



**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.:	20210916-GEAKC
Fee:	Medium (C2) - US\$800 per year
Fees Paid:	US\$2400 for three (3) years – October 2022 to September 2025.

Addressee: Guyana Energy Agency
295 Quamina Street,
South Cummingsburg
Georgetown.



Activity: Kumu 1.5 MW Hydropower Plant.

Guyana Energy Agency, herein referred to as the "Permit Holder", is hereby authorised in accordance with the Environmental Protection Act, Cap. 20:05, Laws of Guyana, Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, to construct Kumu 1.5 Hydropower Plant located at Kumu Creek, Region 9, hereinafter referred to as "the Project", in the manner indicated in the Application submitted on September 16th, 2021, subject to the terms and conditions set forth herein under the Environmental Protection Act, existing or forthcoming regulations made under the said Act and/or any other applicable Laws of Guyana, best practices, guidelines and standards relevant to this project.

Terms and Conditions for construction and operation to be adhered to by the Permit Holder, his servants, agents and sub-contractors:

1.0 GENERAL

- 1.1 Make an application to the Agency to vary this Environmental Permit in instances where it becomes necessary to:
 - i. Change the construction, operation, structure, or layout of the facility and all associated buildings;

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- 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. Affect any other change outlined in 20(3) of the Environmental Protection (Authorisations) Regulations.
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- 1.2 Adhere to requirements of the **Occupational Health and Safety Act, Cap 99:10, Laws of Guyana.**
 - 1.3 Make all employees, and third parties under your direction, aware of the conditions of the Environmental Authorisation and provide training on good environmental practices.
 - 1.4 **The Permit Holder shall submit to the EPA upon receipt, the requisite approvals from the Central Housing and Planning Authority (CH&PA), the relevant Municipality or any other authority with jurisdiction and oversight over the Project.**
 - 1.5 Construction works shall not be executed between 18:00 hrs. to 06:00 hrs., on any day, close to communal areas unless, approval is sought from the EPA. This requirement does not apply for large concrete pours or asphalt laying and earth removal where work in the early morning and late evening is required.
 - 1.6 The penstock shall be stationery and shall consider natural features such as rocks, ground and vegetation to shroud it.
 - 1.7 The penstock shall not form a barrier to wild life in forest and be painted to minimize contrast with the background.
 - 1.8 Appropriate revetments shall be in place at the weir, intake etc. to protect the Kumu Creek and the cliffs banks from erosion, bank degradation, widening and bank destabilization.
 - 1.9 All excavation works for construction of the headrace, intake, weir etc. shall be conducted during the dry season.
 - 1.10 All excavated materials shall be handled in such a way to not negatively impact habitats or pose a significant hazard to human health and the environment.
 - 1.11 Undertake construction, including clearing of vegetation, at a pace slow enough to ensure that terrestrial animals and aquatic fauna can move to other locations.



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- 1.12 Where appropriate adopt suitable measures to ensure fish and other aquatic life, free movement as far as possible to both upstream and downstream of the facility.
- 1.13 Undertake removal of trees and vegetation in areas only where necessary.
- 1.14 Identify suitable areas for material stockpile and equipment during construction.
- 1.15 Place warning signs at strategic locations and create walk paths to avoid accidents with individuals in the nearby communities.
- 1.16 Align transmission corridors to avoid impacts on critical wildlife habitats (e.g. nesting grounds, foraging corridors, and migration corridors) where they may exist.
- 1.17 Remove all construction tools, equipment, machinery, and waste material from site on the completion of construction works.

