Multilateral Investment Guarantee Agency
World Bank Group

ANNUAL MONITORING REPORT (AMR)

Sirajganj 2 CCPP
Bangladesh
Project #13171

REPORTING PERIOD: (Jan/2024) through (Dec/2024)

AMR COMPLETION DATE: (01/02/2025)

I. INTRODUCTION

MIGA's Economics and Sustainability Group (MIGES)

The Economics and Sustainability Group (MIGES) oversee MIGA's country and project risk assessment; analysis of development impact of individual projects and MIGA's portfolio: evaluates and monitors project compliance with environmental, social and integrity policies.

Information provided in this AMR helps MIGA'S Environmental and Social specialists assess performance of projects on E&S. Follow up questions might be necessary to clarify information provided.

Preparation Instructions

MIGA's Contract of Guarantee requires North West Power Generation Limited to prepare a comprehensive Annual Monitoring Report (AMR) on the environmental and social (E&S) performance of its facilities and operations. This document comprises MIGA's preferred format for E&S performance reporting. The following template may be supplemented with annexes as appropriate to ensure all relevant information on project performance is reported.

The following points should assist you in completing this form. Please be descriptive in your responses and attach additional information/document(s) to supplement your answers as needed.

- Staff with specific responsibilities for environmental and social issues should complete this form.
- You may submit an electronic copy, fax or hard copy.
- The principal purpose of completing this form is to provide information on the following:
    1. Project Status/Update
    2. Summary of Key E&S Aspects during the Reporting Period
    3. New Development (Corporate)
    4. Action Plan Status and Update
    5. Deviations/non-compliances
    6. Development Effectiveness Indicators System (DEIS)
    7. Client's Feedback

Please note that some questions may not be applicable to your organization and if it is early to assess issues/risks. So please "*NA*" or "*No-Information Possible*" to such questions.

Contact Information

Completed by	Mashuda Parvin		
Position in Organization:	Deputy General Manager (EHS)	Tel:	+8801777736469
Email:	parvin@nwpgcl.gov.bd	Fax:	NA

II. PROJECT STATUS/ UPDATE

This section aims to update MIGA on the Project Status.

Select the current status of the project and provide a brief description of the developments in relation to the project over the reporting period. For example, has construction been started or completed, has new equipment been installed, has production capacity increased, or is the investment in new projects considered?

	Design (specify)		Construction		Expansion	√	Operation		Closure		Other

Is there any new investment under development? (Corporate and Investment Funds)

	YES	√	NO

Please provide details in section IV of this AMR report.

Please identify any other Interactional/Multilateral providing financing to the Project: NA

	World Bank (IBRD/IDA)		IFC		EBRD		EIB		ADB
	KFW/DEG		FMO		OPIC		EDC		Other (specify)

Has the Project been subject to any existing or threatened complaint, order, directive, claim, citation or notice from any Authority? If yes, please provide details.

	YES	√	NO

Provide details

Has the Project been subject to or received any written communication from any Person/entity, in either case, concerning the Project's failure to comply with any matter covered by the Performance Standards?

	YES	√	NO

Provide details

If yes, please provide details.

Please attach any environmental and social reports prepared for other Interactional/ Multilateral Finance Intuitions/Export Credit Agencies or local regulatory authorities during the reporting period to this AMR report.

Not Applicable

III. SUMMARY OF KEY E&S ASPECTS

This section aims to identify the key E&S progress/activities/incidents during the Reporting period (include Summary of Key Findings for the Reporting Period e.g. non-compliances, significant incidents[1], social unrest, significant improvements/initiatives regarding E&S performance, etc.)

PSI: Assessment and Management of Environmental and social Risks and Impacts

Please provide details on the status of the following voluntary Management systems certification schemes at your facility, provide details below?

	Not being considered	Future consideration	Planning to implement	Currently implementing	Successfully implemented	Date of certification / recertification
ISO 900:2015					√	13h October, 2025
ISO 14001: 2015					√	13h October, 2025
ISO 45001:2018					√	13h October, 2025
Other	Environmental Clearance Certificate from Department of Environment (DoE)				√	Certificate Validity up-to 25/10/2025 (*ANNEX-A*)

** All Certificate has been attached in ANNEX-A*

Describe any changes in the organizational structure to manage environment, health and safety, labor and social aspects during the reporting period. Describe number of personnel in charge of E&S issues.

- NWPGCL has an EHS department staffed with 9 people;

Describe the level of environmental, social, health, and safety training provided to staff. Provide annex with list of topics, hours of training and number of participants.

- ISO 14001:2015 Lead Auditor Training from BV
  - Mashiour Mahmud Khan, DM (EHS), SPS
- ISO 9001:2015,ISO 14001:2015, ISO 45001:2018 Internal Auditor Training from BV
  - Mashuda Parvin, DGM (EHS), Corporate Office
  - A.J.M. Mustafizur Rahaman Talukder, DM (HR & Admin), Corporate Office
  - Mashiour Mahmud Khan, DM (EHS), SPS
  - Sultan Mahmud, DM (HR & Admin), Corporate Office
  - Tasdidul Anwar, DM (Admin), SPS
  - Md. Julkar Nain, DM (EHS), SPS

[1] *Examples of significant incidents follow: Chemical and/or hydrocarbon materials spills; fire, explosion or unplanned releases, including during transportation; ecological damage/destruction; local population impact, complaint or protest; failure of emissions or effluent treatment; legal/administrative notice of violation; penalties, fines, or increase in pollution charges; negative media attention; chance cultural finds; labor unrest or disputes; local community concerns.*

- S. M. Jahid Anwar, JAM (EHS), Corporate Office

- IFC Performance Standard Training by EQMS
  - Abdullah Al Quraishi, SE
  - Mashuda Parvin, DGM (EHS), Corporate Office
  - Tahira Jahan, DM, (HR & Admin), Corporate Office
  - Mashiour Mahmud Khan, DM (EHS), SPS
- IFC Performance Standard Training by IFC
  - Mashuda Parvin, DGM (EHS), Corporate Office
- ADB Safeguard Policy Statement
  - Mashuda Parvin, DGM (EHS), Corporate Office

Are you aware of any events or significant incidents that may have caused damage; brought about injuries or fatalities or other health problems; attracted the attention of outside parties; affected project labor or adjacent populations; affected cultural property; or created liabilities for your company? (if yes, please provide details and attach any incident reports to this AMR report)

	YES	√	NO	Provide details

Describe any ongoing public consultation and disclosure, liaison with non-governmental organizations (NGOs, civil society and local communities or public relations efforts on environmental and social aspects.

- Stakeholder consultation meeting is ongoing. (Annex B)

Describe any ongoing social or community development initiatives, programs or dialogue.

- Community Development Program is ongoing. (Annex C)

Briefly describe new initiatives implemented during the reporting period or additional managerial efforts on E&S aspects (e.g. Energy/water savings, sustainability report, waste minimization, etc.)

- For energy saving initiatives (*Conversion of Tube lights into LED lights Program for Same Level Illumination as an when there is a possibilities*), we are replacing LED light with Tube light.
- Taking initiatives for reducing Paper Consumption

Briefly, describe the number and type of comments and/or grievances received by the Company in relation to E&S issues? How many have been resolved and how many are pending? (Please attach a table with grievance redress registry)

- No grievance has been raised yet. (Scan copy of GRM book in attached in Annex D)

Describe activities completed under the community development plan.(Annex C)

- Distributed blankets to 1000 helpless and destitute families.
- Humanitarian relief (600 bags) to poor people near Sirajganj.

Life, Fire and Safety

Do your offices including regional and branch offices have valid Fire Safety permits for all buildings including those on lease issued by appropriate local authorities?

√	YES		NO

Provide details, Annex-E (Fire License)

When was the last fire safety inspection carried out by the appropriate local authority? What were the key findings of the inspection and have any outstanding issues been addressed?

Department of Civil Defense and Fire Service authority has visited the site and has issued Fire License (Annex-E)

Has there been any fire incident in the reporting period? If yes, please provide fire incident report including the details of these incidents, the root cause along with corrective actions taken by your organization.

	YES	√	NO

Provide details: Not Applicable

Please indicate if any first aid training was provided to staff during the reporting period.

√	YES		NO

Provide details in Annex-F

Please complete the following table for project operations to describe basic fire safety precautions.

Fire Safety Verification activities	Mandatory Frequency	Date(s) performed (mm/dd/yyyy)	Observed Deficiencies	Corrective Actions and Schedule For Implementation
Fire Drills	Minimum: three (3)/ year	24/01/2024, 20/02/2024, 25/03/2024, 24/04/2024, 26/05/2024, 25/06/2024, 27/07/2024, 25/08/2024, 19/09/2024, 22/10/2024, 21/11/2024 & 19/12/2024		Enhance Staff training
Inspect and certify fire detection & suppression electrical & mechanical systems	Minimum	As per maintenance schedule		
Inspect, refill/recharge portable fire extinguisher	Minimum	Inspection is done monthly, Refilled on 09/06/2024 for U2	N/A	For inspection

		Inspection is done monthly, Refilled on 30/06/2024 for U3		

PS2: Labour and Working Condition

Have you changed your Human Resources (HR) policies, procedures or working conditions during the reporting period?

	YES	√	NO

Provide details

Provide the following information regarding your workforce:

NWPGCL

Site	Direct Employees	Female Direct Employees	employees terminated	employees hired	Contractor Employees
S-2 Power Plant	83	1	0	0	-

Has the Project been subject to any ongoing or, threatened, strikes, slowdowns or work stoppages by employees or any contractor or subcontractor? If yes, please provide details.

	YES	√	NO

Provide details

Occupational Health and Safety

Describe the main changes implemented in terms of Occupational Health and Safety (OHS) during the reporting period, e.g. identification of hazards, substitution of chemicals, new controls, etc.

Occupational Health and Safety Indicators

Report Total Numbers for each parameter	This reporting period		Reporting period – previous year	
	Direct Employees	Contractor employees	Direct Employees	Contractor employees
Total number of Workers			-	-
Total man-hours worked Annual			0	0
Total number of lost time occupational injuries	0		0	0
Total number of lost workdays due to injuries	0		0	0
Number of fatalities	0	0	0	0

Provide details for the non-fatal injuries during this reporting period

Company or Contractor employee	Total workdays lost	Description of injury	Cause of accident	Corrective measures to prevent reoccurrence
NWPGCL	0	0	0	0

Describe in detail fatalities and vehicle accidents, including corrective measures (provide copies of OHS investigation and respective corrective plan).None

Significant Incidents

Date of incident	Type of incident	Brief Description of incident	Fatalities (Y/N)	# of fatalities	Preventive measures taken after the incident

Please describe any year-over-trends in reported indicators, non-fatal injuries and significant incidents.

No fatal injuries

Worker Accommodation: The project is now in operational phase, so no worker accommodation.

Please attach recent inspection checklists

PS3: Resource Efficiency and Pollution Prevention

Provide the following environmental monitoring data for this reporting period. If you already have all the data requested available in another format, this can be submitted instead. Please provide a scaled facility map showing the precise locations of all monitoring points.

Ambient noise

Please describe any year-over-trends.NA

Complete the table below to provide MIGA with quantitative data on project Noise levels. Please provide Host country maximum levels in country units in the table below.

How many monitoring points for Noise Sources will project has? 13 Points

Monitoring Point Location:

1. South-west corner (Plant corner), North-west Corner, North-east Corner, South-east Corner, In front of STG&GTG, Residential & Administrational Building and others:(Attachment 1)

Receptors		WBG Maximum Levels (WBG unit)		Project performance (WBG unit)		Host Country maximum levels (Host Country unit)		Project performance(Host Country unit)	
Residential; Institutional; Educational	Daytime 7:00-22:00	55	dBA	-	dBA	-	dBA	-	dBA
	Nighttime 22:00 -7:00	45	dBA	-	dBA	-	dBA	-	dBA
Industrial; Commercial	Daytime 7:00-22:00	70	dBA		dBA	-	dBA	-	dBA
	Nighttime 22:00 -7:00	70	dBA		dBA	-	dBA	-	dBA
Silent	Daytime 6:00-21:00	-		-		50	dBA	-	dBA
	Nighttime 21:00 -6:00	-		-		40	dBA	-	dBA
Residential	Daytime 6:00-21:00	-		-		55	dBA	-	dBA
	Nighttime 21:00 -6:00	-		-		45	dBA	-	dBA
Mixed	Daytime 6:00-21:00	-		-		60	dBA	-	dBA
	Nighttime 21:00 -6:00	-		-		50	dBA	-	dBA
Commercial	Daytime 6:00-21:00	-		-		70	dBA	-	dBA
	Nighttime 21:00 -6:00	-		-		60	dBA	-	dBA
Industrial	Daytime 6:00-21:00	-		-		75	dBA		dBA
	Nighttime 21:00 -6:00	-		-		70	dBA		dBA

**Blue blocks are national standard, Noise Pollution Control Rules, 2006*

`Please complete a similar table for every location where Noise is monitored while specifying the location.

Air quality

Please provide details of NO_x emissions and describe.

For Details, Please Check the **Attachment 1**

Liquid effluent discharges

Please describe any year-over-trends

Liquid effluent discharges (Industrial Waste Water Pool)

Date	pH	Temp (°C)
10-01-2024	8.21	24.0
09-02-2024	8.18	24.8
11-03-2024	8.16	24.7
14-04-2024	8.24	25.7
10-05-2024	8.19	26.5
13-06-2024	8.14	25.9
12-07-2024	8.23	25.8
10-08-2024	8.21	26.1
15-09-2024	8.25	25.7
11-10-2024	8.18	25.4
8-11-2024	8.25	24.8
13-12-2024	8.17	24.9

Complete the table below to provide MIGA with quantitative data on Project wastewater and ambient water quality levels. Please provide Host Country maximum levels in Country units in the table below.

How many monitoring points for wastewater? 1 Location

Monitoring point Location (Please See the Attachment 1)

Receptors	WBG Maximum Levels (WBG unit)		Project performance (WBG unit)		Host Country maximum levels (Host Country unit)*		Project performance (Host Country unit)	
pH	6-9	pH	-	pH	6-9	pH	-	pH
BOD	30	mg/L	-	mg/L	30	mg/L	-	mg/L
COD	125	mg/L	-	mg/L	200	mg/L	-	mg/L
Total Nitrogen	10	mg/L	-	mg/L	-	mg/L	-	mg/L
Total	2	mg/L	-	mg/L	8	mg/L	-	mg/L

Receptors	WBG Maximum Levels (WBG unit)		Project performance (WBG unit)		Host Country maximum levels (Host Country unit)*		Project performance (Host Country unit)	
Phosphorus								
Oil and grease	10	mg/L	-	mg/L	10	mg/L	-	mg/L
Total residual chlorine	0.2	mg/L	-	mg/L	1	mg/L	-	mg/L
Total Suspended Solids	50	mg/L	-	mg/L	100	mg/L	-	mg/L
Total Coliform bacteria	400	MPN/ 100 ml	-	MPN/ 100 ml	-	MPN/ 100 ml	-	MPN/ 100 ml

Note:

MPN: Most Probable Number

** Standards for Waste from Industrial Units or Projects Waste [See Rule 13]/ Places for determination of standards (Inland Surface Water)*

Please complete a similar table for every location where wastewater is monitored while specifying the location NA

Energy and Water Management (Jan 2024-Dec 2024)

Utility Type	Units	Annual Consumption			Total	Remarks
		S 1	S 2	S 3		
Water Use	Cubic Meter		20,31,238		20,31,238	
Gas	SCM		60560919.74			
HSD	Liter		0			

Greenhouse Gas Emissions

Please describe year-over-trends.

Please See the Annex-G

Waste and Hazardous Materials

Please provide quantities and description of wastes and any year-over-trend. Please provide details of any waste recovery/recycling. Not Applicable.

If any of the EHS guidelines or local regulatory limits is exceeded and, if appropriate, describe the planned connective actions to prevent re-occurrence. Not Occurred

PS4: Community Health, Safety and Security

Using the table below list and briefly describe any new initiatives implemented in relation to Community Health and Safety during the reporting period. Include risk assessments, new infrastructure and equipment; hazardous materials and safety management, transportation and exposure to disease.

Mitigation Measure	Expected or actual date of Implementation	Planned future mitigation efforts?
Off Site Emergency Response Plan disclose		

During the reporting period any emergency drills have been conducted with community participation? Are the communities aware of the emergency response plans?]Please describe any changes in the Company's engagement with private/public security forces during the reporting period and any corresponding agreements.

The Sirajganj Power Hub (SPH) is KPI (key Point Installation) area. So, as per the Government rules, security guard was present to protect the SPH. As now there will be 4 power plants, so security guard number has been increased.

IV. ACTION PLAN STATUS AND UPDATE

Please update us in the current status of the action plan, define the dates when pending actions will be implemented. Please refer to the initial ESAP for the indicators and deliverables.

Task Title/ Description	Anticipated Completion Date	Indicator of Completion	Completion Date	Status as of DD/MM/YYYY	% Complete

All CP has been completed as per ESAP and CS activities are ongoing as per schedule.

Annex-H

V. DEVIATION/ NON-COMPLIANCES

The following are the identified deviation/non-compliances identified in reference to the following:

(i) Performance Standards;

(ii) Environmental and Social Action Plan;

(iii) Non- compliance with local environmental and Social regulations

(iv) Applicable EHS Guidelines

If there is any Non-compliances/deviations please record and provide additional information if necessary.

Please refer Environmental and Social Audit Report conduct by EQMS (conducted on 27-28th November, 2024 and final report submitted on 15th January, 2025).

(**Attachment -2**)

Areas of Interests	Non-Compliances Identified	Corrective Action Plan	Status of Completion	Completion date
Performance Standards (PS1-8)				
Environmental and Social Action Plan				
Local Environmental and Social regulations				
Applicable EHS Guidelines				

Please explain the cause and, if appropriate, describe the planned corrective actions to prevent re-occurrence.

VI. Development Effectiveness Indicators System (DEIS)

Please fill out the DEIS indicators (to be based on the Contract of Guarantee)

Annex- I

VII. CLIENTS FEEDBACK

Please check the box that best represent your evaluation of the support received from MIGA. On dealing with E&S aspects of the project, how diligently in your opinion has MIGA been able:

Areas of MIGA Assistance	No opinion	Excellent level of support	Above the expectations	As reasonably expected	Below what was expected	Comments
To help in the interpretation and applicabilityofMIGA's Performance Standards		√				
To provide guidance for the implementation of the Environmental and Social Action Plan(ESAP)		√				
To share the outcomes of MIGA supervision visits to the project and on agreeing in corrective actions		√				
To demonstrate flexibility and creativity to guide the Company's management of project's E&S issues		√				

.

ANNEX-A: ISO Certificate & Environmental Clearance Certificate (ECC)

Bureau Veritas Certification

NORTH-WEST POWER GENERATION COMPANY LIMITED

HEAD OFFICE: UNIQUE TRADE CENTER (LEVEL- 03 AND 04), 8 PANTHAPATH, KAWRANBAZAR, DHAKA-1215, BANGLADESH

This is a multi-site certificate, additional site(s) are listed on the next page(s)

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System Standards detailed below.

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

CORPORATE MANAGEMENT OF POWER PLANTS, POWER GENERATION & SUPPLY TO THE NATIONAL GRID.

Original cycle start date for ISO 9001 & ISO 14001:	**14 October 2016**
Original cycle start date for ISO 45001:	**28 August 2018**
Expiry date of previous cycle:	**13 October 2022**
Recertification Audit date:	**07 August 2022**
Recertification cycle start date:	**11 October 2022**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **13 October 2025**

Certificate No. **IND.22.8649/IM/U** Version: **1** Issue date: **11 October 2022**

Signed on behalf of BVCH S.A.S UK Branch
Jagdheesh N. MANIAN
Director – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

UKAS

Certification body address: 9th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom

Local office: Bureau Veritas (Bangladesh) Pvt. Ltd. Symphony (5th Floor), Plot: SE(F-9), Road No3 South Avenue, Gulshan-1, Dhaka-1212, Bangladesh

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Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call + 88 (02) 8836765.

Bureau Veritas Certification

NORTH-WEST POWER GENERATION COMPANY LIMITED

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

CORPORATE MANAGEMENT OF POWER PLANTS, POWER GENERATION & SUPPLY TO THE NATIONAL GRID.

SITE	ADDRESS	SCOPE
HEAD OFFICE	UNIQUE TRADE CENTER (LEVEL- 03 AND 04), 8 PANTHAPATH, KAWRANBAZAR, DHAKA-1215, BANGLADESH	CORPORATE MANAGEMENT OF POWER PLANTS
SIRAJGANJ POWER STATION (UNIT-1, UNIT-2, UNIT-3)	SOYDABAD, SIRAJGANJ, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
KHULNA 225 MW COMBINED CYCLE POWER PLANT	GOALPARA, KHALISHPUR, KHULNA, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
BHERAMARA 410 MW COMBINED CYCLE POWER PLANT	BHERAMARA, KUSHTIA, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
MADHUMATI 100 MW HFO BASED POWER PLANT	MOLLAHAT, BAGERHAT, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
SIRAJGANJ 7.6 MW GRID CONNECTED SOLAR PV POWER PLANT	SOYDABAD, SIRAJGANJ, BANGLADESH	POWER GENERATION & SUPPLY TO NORTHERN ELECTRICITY SUPPLY COMPANY

Certificate No. IND.22.8649/IM/U **Version: 1** Issue date: **11 October 2022**

Signed on behalf of BVCH SAS UK Branch
Jagdheesh N. MANIAN
Director – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

UKAS MANAGEMENT SYSTEMS 0008

Certification body address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom
Local office: Bureau Veritas (Bangladesh) Pvt. Ltd. Symphony (5th Floor), Plot- SE(F)9, Road-142, South Avenue, Gulshan-1, Dhaka-1212, Bangladesh

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পরিবেশগত ছাড়পত্র নবায়ন

ছাড়পত্র নং: ২৪-১২৮২২০

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

প্রতিষ্ঠান/প্রকল্পের নাম	:	সিরাজগঞ্জ ২২৫ মেগাওয়াট সিসিপিপি (ডুয়েল ফুয়েল ২য় ইউনিট)
উদ্যোক্তার নাম	:	ব্যবস্থাপনা পরিচালক
নিবন্ধনকরণ নং	:	৬৭১২৮
প্রতিষ্ঠান/প্রকল্পের কার্যক্রম	:	২২৫ মেগাওয়াট বিদ্যুৎ উৎপাদন।
প্রতিষ্ঠান/প্রকল্পের শ্রেণী	:	Red
প্রতিষ্ঠান/প্রকল্পের ঠিকানা	:	সায়দাবাদ, সদর, সিরাজগঞ্জ।
প্রদানের তারিখ	:	১২ নভেম্বর ২০২৪
মেয়াদ উত্তীর্ণের তারিখ	:	২৫ অক্টোবর ২০২৫

এ ছাড়পত্র সনদের সাথে পৃথকভাবে সংযুক্ত প্রদত্ত শর্তাবলী যথাযথভাবে প্রতিপালন করতে হবে, অন্যথায় ছাড়পত্র বাতিল/শর্তভঙ্গজনিত আনুষঙ্গিক যে কোন আইনানুগ ব্যবস্থা গ্রহণ করা হবে।

বিজ্ঞ: এটি একটি সিস্টেম জেনারেটেড ছাড়পত্র এবং এতে কোনোরূপ স্বাক্ষরের প্রয়োজন নেই।

পরিবেশগত ছাড়পত্র নবায়ন এর জন্য প্রযোজ্য শর্তাবলী:

সনাক্তকরণ নং: ৬৭১২৮ সিরাজগঞ্জ ২২৫ মেগাওয়াট সিসিপিপি (ডুয়েল ফুয়েল ২য় ইউনিট) ছাড়পত্র নং: ২৩-১২৮২৫০

১ . সয়দাবাদ, সদর, সিরাজগঞ্জ-এ অবস্থিত সিরাজগঞ্জ ২২৫ মেগাওয়াট সিসিপিপি (ডুয়েল ফুয়েল ২য় ইউনিট) নামক ২২৫ মেগাওয়াট বিদ্যুৎ উৎপাদনকারী পাওয়ার প্লান্টের অনুকূলে ২৫/১০/২০১৭ তারিখে জারিকৃত DoE/Clearance/5243/2013/530 সংখ্যক ছাড়পত্রের সকল শর্ত অপরিবর্তিত রেখে ছাড়পত্র আগামী ২৫ অক্টোবর ২০২৫ খ্রি তারিখ পর্যন্ত নবায়ন করা হলো।

ANNEX-B: Stakeholder Engagement Program

Sirajganj 225 MW Combined Cycle Power Plant Dual Fuel – 2nd and 3rd Unit, Bangladesh

Stakeholder Engagement Report 2024

Operation Stage

Prepared for

North-West Power Generation Company Limited (NWPGCL)

Prepared By

ELRC
871/1, Kazipara, Kafrul, Mirpur,
Dhaka-1216, Bangladesh

October 2024

EXECUTIVE SUMMARY

Ensuring a sustainable and reliable power supply is a crucial prerequisite for driving the socio-economic growth of Bangladesh. Currently, approximately 92.2% of the population in Bangladesh has access to electricity, including both off-grid and renewable sources (as per World Bank data from 2019). The country boasts an installed generation capacity of roughly 25,235 MW.

In accordance with the Government's Power Sector Master Plan of 2016 and taking into account the availability of fuel gas and High-Speed Diesel (HSD) in the region, the North-West Power Generation Company Limited (NWPGCL), an entity under the Ministry of Power, Energy and Mineral Resources (MoPEMR), has formulated a strategy to bolster electricity generation. This strategy involves the construction of a new Combined Cycle Power Plant (CCPP), encompassing the installation of the 3rd and 2nd units at Soydabad in Sirajganj.

NWPGCL, operating under the Bangladesh Power Development Board (BPDB), is spearheading this effort to augment Bangladesh's power generation capacity, thereby addressing the escalating demand for electricity. Central to this endeavor is the operation of a 225 MW Combined Cycle Power Plant in Sirajganj's Soydabad region.

This stakeholder engagement report focuses on the involvement of the stakeholders in the project, as outlined in the baseline study and Environmental Impact Assessment (EIA) guidelines established by the Government of Bangladesh (GOB). The report's findings will be informed by real-time participatory community meetings, focus group discussions, and key informant interviews conducted during the operational phase of the project. Recognizing the significance of stakeholders and their engagement, the North-West Power Generation Company Limited (NWPGCL) has identified and mapped relevant stakeholders and devised an engagement plan to interact with them at various stages of the project's life cycle. In alignment with the Stakeholder Engagement Plan (SEP), NWPGCL aims to establish and nurture sustainable relationships with its stakeholders.

This report has been compiled based on the stakeholder engagement activities carried out in accordance with NWPGCL's established SEP. The Area of Influence (AoI) has been determined by taking into account the impacts associated with transportation activities, the recruitment and employment of laborers during both the construction and operation phases of the project, noise emissions during project operation, land utilization, dust generation, and air quality effects linked to operational activities.

Numerous training sessions, stakeholder meetings, Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs) have been conducted with various stakeholder groups to gain insights into the current status of the project activity and its impact on the local community, existing environmental conditions, and the institutional framework. The interviews with NWPGCL personnel aimed to gather feedback from local residents regarding the project's effects.

The stakeholders showed cooperation and exhibited positive behavior throughout the consultation. They expressed a positive opinion about the project's operational activities. The proponent is strongly advised to maintain regular stakeholder engagement in accordance with the established stakeholder engagement plan.

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1 CHAPTER 1: INTRODUCTION

1.1 Study Background

Power is the main driving force of current progress and also the foundation of the growth rate. The vision of the Bangladesh Government is to give access to moderate and reliable power to all by the year 2021 and following this present government's goal is to guarantee continuous and quality power supply for all by 2021 through a change in generation, transmission, and distribution methods. The Government of Bangladesh has announced the new policy, "Vision 2041" targeting Bangladesh to be a developed country by 2041. With the consistency of economic development, a secure power system would be necessary. The government has further expanded its vision focusing on the coming years up to 2041 and arranged the Power System Master Plan 2016 (PSMP). This plan expresses that in 2020, 2030, and 2041, the power demand would be 12545 MW, 27434 MW, and 52034 MW where the power supply would be 12949 MW, 30178 MW, and 57238 MW. Based on the future economic growth, fuel, demand, and supply, international cooperation, a new Power System Master Plan 2016 have been finalized Power System Master Plan (PSMP) 2016, aims at assisting Bangladesh in formulating extensive energy and power development plan up to the year 2041, covering energy balance, power balance, and tariff strategies. As per PSMP 2016, achieving middle to long term development issues and risks and formulate a comprehensive and result-oriented aid strategy for the energy sector by examining effective approaches for each issue. At present, about 92.2% (including off-Grid & Renewable) population of Bangladesh has access to electricity (World Bank, 2019) with an installed generation capacity of around 25,235 MW. Considering fuel gas & High-Speed Diesel (HSD) supply facilities in the area, the North-West Power Generation Company Limited (NWPGCL), an enterprise of the Ministry of Power, Energy and Mineral Resources (MoPEMR) in line with the Government's Power Sector Master Plan of 2016, has planned to enhance the electricity generation by constructing a new Combined Cycle Power Plant (CCPP), 2nd and 3rd unit at Soydabad, Sirajganj.

As per the definition of the Environment Conservation Rules (ECR), 1997 of Bangladesh, the proposed project falls under the "Red" Category Project. Hence, for the fulfillment of the condition required under this Category, an Environmental Impact Assessment (EIA) study has been carried out to assess the impacts of this Project, propose mitigation measures and its implementation plan (Environmental Management Plan). NWPGCL has engaged Engineers Associates Limited (EAL), an experienced firm for such activities, for the preparation of EIA for the project following the Terms of Reference. Engineers Associates Limited (EAL) has conducted an EIA study and submitted the EIA report to DoE on May 11, 2014, for DoE approval. Finally, DoE has issued a Letter for Approval of EIA on July 16, 2014. NWPGCL is seeking financial assistance from Standard Chartered Bank (hereinafter referred to as SCB or Bank or the Lenders). AECOM India has been engaged by NWPGCL as independent auditors for carrying out the Environmental and Social Due Diligence of the project. The due diligence report is to be prepared following the International Finance Corporations Sustainability Framework 2012 (IFC) and its Performance Standards (PS) on Social and Environmental Sustainability to assess the compliance of the Project and the ability of the Project to comply with the requirements of the suggested reference framework.

1.2 Stakeholder Engagement

Stakeholder engagement is the process by which an organization involves people who may be affected by the decisions it makes or can influence the implementation of its decisions. More specifically, stakeholder engagement is a more inclusive and continuous process between a company and those potentially impacted that encompasses a range of activities and approaches and spans the entire life of a project. Additionally, Engagement is not an end in itself, but a means to help build better relationships with the societies in which we operate, ultimately resulting in improved business planning and performance.

Considering the importance of Stakeholders and their engagements, NWPGCL has identified, mapped its relevant stakeholders, and developed an engagement plan to approach the stakeholders throughout the project life cycle. According to this Stakeholder Engagement Plan (SEP), NWPGCL establishes a

sustainable relationship along with its stakeholders. This report has been prepared on the stakeholder engagement activities for 2018-2019 as guided by the established SEP of NWPGCL.

1.3 Objectives

The overall objective of the consultation process will disseminate project information and incorporate the views of stakeholders in the design of the environmental and social mitigation measures, management plan, and monitoring plan. The specific objectives of the consultation process are to:

a. Local people comments and suggestions on the project activity;
b. Improve project design and thereby, minimize conflicts and delays in implementation.
c. Increase long term project sustainability and ownership.
d. Reduce problems of institutional coordination; and
e. Consult stakeholders to gather the information needed to complete the assessment

1.4 Methodology for Consultation

The approach undertaken for information disclosure and consultation involved the following key processes.

a. Mapping and identification of key stakeholders such as primary (direct project influence) and secondary (indirect project influence) stakeholders according to SEP;
b. Undertaking expert consultations, interviews, and FGD's with the respective stakeholders;
c. Assessing the influence and impact of the project on these stakeholder groups;
d. Summarizing of key findings and observations from the consultations; and
e. Preparing a future stakeholder engagement strategy consultation plan for a more detailed assessment at a microscopic level taking into account the various project lifecycle phases and their implications on the stakeholder.

2 CHAPTER 2: PROJECT DESCRIPTION

2.1 Project Location

The project site is located at about 15 km south-east of Sirajganj town, about 130 km north-west of Dhaka, and 1.8 km south-west from the western end of Bangabandhu bridge. Subsequently, NWPGCL has applied for getting the land of 17.5 acres (Approximately 10 acres for Sirajganj 225 MW 2nd Unit and approximately 7.5 acres for Sirajganj 225 MW 3rd Unit) leased from BPDB as per the decision of GOB to establish the said power plants in the Sirajganj Generation Hub. The major components include a 150 MW gas turbo generator (GTG) with a bypass stack of 60 meters high, one horizontal type Heat Recovering Steam Generator (HRSG) with the main stack of 60 meters high for outdoor installation, and a heavy-duty condensing type Steam Turbo Generator (STG) for indoor installation in the configuration of 1:1:1, feedwater pumps, condensate extraction pumps, cooling towers, 230 KV plant sub-station, transformers, Gas Regulating Metering Station (RMS), Oil Separator Unit, Water Treatment Plant (WTP), Administration building, workshop, warehouse, guardhouses, internal roads, etc.

The project is a dual fuel-based Combined Cycle Power Plant (CCPP), which will be operated predominantly by Natural Gas (NG) but has also the provision of High-Speed Diesel (HSD) in case of emergency and non-availability of NG. The natural gas required for the Plant is 35 MMCFD and the Pashchimanchal Gas Company Limited (PGCL) will supply natural gas at a pressure of 500 psi through a 1.7 Km long and 16-inch diameter pipeline from its existing valve station to the PGCL RMS, which is to be constructed. From this RMS a 12-inch line will be extended up to the Power Plant's RMS (to be constructed inside the Plant's boundary) at a pressure of 350 psi. Liquid fuel (HSD) requirement is estimated to be about 920 m^3/day at 80% PF. The oil will be supplied by Bangladesh Petroleum Corporation (BPC) from its Daulatpur and/or Khulna depot by railway wagons to Bangabandhu Bridge (Satu) West Railway Station and stored in the HSD tanks in the Plant.

The hot flue gas that is produced in the combustor will then be directed to the GTG, where it expands, loses pressure and temperature, and causes the GTG to spin and generate about 150 MW of power. The hot exhaust gas of GTG will pass through the HRSG and main stack to the atmosphere. The HRSG in turn will generate High Pressure (HP), Intermediate Pressure (IP), and Low Pressure (LP) steam that will be directed to the STG, which would, in turn, generate 75 MW of power, thus totaling the Plant output to 225 MW. The generated power of GTG and STG will be stepped up to grid voltage level (11/230 KV) by station transformers (240 MVA for GT and 120 MVA for ST) and feed to the national grid, via underground cables (Sirajganj sub-station), through the Plant sub-station.

Water requirement for Plant construction and operation can be fulfilled from groundwater and it was reported from the feasibility study that the maximum allowable withdrawal of groundwater is 3,200 m^3/h without causing the conspicuous problem in the groundwater table of the SPS area (EAL, 2014 and SDCPL, 2015). Total water demand for Units 1-3 is 1400 m^3/h, with the third Unit requiring 400 m^3/h as per the feasibility Report. There is a provision for the fourth Unit to be constructed beside the third Unit. These units altogether will raise the water requirement to 2550 m^3/h. The major air pollutants that are produced from the power generating units due to the burning of fossil fuels are SOx, NOx, CO_2, CO, and SPM. Major sources of contaminated water from the proposed power plant are blowdowns of HRSG, cooling tower, backwash and rejects of the water treatment plant, oily water from turbine floor and transformer area, etc.

2.2 Importance of the Project

At present total installed electricity generation capacity is 25,235 MW with 92.2% of the population of the country has the access to electricity. The Ministry of Power, Energy and Mineral Resources (MoPEMR) has forecasted that the increase in power demand in response to the desired economic growth of the country, will reach 34,000 MW by 2040. The Power System Master Plan (PSMP) also projected some scenarios of power demand concerning different GDP growth rates. All these variable projections are depicted in Figure 2-1.

To address the conflict between increasing power demand and prevailing shortage, BPDB has adopted a power generation enhancement plan till 2021 which is in line with the PSMP, 2016. The summary of the plan to increase power generation is depicted in Table 2-1. The plan includes different initiatives to generate additional electricity by diversifying fuel, rehabilitating age-old power plants, and importing electricity from neighboring countries. The Sirajganj 225 MW CCPP Project is one of such steps for contributing to meet the growing demand.

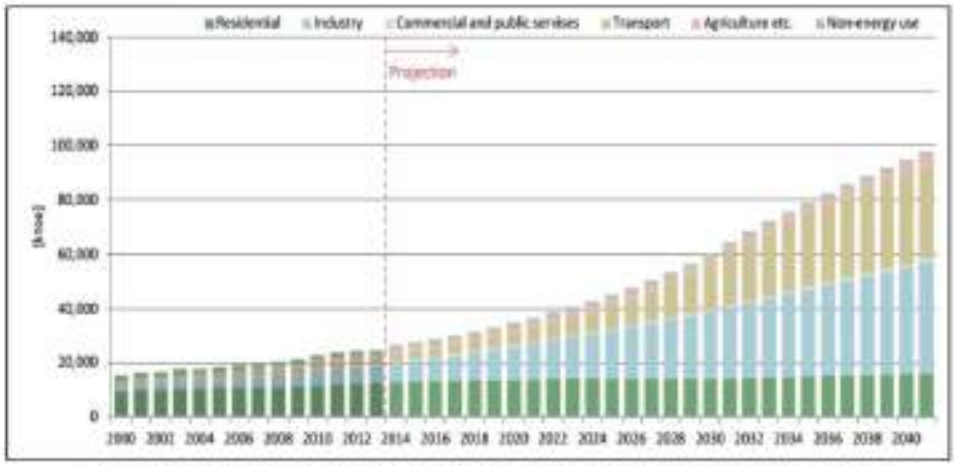


Figure 2-1: Projection of Final Energy Consumption (Energy Efficiency Scenario)[1]

Table 2-1: Power Generation Enhancement Plan2

Sl. No.	Type	2015	2016	2017	2018	2019	2020	2021	Total
1.	Public (MW)	1,218	770	2,202	846	2,070	1,000	2,400	10,506
2.	Private (MW)	1,130	748	799	1,270	568	1,287	1,912	7,670
3.	Import (MW)	---		---	---	---	---	---	---
4.	Total	2,348	1,518	3,001	2,116	2,634	2,247	4,312	18,176

2.3 Potential Major Benefits

The power plant will trigger regional development, creation of employment opportunities, and thereafter improvement of livelihood. The power plant may also bring social and economic development to the region through infrastructural improvement, reducing energy shortfall, rural electrification, and industrial (power loom) development. The communication network will also be improved significantly and will increase livelihood opportunities during the construction period. Finally, the project would improve Environmental Performance by providing a means of effluent treatment of existing units; thus, significantly reducing the discharging of effluents in the canal around the site connected to the Jamuna River.

2.4 Area of Influence

The Area of Influence (AoI) is determined by considering the impacts related to transportation activities, the hiring and use of laborers during operation of the Project, noise generated during operation of the Project, land use, dust generation, and air quality impacts related to operational activities.

[1] Source: PSMP 2016

[2] Source: Power Sector Emergency Information, System Planning Department, BPDB, February 16, 2015

The nearest settlements to the Project Site will be considered as the first impact zone. In other words, locals in the first impact zone may experience direct impacts from the Project. Operational works will cause dust and noise emission, in which nearest Ponchosona village area (distanced 0.2 km to the Project Site) and Boroshimul Village (distanced 1 km to the Project Site) may experience dust and noise impacts during the operation phase of the Project. Therefore, the first impact zone includes the Ponchosona village and Boroshimul village which are within a 2 km radius around the Project Site. The second impact zone includes the other residential area, which is within a 5 km radius of the Project site. Inhabitants within the second impact zone may experience indirect Project impacts such as direct and indirect job opportunities, providing goods and services to the Project and Project employees. Inhabitants in the first impact zone are more likely to experience impacts related to community health and safety than inhabitants located in the second impact zone. Further information on these impacts can be found in the EIA report. The Sirajganj Economic Zone is located on the west side of the Bangabandhu Bridge in the Sirajganj district, close to a power plant, just about 1 kilometer away. It's designed to host a range of industries including textiles, food processing, pharmaceuticals, leather, automobiles, LPG manufacturing, steel production, fisheries, and shipbuilding. The main goal of establishing this economic zone is to create a profitable and environmentally friendly business hub in the country. This initiative aims to attract both local and foreign investments, generating jobs for around 500,000 people and bringing significant foreign capital into Bangladesh's private sector. It's worth noting that there have been no reported cumulative environmental impacts associated with the Sirajganj Economic Zone and power plant that could adversely affect the local population and the environment.

Due to operational activity, local people may face dust or noise pollution and also other environmental hazards. For assessing the people's present status due to project activity this interview was conducted. Considering the primary stakeholders near the project area, a day-long interview has been conducted to ensure their comments on the project activity. According to the baseline study, this interview has been conducted on the premises of the project. As stated, the allocation of the Project Site causes no private land acquisition. Therefore, there will be no need to take mitigation measures for economic or physical displacement for the allocated site.

3 CHAPTER 3: LEGAL REQUIREMENTS

This section outlines the regulatory framework for the Project's stakeholder engagement activities, namely-

3.1 Asian Development Bank (ADB) Safeguard Policy Statement (2009)

ADB's Safeguard Policy Statement requires ADB's borrowers/clients to carry out meaningful consultation processes in all projects financed by ADB.

a. For policy application, ADB will require borrowers/clients to engage with communities, groups, or people affected by proposed projects, and with civil society through information disclosure, consultation, and informed participation in a manner commensurate with the risks to and impacts on affected communities. For projects with significant adverse environmental, involuntary resettlement, or Indigenous Peoples impacts, ADB project teams will participate in consultation activities to understand the concerns of affected people and ensure that such concerns are addressed in project design and safeguard plans.
b. The ADB's Safeguard Policy Statement emphasizes requirements for establishing a grievance mechanism that receives and facilitates the resolution of affected people's concerns, complaints, and grievances about a Project's environmental and social performance. The grievance mechanism should be scaled to Project risks and adverse impacts, address affected people's concerns and complaints promptly. It should also ensure the process is understandable and transparent, gender-responsive, culturally appropriate, and readily accessible to all segments of affected people. It should also not impede access to judicial or administrative remedies. The grievance mechanism should be delivered to the affected people inappropriate manner. ADB. 2011. Public Communications Policy. The policy promotes greater transparency and accountability by enabling ADB's stakeholders—especially people affected by development activities—to better participate in the decisions that affect them. ADB-assisted activities are expected to consider the right of people to seek, receive, and impart information and ideas, and consider feedback from its stakeholders, including affected people. Information shall be given to affected people early enough for them to provide meaningful inputs into project design and implementation.
c. ADB's Policy on Cooperation with Civil Society Organizations (1998). The policy recognizes that NGOs can contribute valuable advice on the design of projects and can participate directly in implementation. To support effective cooperation with NGOs, the policy indicates that as appropriate, mechanisms to expand and strengthen interaction with NGOs in loan and technical assistance activities will be identified and existing mechanisms for consultation and dialogue with NGOs will be pursued and strengthened. Under this policy and the 2009 SPS, the Borrower is expected to carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation.
d. Stakeholder Engagement requires clients to demonstrate effective Stakeholder Engagement as an ongoing process in a structured and culturally appropriate manner with Affected Communities and, where relevant, Other Stakeholders.

3.2 The IFC Performance Standards (IFC PS:1 Stakeholder Engagement)

a. **Stakeholder Engagement:** According to IFC PS-1 Stakeholder engagement is an ongoing process that may involve, in varying degrees, the following elements: stakeholder analysis and planning, disclosure and dissemination of information, consultation and participation, grievance mechanism, and ongoing reporting to Affected Communities. The nature, frequency, and level of effort of stakeholder engagement may vary considerably and will be commensurate with the project's risks and adverse impacts, and the project's phase of development. Stakeholder Analysis and Engagement Planning: Clients should identify the range of stakeholders that may be interested in their actions and consider how external communications might facilitate a dialog with all stakeholders. The client will develop and implement a Stakeholder Engagement Plan

that is scaled to the project risks and impacts and development stage and be tailored to the characteristics and interests of the Affected Communities.

b. **Disclosure of Information:** Disclosure of relevant project information helps Affected Communities and other stakeholders understand the risks, impacts, and opportunities of the project. The client will provide Affected Communities with access to relevant information.

c. **Consultation:** When Affected Communities are subject to identified risks and adverse impacts from a project, the client will undertake a process of consultation in a manner that provides the Affected Communities with opportunities to express their views on project risks, impacts and mitigation measures, and allows the client to consider and respond to them. The extent and degree of engagement required by the consultation process should be commensurate with the project's risks and adverse impacts and with the concerns raised by the Affected Communities. Informed Consultation and Participation: For projects with potentially significant adverse impacts on Affected Communities, the client will conduct an Informed Consultation and Participation (ICP) process that will build upon the steps outlined above in Consultation and will result in the Affected Communities' informed participation.

d. **External Communications and Grievance Mechanisms:** Clients will implement and maintain a procedure for external communications that includes methods to (i) receive and register external communications from the public; (ii) screen and assess the issues raised and determine how to address them; (iii) provide, track, and document responses, if any; and (iv) adjust the management program, as appropriate. In addition, clients are encouraged to make publicly available periodic reports on their environmental and social sustainability. Where there are Affected Communities, the client will establish a grievance mechanism to receive and facilitate resolution of Affected Communities' concerns and grievances about the client's environmental and social performance.

4 CHAPTER 4: CONSULTATION

For the SEP, a stakeholder is defined as any individual, organization, or group which is potentially affected by the Project, or which has an interest in the Project and its impacts. The objective of stakeholder identification is to establish which stakeholders may be directly or indirectly affected – either positively or negatively - ("affected parties") or have an interest in the Project ("other interested parties"). Particular effort must be made to identify any disadvantaged and vulnerable stakeholders who may be differentially or disproportionately affected by the Project or who may have difficulty participating in the engagement and development processes. Stakeholder identification is also an ongoing process and will require regular review and update.

There are several stakeholder meetings, FGDs, and KII that have been conducted with different stakeholder parties to understand the present situation of the project activity of the surrounding peoples, existing environmental settings as well as the institutional system. Most of the primary, secondary and other stakeholders presented in the interview session with NWPGCL representative for assessing the feedback from the local people about the project activity. The agenda and discussed issues are presented in the following section.

4.1 Fire Service and Civil Defense

4.1.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Fire Service and Civil Defence Sub-Station, Sirajganj Sadar, Sirajganj
Consulted Person	Md. Ataur Rahman
Designation/Position	F.S.I
Cell No.	01712345388
Consulted By	Amit Kumar Saha
Designation/Position	Consultant, ELRC
Date	09.10.2024
Time	03:10 PM

4.1.2 Discussions

Concerned Issues	Discussions
Involvement with the Emergency Preparedness Programs Taken by the NWPGCL	Every month, events occur during the first week and the last week of the month.
Frequency of Programs Taken	Once in a month for all unit.
Fire Incidents Reported	Not yet occurred
Remarks/Recommendation	It is necessary to be more alert and time conscious. Always need to be more alert and conscious about time

4.1.3 Photographs

Photo 4-1: Consultation with Fire Safety Personnel at Project Sub-Station

4.1.4 Recommendations

It is imperative for NWPGCL to prioritize the consistent implementation of fire safety training for its workforce. This entails conducting regular fire drills and training sessions to ensure that all employees and staff are well-prepared to handle potential fire hazards effectively.

4.2 Ministry of Health and Family Welfare

4.2.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Upazila Health and Family Welfare Office, Sirajganj Sadar, Sirajganj
Consulted Person	Usuf Ali
Designation/Position	Upazila Family Planning Officer (UFPO)
Cell No.	01734649781
Consulted By	Amit Kumar Saha
Designation/Position	Consultant, ELRC
Date	09.10.2024
Time	03:50 PM

4.2.2 Discussions

Concerned Issues	Discussions
Available Health Facilities	The health facilities currently offered include primary treatment, maternal consultation, as well as awareness programs for communicable and non-communicable diseases.
Common Exposure Diseases (Last One Year)	There are no records available.
Health Problems Created from The Project Activities (If Any)	There is no health problem were recorded.
Health Improvement Initiatives Taken by NWPGCL	Some initiatives were taken

4.2.3 Photographs

Photo 4-2: Consultation with Upazila Family Planning Officer at Upazila Health and Family Welfare Office

4.2.4 Recommendations

For any health-related inquiries or information, it is recommended to seek guidance from the nearby Union Health Complex or Upazila Health Complex.

4.3 Department of Agriculture

4.3.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Bangladesh Agricultural Development Corporation (BADC), Sirajganj Sadar, Sirajganj
Consulted Person	Md. Anwar Sadat
Designation/Position	Upazila Agriculture Officer
Cell No.	01700716033
Consulted By	Md. Abdur Rab
Designation/Position	Assistant Consultant, ELRC
Date	17.10.2024
Time	10:45 PM

4.3.2 Discussions

Concerned Issues	Discussions
Agricultural Practices	The predominant agricultural practices involve cultivating a maximum of two crops in some cases and occasionally up to three crops.
Irrigation Practices	Irrigation techniques involve the utilization of shallow tube wells, river water sources, with deep tube wells being a less common option.
Irrigation Cost	The cost of cultivation for rice production per bigha (33 decimal) typically falls within the range of 12,000 to 15,000 BDT.
Production Rate	The production rate was not documented.
Annual Revenue	The annual revenue was not recorded.
Availability of Agricultural Labor	The availability of agricultural labour fluctuates and is not constant throughout every season.

Concerned Issues	Discussions
Labor Wages	Labor wages fluctuate from one season to another, typically ranging between 500 and 800 BDT.
Agricultural Problems Created from The Project Activities (Yes/No)	As of the reporting period, there have been no agricultural issues arising from project activities.
Remarks	N/A

4.3.3 Photographs

Photo 4-3: Consultation with SAAO, Sirajganj Sadar, Sirajganj

4.3.4 Recommendations

Installation of deep tube wells could potentially contribute to boosting agricultural productivity, and it's advisable to refrain from acquiring agricultural land for the project's extension or other purposes.

4.4 Department of Fisheries

4.4.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Upazilla Fisheries Office, Sirajganj Sadar, Sirajganj
Consulted Person	Md. Anwar Hossain
Designation/Position	Senior Upazila Fisheries Field Officer
Cell No.	01769459702
Consulted By	Md. Abdur Rab
Designation/Position	Assistant Consultant, ELRC
Date	17.10.2024
Time	10:30 AM

4.4.2 Discussions

Concerned Issues	Discussions
Fishing Scenario and Practices Around the Project Site	The fishing activities in the project area include aquaculture, open water fishing, and the use of various equipment such as current nets, ber nets, wheels, dragnets, etc. Variety of Fish Species: A wide range of fish species are found in the area, including Chanda, Chela, Pangas, Chital, Rui, Katla, Kalbaosh, Punti, Baila, Tengra, Tilapia, Pholi, Darkina, Parshi, Golda Chingri, Mrigal, Koi, Kolisha, Mola, Gazar/Gojar, Tara

Concerned Issues	Discussions
	Baim, Tengra, Veda, Shal Baim, Shol, Taki, Madhu pabda, and Magur.
Yearly Yield	The annual yield totals 8,567 metric tons in total, categorized by Upazilla.
Total Fishing Activities (Around the Project Site)	Fishing activities in the vicinity of the project site are a prominent part of the local economy and lifestyle. The community engages in a variety of fishing practices to sustain their livelihoods and meet local demand for fresh fish. Local fishermen employ specialized fishing methods such as 'Current jal,' 'Chandi jal' (Gill nets), and 'Ber jal' (Seine net) to capture large quantities of fish. These techniques are highly effective in the region's waters, contributing significantly to the local fishing activities.
Fish Availability (Around the Project Site)	The availability of fish in the vicinity of the project site is deemed satisfactory.
Fishing Areas (Around the Project Site)	Fishing zones in proximity to the project site encompass river and open water areas.
Fishing Problems Created from The Project Activities (Yes/No)	As of now, there have been no reported issues arising from project activities that affect fishing in the area.
Remarks	N/A

4.4.3 Photographs

Photo 4-4: Consultation with Upazilla Fisheries Officer, Sirajganj Sadar, Sirajganj

4.4.4 Recommendations

NWPGCL has been organizing focus group discussions and stakeholder consultations, during which the importance of protecting fisheries resources has been a key topic and recommended to expanding these efforts. NWPGCL can conduct additional awareness programs specifically tailored for the local fishermen.

4.5 Department of Public Health Engineering

4.5.1 Details of Consultation

Name of the Stakeholder (Institution/Community)	Department of Public Health Engineering (DPHE)
Consulted Person	Md. Al Amin
Designation	Sub Assistant Engineer

Cell No.	01302864604
Consulted By	Md. Abdur Rab
Designation	Assistant Consultant, ELRC
Date	17.10.2024
Time	09: 50 AM

4.5.2 Discussion

Concerned Issues	Discussions
Ground Water Condition Around the Project Site Area	In relation to the groundwater condition at the project site area, the water quality continues to be positive.
DTW Depth	Deep Tube Well (DTW) Depth ranges from approximately 150 to 500 feet
STW Depth	Shallow Tube Well (STW) Depth is around 30 to 100 feet.
DTW Installation Cost	The installation cost for Deep Tube Wells (DTW) is approximately 7000 BDT per foot.
STW Installation Cost	The installation cost for Shallow Tube Wells (STW) is approximately 10000 BDT per foot.
Observation Well near the Project	There are no observation wells in the vicinity of the plant site.
Ground Water Level Related Complaints	As of now, there have been no complaints from the local community concerning groundwater levels.
Remarks	Consider utilizing surface water as a substitute for groundwater in the cooling tower system.

4.5.3 Photographs

Photo 4-5: Consultation with Senior Assistant Engineer, DPHE, Sirajganj Sadar, Sirajganj

4.5.4 Recommendations

NWPGCL can take measures to address any contamination in groundwater if arises and prioritize the utilization of surface water in accordance with applicable government guidelines and regulations.

4.6 Fishing Community

4.6.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Fishing Community, Boroshimul Village, Soydabad, Sirajganj
Consulted By	Md. Abdur Rab
Designation/Position	Consultant, ELRC

Date	17.10.2024
Time	09:50 AM

4.6.2 Participants Details

Sl. No.	Name	Age	Locations
1.	Md. Sobhan Faraji	48	Ponchosona Village
2.	Md. Matin Howlader	36	Ponchosona Village
3.	Md. Rubel Imam	37	Boroshimul Village
4.	Bacchu Mia	42	Ponchosona Village
5.	Md. Firoz Khandakar	39	Ponchosona Village
6.	Mokhlesur Rahman	34	Boroshimul Village

4.6.3 Discussions

Concerned Issues	Discussions
Fishing Areas Around the Project Site (Number)	Fishing locations in the vicinity of the project site primarily include the banks of the Jamuna River and several ponds located in proximity to the local residential areas, though not directly adjacent to the project area.
Fishing Practices	The predominant fishing methods employed in this region primarily involve the use of current nets, ber nets, wheels, and dragnets.
Available Fisheries	The available fishery resources within the project area encompass a diverse range of species, including, Tengra, Mrigal, Koi, Koilsha, Madhu Pabda, Chital, Rui, Katla, Chela, Pangas, Kalbaosh, Punti, Baila, Mola, Tilapia, Chanda, Chingri, Darkina, Parshi, Golda Chingri, Magur, Pholi, Gazari/Gojar, Tara Baim, Tengra, Veda, Shal Baim, Shol, and Taki.
Quantity of Fisheries	The fisheries resources are abundant and meet the seasonal demand.
Fishing Problems Created by Project Activities Around the Project Site Area (Yes/No)	As of now, there have been no observed issues related to project activities that affect fishing in the area around the project site.
Remarks	No noteworthy concerns or problems have been raised during the reporting period. The fisheries community has reported that the fisheries resources and fish catches are in good overall condition.

4.6.4 Photographs


Photo 4-6: Focus Group Discussion (FGD) with Fishing Community

4.6.5 Recommendations

There has been no significant change in the quantity of riverside fisheries. After consulting with the fisheries officer and local fishermen in the project area, it has been determined that the project has no discernible direct or indirect impact on the growth or mortality of fisheries.

4.7 Agricultural Farmers

4.7.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Farmers Community, Boroshimul Village, Soydabad, Sirajganj
Consulted By	Md. Roflul Karim
Designation/Position	Consultant, ELRC
Date	09.10.2024
Time	01:25 PM

4.7.2 Participants Details

Sl. No.	Name	Age	Locations
1.	Malek Sheikh	38	Ponchosona Village
2.	Mion Mia	33	Boroshimul Village
3.	Taher Uddin	52	Boroshimul Village
4.	Monjur Alom	37	Boroshimul Village
5.	Jamal Uddin	43	Boroshimul Village
6.	Kaisar Alom	37	Boroshimul Village

4.7.3 Discussions

Concerned Issues	Discussions
Agricultural Practices (Single, Double and Triple)	Double (paddy-jute). Double cropping with paddy and jute involves planting rice (paddy) as the first crop, followed by jute as the second crop in the same field during a single growing season. This practice helps farmers diversify income sources, improve soil health through crop rotation, and utilize the same land more efficiently. It requires careful planning and management, including addressing specific pest and disease challenges and ensuring adequate water

Concerned Issues	Discussions
	supply.
Crop Types	Common crops in this region include paddy, pulses, jute, wheat, mustard, vegetables, and more.
Production Rate	Productivity has been on a declining trend over the past few years.
Irrigation Practices	Irrigation methods include the use of deep and shallow tube wells, as well as natural and surface water sources.
Irrigation Cost (Last and Present Year) Annual Revenue	The annual irrigation cost per Bigha (33 Decimal) has ranged from 12,500 to 15,000 BDT in the last and present years.
Agricultural Labor Availability	During the peak season, the availability of agricultural labor is limited.
Labourer Wages (Male, Female)	In the previous season, male laborers were paid between 600-700 BDT per day, whereas there is a lack of female workers in this region.
Remarks	The production rate is in decline from the few years. Relevant Agriculture department are working towards to find out the sustainable solutions for agriculture development.

4.7.4 Photographs

Photo 4-7: Focus Group Discussion (FGD) with Agricultural Farmers Community

4.7.5 Recommendations

In recent years, there has been a shortage of deep tube-wells, resulting in lower agricultural productivity. NWPGCL is organizing regular focus group meetings with local farmers to understand their concerns and gather feedback on any potential effects from the power plant. They are also raising awareness among farmers about how to improve their agricultural practices by consulting with the Upazila agriculture office.

4.8 Community Consultation

On October 9, 2024, a Community Health, Safety, and Emergency Preparedness Program took place at Punorbason Madrasha in Soydabad, Sirajganj Sadar Upazila, within the Sirajganj district. The program commenced at 12:00 PM and had a total attendance of 53 individuals, representing various segments of the local community, including farmers, day laborers, businessmen, students, teachers, senior citizens, and political leaders. During the program, the community received awareness and education on health, safety, and emergency preparedness for the following concerns:

- Flood
- Gas Pipeline Leaks
- Oil Pipeline Leaks
- Traffic Accidents
- Communicable and Non-Communicable Diseases

4.8.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Local Residence/Community
Consulted By	Md. Rofiul Karim and Amit Kumar Saha
Designation/Position	Consultant, ELRC
Date	09.10.2024
Time	12:00 PM

4.8.2 Discussions

Stakeholder Name	Professions	Discussions
Mst. Moniza Begam	Local UP Member	She focused on community collaboration and organization. It will be effective if there is a community task force comprising representatives from various segments of society to address safety concerns collectively. She emphasized that by working together, the community can create a safer and more prepared environment for everyone. In terms of any suitable job opportunities at the power plant, NWPGCL ought to prioritize local residents. Also, a medical camp can be established on behalf of NWPGCL for the local people
Abu bakkar	Farmer	He expressed concerns about gas and oil pipeline leaks, emphasizing the potential hazards they pose to the community. No leaks were happened during the last year from the power plant. Abu bakkar suggested organizing awareness campaigns to educate the community about the signs of gas and oil leaks and the appropriate actions to take in such situations (if happens).
Md Visha Sheikh	Business	He shared his personal experiences with past floods in the area. No significant floods were occurred, and no croplands were affected. He stressed the importance of having an early warning system in place to give the community time to prepare and evacuate if necessary.

		He also mentioned the need to build flood-resistant structures and raised platforms for storing essential supplies during floods.
Md Manik	Teacher	He emphasized the role of education in promoting safety and preparedness. More awareness raising program can be arranged.
Alomgir	Student	Need to be aware about prevalence of communicable and non-communicable diseases in the community. No diseases had been spread due to the power plant operation. He highlighted the significance of personal hygiene practices, and regular health check-ups to prevent the spread of diseases.
Nurunnabi	Business	Suggested installing speed limits, traffic signs, on roads in the area to reduce accidents. Due to the operation of power plant, no accidents were occurred in the last year. Emphasized the importance of educating drivers and pedestrians about road safety rules and proper traffic etiquette.
Abdul Mannan Sheikh	Farmer	No impacts on crops were observed during the last year from the power plant. Authorities need to be prepared and taken necessary measures if there are any issues raised. Talked about collaboration among local farmers to share best practices for flood-resistant crop varieties for flood situation happens.

4.8.3 Photographs

Photographs taken during the stakeholder consultation on community health, safety and emergency preparedness are depicted in the following Table.

