

Environmental Monitoring Report

Project No. 42180-018
Annual Monitoring Report (January-December 2021)
April 2022

**Bangladesh: Third Public-Private Infrastructure Development Facility-
Tranche 1**

Kushiara Power Company Limited

Prepared by Infrastructure Development Company Limited (IDCOL) for the Asian
Development Bank.

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ANNUAL ENVIRONMENTAL AND SOCIAL COMPLIANCE AUDIT REPORT

163 MW Combined Cycle Power Project at Fenchuganj, Sylhet, Bangladesh

Kushiara Power Company Limited

April, 2022

Prepared by

INFRASTRUCTURE DEVELOPMENT COMPANY LIMITED

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List of Abbreviations

ADB	Asian Development Bank
BPDB	Bangladesh Power Development Board
DOE	Department of Environment
ECR	Environment Conservation Rules
EHS	Environment, Health and Safety
EMP	Environmental Management Plan
ERP	Emergency Response Plan
FGD	Focus Group Discussion
IDCOL	Infrastructure Development Company Limited
IEE	Initial Environmental Examination
KPCL	Kushiara Power Company Limited
PPE	Personal Protective Equipment
SPS	Safeguard Policy Statement

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EXECUTIVE SUMMARY

Background

Kushiara Power Company Limited (KPCL) has been awarded through a competitive bidding process to develop and operate an independent combined-cycle power plant project with capacity of 163 MW at Garulikona Village of Fenchuganj Upazila in Sylhet District. For financial assistance KPCL has approached Infrastructure Development Company Limited (IDCOL), along with other lenders. Considering the importance of the project, IDCOL has provided a term loan facility in favour of the project. IDCOL has sourced the required financing from the fund allocated as ordinary capital resources (OCR) for large infrastructure projects under Public-Private Infrastructure Development Facility (PPIDF) of Asian Development Bank (ADB).

According to the Environment Conservation Rules (ECR), 1997 of Bangladesh Government, industrial projects have been categorized into four classes—Green, Orange A, Orange B and Red. Considering the magnitude of environmental impacts, power plant project has been classified as Red Category. Hence, KPCL project has fallen into the Red category. Given the environmental impacts of the KPCL project are mostly site specific, ADB has categorized the project as **B** as per ADB guidelines. Due to the absence of any indigenous habitat in the project area, the project has been categorised as **C** from indigenous peoples (IP) perspective. In addition, as there was no issue of involuntary resettlement, the project has been categorised as **C** from involuntary resettlement (IR) perspective. In addition, IDCOL has adopted an Environmental and Social Safeguards Framework (ESSF). According to this ESSF, the project of KPCL seems to be a **High-Risk** project requiring detail environmental impact assessment.

EQMS Consulting Limited has conducted the detail environmental impact assessment and prepared the Initial Environmental Examination (IEE) Report based on the guidelines of Department of Environment (DOE), Government of Bangladesh (GOB) and Asian Development Bank's (ADB's) Safeguard Policy Statement (SPS), 2009.

To assess the actual implementation of environmental management plan and social safeguards, respective IDCOL official visited the project site during construction and operation phases. According to the IEE, there is requirement of IDCOL to submit annual Environmental and Social Compliance Audit Report of this project to ADB. Accordingly, this audit report has been prepared by IDCOL.

Audit overview and findings

The respective IDCOL official has visited the project during the audit period (*January 2021 to December 2021*) of this Environmental and Social Compliance. He has also reviewed the available relevant documents and clearances. In addition, there was consultation with representatives of adjacent neighborhood. The audit deals with the implementation of environmental and social safeguards during operation phase in light of ADB approved Initial environmental Examination (IEE) report. During audit, the commitment of KPCL to comply with environmental and social safeguards along with grievance redress and continuous public consultation have been found as satisfactory.

1.0 INTRODUCTION

1.1 PROJECT PROPONENT

The project involves development and operation of a 163 MW gas-fired combined-cycle power plant at Garulikona Village of Fenchuganj Upazila in Sylhet District by Kushiara Power Company Limited (KPCL). KPCL is a special purpose vehicle of well-known entrepreneur named Max Group. The generated electricity from the project will be sold to Bangladesh Power Development Board (BPDB) under a 22-year Power Purchase Agreement. Table 1.1 shows key project information.

Table 1.1: Key project information

Project Company	Kushiara Power Company Limited
Capacity	163 MW
Fuel Type	Gas
Project Location	Garulikona Village of Fenchuganj Upazila in Sylhet District
Land Area	9.22 acres
Project Tenure	22 Years
Project Type	Independent Power Producer
Gas supplier	Jalalabad Gas Transmission and Distribution System Ltd
RMS supplier	General Electric International, INC
GenSet Supplier	General Electric International, INC
Gas Turbine Generator model	9E.03

1.2 AREA AND LOCATION OF THE PROJECT

It is already said that the project site of KPCL 163 MW Project is located at a village named Garulikona Village of Fenchuganj Upazila in Sylhet District. It is a purchased land from private landowners. The area is about 9.22 acres. The location of the proposed project site lies, geographically between 24°41'25.54"N; 91°55'7.80"E to 24°41'25.69"N; 91°55'6.72"E and 24°41'19.28"N; 91°55'6.80"E to 24°41'21.21"N; 91°55'1.39"E. The site is about 3.5 km from Sylhet-Moulavibazar Road to the west, about 28 km south-east of Sylhet and about 8 km road from Fenchuganj upazila. The Kushiara River is located just beside the project site. The project site was plain vacant land. There are two religious structures (Mosque and Graveyard) present adjacent to the project boundary. Details of areas surrounding the project site are as follows:

- North: Settlement and Agricultural Land
- South: Settlement and Agricultural land
- East: Approach Road, Agricultural Land and Settlement
- West: Kushiara River

The schematic location of the project in respect of local context and satellite image of the project area presented in respect of 5 km and 10 km radius air shed are presented in Annex-2.

1.3 BRIEF DESCRIPTION OF THE PROJECT

The project has a heavy duty, single shaft 9E.03 gas turbine with 19 stage of air compressor, 14 stage of combustor that is directly coupled to a 50 Hz generator. A new and clean 9E.03 combustion turbine makes 109 at a heat rate of 10,403 kJ/kWh (LHV) under reference conditions. The gas turbine (GT) has been installed within an acoustic, ventilated enclosure with fire detection and protection system. The GT has all associated ancillary equipment and systems required for the safe, efficient and reliable operation of the unit under simple and combined cycle modes. The specifications of gas turbine and steam turbine are available in Table 1.2 and Table 1.3.

Table 1.2: Gas turbine generator specification

Particular	Details
Combustion turbine manufacturer	GE
Model/Type	9E.03
Net Output	109 MW (Gas)
Heat Rate at 100% load	10,403 (LHV)
RPM	3,000

The Gas Turbine Generator (GTG) has been installed in the GT building. The GTG is capable of operation with their exhaust gases passing into the associated heat recovery steam generator, or as simple open cycle turbine generator, exhausting directly to atmosphere via an exhaust gas damper and the bypass stack, located on the exhaust ducting upstream of the heat recovery boiler. All cooling requirements for the turbine is met using heat exchangers, fed from either the Closed-Circuit Water (CCW) system or Cooling Water System (CWS). Control of emissions of NO_x will be achieved by Dry Low NO_x (DLN) burners. The gas turbine has been equipped with dual fuel systems, capable of burning the specified fuel gas and backup fuel oil.

The heat recovery steam generator (HRSG) is a primary component in the bottoming cycle of a combined cycle power plant. It provides the thermodynamic link between the gas turbines and steam turbines. Each HRSG solution is custom engineered to meet the desired operating flexibility and performance requirements.

GE's HRSG units are cost-effectively designed for heavy cycling operations that allow the project to reduce the cost of electricity, boost performance, increase reliability, and enhance flexibility. Numerous options are available, such as supplementary firing, SCR for NO_x abatement, CO catalyst for emissions reduction, and exhaust gas bypass systems for simple cycle gas operation in a combined cycle installation.

The ST is of proven design and directly coupled to a 50 Hz generator to produce 54 MW. The ST exhaust and condenser configuration is in accordance to manufacturer's standard design. It is sized to pass the entire quantity of steam generated by the HRSG over the full range of ambient temperature specified.

Table 1.3: Steam turbine generator specification

Particulars	Specification
Combustion turbine manufacturer	GE
Model/Type	SC2-26
Net Output	54 MW (Gas)
Steam conditions	90 bar-a/535°C

1.4 OPERATIONAL STATUS

The project has been meant for generating 163 MW electricity. But due to considering the power demand from Bangladesh Power Development Board, in most of the time of the year the project was not required to generate maximum output. But all the year, the plant was technically capable to generate 163 MW of electricity.

Project progress status on implementation of environmental and social compliance for the reporting period is shown in Table 1.4. Additionally, environmental and social compliance work schedule for January to December 2022 has been attached in **Annex 34**.

Table 1.4: KPCL Implementation of Environmental and Social Compliance 2021

S.L	Compliance Item	Progress Status	Remarks
01	Quarterly Environmental Report	4 Environmental monitoring report prepared and submitted to IDCOL in the reporting period 2021.	
02	Workshop, training program	Due to the COVID-19 issue training and workshop program was in a controlled manner in KPCL. Though the project conducts several training season regarding COVID-19 and first aid issue, grievance, and firefighting topic.	
03	Periodic monitoring of environmental parameter	Periodic monitoring of environmental parameter such as; noise, ambient air, surface water, waste water, stack emission was regularly monitoring by 3 rd party testing team. All test report has been shared with IDCOL.	
04	PPE distribution	During the reporting year January 2021 to December 2021, KPCL distributed PPE including safety shoe, safety glass, safety helmet, face mask, face shield etc.	

1.5 OBJECTIVES OF THE ENVIRONMENTAL AND SOCIAL COMPLIANCE AUDIT

The audit has been conducted with the aim to assess the project's compliance with-

- (i) Environment Conservation Rules (ECR) 1997 of GOB;
- (ii) Environmental and social safeguards according to the Environmental and Social Safeguards Framework (ESSF) of IDCOL;

- (iii) Environmental and social safeguards according the Safeguards Policy Statement (SPS), 2009 and other relevant standards and guidelines of the ADB;
- (iv) Proposed mitigation measures and monitoring procedures according to the environmental management plan (EMP) and other relevant documents.

1.6 METHODOLOGY

The audit includes the following steps:

- (i) review the environmental and social safeguards documents including environmental impact assessment report;
- (ii) assess actual implementation of the guidelines/action plan of the safeguard related documents.

1.7 REPORTING PERIOD

The reporting period of this Environmental and Social Compliance Audit Report is January 2021 to December 2021.

1.8 CHANGES IN PROJECT SCOPE

There is no change in the technology as have been declared by the respective government and accepted by KPCL. There has been a change in source of the supply of water from ground water to surface water to run the closed cycle water flow system. The approval for the shift of water source has been provided in **Annex 35**. So, it can be said that the Environmental Management Plan (EMP) of ADB approved Initial Environmental Examination (IEE) is applicable except the shift of using surface water source instead of ground water during the reporting period.

1.9 ENVIRONMENTAL MONITORING

The parameter, frequency and methodology of environmental monitoring are in accordance with EMP of ADB approved IEE, as has been detailed in chapter 3 of this audit report.

2.0 REGULATORY REQUIREMENTS

2.1 ENVIRONMENT CONSERVATION RULES, 1997 OF BANGLADESH

The project has to comply with the Environment Conservation Rules (ECR), 1997. According to the categorization of ECR, 1997, the project has been categorised as **Red**¹ meaning that it has significant adverse environmental impacts, which are to be mitigated with proper mitigation measures.

2.2 ENVIRONMENTAL AND SOCIAL COMPLIANCE RELATED STANDARDS AND GUIDELINES OF ASIAN DEVELOPMENT BANK

The project has to be complied with Safeguards Policy Statement (SPS), 2009 of ADB in regard of environmental and social (E&S) compliances. Considering the adversity of environmental impacts, it has been categorized as **B** from environmental safeguard point of view. Accordingly, an IEE has been prepared, which is already approved by the ADB. As no record of any indigenous habitat has been found at Garulikona Village of Fenchuganj Upazila in Sylhet District the project has been categorised as C in respect of Indigenous People (IP). In addition, the project has been categorised as **C** from IR perspective.

2.3 ENVIRONMENTAL AND SOCIAL SAFEGUARDS FRAMEWORK OF IDCOL

IDCOL has adopted an Environmental and Social Safeguards Framework (ESSF) in 2011, which is to be complied with all infrastructure projects as are to be funded IDCOL. According to the environmental categorization of ESSF, the project has been categorised as **High Risk** project requiring significant compliance safeguards including comprehensive environmental impact assessment and regular monitoring. In consideration of social categorization, the project has been categorised as **Low Risk**.

¹ Schedule-1 of ECR (project no. 6 of Red category), 1997

3.0 IMPLEMENTATION OF ENVIRONMENTAL SAFEGUARDS

3.1 COMPLIANCE WITH ENVIRONMENT CONSERVATION RULES, 1997

KPCL has to comply with the requirement of ECR, 1997 of the DOE. In the following Table 3.1, the compliance status of KPCL, in regard of major milestones of ECR, 1997 is depicted. The renewal copy of Environmental Clearance Certificate is provided in **Annex 1**.

Table 3.1: Compliance with the requirement of ECR, 1997

Basic Requirement	Compliance Status
Award Site Clearance Certificate	Fully complied
Award EIA approval	Fully complied
Award Environmental Clearance Certificate	Fully complied
Renewal of Environmental Clearance Certificate	Fully complied

3.2 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN

a. Institutional arrangement

To ensure satisfactory EHS compliance, KPCL has already appointed Mr. Monjur Morshed Ringku as Deputy EHS Manager. He is supported by one EHS Officer: Mr. Idris Ali and other two EHS supervisor. At the corporate level, the EHS aspect is monitored by Mr. MAB Siddique, General Manager, (Operation and Maintenance), KPCL. The institutional arrangement including the reporting workflow of EHS management of KPCL has been depicted in the organogram of the project proponent in **Annex 5**.

b. Compliance status

In the IEE, several activities having potential adverse environment impacts and occupational health safety aspects during operation phase have been identified. The following table 3.2, shows the legal license status of KPCL for the reporting period. The obtained licenses and certificates are provided in annexures.