2.0 WATER AND SOIL QUALITY MANAGEMENT

- 2.1 Strictly comply with the provisions of the **Environmental Protection (Water Quality) Regulations 2000**.
- 2.2 Maintain the integrity of the existing waterways at all times. Discharges into the environment shall be in accordance with the Guyana National Bureau of Standards (GNBS) Interim Guidelines for Industrial Effluent Discharge into the Environment. The following are the allowable limits for this type of project and should not be exceeded:

- i. Total Suspended Solid (TSS) < 50 mg/L;
- ii. Oil and Grease < 10 mg/L; and
- iii. pH 5.0 - 9.0;
- iv. Temperature < 40 °C;
- v. Biochemical Oxygen Demand (BOD) < 50 mg/l;
- vi. Chemical Oxygen Demand (COD) < 250 mg/l;

A water quality monitoring plan shall be submitted to the EPA for approval.

- 2.3 Water quality monitoring shall be conducted prior commencement of construction in accordance to the approved plan and the results shall be submitted to the Agency as part of the Annual Report.



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- 2.4 Avoid erosion, siltation and sedimentation of existing water bodies within the vicinity of the project site. Do not discharge wastewater from washout and/or cleanout of concrete, paint, and other construction materials into waterways unless appropriately treated.
- 2.5 Install sediment controls along site perimeter areas that will receive effluent and remove sediments before it accumulates to half of the above-ground height of the perimeter control.
- 2.6 Land clearing along the Kumu Creek shall be conducted in a gradual and phased manner, so as to limit the amount of sediment flow into existing waterways.
- 2.7 Construct and maintain drainage systems capable of handling the probable maximum precipitation storm event at the powerhouse.
- 2.8 Adequately store, cover and protect raw materials and waste especially in rainy conditions to avoid runoff to waterways.
- 2.9 Avoid soil and water contamination from fuel, grease, waste oils and other petroleum products that might be used at the facility.
- 2.10 Store fuel in a secured designated area to prevent accidental release into the surrounding environment, especially in rainy conditions. The designated area should not be within 100 m of surrounding water bodies.
- 2.11 All lubricants, hydraulic oil, cooling liquids and other liquids shall, in order to minimise the risk of water pollution in the event of a spill, be free of toxic substances and preferably be biodegradable.
- 2.12 Store all chemicals in leak-proof containers that are kept under water-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets) to minimize the potential discharge of chemicals in stormwater and external waterways.
- 2.13 Minimize the use of antifouling and corrosion inhibiting chemicals by ensuring appropriate depth of water intake and use of screens. Less hazardous alternatives shall be used with regards to toxicity, biodegradability, bioavailability, and bioaccumulation potential. Dose applied shall be in accordance with Pesticide and Toxic Chemical Control Board (PTCCB) requirements and manufacturer recommendations.



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- 2.14 Limit modification of the Creek bed to maintain its natural flow and ecological condition.
- 2.15 Communities residing downstream who are dependent on the water shall be aware of any changes in turbidity due to the construction of the water intake structure.
- 2.16 Conduct refuelling, maintenance and placement of equipment on an impervious base to prevent any fuel spills/leaks from contaminating the soil and surface/ground water. Oil spills shall be cleaned by the best practicable means to prevent any runoff into the surrounding environment.
- 2.17 Do not discharge or dump solid waste and/or trade effluent directly into receiving waters without prior treatment. Install and maintain grease trap/ an oil-water separator(s) at the final discharge point of the onsite sewage facility through which all effluent must pass before final discharge.
- 2.18 Disposal of excavated materials into surrounding drains and the Kumu Creek is strictly prohibited.

3.0 AIR QUALITY MANAGEMENT AND NOISE ABATEMENT

- 3.1 Strictly comply with the **Environmental Protection (Air Quality) Regulations, 2000** and the **Environmental Protection (Noise Management) Regulations 2000**.
- 3.2 Monitor noise emissions in accordance with the approved ESMP to determine compliance with the **Guyana National Bureau of Standards (GNBS) Guidelines for Noise Emissions into the Environment**. Sound levels from noise-making devices shall not exceed the limits below, at a distance of 15 metres (50 ft) from the source or property boundary, whichever is closer.