Photo 4-8: Public Consultation Meeting (PCM) with Local Community

5 CHAPTER 5: CONCLUSION

Ensuring effective project operation is the primary concern for the project proponent aiming to establish a fully functional power plant. In preparation for the operational phase, a management plan was submitted. Before commencing operations, various responses were observed. However, during the operational phase and based on interview sessions conducted, a predominantly positive response was obtained.

Local community members who participated in the interviews expressed satisfaction with the project and had no objections to the power plant's operational activities. Additionally, this interview process has proven to be highly effective in shaping future stakeholder engagement strategies. Various stakeholders were involved in the interviews, and their feedback was positive, both regarding the overall agenda and the operational activities.

All relevant stakeholders, including the local healthcare unit, family welfare organizations, agriculture office, fisheries department, fishing and agricultural communities, and the local population, were considered for the interview. Each group responded positively and expressed a desire for the project to continue, with a focus on mitigating any adverse impacts.

It is strongly recommended that the proponent continues to prioritize and maintain an effective stakeholder engagement program as the project progresses.

The project operation is the major task for the proponent to establish a fully functioning power plant. Before the operation activity, a management plan had been submitted. The local people in the interview look happy about the project and also have no objection to the operation of the power plant activity. Besides, this interview is so effective on stakeholder engagement. Different professionals are participated in the interview and showed their positive responses on the whole agenda as well as operation activity.

All of the stakeholders are considered for this interview session including the local healthcare unit, family welfare, agriculture office, fisheries department, fishing community, agricultural community, and local people. All of them are well responded and well behaved. All of the stakeholders are commented about the operation as positive view, and they demand just to continue the activities with considering the environmental and social sustainability.

The proponent is recommended to properly maintain the stakeholder engagement program.

Annex 1: PCM Presentation Slides

INTRODUCTION/ভূমিকা

- কমিউনিটিতে স্বাস্থ্য হুমকি, রাসায়নিক পদার্থ, ধোঁয়া, ভাইরাস, ব্যাকটেরিয়া, নিম্ন স্তরের বিকিরণ এবং পরিবেশে অন্যান্য সম্ভাব্য ক্ষতিকারক সাধারণ পদার্থ
- কমিউনিটি হেলথ অ্যান্ড সেফটি বলতে স্থানীয় কমিউনিটিগুলিকে প্রকল্পের কার্যক্রম (বন্যা, ভূমিধস, দূষণ বা অন্যান্য প্রাকৃতিক বা মানবসৃষ্ট বিপদ সহ), রোগ এবং দুর্ঘটনাজনিত পতনের কারণে সৃষ্ট বিপদ থেকে রক্ষা করাকে বোঝায়।
- কমিউনিটি প্রস্তুতি বলতে নাগরিকদের প্রশিক্ষণ, শিক্ষা এবং সম্পদ প্রদানের জন্য প্রচেষ্টা বোঝায় যা তাদের ব্যক্তিগত এবং সমষ্টিগত স্তরে সম্ভাব্য স্থানীয় দুর্যোগের হুমকির বিরুদ্ধে আগাম প্রস্তুতি নিতে সহায়তা করে থাকে।

FLOODS/বন্যা

Floods in Bangladesh/বাংলাদেশে বন্যা

FLOODS/বন্যা

Floods in Project Area

গত বছর প্রকল্প এলাকায় কোনও গুরুতর বন্যা ঘটনা ঘটেনি, এবং অতিরিক্ত বৃষ্টির ফলে ক্ষণস্থায়ী জলবদ্ধতা স্থানীয় লোকদের জন্য সামান্য সমস্যা সৃষ্টি করেছিল, তবে কোনও গুরুতর সমস্যা বা ক্ষয়ক্ষতি হয়নি।

FLOODS/বন্যা

Preparation

- বন্যা হওয়ার পূর্বে করণীয়
  - বন্যা সম্পর্কিত তথ্যের পুরোপুরি জ্ঞান
  - কোথায় যেতে হবে তা সম্পর্কে সুস্পষ্ট ধারণা রাখা
  - বিকল্প পথ সম্পর্কে জানা এবং অবসর সময় পেলে কোথায় দিয়ে বিপদ হবে পুরোই আলোচনা করা
  - গুরুত্বপূর্ণ জিনিস ও প্রয়োজনীয় পত্র বিষয়ে পূর্বেই করণীয় সম্পর্কে আলোচনা করা
  - বৈদ্যুতিক সংযোগ বিচ্ছিন্ন করা
  - আকস্মিক বন্যার জন্য প্রস্তুত থাকা এবং প্রয়োজনে দ্রুত স্থান ত্যাগ করা


FLOODS/বন্যা
• During A Flood
বন্যা
FLOOD SAFETY GUIDE


FLOODS
বন্যা
• After A Flood
বন্যা
POST FLOOD SAFETY TIPS
RE-ENTERING A HOUSE/BUILDING
There could be hidden dangers present so do not enter a flooded building
Wear suitable footwear
Check for dangerous/ venomous creatures that may be sheltering under debris/ in the building
Examine the walls, floor, doors, windows & ceiling for cracks/ structural stability
Medicine, food (including canned goods) & drinking water contaminated by floodwater must be thrown away
All electrical appliances need to be evaluated & dried before reuse
Report gas & water leaks, as well as electrocution hazards, immediately
Do not touch/use electrical outlets if area is still damp
CHECK FOR HAZARDS

GAS PIPELINE LEAKAGE/গ্যাস পাইপলাইনের ছিদ্র

Activities During Gas Leaking

গ্যাস নিঃসরণ

- গ্যাস নিঃসরণের সময় করণীয়

গ্যাস এবং তেল পাইপলাইন

GAS PIPELINE LEAKAGE/গ্যাস পাইপলাইনের ছিদ্র

Activities After Gas Leaking

- গ্যাস নিঃসরণে পরবর্তী করণীয়
  - [illegible]
  - [illegible]

OIL PIPELINE LEAKAGE/তেল পাইপলাইনের ছিদ্র

- **Activities During Oil Leaking**

- তেলের পাইপলাইন ফুটোর সময় করণীয়
  - [illegible]
  - [illegible]
  - [illegible]

OIL PIPELINE LEAKAGE/তেল পাইপলাইনের ছিদ্র

Activities After Oil Leaking

- তেলের পাইপলাইন ফুটোর পরবর্তী কার্যাবলি
  - [illegible]
  - [illegible]
  - [illegible]

ROAD ACCIDENT/সড়ক দুর্ঘটনা

Causes/কারণসমূহ

- অতিরিক্ত **গতি**
- **ট্রাফিক আইন** না মানা
- **ফোন** ব্যবহার
- ঘুমানো
- অতিরিক্ত মালামাল বহন
- **সিট বেল্ট** ব্যবহার না করা
- না দেখে রাস্তা পারাপার


Stakeholder Engagement Report
ROAD ACCIDENT/
সড়ক দুর্ঘটনা
Prevention/প্রতিরোধ
ট্রাফিক আইন মেনে চলা
নিয়মিত যানবাহন রক্ষণাবেক্ষণ
সিটবেল্ট পরিধান করা
ফোন ব্যবহার থেকে বিরত থাকা
সুরক্ষিত গতি বজায় রাখা
রাস্তা পারাপারে সতর্ক থাকা
Road safety
STOP


Stakeholder Engagement Report
TRAFFIC ACCIDENT/সড়ক দুর্ঘটনা
During An Accident
দূর্ঘটনার সময় করনীয়
দূর্ঘটনাকবলিত যানবাহন থেকে যাত্রীদের নিরাপদে সরিয়ে আনতে হবে
দূর্ঘটনাকবলিত স্থানে গাড়ি চলাচল সাময়িকভাবে বন্ধ রাখতে হবে
প্রাথমিক চিকিৎসা সেবা প্রদানকারী টিমের সাথে যোগাযোগ করতে হবে
দূর্ঘটনার মাত্রা বেশি হলে আহত ব্যক্তিদের স্থানীয় যানবাহনে করে চিকিৎসাকেন্দ্রে বা কোম্পানী কর্তৃক নির্ধারিত চিকিৎসাসেবা কেন্দ্রে নিতে হবে
নিকটস্থ থানায় দ্রুত যোগাযোগ করতে হবে

TRAFFIC ACCIDENT/সড়ক দুর্ঘটনা

After An Accident

- দুর্ঘটনা পরবর্তী করণীয়
  - আহত ব্যক্তিদের যতদ্রুত সম্ভব নিকটস্থ স্বাস্থ্যকেন্দ্রে নিয়ে প্রাথমিক চিকিৎসা দিতে হবে
  - দুর্ঘটনাকবলিত এলাকা নিরাপদ ফিতা দিয়ে বেষ্টন করতে হবে
  - দুর্ঘটনা সংক্রান্ত তথ্য সংগ্রহ করতে হবে

COMMUNICABLE DISEASES/সংক্রামক রোগ

- সংক্রমিত রোগসমূহ
  - যক্ষা
  - হেপাটাইটিস
  - ম্যালেরিয়া
  - কলেরা
  - ইনফ্লুয়েঞ্জা
  - এইচআইভি/এইডস

COMMUNICABLE DISEASES/সংক্রামক রোগ

Prevention/প্রতিরোধ

- পরিষ্কার -পরিচ্ছন্ন থাকুন
- টিকা দেওয়া
- স্বাস্থ্যকর খাদ্য

NON-COMMUNICABLE DISEASES/অসংক্রামক রোগ

- ঝুঁকির কারণসমূহ:
  - ধূমপান
  - স্থূলতা
  - ধূমপান
  - অস্বাস্থ্যকর খাদ্যাভ্যাস
  - শারীরিক নিষ্ক্রিয়তা

NON-COMMUNICABLE DISEASES/অসংক্রামক রোগ

- ধূমপান মুক্ত থাকুন
- শারীরিক ব্যায়াম করুন
- নিয়মিত চেকআপ করান

CONCLUSIONS/উপসংহার

- এই কর্মসূচি অনুযায়ী, আমাদের স্বাস্থ্য ও নিরাপত্তা-সংক্রান্ত সতর্কতা মেনে চলা উচিত
- ব্যক্তিগত বা সম্মিলিতভাবে যে কোন ধরণের কমিউনিটি স্বাস্থ্য সুরক্ষার ব্যাঘাত সম্পর্কে আমাদের আরো সচেতন হওয়া উচিত
- গ্যাস এবং পাইপলাইন লিকেজের মতো কোন প্রকল্প-ভিত্তিক সমস্যা হলে, অবিলম্বে যথাযথ কর্তৃপক্ষকে জানাতে হবে
- সড়ক দুর্ঘটনা থেকে নিজেকে সুরক্ষিত রাখতে যাতায়াত নিয়ম মেনে চলতে হবে এবং অবশ্যই সতর্ক থাকতে হবে।
- সংক্রামণাত্মক এবং অসংক্রামণাত্মক রোগের প্রতি সচেতন হতে হবে, নিরাপত্তা এবং স্বাস্থ্য সুরক্ষার জন্য প্রতিরোধমূলক ব্যবস্থা নেওয়া প্রয়োজন।


THANK YOU

Annex 2: PCM Attendance Sheets

Public consultation Meeting

Community Health, Safety and Emergency preparedness Program 2024

Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel), Saidabad, Sadar, Sirajganj

Organized By: North-West Power Generation Company Limited (NWPGCL)

Supported By: Environment laboratory and Research Center (ELRC)

Date 09-10-2024 Time 12:00 PM Location Saydabad Shirajganj

SL No	Participant Name	Profession	Address	Mobile Number	Signature
1	[illegible]	কৃষক		[illegible]	[illegible]
2	আবু বক্কার	কৃষক		22.7	[illegible]
3	আবদুল্লাহ	কৃষক		01763380214	[illegible]
4	মনোয়ার হোসেন	গৃহিণী		01722-974669	
5	লিটন ভূঁইয়া	ব্যবসা		01734463385	
6	মিয়া মোল্লা	কৃষক		01709949708	
7	আবুল মতিন	ব্যবসা		01719534379	
8	আবু মোল্লা	কৃষক		01725567727	
9	আবদুল মান্নান [illegible]	কৃষক		01749667073	
10	জাহিদ হোসেন	ছাত্র		01734302109	
11	রবিউল	ছাত্র		01950390809	
12	রেজাউল হোসেন	কৃষক		01792674076	
13	নুরনবী	ট্রলি চালক		01746240723	
14	আবু তাহের	"		01307408243	

CamScanner

7

SL No	Participant Name	Profession	Address	Mobile Number	Signature
15	ইমান আলী	আনসার		01749667073	
16	কাউছার	ছাত্র		01601608517	
17	রুকসানা	ছাত্র		01830130218	
18	নাজমুল হাসান	ছাত্র		01612195762	
19	আলমগীর	ছাত্র		01937935065	
20	আবদুর রহিম	ছাত্র		01812935823	
21	ইয়াছিন	ছাত্র		01848304767	
22	আকবর হোসেন	ব্যবসা		01709629930	
23	মো: আব্দুল্লাহ	ড্রাইভার		01755778429	
24	মানিক	মাছ চাষী		—	—
25	সেরাজুল ইসলাম	দোকানদার		01798498216	
26	আব্দুল খালেক	কৃষক		—	—
27	আব্দুল মালেক	কৃষক		01775841936	
28	জাবির	ছাত্র		01853804496	
29	মাও: হাবিব	শিক্ষক		—	—
30	আবুল কালাম	কৃষক		01741256056	
31	মাহবুবুর রশিদ	শিক্ষক		01799312585	

CS CamScanner

SL No	Participant Name	Profession	Address	Mobile Number	Signature
32	ইমদাদুল	ব্যাবসা		01609116994	
33	প্রদীপ কুমার বিশ্বাস	"		01971362581	
34	নয়ন	ছাত্র		01813598317	
35	[illegible]	শিক্ষক		01791233545	
36	[illegible]	শিক্ষক		01765640292	
37	[illegible]	ছাত্র		01824652050	
38	[illegible]	চাকরি		01760359195	
39	[illegible]	ছাত্র		01812104525	
40	[illegible]	ছাত্র		01650217768	
41	[illegible]	ছাত্র		01962329813	
42	[illegible]	ছাত্র		~~01876~~ 64 –	
43	[illegible]	ছাত্র		01650219137	
44	[illegible]	চাকরি		01870390429	
45	[illegible]			01797471872	
46	[illegible]	ছাত্র		01764902826	
47	[illegible]	ছাত্র		01740279224	
48					

Public consultation Meeting

Community Health, Safety and Emergency preparedness Program 2024

Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel), Saidabad, Sadar, Sirajganj

Organized By: North-West Power Generation Company Limited (NWPGCL)

Supported By: Environment laboratory and Research Center (ELRC)

Date 09/10/24 Time 12.00 pm Location Saydabad, Shirajganj

SL No	Participant Name	Profession	Address	Mobile Number	Signature
1	[illegible]	[illegible]		[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	ELRC	[illegible]	[illegible]
6	[illegible]	[illegible]	ELRC	[illegible]	[illegible]
7					
8					
9					
10					
11					
12					
13					
14					

ANNEX-C: Community Development Programme

North-West Power Generation Company Ltd. (NWPGCL)
Sirajganj Power Station
Soydabad, Sirajganj

Community Development Programme

Date: 25.01.2024

Title	**Distributed blankets to 1000 helpless and destitute families.**
Organizer	**Sirajganj Power Station, NWPGCL, Soydabad, Sirajganj**
Time	11:00 AM-03.00 PM
Venue	Various Sadar Upazilas of Sirajganj District like Chauhali, Kazipur, Belkuchi and surrounding areas of SPS.
Participants	With the co-operation of the local administration of various Sadar Upazilas of Sirajganj District like Chauhali, Kazipur, Belkuchi; CE, SPS & Employees of Sirajganj Power Station.
No of blankets	700 (Seven Hundred)

Pictorial Evidence


25.01.2024


25.01.2024


25.01.2024

North-West Power Generation Company Ltd. (NWPGCL)
Sirajganj Power Station
Soydabad, Sirajganj

Community Development Programme

Date: 06.04.2024

Title	**Humanitarian relief to poor people before Eid-ul-fitr near Sirajganj Power Station.**
Organizer	**Sirajganj Power Station, NWPGCL, Soydabad, Sirajganj**
Time	11:00 AM-04.00 PM
Venue	Various places
Participants	DC, Sirajganj;Director, NWPGCL; CE, SPS & Employees of Sirajganj Power Station.
No of bags	600 (Six Hundred) bags
Each bag contains:	1. 05 kg rice 2. 0.5 kg pulse 3. 0.5 liter soyabean Oil 4. 1 kg salt 5. 1 packet milk powder 6. 2 packet vermicelli 7. 1 kg sugar

Pictorial Evidence

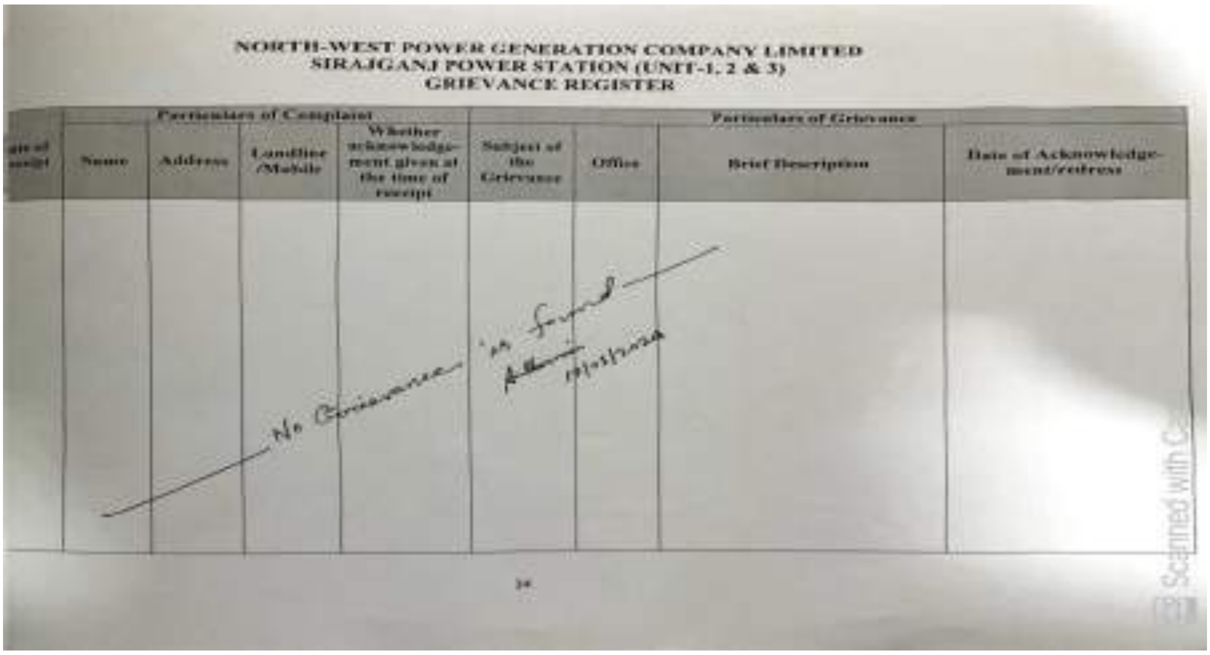

ঈদ উপহার সামগ্রী বিতরণ
06.04.2024


06.04.2024


ঈদ উপহার সামগ্রী বিতরণ
06.04.2024


06.04.2024

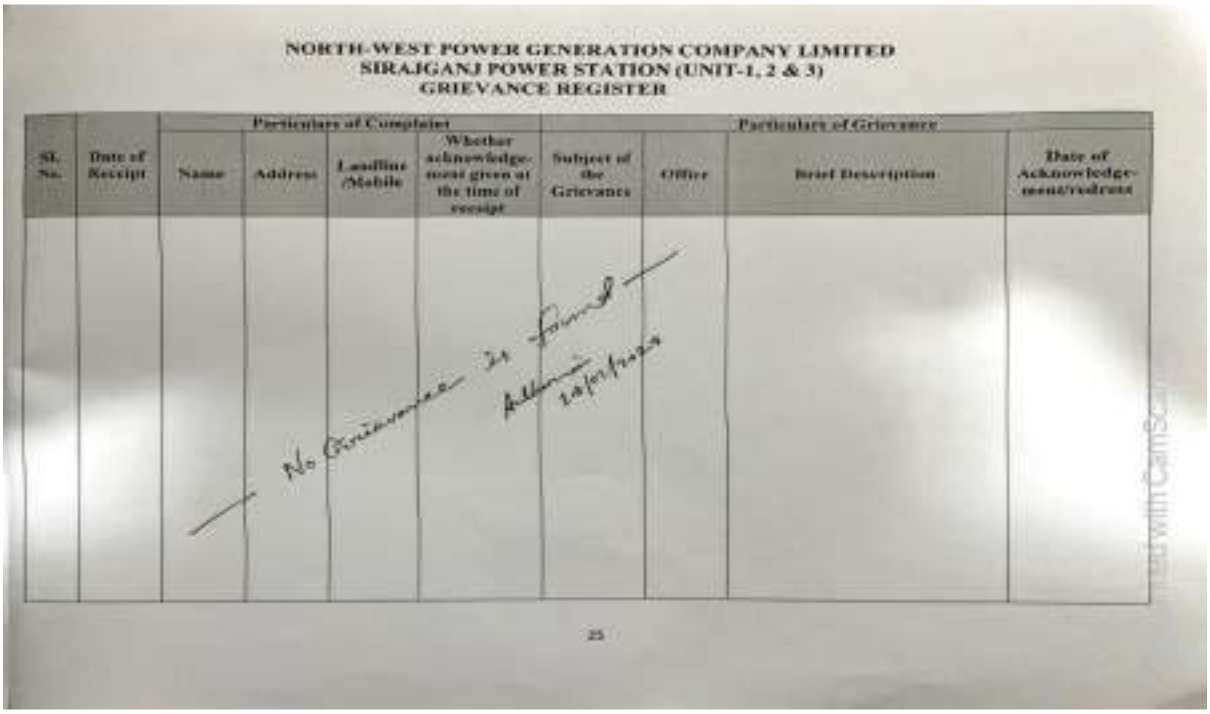
ANNEX-D: Scan Copy of GRM Book



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

...te of ...ceipt	Particulars of Complaint				Particulars of Grievance			
	Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
	No Grievance is found							

24



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
		No Grievance is found							

25

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
					No Grievance is found 15/9/2020				

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
					No Grievance is found 16/9/2020				

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
					No Grievance is found 13/06/2024				

28

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
					No Grievance is found 13/06/2024				

29

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Date of Receipt	Particulars of Complaint				Particulars of Grievance			
	Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress
		No Grievance is found — Raju [illegible]						

31

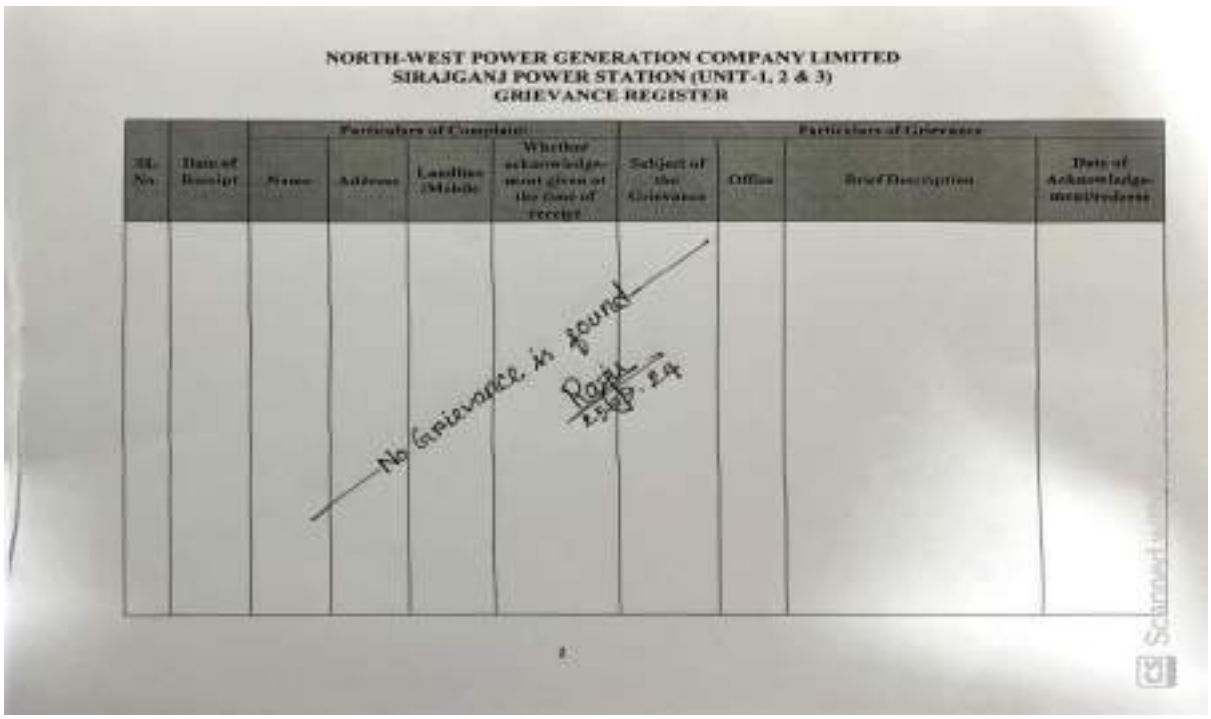
NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL No	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress
		No Grievance is found — Raju [illegible]							

1

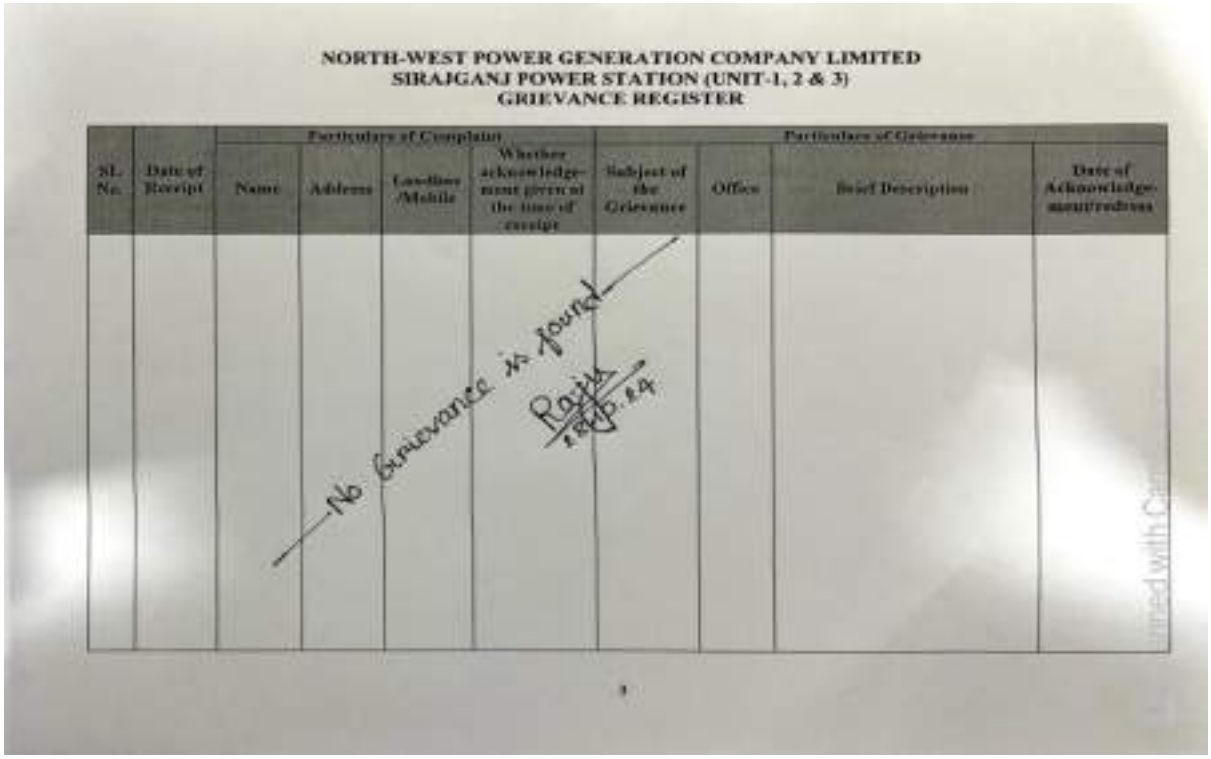
NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
						No Grievance is found Rajia 15/9/24			



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
						No Grievance is found Rajia 18/9/24			



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
						No Grievance is found. — Kaushik 21/11/24			

4

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress
						No Grievance is found. — Kaushik 25/11/24			

5

ANNEX-E: Updated Fire License

ক্রমিক নং

অনিবেশ ০০৩
প্রথম সংস্করণ ২০১২
V-09, P-35

ফায়ার লাইসেন্স

লাইসেন্স নম্বর: এডি/পাবনা-৩৮৪১/২০২১-২০২২

এতদ্বারা অগ্নি প্রতিরোধ ও নির্বাপণ আইন ২০০৩ এর ৪ ধারা অনুযায়ী এবং উল্লেখিত শর্তাবলী সাপেক্ষে ফায়ার লাইসেন্স ইস্যু করা হইল।

১। মালগুদাম/কারখানার মালিক/কারবারকারী/ভূপজের নাম, পদবী ও ঠিকানা ঃ

প্রতিষ্ঠানের নাম ঃ সিরাজগঞ্জ ২২৫ মেঃওঃকঃসাঃবিদ্যুৎ কেন্দ্র(১ম,২য়,৩য়)ইউনিট ও ৭.৬ মেঃওঃ সোলার প্লান্ট

মালিকের নাম ঃ প্রধান প্রকৌশলী।

গ্রাম/রাস্তা:মডলগাতী,ডাকঘর:ছেকুটিয়া ৭৪০০,যশোর সদর,যশোর ।

ফোন ঃ ফ্যাক্স ই-মেইল ঃ

২। মালগুদাম/কারখানার অবস্থান ঃ (ক) প্লট নং/হোল্ডিং নং: বড়শিমুল পঞ্চসোনা

(খ) দাগ নং (গ) খতিয়ান নং (ঘ) জে এল নং

(ঙ) মৌজা (চ) রোড নং (ছ) ডাকঘর সয়দাবাদ

(জ) থানা সিরাজগঞ্জ (ঝ) উপজেলা সিরাজগঞ্জ (ঞ) জেলা সিরাজগঞ্জ

৩। ভবনের ব্যবহার শ্রেণী ঃ

৪। ভবনের নির্মাণ শ্রেণী ও পরিমাপ ঃ পাকা ভবন

শ্রেণী-১	শ্রেণী-২	শ্রেণী-৩	দৈর্ঘ্য	প্রস্থ	উচ্চতা	মোট মেঝের ক্ষেত্রফল (বর্গ মিটার)
						৩,৪৯,৩৫০ বর্গফুট।

৫। দাহ্য বস্তুর নাম ও মজুদ পরিমাণ : প্লাস্টিক জাতীয় দ্রব্য।

৬। ব্যবসার ধরন : বিদ্যুৎ উৎপাদন।

৭। অগ্নি ঝুঁকির মাত্রা : (ক) হালকা-১ (খ) হালকা-২ (গ) সাধারণ-১ (ঘ) সাধারণ-২ (ঙ) সাধারণ-৩ (চ) অতিমাত্রা

৮। অগ্নি ঝুঁকির শ্রেণীবিন্যাস (মোট ফ্লোর এরিয়ার আনুপাত ভিত্তিতে) : A..............%, B..............%, C..............%, D..............%, K..............%

০৯। মাশুলের পরিমান=১২০০/-টাকা, ভ্যাট=১৮০/- টাকা।

১০। নবায়ন অর্থবছর ২০২১-২০২২(৩০ জুন ২০২২ খ্রিঃ পর্যন্ত)।

শিশুশ্রম নিষিদ্ধ

০১/০৩/২২

মোঃ নিজাম উদ্দিন

উপ পরিচালক/সহকারী পরিচালক/উপ সহকারী পরিচালক

ফায়ার সার্ভিস ও সিভিল ডিফেন্স ....।

জরুরী প্রয়োজনে

সিরাজগঞ্জ ফায়ার স্টেশন-০১৭৩০-০০২৫৪৯

বিভাগীয় নিয়ন্ত্রণ কক্ষ- ০১৭৩০-৩৩৬৬৫৫

লাইসেন্সের শর্তাবলী

(১) প্রতি বছর ৩০ জুনের মধ্যে এই লাইসেন্সের অনুকূলে মাশুলের টাকা অগ্রিম লাইসেন্স ফি হিসাবে পরিশোধ করিতে হইবে।

(২) এই লাইসেন্স হস্তান্তরযোগ্য নহে এবং কেবলমাত্র ক্রমিক ২ এ উল্লেখিত অবস্থানের জন্যই প্রযোজ্য হইবে।

(৩) লাইসেন্সের শর্তাবলী যথাযথভাবে পালিত হইতেছে কিনা তাহা যাচাই করার জন্য অধিদপ্তরের ক্ষমতাপ্রাপ্ত কর্মকর্তা যে কোন কার্য দিবসে গুদাম বা কারখানা পরিদর্শন করিতে পারিবেন এবং পরিদর্শনকালে সংশ্লিষ্ট কর্তৃপক্ষ ইস্যুকৃত ফায়ার লাইসেন্সটি প্রদর্শন করিতে বাধ্য থাকিবেন।

(৪) সার্বিক অগ্নি নিরাপত্তা ব্যবস্থা বাংলাদেশ ন্যাশনাল বিল্ডিং কোড ও অগ্নি প্রতিরোধ ও নির্বাপণ আইন ২০০৩ এবং সংশ্লিষ্ট বিধির ভিত্তিতে নিশ্চিত করিতে হইবে।

(৫) অগ্নি প্রতিরোধ ও নির্বাপন আইন ২০০৩ মোতাবেক লাইসেন্সের শর্ত ভঙ্গ করিলে শাস্তিযোগ্য অপরাধ হিসাবে গণ্য হইবে।

০৬। উক্ত প্রতিষ্ঠানে আইএসও মান সম্পন্ন ৫/৬ কেজি ৪২২ টি ডিসিপি, ২১১ টি সিও২, ০৯/১০ লিঃ ফোম ১০ টি ফায়ার এক্সটিংগুইশার সংরক্ষণ করিতে হইবে।

০৭। ০১ টি হোজরীল ব্যবস্থা এবং পর্যাপ্ত পানি ধারণ ক্ষমতা সম্পন্ন ভূগর্ভস্থ জলাধার রাখতে হবে।

কর্মকর্তা ও কর্মচারিদের ফায়ার সার্ভিস কর্তৃক প্রশিক্ষণের ব্যবস্থা করতে হবে। এছাড়াও অন্যও কোন শর্ত আরোপিত হলে তা পালন করতে হবে।

তারিখ	চালান নং	মাশুলের পরিমাণ	অর্থ বছর (১ জুলাই-৩০ জুন)	নবায়নকারীর স্বাক্ষর ও নামাঙ্কিত সীল
28/2/22	৮৮;৮৯	=১২০০/- vat: ১৮০/-	2021-2022	0৯/৩/22 মোঃ আব্দুল মালেক ওয়্যারহাউজ ইন্সপেক্টর ফায়ার সার্ভিস ও সিভিল ডিফেন্স
১৫/৬/22	৩১৬ ৩১৭	=১২০০/- vat: ১৮০/-	2022-2023	২০/09/22 মোঃ আব্দুল মালেক ওয়্যারহাউজ ইন্সপেক্টর ফায়ার সার্ভিস ও সিভিল ডিফেন্স
১৫/৬/২৩	৪৩০ ৪৩১	১২০০/- ভ্যাট= ১৮০/-	২০২৩-২০২৪	মোঃ আবু হাশেম ওয়্যারহাউজ ইন্সপেক্টর ফায়ার সার্ভিস ও সিভিল ডিফেন্স
২৫/৬/২৪	১২৪ ৪২০২২৫৬৭১	১২০০/= ভ্যাট- ১৮০/=	২০২৪-২০২৫	0২-0৭-২৪ মুহাম্মদ ওয়্যারহাউজ ইন্সপেক্টর ফায়ার সার্ভিস ও সিভিল ডিফেন্স সিরাজগঞ্জ-০১

ANNEX-F: First Aid Training

North-West Power Generation Company Ltd. (NWPGCL)
Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel-2nd Unit)
Soydabad, Sirajganj

Training on First Aid

Date: 19.08.2024

Trainer	Dr. Md. Golam Kibria
Time	02:00-04:00 PM
Venue	Zoom Meeting
Participants	All employee of Sirajganj Power Station
Training Session	i. Discussion on First aid and importance ii. Use of First aid Kit iii. Question & Answer
Discussion issue	1. Definition of first aid 2. Emergency needs 3. Incident in power plant 4. First aid after attack i. Unconsciousness ii. Heat stroke iii. Burns iv. Wounds, Cut injury, Accident Injury v. Electric Shock vi. Snake bite/Dog bite/Insects bite vii. Chemicals burn of eye viii. Fracture 5. First aid Items on First Aid Kits 6. Use of First aid items
Trainer	Dr. Md. Golam Kibria
Venue	Zoom Meeting
Participants	All employee of Sirajganj Power Station

Attachment:

Attendance Sheet

Attendance Sheet

NORTH-WEST POWER GENERATION COMPANY LIMITED	NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 21.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin. Sirajganj Power Station
Course Name and ID	: Primary Management of Incident/Accident (First Aid)
Date	: 29.08.2024
Duration	: 11:00 AM to 01:00 PM
Total Man Hour	:
Facilitator(s)	: জনাব ডা. গোলাম কিবরিয়া, সিনিয়র মেডিকেল অফিসার (ভারপ্রাপ্ত)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1	Md. Asad Hakim	SE – 2	[signature]
2	M. Arifur Rahman	XEN (I&C)	[signature]
3	Tanvir Ahmed	SDE (Opn)	[signature]
4	Md. Shamsur Rahman	XEN (Opn.)	[signature]
5	Md. Habibur Rahman	XEN (MMD)	[signature]
6	Md. Sarwar Jahan	SAE	[signature]
7	Md. Monir Hossen	SAE (Opn)	[signature]
8	Md. Shafiul Islam	AE (MMD)	[signature]
9	Md. Shariful Islam	DM (A&F)	[signature]
10	[illegible]	Tech (Che)	[signature]
11	Mohammad Arifur Rahim	CA	[signature]
12	Ashok Chondro Das	SAE (EMD)	[signature]
13	Faruque Ahmed	SDE (MMD)	[signature]
14	Md. Rafidul Islam	AE (MMD)	[signature]
15	Md. Tanjeem Rahman	SDE (I&C)	[signature]
16	[illegible]	OSS	[signature]
17	Md. Arif Hosen	OSS (Opn) U–2	[signature]
18	MD. WALIULLAH	[illegible]	WALIULLAH
19	Md. Shamim Hossain	AE (OP) (EE)	[signature]
20	Humayun Masud	SAE (Opn)	[signature]
21	Md. Najmul Hossain	AE (Opn)	[signature]
22	Kawser Ahmed Jewel	SDE (Opn)	[signature]
23	Md. Bellal Hossen	SAE (Opn)	[signature]
24	Md. Naved Sarkar	SAE (Opn)	[signature]
25	Md. Tajul Islam	SAE, U-2	[signature]

Signature of facilitator: [signature]
Date: 29.08.2024

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
25.	Md. Shamim Hossain	SAE	
26.	Md. Mazrul Hossain	SAE (OPN)	
27.	Md. Shamim Hossen	AE (OP)	
28.	Md. Shakil Ahmed	SAE (M)	
29.	Jahidul Alam	SAE (OPN)	Jahidul
30.	Md. Rasel	SAE (OPN)	
31.	Md. Shahadat Hossain	SAE (OPN)	
32.	Masud Rana	AE (OPN)	Masud Rana
33.	Foysal	Tech (Elec)	
34.	[illegible]	[illegible]	[illegible]
35.	Sima Khatun	O/A	Sima
36.	[illegible]	[illegible]	[illegible]
37.	[illegible]	[illegible]	[illegible]
38.	~~Foysal Md. Shariful Islam~~	~~TEC (MMO)~~	~~[illegible]~~
39.	Md. Suman Mia	SAE (Solar)	Suman
40.	Md. Rubel Hossen	AE (7.6MW Solar)	Rubel
41.	Md. Ismail Hossen	SAE (7.6MW Solar)	Ismail
42.	Md. Shahadan Hossen	SDE (V-2) EMD	
43.	Abdul Kader Mirza	Tech. (T&C)	
44.	Md. Kamrul Haque	Foreman MMD-2	[illegible]
45.	Md. Mashiur Rahman	welder	
46.	S.A. Mukul	FITTER	
47.	Md. Nakib Hasan	W/A	[illegible]
48.	Md Nazmul Islam	Tech. M V-2	[illegible]
49.	Md Sakibul Hasan	JAM (Chemical)	
50.	M. Alamin	JAM (Chemical)	
51.	Md. Azmainur Rahman	JAM (Chemical)	
52.	Md. A.B. Rasel	Foreman EMD	Arasel
53.	Md. Siddik Hosen	W/A	Siddik
54.	Md. Rabiul Islam Rubel	SAE (Solar)	

Signature of facilitator:
Date:

ANNEX-G: Greenhouse Gas Emissions

Green House gas Emission Report for Operational Phase of Sirajganj 225 MW CCPP (Duel Fuel-2nd Unit)

[01 January-2024 to 31 December-2024]

The Kyoto Protocol – United Nations Framework Convention on Climate Change nominates the following GHGs:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous Oxide (N_2O);
- Hydrofluorocarbons (HFCs); and
- Perfluorocarbons (PFCs).

Inventories of GHG emissions can be calculated using published emission factors. Different gases have different greenhouse warming effects (referred to as warming potentials) and emission factors consider the global warming potentials of the gases created during combustion. Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO_2e). Gases are converted to CO_2e by multiplying by the gas global warming potential (GWP). The GWP of gases are as follows[2]:

- GWP for CO_2 = 1
- GWP for CH_4 = 21
- GWP for N_2O = 310

When the global warming potentials are applied to the estimated emissions then the resulting estimate is referred in terms of CO_2-equivalent (CO2e) emissions.

GHG Estimation and Impact

The combustion of natural gas produces GHGs. The amount of GHGs emitted by a power plant is a measure of its contribution to global warming and can be estimated based on fuel consumption. In order to estimate GHG emissions, the IFC recommended Carbon Emission Estimation Tool (CEET model – Version February 2014)[3] has been used as set out below. The quantification of the GHG emission is from January 2024 to December 2024.

Table 1*: Estimated GHG Emissions from the Plant (In Natural Gas)*

SL	Particular	Value	Unit
A*	Net Heat Rate (Natural Gas in Combined Cycle)	7931.59	KJ/KWH
B*	Gross Generation Capacity (Combined Cycle)	228500	KW
C	Operating Days per year	98.16	days
D	Daily Operating Hours	24	Hours/day
E	Total Annual Output (B X C X D)	415162890.90	KWH
F	Annual Fuel Consumption (= E x A)	3292903560212.57	KJ
		32929.0356	TJ
G*	Annual GHG Emission in Gas Turbine	1878634	tCO2e/year

** Based on natural gas specification provided by NWPGCL*

[2] Source: Intergovernmental Panel on Climate Change (IPCC) (1995), Second Assessment Report
[3] http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/CB_Home/Measuring+Reporting/

Table 2*: Estimated GHG Emissions from the Plant (In HSD):NA during this reporting period.*

SL	Particular	Value	Unit
A*	Net Heat Rate (Natural Gas in Combined Cycle)	0.00	KJ/KWH
B*	Gross Generation Capacity (Combined Cycle)	228500	KW
C	Operating Days per year	0.00	days
D	Daily Operating Hours	24	Hours/day
E	Total Annual Output (B X C X D)	0	KWH
F	Annual Fuel Consumption (= E x A)	0.00	KJ
		0	TJ
G*	Annual GHG Emission in Diesel	0	tCO_2e/year

For Scope 1:

GHG Emission = (Natural Gas+HSD) tCO2/year

GHG Emission = (1878634+0) tCO_2/year

= 18,78,634 tCO_2/year

For Scope 2:

Fuel consumption from Diesel 4409.62 liters. Therefore, GHG Emissions from Scope 2 is given below.

GHG Emissions= 12 tCO_2/year

Total GHG Emissions for Scope 1 and Scope 2

Total GHG Emissions= (Scope 1+Scope 2) tCO_2/year

Total GHG Emissions= (18,78,634+12) tCO_2/year

=18,78,646 tCO_2/year

So, from January 2024 to December 2024, the annual emission of GHG from the Unit 2 is about 18,78,646 tCO2/year.

ANNEX-H: Updated ESAP & CS

S. No.	Elements	Gaps	Recommendation	Timeline	Deliverables	Frequency	Responsibility	Status upto Feb 2018	Status upto Jan 2019	Status uptoJan, 2020	Status upto Jan 2021	Status upto Jan 2023	Status upto Jan 2024	Status upto Jan 2025
1	Environment and Social Management System (ESMS) and Policy	A formal EHS and Social policy at company level and dedicated ESMS for the Sirajganj complex has not been formulated by NWPGCL.	(a) Formulate a company level Environment, Health & Safety and Social policy statement duly endorsed by senior management of NWPGCL and communicated.	CP to first utilization	EHSS Policy by senior management	One time	NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(b) Submission of annual compliance certificate	Continuous Monitoring	Annual Compliance Certificate	Annual	NWPGCL Management	Submitted to SCB on February 2017 & November 2017	Continuous ANNEX J	Annex J	Annex J	Annex J	Annex J	Annex J
			(c) Develop an Environment and Social Management System for whole site (considering operational Unit 1, proposed Unit 2 and other Planned Units). This should also include Stakeholder engagement plan, supply chain and grievance redress procedure. ESMS should also have elements pertaining to human resources management for direct and indirect employees for the project life cycle.	CP to first utilization	ESMS with all the procedures to the satisfaction of E&S Advisor of the investor (s)	One time	NWPGCL Management /Consultant appointed by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(d)Legal Register to be developed for the entire Sirajganj Complex (as part of ESMS)	CP to first utilization	Legal Register is a part of the ESMS being developed	One time	NWPGCL Management / Consultant appointed by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(d) Organisation structure to include deployment of dedicated EHS and Social officer during the construction and operation phase. The compliance requirements to HR policies and procedures to be part of contract documents of contractor including compliance with accommodation standards.	CP to first utilization	Organogram for EHS & Social Management before contract sign with formal consent of EPC Contractor	One time	NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(e) Procedure for monitoring, review and reporting to be developed.	CP to first utilization	Procedure development Implementation is conitionous	Monthly Internal Audits	NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(f) GHG emissions disclousre	Continous Monitoring	Report GHG emissions from the facility	Annual	NWPGCL Management	NWPGCL declaire possible GHG emission during operational phase in ESIA report.	Submitted in AMR (Jan 2019) and ANNEX G	Submitted in AMR (Jan 2020) and ANNEX G	Submitted in AMR(Jan, 2021) & Annex G	Submitted in AMR(Jan, 2023) & Annex G	Submitted in AMR (Jan 2024) & Annex G	Submitted in AMR (Jan 2024) & Annex G

			(g)Engage a suitably qualified independent consultant to help develop and implement the ESMS.	CP to first utilization	Appointment letter of consultant	One time	NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
2	Identification of Risks and Impacts	ESIA Report needs to be updated to incorporate the following elements - HAZOP for plant equipments and utilities - Job Safety Analysis and Risk assessment - Social Baseline information - Updation of baseline and impacts of Jetty on Jamuna Eco Park	(a) Obtain prior permission from the Bangladesh Bridge authority before starting any up gradation works of Jetty.	CS	Before jetty upgradation	One time	NWPGCL Management	Done at August 2016 and document has been shared with SCB	Done	Done	Done	Done	Done	Done
			(b) The baseline conditions updation for of the Jamuna Eco Park, social baseline with land use map of the project site covering 5 km around the site.	CP prior to first utilization	Updated ESIA Report	One time	NWPGCL Management / EAL engaged by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(c) HAZOP for plant equipment and utilities to be included	CP prior to first utilization	HAZOP - will be a part of updated ESIA	One time	NWPGCL Management / EAL engaged by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(d) Job Safety Analysis and Risk assessment procedure to be included	CP to first utilization	JSA/HIRA for plant to be covered in the updated ESIA	One time	NWPGCL Management / EAL engaged by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(e) ESIA to include air quality dispersion modelling and water balance (considering emissions from Sirajganj 1 and 2)	CP prior to first utilization	Updated ESIA Report	One time	NWPGCL Management / EAL engaged by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(f) ESIA to include Environmental Management Plans for construction and opertaions phase includinging the following - - Traffic Safety Management Plan - Security Policy - Construction Labour Management Plan - Stakeholder Engagement Plan	CP prior to first utilization	Updated ESIA Report	One time	NWPGCL Management / EAL engaged by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(g)Environment and Social Management Plan to be developed based on the risks and impacts for Jetty upgradation	CS	Develop ESMP for within 60 days before Jetty upgradation	One time	NWPGCL Management / EAL engaged by NWPGCL Management	It has been done and report has been shared in June 2016 with SCB	Done	Done	Done	Done	Done	Done

3	Occupational Health and Safety	NWPGCL has not developed occupational health and safety procedures for construction and operation phase for compliance to legal requirements, IFC performance standards and World Bank EHS and Thermal Power Sector guidelines. Emergency response procedures has not been developed and implemented.	As part of the ESMS develop a comprehensive occupational health and safety procedures in line with applicable regulations and World Bank EHS Guidelines, for operation and construction phase of the project and ensure compliance.	CP to first utilization	Develop procedures in one month and implement throughout the project life cycle Emergency Preparedness to be developed as a part of the ESMS	One time	NWPGCL Management / Consultant appointed by NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
4	Environment Management	Environment management procedures for the construction and operation phase have not been developed.	(a) Ensure Contractor formulate an intensive environment monitoring programme during construction and operation phase of the project comprising of frequency of monitoring permitting comparison with the General Worldbank/IFC Environmental, Health and Safety Guidelines und EHS Guidelines for Thermal Power Plants.	CP to first utilization	Develop Procedure and formally communicated and agreed by EPC contractor	One time	NWPGCL	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(b) Install pollution control facilities during construction and operation phase of the project.	Continuous Monitoring	Implementation during construction and operation phase	Continous	NWPGCL and Contractor	During Construction phase, all kind of EMP measurement has been taken	Done	Done	Done	Done	Done	Done
			(c) Environmental Monitoring Programme to be developed	CS - 60 days to first utilization	Development of environmental monitoring plan to the satisfaction of the E&S advisor of the investors	One time	NWPGCL and Contractor	CMC has been following Environmental Monitoring Plan as per ESIA report	Now NWPGCL has been following Environmental Monitoring Plan as per ESIA report (Operational Phase)	Now NWPGCL has been following Environmental Monitoring Plan as per ESIA report (Operational Phase)	Following Environmental Monitoring Plan as per ESIA report (Operational Phase)	Following Environmental Monitoring Plan as per ESIA report (Operational Phase)	Following Environmental Monitoring Plan as per ESIA report (Operational Phase)	Following Environmental Monitoring Plan as per ESIA report (Operational Phase)

			(d) Implementation of the programs developed	Continous Monitoring	Implementation during construction and operation phase	Continous	NWPGCL and Contractor	Shared with SCB continuously	AMR, Annual Public and Social Report has been shared with SCB	AMR, Annual Public and Social Report has been shared with SCB	AMR, Annual Public and Social Report has been shared with SCB	AMR, Annual Public and Social Report has been shared with SCB	AMR, Annual Public and Social Report has been shared with SCB	AMR, Annual Public and Social Report has been shared with SCB
			(e) Identify DoE approved vendors and starts initiate signing an agreement with them for disposal of oily sludge to the vendors.	CS -Within 60 days of first utilization	Contract with the vendors	One time	NWPGCL	Done and shared with SCB on February 2016	Done	Done	Done	Done	Done	Done
			(f) Inventorize hazardous materials to be used during construction and operation of the project.	CS -Within 60 days of first utilization	Inventorisation and risk assessment	One time	NWPGCL	Done and shared with SCB on December 2016	Done	Done	Done	Done	Done	Done
			(f) Adequate labels, secondary containment and spill response kit should be provided wherever the hazardous material (HAZMAT) is used and workers should be trained to respond to accidental spills and emergencies due to hazardous material.	CP to first utilization	Development of HAZMAT procedure as part of ESMS and implement	One time	NWPGCL	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
5	Community Health and Safety	Studies for identification of community health and safety impacts, ensuring infrastructure design and safety and offsite emergency management has not been identified and implemented.	(a) Adequate studies for existing and proposed infrastructure, design and equipments should be undertaken by engaging a third party consultant should be undertaken.	CS - 60 days to first utilization	Infrastructure design and safety report by engaging third party	One time	NWPGCL Management		Done	Done	Done	Done	Done	Done
			(b) Offsite emergency preparedness plan should be developed.	CP to first utilization	Offsite Emergency preparedness and response plan to the satisfaction of Investor E&S Advisor	One time	NWPGCL Management	It has already been done before Financial Closing	Done	Done	Done	Done	Done	Done
			(c) Assist and collaborate with the potentially affected Communities (see Performance Standard 4) and the local government agencies in their preparations to respond effectively to emergency situations.	Continous Monitoring		Annual	NWPGCL Management	Done	Continuous ANNEX B	Annex B	Annex B	Annex B	Annex B	Annex B
			(d) Document emergency preparedness and response activities, resources, and responsibilities, and should provide appropriate information to potentially affected Community and relevant government agencies.	Continous Monitoring	Emergency preparedness and response Plan and its implementation to the satisfaction of Investor E&S Advisor	Continous	NWPGCL Management	Done	Continuous ANNEX B	Annex B	Annex B	Annex B	Annex B	Annex B

ANNEX-I: Development Effectiveness Indicators

"শেখ হাসিনার উদ্যোগ, ঘরে ঘরে বিদ্যুৎ"
নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোম্পানি লিমিটেড
NORTH-WEST POWER GENERATION COMPANY LIMITED
ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified
(An Enterprise of Bangladesh Power Development Board)
ইউটিটিসি ভবন, (লেভেল ৩ ও ৪), ৩৮ পায়রাপথ, কাওরান বাজার, ঢাকা-১২১৫।
Phone : 48122117-18, e-mail : info@nwpgcl.gov.bd, web : www.nwpgcl.gov.bd

Memo No. 27.28.0000.300.99.001.21.182 Date: 23/09/2024

Sirajganj 225 MW Combined Cycle Power Plant Project (2nd Unit-Dual Fuel)

Development Effectiveness Indicators

Section One: General Indicators

Key Impact Area	Result	Indicator	Status
Financial Performance	Return to all capital Providers	Financial rate of return	1.95% (From July, 2023 to June, 2024)
Economic Performance	Employment	Percentage of Female Employment (%)	Female Employee: 36 Percentage: 4.1% (Up to June, 2024)
	Employment	Temporary jobs during construction; permanent jobs	Total Employee:880 Permanent Employee: 860 Temporary Employee: 20 (Up to June, 2024)
	Contribution to government	Taxes and Fees (US$/year)	USD 29,556,351 (From July, 2023 to June, 2024)
Environmental and Social Performance	Improved E&S conditions	E&S Management Systems: (y/n)	Yes
Private Sector Development	Supports for domestic businesses	Purchases from domestic suppliers (US$/year)	USD 120,497,240 (From July, 2023 to June, 2024)

Definitions

Taxes and Fees: All transfers to all levels of the government made by the Project Enterprise or its parent on its behalf, including: income or profit taxes, sales, and excise taxes, and VAT receipts. Other payments collected by the government include royalties, bonuses, dividends, management/concession fees, share of profit, licensing, permitting, etc. Specific subsidies to the Project Enterprise should be deducted.

E&S Management Systems: The indicator refers to the Project Enterprise's E&S Management System ("ESMS") and tracks whether the Project Enterprise is compliant with MIGA's Performance Standard 1 and has an ESMS active and in place.

Purchases from domestic suppliers: The annual purchase of goods and services of the Project Enterprise from local suppliers (including raw materials, civil works, engineering and installation, security, gardening, cleaning, and marketing and research from local companies). This will exclude utility bills, government-provided services and imports handled through a local facilitating agent.

Direct Employment: Total number of employees working directly for the Project Enterprise as of the end of its fiscal year. The unit of account is a permanent full-time equivalent paid job. To be treated as permanent, the job should have a life expectancy of at least one year at the time of forecast. Part-time jobs are converted to full-time equivalent jobs on a pro rata basis with anything over 30 hours/week treated as full time. If the information is not available the rule-of-thumb is two part-time jobs equal a full-time job. Seasonal jobs are incidental to the operation. However, if the Investment Project relies heavily on seasonal jobs, as in the tourism sector for example, they should be included on a pro rata basis, a 3-month job becoming 0.25 of a full-time equivalent job (i.e., 4 jobs for 3 months equals one job on an annual basis).

Female Employment: Total female employment as a percentage of total employees in the Project Enterprise. This is a sub category of employment and so definition of total direct employment as described above should be used in this calculation. Subcontractor employment should not be reported.

Section Two: Sector - Specific Indicators

Power Produced	294.35 GWhs (July, 2023 to June, 2024)
Improved Occupational Health and Safety	No Injury
Minimize Green House Gas Emission	148,926 tCO_2 equivalent (July, 2023 to June, 2024)
Water efficiency	(During operations 2,401,588 m^3 consumed/ unit of production for S2 & S3) (July, 2023 to June, 2024)

23/04/2024

Mashuda Parvin
Deputy General Manager (EHS)
NWPGCL, Dhaka

23/04/2024

Engr. Md. Saiful Islam
Chief Engineer
Planning and Design, Corporate Office
NWPGCL, Dhaka

ANNEX-J: Compliance Certificate

নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোম্পানি লিমিটেড
NORTH-WEST POWER GENERATION COMPANY LIMITED
ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified
(An Enterprise of Bangladesh Power Development Board)
[illegible]
Phone : 48122117-18, e-mail : info@nwpgcl.gov.bd, web : www.nwpgcl.gov.bd

Memo No. 27.28.0000.300.99.001.21.016 Date: 19/01/2025

CERTIFICATE OF COMPLIANCE

To: Standard Chartered Bank- as Intercreditor Agent

From: North-West Power Generation Company Ltd- as Borrower

Dear Sirs,

North-West Power Generation Company Limited–Common Terms Agreement dated 27-Octber, 2015 (the "Common Terms Agreement")

1. We refer to the Common Terms Agreement. This is a Compliance Certificate. Terms defined in the Common Terms Agreement have the same meaning as used in the Compliance Certificate unless given a different meaning.

2. On the basis of Annual Environmental and Social Audit, Environment, Health and Safety (EHS) condition has been improved. We confirm that EHS condition will be improved continuously in future.

19.01.2025
(Mashuda Parvin)
Deputy General Manager (EHS),
Corporate Office
North-West Power Generation Co. Ltd

19/01/2025
(Engr. Md. Saiful Islam)
Chief Engineer
Planning & Design, Corporate Office
North-West Power Generation Co. Ltd

ANNUAL ENVIRONMENTAL MONITORING REPORT OF SIRAJGANJ 225 MW COMBINED CYCLE POWER PLANT (2ND UNIT-DUAL FUEL), BANGLADESH

FEBRUARY 2024-JANUARY 2025

DRAFT FINAL

Operation Stage

ELRC

DOCUMENT DETAILS

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Date	13 January 2025
Author	Environmental Laboratory and Research Center (ELRC)
Client Name	North-West Power Generation Company Limited (NWPGCL)
Country	Bangladesh

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Version	Date	Description
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Prepared by,

Name: Amit Kumar Saha
Title: Consultant, Environmental Laboratory and Research Center (ELRC)

Review & Approved by,

Md. Jahidul Islam
Senior Consultant, Environmental Laboratory and Research Center (ELRC)

Environmental Laboratory and Research Center (ELRC)

Office Adress:

Flat #F1, House # Ta-134/A

Baishakhi Sarani, Gulshan-Badda

Link Road, Dhaka-1212, Bangladesh

EXECUTIVE SUMMARY

The project is a dual fuel-based Combined Cycle Power Plant (CCPP), which is operated predominantly by Natural Gas (NG) but has also the provision of High-Speed Diesel (HSD) in case of emergency and non-availability of NG. The natural gas required for the Plant is 35 MMCFD and the Pashchimanchal Gas Company Limited (PGCL) has been supplied natural gas at a pressure of 500 psi through a 1.7 Km long and 16-inch diameter pipeline from its existing valve station to the PGCL RMS, which is to be constructed. From this RMS a 12-inch line has been extended up to the Power Plant's RMS (to be constructed inside the Plant's boundary) at a pressure of 350 psi. Liquid fuel (HSD) requirement is estimated to be about 920 m^3/day at 80% PF. The oil has been supplied by Bangladesh Petroleum Corporation (BPC) from its Daulathpur and/or Khulna depot by railway wagons to Bangabandhu Bridge (Satu) West Railway Station and stored in the HSD tanks in the Plant. A variety of environmental and social criteria are used for environmental and social monitoring while the power plant is operating. Around the plant area, monitoring is done on a monthly, quarterly, biannual and annual basis while taking important social and environmental factors into consideration. The primary goal of the monitoring is to identify common guidelines and methods for maintaining important environmental and social aspects by preventing and controlling environmental pollution and the management of nuisance brought on by the operation of the Power Plant in accordance with the terms of the contract and employer's requirements. The environmental and social implications of the power plant are addressed by the national Acts, Policies, Strategies and Regulatory Frameworks. We also aim to briefly discuss the World Bank and International Finance Corporation's environmental, health and social safety guidelines and the performance standards on environmental and social sustainability framework to complement, as applicable, the Bangladesh national policies and guidelines. The investigation was conducted using correct methodology and a number of criteria were used to compare the data. During the quarterly monitoring period, the parameters include ambient air quality, ambient and occupational noise level monitoring, wastewater, stormwater, surface, groundwater, drinking water analysis and social and health safety monitoring. All environmental and social aspects are explored and presented separately in this report, including comparisons to the standard. During the monitoring period, no serious environmental, health, or safety issues were found, according to the site monitoring. As a result, all facilities have been enhanced and assured in order to create an environmentally sound workplace. Additionally, mitigation measures have been implemented in order to advance the power plant while protecting the environment and ensuring the health and safety of the workforce.