Table 3.2: KPCL Legal License Status

S.L	License Name	Renewal	Expire	Status
1	Trade License	27-09-2021	30-06-2022	Obtained
2	Acid License	N/A	N./A	On Progress
3	BERC	N/A	30-06-2022	Obtained
4	Environmental Clearance Certificate	21-11-2021	20-06-2022	Obtained
5	Fire license	27-09-2021	30-06-2022	Obtained
6	Boiler operation license	N/A	N/A	Applied
7	Boiler operator license	12-01-1999	N/A	Obtained
8	Factory license	01-07-2021	30-06-2022	Obtained

As per the approved IEE, a post operational assessment study has been proposed with an objective to assess the impact of cooling water discharge on Kushiara River ecological resources and social aspects. To avoid any environmental impact in the Kushiara river, KPCL is using cooling tower for reusing the water (**Annex 37**). As KPCL is not discharging the cooling water to the river, it has not conducted any ecological study. In the following Table 3.3, suitable mitigation measures to address the impacts according to the EMP and actual responses by KPCL has been discussed.

Table 3.3: Response of KPCL on project activities and mitigation measures during operation phase

Project Activity	Potential Impacts	Proposed mitigation measures in EMP	Actual implementation	Compliance status
Power generation	Emission from the power plant	<ul style="list-style-type: none"> ▪ Using two types of stack: 40 m by-pass stack and 60 m main stack; ▪ Installation of stack emission monitoring equipment for major pollutants; ▪ Planting of indigenous trees around the project site. 	<ul style="list-style-type: none"> ▪ By-pass stack with 40 m height has been installed. ▪ Main stack with 60 m height has been installed. ▪ Some indigenous trees have been planted. 	Complied
	Generation of noise from generators, cooling tower, steam turbine generator, combustion in-let filter house and heat recovery steam generator	<ul style="list-style-type: none"> ▪ Locate facility at a required distance from the nearest receptor; ▪ Use walls, fencing, and/or greenbelt to provide partial noise barrier; ▪ Provision of silencers or generators an turbines (if need arises); ▪ Use of ear-muffs and ear-plugs by plant personnel working in the generator and turbine facilities of the plant. 	<ul style="list-style-type: none"> ▪ Walls are being installed as noise barrier; ▪ Ear plugs were being used as noise barrier. ▪ To minimize noise impact on local communities, vehicles carrying construction materials have been restricted after 6 pm. ▪ KPCL has been planting trees on a yearly basis to develop a green belt within project boundary. This green belt will make a safeguard for local people as noise protection. 	Complied
	NO _x generation from the engine, which can negatively affect health	<ul style="list-style-type: none"> ▪ Use low-NO_x burners and water injection to control NO_x; ▪ Should maintain burning temperature less than 900 °C. 	<ul style="list-style-type: none"> ▪ KPCL has installed low-NO_x burners and water injection to control NO_x; ▪ The burning temperature is less than 900°C. 	Complied

Project Activity	Potential Impacts	Proposed mitigation measures in EMP	Actual implementation	Compliance status
	Suspended particulate matter (SPM) and PM _{2.5} , PM ₁₀ generation from the engine, which can adversely affect health	<ul style="list-style-type: none"> ▪ Use fabric bag filter to reduce particulate matter before discharging the emission; ▪ Good combustion control, required stack height should also be maintained properly. 	<ul style="list-style-type: none"> ▪ Fabric bag filter has been introduced; ▪ Good combustion and required stack height have been ensured. 	Complied
	Electro-magnetic wave or electrical interference, which may result in occupational health risk.	<ul style="list-style-type: none"> ▪ All equipment should be grounded earthing with mesh system; ▪ Power plant to sub-station should be connected by HT cable; ▪ Power plant & substation site should be away from the settlement; ▪ No house should be located in the immediate vicinity of the site. 	<ul style="list-style-type: none"> ▪ Relevant equipment have been grounded; ▪ Power plant to sub-station has been connected by HT cable; ▪ Power plant & substation site are away from the settlement; ▪ No house is located in the immediate vicinity of the site. 	Complied
Heath safety during operation	Risk of human health and property damage	<ul style="list-style-type: none"> ▪ All necessary safety equipment should be ready at the plant; ▪ Regular training on safety needs to provide. ▪ A first-aid center with the trained personnel 	<ul style="list-style-type: none"> ▪ PPE were found to be adequately practiced. ▪ KPCL has engaged a full time site medic for taking care of first aid, occupational injury and general health problems of the employees. 	Complied
Fires, explosion and other accidents	Risk of human health and property damage	<ul style="list-style-type: none"> ▪ Use of personal protective equipment during operation and maintenance; ▪ Prepare and implement safety and emergency manual; ▪ Regular inspection of lines for faults prone to accidents; ▪ Provision of fire protection equipment; ▪ Provision of lightening arrestors. 	<ul style="list-style-type: none"> ▪ There are various types of fire extinguishers to address different types of fire; ▪ Automated firefighting system (overheat sprinkler) has been installed; ▪ Regular fire drill has been accomplished. 	Complied

Project Activity	Potential Impacts	Proposed mitigation measures in EMP	Actual implementation	Compliance status
<i>Domestic wastewater and sewage</i>	BOD, fecal coliform contamination in groundwater and surface water	<ul style="list-style-type: none"> ▪ Need to provide septic tank with soak pit for treatment of sewage. 	<ul style="list-style-type: none"> ▪ Septic tank with soak pit for treatment of sewage. 	Complied
<i>Chemicals and Wastes oil from plant (scrap metal, waste, lube oils, spill oil etc.)</i>	Potential soil and groundwater contamination	<ul style="list-style-type: none"> ▪ Secure on-site storage, waste sell to the DOE authorized vendor for discharge in a safe place. 	<ul style="list-style-type: none"> ▪ Used lube oil is being sold to DOE designated vendor. ▪ KPCL has prepared a procedure for the chemical loading & unloading and spill control, and has ensured trained workers for the same. KPCL already build a chemical storage house to keep all hazardous materials. 	Complied
<i>Waste generated from different sources</i>	Contamination of soil	<ul style="list-style-type: none"> ▪ Store wastes in a manner that will prevent contact between incompatible wastes i.e. post compatibility checks. ▪ Take special care in the storage areas to prevent any spillage of hazardous wastes and restrict access (except for trained staff) to such areas. 	<ul style="list-style-type: none"> ▪ In line with the ESMP, regular monitoring of solid and hazardous waste disposal is being ensured by EHS personnel of the KPCL. 	Complied

c. Environmental monitoring

I. Technical approach of environmental monitoring

In the EMP of the IEE, environmental monitoring has been required during operation phase. The air, water and noise quality monitoring schedule are depicted in Table 3.4.

Table 3.4: Monitoring parameters and frequency of monitoring during operation phase

Key parameters to be monitored: (1) Ambient Air Quality		
location	frequency	parameter
At Project site, residential /institutional /commercial areas within 500m outside from plant boundary.	Quarterly (routine) analysis	SPM, SOx, NOx and PM 10
Key parameters to be monitored: (2) Surface Water		
location	frequency	parameter
Project site at Garulikona	Quarterly (routine) analysis	pH, Temperature, DO, BOD, COD, TDS, Oil and grease
Key parameters to be monitored: (3) Noise		
location	frequency	parameter
At five points around project boundary	A 24-hour observation Quarterly (routine)	Limits in dBA

Procedure for Air Quality Monitoring:

The instrument used in measuring ambient air quality monitoring test is Haz-Scanner TM (HIM 6000). During the sample collection, necessary safety precautions were maintained i.e. use of PPE, ensuring additional power source in case of unavailability of uninterrupted electricity and proper site selection for monitoring. The air quality samples were collected by the instrument for 8-hour and 24-hour duration and then converted the 8-hour data to 24-hour duration data following the formula:

$$C_{\text{long}} = C_{\text{short}} (t_{\text{short}} / t_{\text{long}})^p$$

Where,

C_{long} = is the expected value in the standard time

C_{short} = is the measured value at the field level in a specific time period

t_{short} = Time period (converted into minutes from hour) in the field level

t_{long} = Standard time period (converted into minutes from hour)

p = is the exponential factor

Sampling location for the ambient air quality monitoring test around the project site has been attached in **Annex 7**. Sample collection time and interval from one point to another point and method for analysis of ambient air quality is specified in the Table 3.5.

Table 3.5: Procedures and Sampling Duration for Air Quality Parameters

S.L.	Parameter	Analysis procedure	Sample Collection Duration (hr)
1	SPM	Light Scattering Nephometer	8
2	CO	High Sensitivity Electrochemical	8
3	SOX	High Sensitivity Electrochemical	24
4	NOX	High Sensitivity Electrochemical	24
5	PM10	Light Scattering Nephometer	24
6	PM2.5	Light Scattering Nephometer	24

The description of the applied equipment, its specification and detailed mechanism has been described in **Annex 8A**. The ambient air quality test result for two period and comparison with the baseline data has been shown in Table 3.6.

Table 3.6: Ambient air quality at project site

Location	SPM ($\mu\text{g}/\text{m}^3$)			SO ₂ ($\mu\text{g}/\text{m}^3$)			NOx ($\mu\text{g}/\text{m}^3$)		
	15 Mar 2021	20 Sept 2021	Base-line	15 Mar 2021	20 Sept 2021	Base-line	15 Mar 2021	20 Sept 2021	Base-line
Adjacent to the project site (North Side of the Project)	117.44	107.32	144.74	47.77	12.38	13.66	19.66	25.37	36.56
In front of Adarsha Gram Primary School	116.24	86.28	142.52	60.71	11.40	11.98	13.47	20.66	37.33
In front of Abdul's House	58.86	78.46	129.23	22.9	11.02	9.64	26.18	28.81	31.63
In front of Abdus samad's house	138.9	94.15	103.44	39.89	9.54	8.37	15.23	24.70	14.28
DOE Standards	200			365			100		

Source: KPCL, Air Quality Monitoring Report (Annex 9) ;
ECR 1997, Standard of DOE (Schedule - 02).

Procedure of Noise Level Monitoring:

The instrument used in measuring ambient noise level monitoring test is Center 322 Data Logger. Noise level measurement data was collected during day and night time. The noise measurement locations are detailed in Table 3.7. The locations have been shown in a map attached in **Annex 7**.

Table 3.7: Noise level data monitoring locations

Code	Location	GPS Coordinate	Duration	Location Setting
NL1	Adjacent to the project site	24°41'25.3"N 91°55'08.0"E	24 hours	Industrial
NL2	Project Area	24°41'16.6"N 91°55'03.2"E	24 hours	Industrial
NL3	Project Area	24°41'17.0"N 91°55'01.8"E	24 hours	Industrial
NL4	In front of project mosque	24°41'20.5"N 91°55'02.1"E	24 hours	Mixed
NL5	Project Area	24°41'15.4"N 91°55'05.5"E	24 hours	Industrial

In all cases, the sound level meter (SLM) mounted on a tripod at 1.5m above ground level and at least 3.5m away from any sound reflecting surfaces. The SLM is oriented towards the facility of interest for each measurement taken. The measurements are made using a Noise data logger (CENTER 322 data logger sound level meter). The SLM is calibrated before the noise monitoring survey was carried out. The sound level is recorded in the form of A-weighted equivalent continuous sound pressure level (Leq) values with the use of A-weighting filters in the noise measuring instrument. Noise level measurement data has been collected for Day time (1 hour) and Night time (1 hour) and then converted to 24-hour data. The technical specification of the testing instrument and the method for monitoring is attached in **Annex 8B**. Table 3.8 shows the noise level monitoring result for two periods.

Table 3.8: Ambient noise level at project site

Location	25 February 2021		20 September 2021	
	Day (6.00 am to 9.00 pm)	Night (9.00 pm to 6.00 am)	Day (6.00 am to 9.00 pm)	Night (9.00 pm to 6.00 am)
NL1	58.83	59.6	66.15	60.40
NL2	53.63	53.77	67.52	67.27
NL3	57.75	57.86	68.42	68.38
NL4	63.85	62.03	64.39	63.80
NL5	66.77	69	73.22	66.57
Standard of DOE ²	75	70	75	70

Source: KPCL, Noise Quality Monitoring Report (Annex 9);
ECR 1997, Standard of DOE (Schedule - 04).

During steam turbine operation, sometimes Steam Pursing is required which create additional noise. So, sometimes night time noise level exceed day time noise level. Though four night time noise level data exceeded day time level, all noise level data are within ECR 1997 and World Bank standard.

² The project area has been considered as Industrial Zone based on land use

Procedure of Water Quality Monitoring:

The instrument used in measuring dissolved oxygen (DO) is Lutron DO 5509 dissolved oxygen meter (ion electrode method), instrument for measuring Total dissolved solid (TDS) is Hanna HI 98130 Combo meter (ion electrode method) and the instrument for measuring pH and Temperature is Hanna HI 98130 Combo meter (ion electrode method). Standard Operating Procedure (SOP) for the instrument used in conducting the surface water quality monitoring test is attached in **Annex 8C**. Surface water measurement location map has been shown in **Annex 7**. Table 3.9 shows the surface water quality test result of two time period.

Table 3.9: Surface water (Kushiara River) quality at project site

Parameters	16 March 2021	22 September 2021	DoE standard
pH	7.99	7.21	6.5-8.5
Temperature	28.6 ° C	22.1 ° C	-
DO	6.4 mg/l	6.1 mg/l	5 or more
BOD	0.2 mg/l	0.7 mg/l	6 or less
COD	23 mg/l	8 mg/l	-
TDS	69 mg/l	75 mg/l	-
Oil and Grease	<2	< 2	-

Source: KPCL, Surface Water Quality Monitoring Report (Annex 9) ;
ECR 1997, Standard of DOE (Schedule - 03).

