the Project shall be established and maintained. A summary of the registered information shall be submitted to the Agency as part of the Annual Report.

7.0 WATER QUALITY

- 7.1. Adhere to the provisions of the **Environmental Protection (Water Quality) Regulation, 2000.**
- 7.2 A sump with a pump for the discharge of effluent from within the containment shall be installed by **December 31, 2021.** There shall be no release valve on the secondary containment.
- 7.3 Pipes from the pump shall be installed over the secondary containment and discharge directly into the oil- water separator.
- 7.4 Effluent discharge at points of final discharge from the facility shall be in accordance with the Guyana National Bureau of Standards (GNBS) *Interim Guidelines for Industrial Effluent Discharge into the Environment*. The following allowable limits should not be exceeded for the parameters listed:

Parameter	Maximum	Units	Sample
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	Concentration		type
Oil and Grease	Total Petroleum Hydrocarbon (TPH) < 40	mg/L	Grab
Thermal effluent	<40	°C	In-situ

Monitoring shall be conducted on a regular basis (**determined by the Permit Holder and approved by the EPA**) by trained personnel using calibrated equipment. Records of all monitoring exercises shall be maintained and submitted as part of the **Annual Report**.

8.0 WASTE MANAGEMENT

- 8.1 In accordance with the **Environmental Protection (Litter Enforcement) Regulation, 2013**, promote good sanitation and solid waste disposal practices on site; covered garbage receptacles must be placed at strategic locations at the facility.
- 8.2 Waste materials shall not be burnt on site. All solid waste shall be disposed of, at an approved Solid Waste Disposal Site, by an EPA Authorised Waste Disposal Company.
- 8.3 Good house-keeping, sanitary, and hygienic practices shall be maintained at all times. The facility surroundings shall be kept free of vegetation and litter.
- 8.4 Solid waste receptacles shall be secured when not in use.

9.0 HAZARDOUS WASTES (WASTE OIL) MANAGEMENT

- 9.1 Adhere to the provisions of the **Environmental Protection (Hazardous Waste Management) Regulations 2000**.
- 9.2 Waste oil shall be stored in sealed metal containers, appropriate for the waste stream.
- 9.3 Waste oil containers shall be labelled with the following:
 - i. The words "**Waste Oil** or "**Used oil**"
 - ii. Beginning accumulation date.
- 9.4 Waste oil shall be stored in a covered, bunded area. This area shall include the following:
 - i. Signage- "**Hazardous Waste Storage Area**";
 - ii. Low traffic;
 - iii. No floor drains; and
 - iv. Secondary containment capable of containing 110% of the largest volume therein.
- 9.5 A register shall be maintained and available during each transportation of waste. The

registered information must contain the following:

- i. The name and address of the generator;
- ii. The name, description and hazard class of the waste;
- iii. The number and type of containers;
- iv. The quantity of waste being transported and collected; and
- v. The name and address of the facility designated to receive the waste

9.6 Subsequent to each transportation of hazardous waste, the register or manifest referred to in **Condition 8.5** shall be submitted to the EPA via email at: industry@epaguyana.org.

9.7 An incident spill report shall document **EVERY** occurrence of spills during collection and/or transportation of hazardous waste. A copy of the spill report shall be submitted to the Agency **within twenty-four (24) hours of the incident**.

9.8 All hazardous waste shall be treated and/ or disposed by an EPA authorised Hazardous Waste Disposal Facility. All hazardous waste treatment and disposal shall be documented on a Waste Manifest Form which must submitted to the EPA as a component of the **Annual Report**.

9.9 A Notification and Clean-up Plan for the Project shall be submitted by **June 30, 2022**. The plan shall include, but not be limited to, the location of all materials stored and a notification and clean-up plan for each proposed site of operation in the event of a spill.

10.0 COMPLIANCE MONITORING AND REPORTING

10.1 Notify the Environmental Protection Agency **within one (1) hour** of the occurrence of any environmental emergencies (e.g. oil spills, hazardous materials/wastes, chemicals sudden onset disaster, natural, technological or human- induced factors that cause or threaten to cause severe environmental damage as well as harm to human health or livelihood).

10.2 Make all employees, and third parties under your direction, aware of the conditions of this Operation Permit and provide training on environmental practices.

10.3 Annual Training schedules and reports shall be submitted to the Agency as a component of the required **Annual Report** referred to as Monitoring and Compliance. Training shall include but not limited to Employees working in confined spaces and prolonged noisy areas.

10.4 Monitor the implementation of the conditions of this Permit, insofar as they involve adherence by your employees.

10.5 Notify the Agency in writing of any change of name or ownership of the Permit Holder's facility within **thirty (30) days** after the change occurs.



- 10.6 Notify the Agency **within twenty-one (21) days** in event of death, bankruptcy, liquidation or receivership of the Permit Holder or if the Company becomes a party to an amalgamation.
- 10.7 Submit **Annual Reports** to the EPA on the progress of the operation and compliance with the conditions under which this Permit was granted on or before **March 31** each year.
- 10.8 Report to the Agency any non-compliance(s) with the Operation Permit:
- I. Within **twenty-four (24) hours** of the time the Holder of the Environmental Authorisation for Operation becomes aware of the non-compliance, the anticipated manner in which it may endanger human health or the environment.
 - II. Within **seventy-two (72) hours**, submit to the Agency a written report containing a description of the non-compliance, its cause and the period of non-compliance including exact dates and time.
 - III. Submit a report to the Agency indicating the reasons and the anticipated time it is expected to continue if the non-compliance has not been corrected.
- 10.9 Comply with any lawful directions given by the EPA from time-to-time in furtherance of the implementation of any international or other obligation for the environmental protection of Guyana.
- 10.10 It is the responsibility of the Permit Holder to ensure the permitted activity and premises are secured and that all practicable steps necessary to prevent fires, explosions, leaks or suspected leaks and spills at the permitted premises are taken.