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ABBREVIATIONS AND ACRONYMS

AQ	Air Quality
BMD	Bangladesh Meteorological Department
BPC	Bangladesh Petroleum Corporation
BPDB	Bangladesh Power Development Board
BOD	Biological Oxygen Demand
CCPP	Combined Cycle Power Plant
CETP	Central Effluent Treatment Plant
COD	Chemical Oxygen Demand
DGPS	Differential Global Positioning System
DO	Dissolve Oxygen
DoE	Department of Environment
EC	Electrical Conductivity
ECA	Environment Conservation Act /Ecological Critical Area
ECC	Environmental Clearance Certificate
ECR	Environment Conservation Rules
EMP	Environmental Management Plan
EMF	Electromagnetic Field
GDP	Gross Domestic Product
GTG	Gas Turbine Generator
HRSG	Heat Recovering Steam Generator
HP	High Pressure
HSD	High Speed Diesel
IFC	International Finance Corporation
KV	Kilo Volt
KWh	Kilo Watt-hour

LP	Low Pressure
MoA	Ministry of Agriculture
MoEF	Ministry of Environment and Forestry
MoFL	Ministry of Fisheries and Livestock
MoPEMR	Ministry of Power, Energy and Mineral Resources
MoWR	Ministry of Water Resources
NEMAP	National Environmental Management Action Plan
NEP	National Environmental Policy
NG	Natural Gas
NOx	Oxides of Nitrogen
NWPGCL	North-West Power Generation Company Limited
PPM	Parts Per Million
PGCL	Pashchimanchal Gas Company Limited
PSMP	Power System Master Plan
RMS	Regulating Metering Station
SOx	Oxides of Sulfur
SPM	Suspended Particulate Matter
SPS	Sirajganj Power Station
STG	Steam Turbo Generator
TC	Total Coliform
TDS	Total Dissolved Solid
WTP	Water Treatment Plant

1 CHAPTER 1: INTRODUCTION

1.1 Background

Power is the main driving force of current progress and the foundation of the growth rate. The Power System Master Plan (PSMP) 2016, sponsored by Japan International Cooperation Agency (JICA), aims at assisting the Bangladesh in formulating an extensive energy and power development plan up to the year 2041, covering energy balance, power balance and tariff strategies. Bangladesh has an aspiration to become a high-income country by 2041. The development of energy and power infrastructure therefore pursues not only the quantity but also the quality to realize the long-term economic development. With the consistency of economic development, a secure power system would be necessary. The government has further expanded its vision focusing on the coming years up to 2041 and arranged the Power System Master Plan 2016 (PSMP). This plan expresses that in 2020, 2030 and 2041, the power demand would be 12545 MW, 27434 MW and 52034 MW where the power supply would be 12949 MW, 30178 MW and 57238 MW. Based on the future economic growth, fuel, demand and supply, international cooperation, a new Power System Master Plan 2016 have been finalized Power System Master Plan (PSMP) 2016, aims at assisting Bangladesh in formulating extensive energy and power development plan up to the year 2041, covering energy balance, power balance and tariff strategies. As per PSMP 2016, achieving middle to long term development issues and risks and formulate a comprehensive and result-oriented aid strategy for the energy sector by examining effective approaches for each issue. Considering fuel gas & High-Speed Diesel (HSD) supply facilities in the area, the North-West Power Generation Company Limited (NWPGCL), an enterprise of the Ministry of Power, Energy and Mineral Resources (MoPEMR) in line with the Government's Power Sector Master Plan of 2016, has planned to enhance the electricity generation by constructing a new Combined Cycle Power Plant (CCPP), 2nd and 3rd unit at Soydabad Sirajganj.

As per the definition of the Environment Conservation Rules (ECR), 1997 of Bangladesh, the proposed project falls under the "Red" Category Project. Hence, for the fulfillment of the condition required under this Category, an Environmental Impact Assessment (EIA) study has been carried out to assess the impacts of this Project, propose mitigation measures and its implementation plan (Environmental Management Plan). NWPGCL has engaged Engineers Associates Limited (EAL), an experienced firm for such activities, for the preparation of EIA for the project following the Terms of Reference. Engineers Associates Limited (EAL) has conducted an EIA study and submitted the EIA report to DoE on May 11, 2014, for DoE approval. Finally, DoE has issued a Letter for Approval of EIA on July 16, 2014. NWPGCL is seeking financial assistance from Standard Chartered Bank (hereinafter referred to as „SCB or „Bank or the „Lenders). AECOM India has been engaged by NWPGCL as independent auditors for carrying out the Environmental and Social Due Diligence of the project. The due diligence report is to be prepared following the International Finance Corporations Sustainability Framework 2012 (IFC) and its Performance Standards (PS) on Social and Environmental Sustainability to assess the compliance of the Project and the ability of the Project to comply with the requirements of the suggested reference framework.

1.2 Environmental and Social Monitoring

Environmental and social monitoring during the operation stage of the power plant is comprised of a bunch of environmental and social parameters. The monitoring is conducted following the period of monthly, quarterly, biannually and yearly basis around the plant area with considering environmental vital aspects as well as social parameters. The monitoring task is conducted with the following proper methodology comprehensively. Environmental Laboratory and Research Center (ELRC) is the

responsible organization for monitoring and compiling reports in due time in cooperation with the NWPGCL.

1.3 The Objectives of Monitoring

The main objective of the monitoring is to identify standard guidelines and approaches to preserve key environmental and social aspects by preventing and controlling environmental pollution and the management of nuisance, resulting from the operation of the Power Plant following the conditions of contract and employer's requirements. The objectives of monitoring are listed below-

- To detect any disruption of environment according to national / project standard
- To identify the impact sources due to power plant operation
- To evaluate the qualitative and quantitative activities during operation
- To mitigate the identified impacts and promote best environmental on-site practices during the operation phase.

1.4 Methodology for Preparation of The Report

This monitoring report is prepared to encompass the following approach to ensure all measures necessary to be included in this report are addressed comprehensively:

- Review of approved EIA reports
- Review of operation method statements
- Review of project implementation schedules
- Review of the baseline study
- Consultation with relevant authorities for issues of concern

1.5 EHSS Policy of NWPGCL

North-West Power Generation Co. Ltd. (NWPGCL) is committed to environmentally sound and socially responsible practices in all its business pursuits. NWPGCL continually strives for a better environment and social performance in its project life cycle by providing a safe and healthy work environment along with cordial relations with the community we work with. To ensure this, NWPGCL is committed to:

- Identify and manage risks as low as reasonably practicable where they have the potential to cause an injury or ill health to people, or unacceptable impacts on the environment or the community.
- Commit to prevention of Pollution and provide safe workplaces and systems of work, empower employees, contractors and other stakeholders to address unsafe situations and carry out their work in a manner that does not present a risk to themselves, others, or the environment.
- Set objectives, targets and plans which seek to improve performance in Environment, Health, Safety and Social (EHSS) aspects.
- Provide organizational and institutional arrangements for the management of the environment and social issues.
- Ensure compliance with applicable national EHSS legal requirements and other international best EHSS practices.
- Require contractors and other stakeholders to manage EHSS using standards and practices that comply with this policy and guidelines.
- Social up-liftmen and social safety.
- Periodic Review and report EHSS performance regularly.

The entire line management is responsible for establishing and overviewing NWPGCL's commitment to managing the Environmental Health & Safety and Social aspect following this policy and monitoring the performance of the company concerning its implementation. The Management of NWPGCL is responsible for the implementation of the EHSS Management System to ensure that the commitments made in this policy are being met.

2 CHAPTER 2: PROJECT DESCRIPTION

2.1 Brief Description

The project site is located at about 15 km south-east of Sirajganj town, about 130 km north-west of Dhaka and 1.8 km south-west from the western end of Bangabandhu bridge. Subsequently, NWPGCL had applied for getting the land of 17.5 acres (10 acres for Sirajganj 225 MW CCPP 2nd Unit and 7.5 acres for Sirajganj 225 MW CCPP 3rd Unit) leased from BPDB as per the decision of GoB to establish the said power plants in the Sirajganj Generation Hub. The major components include a 150 MW gas turbo generator (GTG) with a bypass stack of 60 meters high, one horizontal type Heat Recovering Steam Generator (HRSG) with the main stack of 60 meters high for outdoor installation and a heavy-duty condensing type Steam Turbo Generator (STG) for indoor installation in the configuration of 1:1:1, feedwater pumps, condensate extraction pumps, cooling towers, 230 KV plant sub-station, transformers, Gas Regulating Metering Station (RMS), Oil Separator Unit, Water Treatment Plant (WTP), Administration building, workshop, warehouse, guardhouses, internal roads etc.

The project is a dual fuel-based Combined Cycle Power Plant (CCPP), which has been operated predominantly by Natural Gas (NG) but has also the provision of High-Speed Diesel (HSD) in case of emergency and non-availability of NG. The natural gas required for the Plant is 35 MMCFD and the Pashchimanchal Gas Company Limited (PGCL) has supplied natural gas at a pressure of 500 psi through a 1.7 Km long and 16-inch diameter pipeline from its existing valve station to the PGCL RMS, which is to be constructed. From this RMS a 12-inch line will be extended up to the Power Plant's RMS (to be constructed inside the Plant's boundary) at a pressure of 350 psi. Liquid fuel (HSD) requirement is estimated to be about 920 m3/day at 80% PF. The oil has been supplied by Bangladesh Petroleum Corporation (BPC) from its Daulathpur and/or Khulna depot by railway wagons to Bangabandhu Bridge (Satu) West Railway Station and stored in the HSD tanks in the Plant.

The hot flue gas that is produced in the combustor will then be directed to the GTG, where it expands, loses pressure and temperature and causes the GTG to spin and generate about 150 MW of power. The hot exhaust gas of GTG will pass through the HRSG and main stack to the atmosphere. The HRSG in turn will generate High Pressure (HP), Intermediate Pressure (IP) and Low Pressure (LP) steam that will be directed to the STG, which would, in turn, generate 75 MW of power, thus totaling the Plant output to 225 MW. The generated power of GTG and STG will be stepped up to grid voltage level (11/230 KV) by station transformers (240 MVA for GT and 120 MVA for ST) and fed to the national grid, via underground cables (Sirajganj sub-station), through the Plant sub-station.

Total water demand for Units 1, 2 & 3 is 1400 m^3/h, with the third Unit requiring 400 m^3/h as per the feasibility Report. There is a provision for the fourth Unit to be constructed beside the third Unit. These units altogether have been raised the water requirement to 2550 m^3/h. Water requirement for Plant construction and operation are fulfilled from groundwater and it was reported from the feasibility study that the maximum allowable withdrawal of groundwater is 3,200 m^3/h without causing the conspicuous problem in the groundwater table of the SPS area (EAL, 2014 and SDCPL, 2015). The major air pollutants that are produced from the power generating units due to the burning of fossil fuels are SO_X, NO_X, CO_2, CO and SPM. Major sources of contaminated water from the proposed power plant are blowdowns of HRSG, cooling tower, backwash and rejects of the water treatment plant, oily water from turbine floor and transformer area etc.

2.2 Importance of the Project

At present total installed electricity generation capacity is 25,235 MW with 92.2% of the population of the country has the access to electricity. The Ministry of Power, Energy and Mineral Resources (MoPEMR) has forecasted that the increase in power demand in response to the desired economic growth of the country, will reach 34,000 MW by 2040. The Power System Master Plan (PSMP) also projected some scenarios of power demand concerning different GDP growth rates. All these variable projections are depicted in Figure 2-1.

To address the conflict between increasing power demand and prevailing shortage, BPDB has adopted a power generation enhancement plan till 2041 which is in line with the PSMP, 2016. The summary of the plan to increase power generation is depicted in Table 2-1. The plan includes different initiatives to generate additional electricity by diversifying fuel, rehabilitating age-old power plants and importing electricity from neighboring countries. The Sirajganj 225 MW CCPP Project is one of such steps for contributing to meeting the growing demand.

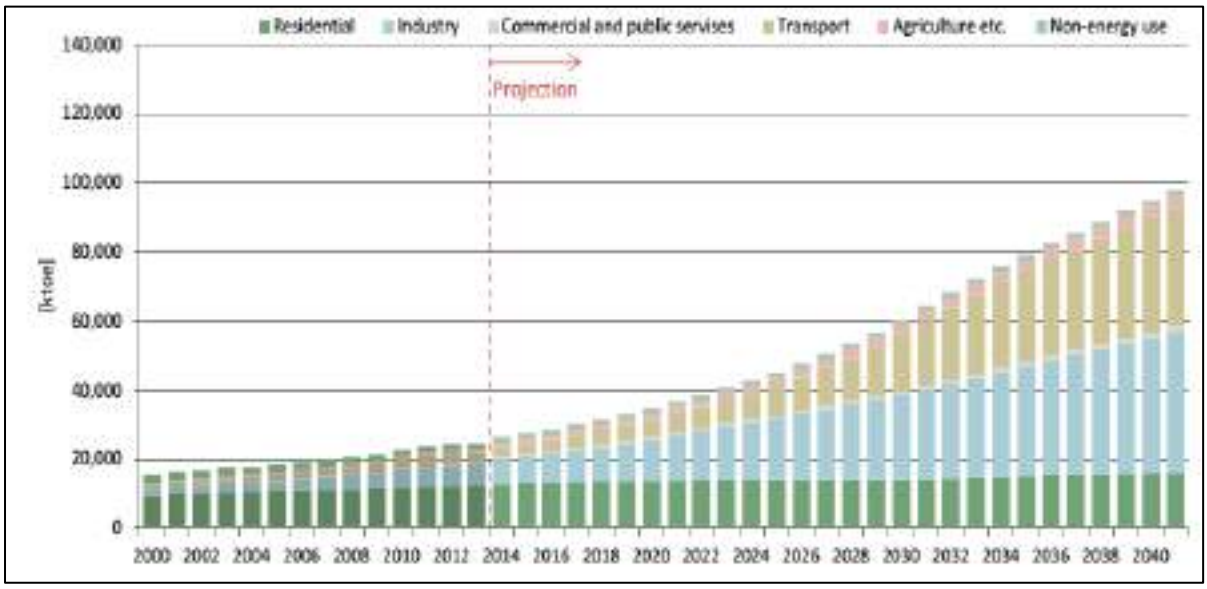

Figure 2-1: Projection of Final Energy Consumption (Energy Efficiency Scenario)[1]

Table 2-1: Power Generation Enhancement Plan[2]

Sl. No.	Type	2019	2020	2021	2022	2023
1.	Public (MW)	1463	1953	2217	870	2890
2.	Private (MW)	2090	553	0	1142	1490
3.	Import (MW)	---	---	---	---	---
4.	Total	3553	2506	2557	4308	4308

2.3 Potential Major Benefits

The power Plant will trigger regional development, creation of employment opportunities and thereafter improvement of livelihood. The power plant may also bring social and economic development to the region through infrastructural improvement, reducing energy shortfall, rural electrification and industrial (power loom) development. The communication network will also be improved significantly and will increase livelihood opportunities during the operation period. Finally, the project would improve

1 Source: PSMP 2016

2 Glimpses of Bangladesh Power Sector 2019

Environmental Performance by providing a means of effluent treatment of existing units; thus, significantly reducing the discharging of effluents in the canal around the site connected to the Jamuna River.

3 CHAPTER 3: LEGAL REQUIREMENTS

3.1 Policies

The national Acts, Policies, strategies and regulatory frameworks are relevant to the environmental and social aspects of the Project. We also aim to briefly discuss the World Bank and International Finance Corporation's environmental, health and social safety guidelines and the performance standards on environmental and social sustainability framework to complement, as applicable, the Bangladesh national policies and guidelines.

The Performance Standards on Environmental and Social Sustainability framework of IFC (January 1, 2012) outlines "IFC's commitments, roles and responsibilities related to environmental and social sustainability and its commitment to transparency and good governance including its disclosure obligations concerning its investment and advisory services. The "performance standards" that are defined in the document are to assist implementation of the project sustainably through stakeholders' engagement to avoid risk and mitigate the unavoidable, as appropriate. Eight performance standards have been outlined in this document; they are:

- Assessment and Management of Environmental and Social Risks and Impacts
- Labor and Working Conditions
- Resource Efficiency and Pollution Prevention
- Community Health, Safety and Security
- Land Acquisition and Involuntary Resettlement
- Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Indigenous Peoples
- Cultural Heritage

The Equator Principles is "a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making". The Equator Principles are a voluntary set of standards that are developed to support the implementation of environmental and social policies and the principles are outlined under 10 headings as noted under:

- Review and Categorization.
- Environmental and Social Assessment.
- Applicable Environmental and Social Standards.
- Environmental and Social Management System and Equator Principles Action Plan.
- Stakeholder Engagement.
- Grievance Mechanism.
- Independent Review.
- Covenants.
- Independent Monitoring and Reporting and
- Reporting and Transparency.

3.2 Environmental Standards

3.2.1 Ambient Air Quality

According to the Air Pollution (control) rules, 2022, the National Ambient Air Quality Standards and International Standards (IFC/WHO) has been depicted in Table 3-1.

Table 3-1: Ambient Air Quality Standards/ Guidelines

Sl. No.	Parameter	Bangladesh*		IFC/WHO**	
		24 hourlies (µg/m^3)	Annual(µg/m^3)	24 hourlies (µg/m^3)	Annual(µg/m^3)
1.	SPM*	-	-	-	-
2.	PM_{10}	150	50	50	20
3.	$PM_{2.5}$	65	35	25(guideline)	10
4.	SO_2	80	-	20	-
5.	NO_X	80	40	-	40
6.	CO*	5	-	-	-

*Note: CO hand SPM concentrations and standards are 8-hourly only; *The Bangladesh National Ambient Air Quality Standards have been taken from the Air Pollution (control) rules, 2022 **WHO Ambient Air Quality Guideline Values (2005 and 2000), which are also being referred in the World Bank and IFC's General EHS Guidelines (2007). Represents the standard values applicable to the Project; NO_X in Bangladesh National Ambient Air Quality Standards to be reported as NO_2.*

As per the WB/IFC General EHS guidelines, ambient air quality results need to be compared with the relevant ambient air quality guidelines and standards by applying national legislated standards, or in their absence, the current WHO air quality guidelines, or other internationally recognized sources, such as the United States National Ambient Air Quality Standards and the relevant European Council Directives. Since Bangladesh has its own national ambient air quality standards, these local standards are considered as the applicable standard for the project.

3.2.2 Ground/Drinking Water Quality

According to ECR 2023, Schedule 2(B), the standard for drinking water has been depicted in Table 3-2.

Table 3-2: Bangladesh Standards for Ground/Drinking Water

Sl. No.	Parameter	Unit	Bangladesh Standards*
1.	pH	-	6.5-8.5
2.	Arsenic (As)	mg/L	0.05
3.	Total Dissolved Solid (TDS)	mg/L	1000
4.	Electrical Conductivity (EC)	mg/L	-
5.	Total Coliform (TC)	N/100mL	0
6.	Total Hardness	mg/L	500
7.	Chlorine (Cl)	mg/L	-
8.	Fluoride (F)	mg/L	1.0
9.	Iron (Fe)	mg/L	0.3-1
10.	Manganese (Mn)	mg/L	0.4
11.	Phosphate (PO4)	mg/L	-
12.	Sulphate (SO4)	mg/L	250

Source: ECR 2023, Schedule 2(B), Bangladesh.

3.2.3 Surface Water Quality

According to ECR 2023, Schedule 2(A), the standard for surface water has been depicted in Table 3-3.

Table 3-3: Bangladesh Standard for Inland Surface Water

Parameter	Unit	Analysis Methods	*Standard
pH	-	Ion Electrode method	6 - 9
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Gravimetric Method followed by Gravimetric Analysis	-
Total Residual Chlorine	mg/l	Standard method 4500-Cl B. Iodometric Method.	-
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	-
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	1000
Chemical Oxygen Demand (COD)	mg/l	Adaptation of the USEPA 410.4 approved method	50
Biological Oxygen Demand (BOD)	mg/l	5 days Incubation	6 or less
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrozide method	0.05
Iron (Fe)	mg/l	EPA Phenanthroline method 315 B	-
Calcium (Ca)	mg/l	Oxalate Method	-
Zinc (Zn)	mg/l	Zincon Method	-
Lead (Pb)	mg/l	APHA - P3500-Pb Lead	0.1
Cadmium (Cd)	mg/l	3500-Cd Cadmium	-
Mercury (Hg)	mg/l	Amalgamation (ORP/A) Method	0.004
Arsenic (As)	mg/l	Modified Gutzeit Method	-
Total Alkalinity	mg/l	Colorimetric Method	-
Ammonium Nitrogen	mg/l	Adaptation of ASTM D 1426-92 method	-
Free Ammonia	mg/l	Adaptation of ASTM D 1426-92 method	-
Temperature	^{0}C	Ion electrode method	-

Source: According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries); BOD = Biological Oxygen Demand, mg/l = Milligram per Liter, pH = Negative decimal logarithm of the hydrogen ion activity in a solution; Notes: In water used for pisciculture, maximum limit of ammonia presence as Nitrogen is 1.2 mg/l.; Electrical conductivity for irrigation water – 2250 µhoms/cm (at a temperature of 25°C); Sodium less than 26%; boron less than 0.2%.

3.2.4 Wastewater Quality

According to ECR 2023, Schedule 4, the standard for wastewater from industrial units or projects has been depicted in Table 3-4.

Table 3-4: Wastewater Quality

Parameter	Unit	Analysis Methods	*Standard
Temperature	°C	Ion Electrode method	<5oC than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	-
pH	-	Ion Electrode method	6-9

Parameter	Unit	Analysis Methods	*Standard
Total Coliform (TC)	N/100ml	Membrane Filtration Method	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	-
Total Nitrogen (N)	mg/l	Chromotropic acid	-
Total Phosphorus (P)	mg/l	Amino Acid Method	8
Arsenic (As)	mg/l	Modified Gutzeit Method	0.2
Zinc (Zn)	mg/l	Zincon Method	5
Chromium (Cr)	mg/l	Turbidimetric Method	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	3
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	1
Total Suspended Solid	mg/l	Standard Methods (2005), 2540D	100
Total Dissolved Solid (TDS)	mg/l	Ion Electrode method	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	200
Biological Oxygen Demand	mg/l	5 days Incubation	30

Notes: These standards shall apply to all industries or projects other than those specified under the heading "Standards for sector-wise industrial effluent or emission." Compliance with these standards shall be ensured from the moment an industrial unit starts trial production and in other cases, from the moment a project starts operation. These standards shall be inviolable even in case of any sample collected instantly at any point in time. These standards may be enforced more stringently if considered necessary because of the environmental conditions of a particular situation. Inland Surface Water means drains/ponds/tanks/water bodies/ ditches, canals, rivers, springs and estuaries. Public sewerage system means treatment facilities of the first and second stages and the combined and complete treatment facilities. Irrigable land means such land area which is sufficiently irrigated by wastewater taking into consideration the quantity and quality of such water for cultivation of selected crops on that land. Inland Surface Water Standards shall apply to any discharge to a public sewerage system or land if the discharge does not meet the requirements of the definitions in notes 5 and 6 above.

3.2.5 Ambient and Occupational Noise Level

According to Ministry of Environment, Forest and Climate Change. (2006). Noise Pollution (Control) Rules, 2006 (S.R.O. No. 212-Law/2006). The People's Republic of Bangladesh. Table 3-5.

Table 3-5: Ambient Noise Level Standards/ Guidelines

Sl. No.	Category of Area/Receptor	Bangladesh*		IFC-WHO**	
		Day (dB(A)) 6 AM – 9 PM	Night (dB(A)) 9 PM – 6 AM	Day (dB(A)) 7 AM – 10 PM	Night (dB(A)) 10 PM – 7 AM
1.	Silent Zone	50	40	55	45
2.	Residential Area	55	45	55	45
3.	Mixed Area	60	50	-	-
4.	Commercial Area	70	60	70	70
5.	Industrial Area	75	70	70	70

*Note: * Ministry of Environment, Forest and Climate Change. (2006). Noise Pollution (Control) Rules, 2006 (S.R.O. No. 212-Law/2006). The People's Republic of Bangladesh.; **Guidelines values are for noise levels measured out of doors. Source:*

Guidelines for Community Noise, World Health Organization (WHO), 1999; As per IFC EHS noise level guidelines, Noise impacts should not exceed the levels presented in the above table.

4 CHAPTER 4: METHODOLOGY

4.1 Ambient Air Quality Monitoring

The existing ambient air quality of the study area will be monitored during the operation period of the power plant. The ambient status of major air pollutants viz. Particulate Matter (SPM, PM_{10} and $PM_{2.5}$), Gaseous substances (NO_x, SO_2 and CO) will be assessed. Air quality sampling will be conducted for 24 hours. Haz-Scanner (HIM 6000) will be used to monitor the ambient air quality. The particulate and gaseous samples will be monitored and analysed as per the procedures specified in Table 4-1.

Table 4-1: Methodology for the Analysis of Ambient Air Quality.

Sl. No.	Parameters	Analysis Procedure
1.	SPM	Particulates Sensor Light Scattering Nephotometer
2.	PM_{10}	Particulates Sensor Light Scattering Nephotometer
3.	$PM_{2.5}$	Particulates Sensor Light Scattering Nephotometer
4.	SO_2	High Sensitivity Electrochemical
5.	NO_X	High Sensitivity Electrochemical
6.	CO	High Sensitivity Electrochemical
7.	O_3	High Sensitivity Electrochemical

Sources: Information Taken from ELRC Laboratory

Air quality monitoring samples will be monitored for a defined time interval and from different monitoring points within plant areas. Ambient air quality monitoring time and interval from one point to another point and conversion factor are specified in Table 4-2.

Table 4-2: Air Sample Collection Time and Data Converted Time

Sl. No.	Parameters	Sample Collection time (Hr.)	Compared Standardized Time (Hr.) according to Air Pollution Control Rules, 2022.
1.	SPM	24	8
2.	PM_{10}	24	24
3.	$PM_{2.5}$	24	24
4.	SO_2	24	24
5.	NO_x	24	24
6.	CO	24	8
7.	O_3	24	8

Sources: Information Taken from ELRC Laboratory

4.1.1 Air Quality Data Conversion Formula

Air quality data will be taken for 24 hours and this data will be converted to 8 hours for SPM, CO and O3 to compare with the Air Pollution Control Rules 2022.

The data of the air quality will be converted into standard time by using the following equation:

$$\mathbf{Clong = Cshort\ (tshort / tlong)^{p}}$$

Where,

Clong = is the expected value in the standard time

Cshort = is the measured value at the field level in a specific period

tshort = Period (converted into minutes from an hour) in the field level

tlong = Standard period (converted into minutes from an hour)

p = is the exponential factor.

4.2 Ambient and Occupational Noise Level Monitoring

The ambient noise level will be measured within the plant area 24 hours a daytime and nighttime in every location. One Noise data logger sound level meter (Teckoplus, Model: SLM25K) will be used to collect the ambient noise levels. After getting all the noise data it will be downloaded to a computer. The noise meter will be settled in a tripod and kept 2-3 m away from the sources. The only sensitive area will be covered. The noise level will be analyzed according to the methodology and compared with the Noise Pollution Control Rules, 2006. The SLM will be oriented towards the facility of interest for each measurement taken. The SLM will be calibrated before the noise monitoring survey is carried out. The sound level will be recorded in form of A-weighted equivalent continuous sound pressure level (L_{Aeq}) values with the use of A-weighting filters in the noise measuring instrument. Then noise level data will be analyzed to L_{Aeqday}, $L_{Aeqnight}$, L_{Amax} and L_{Amin}.

The occupational noise level will be monitored in the plant boundary with considering the indoor environment for 8 hours in a specific location. One Noise data logger sound level meter (Teckoplus, Model: SLM25K) will be used to collect the occupational noise levels. After getting all the noise data it will be downloaded to a computer. The noise meter will be settled in a tripod and kept 1 m away from the machinery or source for achieving real-time occupational noise pollution. The only machinery will be covered. The SLM will be calibrated before the noise monitoring survey is carried out. The sound level will be recorded in form of A-weighted equivalent continuous sound pressure level (L_{Aeq}) values with the use of A-weighting filters in the noise measuring instrument.

4.3 Water Sampling

Water samples will be collected from the sources in the plant area. Water samples will be collected in a standard sampling bottle and 250 ml sterilized clean PET bottle for complete physio-chemical and bacteriological tests respectively. The samples will be analyzed as per standard procedure/method given in Standard Method for Examination of Water and Wastewater Edition 20, published by APHA as well as using an on-site field test kit. The ground/drinking, surface/waste/stormwater analysis method and protocol are presented in the following tables.

Table 4-3: Analysis Method for Ground Water Samples

Sl. No.	Parameters	Unit	Analysis Method
1.	Arsenic (As)	mg/L	Modified Gutzeit Method
2.	Biochemical Oxygen Demand (BOD)	mg/L	5 Days Incubation
3.	Calcium (Ca)	mg/L	Colorimetric Method
4.	Chloride (Cl^-)	mg/L	Hg (II) Thiocyanate Method
5.	Chemical Oxygen Demand (COD)	mg/L	Closed Reflux Method
6.	Dissolved Oxygen (DO)	mg/L	Hanna Combo Meter
7.	Electrical Conductivity (EC)	µS/cm	Hanna Combo Meter
8.	Iron (Fe)	mg/L	Phenanthroline Method
9.	pH	--	Hanna Combo Meter

Sl. No.	Parameters	Unit	Analysis Method
10.	Phosphate (PO_4^{3-})	mg/L	Amino Acid Method
11.	Salinity	ppt	Hanna Combo Meter
12.	Sulphate (SO_4^{2-})	mg/L	Turbidimetric Method
13.	Hardness	mg/L	Colorimetric Method
14.	Total Dissolved Solid (TDS)	mg/L	Hanna Combo Meter
15.	Temperature (T)	°C	Hanna Combo Meter
16.	Silica (SiO_2)	mg/L	UV-VIS
17.	Lead (Pb)	mg/L	AAS
18.	Nitrogen (N)	mg/L	UV-VIS

Sources: Information Taken from ELRC Laboratory

Table 4-4: Analysis Method for Surface Water/Storm Water/Wastewater Samples

Sl. No.	Parameters	Unit	Analysis Method
1.	Alkalinity	mg/L	Colorimetric Method
2.	Arsenic	mg/L	Modified Gutzeit Method
3.	Biochemical Oxygen Demand (BOD)	mg/L	5 days Incubation
4.	Chemical Oxygen Demand (COD)	mg/L	Closed Reflux Method
5.	Dissolved Oxygen (DO)	mg/L	Hanna Combo Meter
6.	Calcium (Ca)	mg/L	Colorimetric Method
7.	Chloride (Cl^-)	mg/L	Hg (II) Thiocyanate Method
8.	Electrical Conductivity (EC)	µS/cm	Hanna Combo Meter
9.	Iron (Fe)	mg/L	Phenanthroline Method
10.	Magnesium (Mg)	mg/L	Calmagite Method
11.	pH	--	Hanna Combo Meter
12.	Phosphate (PO_4^{3-})	mg/L	Amino Acid Method
13.	Potassium (K)	mg/L	Turbidimetric Method
14.	Salinity	ppt	Hanna Combo Meter
15.	Sulphate (SO_4^{2-})	mg/L	Turbidimetric Method
16.	Temperature (T)	°C	Hanna Combo Meter
17.	Hardness	mg/L	Colorimetric Method
18.	Total Dissolved Solid (TDS)	mg/L	Hanna Combo Meter
19.	Sodium (Na)	mg/L	AAS
20.	Turbidity	NTU	Turbidity Meter
21.	Oil and Grease	mg/L	APHA 5520.B
22.	Nitrogen (N)	mg/L	UV-VIS
23.	Lead (Pb)	mg/L	AAS

Sources: Information Taken from ELRC Laboratory

4.4 Soil Sampling

The samples will be analyzed for parameters covering physio-chemical characteristics which include certain heavy metals and trace elements. Soil samples will be collected with a 500 mg sterilized clean PET jar to complete physio-chemical tests. The samples will be analyzed as per standard procedure/method given in Standard Method for Examination of Soil Experiment Edition, published by USGS and APHA. Details of the analysis method and protocol are presented in Table 4-5.

Table 4-5: Methods for Soil Sample Analysis

Sl. No.	Parameters	Unit	Analysis Method
1.	Electrical Conductivity (EC)	dS/m	EC Meter
2.	Bulk Density	g/cm^3	Combo Meter
3.	pH	-	pH Meter
4.	Organic Content	%	Combo Meter
5.	Calcium (Ca)	mg/kg	Ammonium Acetate Method
6.	Magnesium (Mg)	mg/kg	Ascorbic Acid Method
7.	Potassium (K)	mg/kg	Ammonium Acetate Method
8.	Sodium (Na)	meq/100g	Jackson Turbidimetric Method
9.	Nitrogen (N)	mg/kg	Jackson Turbidimetric Method
10.	Phosphorus (P)	mg/kg	Ascorbic Acid Method
11.	Sulfur (S)	mg/kg	Jackson Turbidimetric Method
12.	Boron (B)	mg/kg	Jackson Turbidimetric Method
13.	Copper (Cu)	mg/kg	Atomic Absorption Spectrometer
14.	Iron (Fe)	mg/kg	Atomic Absorption Spectrometer
15.	Manganese (Mn)	mg/kg	Atomic Absorption Spectrometer
16.	Zinc (Zn)	mg/kg	Atomic Absorption Spectrometer
17.	Lead (Pb)	mg/kg	Atomic Absorption Spectrometer
18.	Cadmium (Cd)	mg/kg	Atomic Absorption Spectrometer
19.	Arsenic (As)	mg/kg	Jackson Turbidimetric Method
20.	Mercury (Hg)	mg/kg	Atomic Absorption Spectrometer

Sources: Information Taken from ELRC Laboratory

4.5 Electro-Magnetic Field Monitoring

The Electro-Magnetic Field (EMF) in the plant area will be monitored by using an EMF meter for 2 hours. One EMF meter will be used to collect the EMF levels. After getting all the EMF data it will be downloaded to a computer. The EMF meter will be settled in a tripod and kept 0 m, 3 m, 5m and 10m away from the sources respectively. The only switchyard area will be covered. The EMF will be analyzed according to the proper methodology and compared with the standard of ICNIRP. The EMF meter will be calibrated before the monitoring carrying out. The EMF will be recorded in form of mv/m equivalent continuous magnetic fluctuation.

4.6 Environmental Health Safety and Social Monitoring

Environmental Health Safety and Social Monitoring will be conducted during the operation period depending on the EIA review, DoE guidelines and baseline review. Almost all the Environmental Health

Safety and Social Monitoring parameters will be considered during the monitoring period. The methodology of Environmental Health Safety and Social Monitoring is presented in Table 4-6.

Table 4-6: Environmental Health Safety and Social Monitoring Method

Sl. No.	Parameters	Methodology
1.	Stack Emission Monitoring	Stack emission data will be collected from NWPGCL and compiled in the quarterly and yearly report
2.	Leak Detection	Leak detection checklists and data will be collected from NWPGCL and compiled in the quarterly and yearly report
3.	Meteorology	The meteorology data will be collected from NWPGCL every month and compiled in the quarterly and yearly report
4.	Wastes Generation and Management	Visual inspection with pictorial evidence will be maintained from the starting of the plant operation till the end. Besides all documents will be oriented in the quarterly and yearly based report.
5.	Worker Health	Health inspection or checkup reports will be collected from the health unit of NWPGCL every quarter and year
6.	Labor and Working Conditions	Visual observation and pictorial evidence will be kept of working conditions, potable water supply and hygiene toilets every quarter and every year
7.	Emergency Response Plan	Upgradation, update and modification of the ERP will be collected from the NWPGCL
8.	Health and Safety Preparedness	Upgradation, update and modification of the HSP will be collected from the NWPGCL
9.	Community Relationship	FGD with the local community every quarter to inspect the community relationship with the plant
10.	Grievance Mechanism	Visual inspection with pictorial evidence will be maintained from the starting of the plant operation till the end. Besides all documents will be oriented in the quarterly and yearly based report.
11.	CSR Program	FGD with local community and documentation from the NWPGCL

5 CHAPTER 5: MONITORING RESULTS AND DISCUSSION

Ambient air quality, ambient and occupational noise level monitoring, wastewater, stormwater, surface, groundwater, drinking water analysis, social and health safety monitoring are the things included as the parameters during the monitoring period. All the environmental and social issues are separately discussed and described in this section with comparing to the standard.

5.1 Physical Environment

According to the baseline study of the project and scope specifications, physical environmental monitoring has been included the stack emission, ambient air quality, ambient noise level, leak detection of the pipeline, meteorological status, wastewater, stormwater, surface water and groundwater sampling, monitoring, analyzing and evaluating. This section of the report contains physically monitoring data orientation and discussion.

5.1.1 Stack Emission Monitoring

Stack emission monitoring result has been observed from the EHS cell. Normally, in this part, all the CEMS data of Unit 2 has been checked. In this yearly period, stack emission data from February 2024 to December 2024 were available. From the observation from February 2024 to December 2024, the average NO_X was ranging from 16.05 to 57.75 mg/m^3 last year. As per the Bangladesh standard, the range of NO_X is 200 mg/m^3 (as per Schedule 5 Air Pollution Control Rules 2022). The average CO concentration from the stack of unit 2 has been ranging from 1.65 mg/m^3 to 30.05 mg/m^3. The maximum CO concentration has been observed in December 2024. The average CO_2 concentration from the stack of unit 2 has been found to range from 1.01% to 3.43%. Maximum average CO_2 concentration has been found in June 2024. The average stack emission data are presented in Table 5-1 and detailed stack emission (CEMS) data are presented in **Annex D** for more clarification.

Table 5-1: Average Stack Emission from the Power Plant

Sl. No.	Parameters	Unit	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24
1.	**NOx**	mg/m^3	0.00	0.00	0.00	16.05	16.99	53.9	0.00	0.00	0.00	57.23	57.75
2.	**CO**	mg/m^3	0.00	0.00	0.00	1.65	1.99	19.5	0.00	0.00	0.00	24.5	30.05
3.	**CO_2**	%	0.00	0.00	0.00	2.95	3.43	1.01	0.00	0.00	0.00	1.75	1.95
4.	**SO_2**	mg/m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources: CEMS Data from EHS Cell

5.1.2 Ambient Air Quality

5.1.2.1 Locations

The objective of the surrounding air quality observing system was to set up the standard encompassing air quality in the study area. The profile of the plant is mainly rural on the north-western and Jamuna River on the eastern side. The major sources of air pollution noted within the study area include vehicular movement and machinery emissions apart from the plant. Ambient air quality has been monitored in plant activities. The location details are as follows in Table 5-2. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-1**.

Table 5-2: Ambient Air Quality Monitoring Locations

Sl. No.	Code	Monitoring Locations	GPS Coordinate	February-April 2024		May-July 2024		August-October 2024		Nov. 2024-January 2025	
				Date	Time	Date	Time	Date	Time	Date	Time
1.	AAQ1	Plant Premises	24°23'8.04"N 89°44'44.77"E	17.03.2024	09:15 AM	23.06.2024	09:30 AM	14.09.2024	09:30 AM	17.12.2024	09:10 AM
2.	AAQ2	In front of Main Gate	24°23'15.09"N 89°44'33.94"E	18.03.2024	03:30 PM	24.06.2024	02:40 PM	15.09.2024	10:45 AM	18.12.2024	10:25 AM
3.	AAQ3	Rehabilitation Village	24°23'39.31"N 89°44'16.81"E	18.03.2024	09:40 AM	24.06.2024	09:35 AM	15.09.2024	10:00 AM	18.12.2024	09:30 AM
4.	AAQ4	Kader House (Ponchosona Village)	24°23'19.47"N 89°44'24.50"E	19.03.2024	03:10 PM	25.06.2024	03:10 PM	16.09.2024	09:20 AM	19.12.2024	10:10 AM
5.	AAQ5	Bangabandhu Eco Park	24°23'58.16"N 89°44'50.71"E	19.03.2024	09:20 AM	25.06.2024	09:35 AM	16.09.2024	09:40 AM	19.12.2024	02:40 PM

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.1.2.2 Results and Discussion

Sampling was done in 24 hours. Among all the parameters of ambient air SPM, CO and O_3 had been converted for 8 hours and the rest of the parameters were calculated on a 24-hourly basis. Both particulate and gaseous samples had been analyzed as per the proper procedures. Analysis results of every location are briefly mentioned in the following sections.

5.1.2.3 Summary findings of in-house air quality monitoring

The ambient air quality has been monitored on the last year basis on a monitoring period during the operation period of Unit 2. This monitoring result shows that, during the dry season in March & December 2024, there appears to be a high concentration of certain parameters. During this monitoring year all the parameters concentration are found within the standard compared with Air Pollution (control) rules, 2022.

Table 5-3: Summary findings of in-house air quality monitoring

Location	Ambient Air Pollutants' Concentration in µg/m3																							
	SPM				PM10				PM2.5				SO2				NO2				CO				O3			
	Mar 24	June 24	Sep 24	Dec 24	Mar 24	June 24	Sep 24	Dec 24	Mar 24	June 24	Sep 24	Dec 24	Mar 24	June 24	Sep 24	Dec 24	Mar 24	June 24	Sep 24	Dec 24	Mar 24	June 24	Sep 24	Dec 24	Mar 24	June 24	Sep 24	Dec 24
AQ-1	116.72	88.5	101.2	142.6	77.13	53.3	61.3	83.9	40.13	26.4	29.7	47.8	18.53	12.6	14.4	14.2	20.68	15.7	17.8	18.4	0.04	0.04	0.04	0.05	13.1	10.2	11.3	14.7
AQ-2	123.19	93.8	95.1	134.2	83.53	58.8	58.3	80.6	43.44	31.7	27.5	43.2	21.83	15.7	12.5	13.6	24.1	17.3	15.6	17.8	0.04	0.04	0.03	0.04	14.7	12.9	12.5	13.5
AQ-3	106.25	78.9	82.9	130.8	70.25	49.7	50.5	78.2	38.16	21.3	22.6	37.1	17.52	11.7	10.4	14.1	19.76	12.8	13.9	16.7	0.03	0.03	0.02	0.04	12.8	9.7	9.3	13.7
AQ-4	108.58	91.8	96.3	134.5	78.63	56.4	58.1	82.8	41.38	29.8	27.5	39.6	12.81	10.4	11.9	12.4	15.66	14.3	14.6	16.2	0.03	0.03	0.03	0.03	11.6	11.4	10.6	13.1
AQ-5	105.1	65.2	73.4	118.5	70.72	32.8	42.4	77.1	37.8	20.4	21.7	31.7	10.3	10.7	10.1	13.8	13.9	13.7	14.8	15.1	0.03	0.03	0.02	0.04	10.3	10.4	9.5	12.5
Air Pollution (control) rules, 2022*	-				150				65				80				80				5				100			
IFC/WHO Standard	-				50				25				20				40 (Annual)				-				100			

Note: Legend: SPM -Suspended Particulate Matter, PM10 -Particulate Matter of a diameter of 10 micron or less, PM2.5 -Particulate Matter of a diameter of 2.5 micron or less, SO2 -Sulphur Di-Oxide, NOx -Oxides of Nitrogen, CO - Carbon Monoxide, O3 - Ozone

5.1.3 Ambient Noise Level

5.1.3.1 Locations

Ambient noise levels were recorded at thirteen locations in the study area during last year's monitoring period. Noise levels were recorded in the form of sound pressure levels using three different digital sound level meters at the same time. Detail list of noise level monitoring locations is given in Table 5-4. Noise levels were measured at every location at different times. The sound level was recorded in form of A-weighted equivalent continuous sound pressure level (Leq) values with the use of A-weighting filters in the noise measuring instrument. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-2**.

Table 5-4: Ambient Noise Level Monitoring Locations

Sl. No.	Code	Location	GPS Coordinate	Category	Date	Time	
						Day	Night
1.	ANL1	South-West Corner of the Plant Premises	24°23'3.44"N 89°44'42.63"E	Industrial Area	17.03.2024	09:18 AM	09:12 PM
					23.06.2024	09:15 AM	09:21 PM
					14.09.2024	09:29 AM	09:14 PM
					17.12.2024	09:07 AM	09:23 PM
2.	ANL2	Southeast Corner of the Plant Premises	24°23'3.38"N 89°44'45.28"E	Industrial Area	17.03.2024	10:18 AM	09:30 PM
					23.06.2024	09:10 AM	09:10 PM
					14.09.2024	10:29 AM	09:26 PM
					17.12.2024	09:30 AM	09:15 PM
3.	ANL3	Middle of the Plant Premises	24°23'6.39"N 89°44'44.54"E	Industrial Area	17.03.2024	09:10 AM	09:10 PM
					23.06.2024	09:10 AM	09:30 PM
					14.09.2024	09:07 AM	09:26 PM
					17.12.2024	09:18 AM	09:22 PM
4.	ANL4	Middle of the Northwest and Southwest	24°23'6.18"N 89°44'42.90"E	Industrial Area	17.03.2024	09:12 AM	09:16 PM
					23.06.2024	09:34 AM	09:34 PM
					14.09.2024	09:25 AM	09:10 PM
					17.12.2024	09:17 AM	09:05 PM
5.	ANL5	Northwest Site	24°23'11.11"N 89°44'42.06"E	Industrial Area	17.03.2024	04:35 PM	09:25 PM
					23.06.2024	04:42 PM	09:35 PM
					14.09.2024	04:28 PM	09:45 PM
					17.12.2024	09:43 AM	09:05 PM
6.	ANL6	Northeast Site	24°23'11.11"N 89°44'44.99"E	Industrial Area	17.03.2024	09:21 AM	09:12 PM
					23.06.2024	09:29 AM	09:32 PM
					14.09.2024	09:25 AM	09:30 PM
					17.12.2024	11:45 AM	09:22 PM
7.	ANL7	Infront of G.T.G Building	24°23'8.63"N 89°44'42.72"E	Industrial Area	17.03.2024	11:24 AM	10:46 PM
					23.06.2024	11:44 AM	10:38 PM
					14.09.2024	11:22 AM	10:37 PM

Sl. No.	Code	Location	GPS Coordinate	Category	Date	Time	
						Day	Night
					17.12.2024	02:42 PM	10:34 PM
8.	ANL8	Infront of S.T.G Building	24°23'8.08"N 89°44'44.81"E	Industrial Area	17.03.2024	12:54 PM	11:39 AM
					23.06.2024	01:16 PM	11:43 AM
					14.09.2024	01:11 PM	11:46 AM
					17.12.2024	03:51 PM	10:52 PM
9.	ANL9	Administration Building (Outdoor)	24°23'11.63"N 89°44'46.14"E	Mixed Area	17.03.2024	03:24 PM	12:12 PM
					23.06.2024	03:23 PM	12:20 PM
					14.09.2024	03:17 PM	12:16 PM
					17.12.2024	05:21 PM	11:52 PM
10.	ANL10	Medical (Indoor)	24°23'11.56"N 89°44'46.58"E	Silent Area	17.03.2024	05:13 PM	09:42 PM
					23.06.2024	05:32 PM	09:47 PM
					14.09.2024	05:34 PM	10:18 PM
					17.12.2024	10:07 AM	09:21 PM
11.	ANL11	Administration Building (Indoor 2nd floor)	24°23'11.92"N 89°44'46.35"E	Mixed Area	17.03.2024	10:31 AM	09:21 PM
					23.06.2024	10:44 AM	09:32 PM
					14.09.2024	10:28 AM	09:43 PM
					17.12.2024	11:39 AM	09:34 PM
12.	ANL12	Residential Building	24°23'14.64"N 89°44'49.46"E	Residential Area	17.03.2024	12:31 PM	10:14 AM
					23.06.2024	12:44 PM	10:28 AM
					14.09.2024	12:10 PM	10:26 AM
					17.12.2024	01:32 PM	10:18 PM
13.	ANL13	Main Gate of the Plant	24°23'15.20"N 89°44'34.20"E	Industrial	17.03.2024	04:21 PM	10:41 PM
					23.06.2024	04:35 PM	10:43 PM
					14.09.2024	03:21 PM	11:51 PM
					17.12.2024	04:15 PM	10:53 PM

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.1.3.2 Results and Discussion

An electronic and auto-recorded noise meter has been used to conduct the study. The recorded noise levels summary monitoring results are discussed in this section.

Table 5-5: Noise Level Monitoring Results from February 2024 – January 2025

Sl. No.	Code	Mar 2024				June 2024				September 2024				December 2024				*Bangladesh Standard		**WHO/IFC Standard	
		Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Day	Night	Day	Night
1.	ANL1	65.2	51.3	71.6	42.2	66.3	52.4	69.1	46.2	65.8	51.4	74.6	45.8	66.4	50.3	74.5	44.6	75	70	70	70
2.	ANL2	68.3	56.1	73.5	44.7	64.6	53.9	71.4	50.6	64.4	52.9	72.9	46.5	65.2	53.7	71.7	50.3	75	70	70	70
3.	ANL3	63.7	52.6	68.5	43.6	65.8	52.1	70.3	48.5	66.7	54.6	71.5	47.3	66.2	55.2	72.5	49.8	75	70	70	70
4.	ANL4	65.2	51.8	69.7	44.7	60.5	52.4	65.6	47.1	62.3	50.5	69.5	45.2	64.1	56.4	70.4	48.9	75	70	70	70
5.	ANL5	58.8	50.3	70.8	42.5	57.4	53.9	63.1	48.7	59.6	51.3	68.8	46.2	58.1	52.6	66.1	47.5	75	70	70	70
6.	ANL6	60.4	49.9	65.2	43.6	54.6	50.8	63.9	45.4	54.2	49.5	62.1	41.3	59.2	50.8	68.2	44.6	75	70	70	70
7.	ANL7	66.4	51.6	70.1	45.5	66.7	60.9	73.3	55.6	67.2	61.6	74.5	56.2	66.3	62.7	73.5	55.9	75	70	70	70
8.	ANL8	67.6	52.5	71.3	44.7	66.2	59.4	72.6	52.5	66.5	59.4	71.4	53.8	62.4	60.1	69.3	54.4	75	70	70	70
9.	ANL9	56.2	50.1	60.6	42.8	54.6	47.3	59.3	42.4	55.7	48.4	64.8	41.2	53.2	49.4	59.3	40.2	60	50	-	-
10.	ANL10	48.1	37.2	53.5	33.6	46.6	44.9	56.4	39.1	47.2	40.5	57.8	36.3	55.2	41.7	65.8	37.2	50	40	55	45
11.	ANL11	49.6	40.8	56.1	37.6	48.6	43.5	55.8	39.6	44.8	35.9	53.2	32.9	51.5	42.8	60.6	33.9	60	50	-	-
12.	ANL12	49.2	37.1	56.6	33.9	45.2	36.5	55.2	33.7	47.2	42.9	56.1	36.4	49.5	39.1	59.4	33.8	55	45	55	45
13.	ANL13	56.5	45.8	61.8	38.2	56.8	51.9	65.2	42.1	54.8	50.2	63.3	42.8	56.8	50.7	64.5	44.1	75	70	70	70

*Note: * According to Noise Pollution (Control) Rules, 2006*

***Guidelines for Community Noise, World Health Organization (WHO), 1999*

According to Noise Pollution (Control) Rules, 2006 categorizations, the current monitoring location falls into Industrial zone (ANL1 – ANL8 and ANL13), mixed zone (ANL9 and ANL11), residential zone (ANL12) and silent zone (ANL10). According to the ambient noise level monitoring for this February 2024 - January 2025, there have been no locations that exceeded the standard of Bangladesh (Noise Pollution Control Rules, 2006). It has been recommended to close the doors and windows of the administration building or other official or residential areas for all time to avoid the inside noise level.

5.1.4 Leak Detection

The pipeline route has been continuously observed by the EHS cell for identifying any leakage or disturbance. During this year regularly and continuously the observation has been conducted for better safety and security. In this report, leak detection data from February 2024 - January 2025 were available. There has been no leak detected in this current monitoring period. The detailed leak detection data are presented in **Annex E** for more clarification.

5.1.5 Meteorological Data

To conceptualize the physical environmental condition of the study area, meteorological data of that area was collected; mainly from the Bangladesh Meteorological Department (BMD) which were synchronized from the nearest stations of Tangail.

5.1.5.1 Temperature

Bogura and Tangail are the two nearest BMD stations from the project site. The analysis of the temperature data of last year (January 2024-December 2024), collected from these BMD stations shows that the monthly variation of average maximum temperature for a whole year is between 34°C to 26°C (Figure 5-1).

Figure 5-1: Yearly Average Temperature in the Project Area (Sirajganj)

5.1.5.2 Rainfall

Monsoon is a prominent season here. The average monthly rainfall during the monsoon season in Sirajganj is 440.3mm and the lowest rainfall recorded is 6 mm in the dry season (Figure 5-2).

Figure 5-2: Yearly Average Rainfall in the Project Area (Sirajganj)

5.1.5.3 Wind Speed and Direction

The maximum yearly wind speed recorded in May 2024 was 33.3 km/h and the lowest in November 2024 was 12.4 km/h (Figure 5-3).

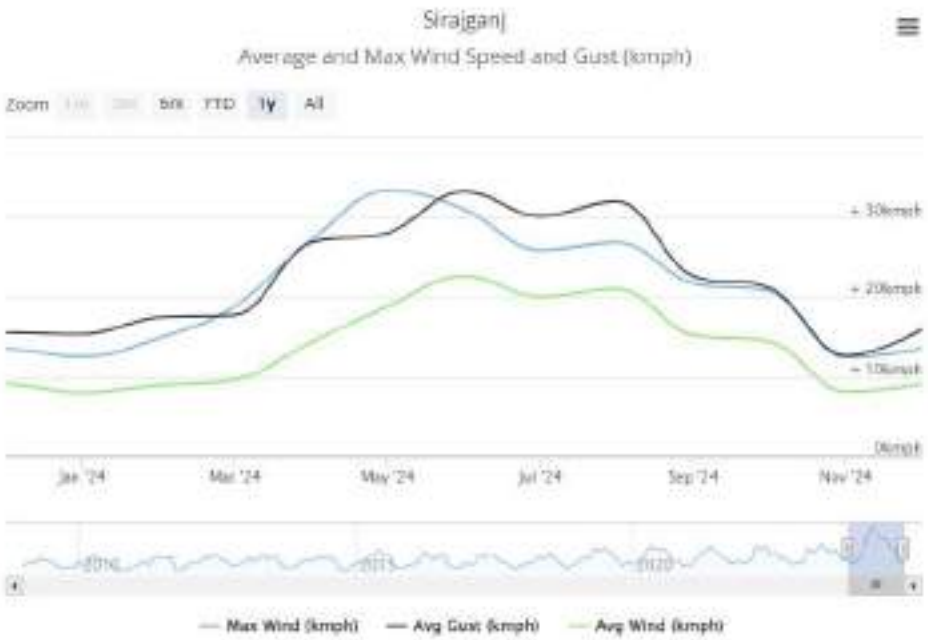

Figure 5-3: Yearly Wind Speed Pattern in the Project Area (Sirajganj)

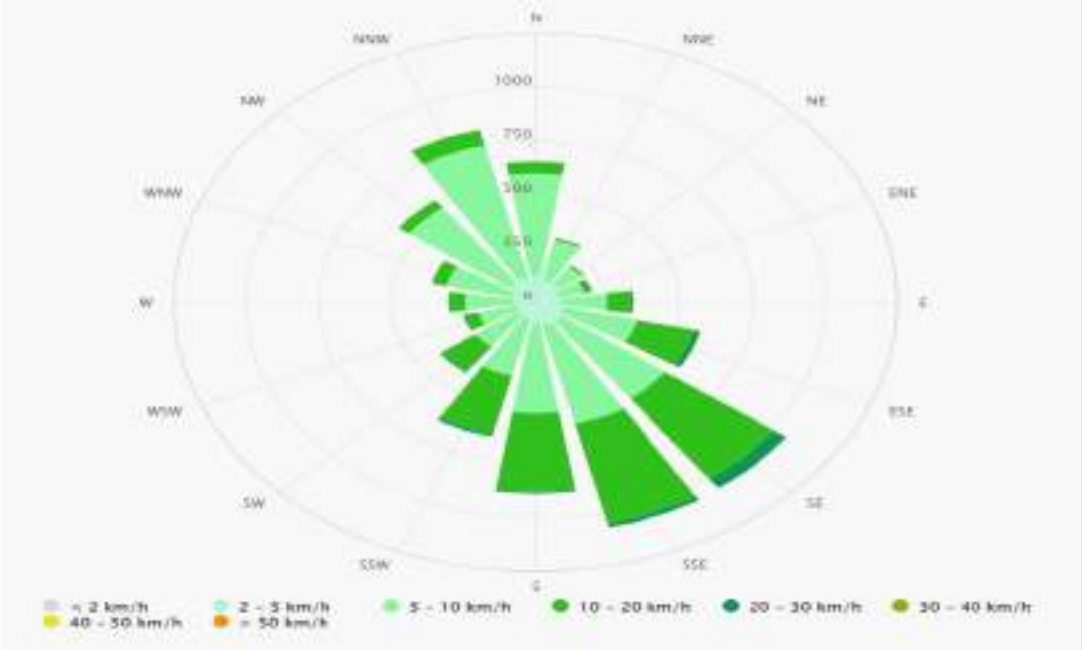

Figure 5-4: Yearly Wind Rose Pattern in the Project Area (Sirajganj)

Besides, the annual average highest wind pressure is January 2024 as 1015.3 mb and the lowest in June 2024 as 999.6 mb (Figure 5-5).

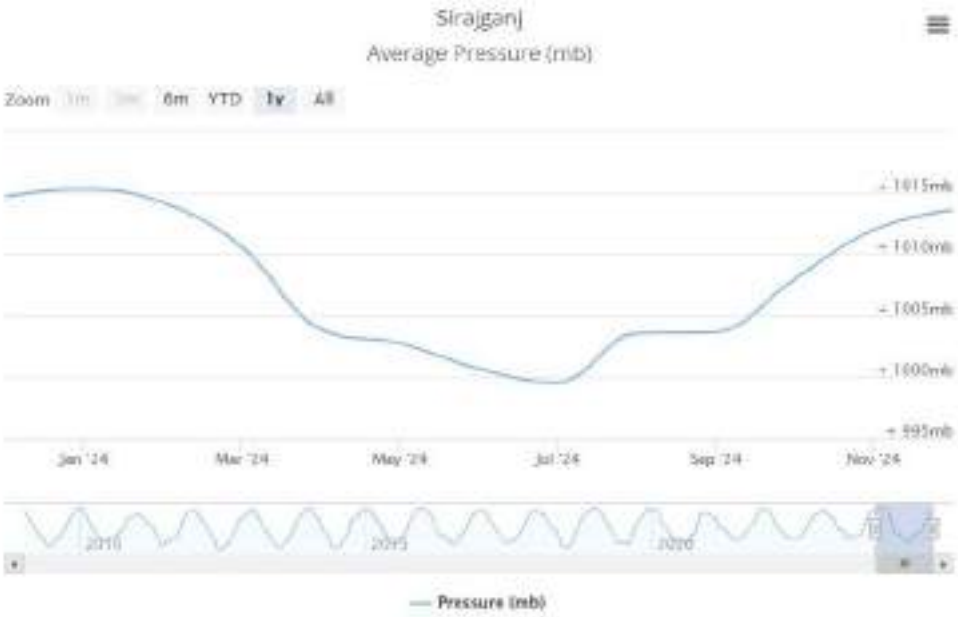

Figure 5-5: Yearly Average Pressure in the Project Area (Sirajganj)

5.1.5.4 Humidity and Cloud Cover

The average highest humidity of the year is shown in August 2024 as 82% and the lowest in April 2024 as 51%. According to the diagram most cloud cover observed in August 2024 as 77% and lowest in April 2024 as 10% (Figure 5-6).

Figure 5-6: Yearly Cloud Cover and Humidity Index in the Project Area (Sirajganj)

5.1.5.5 Sunshine Hours

The average maximum sunshine hour in the project area during the last year was 366 hours in January 2024 with 31 sunny days. (Figure 5-7).