Monitoring of temperature of the treated water at the discharge point has been done monthly by KPCL. The following table (Table 3.10) shows the temperatures measured at the discharge point.

Table 3.10: Temperature of the treated water at discharge point

Date	Temperature (°C)	DOE Standard (°C)
28 January 2021	26.4	40 - Summer, 45 - Winter
27 February 2021	28.7	40 - Summer, 45 - Winter
17 March 2021	27.0	40 - Summer, 45 - Winter
28 April 2021	30.1	40 - Summer, 45 - Winter
25 May 2021	28.2	40 - Summer, 45 - Winter
30 June 2021	27.0	40 - Summer, 45 - Winter
29 July 2021	29.7	40 - Summer, 45 - Winter
31 August 2021	31.4	40 - Summer, 45 - Winter
22 September 2021	31.0	40 - Summer, 45 - Winter
28 October 2021	31.1	40 - Summer, 45 - Winter
24 November 2021	29.1	40 - Summer, 45 - Winter
28 December 2021	26.4	40 - Summer, 45 - Winter

Source: Quarterly Monitoring Reports, KPCL
ECR 1997, Standard of DOE (Schedule - 10).

II. Result of environmental monitoring

During operation phase, the ambient air quality and noise level have been found to comply with the acceptable limit of DOE. In addition, surface water quality has been found to be within the limit of DOE. The plant has switched water source from ground to surface water of the nearest river Kushiara. After successful testing, the plant has started intake water from nearest point in Kushiara River through barge mounted water pumps from May 2019. The barge consists of 3 pumps with maximum intake capacity of 250 Cubic Meter each with head of 21 Meter (**Annex 35**). Considering the environmental impact of ground water depletion and deterioration of ground water quality, the project proponent has switched its water source from May 01, 2019. For that reason, the project proponent did not conduct any ground water monitoring test during the reporting period. To provide safe drinking water, one separate drinking water treatment plant has been installed that uses ground water. To ensure the quality of drinking water, KPCL conducts periodic monitoring that has been attached in annexure. The test results are within the applicable standards (**Annex 38**). To monitor the stack emission, KPCL has installed continuous emission monitoring equipment (Solstice CEMS) in the exhaust stack. Due to non-functioning oxygen sensor, Continuous Emission Monitoring System (CEMS) is inactive right now. KPCL has conducted periodic stack emission monitoring test which has been attached in **Annex 09**.

III. Disclosure of environmental monitoring

As disclosure of environmental monitoring, KPCL has kept the copy monitoring result available at project site.

IV. Monitoring adjustment measure

As the air, water and noise monitoring result have been found to be within the limit, no adjustment measure has been recommended.

3.3 COMPLIANCE WITH SAFEGUARDS POLICY STATEMENT, 2009 OF ADB

It is already said that the KPCL project has to comply with the requirement of SPS, 2009 of ADB. Accordingly, the compliance of this project in regard of major EHS related requirement are mentioned in Table 3.11.

Table 3.11: Compliance with important EHS aspects during operation phase

ADB Requirements	Issue and Description of Observation	compliance Status
<i>Environment Assessment requirements for various financing modalities</i>	KPCL has conducted detail environmental impact assessment by EQMS Consulting Limited which has been approved by ADB. And while visit KPCL has been found to implement the EMP (as has been mentioned in this assessment report) to a satisfactory level.	Complied
<i>Occupational and Community Health and safety</i>	KPCL has ensured the satisfactory application of PPE.	Complied
	There is satisfactory evidence of fire drill.	Complied
<i>Biodiversity conservation and sustainable natural resource management</i>	The activities in relevant to operation phase seems to be inadequate to adversely affect the biodiversity and natural resource management in the project area to a greater extent. But due to the long term operation of the project, there could be limited/minimal impact to the local biodiversity.	Complied
<i>Pollution prevention and abatement</i>	KPCL has been found to conduct air, water and noise monitoring on a regular basis. And the monitoring result has been found to be within the acceptable limit. So, it can be said that there is sufficient preventive measures against the potential pollution	Complied
<i>Physical Cultural resources</i>	Due to the unavailability of physical cultural resources within the range of close distance, the issue of adversely affecting the physical cultural property seems not to be relevant with the project.	Complied

4.0 IMPLEMENTATION OF SOCIAL SAFEGUARDS

4.1 IMPACT ON RESETTLEMENT OF THE PROJECT AFFECTED PEOPLE AND LIVELIHOOD

As the project site is a purchased land of KPCL from private landowners through willing seller-willing buyer arrangement, there is no issue of resettlement. There was no physical displacement or loss of structure of any project affected people due to the land purchase. As the evidence of any involuntary resettlement has not been documented, the project has been categorized as **C** from Involuntary Resettlement (IR) perspective.

4.2 INSTITUTIONAL ARRANGEMENT ON SOCIAL SAFEGUARD

There were two-tier arrangements to deal the stakeholder including resettlement and other social aspects. During operation phase, Mr. Monjur Morshed Ringku, EHS Manager, has been extended the responsibility of confirming required social safeguard. Mr. Monjur Morshed Ringku is supported by EHS Officer Mr. Idris Ali.

From corporate level, Mr. MAB Siddique, General Manager, (Operation and Maintenance), KPCL is responsible to provide required cooperation to ensure social safeguards.

4.3 GRIEVANCE REDRESS MECHANISM

To redress the grievances, KPCL has introduced Grievance Logbook. The Grievance Log Book is accessible for any internal or external stakeholder, who wants to place grievances in writing. But in case of confidentiality, there is an arrangement of Transparent Glass-made Grievance Box kept outside the front gate, where anyone can place complain in a secret manner. To address grievances and ensure proper compensation to the affected parties, KPCL has formed a Grievance Redress Committee (GRC). KPCL is committed to resolve any grievance within 15 days of receiving the grievance.

Mr. MAB Siddique, General Manager, (Operation and Maintenance), KPCL leads the grievance redress process at corporate level during operation phase. At plant level, Mr. Monjur Morshed Ringku, EHS Manager, heads the grievance redress process. Based on the discussion with KPCL officials and adjacent community members, it has been concluded that during operation phase there is no grievance case during audit period (January 2021 to December 2021).

4.4 IMPACT ON INDIGENOUS PEOPLE

Based on the primary observation during site visit and secondary sources including BBS³ Census 2011, no habitat of any indigenous community has been reported at Garulikona. So, the project has been categorized as **C** for Indigenous Peoples (IP) safeguards concluding that there is no issue about adversely affecting IP neither in construction phase nor in operation phase.

KPCL has conveyed that they are gender and caste neutral. So, any qualified person coming from the indigenous community will be equally treated during the recruitment process and will be given the same benefits as like as other personnel.

³BBS stands for Bangladesh Bureau of Statistics

4.5 CHILD LABOUR

The Bangladesh Labour Act 2006 (Act XLII of 2006) also defines the “child” and the “adolescent” on the basis of age. As per section 2(8) of the Act, a person who has attained the age of 14 but below the age of 18 is considered to be an **adolescent** and as per section 2(63), a person not attaining the age of 14 is defined as a “child”.

According to The National Child Labour Elimination Policy 2010, following rights are to be complied with, in regard of addressing child labour Issue

- Employing children according to the age determined by the Acts and not to employ children below 14 years as a regular employee;
- Ensuring the children at domestic work not to perform any hazardous work and providing them with proper food and accommodation, education, recreation since they work full time; and
- Refraining child workers from physical, mental, sexual persecution and abuse.

KPCL has been found to be careful about the child labour issue. So, neither in construction phase nor in operation phase, no child has been found to be engaged in the project activities.

4.6 PUBLIC CONSULTATION AND DISCLOSURE OF INFORMATION

I. Public Consultation and major findings

As part of environmental and social compliance, the respective official of IDCOL consulted with local respondents during the reporting period.

The major findings of public consultation are as follows:

- Local people does not face difficulties getting drinking water from tube-well after shifting KPCL’s water source from ground water to surface water.
- Local people do not have specific concern about project-personnel or project activity.
- They are pleased with the measures of KPCL to mitigate noise issue.
- Some of the local residents are pleased to get employment opportunities in the project
- They are happy with the social support of KPCL.

II. Response from KPCL

KPCL officials have confirmed that they are careful about the convenience of local people.

III. Disclosure

KPCL has confirmed that they are agreed to share environment and social safeguards related information to the relevant stakeholders, if they are asked.

4.7 ENHANCEMENT

KPCL acknowledges the importance of satisfactory relationship to adjacent communities. Accordingly, it has extended various types of cooperation such as,

- KPCL management constructed a Mosque at Moinpur Adarshgram. The mosque was declared open for all as of dated 26th July 2019. KPCL has taken the responsibility for operational costs of the mosque as well as provides water supply from KPCL water supply system.
- According to DoE regulatory requirement KPCL formed a Tree plantation plan 2019. The company as per the plan already planted different types of tree within the 40% plant open premises. KPCL is planting trees in and around the project site on an ongoing basis.
- KPCL has provided street lights to the adjacent road of KPCL boundary which is also used by the villagers
- KPCL has contributed one crore BDT for construction of the access road for surrounding villagers.

4.8. TRAININGS

An overview of KPCL internal trainings is given in the table below. Due to Covid-19 Pandemic related restriction, external trainings were not arranged.

Table 4.1. KPCL Internal Training Information 2021

S.L	Training Topics	Participants	Remarks
1	House Keeping	32	
2	Manual Handling	39	
3	Chemical Handling	45	
4	Electrical Safety	41	
5	Confined Space	18	
6	Work At Height	29	
7	EHS Management	32	
8	Fire Fighting and First aid	39	
	Total	275	

5.0 CORRECTIVE ACTION PLAN

KPCL has been found to comply with the EMP. They have been found to maintain the required mitigation measures to address the potential impacts including noise and air pollution. From social safeguard perspective, it has been informed that there is no significant grievance neither from any internal stakeholder nor from any external stakeholder.

6.0 CONCLUSION

Based on the findings of environmental and social compliance audit, it can be concluded that KPCL has been found to satisfactorily complying with environmental and social safeguards.

Annex 1: Renewal of Environmental Clearance Certificate



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিবেশ অধিদপ্তর,
সিলেট বিভাগীয় কার্যালয়,
কমিশনার কার্যালয় ভবন(৫ম তলা)
আলমপুর, সিলেট.
www.doe.gov.bd

পরিবেশগত ছাড়পত্র নবায়ন

ছাড়পত্র নং: ২১-৬৭০৬৪

পরিবেশগত ব্যবস্থাপনা নিশ্চিতকরণ সাপেক্ষে সংযুক্ত শর্তে নিম্নবর্ণিত প্রতিষ্ঠান/প্রকল্পের অনুকূলে পরিবেশগত ছাড়পত্র নবায়ন প্রদান করা হলো :

প্রতিষ্ঠান/প্রকল্পের নাম	: kushiara power company Ltd
উদ্যোক্তার নাম	: Ghulam Mohammed
সনাক্তকরণ নং	: ৭৯১৩১
প্রতিষ্ঠান/প্রকল্পের কার্যক্রম	: Power plant
প্রতিষ্ঠান/প্রকল্পের শ্রেণী	: Red
প্রতিষ্ঠান/প্রকল্পের ঠিকানা	: Moinpur, Fenchugonj, Sylhet
প্রদানের তারিখ	: ২২/১১/২০২১ খ্রি.
মেয়াদ উত্তীর্ণের তারিখ	: ২০/০৬/ ২০২২ খ্রি.



এ ছাড়পত্র সশদের সাথে পৃথকভাবে সংযুক্ত প্রদত্ত শর্তাবলী যথাযথভাবে প্রতিপালন করতে হবে,
অন্যথায় ছাড়পত্র বাতিল/অতিপূরণ আদায়সহ যে কোশ আইনানুগ ব্যবস্থা গ্রহণ করা হবে।

বিঃদ্রঃ এটি একটি সিস্টেম জেনারেটেড ছাড়পত্র এবং এতে কৌশলরূপ স্বাক্ষরের প্রয়োজন নেই।

ছাড়পত্রটি যাচাই করতে ভিজিট করুন: https://ecc.doe.gov.bd/certificate_verification

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পরিবেশগত ছাড়পত্র নবায়ন এর জন্য প্রযোজ্য শর্তাবলী:

১. পরিবেশগত ছাড়পত্রের সকল শর্তাবলী বহাল থাকবে।
২. এ ছাড়পত্র নবায়ন কেবলমাত্র পাওয়ার প্রাউ পরিচালনার জন্য প্রযোজ্য হবে।
৩. প্রতি ০৩ (তিন) মাস অন্তর অর্থাৎ বছরে ০৪ (চার) বার প্রাউের পরিবেষ্টক বায়ুর গুণগত মান ও শব্দের মাপমাত্রা গড়হরগড়সহম জবং ংবঃ এ কার্যালয়ে দাখিল করতে হবে।
৪. প্রতিষ্ঠানটির বিরুদ্ধে ভবিষ্যতে পরিবেশ দূষণমূলক কোন অভিযোগ উত্থাপিত ও অম দত্তর কর্তৃক তা প্রমাণিতহলে অম দত্তরের নির্দেশিত শিল্পরূপ/সংশোধনমূলক ব্যবস্থাদি (ছাশাক্তর/কার্যক্রম বন্ধসহ) গ্রহণ করতে আপনার প্রতিষ্ঠান বাধ্য থাকবে।
৫. অম দত্তরের পূর্বানুমতি ব্যতিত দাখিলকৃত তথ্যাদি যেমন-কারখানার অবস্থান, কারখানার ক্ষমতা বৃদ্ধি, উৎপাদন প্রক্রিয়া ও উৎপাদন ক্ষমতার কোনরূপ পরিবর্তন করা যাবে না।
৬. বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত ২০১০) এবং পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭ এ প্রদত্ত ক্ষমতা বলে উল্লেখিত শর্ত সমূহ উহতত্বপূর্ব করা হবে।
৭. অগ্নি নির্বাপনকল্পে প্রতিষ্ঠানটিতে যথোপযুক্ত ব্যবস্থাদি (ফায়ারএক্সটিং এনসটিংএইসার, বাপির বাপতি, পানির বাপতি, ইমার্জেন্সী লাইট ইত্যাদি) কার্যকর রাখতে হবে। জু-গর্তস্থ, জু-উপরিস্থ জলাধারে সর্বদা পর্যাপ্ত পানি সংরক্ষণ করতে হবে।
৮. প্রতিষ্ঠানের কার্যক্রম দ্বারা জনস্বার্থের ক্ষতি হলে তৎক্ষণ্য ক্ষতিপূরণ দিতে হবে। দূষণ শিল্পরূপ ব্যবস্থা কার্যকর না থাকলে এবং এর ফলে পরিবেশ ও প্রতিবেশের ক্ষতি হলে Polluters Pay Principle অনুসারে ক্ষতিপূরণ ধার্য করা হবে এবং নির্ধারিত সময়ের মধ্যে ক্ষতিপূরণ দিতে হবে।
৯. দেওয়ানী আদালতে কিংবা মহামাশয় হাইকোর্টের হুগিতাদেশ, শিষেখাজ্ঞা, হিতাবস্থা বা অন্য কোন আদেশ থাকলে এ ছাড়পত্র কার্যকর হবে না।
১০. প্রতিষ্ঠানটির অভ্যন্তরে কর্মকর্তা/কর্মচারীদের বাহ্যাসম্মত টয়লেট এবং শিরাপত্তামূলক ব্যবস্থা শিগ্গিত করতে হবে।
১১. এ ছাড়পত্র জমির মাপিকাশা স্বত্ব নির্ধারণ করে না।
১২. এ ছাড়পত্র ইস্তাক্তরযোগ্য নয়।
১৩. ছাড়পত্রের মূলকপি অম প্রতিষ্ঠানে সংরক্ষণ করতে হবে। পরিবেশ অধিদত্তরের এলকোর্সমেন্ট টিম বা কোন কর্মকর্তা প্রতিষ্ঠান পরিদর্শনে গেলে তাঁদেরকে/তঁাকে ছাড়পত্র প্রদর্শন ও প্রতিষ্ঠানের কার্যক্রম পরিদর্শনে সহযোগিতা করতে হবে।
১৪. পরিবেশগত ছাড়পত্র নবায়ন এর মেয়াদ ০১(এক) বছরের জন্য প্রযোজ্য হবে। মেবাদ শেষ হওয়ার অন্তঃত ৩০(মিশ) দিন পূর্বে পরিবেশগত ছাড়পত্র নবায়নের জন্য অনলাইন আবেদনসহ নবায়নের জন্য প্রযোজ্য ফি, ভ্যাট এবং পরিবেশগত ছাড়পত্রের শর্তাবলীর ব্যাখ্যা পরিবেশ অধিদত্তরে দাখিল করতে হবে।

Annex 2: Local trade license

ইউ.পি ৭নং ফরম
[১২ (১)নং বিধান দ্রষ্টব্য]
[লাইসেন্সের আউটার ফয়েল]

২নং মাইজগাঁও ইউনিয়ন পরিষদ
ফেঞ্চুগঞ্জ, সিলেট।

ব্যবসাসংক্রান্ত অনুমতিপত্র

বই নং ২২৯৯ লাইসেন্স নং : ২২(২০১৯-২০২০) তারিখ: ২৮/১১/২০১৯

প্রতিষ্ঠানের নাম : সুখিয়া-পাণ্ডার কোম্পানী লিমিটেড

মালিক/পরিচালক এর নাম : জোন্স মোহাম্মদ

পিতা বা স্বামীর নাম : সুখ জোন্স মোহাম্মদ

ঠিকানা : সাং. রইনপুর, ফেঞ্চুগঞ্জ, সিলেট।

অত্র ইউনিয়নের আওতাধীন ০১-০৭-২০১৯ তারিখ হইতে ৩০-০৬-২০২০ পর্যন্ত বৎসর কাল

উৎপাদন ব্যবসায়ী হিসাবে তাহার উক্ত ব্যবসা চালাইয়া যাওয়ার জন্য তৎকর্তক টাকা ২২,০০০/-

পয়সা — কথায় এগারো হাজার পাঁচশত টাকা প্রদত্ত হওয়ায় নিশ্চিত কি

গ্রহণ করিয়া অত্র অনুমতি প্রদান করা হইল।

লাইসেন্স নবায়ন	০১-০৭-২০২০	হইতে	৩০-০৬-২০২০
	০১-০৭-২০	হইতে	৩০-০৬-২০
	০১-০৭-২০	হইতে	৩০-০৬-২০

চেয়ারম্যানের স্বাক্ষর ও সীল মোহর
ছাফিয়ানুল করিম চৌধুরী
চেয়ারম্যান
২নং মাইজগাঁও ইউনিয়ন পরিষদ
ফেঞ্চুগঞ্জ, সিলেট।

বিঃদ্রঃ (সর্বপ্রথম মোকদ্দমাতঃ কার্যক্রমে অনুমতিপত্র প্রদানে ২নং মাইজগাঁও ইউপি চেয়ারম্যান এর ক্ষমতার কোন হানি হইবে না।)

ব্যবসা কর পরিশোধ করে ২নং মাইজগাঁও ইউনিয়ন পরিষদকে সহযোগিতা করার জন্য আপনাকে ধন্যবাদ। আপনার ব্যবসার সার্বিক সাফল্য কামনা করি।

Annex 3: E-trade license

ঢাকা দক্ষিণ সিটি কর্পোরেশন

www.dsccl.gov.bd





লাইসেন্স ইস্যুর বিবরণ

ই-ট্রেড লাইসেন্স

ইস্যুর তারিখ : 27/09/2021
ইস্যুর সময় : 15:04:14

লাইসেন্স নং : TRAD/DSCCL/214351/2019

স্থানীয় সরকার (সিটি কর্পোরেশন) আইন, ২০০৯ (২০০৯ সনের ৬০ নং আইন) এর ধারা ৮৪-তে প্রদত্ত ক্ষমতাবলে সরকার প্রণীত আদর্শ কর তফসিল, ২০১৬ এর ১০ অনুচ্ছেদ অনুযায়ী ব্যবসা, বৃত্তি, পেশা বা শিল্প প্রতিষ্ঠানের উপর আরোপিত কর আদায়ের লক্ষ্যে নিম্নে বর্ণিত ব্যক্তি/প্রতিষ্ঠানের আনুকূলে অত্র ট্রেড লাইসেন্সটি ইস্যু করা হলো।

১। ব্যবসা প্রতিষ্ঠানের নাম	: কুশিয়ারা পাওয়ার কোম্পানী লিমিটেড
২। প্রতিষ্ঠানের মালিকের নাম	: গোলাম মোহাম্মদ
৩। পিতা / স্বামীর নাম	: মৃত গোলাম মোস্তফা
৪। মাতার নাম	: মৃত দেল আকবরজ বেগম
৫। ব্যবসার প্রকৃতি	: লিমিটেড কোম্পানী
৬। ব্যবসার ধরণ	: আমদানী, রপ্তানী ও সরবরাহকারী, বিদ্যুৎ উৎপাদন
৭। প্রতিষ্ঠানের ঠিকানা	: বায়তুল হোসেন বিজিং (৬ষ্ঠ তলা), দিলকুশা বা/এ, ঢাকা-১০০০
৮। অঞ্চল / বাজার শাখা	: ২
এলাকা	: ওয়ার্ড / মার্কেট: ৯
৯। এনআইডি/পাসপোর্ট/জন্ম নিবন: নং	: 8660218317
ফোন	: 01730792451
	বিআইএন নং: ই-মেইল:
১০। অর্থ বছর	: ২০২১-২০২২ (নবায়নকৃত)
১১। মালিকের বর্তমান ঠিকানা	ব্যবসা শুরু তারিখ:
হোজিং নং	: ৩৭০, ১ম তলা ২৮-নিউ
রোড নং	: ডি ও এইচ এস
গ্রাম / মহলা	: ডি ও এইচ এস
পোস্টকোড	: ডি ও এইচ এস
থানা	: মহাখালী
জেলা	: ঢাকা
বিভাগ	: ঢাকা
১২। ট্রেড লাইসেন্স/নবায়ন ফি (বার্ষিক)	
লাইসেন্স/নবায়ন ফি	: ৭৫০০
সারচার্জ	: ০
আয়কর / উৎসেকর	: ৩০০০
বকেয়া ()	: ০
সংশোধনী ফি	: ০.০০
সাইনবোর্ড কর	: ৮০০
ভাটি	: ১২৪৫
ফর্ম ফি	: ৫০
সর্বমোট	: ১২৫৯৫.০০