During Construction

- **Construction Limits: 90 dB** during the daytime (06:00 h - 18:00 h)
75 dB during the night-time (18:00 h - 06:00 h)

During Operation

- **Commercial Limits: 80 dB** during daytime (06:00 h - 18:00 h)
65 dB during night-time (18:00 h - 06:00 h)

- 3.3 Locate generators away from communal areas to minimise adverse fumes/soot impacts to the contiguous areas.

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- 3.4 Exhaust stacks of generators shall be at least 2 metres above the tallest building.
- 3.5 Enclose all sound-making devices, such as generators, in structures constructed with materials of good insulation properties (e.g. hollow concrete blocks, insulation boards, solid clay bricks, etc.), equip with silencers/mufflers to reduce noise level, and place on properly designed foundations to ensure effective damping of vibrations.
- 3.6 Penstock structures shall be constructed in such a manner to attenuate noise on the environment both in design and use of suitable materials.
- 3.7 Operate all mechanical equipment in accordance with manufacturer's specifications. All mechanical equipment, vehicles, should be regularly maintained and operated at their optimal levels to minimize atmospheric emissions.
- 3.8 Cover all potential sources of dust nuisance such as material stock piles, loaded transport trucks, etc to minimise impacts fugitive dust to sensitive receptors.
- 3.9 Record, investigate and address complaints of excessive noise, dust and vibrations from the public promptly upon receipt. Maintain a record of all complaints received and the action taken.

4.0 FUEL AND HAZARDOUS/ WASTE MANAGEMENT

- 4.1 Strictly adhere to the provisions of the **Environmental Protection (Litter Enforcement) Regulations 2013** and the **Environmental Protection (Hazardous Waste Management) Regulations, 2000**.
- 4.2 Maintain good housekeeping, sanitary and hygienic practices and the aesthetic quality of the surroundings at all times.
- 4.3 Promote proper solid waste management and disposal practices at the site, place covered garbage receptacles at strategic locations around the site.
- 4.4 Dumping of waste into the surrounding environment is strictly prohibited. Waste, inclusive of waste oil and/or fuel, shall not be stored within 10 meters of any waterways.
- 4.5 Hazardous waste shall be treated and/or disposed by an EPA authorised Hazardous Waste Disposal Facility. All hazardous waste treatment and disposal shall be



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documented on a Waste Manifest Form which shall be submitted to the EPA as a component of the **Annual Report**.

- 4.6 Designate an area for the storage of fuel, used oil, washing detergents, sanitisers and other hazardous materials. Hazardous materials/ waste storage areas shall be clearly labelled and secured. The following warning signs shall be clearly posted:
- i. "Hazardous Waste Storage Area"
 - ii. Danger - "Authorised Personnel Only"
 - iii. No eating, drinking or smoking
- 4.7 Hazardous waste shall be contained in bunded/kerbed storage areas. These areas shall adhere to the following requirements:
- i. Be situated in low traffic areas;
 - ii. No interceptor drains shall be constructed; and
 - iii. Be bunded to provide 110% containment of the largest volume of hazardous materials stored therein.
- 4.8 Hazardous waste shall be stored in containers appropriate for the waste stream; that is:
- i. Sealed Plastic Containers
 - a. Water-based waste
 - ii. Sealed Metal Containers
 - a. Solvents and petroleum-based products
 - b. Oil and oily absorbents
- 4.9 Hazardous waste/materials storage containers shall be inspected weekly for signs of leakage, deterioration or corrosion. Damaged containers must be replaced immediately. Inspection reports must be maintained and signed by the appropriately qualified inspecting officer and his/her supervisor.
- 4.10 Construct and maintain a septic system on site; the septic tank shall not be located within 1.5 m of a building or property boundary and should be accessible for cleaning and de-sludging. Any modification to the septic tank shall be in accordance with the **Guyana National Bureau of Standards (GNBS)** Code of Practice for the Design and Construction of Septic Tanks and Associated Secondary Treatment and Disposal Systems.