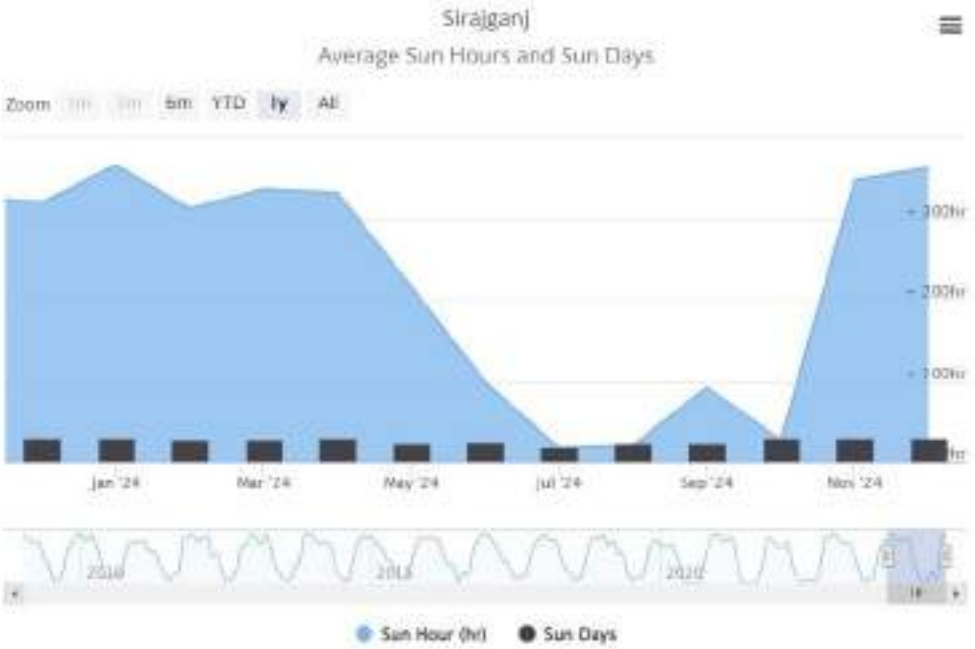

Figure 5-7: Yearly Sundays and Sun Hours in the Project Area (Sirajganj)

According to the diagram, most visibility was 10 km and the UV index ranged from 5 to 7 in the last monitoring year (Figure 5-8).

Figure 5-8: Yearly Average Visibility and UV Index in the Project Area (Sirajganj)

5.1.6 Wastewater Quality

5.1.6.1 Locations

Wastewater sampling and analysis were undertaken to understand the current condition of the water after being treated in the treatment plant. Sample has been taken from the Final discharge channel of Unit-2 & 3. The details of wastewater sampling have given in Table 5-6. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-5.**

Table 5-6: Details of Wastewater Sampling Locations

Sl. No.	Code	Location	GPS Coordinate	Source	Time	Date
1.	WW1	Effluent Discharge Channel	24°23'4.05"N 89°44'46.91"E	Final discharge channel of Unit-2 & 3	09:42 AM	17.03.2024
					09:22 AM	17.04.2024
					09:32 AM	23.06.2024
					10:04 AM	25.07.2024
					09:46 AM	14.09.2024
					09:41 AM	16.10.2024
					09:09 AM	18.11.2024
					09:15 AM	17.12.2024

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.1.6.2 Results and Discussion

In all the months from February 2024 to January 2025, wastewater has been tested for determining the chemical, physical and biological parameters in the plant area. All the tested data has also been compared with the standard and depicted in the following Table 5-7.

Table 5-7: Wastewater Quality Analysis Result

Sl. No.	Parameter	Unit	Concentration								*Standard
			March 2024	April 2024	June 2024	July 2024	September 2024	October 2024	November 2024	December 2024	
1.	Temperature	°C	28.2	27.2	25.4	25.6	25.2	25.4	24.9	25.1	<5oC than the surface water temperature

Sl. No.	Parameter	Unit	Concentration								*Standard
			March 2024	April 2024	June 2024	July 2024	September 2024	October 2024	November 2024	December 2024	
2.	Dissolved Oxygen (DO)	mg/l	4.6	4.7	5.7	5.9	5	5.1	5.4	5.6	-
3.	pH	-	6.8	6.9	6.9	7.1	6.9	7.2	6.7	6.8	6-9
4.	Total Coliform (TC)	N/100ml	28	29	22	25	22	21	24	23	-
5.	Fecal Coliform (FC)	N/100ml	12	14	15	11	13	12	14	16	-
6.	Total Nitrogen (N)	mg/l	13.7	15.6	13.6	14.2	12.3	13.7	13.4	13.7	-
7.	Total Phosphorus (P)	mg/l	3.6	4.1	3.1	3.4	3.2	3.4	3.1	3.2	8
8.	Arsenic (As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.2
9.	Zinc (Zn)	mg/l	0.7	1	1.8	1.4	1.5	1.6	1.8	1.6	5
10.	Chromium (Cr)	mg/l	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5
11.	Copper (Cu)	mg/l	0.05	0.05	0.06	0.05	0.04	0.04	0.03	0.07	3
12.	Electrical Conductivity	µs/cm	380	420	400	290	418	386	450	420	-
13.	Oil and Grease	mg/l	4.1	3.25	3.33	4.16	4.37	4.14	4.12	4.56	10
14.	Total Residual Chlorine	mg/l	0.05	0.06	0.05	0.05	0.05	0.07	0.09	0.05	1
15.	Total Suspended Solid (TSS)	mg/l	48	42	40	39	43	42	38	33	100
16.	Total Dissolved Solid (TDS)	mg/l	191	208	198	144	209	192	223	205	-
17.	Chemical Oxygen Demand (COD)	mg/l	4.4	42	27	28	28	30	24	25	200
18.	Biological Oxygen Demand (BOD)	mg/l	24.1	25.3	23.2	19	23	20	22	25	30

*Note: *According to ECR 2023, Schedule 4*

As per the proposed guideline, Temperature, Dissolved Oxygen (DO), pH, Total Coliform (TC), Fecal Coliform (FC), Total Nitrogen (N), Total Phosphorus (P), Arsenic (As), Zinc (Zn), Chromium (Cr), Copper (Cu), Electrical Conductivity (EC), Oil and Grease (O & G), Total Residual Chlorine, Total Suspended Solid (TSS), Total

Dissolved Solids (TDS), Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD) has been tasted. From the test result of pH, we can see that from February 2024 to January 2025, the pH was within the standard level. Electrical Conductivity was also under standard level this year. The maximum concentration of EC has found in November 2024 which was 450 µs/cm. So, in all the months it was under the standard level. Oil and Grease, Total Residual Cl, TSS, TDS, COD and BOD were not a big concern as in all the months, the concentrations were under the standard. We will also closely monitor the scenario year and mention it in the next yearly report.

5.1.7 Storm Water Quality

5.1.7.1 Locations

The stormwater sample has been collected from the combined discharge channel of Units 2, 3 and 4. The sample has been collected for the whole year. A total of one sample in this year has been collected to check the water quality. Details have given in Table 5-8. Monitoring photographs are attached in **Annex B-6**.

Table 5-8: Details of Storm Water Sampling Locations

Sl. No.	Code	Location	GPS Coordinate	Source	Time	Date
1.	StW1	Discharge Point	24°23'1.55"N 89°44'44.11"E	Surface Water Body	10:12 AM	16.05.2024
2.					11:17 AM	23.06.2024

Source: Annual site visit of ELRC monitoring team in May, June and July 2024

5.1.7.2 Results and Discussion

In the months of May and June 2024, stormwater has been tested for determining the chemical, physical and biological parameters in the plant area. All the tested data has also been compared with the standard and depicted in the following Table 5-9.

Table 5-9: Storm Water Quality Analysis Result

Sl. No.	Parameter	Unit	Concentration		*Standard
			May 2024	June 2024	
1.	Temperature	°C	25.2	24.8	<5^{0}C than the surface water temperature
2.	Dissolved Oxygen (DO)	mg/l	7.6	6.6	-
3.	pH	-	7.4	7.5	6-9
4.	Total Coliform (TC)	N/100ml	21	22	-
5.	Fecal Coliform (FC)	N/100ml	14	10	-

Sl. No.	Parameter	Unit	Concentration		*Standard
			May 2024	June 2024	
6.	Total Nitrogen (N)	mg/l	12.4	8.2	-
7.	Total Phosphorus (P)	mg/l	2.1	2.3	8
8.	Arsenic (As)	mg/l	<0.01	<0.01	0.2
9.	Zinc (Zn)	mg/l	1.3	1.3	5
10.	Chromium (Cr)	mg/l	0.03	0.03	0.5
11.	Copper (Cu)	mg/l	0.02	0.04	3
12.	Electrical Conductivity (EC)	µs/cm	690	710	-
13.	Oil and Grease	mg/l	2.5	2.8	10
14.	Total Residual Chlorine	mg/l	0.04	0.03	1
15.	Total Suspended Solid (TSS)	mg/l	79	88	100
16.	Total Dissolved Solid (TDS)	mg/l	343	358	-
17.	Chemical Oxygen Demand (COD)	mg/l	29	37	200
18.	Biological Oxygen Demand (BOD)	mg/l	10.3	12.3	30

*Note: * According to ECR 2023, Schedule 4*

The concentration levels of Temperature, Dissolved Oxygen (DO), pH, Total Coliform (TC), Fecal Coliform (FC), Total Nitrogen (N), Total Phosphorus (P), Arsenic (As), Zinc (Zn), Chromium (Cr), Copper (Cu), Electrical Conductivity (EC), Oil and Grease (O & G), Total Residual Chlorine, Total Suspended Solid (TSS), Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD) for the stormwater were varied from months to months. So, from the test result, we can see that all of the parameters were under the standard level.

5.1.8 Surface Water Quality

5.1.8.1 Locations

Surface water sample has been collected from 50m distance of the outlet. Normally dry and monsoon seasons need to be covered as per the instructions to find out water quality. So, we have taken and tested the water sample every three months interval for covering the period of monsoon and post-monsoon season. The detail of the sampling has been depicted in Table 5-10. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-3**.

Table 5-10: Details of Surface Water Sampling Locations

Sl. No.	Code	Location	GPS Coordinate	Source	Time	Date
1.	SW1	50m Downstream from Discharge Point	24°23'1.47"N 89°44'44.65"E	Canal	09:30 AM	17.03.2024
					10:10 AM	23.06.2024
					09:15 AM	14.09.2024
					10:35 AM	17.12.2024

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.1.8.2 Results and Discussion

The surface water of the plant area is analyzed depending on the biological and chemical parameters. All the parameters are compared with the standard level. The following Table 5-11 has been presented the surface water analyzed results with comparing to the standard.

Table 5-11: Surface Water Quality Analysis Result

Sl. No.	Parameter	Unit	February-April 2024	May-July 2024	August-October 2024	Nov. 2024-January 2025	*Standard
1.	pH	-	7.6	7.7	7.5	7.3	6.5 - 8.5
2.	Electrical Conductivity (EC)	µs/cm	590	460	430	460	-
3.	Oil and Grease (O & G)	mg/l	3.1	2.3	2.8	2.5	-
4.	Total Residual Chlorine	mg/l	0.03	0.04	0.03	0.04	-
5.	Total Suspended Solid (TSS)	mg/l	51	73	68	64	-
6.	Total Dissolved Solid (TDS)	mg/l	294	228	214	228	-
7.	Chemical Oxygen Demand (COD)	mg/l	15	18	12	18	-
8.	Biological Oxygen Demand (BOD)	mg/l	3.3	3.0	3.1	2.9	6 or less
9.	Chromium (Cr)	mg/l	<0.01	<0.01	<0.01	<0.01	-
10.	Iron (Fe)	mg/l	0.05	0.03	0.03	0.04	-
11.	Calcium (Ca)	mg/l	92	72	74	78	-
12.	Zinc (Zn)	mg/l	0.02	0.03	0.04	0.03	-

Sl. No.	Parameter	Unit	February-April 2024	May-July 2024	August-October 2024	Nov. 2024-January 2025	*Standard
13.	Lead (Pb)	mg/l	<0.005	<0.005	<0.005	<0.005	-
14.	Cadmium (Cd)	mg/l	0.03	0.02	0.03	0.03	-
15.	Mercury (Hg)	mg/l	<0.01	<0.01	<0.01	<0.01	0.004
16.	Arsenic (As)	mg/l	<0.01	<0.01	<0.01	<0.01	-
17.	Total Alkalinity	mg/l	169	138	135	145	-
18.	Ammonium Nitrogen	mg/l	1.1	1.2	1.4	1.5	-
19.	Free Ammonia	mg/l	2.3	1.9	2.5	2.6	-
20.	Temperature	^{0}C	24.7	24.3	25.3	25.5	-

*Note: * According to ECR 2023, Schedule 2(A), Best Practice based classification (Water Usable for Fisheries)*

As per the contract document, pH, EC, Oil and Grease, Total Residual Cl, TSS, TDS, COD, BOD, Cr, Fe, Ca, Zn, Pb, Cd has been tested. There are no surface water parameters exceeding the standard according to ECR 2023, Schedule 2(A).

5.1.9 Ground Water Quality

5.1.9.1 Locations

Groundwater samples were collected for determining the quality of existing sources. Deep tube wells in the plant area were selected as the sources of groundwater. Detail of the sampling location is provided in Table 5-12. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-4**.

Table 5-12: Details of Ground-Water Sampling Locations

Sl. No.	Code	Location	GPS Coordinate	Source	Time	Date
1.	GW1	Store House	24°23'4.80"N 89°44'50.63"E	Deep Tube Well	11:10 AM	17.03.2024
					10:55 AM	23.06.2024

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.1.9.2 Results and Discussion

Analysis results of the groundwater are represented in Table 5-13 where the values are compared with the standard limit.

Table 5-13: Ground Water Quality Analysis Result

Sl. No.	Parameter	Unit	February-April 2024	May-July 2024	*Standard
1.	pH	-	7.8	7.5	6.5-8.5
2.	Arsenic (As)	mg/l	<0.01	<0.01	0.05
3.	Total Hardness	mg/l	195	194	500
4.	Chlorine (Cl)	mg/l	0.24	0.19	-
5.	Fluoride (F)	mg/l	0.26	0.35	1.0
6.	Iron (Fe)	mg/l	0.37	0.42	0.3-1
7.	Manganese (Mn)	mg/l	0.05	0.03	0.4
8.	Phosphate (PO_4^{3-})	mg/l	1.2	1.3	-

Sl. No.	Parameter	Unit	February-April 2024	May-July 2024	*Standard
9.	Sulphate (SO_4^{2-})	mg/l	110.7	98.6	250

*Note: *According to ECR 2023, Schedule 2(B)*

According to the tested results of groundwater quality, all the considered parameters were under the standard level during this yearly period. The groundwater quality is quite acceptable for industrial use and drinking purposes.

5.1.10 Ground Water Level

Ground water condition around the plant site is found well. Two specific consultations with DPHE & BADC have been conducted and found that the concerned DPHE & BADC do not experience any depletion of ground water level within the plant site between the years 2024-2025. Also, geographically the area is highly enriched with iron. Though from the testing, we have found limited iron in the ground water sample. Consultation summary has been presented below-

5.1.10.1 Details of Consultation

Name of the Stakeholder	Bangladesh Agricultural Development Corporation	Department of Public Health Engineering
Consulted Person and Designation Details	Md. Anwar Sadat, Agricultural officer, BADC, Sirajganj	Md. Al Amin, Sub Assistant Engineer, DPHE, Sirajganj
Contact No.:	01700716033	01302864604
Consulted By	Abdur Rab	Abdur Rab
Designation	Consultant, ELRC	Consultant, ELRC
Date	17.10.2024	17.10.2024
Time	10:45 PM	09: 50 AM

5.1.10.2 Discussion

Concerned Issues	Discussions
Ground Water Condition Around the Power Plant	The overall quality is good. Iron problem found in the groundwater around the power plant
DTW Depth	150-500 ft
STW Depth	30-100 ft
DTW Installation Cost	No recent installation has been incurred by DPHE
STW Installation Cost	5000 BDT per feet
Observation Well near the Plant	There is an observation well near the plant site beside the Jetty area
Ground Water Level Related Complaints	There are no complaints yet from the local people regarding ground water level

5.1.10.3 Photographs

Photo 5-1: Consultation with DPHE Personnel Twice in the Year

5.1.11 Ground Water Scarcity

Focus group discussion has been conducted several times around the plant area among the local community and agriculture farmers for finding any ground water scarcity-related issues. Local agriculture farmers and the community confirmed that they haven't experienced any ground water scarcity during the last irrigation period. Farmers usually use shallow tube well for irrigation and it costs 5500 BDT per Bigha (33 decimal).

5.1.11.1 Details of Consultation

Name of the Stakeholder	Farmers Community, Boroshimul and Ponchosona Village, Soydabad, Sirajganj	Local Community, Boroshimul and Ponchosona Village, Soydabad, Sirajganj
Consulted By	Rofiul Karim	Syed Galib Shah
Designation	Consultant, ELRC	Consultant, ELRC
Date	9 October 2024	9 October 2024
Time	10:30 AM	11:10 AM

5.1.11.2 Discussion

Concerned Issues	Discussions
Faced Any Ground Water Level Problem	Not Yet. Unchanged as Past Five Years
Ground Water Availability in Cropping Seasons	Available
Boring Layer of Shallow Tube Well	52-55 ft
Cost of Boring Well	2000-2500 BDT for 1 ft
Alternative Irrigation System	Surface Water Based Irrigation but Rare
Household Use Pattern of Water	Ground Water (Hand Tube Well)
Scarcity During Dry Season	No. Easily Accessible.

5.1.11.3 Participant Details

Sl. No.	Name	Profession	Age	Locations
Agriculture Farmers				
1.	Malek Sheikh	Farmer	38	Boroshimul Village
2.	Mion Mia	Farmer	33	Boroshimul Village

Sl. No.	Name	Profession	Age	Locations
3.	Taher Uddin	Farmer	52	Boroshimul Village
4.	Monjur Alom	Farmer	37	Boroshimul Village
5.	Jamal Uddin	Farmer	43	Ponchosona Village
6.	Kaisar Alom	Farmer	37	Ponchosona Village
Local Community				
7.	Md. Sobhan Faraji	Business	48	Punorbashon Village
8.	Md. Matin Howlader	Business	36	Boroshimul Village
9.	Md. Rubel Imam	Day Labour	37	Punorbashon Village
10.	Bacchu Mia	Farmer	42	Punorbashon Village
11.	Md. Firoz Khandakar	Service	39	Boroshimul Village
12.	Mokhlesur Rahman	Student	34	Punorbashon Village

5.1.11.4 Photographs


Photo 5-2: Focus Group Discussion

5.1.12 Soil Quality

5.1.12.1 Locations

Soil samples have been collected from the surroundings of the plant boundary. Specific three locations have been considered to collect the soil sample during this yearly monitoring period. The detail of the sampling has been depicted in Table 5-14. Monitoring photographs from February 2024 to January 2025 are attached in Annex B-10.

Table 5-14: Details of Soil Sampling Locations

Sl. No.	Code	Location	GPS Coordinate	Source	Time	Date
1.	SQ1	Southeast Boundary (Behind Army Camp)	24°23'2.07"N 89°44'51.98"E	Plant Adjacent Open Soil	11:25 AM	15.07.2024
2.	SQ2	Northeast Boundary (Behind Residential Area)	24°23'16.02"N 89°44'50.95"E		11:50 AM	15.07.2024
3.	SQ3	Northern Boundary (Behind PGCL Switching Station)	24°23'15.95"N 89°44'43.69"E		01:53 PM	15.07.2024

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.1.12.2 Results and Discussion

The following Table 5-15 has been presented the soil analyzed results.

Table 5-15: Soil Quality Analysis Result

Sl. No.	Parameter	Unit	Concentration		
			SQ1	SQ2	SQ3
1.	Electrical Conductivity (EC)	dS/m	1.7	1.6	1.5
2.	Bulk Density	g/cm^3	1.38	1.31	1.73
3.	pH	-	7.6	7.7	7.5
4.	Organic Content	%	0.46	0.39	0.51
5.	Calcium (Ca)	mg/kg	4.7	3.6	3.7
6.	Magnesium (Mg)	mg/kg	3.5	3.2	2.7
7.	Potassium (K)	mg/kg	0.07	0.09	0.06
8.	Sodium (Na)	meq/100g	1.23	0.98	1.04
9.	Nitrogen (N)	mg/kg	0.03	0.05	0.04
10.	Phosphorus (P)	mg/kg	1.6	1.3	1.2
11.	Sulphur (S)	mg/kg	26.4	23.1	20.2
12.	Boron (B)	mg/kg	0.07	0.05	0.06
13.	Copper (Cu)	mg/kg	2.1	1.9	2.4
14.	Iron (Fe)	mg/kg	22.5	21.8	18.3
15.	Manganese (Mn)	mg/kg	21.3	16.4	19.6
16.	Zinc (Zn0	mg/kg	1.4	1.3	1.6
17.	Lead (Pb)	mg/kg	8.8	5.7	6.8
18.	Cadmium (Cd)	mg/kg	0.03	0.04	0.02
19.	Arsenic (As)	mg/kg	0.15	0.12	0.17
20.	Mercury (Hg)	mg/kg	0.05	0.06	0.03

There has no standard been initiated from the GoB in Bangladesh but according to the EIA report, all the parameters are considered as non-polluted. Besides, there has been no contamination observed during the monitoring period according to visual observation. So, according to the visual inspection and parameter test, the soil quality is quite safe from contamination.

5.2 Waste Generation and Management

The ELRC team visited the location and noted the waste generation and management problems according to the EMP. As both Unit 2 and Unit 3 sites are adjacent and have no median boundary between them, the management activities are common for both units. But it has been managed by separate manpower which has been distributed equally. The plan was developed using EIA mitigation measure recommendations to reduce and/or eliminate any potential negative environmental and social consequences of the power plant. For the handling of wastes, there are several bins for various types of waste on or near the plant site. The waste container comes in several colors to accommodate the various waste materials. Everywhere the bins are available for storing the garbage, including at offices, homes, inside road networks, industrial sites etc. The water treatment facility has no sludge. Our staff has been going there every month with a member of the HSE team. In the vicinity of the facility, several waste kinds have been discovered and the proponent has also kept records on them. Specific wastes management has been explained in Table 5-16.

Table 5-16: Wastes Generation and Management of the Power Plant Premises

<table>
<tr><th>Sl. No.</th><th>Types of Wastes</th><th>Waste Generation</th><th>Handling, Storage and Management</th></tr>
<tr><td rowspan="4">1.</td><td rowspan="3">Non-Hazardous Solid Wastes (Domestic Wastes)</td><td>▪ The canteen, kitchen and residential portion of the power plant site typically produce domestic waste.</td><td>▪ Domestic wastes from the allocated area have been gathered by competent staff for storage and later processing; they have been separated from the primary source by providing an adequate waste bin with proper labeling.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Photo 5-3: The Generation Area of Domestic Wastes</td><td>Photo 5-4: Waste Bin for Collecting and Storing General Wastes</td></tr>
<tr><td>(General Wastes)</td><td>▪ General wastes are usually generated from the office area, accommodation area, machinery etc.</td><td>▪ Initially, general wastes are preserved in a waste bin with appropriate labeling. Then, the wastes are collected by responsible personnel for storage and further processing.</td></tr>
</table>

Sl. No.	Types of Wastes	Waste Generation	Handling, Storage and Management
			
		Photo 5-5: Waste Bin for Primary Segregation of the General Wastes	**Photo 5-6: Storage and Accumulation for Transportation**
2.	**Generation of Hazardous Solid Wastes**	▪ Hazardous solid waste is produced in the labs, warehouse, mechanical repair shop and machinery area, among other places. ▪ The initial step of waste creation involves the separation of hazardous solid wastes.	▪ A temporary collection of preliminary wastes has been made in a location for transportation to the specified disposal site. ▪ When treating hazardous materials, strict precautions have been used.
			
		Photo 5-7: Hazardous Solid Wastes Segregation at the Source	**Photo 5-8: Primary Accumulation Area**

Sl. No.	Types of Wastes	Waste Generation	Handling, Storage and Management
3.	**Generation of Hazardous Liquid Wastes and Sludge**	▪ Hazardous liquid wastes generated by the workshop, different types of machinery, the maintenance area, chemical leaching, fuel leaching and so on. ▪ There have been no hazardous liquid wastes observed during the last year monitoring period ▪ This year, there has been no sludge created by the treatment facility.	▪ In the power plant, all hazardous liquids (chemicals, fuels, grease, mobil etc.) are originally stored in a sealed container and a separate closed bin. ▪ Strict cautions have been maintained during the handling of hazardous materials.
		N/A	
		Photo 5-9: Absence of Hazardous Liquid Wastes	

5.3 Ecosystem and Biodiversity

5.3.1 General Description

The study area is located at Saidabad Union of Sirajganj Sadar Upazila under the Sirajganj district of Bangladesh. This area is dominated by homestead vegetation, roadside plantation and some forest tree species that occurred at the Bangabandhu Bridge Eco Park. Vegetation attributes and plant health, noise disturbance to wildlife and fish diversity and composition were studied and necessary field survey was conducted to know the current status of the ecosystem and biodiversity of the study area and the impact of the power plant on its adjacent ecosystem and biodiversity. This study included quadrate sampling at 8 locations for monitoring of plant health, faunal survey and noise recording at same locations to monitor disturbance to wildlife and boat to boat survey, market survey, stakeholder consultation etc. for monitoring of capture and culture fisheries diversity and composition. A field study was conducted by ELRC Ecology Team for yearly monitoring of the parameters in December 2024.

5.3.2 Objectives of the Study

The objectives of monitoring of ecosystem and biodiversity are as follows -

- Assessing the vegetation attributes, ecosystem health status and plant disease infection inside the study area and adjacent vegetation areas;
- Checking noise disturbance on wildlife and changes in their behavior at study locations;
- Assessing capture and culture fisheries diversity and composition.

5.3.3 Limitation of the Study

- It is difficult to compare the plant growth with baseline data due to the unavailability of adequate baseline information;
- All these works require extensive and long-period fieldwork to get proper information;
- Assessment of noise disturbance on wildlife requires systematic fieldwork for an extensive period to get good information.

5.3.4 Plant Health

Plant health was assessed through quadrate sample plots at 8 locations in and around the Power Plant, Boroshimul Village and Eco Park areas as specified in the EIA study. A 25 m x 25 m sample plot was taken to observe vegetation attributes and plant health parameters. The 8 quadrate sample plots were taken as follows: 2 quadrates inside the power plant, 1 quadrate at the close proximity to the power plant, 2 quadrates at Baroshimul village, 2 quadrates near the forest office of the Eco Park and 1 quadrate at the northern boundary of the Eco Park **Figure 5-9**. It was not feasible to take 2 quadrates inside the power plant due to insufficient space for plotting the quadrates. For this reason, one quadrate was considered within 50 m of the southern boundary of the power plant.

Figure 5-9: Map showing the locations of quadrate sample plots

For monitoring of plant health, a set of parameters were selected to assess and record the information of those vegetation attributes. The team identified and recorded all the species present in each quadrate, measured tree height, canopy coverage and girth/circumference at breast height (GBH) for trees with GBH> 10 cm and recorded trees with disease or wound through visual observation in each quadrate. GPS positions of all 8 quadrates were also recorded. Plant health was assessed by following criteria and categorized as excellent, good and poor.

- **Trunk (or bole):** Healthy trees have a straight and long trunk that keeps and maintains their strength and form.
- **Evidence of new growth:** Trees produce new growth every year that become evident through new shoots, increased tree height and diameter.
- **Full branches:** A healthy tree does not have dead or broken branches.
- **Strong bark:** Healthy trees are absent of loose or peeling bark on the trunk and branches.
- **Healthy leaves:** Abundant number of leaves in proper colour, shape and size according to the season are a good indicator of a healthy plant.

Assessing trees with the disease requires extensive field visits. The ecology team visually observed for following characteristics in each quadrate to record trees with diseases/unhealthy trees.

- Cavities, cracks and holes in the trunk or limbs;
- Wilting;
- Bare patches;
- Broken or leaf-free branches;
- Abnormal leaf colour, shape and size;
- Holes in leaves;
- Visible insects or insect evidence;
- Disease evidence;
- Fungus growth;
- Oozing sap.

5.3.5 Plant Growth and Canopy Coverage

The average DBH (diameter at breast height) inside the power plant and at the close proximity of the power plant were 11.36 cm and 26.6 cm respectively. Fruiting trees like Mango (*Mangifera indica*), Guava (*Psidium guajava*), Lychee (*Litchi chinensis*), Papaya (*Carica papaya*) etc. are abundant inside the power plant whereas adjacent plantations are mainly composed of Eucalyptus (*Eucalyptus camaldulensis*) trees. However, high species richness composed of different timber, fuelwood and medicinal plants was observed in Boroshimul Village and Eco- Park areas. Also, the Jhau (*Casuarina equisetifolia*) plantation was observed beside the railways near the Eco- Park. The average DBH measured at Boroshimul Village and Eco Park were 33.22 cm and 25.76 cm respectively. There are no tree species of conservation significance found in the study locations. The growth and health of trees inside the power plant and at all study locations outside the power plant were assessed to be excellent (**Table 5-17**).

Table 5-17: Vegetation attributes of sampled quadrate in the study area

Quadrate Number	Quadrate Name	Average GBH (cm)	Average DBH (cm)	Canopy Coverage (%)	Health
Q 1	CMC inside power plant	35.78	11.36	31	Excellent
Q 2	Residential Area inside the power plant	45.31	14.42	65	Excellent
Q 3	Near to the power plant	83.56	26.6	59	Excellent
Q 4	Boroshimul Village 1	99.4	31.64	61	Excellent
Q 5	Boroshimul Village 2	109.33	34.8	68	Excellent
Q 6	Near Forest Office 1 of Eco Park	81.33	25.9	78	Excellent
Q 7	Near Forest Office 2 of Eco Park	85.67	27.27	83	Excellent
Q 8	The northern end of Eco Park	75.76	24.1	77	Excellent

Source: ELRC Field Survey, December 2024

5.3.6 Plant Diseases

Health and disease infection status of all the quadrates were likely to be excellent. Very few tree species were traced to be infected at the quadrates of Boroshimul village due to fungal, insect or other infections which are not possibly occurred because of the power plant.

The following measures will be taken to mitigate the observed plant diseases in the study area -

- For Mechanical Control - Cut the infected parts of the plants and burn them to get rid of the pathogens.
- For Chemical Control - Consult with the Upazila Agricultural Officer, Sirajganj Sadar Upazila and apply the suggested pesticides and insecticides in the prescribed manner.

5.3.7 Fruit Productivity

During the monitoring period, the Ecology Team conducted a visual assessment of fruit production within the power plant, yielding outstanding results. In the residential area, a noticeable abundance of various fruits, including Mango, Banana, Guava, Papaya, Coconut and Sapodilla, was observed.

5.3.8 Disturbance to Wildlife

Disturbance of noise on wildlife behavior was observed by the presence of wildlife species with a special focus on birds of various type and their behavior as foraging, ranging, nesting and aggregatory. The noise level was measured at each point by a noise meter to relate the presence of wildlife as well as abnormal behavior according to the method of scan sampling methods[3].

5.3.9 Wildlife Behavior to Noise

The study area is primarily dominated by various bird species. During the field visit, a total of 42 bird species from 27 families were identified. (**Table 5-19** and **Figure 5-10)**. Behavioral observations were conducted not only through quadrat sampling plots but also by recording sound intensity at various points. Disturbances were noted by observing behaviors such as foraging, resting, ranging, roosting and playing among different animals, particularly birds. The presence and expression of normal behavior suggested a very low impact of noise disturbance on birds.

The ELRC study team recorded noise levels at all quadrat locations. The study found that the noise level in Boroshimul village was below 45 dB, which is under the tolerance limit for birds (Although the noise level inside the power plant exceeded 55 dB, species such as Jungle Myna (*Acridotheres fuscus*), Oriental Magpie Robin (*Copsychus saularis*), Spotted Dove (*Streptopelia chinensis*) and Common Myna (*Acridotheres tristis* among others, were commonly observed spending their resting and foraging time around the power plant area. This observation suggests that these bird species were highly adapted to noise disturbances from the power plant.

Observations of bird behavior, including foraging, resting, flying, ranging and aggregation, as well as the presence of terrestrial fauna, indicated that the impact of noise on wildlife behavioral change is minimal within the power plant and absent at the study location.

Table 5-18: Noise level measured at the study area

[3] Altmann, J. 1974. Observational study of behavior: sampling methods. *Behaviour*, 49: 227-267.

Quadrate Name	Noise Level (dB)	
CMC inside power plant	60-65	Very lower-level behavioral change may happen without the major behavioral changes was not observed in the field
Residential Area inside power plant	45-50	Any behavioral changes were not observed in the field
Close proximity at the corner power plant	50-55	Any behavioral changes were not observed in the field
Boroshimul Village 1	40-45	Any behavioral changes were not observed in the field
Boroshimul Village 2	40-45	Any behavioral changes were not observed in the field
Northern end of Eco Park	45-55	Any behavioral changes were not observed in the field

Figure 5-10: Recorded Avian Species at the Study Area

		
Red-vented bulbul (*Pycnonotus cafer*)	White Wagtail (*Motacilla alba*)	Black Kite (*Milvus migrans*)
		
Indian Pond Heron (*Ardeola grayii*)	Great White Egret (*Ardea alba*)	Eastern Spotted Dove (*Spilopelia chinensis*)
		
Long-tailed Shrike (*Lanius schach*)	Common myna (*Acridotheres tristis*)	Jungle Babbler (*Turdoides striata)*
		
Asian Pied Starling (*Gracupica contra*)	Black Drongo (*Dicrurus macrocercus*)	Jungle Myna (*Acridotheres fuscus*)
		

Oriental magpie-robin (*Copsychus saularis*)	House Sparrow (*Passer domesticus*)	Common Sandpiper (Actitis hypoleucos)

Source: ELRC Study Team, December 2024

Table 5-19: Observed bird species at the study area

Sl. No.	Common Name	Scientific Name	Local Name	Family	IUCN Local Status*
1.	Asian Openbill	*Anastomus oscitans*	Samkhol	Ciconiidae	LC
2.	Asian Pied Starling	*Sturnus contra*	Go shalik	Sturnidae	LC
3.	Bank Myna	*Acridotheres ginginianus*	Gaang Shalik	Sturnidae	LC
4.	Black Drongo	*Dicrurus macrocercus*	Kala Fingey	Dicruridiae	LC
5.	Black hooded Oriole	*Oriolus xanthornus*	Halde Pakhi	Oriolidae	LC
6.	Black Kite	*Milvus migrans*	Bhubon chil	Accipitridae	LC
7.	Black-naped woodpecker	*Picus guerini*	Metematha Kaththokra	Picidae	LC
8.	Black-rumped Flameback	*Dinopium benghalense*	Bangla Kaththokra	Picidae	LC
9.	Chestnut-Tailed Starling	*Sturnia malabarica*	Shonkho Shalik	Sturnidae	LC
10.	Common hawk-cuckoo	*Hierococcyx varius*	Chokh Gelo	Cuculidae	LC
11.	Common Hoopoe	*Upupa epops*	Pati Hudhud	Upupidae	LC
12.	Common Iora	*Aegithina tiphia*	Fotikjol	Aegithinidae	LC
13.	Common Kingfisher	*Alcedo atthis*	Pati Machranga	Alcedinidae	LC
14.	Common Myna	*Acridotheres tristis*	Shalik/Bhat Shalik	Sturnidae	LC
15.	Common Sandpiper	*Actitis hypoleucos*	Pati Batan	Scolopacidae	LC
16.	Common Tailorbird	*Orthotomus sutorius*	Tuntuni	Cisticolidae	LC
17.	Eastern Spotted Dove	*Spilopelia chinensis*	Tila Ghughu	Columbidae	LC

Sl. No.	Common Name	Scientific Name	Local Name	Family	IUCN Local Status*
18.	Eurasian Collared Dove	*Streptopelia decaocto*	Eurasian Konthi Ghugu	Columbidae	LC
19.	Fulvous-breasted woodpecker	*Dendrocopos macei*	Batabi Kathkurali	Picidae	LC
20.	Great White Egret	*Ardea alba*	Boro Boga	Ardidae	LC
21.	Greater Coucal	*Centropus sinensis*	Boro Kubo	Cuculidae	LC
22.	Green Bee Eater	*Merops orientalis*	Sobuj Suichora	Meropidae	LC
23.	House Sparrow	*Passer domesticus*	Pati choroi	Passeridae	LC
24.	Indian Pond Heron	*Ardeola grayii*	Deshi Kanibok	Ardidae	LC
25.	Jungle Babbler	*Turdoides striata*	Bon Chatare	Locustellidae	LC
26.	Jungle myna	*Acridotheres fuscus*	Jhuti shalik	Sturnidae	LC
27.	Large-billed Crow	*Corvus macrorhynchos*	Dar kak	Corvidae	LC
28.	Lineated Barbet	*Psilopogon lineatus*	Dagi Basantabouri	Megalaimidae	LC
29.	Little Cormorant	*Microcarbo niger*	Cchoto Pankouri	Phalacrocoracidae	LC
30.	Long-tailed Shrike	*Lanius schach*	Lenja Latora	Laniidae	LC
31.	Oriental Magpie Robin	*Copsychus saularis*	Doel	Muscicapidae	LC
32.	Red-vented Bulbul	*Pycnonotus cafer*	Bangla bulbul	Pycnonotidae	LC
33.	Red-wattled Lapwing	*Vanellus indicus*	Hot Titi	Chardridae	LC
34.	Rock Dove	*Columba livia*	Gola Paira	Columbidae	LC
35.	Rufous Treepie	*Dendrocitta vagabunda*	Harichacha	Corvidae	LC
36.	Rufous-necked Laughingthrush	*Garrulax ruficollis*	Lalghar Penga	Timalidae	LC
37.	Spotted Dove	*Streptopelia chinensis*	Tila Ghughu	Columbidae	LC

Sl. No.	Common Name	Scientific Name	Local Name	Family	IUCN Local Status*
38.	Spotted owlet	*Athene brama*	Khurhule Pecha	Strigidae	LC
39.	White Wagtail	*Motacilla alba*	Dhola Khonjon	Motacillidae	LC
40.	White-breasted Kingfisher	*Halcyon smyrnensis*	Dholagola Macchranga	Alcedinidae	LC
41.	Yellow Footed Green Pigeon	*Holdepa Horial*	Treron phoenicopterus	Columbidae	LC
42.	Blue-throated Barbet	*Neelgola Basantha*	Psilopogon asiatica	Megalaimidae	LC

Source: ELRC Study Team, December 2024

5.3.10 Fish Diversity and Composition

5.3.10.1 Capture Fisheries

A total of 38 species of fish were recorded under 21 families. Cyprinidae was recorded as dominant family comprising (7 species), followed by Bagridae (4 species), Mastacembelidae (3 species respectively) (Table 5-20). Two species of crustacean were also recorded during the capture fish study period. According to IUCN (2015), Baghair (*Bagarius bagarius*) is categorized as Critically Endangered (CR), four (04) species as Endangered (EN), four (04) as Vulnerable (VU), four (04) as Near Threatened (NT) and the rest of the species as Least Concern (LC) in nature.

Table 5-20: Observed Fish and Crustacean Species within the Study Area

Sl.No.	Local Name	English Name	Scientific Name	Family	Local Status*	Global Status**
1.	Ayre	Long-whiskered catfish	*Sperata aor*	Bagridae	VU	LC
2.	Bacha	Bacha	*Eutropiichthys vacha*	Schilbeidae	LC	LC
3.	Baghair	Gangetic Goonch	*Bagarius bagarius*	Sisoridae	CR	NT
4.	Bata	Bata Labeo	*Labeo bata*	Cyprinidae	LC	LC
5.	Bele	Tank Goby	*Glossogobius giuris*	Gobiidae	LC	LC
6.	Boal	Freshwater shark	*Wallago attu*	Siluridae	VU	NT
7.	Catla	Catla	*Gibelion catla*	Cyprinidae	LC	NE
8.	Chala Punti	Swamp Barb	*Puntius chola*	Cyprinidae	LC	LC
9.	Chapila	Indian River Shad	*Gudusia chapra*	Engraulidae	VU	LC
10.	Foli	Bronge Feather-back	*Notopterus notopterus*	Notopteridae	VU	LC
11.	Gol chanda	Indian Glass Perch	*Pseudambassis ranga*	Ambassidae	LC	LC
12.	Guchi Baim	Stripped Spinyeel	*Macrognathus pancalus*	Mastacembelidae	LC	LC
13.	Gulsha Tengra	Day's Mystus	*Mystus bleekeri*	Bagridae	LC	LC
14.	Gutum	Peppered Loach	*Lepidocephalichthys guntea*	Cobitidae	LC	LC
15.	Jat punti	Spotfin swamp barb	*Puntius sophore*	Cyprinidae	LC	LC
16.	Kachki	Ganges River Sprat	*Corica soborna*	Clupeidae	LC	LC
17.	Kakila	Freshwater Garfish	*Xenentodon cancila*	Belonidae	LC	NE
18.	Kajuli	Gangetic Ailia	*Ailia coila*	Schilbeidae	LC	NT
19.	Kalibaus	Orange Fin Labeo	*Labeo calbasu*	Cyprinidae	LC	LC

Sl.No.	Local Name	English Name	Scientific Name	Family	Local Status*	Global Status**
20.	Kani Pabda	Butter Catfish	*Ompok bimaculatus*	Siluridae	EN	NT
21.	Khorsula	Corsula Mullet	*Rhinomugil corsula*	Mugilidae	LC	LC
22.	Koi	Climbing Perch	*Anabas testudineus*	Anabantidae	LC	DD
23.	Lal Chanda	Highfin Glassy Perchlet	*Parambassis lala*	Ambassidae	LC	NE
24.	Meni	Mottled Nandus	*Nandus nandus*	Nandidae	NT	LC
25.	Mola	Mola Carplet	*Amblypharyngodon mola*	Cyprinidae	LC	LC
26.	Nama Chanda	Elongate Glass-perchlet	*Nama Chanda*	Ambassidae	LC	LC
27.	Phasa	Gangatic Hairfin Anchovy	*Setipinna phasa*	Engraulidae	LC	LC
28.	Rani	Bengal loach	*Botia dario*	Cobitidae	EN	LC
29.	Rita	Rita	*Rita rita*	Bagridae	EN	LC
30.	Rui	Rohu Carp	*Labeo rohita*	Cyprinidae	LC	LC
31.	Sal Baim	Tire-track Spinyeel	*Mastacembelus armatus*	Mastacembelidae	EN	LC
32.	Sar Punti	Olive Barb	*Systomus sarana*	Cyprinidae	NT	LC
33.	Shing	Stinging Catfish	*Heteropneustes fossilis*	Heteropneustidae	LC	LC
34.	Shol	Snakehed Murrel	*Channa striatus*	Channidae	LC	LC
35.	Taki	Spotted Snakehead	*Channa punctata*	Channidae	LC	LC
36.	Tara Baim	One-stripe Spinyeel	*Macrognathus aculeatus*	Mastacembelidae	NT	NE
37.	Tatkini	Reba	*Cirrhinus reba*	Cyprinidae	NT	LC
38.	Tengra	Asian Striped Catfish	*Mystus vittatus*	Bagridae	LC	LC
39.	Ghoda Icha	Ghoda River Prawn	*Macrobrachium dolichodactylus*	Palaemonidae	LC	NE

Sl.No.	Local Name	English Name	Scientific Name	Family	Local Status*	Global Status**
40.	Golda Chingri	Giant Freshwater Shrimp	*Macrobrachium rosenbergii*	Palaemonidae	LC	LC

Source: ELRC Study Team, December 2024

*IUCN Bangladesh. 2015. Red List of Bangladesh Volume 5: Freshwater Fishes; LC=Least Concern, NT= Near Threatened, EN= Endangered, CR= Critically Endangered, DD=Data Deficient, NE= Not Evaluated

**IUCN 2025. The IUCN Red List of Threatened Species. Version 2024-2. (https://www.iucnredlist.org/)

5.3.10.2 Fish Diversity Index

Shannon diversity index:

As a measure of diversity, the most popular and widely used is Shannon's diversity index (H). In the Shannon index, p is the proportion (n/N) of the individuals of one particular species found (n) divided by the total number of individuals found (N), ln is the natural log, ∑^n is the sum of the calculations and S is the number of species.

Shannon diversity index (H) = $-\sum_{i=1}^{s} pilnpi``$

In the current study Shannon's diversity index (H) = 2.94

Simpson Diversity Index:

Simson diversity index (λ) were calculated since it is well accepted that all species at a site and across systematic groups contribute equally to its biodiversity. In the Simson index, p is the proportion (n/N) of the individuals of one particular species found (n) divided by the total number of individuals of one particular species found (n) divided by the total number of individuals found (N), ∑^n is still the sum of the calculations and it is the number of species.

Simson diversity index (λ) = 1/(∑_(i=1) ^s 〖pi〗 ^2)

In the current study the Simpson's diversity index (λ)= 0.89

5.3.10.3 Habitat Suitability Index (HSI)

Habitat suitability index (HSI) modelling is a tool for developing maps and information upon which living resource and environmental managers and conservationists can base decisions (USFWS 1980a, 1980b, 1981; Terrell 1984; Bovee and Zuboy 1988). The models are based on suitability indices that reflect habitat quality for a particular species or life stage over a range of possible environmental conditions, such as temperature, salinity, PH, BOD, DO etc. The catchment of the mighty Brahmaputra-Jamuna River is about 47,000 sq km within Bangladesh. The river holds a wide range of fish and crustaceans comprising the project site. The area holds 44 species, as mentioned earlier.

For the model, HSI values from 0 to 1 were assigned to ranges of each environmental variable, depending on how favorable the range is for survival, growth and reproduction (following Table). An SI of 1.0 was assigned to the most favorable conditions. An SI of 0.5 was assigned to an environmental range of approximately average suitability, which was intended to represent habitat about half as suitable as the most favorable habitat. An SI of 0.1 was assigned to that portion of a range in conditions in which the species or life stage can occur but is rare. This SI value represents habitat about 1/10 as suitable as the most favorable habitat. The deifications of HSI are given in **Table 5-21**.

Table 5-21: Definitions of suitability index values

Suitability index Value	Description of Habitat use
1	High density or relative abundance in field studies; high reproductive or growth potential; active preference in behavioral studies
0.5	Common occurrence or average density in field studies; average reproductive or growth potential
0.1	Rare occurrence or low density in field studies; tolerance documented in field or laboratory studies; little potential for growth or reproduction

0	Little or no occurrence in field studies; mortality may occur in laboratory or field studies; active avoidance in behavioral studies

There are different parameters for surface water that are potential for aquatic habitat. The team considered common parameters and compared them with "The Environment Conservation Rules, (ECR, 2023), Schedule 2(A); Best Practice based classification (Water Usable for Fisheries). Consideration was made on primary data and the Suitability Index value found 0.5 for all parameters. The study concludes with the interpretation that the project area and its fisheries resources have "**High density or relative abundance in field studies; high reproductive or growth potential; active preference in behavioral studies**".

Table 5-22: Environmental variables included the habitat suitability index and the data resolution

HSI Index Environmental Parameter	Unit	Result*	Standard**	Suitability Index value	Remarks
BOD	mg/l	2.4	6 or less	1	N/A
EC	µS/cm	422	-	1	
COD	mg/l	27	50	1	
pH	-	7.8	6 – 9	1	
Temperature	°C	26.2	-	1	
TDS	mg/L	840	1000	1	

*Source: ELRC Study Team, December 2024

** *ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

5.3.10.4 Suitability of fish spawning/ hatchling and Egg release area

There are different periods (in a year) for fish species to release eggs and hatches. From the primary and secondary sources, it has been found that the culture fisheries practiced in a controlled way for egg hatchling and spawning periods. Additionally, different egg hatchling periods were confirmed in open-water fish species within the study area. In Jamuna, Rui, Katla, Mrigal spawn in May to June, Boal spawned in June to July, Bagha air spawned in May-June and Chital spawn in May June in a year. The suitability of fish spawn takes place in pockets/lagoons of char lands, trapped in lagoons, scour areas, deep water etc. The following table shows the egg hatchling period and places of spawn in Jamuna River.

Table 5-23: Suitability of fish spawning/hatchling and Egg release

Name of the species	Fish spawn and hatchling Period	Suitable area
Rui, Katol, Mrigal	May-June (egg release during rain & thunderstorm)	River (Hatchling trapped in pockets/lagoons of char lands with clear water
Boal	June-July (egg release by rubbing with bushes of char land fringes)	Trapped in lagoons; some manage to escape in the river and some are caught (net) or dried up.
Bagha air	June-July (egg release in deep water)	Mostly found in the scour area

Chital	May-June (building nest at scours and release egg on blocks, geo bags and submerged boat or other objects)	Scours of the river and after attaining the size of fingerling they move individually
Aor	May-June (Point- nest building by making hole in deep water and hatching a mucous-like things and hatchlings feed on the mucous.	Deep Water
Hilsha	December-January and May-August	It goes upstream in deep water (17-25 m) for laying eggs where the current is high

5.3.10.5 Culture Fisheries

Bangladesh is endowed with extremely rich and extensive inland and marine water resources. The freshwater bodies of Bangladesh are considered home to at least 265 species of finfishes (Rahman, 2005). This sector, therefore, contributes about 3.69% in GDP (Gross Domestic Product) and 22.76% in agricultural GDP and supplies about 60% of animal protein consumption.

In the culture fisheries, the dominant species are Rui, Catla, Tilapia, Mrigal, Sarpunti and other common carp within the study area. The production varies on pond size, seasons, fish species and intensive practice. The highest price encountered for Rui fish and lowest on tilapia. The price varies from 120-650taka per kg within the observed area.

It is mentionable that, the ponds do hold a threshold amount of water during the post-monsoon period (October to February) and the utmost amount in monsoon (May to July) within the study area. Thus, the production is highest in the monsoon period. Two sample ponds were studied to observe the production and available fish species. **Table 5-24** shows a summarization of the cultured fish and their production. From the table, the highest production for commercial consumption has been come across from Saidabad Union under Shirajganj Sadar Upazilla which is about 7000kg of fish per year and the lowest is 2000 kg/year. **Table 5-24** & **Table 5-25** shows the list of fish species cultured in the study area.

Table 5-24: Production and Culture practices in the study area

Name of the pond owner	Village	Union	Upazilla	Pond Size	Species Cultured	Culture Period	Total Fish Production
Md. Zia	Panchosona	Saidabad	Sirajginj Sadar	300 Decimal	Rui, Catla, Mrigal, Sarpunti, Tilapia	04 years	7000-8000 kg/year
Jafar Ali	Punorbashon	Saidabad	Sirajginj Sadar	90 Decimal	Tilapia, Grasscarp, Catla, Rui	06 years	2000 kg/ year

Source: ELRC Study Team, December 2024

Table 5-25: List of Cultured Fish species recorded in the study area

Scientific Name	Local Name	English Name	Order	Family
Catla Catla	Catla	Catla	Cypriformes	Cyprinidae
Ctenopharyngodon idella	Grass carp	Grass carp	Cypriformes	Cyprinidae

Cyprinus carpio	Carfu	Common carp	Cypriformes	Cyprinidae
Hypophthalmichthys molitrix	Silver carp	Silver carp	Cypriformes	Cyprinidae
Labeo Bata	Bata	Bata Labeo	Cypriformes	Cyprinidae
Labeo Calbasu	Kalibaus	Orange Fin Labeo	Cypriformes	Cyprinidae
Labeo rohita	Rui	Rohu Carp	Cypriformes	Cyprinidae
Oreochromis niloticus	Nilotica	Nile tilapia	Cichliformes	Cichlidae
Puntius sarana	Sarpunti	Olive Barb	Cypriformes	Cyprinidae

Source: ELRC Study Team, December 2024

5.3.11 CONCLUSION

In the study areas, no tree species of conservation importance were identified. The trees inside the power plant and in the surrounding locations demonstrated excellent growth and health. The assessment of wildlife, including bird activities and terrestrial fauna, indicated minimal impact on behavioral patterns inside the power plant and no discernible impact at the study locations. Furthermore, there was no notable impact on fisheries resources in the study area attributed to the operation of power plant.

5.4 Land and Agricultural Resources

5.4.1 Land Use and Land Cover Change

The total area in the power plant is 6.87 ha of Unit 2 & 3. Surrounding the power plant area 3.65 ha is about as NCA. Besides, other land area remains fallow due to sand filling above flood level. Detailed land use data is presented in Table 5-26 and Figure 5-11.

Table 5-26: Detailed Land Use of the Project Area

Sl. No.	Land Use	Project Area	
		Area (ha)	% Of NCA
1.	Net Cultivable Area (NCA)	3.65	100
2.	Char land/sand	0	0
3.	Forest (Eco-Park/Forest)	0	0
4.	Industrial Area	0	0
5.	Other land uses (Brickfield, Chatal, Important Places and Sand Quarry)	0	0
6.	Road (Access Road, National Road, Railway, Regional Road, Rural Road and Zilla road)	0	0
7.	Rural Settlement with Homestead Vegetation	0	0
8.	Sirajganj Power Plant	0	0
9.	Urban Built-up Area	0	0
10.	Water Bodies (Baor, Beel, Canal, Ditch, Pond, River, Seasonal Water Body)	0	0
11.	**Total**	**3.65**	**100**

Sources: Upazilla Office of the Department of Agriculture, Sadar, Sirajganj

Figure 5-11: Land Use of the Project Area

5.4.2 Agricultural Production

Assessing agricultural production, DoA and farmer's community are reliable sources for understanding the scenario in the project area.

5.4.2.1 FGD With Agriculture Farmers Community

FGD with the agriculture farmers community has been conducted twice in this yearly period. The detailed consultation is depicted in this section.

- **Consultation Details**

Name of the Stakeholder (Institution/Community)	Farmers Community, Boroshimul Village, Soydabad, Sirajganj
Consulted By	Abdur Rab
Designation/Position	Consultant, ELRC
Date	24 December 2024
Time	11:40 AM

- **Participants Details**

Sl. No.	Name	Age	Locations
1.	Md. Salam Howlader	45	Boroshimul Village
2.	Md. Kuddus Molla	43	Boroshimul Village
3.	Md. Khalek Shikder	36	Boroshimul Village
4.	Shah Aman Ullah	29	Boroshimul Village
5.	Abdul Halim	52	Ponchosona Village
6.	Md. Habibur Rahman	25	Ponchosona Village
7.	Md. Babul Mia	43	Ponchosona Village
8.	Sobhan Munshi	40	Ponchosona Village

- **Discussions**

Concerned Issues	Discussions
Agricultural Practices (Single, Double and Triple)	Double (paddy-jute)
Crop Types	Common Crops are paddy, pulse, jute, wheat, mustard, vegetables etc.
Production Rate	Productivity is being decreasing for the last few years
Irrigation Practices	Deep and shallow tube well, natural and surface water
Irrigation Cost (Last and Present Year)	5000-6000 BDT per Bigha (33 Decimal)
Agricultural Labor Availability	Scarce in peak season
Labourer Wages (Male, Female)	It cost 450-500 BDT a day for male labor last season; whether female employees are unavailable in this region.
Remarks	Production rate is decreasing

- **Photographs**


Photo 5-10: Focus Group Discussion (FGD) with Agricultural Farmers Community

5.4.2.2 KII with Department of Agriculture

The ELRC team has been conducted an interview with the Upazilla agriculture officer for understanding the plant surrounding agricultural production and loss scenario in 2024. A few secondary documents have been found for further clarifications and the details consultation explained below-

- **Consultation Details**

Name of the Stakeholder (Institution/Community)	Department of Agriculture, Upazilla Office, Sadar, Sirajganj
Consulted Person	Md. Anwar Sadat
Designation/Position	Additional Agriculture Officer
Cell No.	01700716033
Consulted By	Md. Abdur Rab
Designation/Position	Consultant, ELRC
Date	17.10.2024
Time	10:45 PM

- **Discussions**

Concerned Issues	Discussions
Agricultural Practices	Two crops field maximum and some of them three crops
Irrigation Practices	Shallow tube well, River water and Deep tube well (rare)
Irrigation Cost	Rice production cost per bigha (33 decimal): 12000-15000 BDT
Production Rate	Available
Annual Revenue	Available
Availability of Agricultural Labor	Not available all the season
Labor Wages	Vary season to season 500-800 BDT
Agricultural Problems Created from The Power Plant Operation (Yes/No)	No problem has been reported yet
Remarks	Need Deep tube-well installation for proper irrigation

- **Photographs**

Photo 5-11: Consultation with SAAO, Sirajganj Sadar, Sirajganj

- **Secondary Data Review from the DoA**

Crop area, yield, annual crop production, crop damage in the project surroundings is presented in Table 5-27.

Table 5-27: Crop Area, Yield and Annual Crop Production and Damage in the Project Surroundings

Sl. No.	Crop Name	Crop Area (ha)	Damage Free		Damaged		Total Production (ton)	Production Loss (ton)
			Area (ha)	Yield (ton/ha)	Area (ha)	Yield (ton/ha)		
1.	HYV T. Aus	1,123	904	2.8	159	2.1	2,932	498

2.	B. Aus	778	602	2.2	164	1.2	1,394	361
3.	HYV T. Aman	6,123	4,571	3.2	1,485	2.3	15,303	4,922
4.	Lt. Aman	4,052	3,678	2.5	410	1.8	10,123	1,045
5.	HYV Boro	8,104	7,645	3.1	869	2.5	29,304	3,293
6.	**Total Rice**	**20,180**	**17,400**	**14**	**3,087**	**10**	**59,056**	**10,119**
7.	Mustard	1,034	1,024	1.5	0	0	1,684	0
8.	Potato	789	801	24	0	0	19,284	0
9.	Sesame	792	789	1.1	0	0	870	0
10.	Wheat	2,673	2,786	3.4	0	0	9,273	0
11.	Pulses	721	702	1	0	0	736	0
12.	Jute	4,023	3,984	3.5	0	0	14,823	0
13.	Sugarcane	512	524	39	0	0	22,039	0
14.	Winter Vegetables	712	702	18	0	0	12,034	0
15.	Summer Vegetables	2,145	2,293	16	0	0	34,045	0
16.	**Total Non-Rice**	**13,401**	**13,605**	**108**	**0**	**0**	**114,788**	**0**
17.	**Total**	**33,631**	**31,058**	**121**	**3,087**	**10**	**173,844**	**10,119**

Sources: Upazilla Office of the Department of Agriculture, Sadar, Sirajganj

5.5 Occupational Health and Safety

The components of occupational health and safety at the power plant include occupational noise level, electromagnetic field exposure and worker health condition. Occupational health and safety are defined as any type of interruption caused by a plant-oriented environment during working hours. This section discusses work-related health and safety hazards, as well as mitigating strategies.

5.5.1 Occupational Noise Level

5.5.1.1 Locations

Occupational noise levels were recorded at nine locations in the study area. Noise levels were recorded in the form of sound pressure levels using the different digital sound level meters at the same time. Details list of noise level monitoring locations is given in Table 5-28. The sound level was recorded in form of A-weighted equivalent continuous sound pressure level (Leq) values with the use of A-weighting filters in the noise measuring instrument. Monitoring photographs from February 2024 to January 2024 are attached in **Annex B-8**.

Table 5-28: Occupational Noise Level Monitoring Locations

Sl. No.	Code	Location	GPS Coordinate	Category	Date	Time
1.	ONL1	RMS Building	24°23'8.79"N 89°44'41.06"E	Industrial Area	17.03.2024	09:10 AM
					23.06.2024	08:55 AM
					14.09.2024	09:05 AM
					17.12.2024	08:34 AM
2.	ONL2	Control Building		Industrial Area	17.03.2024	05:32 PM

Sl. No.	Code	Location	GPS Coordinate	Category	Date	Time
			24°23'11.82"N 89°44'47.12"E		23.06.2024	04:43 PM
					14.09.2024	05:34 PM
					17.12.2024	04:43 PM
3.	ONL3	Administrative Building	24°23'11.63"N 89°44'46.14"E	Mixed Area	17.03.2024	01:15 AM
					23.06.2024	11:25 AM
					14.09.2024	01:35 AM
					17.12.2024	09:06 AM
4.	ONL4	Health Unit	24°23'11.56"N 89°44'46.58"E	Silent Area	17.03.2024	08:21 PM
					23.06.2024	07:12 PM
					14.09.2024	08:21 PM
					17.12.2024	05:02PM
5.	ONL5	Residential Building	24°23'14.62"N 89°44'47.89"E	Residential Area	17.03.2024	04:39 AM
					23.06.2024	10:32 AM
					14.09.2024	04:40 AM
					17.12.2024	09:14 AM
6.	ONL6	Gas Booster Area	24°23'12.41"N 89°44'43.00"E	Industrial Area	17.03.2024	01:12 AM
					23.06.2024	07:28 PM
					14.09.2024	01:03AM
					17.12.2024	05:21 PM
7.	ONL7	Air Compressor	24°23'12.05"N 89°44'44.37"E	Industrial Area	17.03.2024	08:18 AM
					23.06.2024	09:10 AM
					14.09.2024	08:10 AM
					17.12.2024	08:30 AM
8.	ONL8	GTG Building	24°23'6.82"N 89°44'47.12"E	Industrial Area	17.03.2024	05:13 PM
					23.06.2024	06:16 PM
					14.09.2024	05:00 PM
					17.12.2024	06:01 PM
9.	ONL9	STG Building	24°23'15.28"N 89°44'31.97"E	Industrial Area	17.03.2024	01:37 AM
					23.06.2024	01:14 PM
					14.09.2024	01:20 AM
					17.12.2024	11:022 AM

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.5.1.2 Results and Discussion

As per the contract specifications, every quarter noise level of the plant area also has been monitored in different locations to find out the occupational effect of the noise level. As per the comment of the auditor, an 8-hour noise level has been monitored at the plant site. The monitoring points have been increased over the last year. GTG, STG, Air Booster and Gas Booster area covered for occupational noise in the last month. The data has been given in Table 5-29.