অত্র ট্রেড লাইসেন্স এর মেয়াদ ০১ শে জুন, ২০২২ পর্যন্ত



লাইসেন্স ও বিজ্ঞাপন সুপারভাইজার





কর কর্মকর্তা

Annex 4: Location of the project site

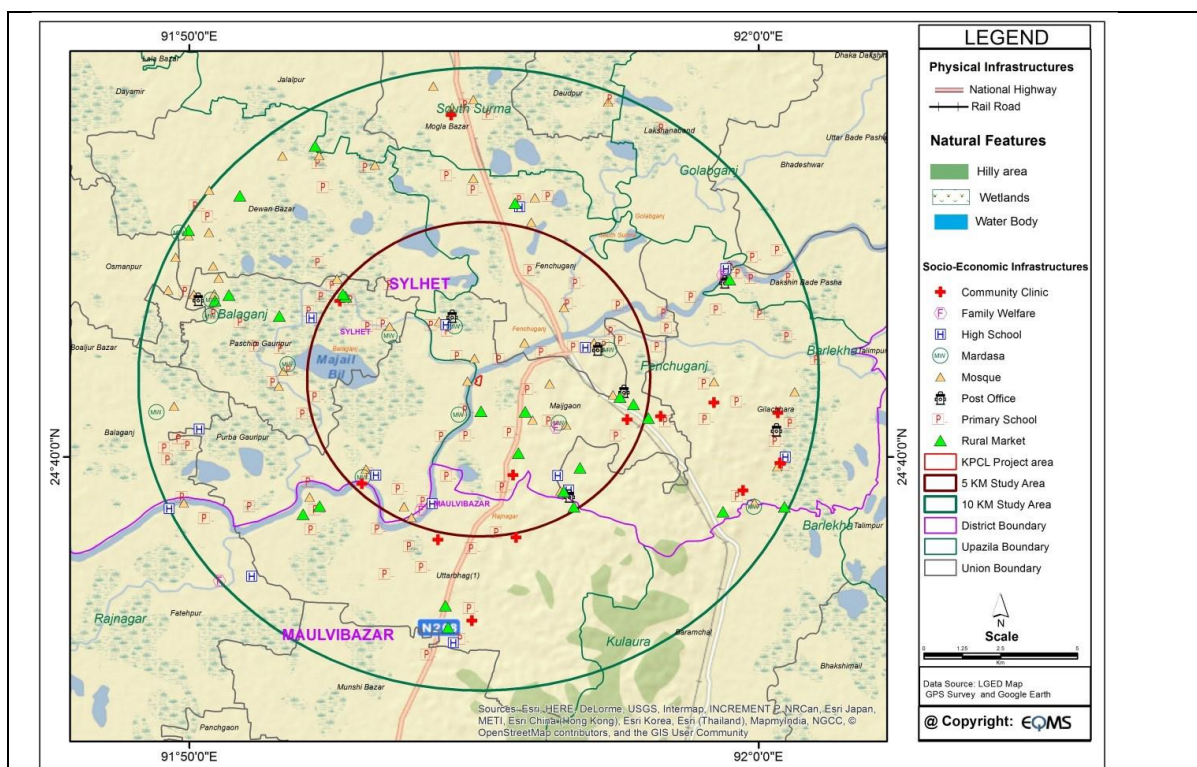


Figure: Baseline map of the in respect of 5 km and 10 km radius airshed

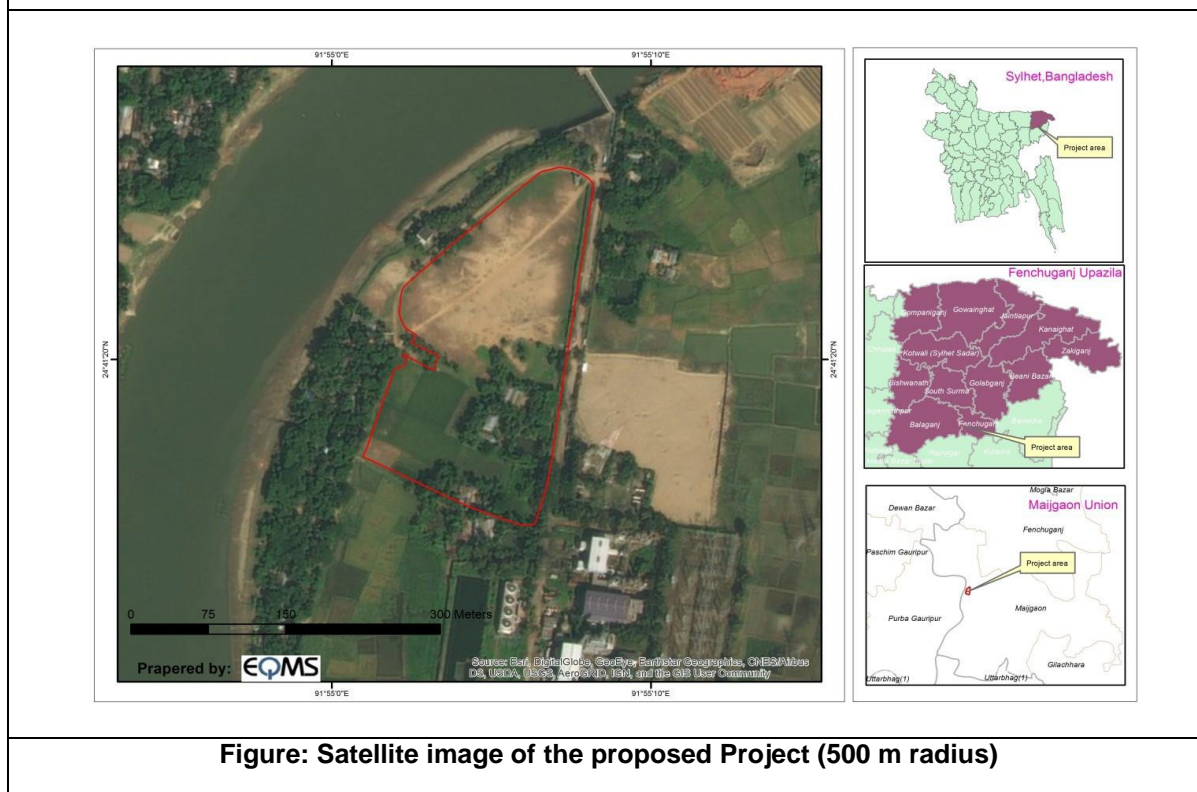
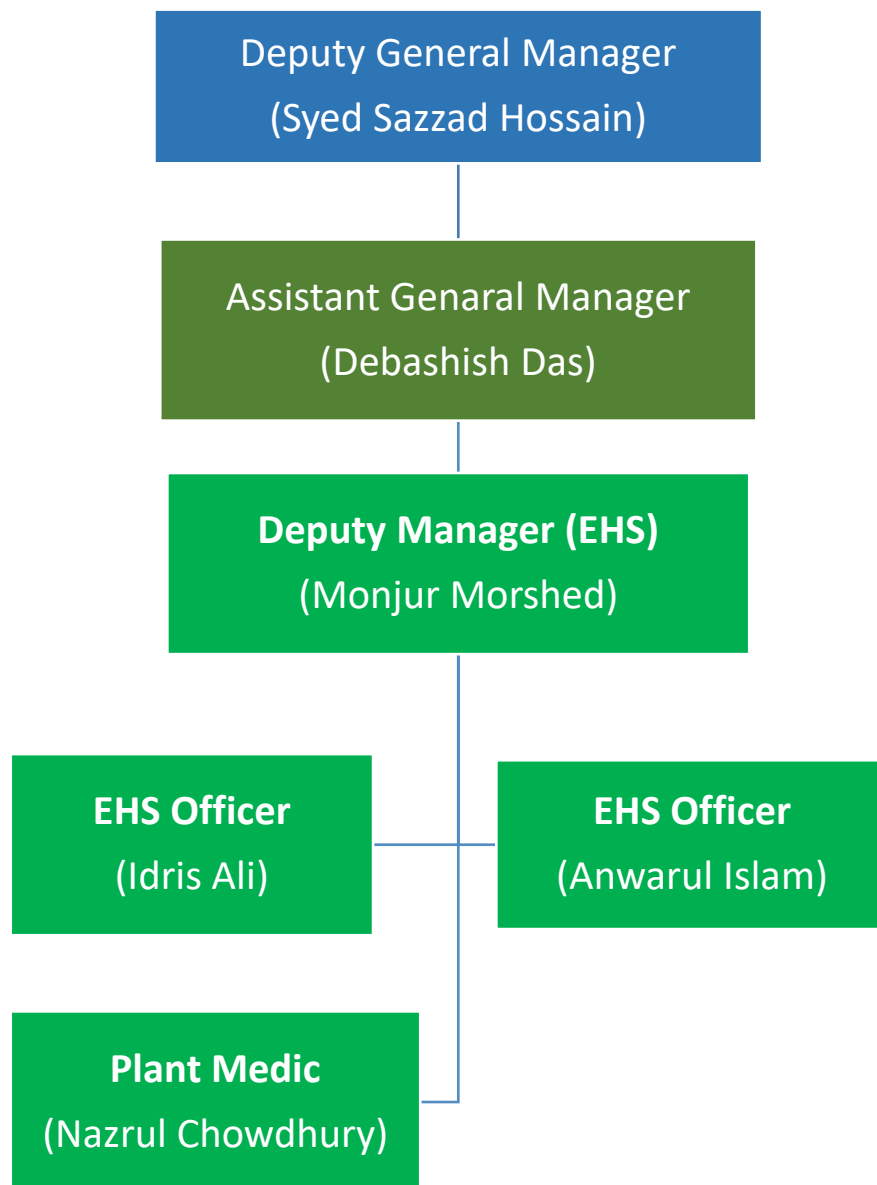


Figure: Satellite image of the proposed Project (500 m radius)

Annex 5: KPCL EHS Organogram



Annex 6: Current status of project



Photograph: An external view of the power plant

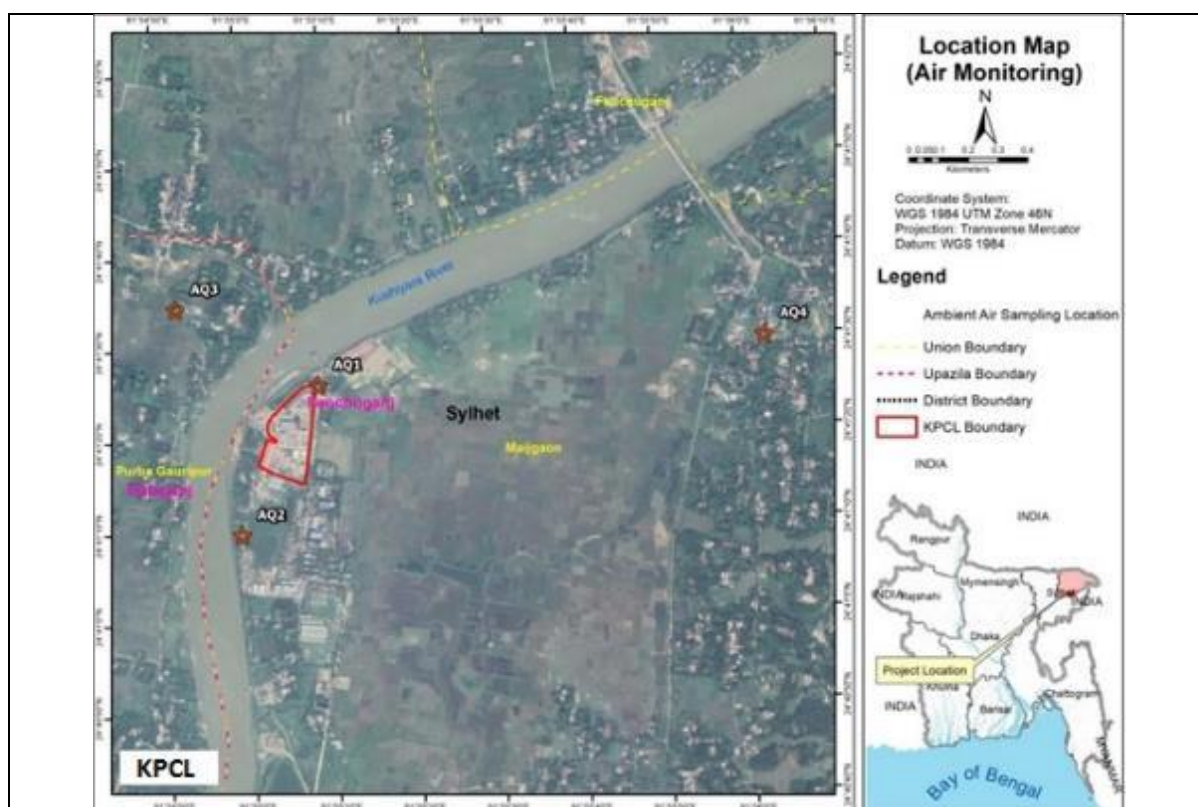


Photograph: EHS office of the power plant

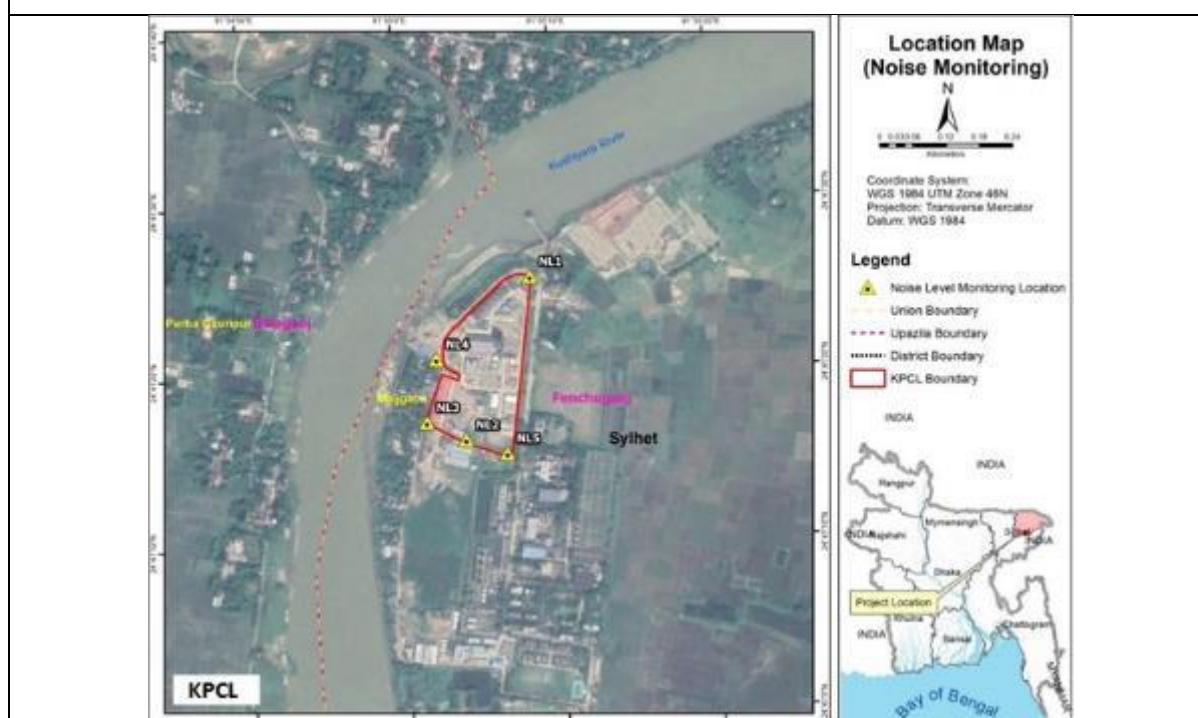


Photograph: Dormitory building

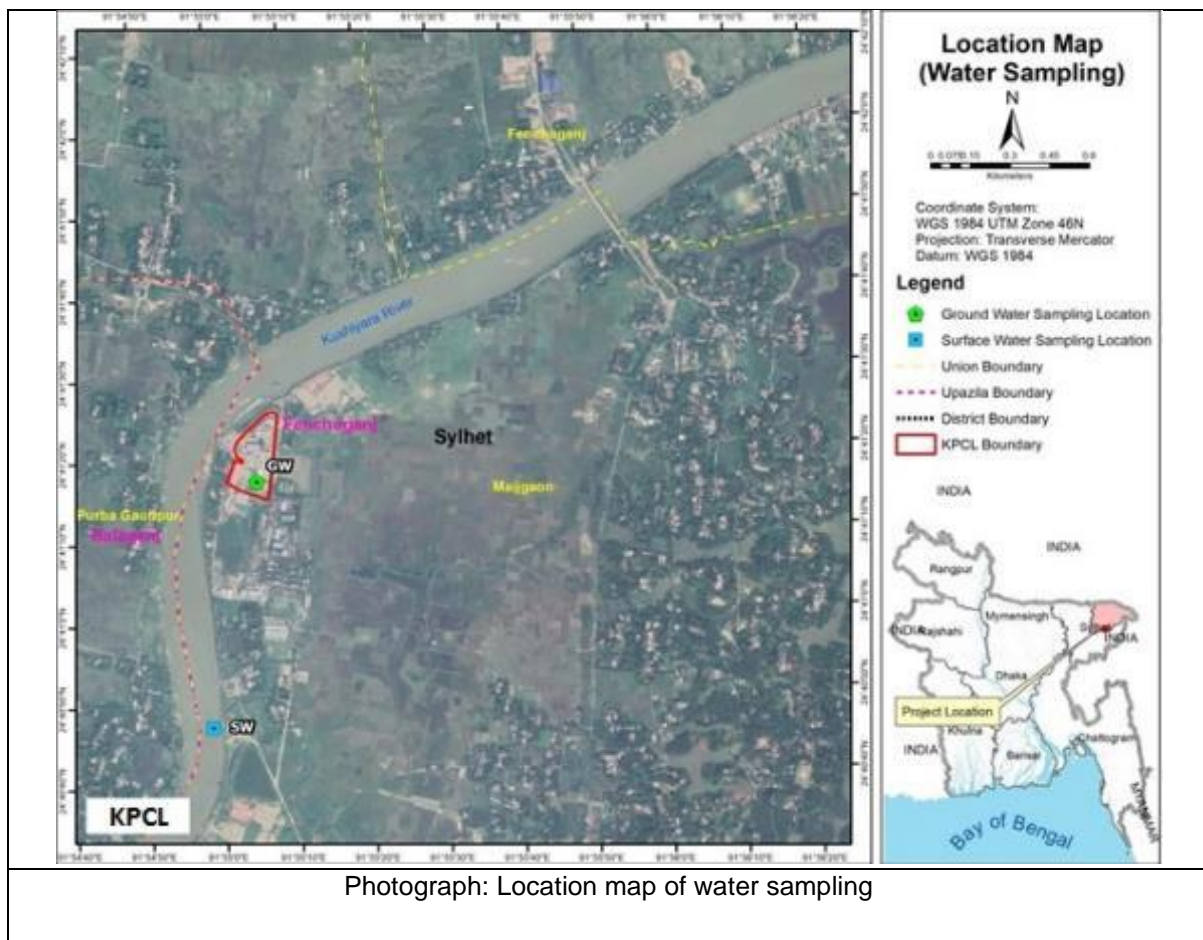
Annex 7: Environmental Monitoring Locations