11.0 INSTITUTIONAL AUTHORITY/ LIABILITIES

- 11.1 The Permit Holder shall be liable for any material environmental harm caused by polluting the environment, pursuant to s. 39 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.
- 11.2 The Permit Holder shall be liable for any serious environmental harm caused by polluting the environment, pursuant to s. 39 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.
- 11.3 The Permit Holder shall be liable for any activity that causes or is likely to cause pollution of the environment unless all reasonable and practicable measures are taken to prevent or minimize any resulting adverse effect, pursuant to s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.


- 11.4 The Permit Holder shall be liable for discharging, causing or permitting the entry into the environment, of any contaminant in any amount, concentration or level excess of that prescribed by the regulations or stipulated by this Environmental Permit, pursuant to s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.
- 11.5 The Permit Holder shall be liable to compensate any person who suffers any loss or damage as a result of contravening conditions 7.3 and 7.4 of this Environmental Permit, pursuant to s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.
- 11.6 The Permit Holder shall not be indemnified by the Agency for any activity that causes or is likely to cause pollution to the environment, resulting from adverse effects through the discharge, any contaminant in any amount, concentration, ultra-hazardous substances, chemicals or otherwise, and shall be rendered liable to prosecution and to penalties prescribed under the Environmental Protection Act and Regulations.
- 11.7 The Permit Holder shall be liable of any gross negligence or willful misconduct caused by the Permit Holder, his Servants and/or Agents, to the environment, biodiversity, protected species and natural habitat with respect to any release, discharge, or spill, of contaminant fluids, oil or lubricants.
- 11.8 Should the Permit Holder contravene or be likely to contravene any condition of this Permit, the Agency (EPA) may serve on him an Enforcement Notice in accordance with Section 26 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.
- 11.9 Where it appears to the Agency that the Permit Holder is engaged in any activity that may pose a serious threat to natural resources or the environment, or a risk of serious pollution of the environment or any damage to public health, the EPA may issue to the Permit Holder a Prohibition Notice, which may order him to immediately cease the offending activity, in accordance with Section 27 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.
- 11.10 The EPA reserves the right to conduct regular inspections of the Permit Holder's construction activities as part of its monitoring and enforcement requirements under the Environmental Protection Act, Cap 20:05, and the Environmental Protection (Amendment) Act, 2005, and Environmental Protection (Authorisations) Regulations, 2000.
- 11.11 The Permit Holder, His Servants and/or Agents shall at all times, allow entry to the permitted facility to any Officer designated by the EPA for the purposes of conducting inspections or any other legitimate business of the Agency. Pursuant to Section 38 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana, it is an offence to assault, obstruct or hinder an authorised person in the execution of his/her duty under the said Act or its Regulations and the Permit Holder shall be liable to penalties prescribed under paragraph (c) of the Fifth Schedule for doing so.

- 11.12 The EPA has the right to modify, cancel or suspend this Permit for breach of any of the terms and conditions contained herein.
- 11.13 This Environmental Permit is not the final consent; all relevant Permissions should be obtained from other regulatory bodies for continued operation.
- 11.14 This Environmental Permit is valid for the period stipulated herein **November, 2021 to October, 2022.**
- 11.15 This Environmental Permit shall remain valid until **September 30, 2022**, unless otherwise suspended or revoked in accordance with the provisions of this Permit or the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.
- 11.16 This Permit must be renewed by submitting a completed Application Form for Renewal of Environmental Authorisation to the Agency at least six months before this Permit expires, that is, no later than **April 30, 2022.**
- 11.17 Any submission of the application required by Condition 12.16 beyond the date specified therein, the agency may require the Permit Holder to pay, in addition to the application fee, a late penalty fee (accruing at the time such obligation was first owed for renewal) at a rate of **two thousand dollars (GY\$2,000.00) per day for every business day late**, until such application is submitted to the Agency, without prejudice to any other rights of the Permit Holder in connection therewith.
- 11.18 Failure to comply with the requirements of this Permit or with applicable laws and regulations, whether existing or forthcoming, shall render the Permit Holder liable to prosecution and to penalties, inclusive of civil penalties, injunctive relief and imprisonment, as prescribed under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection Regulations and other applicable laws of Guyana.

Signed by *Shanfah Razack* on behalf of the Environmental Protection Agency.
Kemraj Parsram
Executive Director

Date 2021.11.15

I hereby accept the above terms and conditions upon which this Environmental Permit is granted and agree to abide by the Environmental Protection Act, Cap. 20:05, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, and any existing or forthcoming regulations, guidelines, best practices and standards made under this Act.

NAME	DENISE GRIFFITH
DATE	2022-03-15
SIGNATURE	 for Mr. G. Hall
DESIGNATION	Manager- HSE & Lab Services