Table 5-29: Occupational Noise Level at Plant Site

Sl. No.	Code	Period	Noise Level (dBA)			*Standard (dBA)
			Leq_{Avg}	L_{max}	L_{min}	
1.	ONL1	February-April 2024	65.2	72.7	59.5	Less than 80
		May-July 2024	65.8	73.2	60.9	
		August-October 2024	65.9	72.7	60.5	
		November 2024-January 2025	64.2	74.7	60.3	
2.	ONL2	February-April 2024	68.8	73.8	62.4	
		May-July 2024	69.6	76.6	61.4	
		August-October 2024	64.4	71.7	59.2	
		November 2024-January 2025	65.6	72.8	59.2	
3.	ONL3	February-April 2024	64.3	70.9	61.3	
		May-July 2024	59.8	67.5	46.8	
		August-October 2024	58.2	70.5	47.3	
		November 2024-January 2025	59.2	68.1	51.3	
4.	ONL4	February-April 2024	56.7	67.2	52.8	
		May-July 2024	62.6	69.4	54.9	
		August-October 2024	59.1	68.2	50.4	
		November 2024-January 2025	58.6	64.6	50.6	
5.	ONL5	February-April 2024	57.1	53.8	56.5	
		May-July 2024	59.7	66.7	51.6	
		August-October 2024	55.1	60.4	51.5	
		November 2024-January 2025	56.2	62.5	49.6	
6.	ONL6	February-April 2024	70.6	72.7	66.8	
		May-July 2024	69.5	76.8	62.1	
		August-October 2024	66.2	77.4	58.3	
		November 2024-January 2025	66.3	74.8	60.1	
7.	ONL7	February-April 2024	74.8	77.1	69.7	
		May-July 2024	73.6	78.6	62.8	
		August-October 2024	71.8	77.6	52.2	
		November 2024-January 2025	71.4	77.3	63.2	
8.	ONL8	February-April 2024	72.8	76.4	68.3	
		May-July 2024	70.6	79.3	61.4	
		August-October 2024	72.6	78.1	64.3	
		November 2024-January 2025	72.5	76.6	63.6	
9.	ONL9	February-April 2024	71.6	75.7	69.8	
		May-July 2024	72.3	76.1	56.1	
		August-October 2024	73.8	77.6	65.6	
		November 2024-January 2025	74.2	73.8	69.5	

*Note: *Labor Rule 2015 (Chapter:7; Page: 7355), Occupational noise level cannot exceed 80 dBA*

From the test result, it has been found that at NL9, the Leq is quite higher than the other places. Also in the Gas Booster, GTG and Air Booster area, the noise level is high. There is no standard in ECR, 1997 for working near machinery area but according to Labor Rules 2015, all the locations have remained under 80 dBA. But the machinery has been covered with the brick wall and as a result, it doesn't affect much in ambient noise level. In RMS and control building, the noise level was varied from 64.5 to 68.4 during the working period. In administrative buildings, health units and residential areas, the noise level is below 60 dBA. So, it has been recommended to wear an earplug while working in a noisy area that is more than 75 dBA.

5.5.2 Electro-Magnetic Field

5.5.2.1 Locations

To understand the exposure of the worker to the electromagnetic field, EMF has been monitored at the plant site. A detail of the monitoring location is provided in Table 5-30. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-9**.

Table 5-30: Details of Electro-Magnetic Field Monitoring Locations

Sl. No.	Code	Location	GPS Coordinate	Time	Date
1.	EMF1	Switch Yard	24°23'11.08"N 89°44'42.18"E	11:37 AM	17.03.2024
				02:10 PM	23.06.2024
				10:25 AM	14.09.2024
				12:20 PM	17.12.2024

Source: Site visit of ELRC monitoring team from February 2024 to January 2024

5.5.2.2 Results and Discussion

Analysis results of the EMF are represented in Table 5-31 where the values are compared with the standard limit.

Table 5-31: Testing Result of Electro-Magnetic Field

Sl. No.	Code	Period	Distance	EMF (mv/m)	*Standard (mv/m)
1.	EMF1	February-April 2024	0m	0	120 (for Worker)
			3m	0	
			5m	0	
			10m	0	
		May-July 2024	0m	171.2	
			3m	125.7	
			5m	103.7	
			10m	86.7	
		August-October 2024	0m	0	
			3m	0	
			5m	0	
			10m	0	
		November 2024-January 2025	0m	169.4	
			3m	123.6	

			5m	101.5	
			10m	79.54	

**According to International Commission on Non-Ionizing Radiation Protection (ICNIRP)*

At the in-plant site, the electromagnetic field has been monitored every quarter from a different distance (0m, 3m, 5m and 10m) of the corner of the switchyard area. The average EMF reading has been found. from 79.54 to 171.2 mv/m which is quite high for the exposure of workers. But as distance increased, the EMF was decreasing. As per the International Commission on Non-Ionizing Radiation Protection, the standard value is 120 mv/m. So, the best way to protect from radiation is to maintain a good distance. from the source. At 0m distance the average EMF was 185.98 mv/m, from 3m distance it was about 157.55 mv/m. So, from 0m and 3m distance, the EMF level was fluctuating. From 5m and 10m distance, the EMF is under control. So, 0m and 3m distance from the switchyard area has been barricaded for any entry. Also, signage has been provided there as a high EMF area. Awareness meeting and training has also been conducted in the last year among the people (Annex I). PPE has been used while working near such a high EMF area.

5.5.3 Worker Health

SPS medical unit performed a health checkup program for its workers involved in operation & maintenance. As a part of the health checkup program, Workers' different health parameters i.e., Hearing and Eye vision etc. have been tested. Subsequently, a health checkup report has been prepared by the medical unit frequently. All the health checkup reports have been attached with **Annex G**.

5.6 Labor and Working Conditions

A power plant's labor and working circumstances are influenced by factors such as drinking water quality, the availability of cleanliness facilities and so on. This section addresses labor and working conditions challenges through appropriate experimentation.

5.6.1 Potable Water Supply

Potable water supply for the power plant is well facilitated including office building and residential area. All the drinking water supplies are filtered-oriented. Available water supply is observed during this year in the power plant premises. The potable water supply sources are presented in the following Photo 5-12.

Photo 5-12: Proper Potable Water Supply in Office Building and Residential Area

5.6.2 Drinking Water Quality

5.6.2.1 Locations

Drinking Water sampling and analysis were undertaken to understand the overall water quality characteristics of the groundwater of the study area. The sample was taken from drinking water sources from the study area. Detail of the sampling location is provided in Table 5-32. Monitoring photographs from February 2024 to January 2025 are attached in **Annex B-7**.

Table 5-32: Details of Drinking Water Sampling Locations

Sl. No.	Code	Location	GPS Coordinate	Source	Time	Date
1.	DW1	Control Building	24°23'11.72"N 89°44'47.22"E	Supply Water	10:28 AM	17.03.2024
					09:15 AM	23.06.2024
					10:17 AM	14.09.2024
					10:32 AM	17.12.2024
2.	DW2	Admin Building	24°23'11.95"N 89°44'46.00"E	Supply Water	11:04 AM	17.03.2024
					11:00 AM	23.06.2024
					12:58 PM	14.09.2024
					11:54 AM	17.12.2024
3.	DW3	Residential Building	24°23'14.77"N 89°44'49.31"E	Supply Water	11:27 AM	17.03.2024
					11:26 AM	23.06.2024
					01:21 PM	14.09.2024
					10:32 AM	17.12.2024

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.6.2.2 Results and Discussion

Analysis results of the drinking water are represented in Table 5-33 where the values are compared with the standard limit.

Table 5-33: Drinking Water Quality Analysis Result

Parameters	Unit	Concentration												*Standard
		March 2024			June 2024			September 2024			December 2024			
		DW1	DW2	DW3	DW1	DW2	DW3	DW1	DW2	DW3	DW1	DW2	DW3	
pH	-	7.2	7.5	7.1	7.4	7.3	7.5	7.6	7.4	7.7	7.4	7.6	7.5	6.5-8.5
Arsenic (As)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05
Total Dissolved Solid (TDS)	mg/L	155	170	163	163	172	159	162	173	168	160	163	162	1000
Electrical Conductivity (EC)	mg/L	311	342	322	327	344	319	320	348	336	316	310	330	-
Total Coliform (TC)	N/100mL	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hardness	mg/L	222	217	220	193	214	205	214	205	214	202	195	220	500
Chlorine (Cl)	mg/L	1.3	1.8	1.6	1.3	2.0	1.4	1.5	1.2	1.9	1.2	0.6	0.8	-
Fluoride (F)	mg/L	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.4	0.6	1.0
Iron (Fe)	mg/L	0.03	0.02	0.01	0.02	0.01	0.02	0.03	0.03	0.04	0.04	0.04	0.05	0.3-1
Manganese (Mn)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.4
Phosphate (PO4)	mg/L	0.1	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.5	-
Sulphate (SO4)	mg/L	16	12	10	9	12	10	13	14	16	12	13	14	250

*Note: * According to ECR 2023, Schedule 2(B)*

According to the tested results, we can see that a total of three sources have been considered and tested every month. pH, As, Total Hardness, Cl, F, Fe, Mn, PO_4 and SO_4 has been tested for confirming the drinking water quality. The concentration levels of all the parameters for supply water were found within the acceptable limit set by the DoE, GoB for drinking water. So, the water is supplying for drinking purposes in Unit 2 is safe to drink.

5.6.3 Availability of Hygiene Toilets

An adequate number of toilets are provided to workers. Standards range from 1 unit to 15 persons to 1 unit per 6 persons. For urinals, usual standards are 1 unit to 15 persons. Moreover, toilet facilities are conveniently located and easily accessible. Toilet rooms are accessible without any individual passing through any sleeping room. In addition, all toilet rooms are well-lit, have good ventilation or external windows, have sufficient hand washbasins. All toilets have been found regularly cleaned & maintained. The toilet facilities of the power plant are oriented in the following Photo 5-13.

Photo 5-13: Neat and Clean Toilet Facilities in Office and Residence

Source: Annual site visit of ELRC monitoring team in February 2024 - January 2025

5.7 Community Health, Safety and Security

This section included the emergency response plan, health and safety preparedness and community relationship with the power plant.

5.7.1 Community Health (Status of Communicable and Vector-Borne Diseases)

Communicable diseases, also known as infectious diseases or transmissible diseases, are illnesses that result from the infection, presence and growth of pathogenic (capable of causing disease) biologic agents in an individual human or another animal host. Besides, Disease that results from an infection transmitted to humans and other animals by blood-feeding arthropods, such as mosquitoes, ticks and fleas. Examples of vector-borne diseases include Dengue fever, West Nile Virus, Lyme disease and malaria. The ELRC team has been conducted a KII with the medical personnel near the power plant for collecting documents on communicable and vector-borne diseases. But unfortunately, they have no records on it and just trying to explain the verbal statement. The details of KII are presented below-

5.7.1.1 Consultation Details

Name of the Stakeholder (Institution/Community)	Upazila Health and Family Welfare Office, Sirajganj Sadar, Sirajganj
Consulted Person	Usuf Ali
Designation/Position	Upazila Health and Family Welfare Officer
Cell No.	01734649781
Consulted By	Amit Kumar Saha
Designation/Position	Consultant, ELRC
Date	09.10.2024
Time	03:50 PM

5.7.1.2 Discussions

Concerned Issues	Discussions
Available Health Facilities	Primary Treatment, Maternal Consultation, Communicable and Non-communicable Disease Related Awareness
Common Exposure Diseases (Last One Year)	No Records Available
Health Problems Created from The Project Activities (If Any)	No
Health Improvement Initiatives Taken by Upazila Family welfare	No Initiative taken

Photo 5-14: Consultation with Upazila Family Planning Officer at Upazila Health and Family Welfare Office

5.7.2 Safety and Security

Safety and security of the community and the power plant are the concern issues in this section and specifically, all the available safety and security aspects are explained here.

5.7.2.1 Emergency Preparedness and Responses

The NWPGCL has updated the emergency preparedness and responses plan and according to the plan numerous awareness training, first aid training and other emergency-related activities have been demonstrated in the power plant. The emergency preparedness and responses plan has also been disclosed to the respective stakeholders for their support and services. The detailed report of the emergency preparedness and responses plan and activities are attached with **Annex H**.

5.7.2.2 Community Relationship Program/Community Awareness, Training

- **Training on Community Emergency Preparedness**

Community Health, Safety and Emergency Preparedness Program has been conducted on 09 October 2024 at Punorbason Madrasha at Soydabad in Sirajganj Sadar Upazila under Sirajganj district with proper COVID-19 precaution and following management guidelines. The proceedings commenced at 12:00 PM. The program has been attended by a total of 36 people, which represent local people, day laborers, businessmen, students, teachers, senior citizens and political leaders. The detailed presentation or training module is attached with **Annex I**. The community has been made a train of the Community Health, Safety and Emergency Preparedness related to the following issues.

- Flood
- Gas Pipeline leakage
- Oil Pipeline leakage
- Traffic accident
- Communicable and non-communicable diseases

Target Audience	Local Residence/Community
Trainer	Md. Rofiul Karim and Amit Kumar Saha
Designation/Position	Consultant, ELRC
Date	09.10.2024
Time	12:00 PM

Photographs





Photo 5-15: Training on Community Health, Safety and Emergency Preparedness Program with Local Community

5.7.3 Treated Wastewater Basis Irrigation

Normally treated wastewater has been discharged to the nearest channel which is usually locked except monsoon period. Also, the adjacent land is sandy and no agricultural activities in that area. So, there is no chance of using the treated water in irrigation land.

5.8 Grievance Mechanism

According to the SPS documentation, there have been no complaints gathered this year. Numerous complaint box has been placed in the important places of the plant area. Written or verbal complaints are absent in this whole year. The details of the grievance mechanism are placed in **Annex J**.

5.9 Emergency Response Plan

NWPGCL authority has prepared a common Emergency Response Plan for the Sirajganj Power Complex which is applicable for all the 3 units. As per the plan, proper training has been provided to the staff of the SPS. The emergency response plan is included in **Annex K**.

5.10 Health and Safety Preparedness

According to the requirement of health and safety preparedness, the NWPGCL has been conducted a lot of mock drilling, fire drilling, fire training etc. All the records of the health and safety-related preparedness program have been presented in **Annex L.**

5.11 Community Relationship

The NWPGCL has been initiated a lot of tasks to develop the community relationship and that's why the ELRC team was conducted FGD among the local community to understand the community relationship with the SPS. This section is oriented toward community engagement-related aspects.

5.11.1 Details of FGD

Name of the Stakeholder (Institution/Community)	Local Residence/Community
Consulted By	Md. Abdur Rab and Tofazzal Hossain
Designation/Position	Assistant Consultant, ELRC
Date	9 October 2024
Time	01:25 PM

5.11.2 Participant Details and Discussion Summary

Sl. No.	Participants	Profession	Address	Comment/Question/ Suggestions/Expectations	Reply/Response from Project Proponent
1.	Md. Salam Uddin	Farmer	Boroshimul Village	▪ There haven't been any noticeable effects on air quality this quarter. ▪ On the agricultural ground, there were no signs of oil or grease leaching.	The project's effects on the environment and society are being closely monitored and controlled.
2.	Md. Abbas Mia	Farmer	Boroshimul Village	▪ The project proponent's efforts to run a CSR program are highly valued by the community.	The proponent has put important safeguards in place to adequately address environmental threats. It is guaranteed that dangerous items are handled precisely.
3.	Md. Hasan	Farmer	Ponchosona Village	▪ The establishment of this plant will provide the locals with a plethora of small business prospects. ▪ To reduce the acoustic impact of sound-generating gear, regular maintenance is necessary. ▪ The CSR initiative has successfully fostered a close relationship between project staff and the neighborhood.	To efficiently reduce any possible negative effects, the project complies with applicable regulations and normal operating processes.
4.	Tapos Joarder	Businessman	Boroshimul Village	▪ There haven't been any noticeable effects on air quality this quarter. ▪ On the agricultural ground, there were no signs of oil or grease leaching.	The proponent has put important safeguards in place to adequately address environmental threats. It is ensured that dangerous items

Sl. No.	Participants	Profession	Address	Comment/Question/ Suggestions/Expectations	Reply/Response from Project Proponent
					are handled precisely.
5.	Md. Monowar Hossain	Farmer	Boroshimul Village	▪ There have been no reported incidents involving the project in the neighborhood.	This is what the plant authority plans to classify as one of their CSR initiatives. When it comes to mishaps, the supporters take the necessary precautions and proceed with extreme caution.
6.	Md. Abdur Rahim	Farmer	Ponchosona Village	▪ There was no influence on any agricultural land from the project activity. ▪ Rehabilitating local roadways is necessary to provide better traffic flow.	There were no harmful activities done that would affect the project area's agricultural resources.
7.	Md. Saifur Rahman	Farmer	Ponchosona Village	▪ It is necessary to arrange for more health and safety education and awareness campaigns.	Organizing and moving up
8.	Md. Rofiul Islam	Farmer	Ponchosona Village	▪ There were no infectious disease outbreaks as a result of the project's operations.	We are keeping up regular health check-ups and taking all necessary safeguards.
9.	Md. Selim Hawlader	Fisherman	Ponchosona Village	▪ There was no effect of the project operations on any fishery resources. ▪ This quarter, no cases of gas pipe leaks were reported.	All environmental parameter is being regularly monitored.
10.	Md. Samsul Alom	Fisherman	Ponchosona Village	▪ Creation of new job opportunities for jobless people. ▪ There were no signs of oil and grease leaking on agricultural land.	▪ preparing and moving forward. ▪ Every quarter, the proponent holds training sessions.

Sl. No.	Participants	Profession	Address	Comment/Question/ Suggestions/Expectations	Reply/Response from Project Proponent
				▪ Neither agricultural fields nor aquatic bodies have any hazardous waste observations made.	▪ Plant management will talk about this issue more in the future.
11.	Md. Ruhul Amin	Day Labor	Boroshimul Village	▪ Encouraging local residents to have more work opportunities would be beneficial. ▪ There have been no reports of gas line leaks this quarter.	• Organizing and advancing
12.	Ahesanul karim	Student	Boroshimul Village	There must be employment opportunities in the plant.	Local people may apply for jobs if they are eligible for this post.

5.11.3 Photographs

Photo 5-16: FGD with Local Community in Boroshimul Village

Photo 5-17: FGD with Local Community, Ponchosona Village

Photo 5-18: FGD with Fisherman and Agricultural Farmers in Boroshimul Village

5.12 CSR Program

CSR program is the term of community relationship build-up related issues. The NWPGCL authorities have been conducted a few CSR programs this year. The details CSR program this year is presented in a section comprised of social development, health care development and community aid.

5.12.1 Social Development Program and Aid to Community

The NWPGCL had taken a lot of steps for developing the community around the plant area. Financial, logistic, intellectual etc. support has been provided to the community for social bonding and development. Details are present in **Annex M1 and M2.**

5.13 GHG Emission

The Kyoto Protocol – United Nations Framework Convention on Climate Change nominates the following GHGs:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Hydrofluorocarbons (HFCs) and
- Perfluorocarbons (PFCs).

Inventories of GHG emissions can be calculated using published emission factors. Different gases have different greenhouse warming effects (referred to as warming potentials) and emission factors consider the global warming potentials of the gases created during combustion. Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO_2e). Gases are converted to CO_2e by multiplying by the gas global warming potential (GWP). The GWP of gases are as follows[4]:

- GWP for $CO_2 = 1$
- GWP for $CH_4 = 21$
- GWP for $N_2O = 310$

When the global warming potentials are applied to the estimated emissions then the resulting estimate is referred to in terms of CO_2-equivalent (CO_2e) emissions.

The emission includes 2 scopes:

- ❖ Scope 1 emissions are direct emissions from owned or controlled sources.
- ❖ Scope 2 emissions are indirect emissions from the generation of purchased energy.

Scope 1 and Scope 2 for this power Plant are given below.

Scope 1	Scope 2
• Fuel combustion from Combined cycle Power plant	• Vehicles used by officials and other stuff of NWPGCL for official purpose;

5.13.1 GHG Estimation and Impact

The combustion of natural gas produces GHGs. The amount of GHGs emitted by a power plant is a measure of its contribution to global warming and can be estimated based on fuel consumption. To estimate GHG emissions, the IFC recommended Carbon Emission Estimation Tool (CEET model – Version

[4] *Source: Intergovernmental Panel on Climate Change (IPCC) (1995), Second Assessment Report*

February 2014)[5] has been used as set out below. The quantification of the GHG emission is from January 2024 to December 2024.

Scope 1:

Table 5-34: Estimated GHG Emissions from the Plant (In Natural Gas)

SL#	Particular	Value	Unit
A*	Net Heat Rate (Natural Gas in Combined Cycle)	**7931.59**	KJ/KWH
B*	Gross Generation Capacity (Combined Cycle)	**228500**	KW
C	Operating Days per year	**98.16**	days
D	Daily Operating Hours	**24**	Hours/day
E	Total Annual Output (B X C X D)	**415162890.90**	KWH
F	Annual Fuel Consumption (= E x A)	**3292903560212.57**	KJ
		32929.0356	TJ
G*	Annual GHG Emission in Gas Turbine	**1878634**	tCO_2e/year

** Based on the natural gas specification provided by NWPGCL*

Table 5-35: Estimated GHG Emissions from the Plant (In HSD)

SL#	Particular	Value	Unit
A*	Net Heat Rate (Natural Gas in Combined Cycle)	**0.00**	KJ/KWH
B*	Gross Generation Capacity (Combined Cycle)	**228500**	KW
C	Operating Days per year	**0.00**	days
D	Daily Operating Hours	**24**	Hours/day
E	Total Annual Output (B X C X D)	**0**	KWH
F	Annual Fuel Consumption (= E x A)	**0.00**	KJ
		0	TJ
G*	Annual GHG Emission in Diesel	**0**	tCO_2e/year

** Based on HSD specification provided by NWPGCL*

Scope 2:

Estimated GHG Emissions from the fuel consumed Vehicles

For diesel used in the vehicles have been contributed 12 tCO_2/year during the period of January 2024 to December 2024. GHG emission from fuel consumed in mobile vehicles is 12 tCO_2e/year.

Total GHG Emissions

Total GHG Emission = Natural Gas+HSD+Mobile Vehicles

= (18,78,634+0+12) tCO2/year

= 18,78,646 tCO2/year

So, from January 2024 to December 2024, the annual emission of GHG from Unit 2 is about 18,78,646 tCO2/year.

[5] *http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/CB_Home/Measuring+Reporting/*

6 CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

The project site is located at about 15 km south-east of Sirajganj town, about 130 km north-west of Dhaka and 1.8 km south-west from the western end of Bangabandhu bridge. The major components include a 150 MW gas turbo generator (GTG) with a bypass stack of 60 meters high, one horizontal type Heat Recovering Steam Generator (HRSG) with the main stack of 60 meters high for outdoor installation and a heavy-duty condensing type Steam Turbo Generator (STG) for indoor installation in the configuration of 1:1:1, feedwater pumps, condensate extraction pumps, cooling towers, 230 KV plant sub-station, transformers, Gas Regulating Metering Station (RMS), Oil Separator Unit, Water Treatment Plant (WTP), Administration building, workshop, warehouse, guardhouses, internal roads etc. The annual environment, health safety and social monitoring have been conducted for inspecting the environmental disruption due to power plant -oriented activities. Mitigation measures are the most significant parts of organizing such a power plant in an environmentally sound manner. Following the baseline assessment, management standards and policies are put in place to limit environmental, health and safety consequences. The quantitative and qualitative components of EHS are being considered for inclusion in the yearly monitoring and management. Surface water, drinking water, stormwater, wastewater, groundwater and EMF are all examined/monitored in order to determine the source of the disturbance and implement appropriate mitigation measures. Wastewater and stormwater are perfectly safe to discharge into nearby water bodies. Surface water is free of contamination caused by power plants, such as no liquid waste discharged into a water body without treatment. According to the test results, groundwater and drinking water from the power plant vicinity are safe. All quantitative parameters are compared to the power plant's current Bangladesh Standard. Domestic wastes and liquid wastes are the primary waste generation from the power plant region, where no hazardous waste contamination is detected. Every major location has several dustbins and waste bins for waste sorting and disposal. All the wastes have also been disposed of in government-designated places or sold out to a third party. Scrap materials are properly fenced according to the management guidelines. Water spraying on the power plant road is continuing for reducing dust generation and pollution. Accommodation, sanitation and water supply facilities are properly ensured in the power plant area. To avoid any accidents, comprehensive health and safety planning has been implemented. Furthermore, health screenings and other associated training have been undertaken to provide a long-term working environment. According to site monitoring, no severe environmental, health, or safety issues have been identified in this quarter. As a result, all facilities will be enhanced and maintained in order to create an environmentally sound workplace. Any and all mitigating measures will be used to develop the power plant while protecting the environment and maintaining the health and safety of the personnel.

ANNEXURE

Annex A: Laboratory Analysis Reports

Annex A-1: Ambient Air Quality Lab Report

February-April 2024

Ref: ELRC/Ambient Air Quality/ 2025019321

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Air Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Ambient Air Quality
Monitoring Personnel : Abdur Rab, Asst. Consultant, ELRC
Monitoring Location : Project Area (AAQ1), In front of Main Gate (AAQ2), Rehabilitation Village (AAQ3), Ponchosona Village (AAQ4), and Bangabandhu Eco Park (AAQ5)
Monitoring Date : (17-19).03.2024
Analysis Date : 07.04.2024

Description of Analysis :

Location	Ambient Air Pollutants Concentration (µg/m³)						
	SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	O_3
AAQ1	116.72	77.13	40.13	18.53	20.68	0.04	13.1
AAQ2	123.19	83.53	43.44	21.83	24.1	0.04	14.7
AAQ3	106.25	70.25	38.16	17.52	19.76	0.03	12.8
AAQ4	108.58	78.63	41.38	12.81	15.66	0.03	11.6
AAQ5	105.1	70.72	37.8	10.3	13.9	0.03	10.3
Duration (hr.)	8	24	24	24	24	8	8
Air Pollution (control) rules, 2022*	-	150	65	80	80	5	100
IFC/WHO Standard	--	50	25	20	40 (Annual)	--	100
Method of Analysis Instrument Use: *Haz-Scanner™ HAM 6000*	*Light Scattering Nephelometer*	*Light Scattering Nephelometer*	*Light Scattering Nephelometer*	*High Sensitivity Electrochemical*	*High Sensitivity Electrochemical*	*High Sensitivity Electrochemical*	*High Sensitivity Electrochemical*

Note: Legend: SPM -Suspended Particulate Matter, PM_{10} -Particulate Matter of a diameter of 10 micron or less, $PM_{2.5}$ -Particulate Matter of a diameter of 2.5 micron or less, SO_2 -Sulphur Di-Oxide, NOx -Oxides of Nitrogen, CO - Carbon Monoxide, O3 - Ozone

Office Adress:
Flat: #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Received By:	Analyzed By:	Checked By:
Md. Shafiqul Islam Consultant ELRC	Md. Shahparan Technical Manager ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Ambient Air Quality/ 20250894

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Air Quality

Project Name : Siraiganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Ambient Air Quality
Monitoring Personnel : Abdur Rab, Asst. Consultant, ELRC
Monitoring Location : Project Area (AA01), In front of Main Gate (AA02), Rehabilitation Village (AA03), Ponchosona Village (AA04), and Bangabandhu Eco Park (AA05)
Monitoring Date : 23.06.2024-25.06.2024
Analysis Date : 10.07.2024

Description of Analysis :

Location	Ambient Air Pollutants Concentration (µg/m³)						
	SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	O_3
AA01	88.5	53.3	26.4	12.6	15.7	0.04	10.2
AA02	93.8	58.8	31.7	15.7	17.3	0.04	12.9
AA03	78.9	49.7	21.3	11.7	12.8	0.03	9.7
AA04	91.8	56.4	29.8	10.4	14.3	0.03	11.4
AA05	85.2	32.8	20.4	10.7	13.7	0.03	10.4
Duration (hr.)	8	24	24	24	24	8	8
Air Pollution (control) rules, 2022*	-	150	65	80	80	5	100
IFC/WHO Standard	--	50	25	20	40 (Annual)	--	100
Method of Analysis Instrument Use: *Haz-Scanner™ HAM 6000*	*Light Scattering Nephelometer*	*Light Scattering Nephelometer*	*Light Scattering Nephelometer*	*High Sensitivity Electrochemical*	*High Sensitivity Electrochemical*	*High Sensitivity Electrochemical*	*High Sensitivity Electrochemical*

Note: SPM -Suspended Particulate Matter, PM_{10} -Particulate Matter of a diameter of 10 micron or less, $PM_{2.5}$ -Particulate Matter of a diameter of 2.5 micron or less, SO_2 -Sulphur Di Oxide, NO_x -Oxides of Nitrogen, CO - Carbon Monoxide, O_3 - Ozone

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/Ambient Air Quality/ 202501564Z

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Air Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Ambient Air Quality
Monitoring Personnel : Abdur Rab, Asst. Consultant, ELRC
Monitoring Location : Project Area (AAQ1), In front of Main Gate (AAQ2), Rehabilitation Village (AAQ3), Ponchosona Village (AAQ4), and Bangabandhu Eco Park (AAQ5)
Monitoring Date : 14.09.2024-16.09.2024
Analysis Date : 06.10.2024

Description of Analysis :

Location	Ambient Air Pollutants Concentration (µg/m³)						
	SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	O_3
AAQ1	101.2	61.3	29.7	14.4	17.8	0.04	11.3
AAQ2	95.1	58.3	27.5	12.5	15.6	0.03	12.5
AAQ3	82.9	50.5	22.6	10.4	13.9	0.02	9.3
AAQ4	96.3	58.1	27.5	11.9	14.6	0.03	10.6
AAQ5	73.4	42.4	21.7	10.1	14.8	0.02	9.5
Duration (hr.)	8	24	24	24	24	8	8
Air Pollution (control) rules, 2022*	-	150	65	80	80	5	100
IFC/WHO Standard	-	50	25	20	40 (Annual)	--	100
Method of Analysis Instrument Use: *Hor-Scanner™ HAS 8200*	Light Scattering Nephelometer	Light Scattering Nephelometer	Light Scattering Nephelometer	High Sensitivity Electrochemical	High Sensitivity Electrochemical	High Sensitivity Electrochemical	High Sensitivity Electrochemical

Note: SPM- Suspended Particulate Matter, PM_{10}- Particulate Matter of a diameter of 10 micron or less, $PM_{2.5}$- Particulate Matter of a diameter of 2.5 micron or less, SO_2- Sulphur Di Oxide, NO_x- Oxides of Nitrogen, CO - Carbon Monoxide, O_3 – Ozone

Received By:	Analyzed By:	Checked By:
Md. Shafiqul Islam Consultant ELRC	Md. Shahparan Technical Manager ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat: 6F1, House # Ta-114/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107B9-90
+88(02) 9884077
Mobile: +(880) 191170207
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Ambient Air Quality/ 2025014281

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Air Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Ambient Air Quality
Monitoring Personnel : Abdur Rab, Asst. Consultant, ELRC
Monitoring Location : Project Area (AAQ1), In front of Main Gate (AAQ2), Rehabilitation Village (AAQ3), Ponchosona Village (AAQ4), and Bangabandhu Eco Park (AAQ5)
Monitoring Date : 17.12.2024-19.12.2024
Analysis Date : 07.01.2024

Description of Analysis :

Location	Ambient Air Pollutants Concentration (µg/m³)						
	SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	O_3
AAQ1	142.6	83.9	47.8	14.2	18.4	0.05	14.7
AAQ2	134.2	80.6	43.2	13.6	17.8	0.04	13.5
AAQ3	130.8	78.2	37.1	14.1	16.7	0.04	13.7
AAQ4	134.5	82.8	39.6	12.4	16.2	0.03	13.1
AAQ5	118.5	77.1	31.7	13.8	15.1	0.04	12.5
Duration (hr.)	8	24	24	24	24	8	8
Air Pollution (control) rules, 2022*	-	150	65	80	80	5	100
IFC/WHO Standard	-	50	25	20	40 (Annual)	--	100
Method of Analysis Instrument Use: *Hor-Scanner™ HM 6000*	Light Scattering Nephelometer	Light Scattering Nephelometer	Light Scattering Nephelometer	High Sensitivity Electrochemical	High Sensitivity Electrochemical	High Sensitivity Electrochemical	High Sensitivity Electrochemical

Note: SPM- Suspended Particulate Matter, PM_{10}- Particulate Matter of a diameter of 10 micron or less, $PM_{2.5}$- Particulate Matter of a diameter of 2.5 micron or less, SO_2- Sulphur Di Oxide, NOx -Oxides of Nitrogen, CO - Carbon Monoxide, O_3 – Ozone

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat: 8F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107889-90
+88(02) 9884077
Mobile: +(880) 191170207
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-2: Ambient Noise Level Lab Report

February-April 2024

Ref: ELRC/Ambient Noise Quality/2025019322

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Ambient Noise Quality
Monitoring Personnel : Toffazzal Hossain, Consultant, ELRC
Monitoring Location : ANL1; South-West Corner of the Project
ANL2; Southeast Corner of the Project
ANL3; Middle of the Project
ANL4; Middle of the Northwest and Southwest
ANL5; Northwest Site
ANL6; Northeast Site
ANL7; Infront of G.T.G Building
ANL8; Infront of S.T.G Building
ANL9; Administration Building (Outdoor)
ANL10; Medical (Indoor)
ANL11; Administration Building (Indoor 2nd floor)
ANL12; Residential Building
ANL13; Main Gate of the Project
Monitoring Date : (17-18).03.2024
Analysis Date : 07.04.2024
Description of Analysis :

Code	Noise Level (dBA)				*Bangladesh Standard		**WHO/IFC Standard	
	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Day	Night	Day	Night
ANL1	65.2	51.3	71.8	42.2	75	70	70	70
ANL2	68.3	56.1	73.5	44.7	75	70	70	70
ANL3	63.7	52.6	68.5	43.8	75	70	70	70
ANL4	65.2	51.8	69.7	44.7	75	70	70	70
ANL5	58.8	50.3	70.8	42.5	75	70	70	70
ANL6	60.4	49.9	65.2	43.6	75	70	70	70
ANL7	66.4	51.6	70.1	45.5	75	70	70	70
ANL8	67.6	52.5	71.3	44.7	75	70	70	70
ANL9	56.2	50.1	60.6	42.8	60	50	-	-
ANL10	48.1	37.2	53.5	33.6	50	40	55	45
ANL11	49.6	40.8	56.1	37.6	60	50	-	-
ANL12	49.2	37.1	58.6	33.9	55	45	55	45
ANL13	58.5	45.8	61.8	38.2	75	70	70	70

Office Adress:
Flat #F1, House # Ta-154/A
Bashakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107B9-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Category of Area/Receptor	Bangladesh*		IFC-WHO**	
	Day (dB(A)) 6 AM – 9 PM	Night (dB(A)) 9 PM – 6 AM	Day (dB(A)) 7 AM – 10 PM	Night (dB(A)) 10 PM – 7 AM
Silent Zone	50	40	55	45
Residential Area	55	45	55	45
Mixed Area	60	50	-	-
Commercial Area	70	60	70	70
Industrial Area	75	70	70	70

*Ministry of Environment, Forest, and Climate Change. (2006). Noise Pollution (Control) Rules, 2006 (S.R.O. No. 212-Law/2006). The People's Republic of Bangladesh.

**Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999. As per IFC EHS noise level guidelines, Noise impacts should not exceed the levels presented in the above table.

Received By:	Analyzed By:	Checked By:
Md. Shafiqul Islam Consultant ELRC	Md. Shahparan Technical Manager ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F 1, House # Ta-134/A
Bashakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Ambient Noise Quality/20256895

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Ambient Noise Quality
Monitoring Personnel : Toffazzal Hossain, Consultant, ELRC
Monitoring Location : ANL1; South-West Corner of the Project
ANL2; Southeast Corner of the Project
ANL3; Middle of the Project
ANL4; Middle of the Northwest and Southwest
ANL5; Northwest Site
ANL6; Northeast Site
ANL7; Infront of G.T.G Building
ANL8; Infront of S.T.G Building
ANL9; Administration Building (Outdoor)
ANL10; Medical (Indoor)
ANL11; Administration Building (Indoor 2nd floor)
ANL12; Residential Building
ANL13; Main Gate of the Project
Monitoring Date : 23.06.2024-25.06.2024
Analysis Date : 10.07.2024
Description of Analysis :

Code	Noise Level (dBA)				*Bangladesh Standard		**WHO/IFC Standard	
	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Day	Night	Day	Night
ANL1	66.3	52.4	69.1	48.2	75	70	70	70
ANL2	64.6	53.9	71.4	50.6	75	70	70	70
ANL3	65.8	52.1	70.3	48.5	75	70	70	70
ANL4	60.5	52.4	65.6	47.1	75	70	70	70
ANL5	57.4	53.9	63.1	48.7	75	70	70	70
ANL6	54.6	50.8	63.9	45.4	75	70	70	70
ANL7	66.7	60.9	73.3	55.6	75	70	70	70
ANL8	66.2	59.4	72.6	52.5	75	70	70	70
ANL9	54.6	47.3	59.3	42.4	60	50	-	-
ANL10	48.6	44.9	56.4	39.1	50	40	55	45
ANL11	48.6	43.5	55.8	39.6	60	50	-	-
ANL12	45.2	36.5	55.2	33.7	55	45	55	45
ANL13	58.8	51.9	65.2	42.1	75	70	70	70

Office Adress:
Flat #FL, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Category of Area/Receptor	Bangladesh*		IFC-WHO**	
	Day (dB(A)) 6 AM – 9 PM	Night (dB(A)) 9 PM – 6 AM	Day (dB(A)) 7 AM – 10 PM	Night (dB(A)) 10 PM – 7 AM
Silent Zone	50	40	55	45
Residential Area	55	45	55	45
Mixed Area	60	50	-	-
Commercial Area	70	60	70	70
Industrial Area	75	70	70	70

**Ministry of Environment, Forest and Climate Change. (2006). Noise Pollution (Control) Rules, 2006 (S.R.O. No. 212-Law/2006). The People's Republic of Bangladesh*

***Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO). 1999; As per IFC EHS noise level guidelines, Noise impacts should not exceed the levels presented in the above table.*

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #FL, House # Ta-134/A
Baishakhi Saran, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/Ambient Noise Quality/2025015643

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Ambient Noise Quality
Monitoring Personnel : Toffazzal Hossain, Consultant, ELRC
Monitoring Location : ANL1; South-West Corner of the Project
ANL2; Southeast Corner of the Project
ANL3; Middle of the Project
ANL4; Middle of the Northwest and Southwest
ANL5; Northwest Site
ANL6; Northeast Site
ANL7; Infront of G.T.G Building
ANL8; Infront of S.T.G Building
ANL9; Administration Building (Outdoor)
ANL10; Medical (Indoor)
ANL11; Administration Building (Indoor 2nd floor)
ANL12; Residential Building
ANL13; Main Gate of the Project
Monitoring Date : 14.09.2024-16.09.2024
Analysis Date : 06.10.2024

Description of Analysis :

Code	Noise Level (dBA)				*Bangladesh Standard		**WHO/IFC Standard	
	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Day	Night	Day	Night
ANL1	65.8	51.4	74.6	45.8	75	70	70	70
ANL2	64.4	52.9	72.9	48.5	75	70	70	70
ANL3	66.7	54.6	71.5	47.3	75	70	70	70
ANL4	62.3	50.5	69.5	45.2	75	70	70	70
ANL5	59.6	51.3	68.8	46.2	75	70	70	70
ANL6	54.2	49.5	62.1	41.3	75	70	70	70
ANL7	67.2	61.6	74.5	56.2	75	70	70	70
ANL8	66.5	59.4	71.4	53.8	75	70	70	70
ANL9	55.7	48.6	64.8	41.2	60	50	-	-
ANL10	47.2	40.5	57.8	36.3	50	40	55	45
ANL11	44.8	35.9	53.2	32.9	60	50	-	-
ANL12	47.2	42.9	56.1	38.4	55	45	55	45
ANL13	54.8	50.2	63.3	42.8	75	70	70	70

Category of Area/Receptor	Bangladesh*		WHO**
	Day (dB(A)) 6 AM – 9 PM	Night (dB(A)) 9 PM – 6 AM	Night (dB(A)) 10 PM – 7 AM
Silent Zone	50	40	45

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Category of Area/Receptor	Bangladesh*		IFC-WHO**	
	Day (dB(A)) 6 AM – 9 PM	Night (dB(A)) 9 PM – 6 AM	Day (dB(A)) 7 AM – 10 PM	Night (dB(A)) 10 PM – 7 AM
Residential Area	55	45	55	45
Mixed Area	60	50	-	-
Commercial Area	70	60	70	70
Industrial Area	75	70	70	70

** Ministry of Environment, Forest, and Climate Change (2006) Noise Pollution (Control) Rules, 2006 (S.R.O. No. 212-Law/2006). The People's Republic of Bangladesh.*

***Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999. As per IFC EHS noise level guidelines, Noise impacts should not exceed the levels presented in the above table.*

Received By:	Analyzed By:	Checked By:
Md. Shafiqul Islam Consultant ELRC	Md. Shahparan Technical Manager ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Bashakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Ambient Noise Quality/2025014282

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Ambient Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Ambient Noise Quality
Monitoring Personnel : Toffazzal Hossain, Consultant, ELRC
Monitoring Location : ANL1; South-West Corner of the Project
ANL2; Southeast Corner of the Project
ANL3; Middle of the Project
ANL4; Middle of the Northwest and Southwest
ANL5; Northwest Site
ANL6; Northeast Site
ANL7; Infront of G.T.G Building
ANL8; Infront of S.T.G Building
ANL9; Administration Building (Outdoor)
ANL10; Medical (Indoor)
ANL11; Administration Building (Indoor 2nd floor)
ANL12; Residential Building
ANL13; Main Gate of the Project
Monitoring Date : 17.12.2024-19.12.2024
Analysis Date : 07.01.2025

Description of Analysis :

Code	Noise Level (dBA)				*Bangladesh Standard		**WHO/IFC Standard	
	Leq_{Day}	Leq_{Night}	L_{max}	L_{min}	Day	Night	Day	Night
ANL1	68.4	50.3	74.5	44.6	75	70	70	70
ANL2	65.2	53.7	71.7	50.3	75	70	70	70
ANL3	66.2	55.2	72.5	49.8	75	70	70	70
ANL4	64.1	58.4	70.4	48.9	75	70	70	70
ANL5	58.1	52.6	66.1	47.5	75	70	70	70
ANL6	59.2	50.8	68.2	44.6	75	70	70	70
ANL7	66.3	62.7	73.5	55.9	75	70	70	70
ANL8	62.4	60.1	69.3	54.4	75	70	70	70
ANL9	53.2	49.4	59.3	40.2	60	50	-	-
ANL10	55.2	41.7	65.8	37.2	50	40	55	45
ANL11	51.5	42.8	60.6	33.9	60	50	-	-
ANL12	49.5	39.1	59.4	33.8	55	45	55	45
ANL13	58.8	56.7	64.5	44.1	75	70	70	70

Office Adress:
Flat #F1, House # Ta-134/A
Bashakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Category of Area/Receptor	Bangladesh*		IFC-WHO**	
	Day (dB(A)) 6 AM – 9 PM	Night (dB(A)) 9 PM – 6 AM	Day (dB(A)) 7 AM – 10 PM	Night (dB(A)) 10 PM – 7 AM
Silent Zone	50	40	55	45
Residential Area	55	45	55	45
Mixed Area	60	50	-	-
Commercial Area	70	60	70	70
Industrial Area	75	70	70	70

** Ministry of Environment, Forest, and Climate Change. (2006). Noise Pollution (Control) Rules, 2006 (S.R.O. No. 212-Law/2006). The People's Republic of Bangladesh.*

***Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999. As per IFC EHS noise level guidelines, Noise impacts should not exceed the levels presented in the above table.*

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Bashakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-3: Surface Water Quality Lab Report

February-April 2024

Ref: ELRC/Water Quality/2025019323

ELRC WET LABORATORY

Test Results of Surface Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Surface Water Quality
Sampling Personnel : Abdur Reb, Asst. Consultant, ELRC
Sampling Location : SW1; 50m Downstream from Discharge Point
GPS Coordinate : 24°23'1.45"N 89°44'44.89"E
Sampling Date : 17.03.2024
Analyses Date : 07.04.2024

Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
pH	-	Ion Electrode method	7.6	6 - 9
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	590	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Gravimetric Method followed by Gravimetric Analysis	3.1	-
Total Residual Chlorine	mg/l	Standard method 4500-Cl B. Iodometric Method.	0.03	-
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	51	-
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	294	1000
Chemical Oxygen Demand (COD)	mg/l	Adaptation of the USEPA 410.4 approved method	15	50
Biological Oxygen Demand (BOD)	mg/l	5 days Incubation	3.3	6 or less
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrazide method	<0.01	0.05
Iron (Fe)	mg/l	EPA Phenanthroline method 315 B	0.05	-
Calcium (Ca)	mg/l	Oxalate Method	92	-
Zinc (Zn)	mg/l	Zincon Method	0.02	-
Lead (Pb)	mg/l	APHA - P3500-Pb Lead	<0.005	0.1
Cadmium (Cd)	mg/l	3500-Cd Cadmium	0.03	-
Mercury (Hg)	mg/l	Amalgamation (DRP/A) Method	<0.01	0.004

** According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

--P.T.O--

Office Adress:
Flat: #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Parameter	Unit	Analysis Methods	Concentration	*Standard
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.004
Total Alkalinity	mg/l	Colorimetric Method	169	-
Ammonium Nitrogen	mg/l	Adaptation of ASTM D 1426-92 method	1.1	-
Free Ammonia	mg/l	Adaptation of ASTM D 1426-92 method	2.3	-
Temperature	°C	Ion electrode method	24.7	-

** According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

--End--

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Jubayer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Water Quality/20256896

ELRC WET LABORATORY

Test Results of Surface Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Surface Water Quality
Sampling Personnel : Abdur Rab, Asst. Consultant, ELRC
Sampling Location : SW1; 50m Downstream from Discharge Point
GPS Coordinate : 24°23'1.45"N 89°44'44.89"E
Sampling Date : 23.06.2024
Analyses Date : 10.07.2024

Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
pH	-	Ion Electrode method	7.7	6 - 9
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	460	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Gravimetric Method followed by Gravimetric Analysis	2.3	-
Total Residual Chlorine	mg/l	Standard method 4500-Cl B. Iodometric Method.	0.04	-
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	73	-
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	228	1000
Chemical Oxygen Demand (COD)	mg/l	Adaptation of the USEPA 410.4 approved method	18	50
Biological Oxygen Demand (BOD)	mg/l	5 days Incubation	3.0	6 or less
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrazide method	<0.01	0.05
Iron (Fe)	mg/l	EPA Phenanthroline method 315 B	0.03	-
Calcium (Ca)	mg/l	Oxalate Method	72	-
Zinc (Zn)	mg/l	Zincon Method	0.03	-
Lead (Pb)	mg/l	APHA - P3500-Pb Lead	<0.005	0.1
Cadmium (Cd)	mg/l	3500-Cd Cadmium	0.02	-

**According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)--P.T.O--*

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@g
www.elrc.com.bd

Parameter	Unit	Analysis Methods	Concentration	*Standard
Mercury (Hg)	mg/l	Amalgamation (DRP/A) Method	<0.01	0.004
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	-
Total Alkalinity	mg/l	Colorimetric Method	138	-
Ammonium Nitrogen	mg/l	Adaptation of ASTM D 1426-92 method	1.2	-
free Ammonia	mg/l	Adaptation of ASTM D 1426-92 method	1.9	-
Temperature	°C	Ion electrode method	24.3	-

** According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

--END--

Received By:

Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:

Ahmed Jubayer
Chemist
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/Water Quality/2025015644

ELRC WET LABORATORY

Test Results of Surface Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Surface Water Quality
Sampling Personnel : Abdur Rab, Asst. Consultant, ELRC
Sampling Location : SW1; 50m Downstream from Discharge Point
GPS Coordinate : 24°23'1.45"N 89°44'44.89"E
Sampling Date : 14.09.2024
Analyses Date : 06.10.2024

Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
pH	-	Ion Electrode method	7.5	6 - 9
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	430	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Gravimetric Method followed by Gravimetric Analysis	2.8	-
Total Residual Chlorine	mg/l	Standard method 4500-Cl B. Iodometric Method.	0.03	-
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	68	-
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	214	1000
Chemical Oxygen Demand (COD)	mg/l	Adaptation of the USEPA 410.4 approved method	12	50
Biological Oxygen Demand (BOD)	mg/l	5 days Incubation	3.1	6 or less
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrozide method	<0.01	0.05
Iron (Fe)	mg/l	EPA Phenanthroline method 315 B	0.03	-
Calcium (Ca)	mg/l	Oxalate Method	74	-
Zinc (Zn)	mg/l	Zincon Method	0.04	-
Lead (Pb)	mg/l	APHA - P3500-Pb Lead	<0.005	0.1
Cadmium (Cd)	mg/l	3500-Cd Cadmium	0.03	-

** According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

--P.T.O--

Office Adress:
Flat #F1, House # Ta-134/A
Bashakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488610789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@
www.elrc.com.bd

Parameter	Unit	Analysis Methods	Concentration	*Standard
Mercury (Hg)	mg/l	Amalgamation(DRP/A) Method	<0.01	0.004
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	-
Total Alkalinity	mg/l	Colorimetric Method	135	-
Ammonium Nitrogen	mg/l	Adaptation of ASTM D 1426-92 method	1.4	-
Free Ammonia	mg/l	Adaptation of ASTM D 1426-92 method	2.5	-
Temperature	°C	Ion electrode method	25.3	-

** According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

--END--

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Jubayer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107895-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Water Quality/202501263

ELRC WET LABORATORY

Test Results of Surface Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Surface Water Quality
Sampling Personnel : Abdur Rab, Asst. Consultant, ELRC
Sampling Location : SW1; 50m Downstream from Discharge Point
GPS Coordinate : 24°23'1.45"N 89°44'44.89"E
Sampling Date : 17.12.2024
Analyses Date : 05.01.2025

Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
pH	-	Ion Electrode method	7.3	6 - 9
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	460	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Gravimetric Method followed by Gravimetric Analysis	2.5	-
Total Residual Chlorine	mg/l	Standard method 4500-Cl B. Iodometric Method.	0.04	-
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	64	-
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	228	1000
Chemical Oxygen Demand (COD)	mg/l	Adaptation of the USEPA 410.4 approved method	18	50
Biological Oxygen Demand (BOD)	mg/l	5 days Incubation	2.8	8 or less
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrazide method	<0.01	0.05
Iron (Fe)	mg/l	EPA Phenanthroline method 315 B	0.04	-
Calcium (Ca)	mg/l	Oxalate Method	78	-
Zinc (Zn)	mg/l	Zincon Method	0.03	-
Lead (Pb)	mg/l	APHA - P3500-Pb Lead	<0.005	0.1
Cadmium (Cd)	mg/l	3500-Cd Cadmium	0.03	-

** According to ECR 2023, Schedule 2(A); Best Practice based classification (Water Usable for Fisheries)*

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd
www.elrc.com.bd

Parameter	Unit	Analysis Methods	Concentration	*Standard
Mercury (Hg)	mg/l	Amalgamation (ORP/A) Method	<0.01	0.004
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	-
Total Alkalinity	mg/l	Colorimetric Method	145	-
Ammonium Nitrogen	mg/l	Adaptation of ASTM D 1426-92 method	1.5	-
Free Ammonia	mg/l	Adaptation of ASTM D 1426-92 method	2.8	-
Temperature	°C	Ion electrode method	25.5	-

** According to ECR 2023, Schedule 20A: Best Practice based classification (Water Usable for Fisheries)*

—END—

Received By:

Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:

Ahmed Jubayer
Chemist
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel : +(880) 2488107B9-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-4: Wastewater Quality Lab Report

February-April 2024

Ref: ELRC/Water Quality/2025019324

ELRC WET LABORATORY

Test Results of Wastewater Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Wastewater Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : WW1; Effluent Discharge Channel
GPS Coordinate : 24°23'4.05"N 89°44'46.91"E
Sampling Date : 17.03.2024
Analysis Date : 06.04.2024
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
Temperature	°C	Ion Electrode method	28.2	<5°C than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	4.6	-
pH	-	Ion Electrode method	6.8	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	28	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	12	-
Total Nitrogen (N)	mg/l	Chromotropic acid	13.7	-
Total Phosphorus (P)	mg/l	Amino Acid Method	3.6	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	0.7	5
Chromium (Cr)	mg/l	Turbidimetric Method	0.01	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.05	3
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	380	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	4.1	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.05	1
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	48	100
Total Dissolved Solid (TDS)	mg/l	Ion Electrode method	191	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	4.4	200

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107B9-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Parameter	Unit	Analysis Methods	Concentration	*Standard
Biological Oxygen Demand	mg/l	5 days Incubation	24.1	30

** According to ECR 2023, Schedule 4*

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Jubayer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Ref: ELRC/Water Quality/2025019325

ELRC WET LABORATORY

Test Results of Wastewater Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Wastewater Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : WW1; Effluent Discharge Channel
GPS Coordinate : 24°23'4.05"N 89°44'46.91"E
Sampling Date : 17.04.2024
Analysis Date : 06.05.2024
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
Temperature	°C	Ion Electrode method	27.2	<5°C than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	4.7	-
pH	-	Ion Electrode method	6.9	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	29	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	14	-
Total Nitrogen (N)	mg/l	Chromotropic acid	15.6	-
Total Phosphorus (P)	mg/l	Amino Acid Method	4.1	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	1	5
Chromium (Cr)	mg/l	Turbidimetric Method	0.01	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.05	3
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	420	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	3.25	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.06	1
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	42	100
Total Dissolved Solid (TDS)	mg/l	Ion Electrode method	208	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	42	200

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Parameter	Unit	Analysis Methods	Concentration	*Standard
Biological Oxygen Demand	mg/l	5 days Incubation	25.3	30

** According to ECR 2023, Schedule 4*

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Jubayer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Water Quality/20256897

ELRC WET LABORATORY

Test Results of Wastewater Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Wastewater Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : WWT; Effluent Discharge Channel
GPS Coordinate : 24°23'4.05"N 89°44'46.91"E
Sampling Date : 23.06.2024; 15.07.2024
Analysis Date : 10.07.2024; 12.08.2024
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration of WWT		*Standard
			June	July	
Temperature	°C	Ion Electrode method	25.4	25.6	<5oC than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	5.7	5.9	-
pH	-	Ion Electrode method	6.9	7.1	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	22	25	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	15	11	-
Total Nitrogen (N)	mg/l	Chromotropic acid	13.6	14.2	-
Total Phosphorus (P)	mg/l	Amino Acid Method	3.1	3.4	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	1.8	1.4	5
Chromium (Cr)	mg/l	Turbidimetric Method	<0.01	<0.01	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.06	0.05	3
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	400	290	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	3.33	4.16	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.05	0.05	1
Total Suspended Solid	mg/l	Standard Methods (2005), 2540D	40	39	100
Total Dissolved Solid (TDS)	mg/l	Ion Electrode method	196	144	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	27	28	200
Biological Oxygen Demand	mg/l	5 days Incubation	23.2	19	30

** According to ECR 2023, Schedule 4*

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Received By:

Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:

Ahmed Jubayer
Chemist
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/Water Quality/2025015644

ELRC WET LABORATORY

Test Results of Wastewater Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Wastewater Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : WW1; Effluent Discharge Channel
GPS Coordinate : 24°23'4.05"N 89°44'46.91"E
Sampling Date : 14.09.2024, 16.10.2014
Analysis Date : 06.10.2024, 08.11.2024
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration of WW1		*Standard
			Sep	Oct	
Temperature	°C	Ion Electrode method	25.2	25.4	<5°C than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	5	5.1	-
pH	-	Ion Electrode method	6.9	7.2	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	22	21	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	13	12	-
Total Nitrogen (N)	mg/l	Chromotropic acid	12.3	13.7	-
Total Phosphorus (P)	mg/l	Amino Acid Method	3.2	3.4	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	1.5	1.6	5
Chromium (Cr)	mg/l	Turbidimetric Method	<0.01	<0.01	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.04	0.04	3
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	418	386	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	4.37	4.14	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.05	0.07	1
Total Suspended Solid	mg/l	Standard Methods (2005), 2540D	43	42	100
Total Dissolved Solid (TDS)	mg/l	Ion Electrode method	209	192	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	28	30	200
Biological Oxygen Demand	mg/l	5 days Incubation	23	20	30

** According to ECR 2023, Schedule 4*

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

ELRC

Received By:	Analyzed By:	Checked By:
Shihabuddin Ahmed Imran Consultant ELRC	Ahmed Jubayer Chemist ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Water Quality/2025014284

ELRC WET LABORATORY

Test Results of Wastewater Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Wastewater Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : WW1; Effluent Discharge Channel
GPS Coordinate : 24°23'4.05"N 89°44'46.91"E
Sampling Date : 18.11.2024, 17.12.2024
Analysis Date : 06.12.2024, 05.01.2025
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration of WW1		*Standard
			Nov	Dec	
Temperature	°C	Ion Electrode method	24.9	25.1	<5°C than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	5.4	5.6	-
pH	-	Ion Electrode method	6.7	6.8	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	24	23	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	14	16	-
Total Nitrogen (N)	mg/l	Chromotropic acid	13.4	13.7	-
Total Phosphorus (P)	mg/l	Amino Acid Method	3.1	3.2	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	1.8	1.6	5
Chromium (Cr)	mg/l	Turbidimetric Method	<0.01	<0.01	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.03	0.07	3
Electrical Conductivity (EC)	µs/cm	Ion Electrode method	450	420	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	4.12	4.56	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.09	0.05	1
Total Suspended Solid	mg/l	Standard Methods (2005), 2540D	38	33	100
Total Dissolved Solid (TDS)	mg/l	Ion Electrode method	223	205	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	24	25	200
Biological Oxygen Demand	mg/l	5 days Incubation	22	25	30

According to ECR 2023, Schedule 4

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488610789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Received By:	Analyzed By:	Checked By:
Shihabuddin Ahmed Imran Consultant ELRC	Ahmed Jubayer Chemist ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-5: Storm Water Quality Lab Report

May-July 2024

Ref: ELRC/Water Quality/202508101

ELRC WET LABORATORY

Test Results of Storm Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Storm Water Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : SrNV1; Effluent Discharge Channel
GPS Coordinate : 24°23'1.55"N 89°44'44.11"E
Sampling Date : 16.05.2024
Analysis Date : 03.06.2024
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
Temperature	°C	Ion Electrode method	25.2	<5°C than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	7.6	-
pH	-	Ion Electrode method	7.4	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	21	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	14	-
Total Nitrogen (N)	mg/l	Chromotropic acid/ VIS Spec.	12.4	-
Total Phosphorus (P)	mg/l	Amino Acid Method	2.1	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	1.3	5
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrozide	0.03	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.02	3
Electrical Conductivity (EC)	µs/cm	Ion electrode method	690	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	2.5	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.04	1
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	79	100
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	343	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	29	200
Biological Oxygen Demand	mg/l	5 days Incubation	10.3	30

** According to ECR 2023, Schedule 4*

Office Adress:
Flat #F1, House # Ta-134/A
Bolshakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

ELRC

Received By:	Analyzed By:	Checked By:
Shihabuddin Ahmed Imran Consultant ELRC	Ahmed Jubayer Chemist ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Ref: ELRC/Water Quality/202568103

ELRC WET LABORATORY

Test Results of Storm Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Storm Water Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : StW1; Effluent Discharge Channel
GPS Coordinate : 24°23'1.55"N 89°44'44.11"E
Sampling Date : 23.06.2024
Analysis Date : 08.07.2024
Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
Temperature	°C	Ion Electrode method	24.8	<5°C than the surface water temperature
Dissolved Oxygen (DO)	mg/l	Ion Electrode method	6.6	-
pH	-	Ion Electrode method	7.5	6-9
Total Coliform (TC)	N/100ml	Membrane Filtration Method	22	-
Fecal Coliform (FC)	N/100ml	Membrane Filtration Method	10	-
Total Nitrogen (N)	mg/l	Chromotropic acid/ VIS Spec.	8.2	-
Total Phosphorus (P)	mg/l	Amino Acid Method	2.3	8
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.2
Zinc (Zn)	mg/l	Zincon Method	1.3	5
Chromium (Cr)	mg/l	ASTM D1687-92 diphenylcarbohydrozide	0.03	0.5
Copper (Cu)	mg/l	Adaptation of EPA 200.8 method	0.04	3
Electrical Conductivity (EC)	µs/cm	Ion electrode method	710	-
Oil and Grease (O & G)	mg/l	USEPA1 Hexane Extractable Method	2.8	10
Total Residual Chlorine	mg/l	Adaptation of the EPA DPD 330.5	0.03	1
Total Suspended Solid (TSS)	mg/l	Standard Methods (2005), 2540D	88	100
Total Dissolved Solid (TDS)	mg/l	Ion electrode method	358	-
Chemical Oxygen Demand	mg/l	Adaptation of the USEPA 410.4	37	200
Biological Oxygen Demand	mg/l	5 days Incubation	12.3	30

** According to ECR 2023, Schedule 4*

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

ELRC

Received By:	Analyzed By:	Checked By:
Shihabuddin Ahmed Imran Consultant ELRC	Ahmed Jubayer Chemist ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-6: Ground Water Quality Lab Report

February-April 2024

Ref: ELRC/Water Quality/2025019326

ELRC WET LABORATORY

Test Results of Ground Water Quality

Project Name	:	Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity	:	Ground Water Quality
Sampling Personnel	:	Abdur Rab, Asst. Consultant, ELRC
Sampling Location	:	GWT; Store House
GPS Coordinate	:	24°23'4.80"N 89°44'50.63"E
Sampling Date	:	17.03.2024
Analysis Date	:	06.04.2024

Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
pH	-	Ion Electrode method	7.8	6.5-8.5
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.05
Total Hardness	mg/l	EDTA Titration method	195	500
Chlorine (Cl)	mg/l	Hg (II) Thiocyanate Method	0.24	-
Fluoride (F)	mg/l	SPADNS Method	0.26	1.0
Iron (Fe)	mg/l	Phenanthroline Method	0.37	0.3-1
Manganese (Mn)	mg/l	Periodate method	0.05	0.4
Phosphate (PO4)	mg/l	Amino Acid Method	1.2	-
Sulphate (SO4)	mg/l	Turbidimetric Method	110.7	250

*** According to ECR 2023, Schedule 2(B)*

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Juboyer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Bashishi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488307B9-90
+(8802) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Water Quality/2025019326

ELRC WET LABORATORY

Test Results of Ground Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Ground Water Quality
Sampling Personnel : Abdur Rab, Asst. Consultant, ELRC
Sampling Location : GW1; Store House
GPS Coordinate : 24°23'4.80"N 89°44'50.63"E
Sampling Date : 17.03.2024
Analysis Date : 06.04.2024

Description of Analysis :

Parameter	Unit	Analysis Methods	Concentration	*Standard
pH	-	Ion Electrode method	7.8	6.5-8.5
Arsenic (As)	mg/l	Modified Gutzeit Method	<0.01	0.05
Total Hardness	mg/l	EDTA Titration method	195	500
Chlorine (Cl)	mg/l	Hg (II) Thiocyanate Method	0.24	-
Fluoride (F)	mg/l	SPADNS Method	0.26	1.0
Iron (Fe)	mg/l	Phenanthroline Method	0.37	0.3-1
Manganese (Mn)	mg/l	Periodate method	0.05	0.4
Phosphate (PO4)	mg/l	Amino Acid Method	1.2	-
Sulphate (SO4)	mg/l	Turbidimetric Method	110.7	250

*** According to ECR 2023, Schedule 23B/*

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Juboyer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Sanhaldhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248830789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-7: Occupational Noise Level Lab Report

February-April 2024

Ref: ELRC/Occupational Noise Quality/202501327

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Occupational Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Occupational Noise Quality
Monitoring Personnel : Abdur Reb, Asst. Consultant, ELRC
Monitoring Location : ONL1; RMS Building
ONL2; Control Building
ONL3; Administrative Building
ONL4; Health Unit
ONL5; Residential Building
ONL6; Gas Booster Area
ONL7; Air Compressor
ONL8; GTG Building
ONL9; STG Building
Monitoring Date : 17.03.2024-19.03.2024
Analysis Date : 07.04.2024

Description of Analysis :

Code	Noise Level (dBA)		
	Leq_{8hr}	L_{max}	L_{min}
ONL1	65.2	72.7	59.5
ONL2	68.8	73.8	62.4
ONL3	64.3	70.9	61.3
ONL4	56.7	67.2	52.8
ONL5	57.1	53.8	56.5
ONL6	70.6	72.7	66.8
ONL7	74.8	77.1	69.7
ONL8	72.8	76.4	68.3
ONL9	71.8	75.7	69.8

Received By: Analyzed By: Checked By:

Md. Shafiqul Islam
Consultant
ELRC

Md. Shahparan
Technical Manager
ELRC

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Occupational Noise Quality/2025039

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Occupational Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Occupational Noise Quality
Monitoring Personnel : Abdur Reb, Asst. Consultant, ELRC
Monitoring Location : DNL1; RMS Building
DNL2; Control Building
DNL3; Administrative Building
DNL4; Health Unit
DNL5; Residential Building
DNL6; Gas Booster Aree
DNL7; Air Compressor
DNL8; GTG Building
DNL9; STG Building
Monitoring Date : 23.06.2024-25.06.2024
Analysis Date : 10.07.2024

Description of Analysis :

Code	Noise Level (dBA)		
	Leq_{Day}	L_{max}	L_{min}
DNL1	65.8	73.2	60.9
DNL2	69.6	78.6	61.4
DNL3	59.8	67.5	46.8
DNL4	62.6	69.4	54.9
DNL5	59.7	66.7	51.6
DNL6	69.5	78.8	62.1
DNL7	73.6	78.6	62.8
DNL8	70.6	79.3	61.4
DNL9	72.3	78.1	58.1

Received By:
Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:
Md. Shahparan
Technical Manager
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107859-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/Occupational Noise Quality/2025015645

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Occupational Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Occupational Noise Quality
Monitoring Personnel : Abdur Reb, Asst. Consultant, ELRC
Monitoring Location : ONL1; RMS Building
ONL2; Control Building
ONL3; Administrative Building
ONL4; Health Unit
ONL5; Residential Building
ONL6; Gas Booster Area
ONL7; Air Compressor
ONL8; GTG Building
ONL9; STG Building
Monitoring Date : 14.09.2024-16.09.2024
Analysis Date : 06.10.2024

Description of Analysis :

Code	Noise Level (dBA)		
	Leq_{8hr}	L_{max}	L_{min}
ONL1	65.9	72.7	60.5
ONL2	64.4	71.7	59.2
ONL3	58.2	70.5	47.3
ONL4	59.1	68.2	50.4
ONL5	55.1	60.4	51.5
ONL6	66.2	77.4	58.3
ONL7	71.8	77.6	52.2
ONL8	72.6	76.1	64.3
ONL9	73.8	77.6	65.6

Received By:
Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:
Md. Shahparan
Technical Manager
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488610789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Occupational Noise Level/2025014285

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Occupational Noise Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Monitoring Activity : Occupational Noise Level
Monitoring Personnel : Abdur Reb, Asst. Consultant, ELRC
Monitoring Location : ONL1; RMS Building
ONL2; Control Building
ONL3; Administrative Building
ONL4; Health Unit
ONL5; Residential Building
ONL6; Gas Booster Area
ONL7; Air Compressor
ONL8; GTG Building
ONL9; STG Building
Monitoring Date : 17.12.2024
Analysis Date : 05.01.2025

Description of Analysis :

Code	Noise Level (dBA)		
	Leq_{8hr}	L_{max}	L_{min}
ONL1	64.2	74.7	60.3
ONL2	65.8	72.8	59.2
ONL3	59.2	68.1	51.3
ONL4	58.8	64.6	50.6
ONL5	56.2	62.5	48.6
ONL6	68.3	74.8	60.1
ONL7	71.4	77.3	63.2
ONL8	72.5	76.6	63.8
ONL9	74.2	73.8	69.5

Received By:
Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:
Md. Shahparan
Technical Manager
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107#9-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-8: Electro-Magnetic Field Lab Report

February-April 2024

Ref: ELRC/Electro-Magnetic Field/2025019329

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Electro-Magnetic Field

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Electro-Magnetic Field
Monitoring Personnel : Abdur Reb, Asst. Consultant, ELRC
Monitoring Location : EMF1; Switch Yard
GPS Coordinate : 24°23'11.08"N 89°44'42.18"E
Monitoring Date : 17.03.2024
Analysis Date : 07.04.2024

Description of Analysis :

Code	Distance	EMF (mv/m)	*Standard	Remarks
EMF1	0m	0	120 (for Worker)	Plant was remained closed during the monitoring day.
	3m	0		
	5m	0		
	10m	0		

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107B9-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Electro-Magnetic Field/202568102

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Electro-Magnetic Field

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Electro-Magnetic Field
Monitoring Personnel : Abdur Rab, Asst. Consultant, ELRC
Monitoring Location : EMF1; Switch Yard
GPS Coordinate : 24°23'11.08"N 89°44'42.18"E
Monitoring Date : 23.06.2024
Analysis Date : 10.07.2024

Description of Analysis :

Code	Distance	EMF (mv/m)	*Standard	Remarks
EMF1	0m	171.2	120 (for Worker)	Plant was remained closed during the monitoring day.
	3m	125.7		
	5m	103.7		
	10m	86.7		

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/Electro-Magnetic Field/2025015647

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Electro-Magnetic Field

Project Name	:	Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity	:	Electro-Magnetic Field
Monitoring Personnel	:	Abdur Reb, Asst. Consultant, ELRC
Monitoring Location	:	EMF1; Switch Yard
GPS Coordinate	:	24°23'11.08"N 89°44'42.18"E
Monitoring Date	:	14.09.2024
Analysis Date	:	07.10.2024

Description of Analysis :

Code	Distance	EMF (mv/m)	*Standard	Remarks
EMF1	0m	0	120 (for Worker)	Plant was remained closed during the monitoring day.
	3m	0		
	5m	0		
	10m	0		

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488610789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Electro-Magnetic Field/2025014287

ELRC ENVIRONMENTAL LABORATORY

Monitoring Results of Electro-Magnetic Field

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2
Monitoring Activity : Electro-Magnetic Field
Monitoring Personnel : Abdur Reb, Asst. Consultant, ELRC
Monitoring Location : EMF1; Switch Yard
GPS Coordinate : 24°23'11.08"N 89°44'42.18"E
Monitoring Date : 17.12.2024
Analysis Date : 05.01.2025

Description of Analysis :

Code	Distance	EMF (mv/m)	*Standard	Remarks
EMF1	0m	188.4	120 (for Worker)	Plant was remained closed during the monitoring day.
	3m	123.6		
	5m	101.5		
	10m	79.54		

Received By:

Md. Shafiqul Islam
Consultant
ELRC

Analyzed By:

Md. Shahparan
Technical Manager
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488610789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-9: Drinking Water Quality Lab Report

February-April 2024

Ref: ELRC/Water Quality/2025019328

ELRC WET LABORATORY

Test Results of Drinking Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Drinking Water Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : DW1; Control Building
DW2; Admin Building
DW3; Residential Building
GPS Coordinate : 24°23'11.72"N 89°44'47.22"E
24°23'11.95"N 89°44'46.00"E
24°23'14.77"N 89°44'49.31"E
Sampling Date : 17.03.2024
Analysis Date : 07.04.2024

Description of Analysis :

Parameters	Unit	Analysis Methods	Concentration			*Standard
			DW1	DW2	DW3	
pH	-	Ion Electrode method	7.2	7.5	7.1	6.5-8.5
Arsenic (As)	mg/L	Modified Gutzeit Method	<0.01	<0.01	<0.01	0.05
Total Dissolved Solid (TDS)	mg/L	Ion Electrode method	155	170	163	1000
Electrical Conductivity (EC)	mg/L	Ion Electrode method	311	342	322	-
Total Coliform (TC)	N/100mL	Membrane Filtration Method	0	0	0	0
Total Hardness	mg/L	EDTA Titration Method	222	217	220	500
Chlorine (Cl)	mg/L	Hg (II) Thiocyanate Method	1.3	1.8	1.6	-
Fluoride (F)	mg/L	SPADNS Method	0.3	0.2	0.3	1.0
Iron (Fe)	mg/L	Phenanthroline Method	0.03	0.02	0.01	0.3-1
Manganese (Mn)	mg/L	Periodate method	<0.01	<0.01	<0.01	0.4
Phosphate (PO4)	mg/L	Amino acid method	0.1	0.3	0.2	-
Sulphate (SO4)	mg/L	Turbidimetric Method	16	12	10	250

** According to ECR 2023, Schedule 2(E)*

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

ELRC

Received By:

Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:

Ahmed Jubayer
Chemist
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 248810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

May-July 2024

Ref: ELRC/Water Quality/202508100

ELRC WET LABORATORY

Test Results of Drinking Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Drinking Water Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : DW1; Control Building
DW2; Admin Building
DW3; Residential Building
GPS Coordinate : 24°23'11.72"N 89°44'47.22"E
24°23'11.95"N 89°44'46.00"E
24°23'14.77"N 89°44'49.31"E
Sampling Date : 23.06.2024
Analysis Date : 09.07.2024

Description of Analysis :

Parameters	Unit	Analysis Methods	Concentration			*Standard
			DW1	DW2	DW3	
pH	-	Ion Electrode method	7.4	7.3	7.5	6.5-8.5
Arsenic (As)	mg/L	Modified Gutzeit Method	<0.01	<0.01	<0.01	0.05
Total Dissolved Solid (TDS)	mg/L	Ion Electrode method	163	172	159	1000
Electrical Conductivity (EC)	mg/L	Ion Electrode method	327	344	319	-
Total Coliform (TC)	N/100mL	Membrane Filtration Method	0	0	0	0
Total Hardness	mg/L	EDTA Titration Method	193	214	205	500
Chlorine (Cl)	mg/L	Hg (II) Thiocyanate Method	1.3	2.0	1.4	-
Fluoride (F)	mg/L	SPADNS Method	0.2	0.2	0.2	1.0
Iron (Fe)	mg/L	Phenanthroline Method	0.02	0.01	0.02	0.3-1
Manganese (Mn)	mg/L	Periodate method	<0.01	<0.01	<0.01	0.4
Phosphate (PO4)	mg/L	Amino acid method	0.4	0.3	0.3	-
Sulphate (SO4)	mg/L	Turbidimetric Method	9	12	10	250

** According to ECR 2023, Schedule 2(i)*

Office Adress:
Flat #F1, House # Ta-134/A
Bolshekhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

ELRC

Received By:	Analyzed By:	Checked By:
Shihabuddin Ahmed Imran Consultant ELRC	Ahmed Jubayer Chemist ELRC	Md. Saifur Rahman Quality Manager ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

August-October 2024

Ref: ELRC/ Drinking Water Quality/2025015646

ELRC WET LABORATORY

Test Results of Drinking Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Drinking Water Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : DW1; Control Building
DW2; Admin Building
DW3; Residential Building
GPS Coordinate : 24°23'11.72"N 89°44'47.22"E
24°23'11.95"N 89°44'46.00"E
24°23'14.77"N 89°44'49.31"E
Sampling Date : 14.09.2024
Description of Analysis :

Parameters	Unit	DW1	DW2	DW3	Standard
pH	-	7.6	7.4	7.7	6.5-8.5
Arsenic (As)	mg/L	<0.01	<0.01	<0.01	0.05
Total Dissolved Solid (TDS)	mg/L	162	173	168	1000
Electrical Conductivity (EC)	mg/L	320	348	336	-
Total Coliform (TC)	N/100mL	0	0	0	0
Total Hardness	mg/L	214	205	214	500
Chlorine (Cl)	mg/L	1.5	1.2	1.9	-
Fluoride (F)	mg/L	0.3	0.4	0.5	1.0
Iron (Fe)	mg/L	0.03	0.03	0.04	0.3-1
Manganese (Mn)	mg/L	<0.01	<0.01	<0.01	0.4
Phosphate (PO4)	mg/L	0.3	0.3	0.3	-
Sulphate (SO4)	mg/L	13	14	16	250

*** According to ECR 2023, Schedule 2(B)*

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Jubayer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488610789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

November 2024-January 2025

Ref: ELRC/Water Quality/2025014286

ELRC WET LABORATORY

Test Results of Drinking Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Drinking Water Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : DW1; Control Building
DW2; Admin Building
DW3; Residential Building
GPS Coordinate : 24°23'11.72"N 89°44'47.22"E
24°23'11.95"N 89°44'45.00"E
24°23'14.77"N 89°44'49.31"E
Sampling Date : 17.12.2024
Description of Analysis :

Parameters	Unit	DW1	DW2	DW3	Standard
pH	-	7.4	7.6	7.5	6.5-8.5
Arsenic (As)	mg/L	<0.01	<0.01	<0.01	0.05
Total Dissolved Solid (TDS)	mg/L	160	163	162	1000
Electrical Conductivity (EC)	mg/L	316	310	330	-
Total Coliform (TC)	N/100mL	0	0	0	0
Total Hardness	mg/L	202	195	220	500
Chlorine (Cl)	mg/L	1.2	0.6	0.8	-
Fluoride (F)	mg/L	0.7	0.4	0.6	1.0
Iron (Fe)	mg/L	0.04	0.04	0.05	0.3-1
Manganese (Mn)	mg/L	<0.01	<0.01	<0.01	0.4
Phosphate (PO4)	mg/L	0.5	0.4	0.5	-
Sulphate (SO4)	mg/L	12	13	14	250

*** According to ECR 2023, Schedule 2(6)*

Received By:
Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:
Ahmed Jubayer
Chemist
ELRC

Checked By:
Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107#9-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex A-10: Soil Quality Lab Report

Ref: ELRC/Soil Quality/202568104

ELRC WET LABORATORY

Test Results of Drinking Water Quality

Project Name : Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel); Unit 2 & 3
Sampling Activity : Soil Quality
Sampling Personnel : Toffazzal Hossain, Consultant, ELRC
Sampling Location : SQ1; Southeast Boundary (Behind Army Camp)
SQ2; Northeast Boundary (Behind Residential Area)
SQ3; Northern Boundary (Behind PGCL Switching Station)
GPS Coordinate : 24°23'2.07"N 89°44'51.98"E
24°23'16.02"N 89°44'50.95"E
24°23'15.95"N 89°44'43.69"E
Sampling Date : 15.07.2024
Analysis Date : 09.08.2024

Description of Analysis :

Parameters	Unit	Concentration		
		SQ1	SQ2	SQ3
Electrical Conductivity (EC)	dS/m	1.7	1.6	1.5
Bulk Density	g/cm^3	1.38	1.31	1.33
pH	-	7.6	7.7	7.5
Organic Content	%	0.48	0.39	0.51
Calcium (Ca)	mg/kg	4.7	3.6	3.7
Magnesium (Mg)	mg/kg	3.5	3.2	2.7
Potassium (K)	mg/kg	0.07	0.09	0.06
Sodium (Na)	meq/100g	1.23	0.98	1.04
Nitrogen (N)	mg/kg	0.03	0.05	0.04
Phosphorus (P)	mg/kg	1.6	1.3	1.2
Sulphur (S)	mg/kg	28.4	23.1	20.2
Boron (B)	mg/kg	0.07	0.05	0.06
Copper (Cu)	mg/kg	2.1	1.9	2.4
Iron (Fe)	mg/kg	22.5	21.8	18.3
Manganese (Mn)	mg/kg	21.3	16.4	19.6
Zinc (Zn)	mg/kg	1.4	1.3	1.6
Lead (Pb)	mg/kg	6.8	5.7	6.8
Cadmium (Cd)	mg/kg	0.03	0.04	0.02
Arsenic (As)	mg/kg	0.15	0.12	0.17

Office Adress:
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Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488107889-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Parameters	Unit	Concentration		
		SQ1	SQ2	SQ3
Mercury (Hg)	mg/kg	0.05	0.08	0.03

Received By:

Shihabuddin Ahmed Imran
Consultant
ELRC

Analyzed By:

Ahmed Jubayer
Chemist
ELRC

Checked By:

Md. Saifur Rahman
Quality Manager
ELRC

Office Adress:
Flat #F1, House # Ta-134/A
Baishakhi Sarani, Gulshan-Badda
Link Road, Dhaka-1212, Bangladesh

Tel: +(880) 2488810789-90
+88(02) 9884077
Mobile: +(880) 1911702074
Email: info@elrcbd.com, elrcbd@gmail.com
www.elrc.com.bd

Annex B: Monitoring Photographs

Annex B-1: Air Quality Monitoring Photographs

February 2024-April 2024

May 2024-July 2024

August 2024-October 2024

November 2024-January 2024

Source: Annual Environmental Monitoring of ELRC

Annex B-2: Noise Level Monitoring Photographs

February 2024-April 2024

Ambient Noise Quality



Photo 6: ANL1; South-West Corner of the Project



Photo 7: ANL2; South East Corner of the Project



Photo 8: ANL3; Middle of the Project



Photo 9: ANL4; Middle of the North West and South West



Photo 10: ANL5; North West Site



Photo 11: ANL6; North East Site



Photo 12: ANL7; Infront of G.T.G Building



Photo 13: ANL8; Infront of S.T.G Building

Photo 14: ANL9; Administration Building (Out Door)



Photo15: ANL10; Medical (Indoor)



Photo16: ANL11; Administration Building (Indoor 2nd Floor)



Photo 17: ANL12; Residential Building



May 2024-July 2024

Ambient Noise Quality

Photo 6: ANL1; South-West Corner of the Project

Photo 7: ANL2; South East Corner of the Project

Photo 8: ANL3; Middle of the Project

Photo 9: ANL4; Middle of the North West and South West

Photo 10: ANL5; North West Site



Photo 11: ANL6; North East Site



Photo 12: ANL7; Infront of G.T.G Building



Photo 13: ANL8; Infront of S.T.G Building



Photo 14: ANL9; Administration Building (Out Door)



Photo15: ANL10; Medical (Indoor)



Photo16: ANL11; Administration Building (Indoor 2nd Floor)



Photo 17: ANL12; Residential Building



Photo 18: ANL13; Main Gate of the Project

Source: Annual Environmental Monitoring of ELRC

August 2024-October 2024

Ambient Noise Quality

Photo 6: ANL1; South-West Corner of the Project

Photo 7: ANL2; South East Corner of the Project

Photo 8: ANL3; Middle of the Project

Photo 9: ANL4; Middle of the North West and South West

Photo 10: ANL5; North West Site



Photo 11: ANL6; North East Site



Photo 12: ANL7; Infront of G.T.G Building



Photo 13: ANL8; Infront of S.T.G Building



Photo 14: ANL9; Administration Building (Out Door)



Photo15: ANL10; Medical (Indoor)



Photo16: ANL11; Administration Building (Indoor 2nd Floor)



Photo 17: ANL12; Residential Building



November 2024-January 2025

Ambient Noise Quality



Photo 6: ANL1; South-West Corner of the Project



Photo 7: ANL2; South East Corner of the Project



Photo 8: ANL3; Middle of the Project



Photo 9: ANL4; Middle of the North West and South West



Photo 10: ANL5; North West Site



Photo 11: ANL6; North East Site



Photo 12: ANL7; Infront of G.T.G Building



Photo 13: ANL8; Infront of S.T.G Building



Photo 14: ANL9; Administration Building (Out Door)



Photo15: ANL10; Medical (Indoor)



Photo16: ANL11; Administration Building (Indoor 2nd Floor)



Photo 17: ANL12; Residential Building



Photo 18: ANL13; Main Gate of the Project

Annex B-3: Surface Water Sampling Photographs

February 2024-April 2024


May 2024-July 2024


August 2024-October 2024


November 2024-January 2024


SW1; 50m Downstream from Discharge Point

Source: Annual Environmental Monitoring of ELRC

Annex B-4: Ground Water Sampling Photographs

February 2024-April 2024	
	
May 2024-July 2024	
	
GW1; Store House	

Source: Annual Environmental Monitoring of ELRC

Annex B-5: Waste Water Sampling Photographs

February 2024-April 2024	
	
May 2024-July 2024	

August 2024-October 2024

November 2024-January 2025

WW1; Effluent Discharge Channel

Source: Annual Environmental Monitoring of ELRC

Annex B-6: Storm Water Sampling Photographs

May 2024-July 2024	
	
StW1; Discharge Point	

Source: Annual Environmental Monitoring of ELRC

Annex B-7: Drinking Water Sampling Photographs

February 2024-April 2024



May 2024-July 2024



August 2024-October 2024

		
November 2024-January 2024		
		
DW1; Control Building	**DW2; Admin Building**	**DW3; Residential Building**

Source: Annual Environmental Monitoring of ELRC

Annex B-8: Occupational Noise Monitoring Photographs

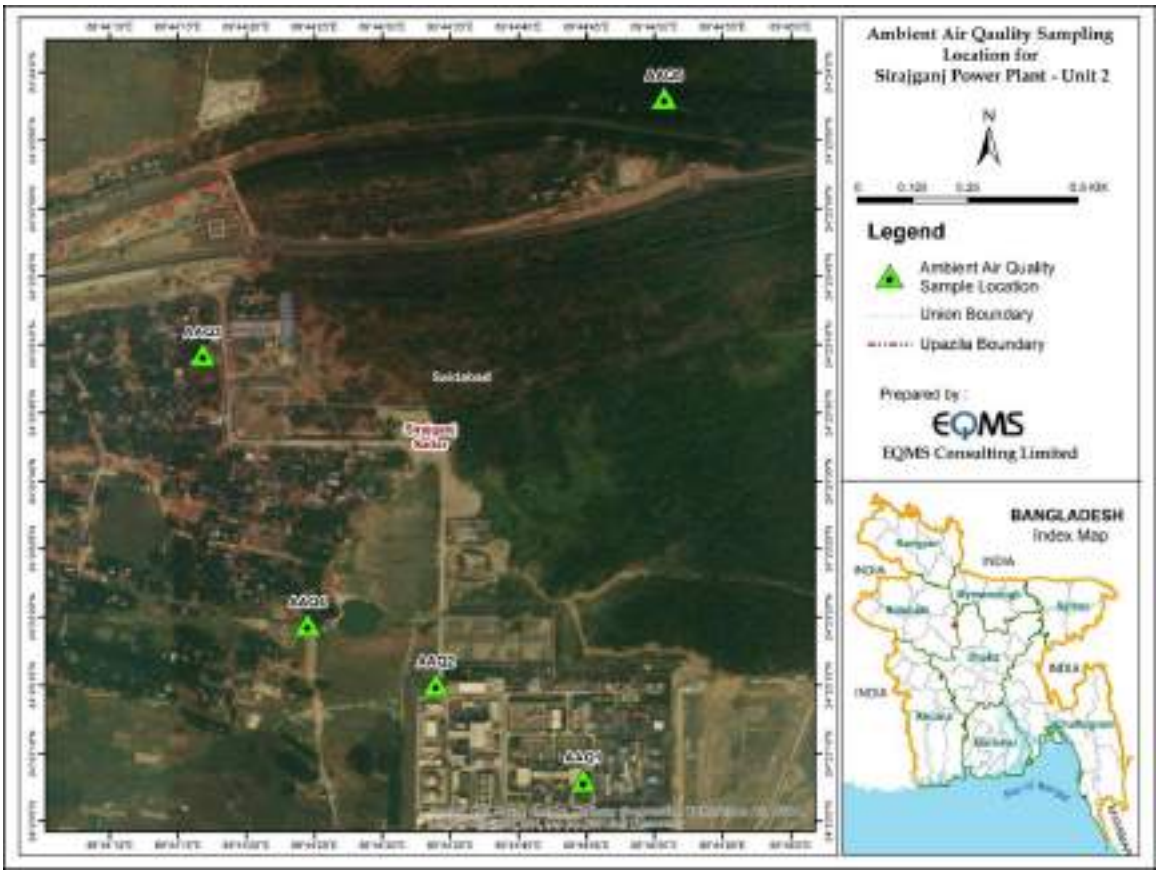
Source: Annual Environmental Monitoring of ELRC

Annex B-9: Electro-Magnetic Field Monitoring Photographs

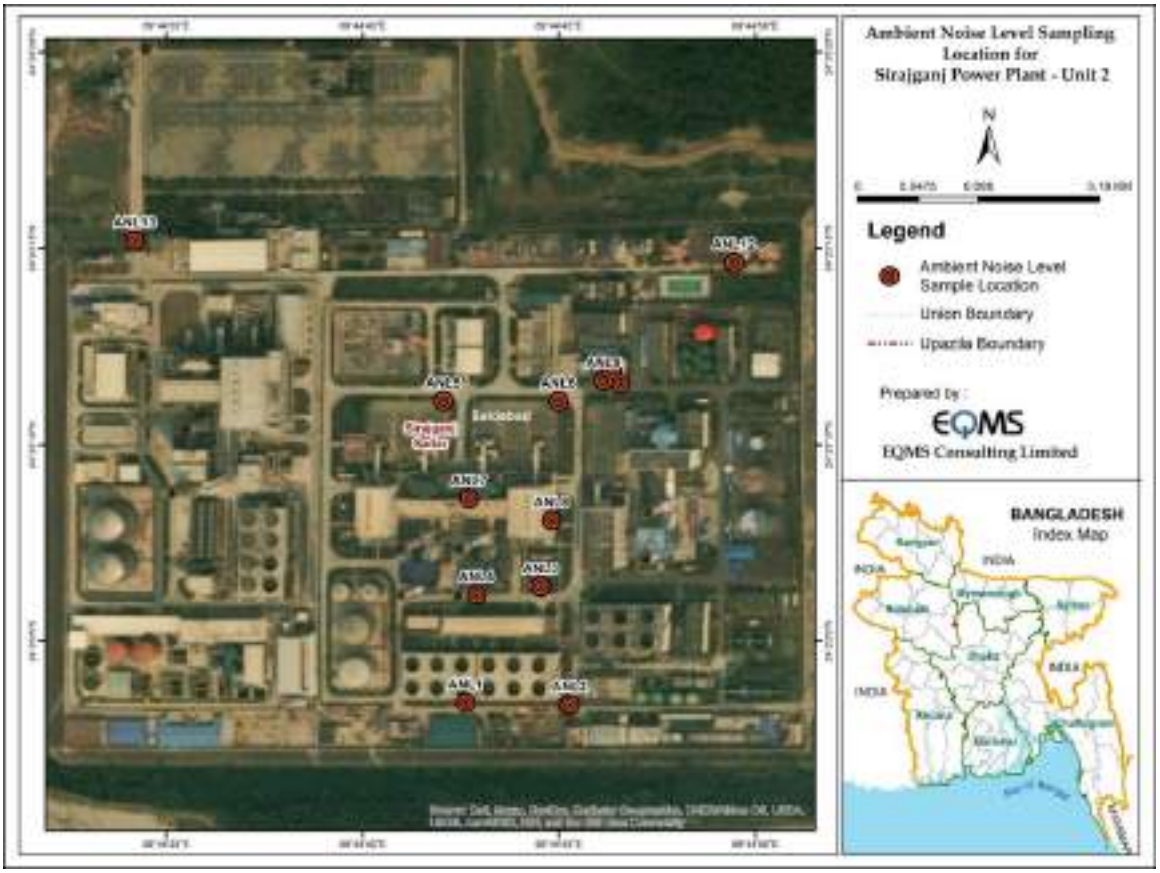
Source: Annual Environmental Monitoring of ELRC

Annex B-10: Soil Quality Sampling Photographs

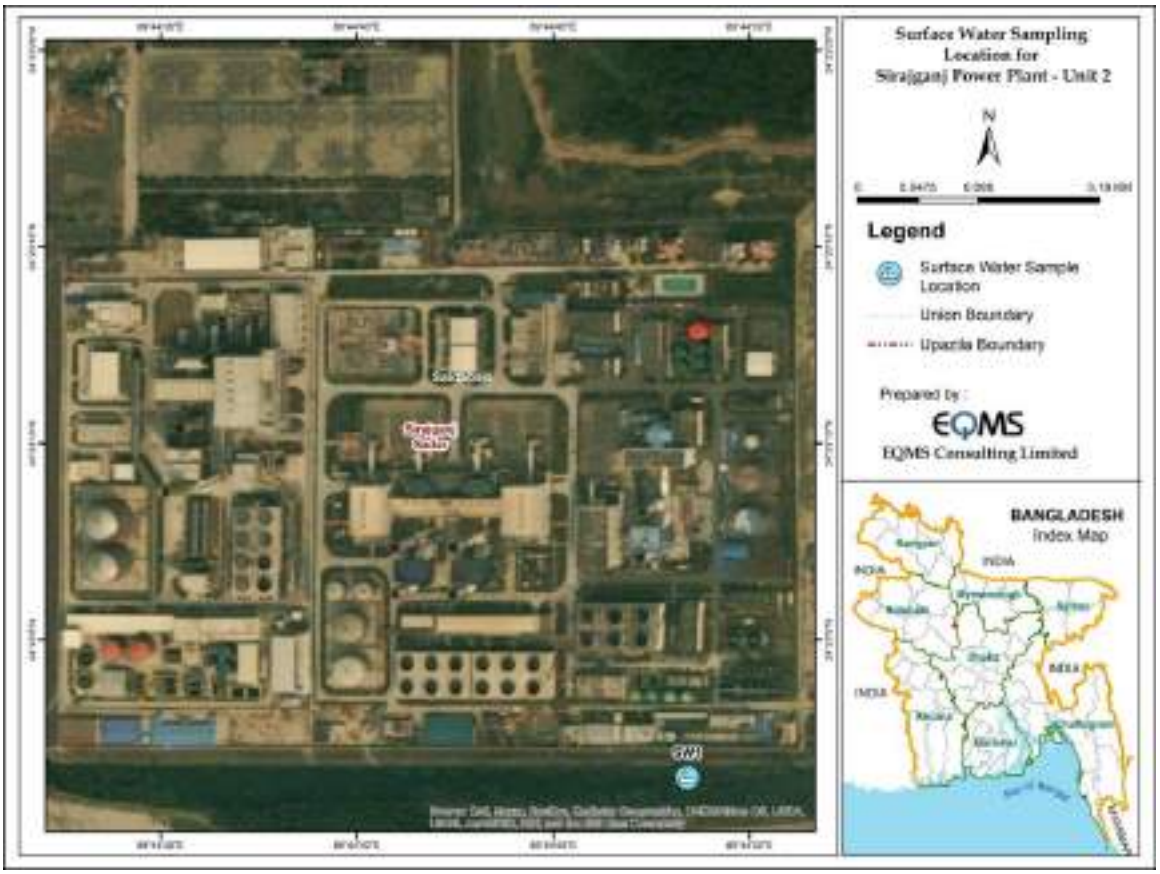
Annex C: Maps of the Monitoring Locations



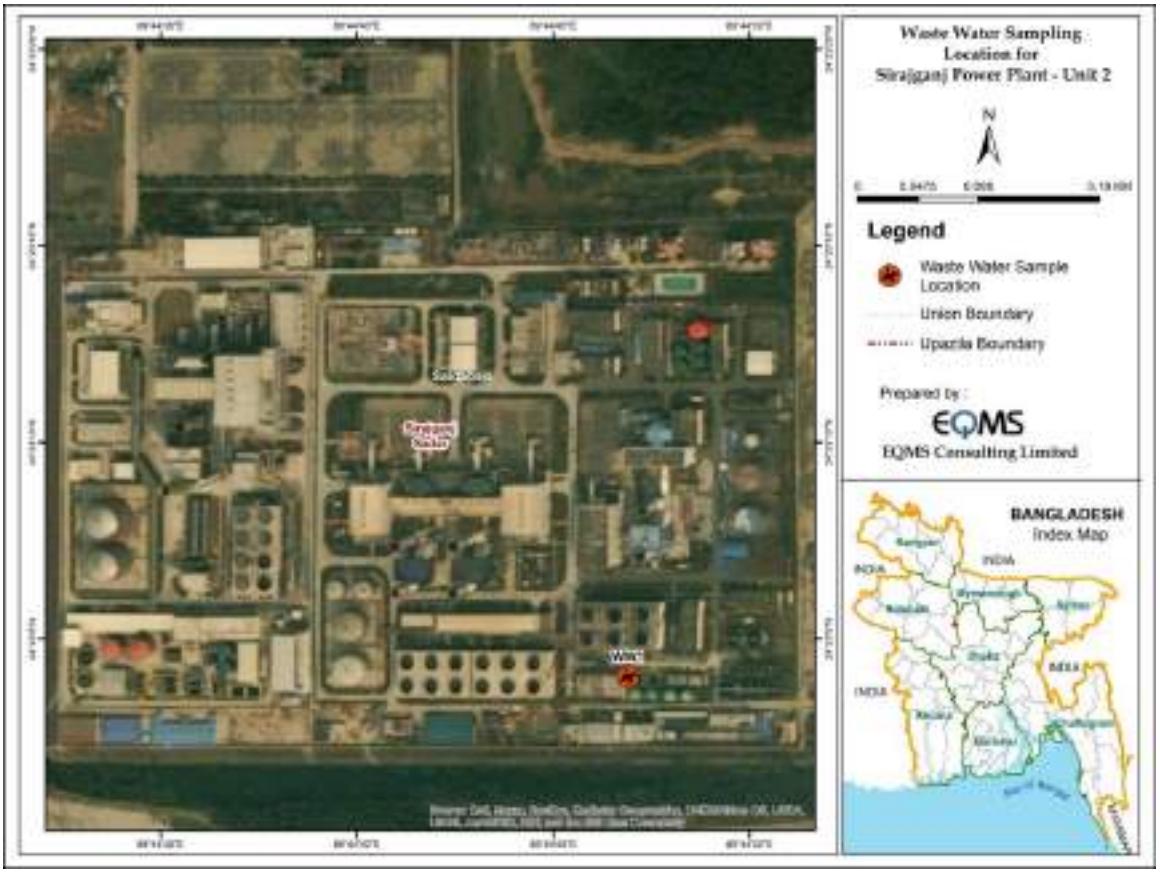
Map 6-1: Monitoring Points of Ambient Air Quality



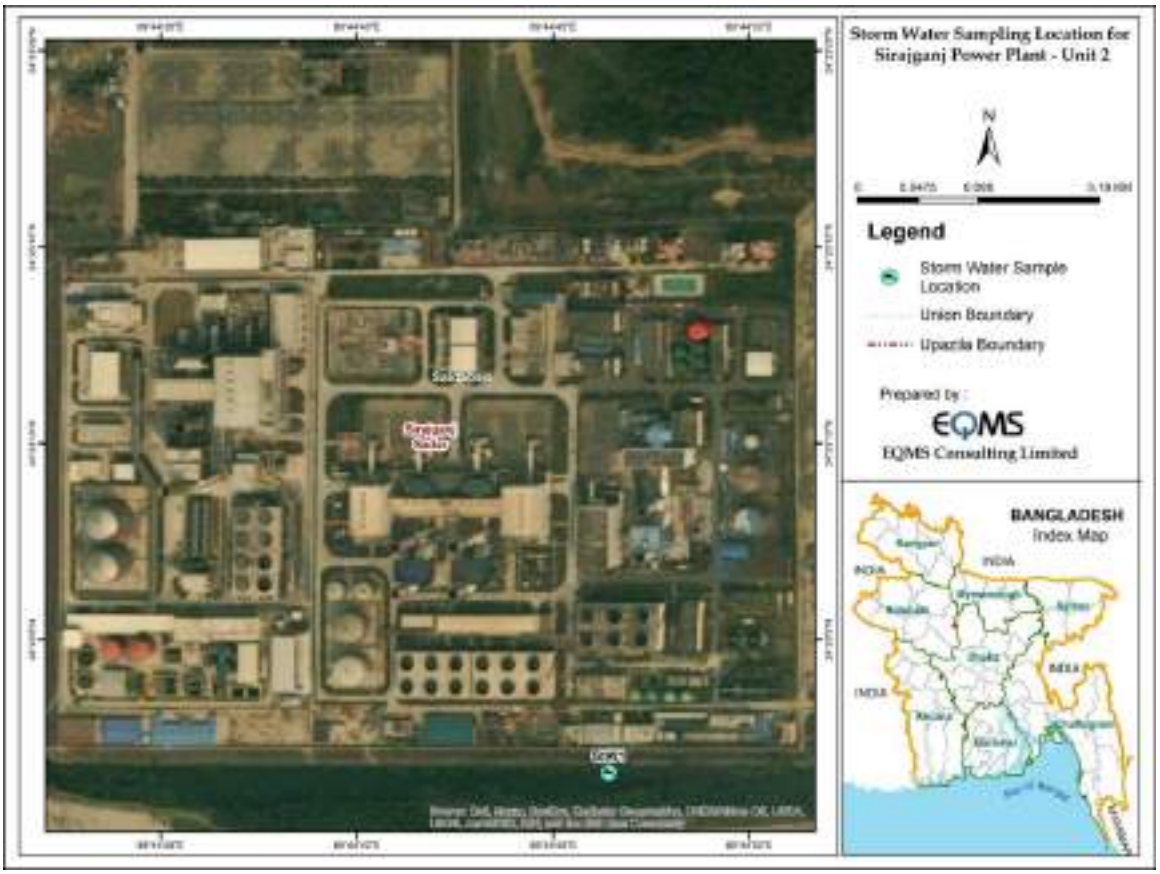
Map 6-2: Monitoring Points of Ambient Noise Level



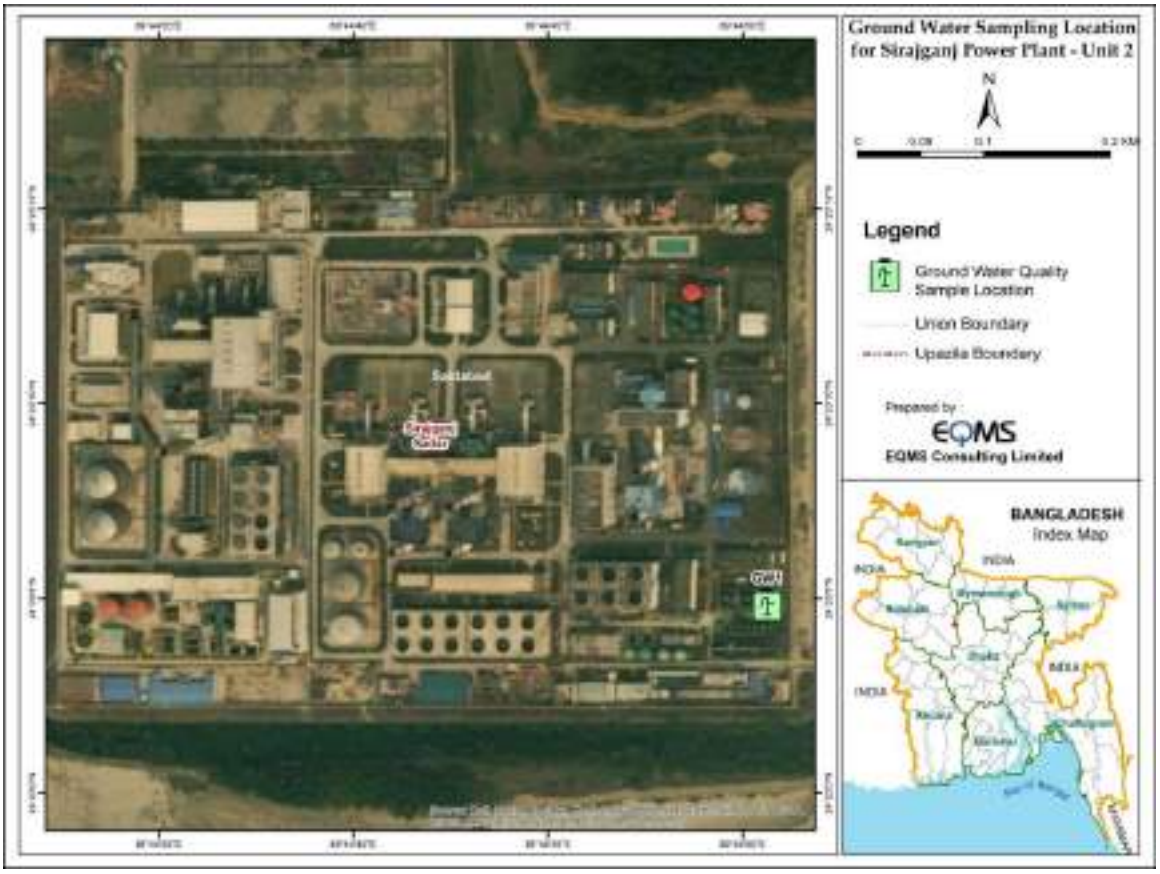
Map 6-3: Sampling Points of Surface Water Quality



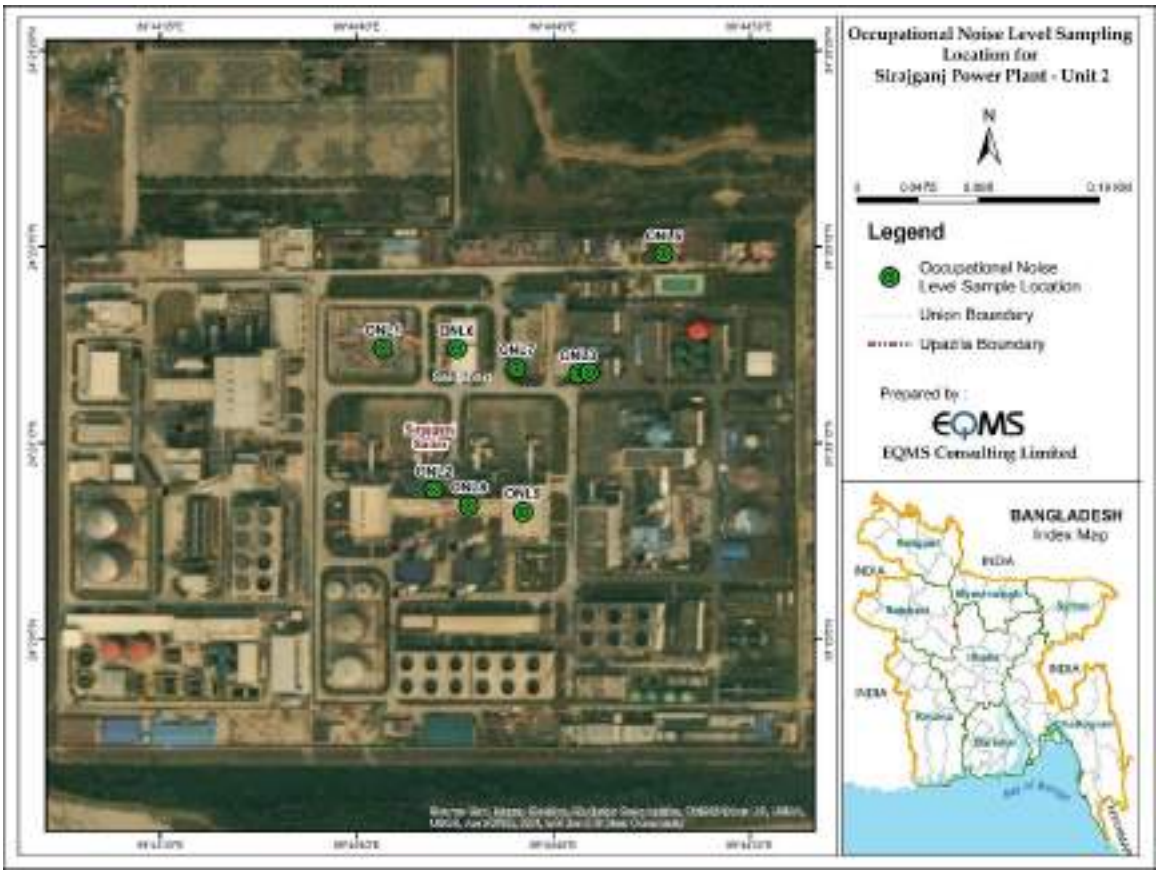
Map 6-4: Sampling Points of Waste Water Quality



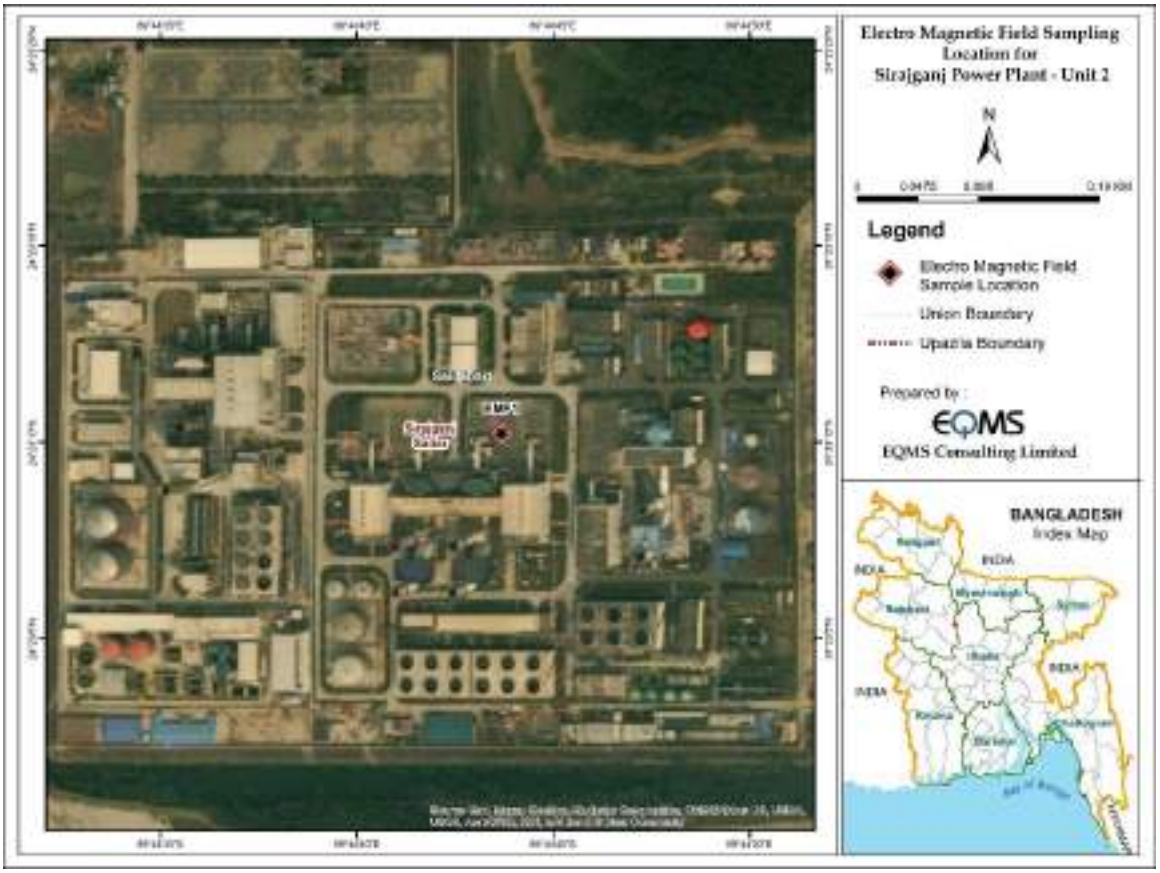
Map 6-5: Sampling Points of Storm Water Quality



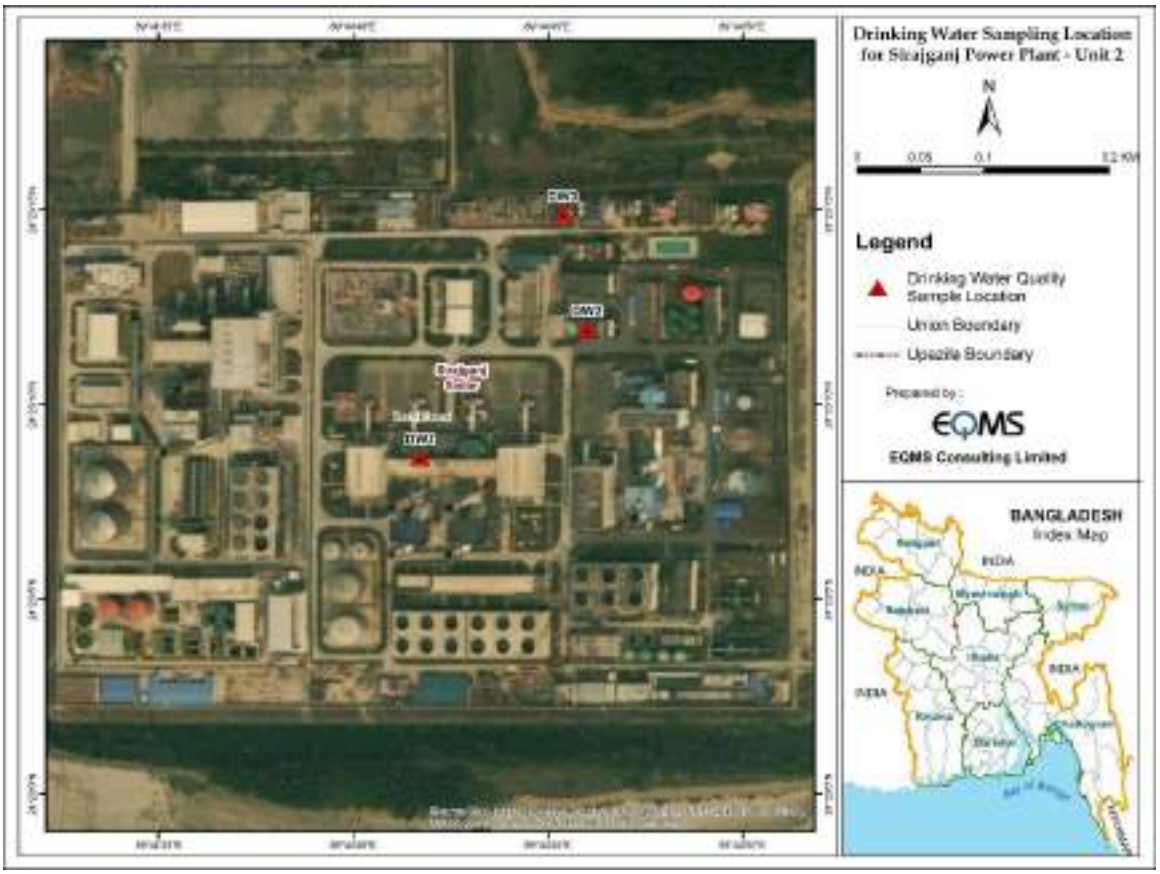
Map 6-6: Sampling Points of Ground Water Quality



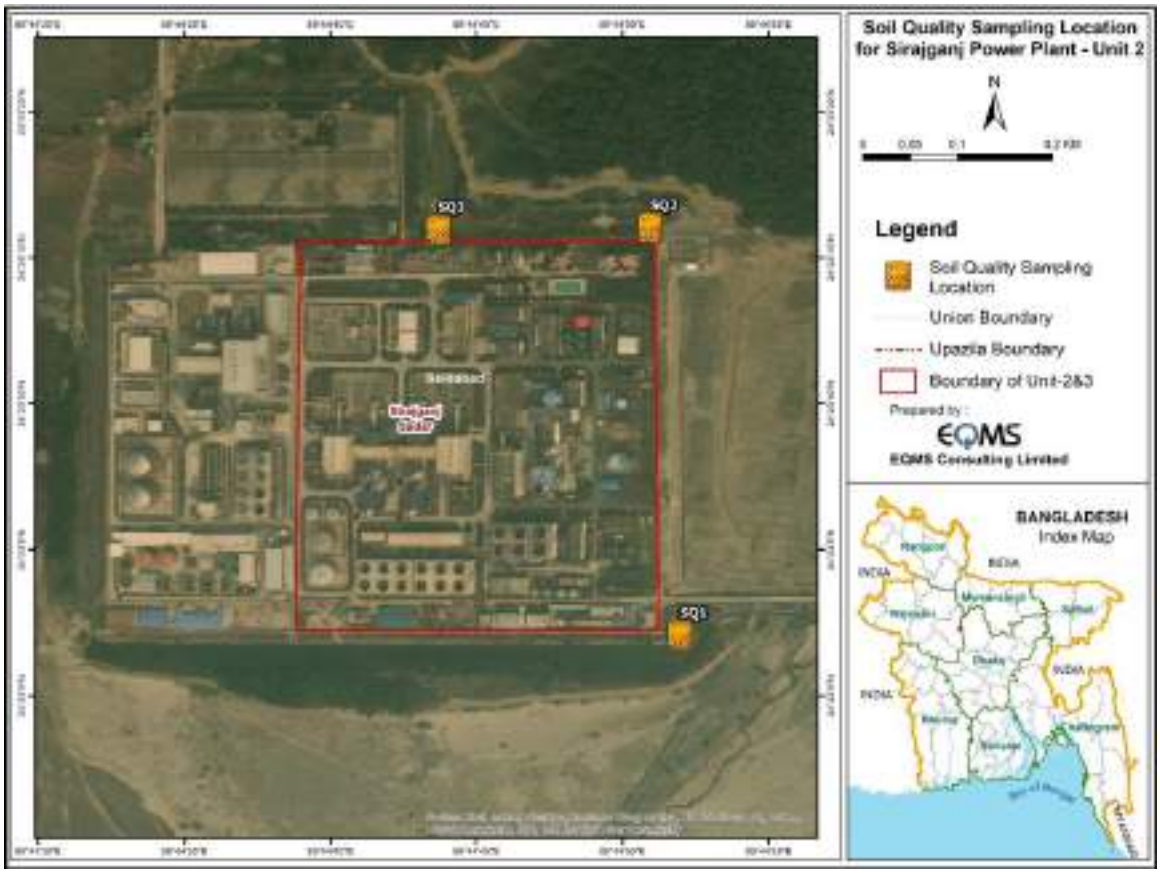
Map 6-7: Monitoring Points of Occupational Noise



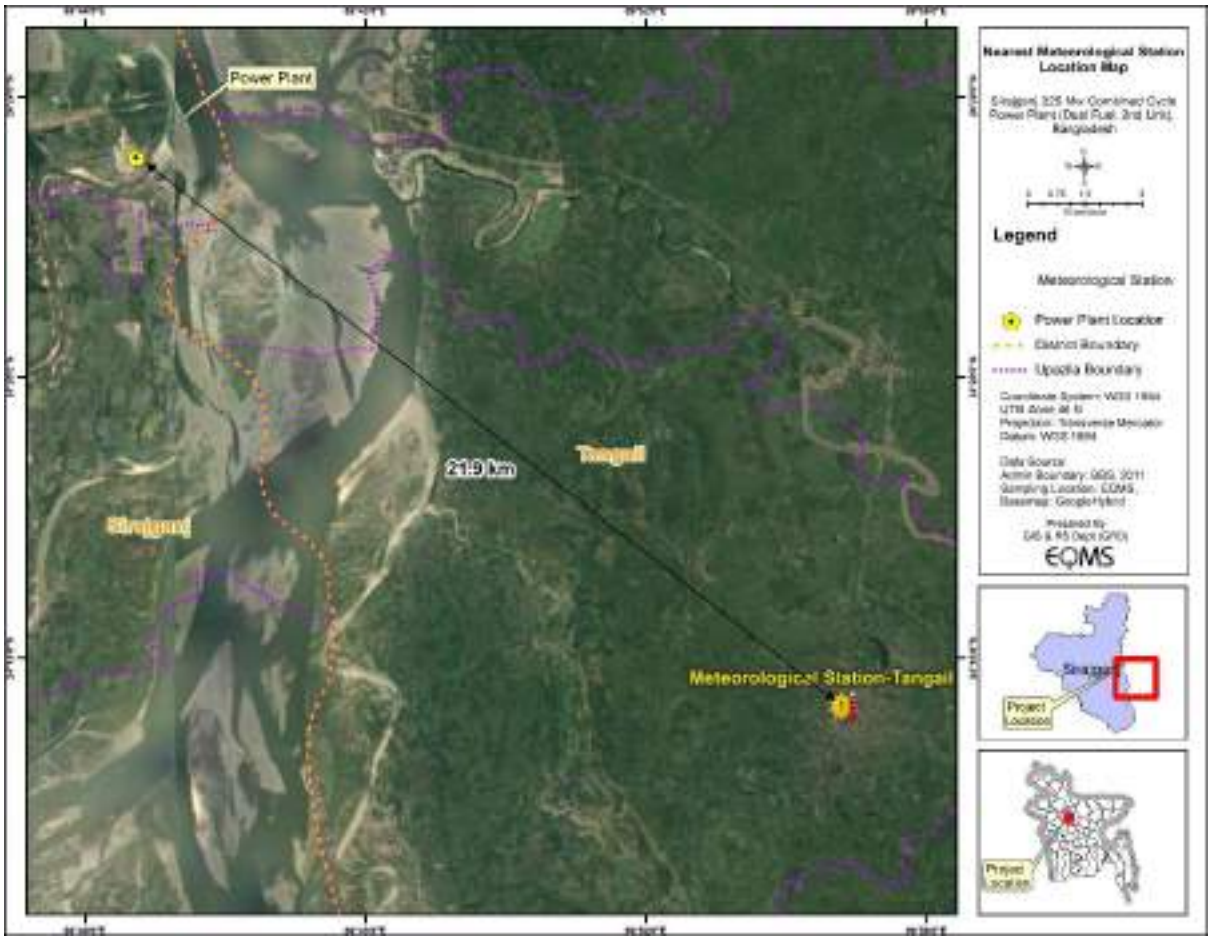
Map 6-8: Monitoring Points of Electro-Magnetic Field



Map 6-9: Sampling Points of Drinking Water Quality



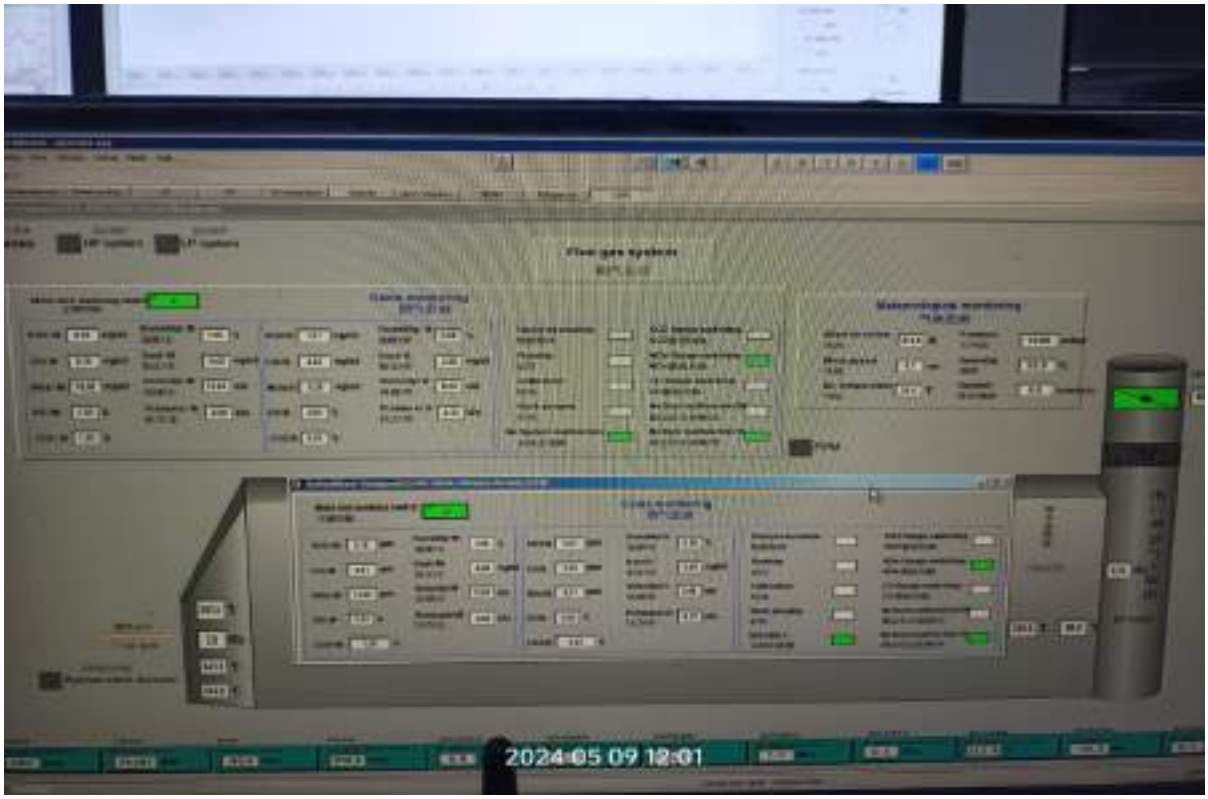
Map 6-10: Sampling Points of Soil Quality



Map 6-11: Nearest Metrological Station Location Map

Annex D: Sample Records of Stack Emission Data

May 2024-July 2024



November 2024-January 2025

SIRAJGANJ 225 MW COMBINED CYCLE POWER PLANT (DUAL FUEL: 2nd UNIT)

1.1 Stack Emission Monitoring

The Stack air emission has been monitored by automatic sampler connected with analyser. The machine probe has set to the centre point of the exhaust. Sampling has been conducted for specific time intervals mentioned in the work instruction and recorded in a field data collection sheet. The result of the stack emission is shown below.