Photograph: Location map of air quality monitoring



Photograph: Location map of noise quality monitoring



Annex 8: Standard Operating Procedure for Environmental Monitoring Tests

Annex 8A: Standard Operating Procedure for Ambient Air Quality Monitoring Tests

Please see the attached file

Annex 8B: Standard Operating Procedure for Noise Level Monitoring Tests

Please see the attached file

Annex 8C: Standard Operating Procedure for Water Quality Monitoring Tests

Please see the attached file

Annex 9: Laboratory test reports for ambient air, water quality and noise level monitoring

Please see attached file

Annex 10: Photographs for air, water and noise quality sampling



Photograph: Air quality Sampling



Photograph: Water quality Sampling



Photograph: Water quality Sampling



Photograph: Noise quality Sampling

Annex 11: Fire-fighting arrangement



Photograph: Internal fire-fighting arrangement



Photograph: Fire detection system



Photograph: Firefighting arrangement



Photograph: Firefighting arrangement



Photograph: Muster point



Photograph: Overhead fire sprinkler system



Photograph: Water tank for firefighting

Annex 12: Mock drill and first aid care with focus to fire hazard



Annex 13: Fire Fighting Equipment Inspection



Annex 14: Application of signage



Photograph: General safety instruction



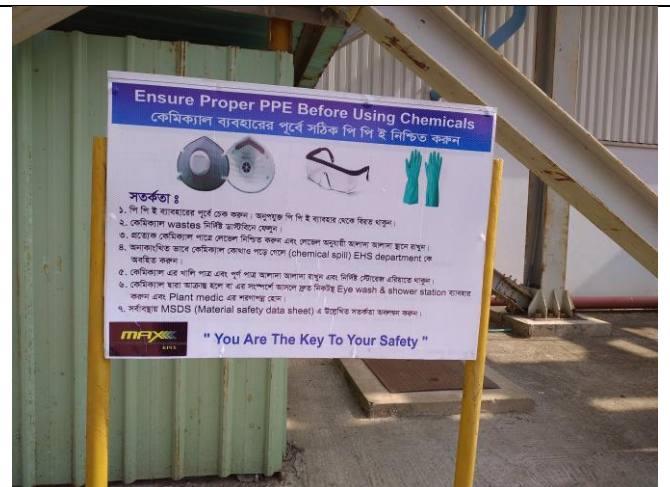
Photograph: General safety instruction



Photograph: Awareness on speed limit



Photograph: General safety instruction



Annex 15: House-keeping



Photographs: Waste specific dustbin



Photographs: Waste dustbin



Photographs: Waste Management



Photographs: Housekeeping drill

Annex 16: Arrangement of noise mitigation facility



Photograph: Acoustic box surrounding exhaust fan of engines



Photographs: Acoustic doors

Annex 17: Tree Plantation Inventory

Table: KPCL Tree Inventory

S.L	Tree Name	Quantity	Remarks
1	Mango	20	
2	Malta	15	
3	Pomegranate	5	
4	Guava	18	
5	Grapefruit	7	
6	Litchi	12	
7	Almonds	7	
8	Lemon	45	
9	Jackfruit	14	
10	Quince fruit	3	
11	Kamranga	2	
12	Coconut	6	
13	Bokul	20	





Photograph: Tree Plantation

Annex 18: Enhancement measures of the project



Photograph: Green Open Space



Photograph: Tree Plantation



Photograph: Sports arrangement for workers



Photograph: Green Open Space



Photograph: Existing Local Graveyard Enhancement



Photograph: Mosque construction for surrounding villagers

Annex 19: Grievance Redress Mechanism



Photograph: External and internal grievance redress arrangement

Annex 20: Grievance Redress Form

KPCL Grievance Redress Form

Reference No.:		Date:	
Full Name:			
Father's Name:			
Mother's Name:			
Address			
Phone No.			
Date, time & Venue of GRC meeting			
Description of Incitement or Grievance:			
Date of incident			
What is you like to see happen to resolve the problem			
Signature of Complaint/ Thump impression of Complaints		Signature of person filling the form (KPCL Representative)	

Annex 21: Public Consultation by IDCOL Official



Photograph: Public Consultation with local peoples during annual visit

Annex 22: EHS Measures



Photograph: Fogging Activity for Mosquito



Photograph: Emergency Equipment Inspection

Annex 23: Health Safety Equipment



Photograph: First-aid Kit Box



Photograph: Safety gears for Employees

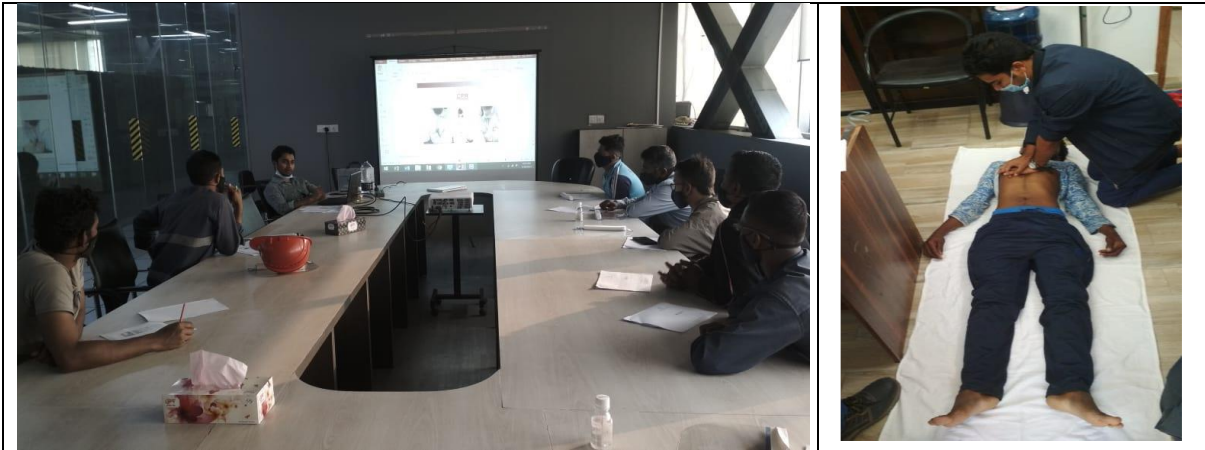


Photograph: Emergency Eye-washing sprinklers



Photograph: Safety Helmets

Annex 24: Internal EHS Training



Photograph: Internal Training



Photograph: Safety Device Inspection

Annex 25: Training Attendance



Training Signup Sheet

Date: ~~11-09-21~~ 14-09-2021

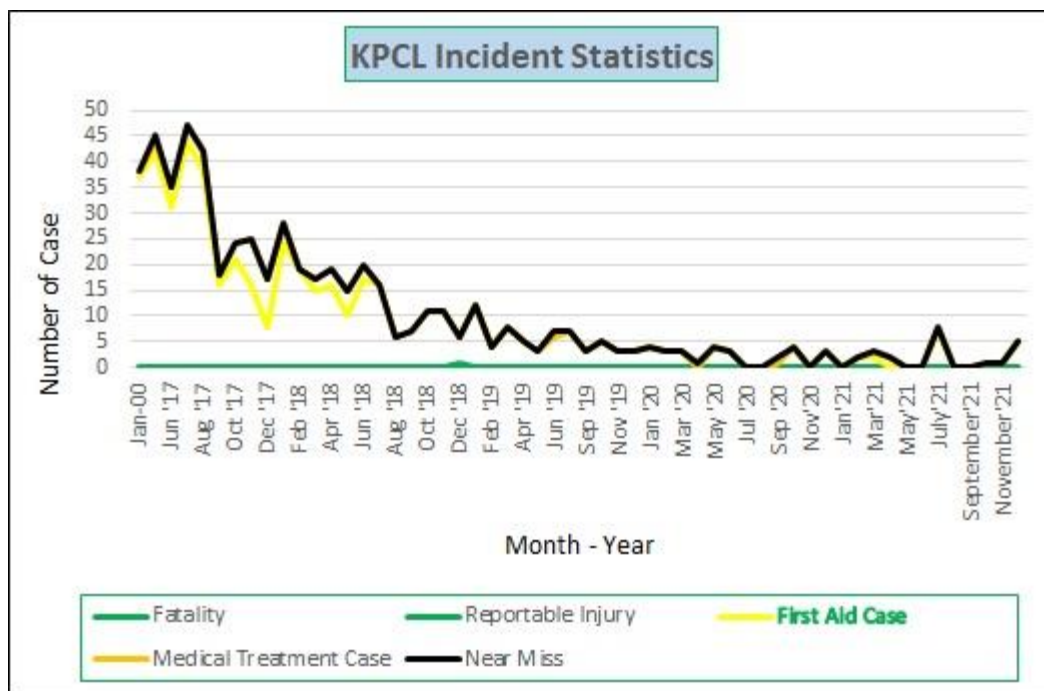
Time: 04:00 PM

Venue: ECB Conference Room

No.	Name	Department	Designation	Signature
1	Rathindrea Roy	Civil	Engineer	
2	Abdul Mottalib	EMD	Asst. Engg, Elec	
3	Sobuz Biswas	Civil		
4	SUREA	CIVIL		
5	SIFINM	Civil		
6	MANU PRA	CIVIL		
7	RAFA	CIVIL		
8	Abdullah	Civil	Helper	
9	MD. KAPUR MIAN	I&C	Helper	
10	MD. AKTER HOSAIN	CIVIL		
11	MD. FOWD HOSAIN	Civil		
12	MD. Ashraf Jado	EMD		
13	MD. Rashed Khan	I&C	Technician	
14	MD. MUHAMMAD HAN	I & C	"	
15	MD. Kabir	EMD	Helper	
16	MD. Saikat	EMD	Helper	
17	MD. Joim	EMD	Electrician	
18	MD. Md. AL	EHS	EHS officer	
19	Fahim	EMD	A. M	
20	Saiful Islam	I&C	AE	
21	Mojib Mosh	EHS	DM	
22	Valabhanand. A	IMD	Manager	
23	M. Munir	ISE I&C	Jr. Eng	
24	Mosharef Hossain	OMS	Engineer	
25	MD. Sanatullah Sazib.	EMD	Technician	

Annex 26: KPCL Incident Report 2021

Indicator	2020	2021
Number of total accidents	31	19
Number of LTA	0	0
Number of Medical Treatment	0	02
Number of Fast Aid Case	31	17



Annex 27: Incident Report Sample

Please see attached file

Annex 28: COVID-19 management



Photograph: COVID-19 arrangement



Photograph: COVID-19 Sample Collection

Annex 29: Covid -19 Protocol

Instructions for employees to protect from COVID-19 at KPCL

1. All employees will disinfect their hands before entering the plant
2. All employees will use mask (Washable 3-layer mask will be provided by KPCL)
3. At entry point, body temperature will be measured and recorded for all and it will be also done during duty period.
4. All employees will submit the declaration form for health protocol of COVID-19.
5. All employees will do their duties maintaining social distances during duty period even in dining.
6. Outside people are discouraged to enter the plant.
7. Social distances must be maintained during prayer time in the mosque.
8. Cleaning staff will clean doors, chairs, tables etc. with disinfectant every two hours.
9. Uses of intercom, mobile or internet are encouraged to avoid gathering.
10. Everyone will use disinfectant kept in different places to wash hands, common chairs, tables etc. regularly for self-health protection.
11. In sitting arrangement at offices and dining hall, social distances must be maintained.
12. All materials coming from outside must be disinfected before use.
13. Social distances must be maintained during travel (keeping one seat vacant) in vehicle.
14. Drivers will disinfect seats, handles etc. with disinfectant solution.



09.10.20

Engr. M.A.B Siddique
GM (Operation & Maintenance)
Kushiara Power Company Limited.
Moinpur, Fenchuganj, Sylhet

Instructions to do work in KPCL

1. All employees will do work maintaining following instruction from 10.10.2020 as per decision of higher authorities.
 - 1.1 All employees will do work attending physically.
 - 1.2 The employees living nearby (walking distance), will participate their duties as usual as before.
 - 1.3 The employees living long distances will enter the plant with the supervision of KPCL plant authority
 - 1.4 The employees, living in Sylhet and Fenchuganj, will submit the prescribed declaration form and abide by all instructions of KPCL plant authority.
2. All head of the departments will supervise health protocol and health condition of their employees.
3. HR & Admin will ensure the attendance of all the employees.
4. If found any positive case of COVID-19, EHS department will isolate and send him in quarantine. The closed contact persons and the used materials of the affected person will be isolated.
5. This instruction will be valid until further instruction.
6. All employees will abide by the health protocol instructions of the KPCL plant authority.



09 10 20

Engr. M.A.B Siddique
GM (Operation & Maintenance)
Kushiara Power Company Limited.
Moinpur, Fenchuganj, Sylhet

Covid-19 Protocol

- i) The one who will come to plant after enjoying leave will be considered for the covid-19 Test, according to the instructions of covid-19 test
- ii) After sample collection for test, everybody should maintain quarantine in room until test result negative.
- iii) After enjoying leave, all Expats will undergo with in plant covid-19 test procedure. PM and Departmental Managers will resume their duties maintaining quarantine protocol in their separate rooms until test result negative. Only for emergency work, they will attend their duties with full ppe. PSMs will attend their duties with full ppe as quarantine protocol (social distance, using Face mask, Gloves etc.) until test result negative.
- iv) Field Medic / HES Department will check the health condition of the person before resuming duty after enjoying leave.
- v) We are following “**No Mask No Duty**”. Everybody will use Face Mask.



Engr. M.A.B. Siddique
General Manager
Kushiara Power Company Limited.

Kushiara Power Company
Limited
163 MW CCPP
Fenchuganj, Sylhet

Instructions for COVID 19 Test

1. The one who will come to plant after enjoying leave outside of the Sylhet district will be considered for the test.
2. The one who will come after enjoying leave from the Sylhet district for more than a period of 06 days' leave will be considered for the test.
3. Employees of Sylhet district will be going for test , if they go outside of the Sylhet district during their leave period.
4. In any circumstances, test should be performed based on the presence of COVID 19 symptoms as advised by Field Medic.