5.0 COMPLIANCE MONITORING AND REPORTING

- 5.1 Strictly comply with any lawful directions given by the Agency from time-to-time in furtherance of the implementation of any international or other obligation for the environmental protection of Guyana.
- 5.2 Monitor the implementation of the conditions of this Environmental Permit, insofar as they involve adherence by employees and all third parties under your direction.
- 5.3 Report to the Agency any non-compliance(s) with this Environmental Permit.
- i. Within **twenty-four (24) hours** of the time the Holder of this Environmental Permit becomes aware of the non-compliance, with the anticipated manner in which it may endanger human health or the environment may be impacted.
 - ii. Within **seventy-two (72) hours** of the time the Holder of the Environmental Permit becomes aware of the non-compliance, submit to the Agency a written report containing a description of the non-compliance, its cause, the period of non-compliance including exact dates and time and the anticipated time it is expected to continue if the non-compliance(s) has not been corrected.
- 5.4 Submit an **Annual Report** to the EPA on your compliance with this Environmental Permit on or before **March 31, each year**.
- 5.5 Notify the EPA within **twenty-four (24) hours** of the occurrence of any environmental emergencies (e.g., oil spills, hazardous materials/wastes spill, 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).
- 5.6 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.
- 5.7 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.
- 5.8 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.

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- 5.9 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.

6.0 INSTITUTIONAL AUTHORITY/LIABILITIES

- 6.1 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.**
- 6.2 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.**
- 6.3 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.**
- 6.4 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.**
- 6.5 The Permit Holder shall be liable to compensate any person who suffers any loss or damage as a result of contravening conditions 6.3 and 6.4 of this Environmental Permit, pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 6.6 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.
- 6.7 The Permit Holder shall be liable of any gross negligence or wilful misconduct caused by the Permit Holder, his Servants and/or Agents, to the environment, biodiversity,



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protected species and natural habitat with respect to any release, discharge, or spill, of contaminant fluids, oil or lubricants.

- 6.8 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**.
- 6.9 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**.
- 6.10 The EPA reserves the right to conduct regular inspections of the Permit Holder's activities as part of its monitoring and enforcement requirements under the Environmental Protection Act, Cap 20:05, the **Environmental Protection (Amendment) Act, 2005**, and **Environmental Protection (Authorisations) Regulations, 2000**.
- 6.11 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.
- 6.12 The EPA has the right to modify, cancel or suspend this Permit for breach of any of the terms and conditions contained herein.
- 6.13 **This Environmental Permit is not the final consent; all relevant Permissions shall be obtained from other regulatory bodies before commencing construction activities.**
- 6.14 This Environmental Permit is effective for the period stipulated herein, **October, 2022 to September, 2025**.
- 6.15 This Environmental Permit shall remain valid until **September 30, 2025**, unless otherwise suspended, cancelled, modified or varied, in accordance with the

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- 6.16 This Environmental Permit shall be renewed by submitting "an Application for Renewal of Environmental Authorisation to the Agency at least six (6) months before this Permit expires, that is, no later than **March 31, 2025**.
- 6.17 Any late submission of renewal application(s) after the specified date as stated above, may require the Permit Holder to pay, in addition to renewal fees, a late penalty fee (accruing at the time such obligation was first owed for renewal) at a rate of **two thousand dollars (GY\$2000.00) per day for every business day late**, until such renewal application is submitted to the Agency, without prejudice to any other rights of the Permit Holder in connection therewith.
- 6.18 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  on behalf of the Environmental Protection Agency.

Kemraj Parsram
Executive Director


Date 19.10.2022



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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, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, the Environmental Protection (Authorisations) Regulations, 2000, and any forthcoming regulations, best practices, guidelines and standards made under this Act.

NAME:	MAHENDER SHARMA
SIGNATURE:	
DESIGNATION:	Chief Executive Officer
DATE:	Nov 10, 2022