The Stack Emission From the stack point has been analysed for the parameter of Temp, NOx, NO, SO2, O2, CO & CO2 to evaluate the effect of the plant's emission while running on 100% natural gas on the air environment.

Table 1-1: Stack Emission Analysis Result

Sl. No	Run (3 Minutes Interval)	Measured Pollutants						
		Temperature	CO	NO	CO2	NOx	SO2	O2
					Unit			
		°C	ppm	ppm	%	mg/Nm3	ppm	%
	Method of Analysis		In situ measurement with Testo 340					
1	Run 1	77.8	27	47	1.7	85.34	0	12.85
2	Run 2	82.5	22	51	1.8	89.12	0	13.85
3	Average	80.15	24.5	49	1.75	87.23	0	13.35
4	Bangladesh Standard	NYS	NYS	NYS	NYS	400 (For gas Fuel Power Plant)	NYS	NYS
5	World Bank Standard 2008*	NF	NF	NF	NF	320 (Gas)	NYS (Gas)	15% (Gas)

Note:
NOx - Oxides of Nitrogen, SOx - Sulphur Di Oxide CO - Carbon Mono oxide, CO2 – Carbon di oxide O2 - Oxygen, NYS - Not Yet Set, DoE- Department of Environment, ppm- parts per million.
Primary data Source: stack emission analysis done by ELRC, November 2024, Stack Height: 60 meters, Stack Sampling Point: 33 meters, Date of Sampling: 19.11.2024, Date of analysis: 25.11.2024, Time: 03:57 PM

1

SIRAJGANJ 225 MW COMBINED CYCLE POWER PLANT (DUAL FUEL: 2nd UNIT)

1.1 Stack Emission Monitoring

The Stack air emission has been monitored by automatic sampler connected with analyser. The machine probe has set to the centre point of the exhaust. Sampling has been conducted for specific time intervals mentioned in the work instruction and recorded in a field data collection sheet. The result of the stack emission is shown below.

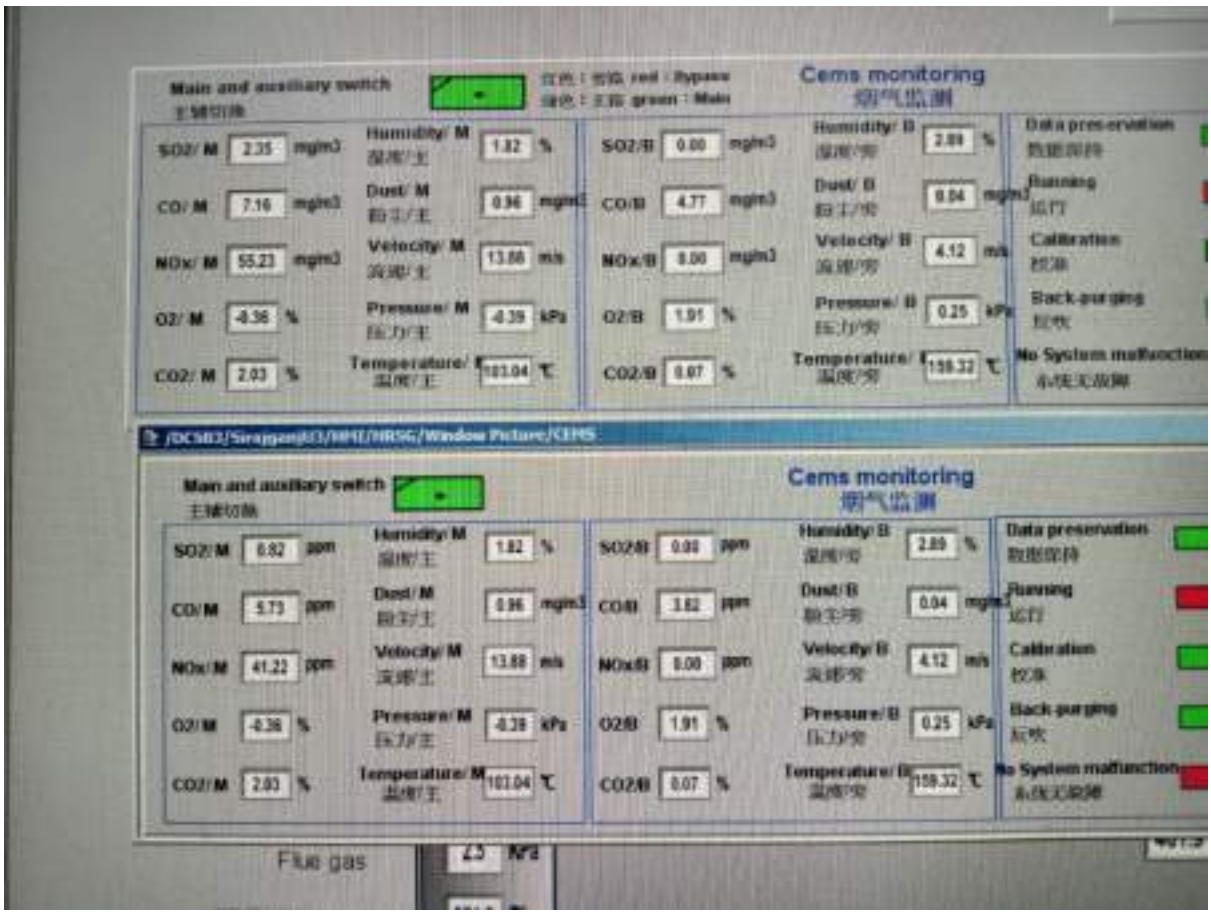
The Stack Emission From the stack point has been analysed for the parameter of Temp, NOx, NO, SO2, O2, CO & CO2 to evaluate the effect of the plant's emission while running on 100% natural gas on the air environment.

Table 1-1: Stack Emission Analysis Result

Sl. No	Run (3 Minutes Interval)	Measured Pollutants						
		Temperature	CO	NO	CO2	NOx	SO2	O2
					Unit			
		°C	ppm	ppm	%	mg/Nm3	ppm	%
	Method of Analysis		In situ measurement with Testo 340					
1	Run 1	88.4	30	52	1.9	97.22	0	13.95
2	Run 2	78.3	31	49	2	98.29	0	14.22
3	Average	79.85	30.5	50.5	1.95	97.75	0	14.08
4	Bangladesh Standard	NYS	NYS	NYS	NYS	400 (For gas Fuel Power Plant)	NYS	NYS
5	World Bank Standard 2008*	NF	NF	NF	NF	320 (Gas)	NYS (Gas)	15% (Gas)

Note:
NOx - Oxides of Nitrogen, SOx - Sulphur Di Oxide CO - Carbon Mono oxide, CO2 – Carbon di oxide O2 - Oxygen, NYS - Not Yet Set, DoE - Department of Environment, ppm- parts per million.
Primary data Source: stack emission analysis done by ELRC, December 2024, Stack Height: 60 meters, Stack Sampling Point: 33 meters, Date of Sampling: 17.12.2024, Date of analysis: 21.12.2024, Time: 11:25 AM

1


Main and auxiliary switch
Cems monitoring
SO2/ M 2.35 mg/m3
CO/ M 7.16 mg/m3
NOx/ M 55.23 mg/m3
O2/ M -8.36 %
CO2/ M 2.03 %
Humidity/ M 1.82 %
Dust/ M 0.96 mg/m3
Velocity/ M 13.88 m/s
Pressure/ M -0.39 kPa
Temperature/ M 101.04 ℃
SO2/B 0.00 mg/m3
CO/B 4.77 mg/m3
NOx/B 0.00 mg/m3
O2/B 1.91 %
CO2/B 0.07 %
Humidity/ B 2.89 %
Dust/ B 0.04 mg/m3
Velocity/ B 4.12 m/s
Pressure/ B 0.25 kPa
Temperature/ B 159.32 ℃
Data preservation
Running
Calibration
Back-purging
No System malfunction
/DCS02/Siraganj02/HRE/HR56/Window Picture/CEMS
Main and auxiliary switch
Cems monitoring
SO2/ M 0.82 ppm
CO/ M 5.73 ppm
NOx/ M 41.22 ppm
O2/ M -8.36 %
CO2/ M 2.03 %
Humidity/ M 1.82 %
Dust/ M 0.96 mg/m3
Velocity/ M 13.88 m/s
Pressure/ M -0.39 kPa
Temperature/ M 101.04 ℃
SO2/B 0.00 ppm
CO/B 3.82 ppm
NOx/B 0.00 ppm
O2/B 1.91 %
CO2/B 0.07 %
Humidity/ B 2.89 %
Dust/ B 0.04 mg/m3
Velocity/ B 4.12 m/s
Pressure/ B 0.25 kPa
Temperature/ B 159.32 ℃
Data preservation
Running
Calibration
Back-purging
No System malfunction
Flue gas

Annex E: Records of Leak Detection Data

NORTH-WEST POWER GENERATIONCOMPANY LIMITED

Sirajganj225 MW Combined Cycle Power Plant (1st, 2nd& 3rd Unit-Dual Fuel)

(ISO 9001: 2015, ISO 14001:2015 & ISO 45001:2018 Certified)

Visual Inspection of Pipeline Route

Date	Remarks	Inspected by	Signature	Signature
16.03.23	No leakage found	Md. Julkar Nain & Md. Manirul Islam		
12.04.23	No leakage found	Md. Julkar Nain & Shariful Islam		
118.05.23	No leakage found	Md. Julkar Nain & Md. Manirul Islam		
13.06.23	No leakage found	Md. Julkar Nain & Shariful Islam		
15.07.23	No leakage found	Md. Julkar Nain & Md. Manirul Islam		
14.08.23	No leakage found	Md. Julkar Nain & Shariful Islam		
18.09.23	No leakage found	Md. Julkar Nain & Md. Manirul Islam		
16.10.23	No leakage found	Md. Julkar Nain & Shariful Islam		
19.11.23	No leakage found	Md. Julkar Nain & Md. Manirul Islam		
13.12.23	No leakage found	Md. Julkar Nain & Shariful Islam		
09.01.24	No leakage found	Md. Julkar Nain & Md. Manirul Islam		
11.02.24	No leakage found	Md. Raju Miah & Rasel Raju	Raju	Rasel Raju
10.03.24	No leakage found	Md. Raju Miah & Md. Mahirul Islam	Raju	
09.04.24	No leakage found	Md. Raju Miah & Rasel Raju	Raju	Rasel Raju
16.05.24	No leakage found	Md. Raju Miah & Md. Mahirul Islam	Raju	
13.06.24	No leakage found	Md. Raju Miah & Rasel Raju	Raju	Rasel Raju
10.07.24	No Leakage found	Md. Julkar Nain Sharipa Sharif		
14.08.24	No leakage found	Md. Julkar Nain Rasel Raju		Rasel Rasel
10.09.24	No leakage found	Md. Julkar Nain Sharipa Sharif		
09.10.24	No leakage found	Md. Julkar Nain Rasel Raju		Rasel Rasel
13.11.24	No leakage found	Md. Julkar Nain Sharipa Sharif		
10.12.24	No leakage found	Md. Julkar Nain Rasel Raju		Rasel Rasel

Annex F: Records of Meteorological Data

"The meteorological data has been embedded in the Annex D"

Annex G: Records of Health Checkup Data

নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোং লিঃ

NORTH-WEST POWER GENERATION CO. LTD.

ISO 9001: 2015, ISO 14001: 2015 & ISO 45001: 2018 Certified

(An Enterprise of Bangladesh Power Development Board)

Employee's Eye & Hearing Test Report of "Unit -02"-2024

S.N	Name	Unit	Report
1.	Md.Sarwar Jahan,41 years	Unit -02	Hearing- Normal. Eye- Treatment Given & F/U the Pt, Adv. For use Bi focal Glass
2.	Md.Rasel, 32 years	Unit -02	Hearing-Normal Eye- Normal Vision
3.	Md. Shakil Ahamed,31 years	Unit -02	Hearing-Normal Eye- Dysfopia.
4.	Md.Sahadat Hossain,36 years	Unit -02	Hearing-Normal Eye-6/6 & SPH +0.75 (B.E).Adv. For use Bi focal Glass
5.	Md.Tajul islam,35 years	Unit -02	Hearing-Normal. Eye- Normal.
6.	Md.Belal Hossen,36years	Unit -02	Hearing-Normal. Eye- Normal.
7.	Md.Monir Hossen,34 years	Unit -02	Hearing-Normal. Eye- Normal.
8.	Mr.Anik Chandra das,27 years	Unit -02	Hearing-Normal. Eye-6/6 & SPH -0.25 (B.E),Adv. For use Unifocal Blucat Glass
9.	Md.Maruf Hossain,28 years	Unit -02	Hearing-Normal. Eye-Normal.
10.	Md.Shamim hosen,30 years	Unit -02	Hearing-Normal. Eye-Normal.
11.	Md.Naved sarkar Sohag,28 years	Unit -02	Hearing-Normal. Eye-Normal.
12.	Jahidul Alam,24 years	Unit -02	Hearing-Normal. Eye-Normal.
13.	Md.Humaion Masud,30 years	Unit -02	Hearing- Normal. Eye-6/6 & SPH -0.50 (B.E),Adv. For use Unifocal White Glass
14.	Md.Rasel Raza,27 years	Unit -02	Hearing-Normal. Eye-Normal.
15.	Mohammad Oli Ullah,29 years	Unit -02	Hearing-Normal. Eye-Normal.
16.	Rubel Hossen,35 years	Unit -02	Hearing-Normal. Eye-Normal.
17.	Ismail	Unit -02	Hearing-Normal. Eye-Normal.

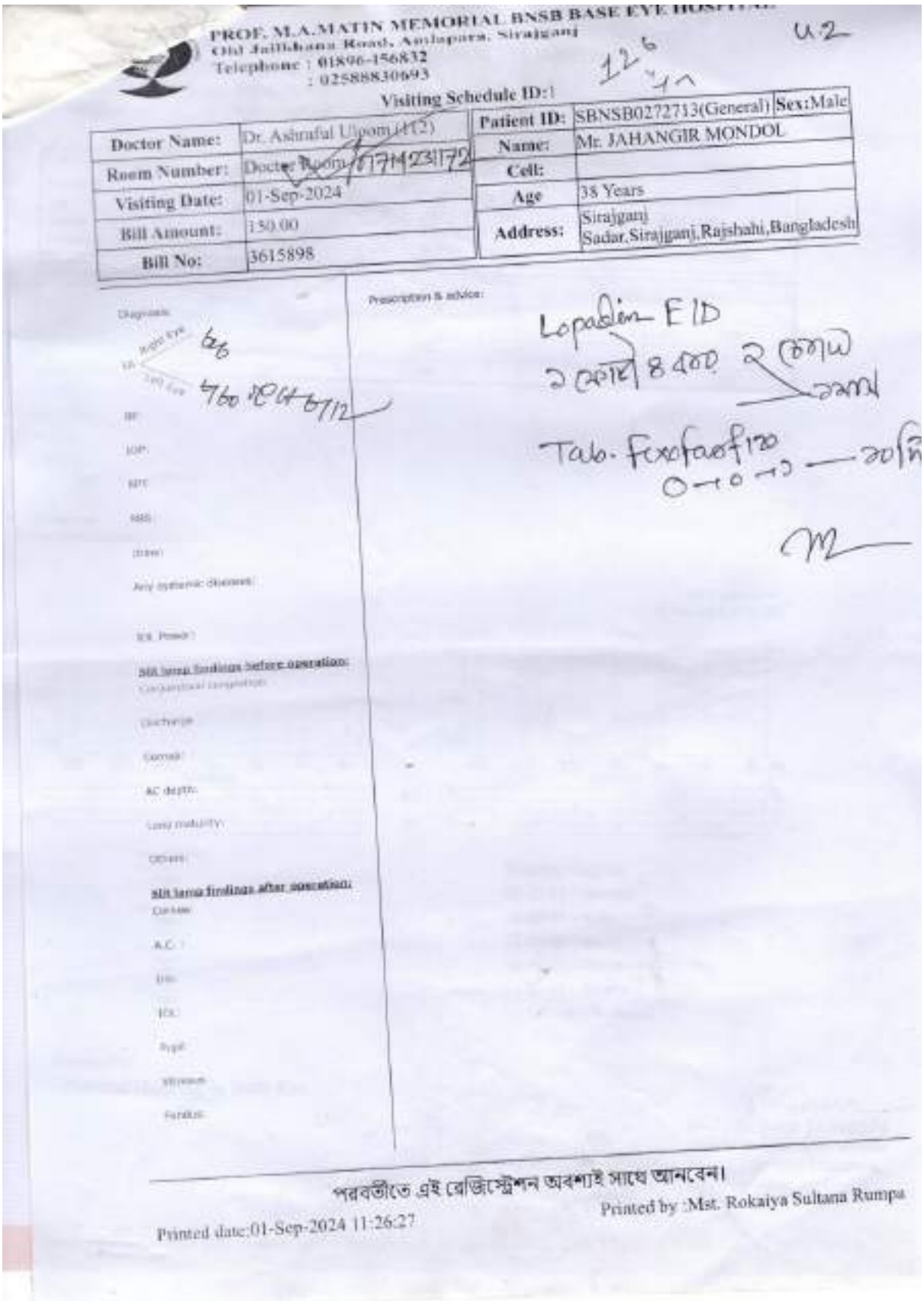
নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোং লিঃ
NORTH-WEST POWER GENERATION CO. LTD.
ISO 9001: 2015, ISO 14001: 2015 & ISO 45001: 2018 Certified
An Enterprise of Bangladesh Power Development Board

18.	Md.Abdullah Al Rasel,41 years.	Unit -02	Hearing-Normal (Lt.) Mild Con. Hear. Loss (Rt).
			Eye-Normal.
19.	Md.Kamrul hoque, 51 years.	Unit -02	Hearing- Mild Con. Hear. Loss (Rt),High Freq. Hear. Loss (Lt)
			Eye-6/6 & SPH +2.25 (B.E.)Adv. For use Bi focal Glass.
20.	Md.Mosiur Rahman,38 years	Unit -02	Hearing-High Freq. Hear. Loss (Rt & Lt.)
			Eye-6/6 & SPH +1.0(B.E.)Adv. For use Bi focal Glass.
21.	Md. Moklesur Rahman,35 years	Unit -02	Hearing-Normal.
			Eye-Normal.
22.	Abdul Kader Miraj,29 years	Unit -02	Hearing-Normal.
			Eye-Normal.
23.	Md.Rofiqul Islam,35 years	Unit -02	Hearing-Normal.
			Eye-Normal.
24.	Mr.Sabbir Rahman,33 years	Unit -02	Hearing-Normal.
			Eye-6/6 & SPH -0.50(Rt.)Adv. For use Bi focal Blue Cut Glass..
25.	Md.Golam Azom,52 years	Unit -02	Hearing-High Freq. Hear. Loss (Lt.)
			Eye-6/6 & SPH +2.0(B.E.)Adv. For use Bi focal Glass.
26.	Md.Nazmul Islam,42 years	Unit -02	Hearing-High Freq. Hear. Loss (Rt & Lt)
			Eye-6/6, BE & SPH +1.25 (B.E.)Adv. For use Bi focal Glass.
27.	Foysal,31 years	Unit -02	Hearing-Normal.
			Eye-Normal.
28.	F.M. Nurun Nabi Siddique, 50 years	Unit -02	Hearing-Normal.
			Eye-6/6, BE & SPH DV +0.50 ,NV +2.25 (B.E.)Adv. For use Bi focal Glass.
29.	Md.Kamal Hussain,37 years	Unit -02	Hearing-High Freq. Hear. Loss (Lt.)
			Eye-Normal.
30.	Alomgir Hossain,31 Years	Unit -02	Hearing-Normal.
			Eye-Normal.
31.	Golam Azom,30 years	Unit -02	Hearing-Normal.
			Eye-6/6 (B.E.) & Adv. For use Blue Cut Glass.

নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোং লিঃ
NORTH-WEST POWER GENERATION CO. LTD.
ISO 9001: 2015, ISO 14001: 2015 & ISO 45001: 2018 Certified
(An Enterprise of Bangladesh Power Development Board)

32.	Md.Maruf Hosen, 29 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E.) & Adv. For use Blue Cut Glass.
33.	Md.Anowar Hossen,35 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E.) & Adv. For use Blue Cut Glass.
34.	Md.Nazrul Islam, 25 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E.), Normal.
35.	Md.Sahadat Hossain, 35 years	Unit -02	Hearing-High Freq. Hear. Loss (Lt.) Eye-6/6 (B.E) Adv for AR.
36.	Sree Sham Kumar, 30 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E.), Normal.
37.	Md.Nahid hasan, 25 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E.), Normal.
38.	Md.Saddam Hosen,30 years	Unit -02	Hearing-High Freq. Hear. Loss (Lt.) Eye-6/6 (B.E) ,Normal.
39.	Md.Siddik Hosen, 29 years	Unit -02	Hearing-High Freq. Hear. Loss (Rt & Lt.) Eye-6/6 (B.E) ,Normal.
40.	Md.Waliullah,36 years	Unit -02	Hearing-Mild. Cond. Hear. Loss (Rt &Lt.) Eye-6/6 (B.E) ,Normal.
41.	Md.Jahangir Mondal,38 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E),SPH NV+1.00, (Rt.) DV +2.00 NV+3.00 (Lt.)
42.	Md.Rasel Mia,31 years	Unit -02	Hearing-Normal. Eye-6/6 (B.E.), Normal.

Dr. Md. Golam Kibria
M.B.B.S (RSD, C.M.U (Dhaka)
Senior Medical Officer (In charge)



PROF. M.A.MATIN MEMORIAL BNSB BASE EYE HOSPITAL
Old Jailkhana Road, Amlapara, Sirajganj
Telephone : 01896-156832
: 02588830693

Visiting Schedule ID:1

Doctor Name:	Dr. Ashraful Ulpom (ID2)	Patient ID:	SBNSB0272713(General) Sex:Male
Room Number:	Doctor Room	Name:	Mr. JAHANGIR MONDOL
Visiting Date:	01-Sep-2024	Cell:	
Bill Amount:	150.00	Age	38 Years
Bill No:	3615898	Address:	Sirajganj Sadar,Sirajganj,Rajshahi,Bangladesh

Diagnosis:

Prescription & advice:

Slit lamp findings before operation:

Slit lamp findings after operation:

পরবর্তীতে এই রেজিস্ট্রেশন অবশ্যই সাথে আনবেন।

Printed date:01-Sep-2024 11:26:27

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M.A.MATIN MEMORIAL BNSB BASE EYE HOSPITAL
Old Jailkhana Road, Amlapara, Sirajganj
Telephone : 01896-156832
: 02588830693

Glass Prescription

Patient details			
Patient ID	SBNSB0272713	Patient name	JAHANGIR MONDOL
Age	36 Years	StudyDate	01-Sep-2024 11:26
Gender	Male	VisitNo	1
Contact no.		Address	Sirajganj Sadar, Sirajganj

Glass Prescription

	Right eye				Left eye			
	SPH	CYL	Axis	V/A	SPH	CYL	Axis	V/A
DV	Plano	—	—	6/6	+2.00	—	—	6/9
NV	+1.00	—	—	N6	+3.00	—	—	N6

PD

O/D (mm)

✓ Bi-Focal

Disclaimer
Next time please bring this report.

Md.Shariful Islam
01-Sep-2024 01:02 PM

Md. Golam Mostafa
Audiometrist & Hearing Aid Specialist
Special Trained in Singapore, Malaysia, India.
Examiner

Stadium Road, North Side of Malshapara Kobarsthan, Sirajganj- 6700, Cell: +88 01301 367106, 01752 038925

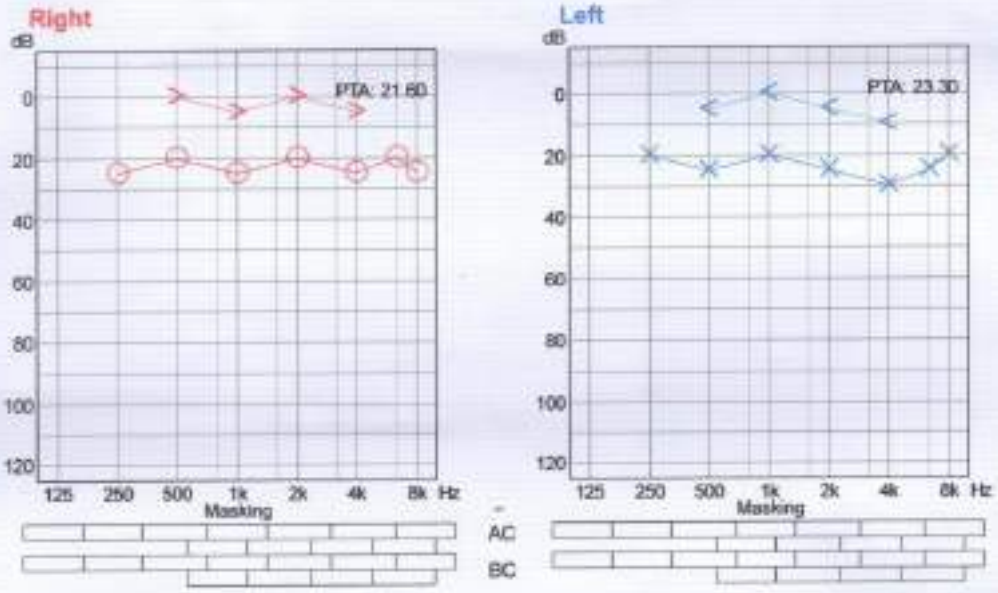
Audiolab Hearing & Speech Center

signia ReSound GN

AUDIOLOGICAL REPPORT

Printed on: 9/1/2024 2:17:48 PM

Name	**Md. Jahangir Mondol**
Age	38 Years
Address 1	Sirajgong
Ref. by	**Dr. Md. Golam Kibria** *MBBS,(RJ)*



Hearing Degree:

00-25 dB = Normal
26-40 dB = Mild
41-55 dB = Moderate
56-70 dB = Moderately Severe
71-90 dB = Severe
91-120 dB = Profound

Remarks:

Normal Hearing in Both Ear.

Md. Golam Mostafa
Audiometrist & Hearing Aid Specialist
Special Trained in Singapore, Malaysia, India.

Stadium Road, North Side of Malshapara Kobarsthan, Sirajganj- 6700, Cell: +88 01301 367106, 01752 038925

Annex H: Emergency Preparedness and Responses

Emergency Preparedness Responses are embedded in Annex K.

Annex I: Community Relationship Program/Awareness and Training

WELCOME/স্বাগতম

Community Health Safety and Emergency Preparedness Program 2024

"সামাজিক স্বাস্থ্য নিরাপত্তা ও জরুরি প্রস্তুতিমূলক কার্যক্রম 2024"

Date:09.10.2024 Time: 12:00 PM

Venue: Punorbason Graveyard Madrasha, Soydabad Sirajganj

North-West Power Generation Company Limited

Sirajganj 225 MW Combined Cycle Power Plant (Unit 2 and 3)

ELRC 1

সামাজিক স্বাস্থ্য নিরাপত্তা ও জরুরি প্রস্তুতিমূলক কার্যক্রম ২০২২

❑ আলোচ্যসূচি

- বন্যা
- গ্যাস নিঃসরণ
- তেল নিঃসরণ
- সড়ক দুর্ঘটনা
- সংক্রামক এবং অসংক্রামক রোগ

ELRC 2

INTRODUCTION/ভূমিকা

❑ কমিউনিটিতে স্বাস্থ্য হুমকি, রাসায়নিক পদার্থ, ধোঁয়া, ভাইরাস, ব্যাকটেরিয়া, নিম্ন স্তরের বিকিরণ এবং পরিবেশে অন্যান্য সম্ভাব্য ক্ষতিকারক সাধারণ পদার্থ

❑ কমিউনিটি হেলথ অ্যান্ড সেফটি বলতে স্থানীয় কমিউনিটিগুলিকে প্রকল্পের কার্যক্রম (বন্যা, ভূমিধস, দূষণ বা অন্যান্য প্রাকৃতিক বা মানবসৃষ্ট বিপদ সহ), রোগ এবং দুর্ঘটনাজনিত পতনের কারণে সৃষ্ট বিপদ থেকে রক্ষা করাকে বোঝায়।

❑ কমিউনিটি প্রস্তুতি বলতে নাগরিকদের প্রশিক্ষণ, শিক্ষা এবং সম্পদ প্রদানের জন্য প্রচেষ্টা বোঝায় যা তাদের ব্যক্তিগত এবং সমষ্টিগত স্তরে সম্ভাব্য স্থানীয় দুর্যোগের হুমকির বিরুদ্ধে আগাম প্রস্তুতি নিতে সহায়তা করে থাকে।

ELRC 3

FLOODS/বন্যা

Floods in Bangladesh/বাংলাদেশে বন্যা

- বাংলাদেশে প্রতি বছর প্রা য় ২৬,০০০ বর্গ কিলোমিটার প্লাবিত হয়
- ৫০ হাজারেরও বেশি লোক মারা যায় এবং সাত মিলিয়নেরও বেশি বাড়ি ধ্বংস করে
- এদের অধিকাংশই দেশের উত্তরাঞ্চলে ঘটে

ELRC 4

FLOODS/বন্যা

Floods in Project Area

- গত বছর হঠাৎ করে জেলার ৯ টি উপজেলার প্রধান অংশ প্লাবিত হয়েছিল
- এটি প্রতি বছরের ঘটনা
- অনেক মানুষ গৃহহীন এবং অনাহারে ছিল
- উন্নয়নের কারণে, আজকাল কম লোকই ভুক্তভোগী

ELRC 5

FLOODS/বন্যা

Preparation

- বন্যা হওয়ার পূর্বে করণীয়
  - বন্যা সম্পর্কিত তথ্যের পূর্বাভাস জানা
  - কোথায় যেতে হবে তা সম্পর্কে সুস্পষ্ট ধারনা রাখা
  - বিকল্প পথ সম্পর্কে জানা এবং আলাদা হয়ে গেলে কোথায় গিয়ে মিলিত হবে পূর্বেই আলোচনা করা
  - গুরুত্বপূর্ণ জিনিস ও গৃহপালিত পশু বিষয়ে পূর্বেই করনীয় সম্পর্কে আলোচনা করা
  - বৈদ্যুতিক সংযোগ বিচ্ছিন্ন করা
  - আকস্মিক বন্যার জন্য প্রস্তুত থাকা এবং প্রয়োজনে দ্রুত স্থান ত্যাগ করা

ELRC 6

FLOODS/বন্যা

During A Flood

- বন্যার সময় করণীয়
  - স্থানীয় নির্দেশনা অনুযায়ী শুকনো পথ চলাচলের জন্য ব্যবহার করা
  - ঘূর্ণায়মান পানির মধ্যে দিয়ে হেটে না যাওয়া এবং প্রয়োজনে লাঠি ব্যবহার করা
  - বৈদ্যুতিক সুইচ বা সংযোগ তার ভিজা অবস্থায় স্পর্শ না করা
  - বন্যার পানি পুরোপুরি সরে না যাওয়া পর্যন্ত নিরাপদ স্থানে থাকা
  - আকস্মিক বন্যা হলে উঁচু স্থানে সরে যাওয়া এবং গৃহপালিত পশু ছেড়ে দেওয়া

ELRC 7

FLOODS/বন্যা

After A Flood

- বন্যা পরবর্তী করণীয়
  - সাপ ও ক্ষতিকর পোকামাকড় থেকে রক্ষা পেতে প্রয়োজনীয় ব্যবস্থা নেয়া
  - বিশুদ্ধ পানি পান করা। সম্ভব হলে দশ মিনিট পানি ফুটিয়ে বা পানি বিশুদ্ধকরণ ট্যাবলেট ব্যবহার করা
  - ঘরের ভেতর শুকানোর জন্য দরজা জানালা খুলে আলো বাতাসের ব্যবস্থা করা
  - শিশুদের নিরাপদ খেলার জায়গা তৈরি করে বেড়া দেওয়া

ELRC 8

গ্যাস এবং তেল পাইপলাইন

ELRC 9

GAS PIPELINE LEAKAGE/ গ্যাস পাইপলাইনের ছিদ্র

Activities During Gas Leaking

- গ্যাস নিঃসরণের সময় করণীয়
  - গ্যাস নিঃসরণের স্থান ভাল করে পর্যবেক্ষন করা
  - গ্যাস নিঃসরনের উপস্থিতি নিশ্চিতের জন্য পাইপ লাইন থেকে অস্বাভাবিক (যেমন হিসিং শব্দ বা কটু গন্ধ) হলে তা পর্যবেক্ষন করা
  - গ্যাস নিঃসরনের উপস্থিতি নিশ্চিত হওয়া মাত্র স্থানটিকে খালি করতে হবে
  - সংশ্লিষ্ট কর্তৃপক্ষকে অবহিত করে পাইপ লাইনের সংযোগ বন্ধ করতে হবে

ELRC 10

GAS PIPELINE LEAKAGE/ গ্যাস পাইপলাইনের ছিদ্র

Activities After Gas Leaking

- গ্যাস নিঃসরণে পরবর্তী করণীয়
  - নিঃসৃত গ্যাস পাইপ লাইন এলাকা থেকে দ্রুত লোকজনকে দূরে সরিয়ে নেয়া
  - কোন ধরনের আগুন বা দাহ্য পদার্থ পাইপ লাইনের সংস্পর্শে না রাখা

ELRC 11

OIL PIPELINE LEAKAGE/তেল পাইপলাইনের ছিদ্র

Activities During Oil Leaking

- তেলের পাইপলাইন ফুটোর সময় করণীয়
  - যতদ্রুত সম্ভব স্থান ট্যাপ করতে হবে
  - তেল জাতীয় পদার্থ ধরা, ছোঁয়া বা অপসারন করা যাবে না
  - তেল যেন ছড়িয়ে না পড়ে সেদিকে খেয়াল রাখতে হবে

ELRC 12

OIL PIPELINE LEAKAGE/তেল পাইপলাইনের ছিদ্র

Activities After Oil Leaking

- তেলের পাইপলাইন ফুটোর পরবর্তী করণীয়
  - স্থানটিকে বেষ্টন করে দিতে হবে যাতে কেউ এর সংস্পর্শে না আসে
  - যতদ্রুত সম্ভব কন্ট্রোল রুমের সাথে যোগাযোগ করতে হবে
  - ফুটো হওয়া পাইপ লাইনের আশেপাশে কোন ধরনের দাহ্য পদার্থ থাকলে তা সরিয়ে ফেলতে হবে

ELRC 13

TRAFFIC ACCIDENT/ সড়ক দুর্ঘটনা

Causes/কারণসমূহ

- অতিরিক্ত গতি
- ফোন ব্যবহার
- ঘুমান
- অতিরিক্ত বোঝা
- সিট বেল্ট ব্যবহার না করা
- না দেখে রাস্তা পারাপার






ELRC 14

TRAFFIC ACCIDENT/ সড়ক দুর্ঘটনা

Prevention/প্রতিরোধ

- সিট বেল্ট ব্যবহার করা
- ফোন ব্যবহার না করা
- **গতি সিমীত** রাখা
- রাস্তা পারাপারে **সতর্ক** থাকা

ELRC 15

TRAFFIC ACCIDENT/ সড়ক দুর্ঘটনা

During An Accident

- দূর্ঘটনার সময় করনীয়
  - দূর্ঘটনাকবলিত যানবাহন থেকে যাত্রীদের নিরাপদে সরিয়ে আনতে হবে
  - দূর্ঘটনাকবলিত স্থানে গাড়ি চলাচল সাময়িকভাবে বন্ধ রাখতে হবে
  - প্রাথমিক চিকিৎসা সেবা প্রদানকারী টিমের সাথে যোগাযোগ করতে হবে
  - দূর্ঘটার মাত্রা বেশি হলে আহত ব্যক্তিদের স্থানীয় যানবাহনে করে চিকিৎসাকেন্দ্রে বা কোম্পানী কর্তৃক নির্ধারিত চিকিৎসাসেবা কেন্দ্রে নিতে হবে
  - নিকটস্থ থানায় দ্রুত যোগাযোগ করতে হবে

ELRC 16

TRAFFIC ACCIDENT/ সড়ক দুর্ঘটনা

After An Accident

- দূর্ঘটনা পরবর্তী করণীয়
  - আহত ব্যক্তিদের যতদ্রুত সম্ভব নিকটস্থ স্বাস্থ্যকেন্দ্রে নিয়ে প্রাথমিক চিকিৎসা দিতে হবে
  - দূর্ঘটনাকবলিত এলাকা নিরাপদ ফিতা দিয়ে বেষ্টন করতে হবে
  - দূর্ঘটনা সংক্রান্ত তথ্য সংগ্রহ করতে হবে

ELRC 17

COMMUNICABLE DISEASES/ সংক্রামক রোগ

- সংক্রামক রোগ সংক্রামক এজেন্টগুলির (যেমন ভাইরাস, ব্যাকটেরিয়া, ফাংগাস, ইনফেকশন) দ্বারা সৃষ্ট হয় যা সংক্রামিত ব্যক্তি, প্রাণী বা পরিবেশের উৎস থেকে অন্য মানুষের কাছে প্রেরণ করা যেতে পারে।
- সংক্রামিত রোগসমূহঃ
  - যক্ষা
  - হেপাটাইটিস
  - ম্যালেরিয়া
  - কলেরা
  - ইনফ্লুয়েঞ্জা
  - এইচআইভি/এইডস

ELRC 18

COMMUNICABLE DISEASES/ সংক্রামক রোগ

Prevention/প্রতিরোধ

- পরিষ্কার –পরিচ্ছন্ন থাকুন
- টিকা দেওয়া
- স্বাস্থ্যকর খাদ্য

ELRC 19

NON-COMMUNICABLE DISEASES/অসংক্রামক রোগ

- এমন রোগ যা ব্যক্তি থেকে ব্যক্তির কাছে প্রেরণ করা যায় না - এতে কার্ডিওভাসকুলার রোগ (যেমন হার্ট অ্যাটাক এবং স্ট্রোক), ক্যান্সার, দীর্ঘস্থায়ী শ্বাসযন্ত্রের রোগ (যেমন দীর্ঘস্থায়ী প্রতিরোধী ফুসফুসের রোগ এবং হাঁপানি) এবং ডায়াবেটিস অন্তর্ভুক্ত।

- **ঝুকির কারনসমূহঃ**
  - ধূমপান
  - উচ্চ রক্তচাপ
  - স্থূলতা
  - মানসিক দুশ্চিন্তা
  - শারিরীক পরিশ্রম না করা

ELRC 20

NON-COMMUNICABLE DISEASES/অসংক্রামক রোগ

Prevention/ প্রতিরোধ

- ধূমপান মুক্ত থাকুন
- শারীরিক ব্যায়াম করুন
- নিয়মিত চেকআপ করান

ELRC 21

CONCLUSIONS/উপসংহার

- এই কর্মসূচি অনুযায়ী, আমাদের স্বাস্থ্য ও নিরাপত্তা-সংক্রান্ত সতর্কতা মেনে চলা উচিত
- ব্যক্তিগত বা সম্মিলিতভাবে যে কোন ধরণের কমিউনিটি স্বাস্থ্য সুরক্ষার ব্যাঘাত সম্পর্কে আমাদের আরো সচেতন হওয়া উচিত
- গ্যাস এবং পাইপলাইন লিকেজের মতো কোন প্রকল্প-ভিত্তিক সমস্যা হলে, অবিলম্বে যথাযথ কর্তৃপক্ষকে জানাতে হবে

ELRC 22

ELRC 23

Public consultation Meeting

Community Health, Safety and Emergency preparedness Program 2024

Sirajganj 225 MW Combined Cycle Power Plant (Dual Fuel), Saidabad, Sadar, Sirajganj

Organized By: North-West Power Generation Company Limited (NWPGCL)

Supported By: Environment laboratory and Research Center (ELRC)

Date 09-10-2024 Time 12:00 PM Location Saydabad Sirajganj

Sl. No	Participant Name	Profession	Address	Mobile Number	Signature
1	[illegible]	[illegible]		[illegible]	
2	[illegible]	[illegible]		[illegible]	
3	[illegible]	[illegible]		01763980214	
4	[illegible]	[illegible]		01723-976669	
5	[illegible]	[illegible]		01734463385	
6	[illegible]	[illegible]		01703949708	
7	[illegible]	[illegible]		01719534379	
8	[illegible]	[illegible]		01725567727	
9	[illegible]	[illegible]		01749667073	
10	[illegible]	[illegible]		01734302109	
11	[illegible]	[illegible]		01950390809	
12	[illegible]	[illegible]		01792674076	
13	[illegible]	[illegible]		01746240723	
14	[illegible]	[illegible]		01307408243	

SL No	Participant Name	Profession	Address	Mobile Number	Signature
15	ইমান আলী	আনসার		01749667073	
16	কাওছার	ছাত্র		01601608517	
17	রব্বানী	ছাত্র		01830130218	
18	নাজমুল হাসান	ছাত্র		01612195762	
19	আলমগীর	ছাত্র		01937935065	
20	আবুঃ রহীম	ছাত্র		01812935823	
21	ইয়াছিন	ছাত্র		01848307667	
22	আবদুর হাকিম	ব্যবসা		01709629930	
23	মোঃ আবদুল্লাহ	ড্রাইভার		01755778429	
24	মানিক	কৃষি		—	—
25	মেরাজুল ইসলাম	দোকানদার		01798488216	
26	আবদুল খালেক	কৃষক		—	—
27	আবদুল আজিজ	কৃষক		01775841936	
28	রফিক	ছাত্র		01853804496	
29	মোঃ হাবিব	শিক্ষক		—	—
30	আবদুস সোবহান	কৃষক		01741256056	
31	মাসুদুর রশিদ	শিক্ষক		01799313585	

SL No	Participant Name	Profession	Address	Mobile Number	Signature
32	ইসমাইল	ব্যবসা		01609116994	
33	মুহাঃ মনিরুল	"		01971362581	
34	নয়ন	ছাত্র		01813598317	
35	আমিনুল ইসলাম	শিক্ষক		01791233545	
36	মোজাম্মেল	শিক্ষক		01765640282	
37	মাফিজুল	ছাত্র		01924652050	
38	মাহমুদুল	চালক		01760358195	
39	রাসেল	ছাত্র		01812104525	
40	মাফিজুর	ছাত্র		01650217768	
41	আলামিন	ছাত্র		01962329813	
42	সুমন	ছাত্র		~~018760564~~ -	
43	হাসান	ছাত্র		016502191367	
44	ইদ্রাজ	চালক		01870390422	
45	আলী			01787471872	
46	হাসান	ছাত্র		01764402826	
47	নাহিদ	ছাত্র		01740279224	
48					

Public consultation Meeting

Community Health, Safety and Emergency preparedness Program 2024

Sirajganj 225 MW Combired Cycle Power Plant (Dual Fuel), Saidabad, Sadar, Sirajganj

Organized By: North-West Power Generation Company Limited (NWPGCL)

Supported By: Environment laboratory and Research Center (ELRC)

Date 09/10/24 Time 12:00 Pm Lacation Saydabad Shirajganj

SL No	Participant Name	Profession	Address	Mobile Number	Signature
1	মোছাঃ আনিকা হোসেন	[illegible]		[illegible]	আনিকা
2	রাকিব-উল-হাসান	চাকুরি	সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র	[illegible]	[signature]
3	মোঃ জুলফিকার নাঈম	চাকুরী	সি. বি. কো	01313780673	[signature]
4	মনিরুল মাহমুদ খান	চাকরী	সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র	[illegible]	[signature]
5	[illegible]	কনসালটেন্ট	ELRC	[illegible]	[signature]
6	[illegible]	কনসালটেন্ট	ELRC	[illegible]	[signature]
7					
8					
9					
10					
11					
12					
13					
14					

WELCOME

ELECTROMAGNETIC FIELD (EMF) EXPOSURE AWARENESS TRAINING

Date: 20.09.2022 **Time: 02:30 PM**

North-West Power Generation Company Limited

Sirajganj 225 MW Combined Cycle Power Plant (Unit 2 and 3)

ELRC

ELECTROMAGNETIC FIELD (EMF) EXPOSURE AWARENESSTRAINING

❑ OUTLINE

- Introduction
- Sources
- Health Effect
- Precaution
- Reduction
- Awareness
- Conclusion

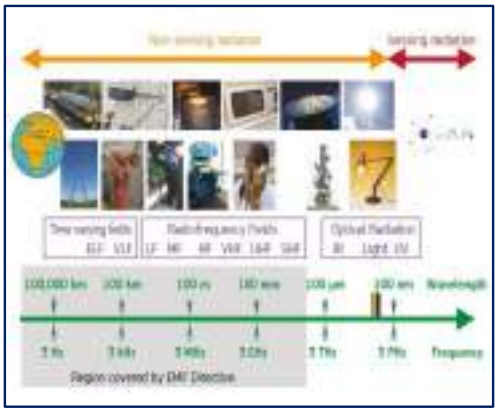
ELRC 2

INTRODUCTION

❑ Electromagnetic fields (EMF) are ubiquitous in our daily life

❑ EMFs are static electric, static magnetic and time-varying electric, magnetic and electromagnetic (radio wave) fields with frequencies

❑ In certain working environments, the application of high electric currents leads to extremely low frequency magnetic fields or electric fields with a frequency range of 1 Hz to 100 kHz



ELRC 3

SOURCES

❑ **Typical Outdoor Sources of Exposure:**

- Overhead Powerlines
- High PowerTransmission Lines
- Electric Means of Transportation, such asTrams andTrains
- Higher doses of EMF occur in the workplace, for example withMRI scanners, welding equipment, induction heaters, and in power plants

ELRC 4

HEALTH IMPACT

❑ **Two Categories of health effect:**

- Thermal Effects – a body absorbs the radiation leading to localized tissue heating
- Non-thermal Effects – more subtle effects

Field and frequency range	Effects	Examples of activities and equipment
Static electric and static magnetic fields 0–1 Hz	**Indirect effects:** Uncontrolled attraction of ferromagnetic objects, ie the risk of injury from objects in a large static magnetic field being attracted to magnets in the workplace and hitting anyone in the way **Sensory effects:** Nausea, vertigo, metallic taste in the mouth, flickering sensations (magnetophosphenes) in peripheral vision **Health effects:** Micro shocks	MRI scanners (main magnet) Electrochemical processes, eg industrial electrolysis, aluminium extraction Nuclear magnetic resonance spectrometers Electromagnetic lifting cranes Electric vehicles (cars, underground trains)

ELRC 5

HEALTH IMPACT

Field and frequency range	Effects	Examples of activities and equipment
Low frequency magnetic and electric fields: 1 Hz–10 MHz	**Indirect effects:** Interference with active or passive implanted or body-worn medical devices (more information is provided later in this guidance); electric shocks; causing electro-explosive devices to initiate, ie when used in close proximity to explosives that have an electrical means of initiation Sparks caused by induced fields triggering fires or explosions where flammable fuels, vapours or gases are present **Sensory effects:** Nausea, vertigo, metallic taste in the mouth, flickering sensations (magnetophosphenes) **Health effects:** Nerve stimulation, effects on the central and peripheral nervous system of the body: tingling, muscle contraction, heart arrhythmia Contact currents caused by a person touching a conductive object in an EMF where one of them is grounded and the other is not, which can result in shocks or burns	High voltage power lines Production and distribution of electricity Welding (arc and spot) Electrical arc furnaces Industrial induction heating (eg large coils used around the site of a weld) AM radio Electric hand-held tools Electric vehicles (cars, trains, trams, metros) Magnetic resonance imaging (MRI) (switched gradient fields)

ELRC 6

HEALTH IMPACT

Intermediate frequency fields: 100 kHz–10 MHz	The health effects of both high and low frequencies can be experienced as detailed above and below (see also Annex 1)	Surgical diathermy Broadcasting systems and devices (AM radio) Anti-theft devices Military and research radiofrequency systems
High frequency fields: 100 kHz–300 GHz	**Indirect effects:** Interference with active or passive implanted or body-worn medical devices (more information is provided later in this guidance), electric shocks, causing electro-explosive devices to initiate, as when used in close proximity to explosives that have an electrical means of initiation Sparks caused by induced fields triggering fires or explosions where flammable fuels, vapours or gases are present	MRI (RF coils) Broadcasting and TV antennas Radar and radio transmitters Diathermy Dielectric heating (eg vulcanising, plastics welding or microwave drying) Anti-theft systems

ELRC 7

HEALTH IMPACT

Field and frequency range	Effects	Examples of activities & equipment
100 kHz–300 GHz	**Sensory effects:** Auditory effects such as perception of clicks or buzzing caused by pulsed radar systems **Health effects:** Thermal stress, heating effects leading to a rise in core body temperature or localised limb heating (eg knees or ankles) Contact with charged conducting bodies can lead to RF shock or deep tissue burns (see also Annex 1)	Broadcasting and TV antennas Radar and radio transmitters Diathermy Dielectric heating (eg vulcanising, plastics welding or microwave drying) Anti-theft systems

ELRC 8

HEALTH IMPACT

❑ **Direct Effect**

❑ **Indirect Effects**

- Interference with active or passive medical devices
- Projectile risks from ferromagnetic objects
- Electric shocks or burns from a conductive object in an EMF
- Ignition of electrical detonators / fires / explosions

ELRC 9

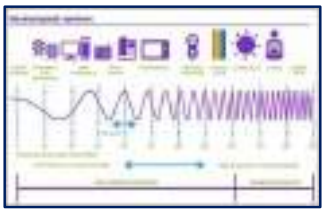
PRECAUTION

- Warning Signs Indicating Strong Electromagnetic Fields
- Fencing Around the EMF Generating Area
- Entry Restriction Signage
- Additional Warning Stickers
- Adequate Use of Body Worn Medical Devices
- Proper Use of Full Covered Safety Gown or Vest

ELRC 10

REDUCTION

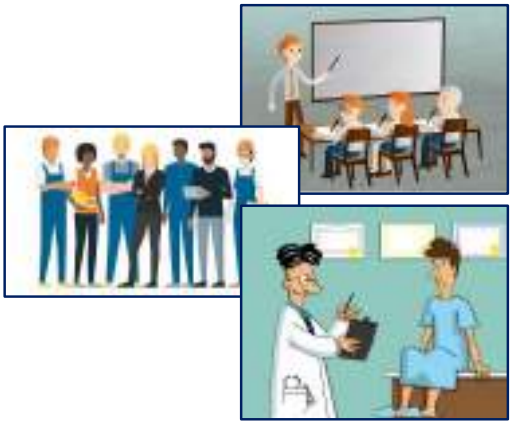
- Assess the Levels of EMFs
- Ensure that Exposure is Below a Set of ELVs, ' Exposure Limit Values '
- Assess the Risks of Employees' Exposure and Eliminate or Minimize Those Risks
- Plantation Around the EMF Area
- Displace Multi EMF Generating Devices
- Initiating EMF Absorbing Devices



ELRC 11

AWARENESS

- Provide Information and Training on the Particular Risks Posed to Employees by EMFs in the Workplace
- The Information should also be Made Available to Safety Representatives, as Appropriate
- Take Action if Employees are Exposed to EMFs in Excess of the ELVs
- Provide Health Surveillance or Medical Examination, as Appropriate



ELRC 12

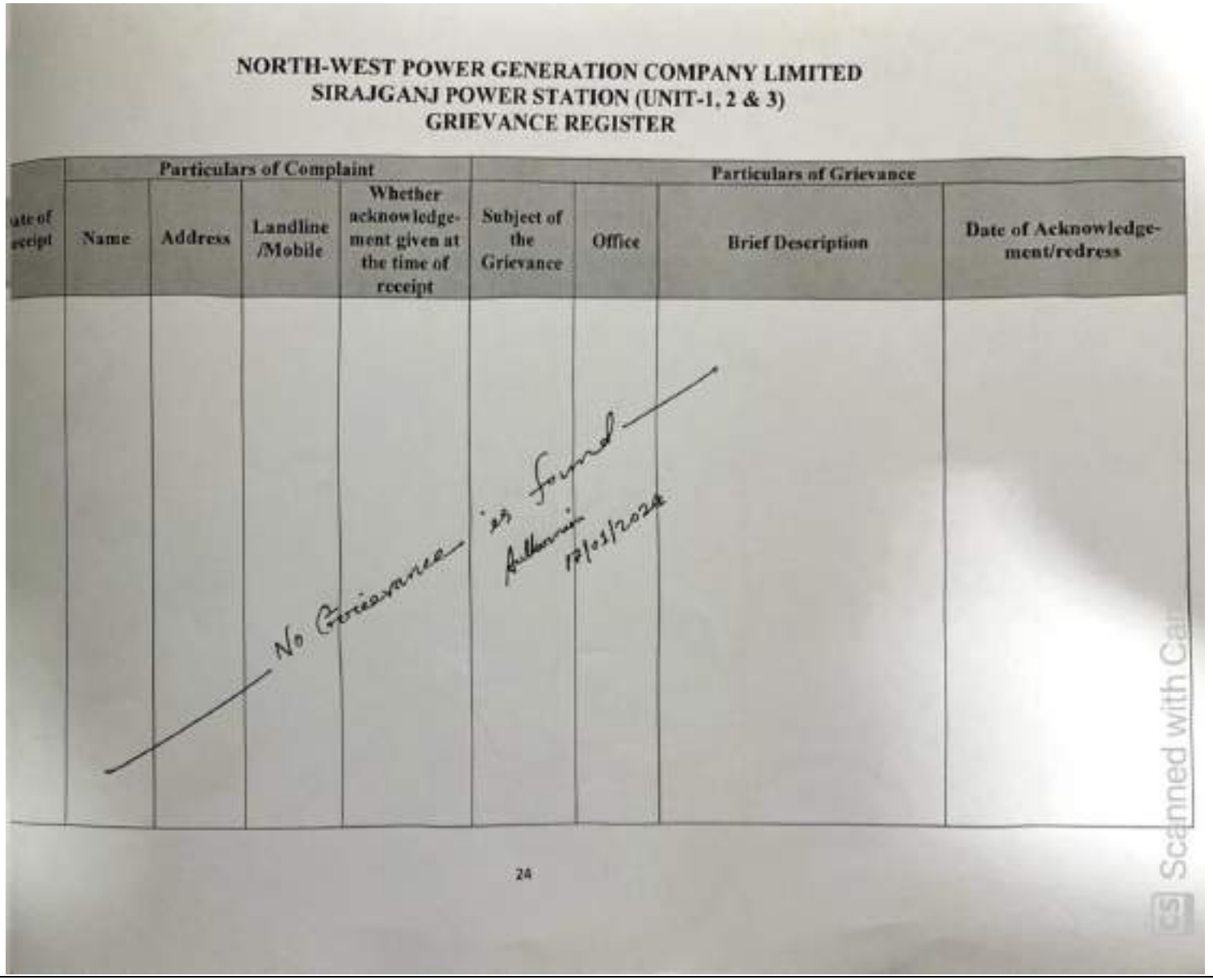
CONCLUSIONS

- ❑ Precaution, Prevention and Reduction is the best way to control the EMF exposure in work place
- ❑ Proper guidance and controlled environment can be important for reducing EMF
- ❑ Considering health impact scenario, proper management should be demonstrated for reducing EMF
- ❑ Awareness training, knowledge sharing, information exchanging etc. may help to manage the low level EMF exposure in workplace

ELRC 13

ELRC 14

Annex J: Grievance Mechanism



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

	Particulars of Complaint				Particulars of Grievance			
ate of eceipt	Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance as found
Authority
17/01/2024

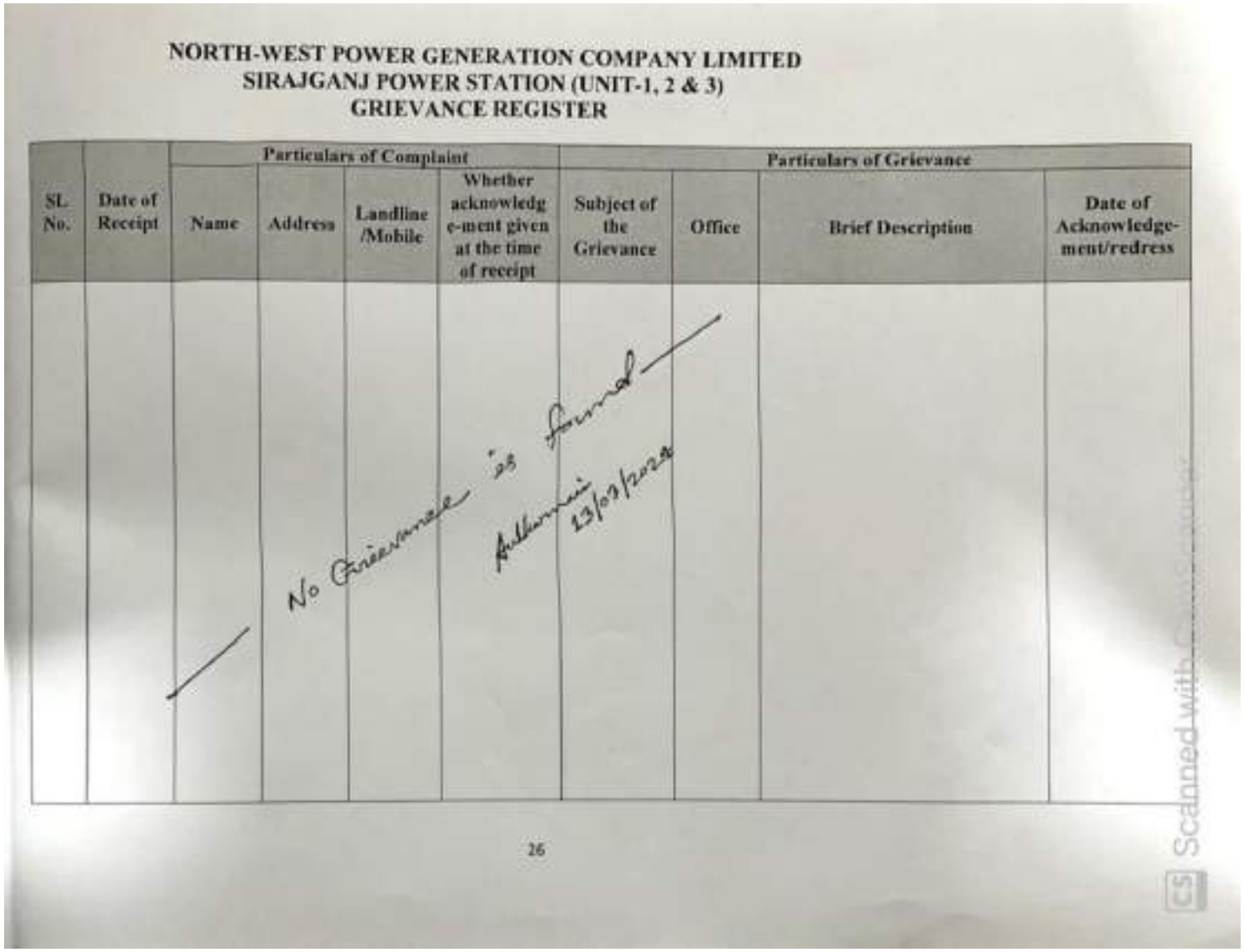
24

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress

No Grievance is found
Alleman
14/02/2024

25



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledg e-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance is found
Authority
13/03/2024

26

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Aeknowledge-ment/redress

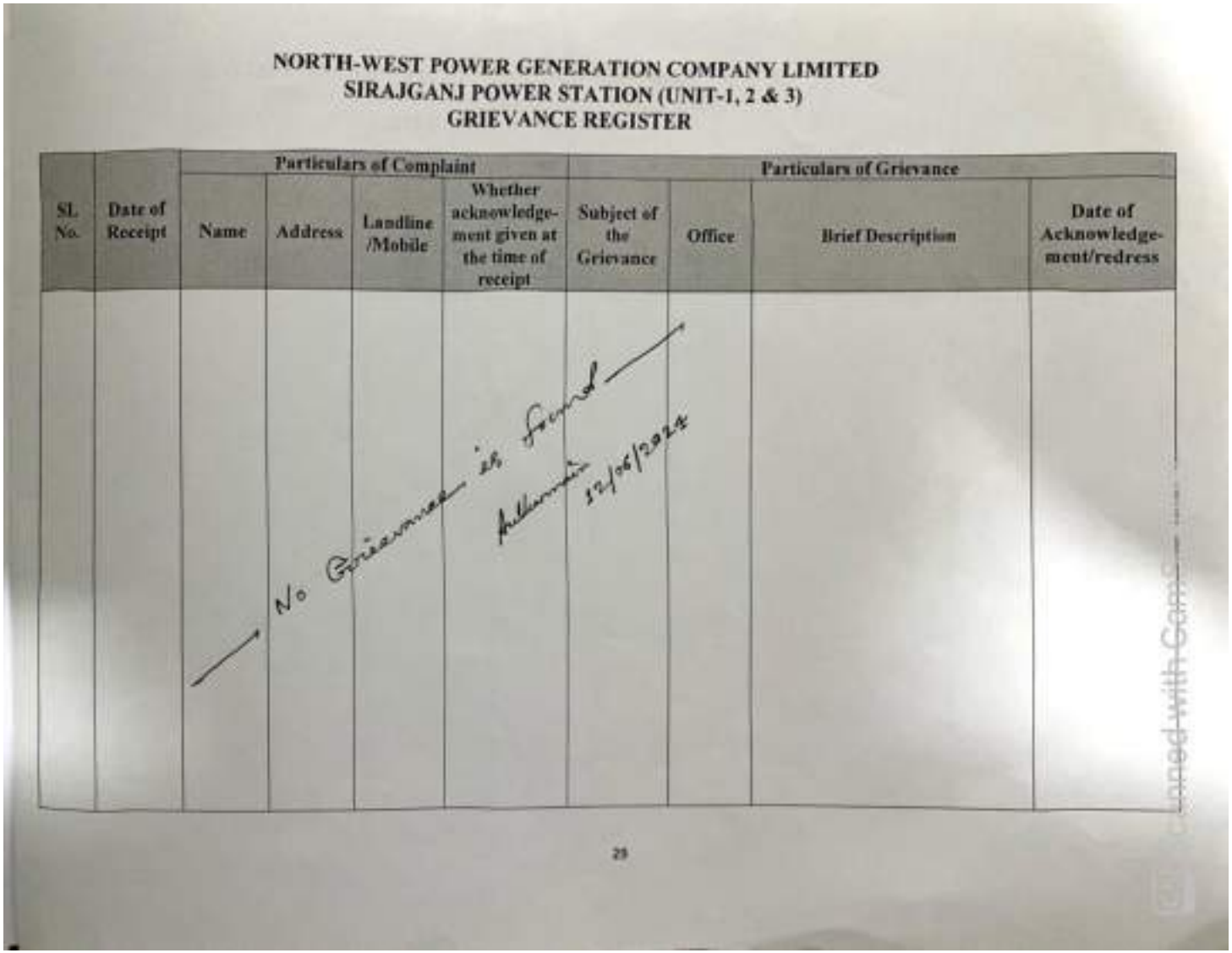
No Grievance is found
Authorised
16/01/2024

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance is found
19/05/2024

28

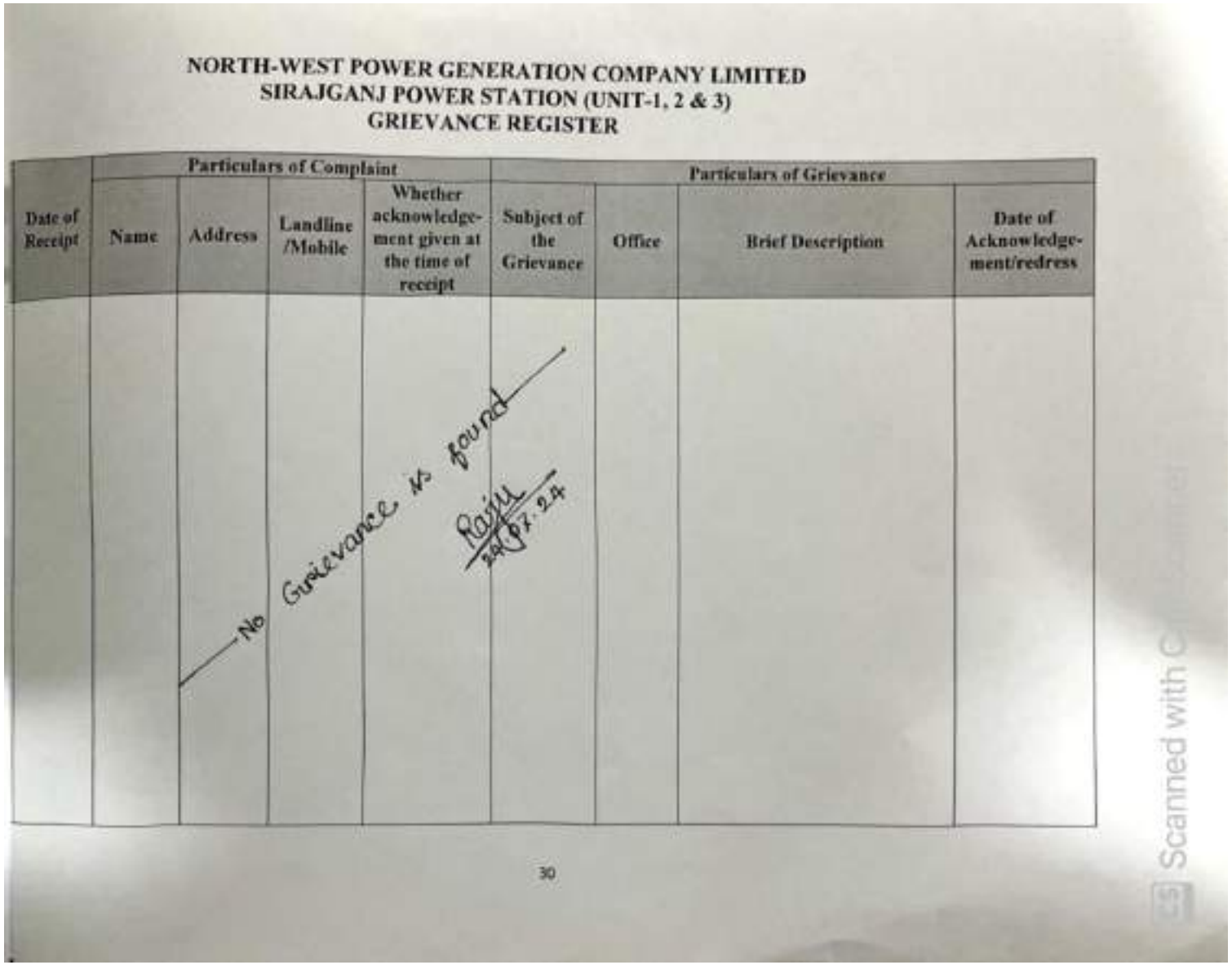


NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress
		No Grievance is found							

17/06/2024

29



NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Date of Receipt	Particulars of Complaint				Particulars of Grievance			
	Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance is found
Rajib
24.07.24

30

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress

No Grievance is found
Rayu
27.8.24

1

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

Sl. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance is found
Rajia
25.6.24

2

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance is found
Rajib
28.6.24

3

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledge-ment given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledge-ment/redress

No Grievance is found.
Kamal
21/11/21

4

NORTH-WEST POWER GENERATION COMPANY LIMITED
SIRAJGANJ POWER STATION (UNIT-1, 2 & 3)
GRIEVANCE REGISTER

SL. No.	Date of Receipt	Particulars of Complaint				Particulars of Grievance			
		Name	Address	Landline /Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of Acknowledgement/redress

— No Grievance is found. —

Kamal
25/12/24

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Annex K: Emergency Response Plan

NW-SPS-HSE-EPP–001

EMERGENCY PREPAREDNESS PLAN

For

Sirajganj Power Station
North-West Power Generation Company Limited
Soydabad, Sirajganj

UNCONTROLLED WHEN PRINTED OR VIEWED OFFLINE

Effective Date: 01.08.2024

Index

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Purpose

To develop a systematic plan for the effective management of an accident/incident situation, with the objective of eliminating environmental impacts and damages to human and property.