03.11.20

.....
Engr. M.A.B. Siddique
General Manager
Kushiara Power Company Limited

idms
03.11.20

Annex 30: Covid-19 Initiative

Please see attached file

Annex 31: PPE Stock Status 2021

Please see attached file

Annex 32: Waste Oil Vendor Certificate

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিবেশ অধিদপ্তর
সিলেট বিভাগীয় কার্যালয়
বিভাগীয় পর্যায়ের বহুতল অফিস ভবন (৫ম তলা)
২২ নং রাস্তা, সিলেট।
www.doe.gov.bd

নং-৬০.৩৬.৭৭.৭০.১৩৩.০৩০৩১৩/১৩৩- ২৮

তারিখঃ ৭/১০/১৪২৭ খ্রিঃ
২৩/০২/২০২১ খ্রিঃ

জনাব মোঃ পৌছিয়া
মালিক/স্বত্বাধিকারী
মেসার্স রিমা এন্টারপাইজ
গ্রামঃ পিটুয়া, ডাকঘরঃ সদরবাদ
উপজেলাঃ নবীগঞ্জ, জেলাঃ হবিগঞ্জ।

বিষয়ঃ পরিবেশগত ছাড়পত্র।

সূত্রঃ অফিসে গত ২০/১২/২০২০ খ্রিঃ তারিখে দাখিলকৃত পরিবেশগত ছাড়পত্রের জন্য আবেদন।

উপর্যুক্ত বিষয় ও সূত্রে প্রেক্ষিতে দাখিলকৃত আপনার আবেদনপত্র ও অন্যান্য প্রয়োজনীয় কাগজপত্র যাচাই বাছাই এবং এ কার্যালয়ের কর্মকর্তা কর্তৃক সরেজমিন পরিদর্শন প্রতিবেদন ও মতামত পর্যালোচনান্তে গ্রামঃ পিটুয়া, ডাকঘরঃ সদরবাদ, উপজেলাঃ নবীগঞ্জ, জেলাঃ হবিগঞ্জ এলাকায় পিটুয়া মৌজার খতিয়ান নং-৪৮২/৪৮৩, দাগ নং-৪৯২ এর উপর বিদ্যমান মেসার্স রিমা এন্টারপাইজ এর অনুকূলে নিম্নবর্ণিত শর্ত সাপেক্ষে পরিবেশগত ছাড়পত্র প্রদান করা হলো।

শর্তাবলীঃ

- (০১) এ ছাড়পত্র শুধুমাত্র বৈদ্যুতিক স্লাজ, পোড়া মাঝি, খাল জাম, ফার্নেস অয়েল তৈরি-বিক্রয়ের জন্য প্রযোজ্য হবে। প্রকল্পের উৎপাদন বৃদ্ধি, জায়গা সম্প্রসারণ, উৎপাদন প্রক্রিয়া বা তৎসংশ্লিষ্ট কোন প্রকার পরিবর্তনের জন্য পরিবেশ অধিদপ্তরের পূর্বনুমতি/ছাড়পত্রের প্রয়োজন হবে।
- (০২) প্রতিষ্ঠানটির কর্মকর্তা দ্বারা মাটি, পানি, বায়ু ও শব্দ ইত্যাদি দূষণ করা যাবে না।
- (০৩) প্রতিষ্ঠানটির কাঠেন ও তরল বর্জ্য পরিবেশগত উপায়ে নিরাপদ স্থানে অপসারণ করতে হবে।
- (০৪) প্রতিষ্ঠানটির তৈল জাতীয় পদার্থ বাহিরে নির্গমন করা যাবে না। তৈল জাতীয় পদার্থ বিক্রয়ের সময় মাটিতে পড়ে গেলে পানি দ্বারা দৌত না করে স্পঞ্জ বা ফোম দ্বারা পরিষ্কার করতে হবে।
- (০৫) প্রতিষ্ঠানটি থেকে সৃষ্ট তরল/কঠিন বর্জ্যের জন্য Environmentally Sound Disposal এর ব্যবস্থা গড়ে তুলতে হবে।
- (০৬) প্রতিষ্ঠান থেকে সর্নি পরিষ্কার পরিচ্ছন্ন ও স্বাস্থ্য সম্মত পরিবেশ বজায় রাখতে হবে।
- (০৭) প্রতিষ্ঠানের চারপাশে দেশীয় প্রজাতির অধিক পত্র বিশিষ্ট পর্যাপ্ত সংখ্যক গাছ লাগাতে হবে।
- (০৮) প্রতিষ্ঠানের কর্মকর্তা/কর্মচারীগণকে সর্বদা পরিষ্কার পরিচ্ছন্ন থাকার ও তাদের স্বাস্থ্য পরিচর্যা যথাযথ ব্যবস্থা নিতে হবে।
- (০৯) বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত ২০১০) এবং পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭-এর অন্তর্ভুক্ত কর্মসূচি উপ-উল্লিখিত শর্তসমূহ Enforce করা হবে।
- (১০) এ কার্যালয়ের প্রতিনিধিকে যে কোন সময় প্রতিষ্ঠানটি পরিদর্শন ও তথ্যাদি সরবরাহে সহযোগিতা প্রদান করতে হবে।
- (১১) প্রতিষ্ঠানটির বিরুদ্ধে ভবিষ্যতে পরিবেশ দূষণ মূলক কোন অভিযোগ পাওয়া গেলে এবং সরেজমিন তদন্তে তা সত্য প্রমাণিত হলে প্রতিষ্ঠানটির কার্যক্রম বন্ধ বা অন্যত্র স্থানান্তর করতে হবে।
- (১২) এ পর্যায়ে প্রাপ্ত ও পরিবেশিত তথ্যের ভিত্তিতে এ ছাড়পত্র প্রদান করা হলো। পরবর্তীতে কোন তথ্য অসম্পূর্ণ, ভ্রান্তিপূর্ণ বা অসত্য কিংবা গোপন করা হয়েছে মর্মে প্রমাণিত হলে সে পর্যায়ে এ ছাড়পত্র বাতিল করা হবে।
- (১৩) প্রতিষ্ঠানটি বন্ধ/অন্যত্র স্থানান্তর/নাম পরিবর্তন/সম্প্রসারণ/পরিবর্তন করতে হলে এ কার্যালয়ের অনুমতি গ্রহণ করতে হবে।
- (১৪) বিদ্যুৎ সংযোগ প্রদানের ক্ষেত্রে এ ছাড়পত্র প্রযোজ্য হবে।
- (১৫) এ ছাড়পত্র কোন অবস্থাতেই হস্তান্তর যোগ্য নহে।
- (১৬) এ ছাড়পত্র জারীর তারিখ থেকে ১ (এক) বছরের জন্য প্রযোজ্য হবে। মেয়াদ শেষ হওয়ার অন্তর্গত ৩০ (ত্রিশ) দিন পূর্বে যথাযথ নবায়ন ফি প্রদান পূর্বক এ কার্যালয়ের ছাড়পত্র নবায়নের আবেদন করতে হবে।
- (১৭) এই ছাড়পত্র দুই (২) মালিকানা স্বত্ব নির্ধারণ করে না।

০২। সর্বোচ্চ ০১নং হতে ১৭নং শর্তের কোনটি ভংগ করলে কিংবা ছাড়পত্রের কাগজ ও কোন ঘন্য-মাজা ওভার রাইটিং করলে ছাড়পত্রটি বাতিল বলে গণ্য হবে এবং আপনার প্রতিষ্ঠানটির বিরুদ্ধে বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত-২০১০) ও পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭ অনুসারে আইনগত ব্যবস্থা গ্রহণ করা হবে।

(মোঃ ছালাহ উদ্দীন চৌধুরী)

পরিচালক

ফোনঃ ০৬২১-৮৪০১২২

অনুলিপিঃ জ্ঞাতার্থে ও কার্যার্থেঃ

১। মহাপরিচালক, পরিবেশ অধিদপ্তর, সদর দপ্তর, ঢাকা।

২। মহাব্যবস্থাপক, হবিগঞ্জ পল্লী বিদ্যুৎ সচিবালয়, হবিগঞ্জ।

Annex 33: KPCL Waste from Different Source 2021

S.L	Month	Solid Waste (Ton)	Hazardous Waste	Waste Water (Ton)	Domestic Waste (kg)
1	January	1.3	0	44640	2375
2	February	0.8	0	44640	2000
3	March	1	0	44640	2325
4	April	1.4	0	44640	2050
5	May	1.3	0	44640	2100
6	June	1	0	44640	2125
7	July	1.2	0	44640	2200
8	August	1.2	0	44640	2250
9	September	0.5	0	44640	2000
10	October	1.3	0	44640	2250
11	November	1	0	44640	2125
12	December	1.2	0	44640	2200
Total		13.2		535680	26000

Annex 34: KPCL Environmental and Social Compliance Schedule 2022

S.L	Activity	Schedule	Remarks
01	Noise Level Monitoring	Every Month	
02	Stack Emission Quality Check	March, June, September, December	
03	Ambient Air Quality Check	March, June, September, December	
04	Surface Water Quality Check	March, June, September, December	
05	Mock Drill	February, May, August, November	
06	Safety Training	Every Month	
07	First Aid Training	March, June, September, December	
08	Tools Inspection	Every Month	
09	Fire Extinguisher Inspection	Every Month	
10	Fire Pump Load Test	December	

Annex 35: Shifting form Ground Water to Surface Water

a concern of



KUSHIARA POWER COMPANY LIMITED

tel : +88 02 9861914, 9861915
+88 02 9555903, 9562927
ip : 09617999333
fax : +88 02 9568646, 47110176
email : info@maxgroup-bd.com
web : www.maxgroup-bd.com

Ref: KPCL/IDCOL/2020-
05 January, 2020

Mr. Mahmood Malik
Executive Director & CEO
Infrastructure Development Company Limited
UTC Building, Level-06, 8 Panthapath
Kawran Bazar, Dhaka-1215, Bangladesh

Attention: Sifat Monzur
Vice President & Unit Head, Infrastructure Finance

Subject: acknowledgement of shifting plant water supply system from ground to surface water for water treatment plant.

Dear Sir,

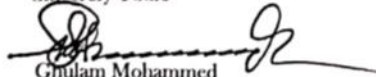
Since the Commercial operation the company (KPCL) has been using closed cycle water flow system to supply water for HRSG make up, cooling system and other auxiliary consumptions. Where, ground water has been used as the primary source of water for plant Water Treatment Plant (WTP). Considering the environmental impact of ground water depletion and a sustainable continuous water source for the local community the plant has decided to switch its water source from ground to surface water of the nearest river Kushiara.

After successful testing, the plant has started intake water from nearest point in Kushiara River through barge mounted water pumps from 1st May 2019. The barge consists of 3 pumps with maximum intake capacity of 250 Cubic Meter each with head of 21 Meter.

In supporting enclosed:

1. Drawing of Barge Mount;
2. Water Balance Diagram;
3. Report: Discharge of Water from ETP Clarifier to CT Basin; & Discharge of Non-Recycled ETP Clarifier to CT Basin;
4. Report: Shifting form Ground Water to Surface Water.

Sincerely Yours


Ghulam Mohammed
Managing Director

Corporate Office : RAOWA Complex, Level-11, VIP Road, Mohakhali, Dhaka-1206, Bangladesh
Head Office : Baitul Hossain Building (6th Floor), 27 Dilkusha Commercial Area, Dhaka-1000, Bangladesh



Photograph: Barge



Photograph: Raw water tank

Annex 36: KPCL Carbon Footprint Analysis 2021

S.L	Month	Electricity Production (MU)	Carbon Emission (Ton)
1	Jan-21	51.95	22650
2	Feb-21	75.1	32744
3	Mar-21	109.36	47681
4	Apr-21	99.08	43199
5	May-21	109.94	47934
6	Jun-21	95.57	41669
7	Jul-21	5.6	2442
8	Aug-21	102.93	44877
9	Sep-21	106.71	46526
10	Oct-21	109.39	47694
11	Nov-21	105.46	45981
12	Dec-21	109.09	47563
Total		1080.18	470958

Please see the attached file for detailed analysis of KPCL Carbon Footprint

Annex 37: KPCL Cooling Tower Diagram

Please see the attached file

Annex 38: Drinking Water Quality Test Report



Accreditation No. 4091/54

Money Receipt

Patient ID:	P-0198600	Bill ID:	SRA21082600265
Patient Name:	Kushiara Power Company Limited	Tel No:	01712604043
Age:		Date:	26-Aug-2021
Email:		Time:	13:20
Address:	Fanchugonj Sylhet		
Sex:	Neutral		

Specimen	Test Name	Cost	Delivery Date
Water	Faecal coliform	700.00	31-Aug-2021
Water	Total aerobic bacterial count	700.00	31-Aug-2021
Water	Total coliform	700.00	31-Aug-2021

Total (TAKA) :	2,100.00
To Be Paid (TAKA) :	2,100.00
Paid in Card (TAKA) :	2,100.00
Paid (TAKA) :	2,100.00

In Words: TAKA Two thousand one hundred Only

<input checked="" type="checkbox"/>	Drinking Water
<input type="checkbox"/>	Waste Water
<input type="checkbox"/>	ETP Outlet
<input type="checkbox"/>	ETP Inlet
<input type="checkbox"/>	

The savings from our world-class lab service supports the free of cost life-saving treatment of 200,000 patients who come to our hospitals every year.
Collect report any time after 6.00 PM of the delivery date

abul.hasan

Received by



Laboratory Sciences and Services Division
Mohakhali, Dhaka-1212
Phone : +880-2-9827001-10/2405
Web : <http://www.icddr.org>

**Laboratory of Environmental
Health**

Test Report

Receipt No: SRA21082600265

Date of Reporting: 29.08.2021
Date of Sample Tested: 26.08.2021
Date of Sample Received: 26.08.2021

Lab. ID No. 2021083233 (V1)

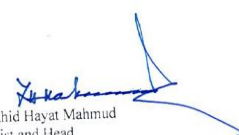
Particular of Sample: Drinking Water

Client Address: Kushiara Power Company Limited, Fanchugonj Sylhet.

Sl. No.	Water Quality Parameters	Unit	Results	Bangladesh Standard for Drinking Water (ECR'97)	WHO Guideline for Drinking Water, 2004	Method
1	Total coliforms	CFU /100mL	0	0	0	Membrane Filtration
2	Faecal coliforms	CFU /100mL	0	0	0	Membrane Filtration
3	Total aerobic bacterial count	CFU/mL	<10	-	-	Drop Plate

Tested By (Code No.): 7, 8
EM.FM.007.01 Effective Date 30/03/2016

Checked By (Code No.): 2
End of the Report


Dr. Zahid Hayat Mahmud
Scientist and Head
Laboratory of Environmental Health, LSSD, icddr,b
Page 1 of 1

Annex 39: Wastewater quality monitoring test report

INCOMIP & DISCHARGE WATER TEST REPORT ETP - 2022

KUSHIARA POWER COMPANY LIMITED, 163 MW CCPP,

Month : March-2022

Date	Time	Incoming Water						Discharge Water							Analyzed By Lab asst.	Checked By Shift Chemist	Remarks
		Temp°C	pH	EC (µS/cm)	p-alk meq/l	NH ₃ (mg/l)	Fe (mg/l)	Temp°C	pH	EC (µS/cm)	p-alk meq/l	NH ₃ (mg/l)	Fe mg/l	TSS			
01.03.22	0:00	48.8	7.74	232	0.00	—	UDL	28.7	7.67	228	0.00	—	UDL	—	NAHed	✓	
	4:00	48.3	7.72	234	0.00	—	UDL	28.4	7.64	224	0.00	—	UDL	—	NAHed		
	8:00	48.5	7.74	235	0.00	—	UDL	28.5	7.65	221	0.00	—	UDL	—	NAHed		
	12:00	49.0	7.71	231	0.00	—	UDL	28.9	7.62	218	0.00	—	UDL	—	NAHed		
	16:00	49.1	7.73	233	0.00	—	UDL	28.8	7.64	228	0.00	—	UDL	—	BAPPY		
	20:00	48.7	7.71	231	0.00	—	UDL	28.5	7.62	226	0.00	—	UDL	—	BAPPY		
02.03.22	0:00	48.9	7.75	235	0.00	—	UDL	28.8	7.66	227	0.00	—	UDL	—	NAHed	✓	
	4:00	48.5	7.73	232	0.00	—	UDL	28.4	7.62	225	0.00	—	UDL	—	NAHed		
	8:00	48.8	7.75	235	0.00	—	UDL	28.6	7.64	230	0.00	—	UDL	—	BAPPY		
	12:00	48.6	7.73	232	0.00	—	UDL	28.4	7.62	228	0.00	—	UDL	—	BAPPY		
	16:00	49.0	7.71	229	0.00	—	UDL	28.8	7.60	224	0.00	—	UDL	—	NAHed		
	20:00	48.7	7.73	233	0.00	—	UDL	28.7	7.61	225	0.00	—	UDL	—	NAHed		
03.03.22	0:00	49.1	7.72	231	0.00	—	UDL	28.9	7.64	224	0.00	—	UDL	—	NAHed	✓	
	4:00	48.6	7.70	235	0.00	—	UDL	28.6	7.60	228	0.00	—	UDL	—	NAHed		
	8:00	48.7	7.73	237	0.00	—	UDL	28.8	7.64	231	0.00	—	UDL	—	BAPPY		
	12:00	48.5	7.71	233	0.00	—	UDL	28.5	7.61	228	0.00	—	UDL	—	BAPPY		
	16:00	48.9	7.70	230	0.00	—	UDL	29.1	7.60	223	0.00	—	UDL	—	NAHed		
	20:00	48.6	7.74	236	0.00	—	UDL	29.0	7.62	225	0.00	—	UDL	—	NAHed		
04.03.22	0:00	48.3	7.72	232	0.00	—	UDL	29.0	7.63	230	0.00	—	UDL	—	NAHed	✓	
	4:00	48.6	7.74	231	0.00	—	UDL	29.2	7.62	229	0.00	—	UDL	—	NAHed		
	8:00	48.4	7.72	129	0.00	—	UDL	29.1	7.60	227	0.00	—	UDL	—	BAPPY		
	12:00	48.6	7.74	232	0.00	—	UDL	29.2	7.63	230	0.00	—	UDL	—	BAPPY		
	15:00	49.1	7.71	229	0.00	—	UDL	29.0	7.60	225	0.00	—	UDL	—	NAHed		
	20:00	48.7	7.74	232	0.00	—	UDL	28.7	7.62	226	0.00	—	UDL	—	NAHed		
05/03/22	0:00	49.0	7.73	230	0.00	—	UDL	29.0	7.63	228	0.00	—	UDL	—	NAHed	✓	
	4:00	48.8	7.71	228	0.00	—	UDL	28.8	7.61	228	0.00	—	UDL	—	NAHed		
	8:00	48.7	7.73	231	0.00	—	UDL	28.4	7.62	227	0.00	—	UDL	—	BAPPY		
	12:00	48.6	7.71	228	0.00	—	UDL	28.2	7.60	225	0.00	—	UDL	—	BAPPY		
	16:00	49.0	was in off mode												NAHed		
	20:00	48.7	7.73	230	0.00	—	UDL	28.4	7.64	222	0.00	—	UDL	—	NAHed		

INCOMING & DISCHARGE WATER TEST REPORT C ETP - 2022

KUSHIARA POWER COMPANY LIMITED, 163 MW CCPP,

Month : JAN-2022

KUSHNARA POWER COMPANY LIMITED, 165 MW CCPP,																	Month : JAN-2022	
Date	Time	Incoming Water						Discharge Water							Analyzed By Lab asst.	Checked By Shift Chemist	Remark	
		Temp ^o C	pH	EC (µS/cm)	p-alk meq/l	NH ₃ (mg/l)	Fe (mg/l)	Temp ^o C	pH	EC (µS/cm)	p-alk meq/l	NH ₃ (mg/l)	Fe mg/l	TSS				
11.01.22	0:00	48.1	7.70	208	00	-	UDL	27.3	7.64	202	00	-	UDL		Nahid	✓		
	4:00	47.9	7.71	212	00	-	UDL	26.9	7.66	205	00	-	UDL		Nahid			
	8:00	46.2	7.70	207	00	-	UDL	26.7	7.62	203	00	-	UDL		APU	✓		
	12:00	48.5	7.73	211	00	-	UDL	27.1	7.65	206	00	-	UDL		APU			
	16:00	48.0	7.70	205	0.00	-	UDL	27.0	7.63	203	0.00	-	UDL		BAPPY	✓		
	20:00	47.0	7.68	200	0.00	-	UDL	27.0	7.61	197	0.00	-	UDL		BAPPY			
12.01.22	0:00	47.8	7.69	204	0.00	-	UDL	27.1	7.64	198	0.00	-	UDL		Nahid	✓		
	4:00	46.9	7.71	206	0.00	-	UDL	27.0	7.65	200	0.00	-	UDL		Nahid			
	8:00	46.7	7.70	205	0.00	-	UDL	26.9	7.62	199	0.00	-	UDL		APU	✓		
	12:00	47.2	7.72	206	0.00	-	UDL	27.0	7.61	200	0.00	-	UDL		APU			
	16:00	47.0	7.73	208	0.00	-	UDL	27.0	7.64	204	0.00	-	UDL		BAPPY	✓		
	20:00	48.0	7.71	202	0.00	-	UDL	27.2	7.60	200	0.00	-	UDL		BAPPY			
13.01.22	0:00	47.7	7.70	204	0.00	-	UDL	27.4	7.60	201	0.00	-	UDL		Nahid	✓		
	4:00	47.3	7.72	208	0.00	-	UDL	27.3	7.61	203	0.00	-	UDL		Nahid			
	8:00	46.0	7.68	206	0.00	-	UDL	27.0	7.60	202	0.00	-	UDL		APU	✓		
	12:00	47.6	7.69	209	0.00	-	UDL	27.4	7.62	200	0.00	-	UDL		APU			
	16:00	48.0	7.71	206	0.00	-	UDL	28.0	7.60	205	0.00	-	UDL		Rozan	✓		
	20:00	49.0	7.73	211	0.00	-	UDL	28.3	7.62	209	0.00	-	UDL		Rozan			
14.01.22	0:00	48.2	7.71	209	0.00	-	UDL	28.1	7.62	206	0.00	-	UDL		Nahid	✓		
	4:00	48.0	7.73	210	0.00	-	UDL	27.8	7.64	206	0.00	-	UDL		Nahid			
	8:00	48.0	7.70	206	0.00	-	UDL	27.6	7.61	203	0.00	-	UDL		BAPPY	✓		
	12:00	48.3	7.73	209	0.00	-	UDL	27.4	7.63	207	0.00	-	UDL		BAPPY			
	16:00	48.5	7.72	208	0.00	-	UDL	27.5	7.61	204	0.00	-	UDL		Nahid	✓		
	20:00	49.5	7.70	207	0.00	-	UDL	27.7	7.60	203	0.00	-	UDL		Nahid			
17.01.22	0:00	48.5	7.71	210	0.00	-	UDL	28.0	7.62	208	0.00	-	UDL		Rozan	✓		
	4:00	48.3	7.73	212	0.00	-	UDL	28.1	7.60	209	0.00	-	UDL		Rozan			
	8:00	48.5	7.75	216	0.00	-	UDL	28.3	7.63	211	0.00	-	UDL		BAPPY	✓		
	12:00	48.4	7.73	209	0.00	-	UDL	28.2	7.60	207	0.00	-	UDL		BAPPY			
	16:00	48.9	7.72	210	0.00	-	UDL	28.3	7.60	206	0.00	-	UDL		Nahid	✓		
	20:00	49.5	7.74	213	0.00	-	UDL	28.1	7.61	207	0.00	-	UDL		Nahid			

INCOMING & DISCHARGE WATER TEST REPORT ETP - 2022

KUSHIARA POWER COMPANY LIMITED, 163 MW CAPP,

Month : FEB-2022

Date	Time	Incoming Water						Discharge Water							Analyzed By Lab asst.	Checked By Shift Chemist	Remarks
		Temp°C	pH	EC (µS/cm)	p-alk meq/l	NH ₃ (mg/l)	Fe (mg/l)	Temp°C	pH	EC (µS/cm)	p-alk meq/l	NH ₃ (mg/l)	Fe mg/l	TSS			
01/02/22	0:00	48.0	7.73	220	0.00	-	UDL	28.5	7.63	218	0.00	-	UDL	-	Rozan	Vait	
	4:00	48.2	7.72	218	0.00	-	UDL	28.1	7.60	217	0.00	-	UDL	-	Rozan		
	8:00	48.0	7.70	215	0.00	-	UDL	28.0	7.58	210	0.00	-	UDL	-	BAPP		
	12:00	48.2	7.74	219	0.00	-	UDL	28.2	7.62	212	0.00	-	UDL	-	BAPP		
	16:00	48.5	7.75	222	0.00	-	UDL	28.6	7.64	215	0.00	-	UDL	-	Nahid		
	20:00	48.1	7.76	223	0.00	-	UDL	28.3	7.64	214	0.00	-	UDL	-	Nahid		
02/02/22	0:00	48.2	7.73	224	0.00	-	UDL	28.0	7.62	222	0.00	-	UDL	-	Rozan	Vait	
	4:00	48.0	7.74	224	0.00	-	UDL	28.2	7.63	228	0.00	-	UDL	-	Rozan		
	8:00	48.2	7.72	220	0.00	-	UDL	28.3	7.62	218	0.00	-	UDL	-	BAPP		
	12:00	48.4	7.75	224	0.00	-	UDL	28.5	7.67	221	0.00	-	UDL	-	BAPP		
	16:00	CBD was in off mode													Nahid		
	20:00	48.8	7.74	221	0.00	-	UDL	28.4	7.66	220	0.00	-	UDL	-	Nahid		
03/02/22	0:00	48.3	7.72	222	0.00	-	UDL	28.2	7.62	220	0.00	-	UDL	-	Rozan	Vait	
	4:00	48.0	7.73	218	0.00	-	UDL	28.0	7.63	216	0.00	-	UDL	-	Rozan		
	8:00	48.0	7.73	219	0.00	-	UDL	28.4	7.62	215	0.00	-	UDL	-	Nahid		
	12:00	48.5	7.71	216	0.00	-	UDL	28.9	7.60	211	0.00	-	UDL	-	Nahid		
	16:00	48.4	7.70	216	0.00	-	UDL	28.6	7.62	214	0.00	-	UDL	-	Rozan		
	20:00	48.1	7.71	218	0.00	-	UDL	28.2	7.60	216	0.00	-	UDL	-	Rozan		
04.02.22	0:00	48.1	7.72	216	0.00	-	UDL	28.3	7.62	218	0.00	-	UDL	-		Reza	
	4:00	48.3	7.74	218	0.00	-	UDL	28.5	7.66	220	0.00	-	UDL	-			
	8:00	48.1	7.74	219	0.00	-	UDL	28.3	7.62	215	0.00	-	UDL	-	Nahid		
	12:00	48.1	7.73	218	0.00	-	UDL	28.0	7.60	214	0.00	-	UDL	-	Nahid		
	16:00	49.0	7.70	200	0.00	-	UDL	28.6	7.60	200	0.00	-	UDL	-	Rozan		
	20:00	48.0	7.72	202	0.00	-	UDL	28.3	7.61	201	0.00	-	UDL	-	Rozan		
05.02.22	0:00	49.3	7.70	214	0.00	-	UDL	28.3	7.60	216	0.00	-	UDL	-		Reza	
	4:00	48.6	7.73	218	0.00	-	UDL	28.6	7.63	214	0.00	-	UDL	-			
	8:00	48.4	7.74	221	0.00	-	UDL	28.3	7.63	215	0.00	-	UDL	-	Nahid		
	12:00	48.5	7.73	219	0.00	-	UDL	28.3	7.61	214	0.00	-	UDL	-	Nahid		
	16:00	48.0	7.70	210	0.00	-	UDL	28.1	7.60	208	0.00	-	UDL	-	Rozan		
	20:00	48.2	7.71	212	0.00	-	UDL	28.3	7.61	210	0.00	-	UDL	-	Rozan		