This Emergency Preparation Plan details the emergency preparedness of North-West Power Generation Company Limited's Sirajganj Power Station and is relevant to a variety of emergency scenarios that may arise on the plant's premises.

This Emergency Preparedness Plan defines the roles and duties of all parties involved, including management, operational and support services, and department personnel, in order to ensure the efficient handling of on-site emergencies.

Name of the Occupier: Sirajganj Power Station

Location:

Soydabad, Sirajganj.

Contact Numbers: +8801755630032, Control Room (U-1),

+8801708152289, Control Room (U-2),

+8801708152313, Control Room (U-3),

+8801313780670, Control Room (Solar)

Utility Type: Power Generation

Operational Date: November 2012 (U-1).

February 2018 (U-2).

January 2019 (U-3).

March 2021 (Solar)

Regular Employees: 309

Fire Station: Mini Fire Station, Sirajganj Power Station. Mobile No: +8801313423824

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RESPONSIBILITIES

1. **Central Control Room (U-1,2,3, Solar)** is the Emergency Control Center. It is provided with Personal Protective Equipment, maps of the facility, and details of fire pump room, dispensary, water reservoir, water line and hydrant locations, siren, as well as emergency phone numbers.

2. The Plant Head shall function as the **Main Controller (U-1,2,3)** in the event of an emergency. **Note**: In the absence of the Plant Head, the Operations Heads (U-1,2,3, Solar) shall take the role of the Main Controller.

3. The Operation Heads shall serve as the **Incident Controller** and is also responsible for arranging for necessary assistance and communicating internally and externally.

4. The respective Head of the Departments/Area In-charges (of the affected area) shall act as the **Site Controller**.

The structure and responsibilities of various personnel involved in emergency preparedness and responses are given below:

Main Controller

During an on-site emergency, the Plant Head shall serve as the primary controller. He will examine the seriousness of the situation and make a determination regarding the declaration of an emergency. He will provide guidance to all involved staff in order to ensure an effective management of the situation.

Incident Controller

The Operation Head (U-1,2,3, Solar) shall take charge as Incident Controller. He will keep the Main Controller informed of any changes in the situation and direct all operation within the affected area with following priorities:

1) Safety of personnel and damage to the environment.
2) Minimization of property damage and material loss.

He will also arrange the rescue operation and evacuation. He shall direct the shutdown and other necessary site actions until the arrival of the Main Controller, including the declaration of an emergency as required. He is responsible for communicating with internal personnel and external agencies and coordinating the rescue operation.

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Site Controller

The concerned Head of the Department(s)/ Area in-charge shall act as the Site Controller. He will report to the Main Controller and Incident Controller and co-ordinate with Safety/Security personnel for relief, rescue operation and movement control.

Safety Section

- To update EMERGENCY PREPAREDNESS PLAN as per requirement.
- To ensure that Emergency Control Centre is well equipped with Personal Protective Equipment, layout of the facility, and information on fire pump room, dispensary, water reservoir, water line and hydrant points. They must also periodically check the healthiness of the equipment kept in Emergency Control Centre.
- To assist all emergency teams for arranging items they may require during an emergency in advance.
- To organize mock drills of Emergency Team activities in consultation with the Plant Head and Head of Human Resources, and to report on their effectiveness.
- To ensure that all safety-related protection and warning systems are functioning properly.
- To guarantee that all new workers get EHS induction training upon their arrival at the facility. This also applies to temporary workers, drivers, helpers, and guests, as well as stack holders.

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Mini Fire Station

After getting a call from the Control Room (U-1,2,3, Solar), all personnel from the Sirajganj Power Station's Mini Fire Station shall immediately take the initiative to enter the emergency area and take necessary action to mitigate the emergency situation.

Finance Head

The Finance Head shall keep an emergency fund for the contingency situation besides the normal cash. He, on direction of the Main Controller, shall release cash and keep records.

Security Personnel

Security Personnel shall communicate & coordinate with incident controller and site controller for relief and rescue operation. At least one of them should be present at the main gate for controlling incoming and outgoing persons and vehicles. One should take charge of the head count in the designated ASSEMBLY AREAS during emergency and tally with the number of persons present inside the premises. If any inconsistency is noticed, he shall inform the Security In-charge. In case of fire hazards, other security personnel shall participate with the fire-fighting team for extinguishing the fire. If required, the Security In-charge shall inform the incident controller about the occurrence of emergency.

Environment Cell

If an Emergency occurs as a result of a Pollution Control Facility malfunctioning, the members should promptly investigate and direct the halting of activities.

Fire Fighters and First Aiders

Fire fighters and First Aiders have been nominated based on different zones (a zone is an area or combination of Departments as shown on the Site map). The Fire Fighters and First Aiders, under the direction of the site controller, shall mitigate the effects of the fire using appropriate media and attend to any injured persons. Section-04 contains a list of fire fighters and first aiders.

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All Employees

When an employee observes an accident or emergency, he or she shall immediately notify the corresponding Area In-charge/Concerned HOD via the available means – verbal or telephone; the fire fighters and first aiders on duty in the department shall take the respective charges as described above. Others must try to halt operations, isolate the machine's electrical supply, and securely evacuate with others to the ASSEMBLY AREA for head counting or additional instructions. Additionally, they are responsible for assisting any visitors and contractors present in their region with evacuation. They shall not incite panic or rumor. The injured person(s) shall be quickly attended to by first aiders, who shall also call for medical assistance and specialist assistance, if necessary.

Visitors and Contractors

The contractors shall immediately stop any ongoing work. Visitors and contractors must coordinate their movements with departmental personnel and go to the ASSEMBLY AREA. They should identify themselves to the security personnel stationed at the assembly zones and wait for further instructions.

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POTENTIAL EMERGENCIES

The potential Environmental Emergencies based on the **Aspect Impact Analysis** are:

- **Fire due to any reason** (section-04)
- **Earthquake** (section-03)
- **Lightening/thunder storming** (section-03)
- **Spillage/exposure to chemicals/gases/lube oil** (Use chemical spill kid to neutralizes & remove from spillage area)
- **Incident of gas leak in pipe lines**(section-03)
- **Existence of Chlorine Gas Tank**(section-03)
- **False operation of Deluge system** (section-03)

The potential OHS Emergencies based on the **Hazard Identification & Risk Assessment** are:

- **Any physical injury due to work** (Provide first aid)
- **Electric shock** (section-03)
- **Moving parts** (Provide first aid & sent to hospital if necessary)
- **Drowning, flood**(section-03)
- **Spill into river**
- **Fall from Height** (Provide proper first aid & sent to hospital if necessary)
- **Terrorist attack & Bomb Explosion** (section-03)
- **Food Poisoning** (section-07)
- **Working in confined space** (section-03)

EARTHQUAKE - BASIC DO'S AND DON'TS

✓ Take cover under a desk, table, or other large and stable piece of furniture. Hold on to it or stand in a doorway and brace yourself.
✓ Stay away from windows, heavy furniture, appliances, mirrors, pictures, and anything else that could fall and hurt you.

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- ✓ If you are driving when an earthquake happens, stop the car if it's safe. Stay inside your car until the earthquake stops, and don't drive near bridges or tunnels. Try not to stop by power lines, light posts, signs, or trees. These could fall and hurt you.
- ✓ Stay alert for falling objects. Most people get injured by falling objects during an earthquake, not by the shaking itself.
- ✓ Do not use lifts. There might be a power outage due to the earthquake, and you could get stuck in the lift.

After the earthquake stops, here's what you should do:

- ✓ Check yourself and others for injuries. Call **Control Room (Unit-1,2,3 & Solar)** if you or someone else needs medical assistance.
- ✓ Stay away from damaged buildings and areas. You could get hurt by broken glass and falling objects.

LIGHTENING/ THUNDER STORMING:

Lightning is a sudden electrostatic discharge during an electrical storm between electrically charged regions of a cloud (called intra-cloud lightning or IC), between that cloud and another cloud (CC lightning), or between a cloud and the ground (CG lightning). The charged regions in the atmosphere temporarily equalize themselves through this discharge referred to as a strike if it hits an object on the ground, and a **flash** if it occurs within a cloud. Lightning causes light in the form of plasma, and sound in the form of thunder. Lightning may be seen and not heard when it occurs at a distance too great for the sound to carry as far as the light from the strike or flash.

Causes of Lightening:

Two main causes of lightening are provided below:

1. Cutting down trees in a huge scale.
2. Unawareness of general people.

Lightening is dangerous. Here are some **safety rules:**

1. Do not stand **under a tree or electric post, near water, near window and metal made post** during a thunderstorm.

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2. Stay away from open space and take place inside a building or get as close to the ground as you can.
3. Shut off or unplug all electrical items and do not use phone during thunderstorm.
4. Do not touch earth or ground directly.
5. Stop car and Stay away from metal objects and glass.
6. Do not play cattle in the open field.

CHEMICAL SPILLAGE:

The list identifies locations where the following equipment and supplies must be present and maintained:

a) spill clean-up kits
c) eye wash stations
d) first aid kits

TYPES OF CHEMICAL EXPOSURE: *INHALATION*
o Remove the victim from the contaminated area to fresh air
o Keep the victim quiet and warm
o If the victim is not breathing, and you have been trained, perform CPR
o Remove contaminated clothes from the victim and contain the clothes in a plastic bag for decontamination or disposal
o Rather than pull clothing over the victim's head, cut the clothing off their body

INGESTION or SPLASH TO MUCUS MEMBRANES
o Do not give the victim anything by mouth
o Treat them as for inhalation described above
o Keep the victim quiet and warm

EYE SPLASH
o Remove glasses and any contaminated clothing on victim and contain the clothes in a plastic bag for decontamination or disposal. Glasses can be decontaminated and returned
o Flush eyes in eyewash for 15 minutes or until medical assistance arrives

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o If necessary, assist the victim by holding open their eyes

SKIN CONTACT – Remember that skin absorption can occur from liquids, solids or chemical vapor

o Immediately place the victim under a safety shower while removing any contaminated clothing, including shoes. Collect the clothing in a plastic bag for decontamination or disposal
o Flush for the skin for at least 15 minutes or until medical assistance arrives

CHEMICAL SPILL OR RELEASE OF VAPOR:

- Small spills (less than 1 liter) can be cleaned up by workers if the material is in a fume hood, the proper spill cleanup equipment is on hand, and they have been trained in the use of the equipment.
- For cleanup of large spills (more than 1 liter), any spills outside fume hood or release of vapors to room,
- Secure the area and post "Do Not Enter" posting.
- Provide emergency dispatcher with the location and size of the spill and the material(s) involved.
- Provide the Emergency Responders with the SDS.

Contact HSE officer or plant head to inform them of the situation and provide an estimate of time until clean-up is finished.

INCIDENT OF GAS LEAK IN PIPELINE

Natural gas is under pressure when running through pipelines. Because natural gas is lighter than air, it rises when it escapes. A "rotten egg" odor is added to natural gas and propane so the general public can easily detect even the smallest leak. Visual and audible signs may also indicate that a natural gas or propane leak has occurred, including:

►►Hissing sounds near a natural gas appliance or pipeline If you respond to the signs of a potential gas emergency, please follow the procedures outlined in this guide. Be sure to avoid causing sparks (such as switching lights on or off, starting an engine, lighting a match, etc.), which could result in an explosion or fire.
If you smell gas or think you have a gas emergency, please contact **Pashchimanchal Gas Company Limited** immediately.

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Gas Detection

Odors sometimes mistaken for natural gas can come from many sources, such as petroleum products (especially gasoline), marsh gas, sewer gas, industrial gases, and even some batteries being charged are typical examples. There are many types of gas detection instruments, and since the gas company employee is trained in their use, he will be glad to assist you. Natural gas has its odor regulated by the gas company in order to give it a sufficiently distinctive and recognizable odor. It is suggested that emergency personnel familiarize themselves with the odor of the gas distributed in their area.

Press Relations and Publicity

In an emergency involving natural gas, refer inquiries from press representatives and other interested parties to a gas company representative, if available. The gas company representative will be able to clarify technicalities and provide other information necessary for complete and accurate reporting of the emergency.

Proper identification of the type of gas is of vital importance. If the emergency involves natural gas, be sure to identify it as "natural gas." If gasoline, chlorine gas, sewer gas, propane, etc., is involved, always carefully identify the type. The gas company's objective in working with press, TV and radio representatives during an emergency is the same as that of emergency personnel—to be helpful and cooperative in determining the cause of an emergency, and to accurately report the cause to the public.

References: https://en.wikipedia.org/wiki/Gas_leak. Source: Gas Safety Handbook

EXISTENCE OF CHLORINE GAS TANK

For operation and maintenance of chlorine Gas tank, supplier has been advised that

A CONSUMER SHOULD NOT MAKE ANY EFFORT TO REPAIR THE AFFECTED PORTION OF THE CYLINDER. AFTER CONTROLLING THE LEAK, THE SUPPLIER SHOULD BE IMMEDIATELY INFORMED TO TAKE SUITABLE ACTION.

In any kind of emergency concerned persons will control the leak and immediately inform the chlorine gas suppliers for further initiative to avoid adverse environmental and occupational safety consequences.

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Control Room's mobile number of Pashchimanchal Gas Company Limited is **01755552858**

During Gas escapes

DO NOT

- Operate any electrical switches (on or off)
- Smoke or use a naked flame

DO

- Open doors and/or windows to ventilate the area
- Check your gas appliances and turn them off
- Turn the gas supply off at the main meter/or Emergency Control Valve, unless the meter is located in the cellar/basement

A gas leak refers to a leak of natural gas or other gaseous product from a pipeline or other containment into any area where the gas should not be present. Because a small leak may gradually build up an explosive concentration of gas, leaks are very dangerous. In addition to causing fire and explosion hazards, leaks can kill vegetation, including large trees, and may release powerful greenhouse gases to the atmosphere.

These emergencies will involve one or more of five basic situations:

1. Gas escaping outside
2. Gas burning outside
3. Gas escaping inside
4. Gas burning inside
5. Function of relief valves

1. Gas Escaping Outside

If natural gas is escaping from the ground, an excavation, an open pipe, a manhole, a sewer, or a vault, clear a safe area around the location and barricade or rope it off. If possible, police and

firefighters should check with the gas company employee before advising the public in the immediate vicinity of the emergency and what measures, if any, should be taken. The special knowledge of the gas company employee may help avoid causing undue alarm and unnecessary action by the public in adjacent or removed locations. In most instances, the gas company employee will cut off the gas to adjoining properties and advise the customers of safety precautions to be taken, such as extinguishing all open flames, prohibiting smoking and making certain that electrical switches or similar possible ignition sources are not operated.

Gas company employees will also check for gas in surrounding buildings, particularly in basements. It may be necessary to restrict or reroute all traffic until the gas flow is brought under control. Manholes or vaults can usually be vented by temporarily removing their covers.

2. Gas Burning Outside

If natural gas is burning outside, the firefighter should make no attempt to extinguish the fire. Burning gas will not explode, but it may ignite surrounding combustibles. Clear the danger area and barricade, or rope, it off. **DO NOT OPERATE GAS VALVES IN THE STREET—HAVE THE GASCOMPANY EMPLOYEE DO IT.** Turning the wrong valve could create another emergency.

Gas company employees, with their special knowledge and information, can avoid this. Spray water mist on any surrounding combustibles if they are in danger of igniting. Do not use water on burning natural gas at its point of escape. If this point is in an excavation, the hole will be filled with mud, making the repair slower and more hazardous.

3. Gas Escaping Inside

If natural gas is escaping inside a building, ventilate the area starting where the gas concentration is strongest. If gas is escaping in quantity, clear the building of its occupants. Shut off open flame devices by operating manual controls, but do not operate electrical switches. The fire officer in charge may determine that it is necessary to shut off the gas to the building at the service valve. The necessity of this action should be weighed against the fact that turning off the gas in commercial or industrial areas might seriously interrupt important production processes and possibly create further hazards. Again, your gas company employee can give you specific information to help evaluate the situation. If firefighter or other emergency personnel turns off a valve, leave it off, then immediately

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tell the gas company employee. After a valve has been shut off, only gas company employees should turn it on again, because they have the experience and training necessary to evaluate the conditions and determine when this action is advisable.

4. Gas Burning Inside

If natural gas is burning inside a building, shut off the gas at the meter, or (when available) at an outside valve. If the gas supply cannot be safely shut off, keep the surrounding combustibles wetted with spray stream until the gas company emergency crews can control the flowing gas. If it appears that inside piping or meter installations are going to be endangered by a non-gas fire in a building, the fire officer in charge can determine if it is necessary to turn off the gas. Again, the gas company employee can help evaluate the situation. If a fire is caused by a gas appliance that is burning out of control, it is usually enough to shut off the gas at the appliance's valve. When this is not practical, or if the valve cannot be located, shut off the gas at the meter supplying the appliance.

5. Function of Relief Valves in Distribution Systems

A relief valve protects gas systems from accidental over-pressuring. Gas company control points with relief valves are sometimes referred to as district regulating stations, city gate stations or town border stations. Each pressure-reducing regulating station has a gas regulator set to maintain a fixed downstream pressure. If, for any reason, there is a malfunction and the regulator fail to properly limit downstream pressure, the relief valve will open to protect the system. When this occurs, gas is vented into the atmosphere, usually accompanied by a loud, high-pitched noise. Natural gas, which is much lighter than air, diffuses upward into the atmosphere.

A RELIEF VALVE VENTING GAS INTO THE ATMOSPHERE IS PERFORMING ITS PROPER FUNCTION.
IT SHOULD NEVER BE CUT OFF OR RESTRICTED UNTIL A GAS COMPANY EMPLOYEE ARRIVES AND MAKES CORRECTIONS.

Anyone who sees or hears a relief valve venting gas to the atmosphere should call the gas company at once but take no action which would keep the relief valve from venting gas into the atmosphere.

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A CONSUMER SHOULD NOT MAKE ANY EFFORT TO REPAIR THE AFFECTED PORTION OF THE CYLINDER. AFTER CONTROLLING THE LEAK, THE SUPPLIER SHOULD BE IMMEDIATELY INFORMED TO TAKE SUITABLE ACTION.

In any kind of emergency concerned persons will control the leak and immediately inform the chlorine gas suppliers for further initiative to avoid adverse environmental and occupational safety consequences.

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The contact number of Suppliers need to keep for further information.

FALSE OPERATION OF DELUGE SYSTEM

To avoid the adverse consequences of false operation of deluge system, it is advised to switch off the deluge system during maintenance activities.

GUIDELINES FOR PREVENTING DROWNING, FLOOD

Whenever working on Jetty, tie up with a boat and ensure that the rescue boat with Lifebuoy and an experienced diver is available nearby so that immediately the person falling into the river can be rescued.

GUIDELINES FOR HSD SPILL INTO THE RIVER

In case of a HSD spill into the river, immediately inform the River authority so that the pollution due to spill can be contained at the earliest.

ELECTRIC SHOCK/ FALL FROM HEIGHT

Immediately call the Doctor at site so that he may start the Cardiopulmonary Resuscitation (CPR) on the patient and make plans to shift the patient to the nearest hospital at the earliest.

TERRORIST ATTACK, BOMB EXPLOSION - BASIC DO'S AND DON'TS

- ✓ Do what you're told. If a fire fighter, police officer, or other official tells you to do something, just do it. Their specific instructions should take precedence over general guidelines such as this one.
- ✓ If you're warned of an explosion, duck and cover. Get away from windows and behind something solid. Then curl up to protect your face and eyes.

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- ✓ If you're outside and you hear an explosion, or if you see people choking or collapsing, cover your nose and mouth. The big danger with most toxic substances is inhaling them. Even thin fabrics - a handkerchief, scarf, or shirt - will reduce your chance of inhaling radioactive particles, many chemical and biological agents, and the choking dust that ordinary bombs produce.
- ✓ Get inside. Find an intact, sturdy building and go in it.
- ✓ If you're inside and the problem is outside, close up. Closing doors and windows - and turning off air conditioners - will make most modern buildings reasonably airtight. That will keep most toxic substances from drifting in. If the windows are broken (say, by an explosion) or your part of the building is otherwise leaky, find an intact room to shelter in.
- ✓ Move away from windows. Just in case there's a second explosion, or a release of highly penetrating (gamma) radiation, you want to be behind a nice, solid wall.
- ✓ If you're inside and the problem is inside, get out. Because modern buildings are fairly airtight, a dangerous substance released inside one will stay dangerously concentrated. If people inside the building are choking and collapsing, it's time to leave and head for another, safer shelter.

WORKING IN CONFINED SPACES- BASIC DO'S AND DON'TS

A confined space is one which is both enclosed or largely enclosed, and which also has a reasonably foreseeable risk to workers of fire, explosion, loss of consciousness, asphyxiation or drowning.

It may be small and restrictive for the worker or it could be far larger such as a grain storage silo with hundreds of cubic meter capacity.

WHAT ARE THE HAZARDS?

Working in a confined space is dangerous because of the risks from noxious fumes, reduced oxygen levels, or a risk of fire.

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Other dangers may include flooding/drowning or asphyxiation from some other source such as dust, grain or other contaminant.

DOS AND DON'TS OF WORKING IN CONFINED SPACES

DO NOT

- work in confined spaces unless it's essential to do so
- ignore the risks – just because a confined space is safe one day doesn't mean it will always be
- let others enter a confined space until you are sure it's safe to do so

DO

- be aware of the risks that may occur within a confined space
- make sure the person doing the work is capable and trained in both the work and the use of any emergency equipment

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FIREFIGHTING ARRANGEMENTS

A complete network of firefighting equipment's like portable extinguishers, hydrant network & accessories have been installed within the plant premises. The Type & Number of equipment's and their locations within the premises are given in the format below.

1. FIRE EXTINGUISHERS

The total quantity and types of Portable Fire Extinguishers available in the power station are as follows:

For Unit-1 Premises

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
Admin building								
1	Ground floor (west)	5 KG					ABC	
2	Ground floor (east)	5 KG					ABC	
3	1st floor (east)	5 KG					ABC	
4	1st floor (west)	5 KG					ABC	
5	2nd floor (east)	5 Kg					ABC	
6	2nd floor (west)	5 KG					ABC	
7	Canteen	5 KG					ABC	
Workshop Building								
8	Inside	5 KG					ABC	
9	Inside	5 KG					ABC	
10	Inside	5 KG					CO_2	
11	Inside	5 KG					ABC	
12	Inside	5 KG					CO_2	
13	Inside	5 KG					ABC	
Store Building								
14	1st floor (west)	5 KG					ABC	

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EMERGENCY PREPAREDNESS PLAN	
SECTION 04: FIREFIGHTING ARRANGEMENTS	
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
15	1st floor (east)	5 KG					ABC	
16	Ground floor	5 KG					ABC	
17	Ground floor	5 KG					ABC	
WTP Area								
18	Corridor	5 Kg					ABC	
19	Control room	5 Kg					ABC	
20	Inside	5 Kg					ABC	
21	Inside	5 KG					ABC	
22	Inside	5 KG					ABC	
GBC								
23	West	5 KG					ABC	
24	West	5 KG					ABC	
25	West	5 KG					ABC	
26	West	5 KG					ABC	
Natural gas condition station								
27	West	5 Kg					ABC	
28	West	5 Kg					ABC	
29	West	5 Kg					ABC	
30	West	5 Kg					ABC	
Air Compressor Room								
31	Inside	5 KG					ABC	
32	Inside	5 KG					ABC	
GBC PLC Room								
33	Inside	5 KG					ABC	
34	Inside	5 KG					CO_2	
Raw Water Forwarding Pump House								
35	Inside	5 KG					ABC	
36	Inside	5 KG					ABC	
37	Inside	5 KG					ABC	
Control Building								
38	Ground floor (Entry)	6 KG					CO_2	
39	Ground floor (Entry)	5 KG					ABC	
40	Ground floor	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
15	1st floor (east)	5 KG					ABC	
16	Ground floor	5 KG					ABC	
17	Ground floor	5 KG					ABC	
				WTP Area				
18	Corridor	5 Kg					ABC	
19	Control room	5 Kg					ABC	
20	Inside	5 Kg					ABC	
21	Inside	5 KG					ABC	
22	Inside	5 KG					ABC	
				GBC				
23	West	5 KG					ABC	
24	West	5 KG					ABC	
25	West	5 KG					ABC	
26	West	5 KG					ABC	
				Natural gas condition station				
27	West	5 Kg					ABC	
28	West	5 Kg					ABC	
29	West	5 Kg					ABC	
30	West	5 Kg					ABC	
				Air Compressor Room				
31	Inside	5 KG					ABC	
32	Inside	5 KG					ABC	
				GBC PLC Room				
33	Inside	5 KG					ABC	
34	Inside	5 KG					CO_2	
				Raw Water Forwarding Pump House				
35	Inside	5 KG					ABC	
36	Inside	5 KG					ABC	
37	Inside	5 KG					ABC	
				Control Building				
38	Ground floor (Entry)	6 KG					CO_2	
39	Ground floor (Entry)	5 KG					ABC	
40	Ground floor	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

	NORTH-WEST POWER GENERATION COMPANY LIMITED EMERGENCY PREPAREDNESS PLAN SECTION 04: FIREFIGHTING ARRANGEMENTS	DOC No: NW-SPS-HSE-EPP-001 EFFECTIVE DATE: 01.08.2024 REVISION NO: 06 Page: 20
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	(South)							
41	Ground floor (North)	5 KG					ABC	
42	Battery room	5 KG					ABC	
43	1st floor (South)	5 KG					ABC	
44	1st floor (North)	5 KG					ABC	
45	MCC Room	5 KG					ABC	
46	MCC Room	5 KG					CO_2	
47	UPS Room	5 KG					ABC	
48	UPS Room	5 KG					CO_2	
49	6.6 KV Room	5 KG					CO_2	
50	6.6 KV Room	5 KG					CO_2	
51	Relay Room	5 KG					CO_2	
			Gas Turbine Hall					
52	South-East side	5 KG					ABC	
53	South-East side	5 KG					CO_2	
54	South-East side	20 KG					ABC	
55	South-East side	20 KG					ABC	
56	South-East side	50 L					Foam	
57	South-East side	50 L					Foam	
58	North-East side	5 KG					ABC	
59	North-East side	5 KG					ABC	
60	North-West side	5 KG					ABC	
61	West side	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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EMERGENCY PREPAREDNESS PLAN	
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
62	West side	5 KG					ABC	
63	West Side	10 L					Foam	
64	North-West side	5 KG					CO_2	
65	North-West side	10 L					Foam	
PCC Room								
66	Inside	6 KG					CO_2	
67	Inside	6 KG					CO_2	
In front of Auxiliary Transformer								
68	Inside	5 Kg					ABC	
Beside Main Transformer of STG								
69	Beside	5 KG					ABC	
Condensate Water Storage Tank								
70	West side	5 KG					ABC	
HRSG Area								
71	HRSG	5 KG					ABC	
72	HRSG	5 KG					ABC	
Boiler Room								
73	Inside	5 KG					ABC	
STG Building								
74	Ground floor North-East side	5 KG					ABC	
75	Ground floor North-East side	5 KG					ABC	
76	Ground floor East middle side	5 KG					ABC	
77	Ground floor North-West side	5 KG					ABC	
78	Ground floor North-West	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

	NORTH-WEST POWER GENERATION COMPANY LIMITED EMERGENCY PREPAREDNESS PLAN SECTION 04: FIREFIGHTING ARRANGEMENTS	DOC No: NW-SPS-HSE-EPP-001 EFFECTIVE DATE: 01.08.2024 REVISION NO: 06 Page: 22
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	side							
79	Ground floor North-West side	5 KG					ABC	
80	Ground floor South side	5 KG					ABC	
81	Ground floor South side	5 KG					ABC	
82	Ground floor South side	5 KG					CO_2	
83	Ground floor South side	5 KG					CO_2	
84	1st floor South side	5 G					ABC	
85	1st floor South side	5 KG					CO_2	
86	1st floor South side	5 KG					ABC	
87	1st floor South side	5 KG					CO_2	
88	1st floor North side	5 KG					ABC	
89	1st floor North side	5 KG					ABC	
90	1st floor Middle side	5 KG					ABC	
91	2nd floor North side	5 KG					ABC	
92	2nd floor North side	5 KG					ABC	
93	2nd floor North side	5 KG					ABC	
94	2nd floor East side	5 KG					ABC	
95	2nd floor	10 L					Foam	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	side							
79	Ground floor North-West side	5 KG					ABC	
80	Ground floor South side	5 KG					ABC	
81	Ground floor South side	5 KG					ABC	
82	Ground floor South side	5 KG					CO_2	
83	Ground floor South side	5 KG					CO_2	
84	1st floor South side	5 G					ABC	
85	1st floor South side	5 KG					CO_2	
86	1st floor South side	5 KG					ABC	
87	1st floor South side	5 KG					CO_2	
88	1st floor North side	5 KG					ABC	
89	1st floor North side	5 KG					ABC	
90	1st floor Middle side	5 KG					ABC	
91	2nd floor North side	5 KG					ABC	
92	2nd floor North side	5 KG					ABC	
93	2nd floor North side	5 KG					ABC	
94	2nd floor East side	5 KG					ABC	
95	2nd floor	10 L					Foam	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

FIREFIGHTING ARRANGEMENTS

A complete network of firefighting equipment's like portable extinguishers, hydrant network & accessories have been installed within the plant premises. The Type & Number of equipment's and their locations within the premises are given in the format below.

1. FIRE EXTINGUISHERS

The total quantity and types of Portable Fire Extinguishers available in the power station are as follows:

For Unit-1 Premises

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
Admin building								
1	Ground floor (west)	5 KG					ABC	
2	Ground floor (east)	5 KG					ABC	
3	1st floor (east)	5 KG					ABC	
4	1st floor (west)	5 KG					ABC	
5	2nd floor (east)	5 Kg					ABC	
6	2nd floor (west)	5 KG					ABC	
7	Canteen	5 KG					ABC	
Workshop Building								
8	Inside	5 KG					ABC	
9	Inside	5 KG					ABC	
10	Inside	5 KG					CO_2	
11	Inside	5 KG					ABC	
12	Inside	5 KG					CO_2	
13	Inside	5 KG					ABC	
Store Building								
14	1st floor (west)	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

NORTH-WEST POWER GENERATION COMPANY LIMITED EMERGENCY PREPAREDNESS PLAN SECTION 04: FIREFIGHTING ARRANGEMENTS	DOC No: NW-SPS-HSE-EPP-001 EFFECTIVE DATE: 01.08.2024 REVISION NO: 06 Page: 23
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	south side							
96	2nd floor South side	5 KG					CO_2	
				6.6 KV(STG)				
97	Inside	6 KG					CO_2	
98	Inside	5 KG					ABC	
99	Inside	6 KG					CO_2	
				STG (Chemical Dossing Room)				
100	Inside	5 KG					ABC	
101	Inside	5 KG					ABC	
				Diesel Forwarding Pump House				
102	Inside	5 KG					ABC	
103	Inside	5 KG					ABC	
				EDG Canopy(STG)				
104	Inside	5 KG					ABC	
105	Inside	5 KG					ABC	
				CEMS Room				
106	Inside	5 KG					ABC	
				Natural Gas Final Meter and Filter Station				
107	Inside	5 KG					ABC	
108	Inside	5 KG					ABC	
				HSD Day Tank				
109	Inside	10 L					Foam	
110	Inside	10 L					Foam	
111	Westof HSD Day tank	30 L					Foam	
112	Westof HSD Day tank	30 L					Foam	
113	Westof HSD Day tank	5 KG					ABC	
				HSD Storage Tank				
114	Inside	10 L					Foam	
115	Inside	10 L					Foam	
116	Inside	10 L					Foam	
117	Inside	10 L					Foam	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
118	West of HSD tank	10L					Foam	
119	West of HSD tank	10 L					Foam	
120	West of HSD tank	10 L					Foam	
121	West of HSD tank	10 L					Foam	
122	West of HSD tank	10 L					Foam	
123	West of HSD tank	10 L					Foam	
124	West of HSD tank	10 L					Foam	
125	West of HSD tank	10 L					Foam	
126	West of HSD tank	10 L					Foam	
EDG (GTG)								
127	Inside	6 KG					CO_2	
128	Inside	5 KG					CO_2	
129	Inside	3 KG					ABC	
130	Inside	3 KG					ABC	
New Ware House								
131	Inside	5 KG					ABC	
132	Inside	5 KG					ABC	
133	Inside	5 KG					CO_2	
Hazardous Chemical Room								
134	Inside	5 KG					ABC	
135	Inside	5 KG					ABC	
Dossing House								
136	Inside	5 KG					ABC	
137	Inside	5 KG					ABC	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

	NORTH-WEST POWER GENERATION COMPANY LIMITED EMERGENCY PREPAREDNESS PLAN SECTION 04: FIREFIGHTING ARRANGEMENTS	DOC No: NW-SPS-HSE-EPP-001 EFFECTIVE DATE: 01.08.2024 REVISION NO: 06 Page: 25
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
CW Pump Room								
138	Inside	5KG					ABC	
139	Inside	5 KG					ABC	
WTP Area (South)								
140	Sand Filter	5 KG					ABC	
141	Clarifier Tank	5 KG					ABC	
Plant Guard Room								
142	Inside	5 KG					ABC	
143	Inside	5 KG					ABC	
144	Inside	5 KG					ABC	
Dormitory Area								
145	Brahmaputra	5 KG					ABC	
146	Brahmaputra	5 KG					ABC	
147	Tista	5 KG					ABC	
148	Tista	5 KG					ABC	
149	Karatoya	5 KG					ABC	
150	Karatoya	5 KG					ABC	
151	Mahananda	5 KG					ABC	
152	Mahananda	5 KG					ABC	
153	Ichamati	5 KG					ABC	
154	Ichamati	5 KG					ABC	
155	Atrai	5 KG					ABC	
156	Atrai	5 KG					ABC	
157	Jamuna	5 KG					ABC	
158	Jamuna	5 KG					ABC	
159	Jamuna	5 KG					ABC	
160	Jamuna	5 KG					ABC	
161	Jamuna	5 KG					ABC	
162	Jamuna	5 KG					ABC	
163	Jamuna	5 KG					ABC	
164	Jamuna	5 KG					ABC	
165	Jamuna	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

	NORTH-WEST POWER GENERATION COMPANY LIMITED EMERGENCY PREPAREDNESS PLAN SECTION 04: FIREFIGHTING ARRANGEMENTS	DOC No: NW-SPS-HSE-EPP-001 EFFECTIVE DATE: 01.08.2024 REVISION NO: 06 Page: 26
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
166	Jamuna	5 KG					ABC	
167	Jamuna	5 KG					ABC	
Rest House								
168	Entry	5 Kg					ABC	
169	Entry	5 Kg					ABC	
Main Gate Guard Room								
170	Inside	5 KG					ABC	
171	Inside	5 KG					ABC	
172	Inside	5 KG					ABC	
173	Inside	5 KG					ABC	
Store Container								
174	Inside	5 KG					ABC	
175	Inside	5 KG					CO_2	
176	Inside	5 KG					ABC	
177	Inside	5 KG					CO_2	
178	Inside	5 KG					ABC	
179	Inside	5 KG					CO_2	
180	Inside	5KG					ABC	
181	Inside	5 KG					CO_2	
Station Pump House								
182	Inside	5 KG					ABC	
183	Inside	10 L					Foam	
184	Inside	10 L					Foam	
185	Inside	6 KG					CO_2	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rishdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

For Unit-2 Premises

Sl. No	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
STG Building (Ground Floor)								
1	North Side	5 KG					ABC	
2	North Side	5 KG					ABC	
3	Middle-East	5 KG					ABC	
4	South Side	5 KG					ABC	
5	South Side	5 KG					ABC	
6	South-West	5 KG					ABC	
7	South-West	5 KG					ABC	
8	North-West	5 KG					ABC	
9	Battery Room	5 KG					ABC	
10	Battery Room	5 KG					CO_2	
11	6.6 KV	5 KG					ABC	
12	6.6 KV	5 KG					ABC	
13	6.6 KV	6 KG					CO_2	
14	6.6 KV	6 KG					CO_2	
STG Building (First Floor)								
15	In front of 415 V Power Distribution Room	6 Kg					CO_2	
16	In front of 415 V Power Distribution Room	6 Kg					CO_2	
17	In front of 415 V Power Distribution Room	5 KG					ABC	
18	In front of 415 V Power Distribution Room	5 KG					ABC	
19	Middle-West	5 KG					ABC	
20	Middle-West	5 KG					ABC	
21	North-West	10 L					Foam	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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SL No	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
22	North-West	5 KG						
STG Building (Second Floor)								
23	South Side	5 KG					ABC	
24	South Side	5 KG					ABC	
25	South Side	5 KG					CO_2	
26	South Side	5 KG					CO_2	
27	North-west	5 KG					ABC	
28	North-west	10 L					Foam	
GTG Building								
29	South-West Side	5 KG					ABC	
30	South-West Side	5 KG					ABC	
31	South-West Side	10 L					Foam	
32	South-West Side	10 L					Foam	
33	North-West	5 KG					ABC	
34	North-West	5 KG					ABC	
35	North-West Side	10 L					Foam	
36	North-West Side	10 L					Foam	
37	Middle-East Side	5 KG					ABC	
38	Middle-East Side	5 KG					ABC	
39	Middle-East Side	6 KG					CO_2	
40	Middle-East Side	6 KG					CO_2	
41	Middle-East	10 L					Foam	
42	Middle-East	5 KG					ABC	
43	South-East	5 Kg					ABC	
44	South-East	5 KG					ABC	
45	Top of Combustion	5 KG					ABC	

	Name	Designation	Signature
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Approved by	Shafiqul Islam	Chief Engineer	

SL No	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	Chamber-1							
46	Top of Combustion Chamber-1	3 KG					ABC	
47	Top of Combustion Chamber-2	5 KG					ABC	
48	Top of Combustion Chamber-2	3 KG					ABC	
	Natural Gas Booster							
49	East Side	5 KG					ABC	
50	East Side	5 KG					ABC	
51	Middle side	5 KG					ABC	
52	Middle side	5 KG					ABC	
53	West side	5 KG					ABC	
54	West Side	5 KG					ABC	
55	Natural Gas Condition Station	5 KG					ABC	
	Admin Building Extension (Ground Floor)							
56	West	6 KG					CO_2	
57	West	6 KG					CO_2	
58	West	5 KG					ABC	
	Admin Building Extension (First Floor)							
59	West	5 KG					ABC	
60	West	5 KG					ABC	
	Admin Building Extension (Second Floor)							
61	West	5 KG					ABC	
62	West	5 Kg					ABC	
	EDG Canopy							
63	South (Outside)	10 L					Foam	
64	South	3 KG					ABC	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

SL No	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	(Outside)							
65	Inside (South)	5 KG					ABC	
66	Inside (South)	5 KG					ABC	
67	Inside NE	5 KG					ABC	
68	Inside NE	3 KG					ABC	
69	Inside NW	5 KG					ABC	
70	Inside NW	10 L					Foam	
In front of HRSG								
71	In front of CEMS	5 KG					ABC	
72	In front of CEMS	5 KG					ABC	
73	Top of HRSG	5 KG					ABC	
74	Top of HRSG	5 KG					ABC	
75	Top of HRSG	10 L					Foam	
Chemical Dosing (STG)								
76	Inside East	3 KG					ABC	
77	Inside West	5 KG					ABC	
Air Compressor								
78	East	5 KG					CO_2	
79	East	5 KG					ABC	
80	West	5 KG					ABC	
81	West	5 KG					ABC	
PCC Room								
82	Outside	6 Kg					CO_2	
83	Outside	6 Kg					CO_2	
84	Inside	5 KG					CO_2	
85	Inside	5 KG					CO_2	
Store-02								
86	East	5 KG					ABC	
87	East	5 KG					ABC	
88	West	5 KG					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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Sl. No	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
89	West	5 KG					ABC	
Chemical Dossing Room (WTP Area)								
90	Inside (Pack Dossing room)	5 KG					ABC	
91	(Pump room 2&3)	5 KG					ABC	
92	(Pump room 2&3)	3 KG					ABC	
WTP								
93	Ground floor East	5 KG					ABC	
94	Ground floor West	5 KG					ABC	
95	First floor (West)	5 KG					ABC	
96	First floor (West)	5 KG					CO_2	
97	First floor (East)	5 KG					ABC	
98	First floor (East)	5 KG					ABC	
CEMS Room								
99	Inside	6 KG					CO_2	
100	Inside	6 KG					CO_2	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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For Unit-3 Premises

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
STG Building (Ground Floor)								
1	Battery room	6 kg					CO_2	
2	Battery room	6 kg					CO_2	
3	South-West	25 kg					ABC	
4	South-West	25 kg					ABC	
5	South-West	25 L					Foam	
6	North-West	25 L					Foam	
7	North-West	25 L					Foam	
8	North-West	25 kg					ABC	
9	North-West	25 kg					ABC	
10	North-gate	5 kg					ABC	
11	North-gate	6 Kg					CO_2	
12	South	5 kg					ABC	
13	South	5 kg					ABC	
14	Middle-East	5 kg					ABC	
15	Middle-East	5 kg					ABC	
16	North-East	5 kg					ABC	
17	North-East	5 kg					ABC	
STG Building (First Floor)								
18	North-East	25 Kg					ABC	
19	North-East	25 kg					ABC	
20	North-East	25 Kg					ABC	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rishdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
21	South-middle	5 Kg					ABC	
22	South-middle	5 kg					ABC	
23	South-middle	5 kg					ABC	
24	South-east	25 L					Foam	
25	South-west	25 L					Foam	
26	South-west	25 kg					ABC	
27	South (In front of 415 V Power distribution Room)	5 kg					ABC	
28	South (In front of 415 V Power distribution Room)	6 kg					CO_2	
29	South (In front of 415 V Power distribution Room)	6 kg					CO_2	
STG Building (Second Floor)								
30	South Side (Middle)	5 Kg					ABC	
31	South Side (Middle)	5 kg					ABC	
32	South Side (Middle)	6 kg					CO_2	
33	South Side (Middle)	6 Kg					CO_2	
35	South-West	25 kg					ABC	
36	South-West	25 kg					ABC	
37	North-East	25 L					Foam	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rishdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
38	North-East	25 kg					ABC	
39	North-East	25 kg					ABC	
40	North-East	25 L					Foam	
				Switchyard				
41	GT-main transformer	5 kg					ABC	
42	GT-main transformer	5 kg					ABC	
43	ST-main transformer	5 kg					ABC	
44	ST-main transformer	5 kg					ABC	
45	ST transformer	5 kg					ABC	
46	ST transformer	5 kg					ABC	
				STG 6.6 KV Switchgear Room				
47	6.6 KV	5 kg					ABC	
48	6.6 KV	5 kg					ABC	
49	6.6 KV	6 kg					CO_2	
50	6.6 KV	6 kg					CO_2	
				GTG Building				
51	West Side	5 kg					ABC	
52	West Side	5 kg					ABC	
53	Middle-West	10 L					Foam	
54	Middle-West	10 L					Foam	
55	South-West	5 kg					ABC	
56	South-West	10 L					Foam	
57	South-West	10 L					Foam	
58	GT North-West	10 L					Foam	
59	GT North-West	5 kg					ABC	
60	GT North-	5 kg					ABC	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	West							
61	GT North-West	10 L					Foam	
62	GT North-West	10 L					Foam	
63	GT Middle-East	5 Kg					ABC	
64	GT Middle-East	6 kg					CO_2	
65	GT South-East	5 kg					ABC	
66	GT Middle-East	5 kg					ABC	
67	GT Middle-East	5 kg					ABC	
68	GT South-East	10 L					Foam	
69	GT South-East	10 L					Foam	
70	GT South-East	5 kg					ABC	
71	GT South-East	25 kg					ABC	
72	Combustion Chamber	5 kg					ABC	
73	Combustion Chamber	5 kg					ABC	
74	Combustion Chamber	5 kg					ABC	
75	Combustion Chamber	5 kg					ABC	
GT 6.6 KV Switchgear Room								
76	6.6 KV	6 kg					CO_2	
77	6.6 KV	6 kg					CO_2	
Natural Gas Booster								
78	SE	5 kg					ABC	
79	SM	5 kg					ABC	
80	SW	5 kg					ABC	

	Name	Designation	Signature
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Approved by	Shafiqul Islam	Chief Engineer	

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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
81	NE	5 kg					ABC	
82	NM	5 kg					ABC	
83	NW	5 kg					ABC	
84	West	5 kg					ABC	
GBC PLC Room								
85	GBC PLC room	3 kg					ABC	
86	GBC PLC room	3 kg					ABC	
87	GBC PLC room	6 kg					CO_2	
88	GBC PLC room	6 kg					CO_2	
Pump House								
89	West corner	3 Kg					ABC	
90	West corner	3 Kg					ABC	
91	Middle of NW	3 kg					ABC	
92	Middle of NW	3 kg					ABC	
93	Middle of NE	5 kg					ABC	
94	Middle of NE	5 kg					ABC	
95	East Side	5 Kg					ABC	
96	East Side	5 kg					ABC	
97	East Side	6 kg					CO_2	
98	Ground floor	10 L					Foam	
99	Ground floor	10 L					Foam	
100	Ground floor	3 Kg					ABC	
101	Ground floor	3 Kg					ABC	
CW Dossing Room								
102	Inside	3 kg					ABC	

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Approved by	Shafiqul Islam	Chief Engineer	

	NORTH-WEST POWER GENERATION COMPANY LIMITED EMERGENCY PREPAREDNESS PLAN SECTION 04: FIREFIGHTING ARRANGEMENTS	DOC No: NW-SPS-HSE-EPP-001 EFFECTIVE DATE: 01.08.2024 REVISION NO: 06 Page 37
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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
103	Inside	3 kg					ABC	
EDG								
104	South Side	10 L					Foam	
105	North Side	10 L					Foam	
106	South Side	5 kg					ABC	
107	North side	5 kg					ABC	
Fuel Forwarding Pump House								
108	South-West Side	10 L					Foam	
109	South side	10 L					Foam	
110	North-Middle	10 L					Foam	
111	North-Middle	10 L					Foam	
112	North-Middle	5 kg					ABC	
STG Chemical Dosing Room								
113	Middle	5 kg					ABC	
114	Middle	5 kg					ABC	
Control Building of U-2 & U-3								
115	Ground floor gate	6 kg					CO2	18 KG
116	Ground floor gate	5 Kg					ABC	
117	Ground floor gate	5 kg					ABC	
118	Ground floor	6 kg					CO_2	
119	In front of Prayer room	6 kg					CO_2	
120	In front of Prayer room	6 kg					CO2	
123	In front of	5 kg					ABC	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
	Prayer room							
124	GT Battery room	6 kg					CO_2	
125	GT Battery room	5 kg					ABC	
126	GT Battery room	6 kg					CO_2	
First Floor of Control Room								
127	First floor	3 kg					ABC	
128	First floor	6 kg					CO_2	
129	First floor	6 kg					CO_2	
130	First floor	6 kg					CO_2	
131	First floor	6 kg					CO_2	
132	First floor	5 kg					ABC	
133	First floor	5 kg					ABC	
HRSG								
134	Ground	5 kg					ABC	
135	Upper side	5 kg					ABC	
136	Upper side	5 kg					ABC	
Workshop U-2 & 3								
137	Workshop	5 kg					ABC	
138	Workshop	10 L					Foam	
139	Workshop	5 kg					ABC	
140	Workshop	5 kg					ABC	
Natural Gas Final and Filtering Station								
141	South Side	5 kg					ABC	
142	South Side	5 kg					ABC	
PCC room								
143	PCC	6 kg					CO_2	
144	PCC	5 kg					ABC	
145	PCC	5 kg					ABC	
146	PCC	5 kg					CO_2	
CEMS Room								
147	Inside	6 kg					CO_2	
148	Outside	6 kg					CO_2	
Air Compressor								
149	West side	5 kg					ABC	
150	West side	5 kg					ABC	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Sirajganj 7.6 MWp Grid Connected Solar PV Plant Premises

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
Control Room								
1	Inside	3 kg					ABC	
2	Inside	3 kg					ABC	
3	Inside	5 kg					CO_2	
4	Inside	5 kg					CO_2	
5	Inside	3 kg					ABC	
6	Inside	3 kg					ABC	
Corridor (Ground Floor)								
7	West Side	3 kg					ABC	
8	East Side	3 kg					ABC	
Corridor (First Floor)								
9	West Side	3 kg					ABC	
10	East Side	3 kg					ABC	
MV Room								
11	Inside	3 kg					ABC	
12	Inside	5 kg					ABC	
13	Inside	5 kg					ABC	
14	Inside	5 kg					ABC	
15	Inside	5 kg					CO_2	
Box Transformer								
16	Box Transformer-1	3 Kg					ABC	
17	Box Transformer-1	3 Kg					ABC	
18	Box Transformer-2	5 Kg					ABC	

	Name	Designation	Signature
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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

SL. No.	Position of Fire extinguisher	Weight of Fire extinguisher	Pressure of Fire extinguisher	Condition of nozzle & Safety pin	Date of Inspection	Expire Date	Type	Remarks
19	Box Transformer-2	5 Kg					ABC	
20	Box Transformer-3	3 kg					ABC	
21	Box Transformer-3	3 kg					ABC	

2. FIRE HYDRANT

Position & Description of Fire Hydrant Points in the power station

For Unit-1 Premises

SL No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
Admin Building				
1.	East side of Ground Floor	Admin building-FH-001 BS	Hose Pipe (64mm), Hose pipe (38mm) , Nozzle (64& 38 mm)	
2.	East side of 1st Floor	Admin building-FH-002 BS	Hose Pipe (64mm), (38mm) hose pipe Nozzle (64& 38 mm)	
3.	East side of 2nd Floor	Admin building-FH-003 BS	Hose Pipe (64mm), Hose pipe (38mm) , Nozzle (64& 38 mm)	
Store and Workshop Building				
4.	East of workshop building	U1-Workshop-FH-001 BS	Hose Pipe (64mm), Nozzle	
5.	Ground floor of workshop	U1- Workshop-FH-002 BS	Hose Pipe (64mm), Hose pipe (38mm)	
6.	Ground Floor of store	U1-Store-FH-003 BS	Hose Pipe (64mm), Hose pipe (38mm) , Nozzle (64& 38 mm)	
7.	1st floor of store	U1-Store-FH-004 BS	Hose Pipe (64mm), Hose pipe (38mm) , Nozzle (64& 38 mm)	
Water Treatment Plant				
8.	North side (Ground floor)	U1-WTP-FH-001 BS	Hose Pipe (64mm), Nozzle	
9.	South side (Ground floor)	U1-WTP-FH-002 BS	Hose Pipe (64mm), Nozzle	
10.	North of WTP building	U1-WTP-FH-003 BS	Hose Pipe (64mm), Nozzle, Key	
11.	North of GBC	U1-WTP-FH-004	Hose Pipe (64mm), Nozzle,	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
		BS	Key	
Fuel Forwarding Pump House Area				
12.	East of Fuel Forwarding Pump House	U1-FF-FH-001 BS	Hose Pipe (64mm), Nozzle	
13.	West of Fuel Forwarding Pump House	U1-FF-FH-002 BS	Hose Pipe (64mm), Nozzle, Key	
HSD Area				
14.	North of HSD Area	U1-HSD-FH-001 BS	Hose Pipe (64mm), Nozzle	
15.	North-east of HSD Area	U1-HSD-FH-002 BS	Hose Pipe (64mm), Nozzle	
16.	Middle-East of HSD Area	U1-HSD-FH-003 BS	Hose Pipe (64mm), Nozzle	
17.	Middle-East of HSD Area	U1-HSD-FH-004 BS	Hose Pipe (64mm), Nozzle	
18.	South-east of HSD area	U1-HSD-FH-005 BS	Hose Pipe (64mm), Nozzle	
19.	South-west of HSD Area	U1-HSD-FH-006 BS	Hose Pipe (64mm), Nozzle	
20.	West of HSD Area	U1-HSD-FH-007 BS	Hose Pipe (64mm), Nozzle	
Switchyard Area of Unit-1				
21.	North of Auxiliary Transformer	U1-SY-FH-001 BS	Hose Pipe (64mm), Nozzle, Key	
22.	West of switchyard	U1-SY-FH-002 BS	Hose Pipe (64mm), Nozzle, Key	
CCR Building				
23.	Ground Floor of CCR	U1-CCR-FH-001 BS	Hose Pipe (64mm), Nozzle	
24.	1st Floor of CCR	U1-CCR-FH-002 BS	Hose Pipe (64mm), Nozzle	
GTG Building Ground Floor				
25.	South-east side	U1-GT-FH-001 BS	Hose Pipe (64mm), Nozzle	

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Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
26.	Middle	U1-GT-FH-002 BS	Hose Pipe (64mm), Nozzle	
27.	North	U1-GT-FH-003 BS	Hose Pipe (64mm), Nozzle	
28.	Upper side point	U1-GT-FH-004 BS	Hose Pipe (64mm), Nozzle	
29.	West side	U1-GT-FH-005 BS	Hose Pipe (64mm), Nozzle	
STG Building Ground Floor (Thread coupler type)				
30.	North side	U1-ST-FH-001 TC	Hose Pipe (64mm), Nozzle	
31.	North-east side	U1-ST-FH-002 TC	Hose Pipe (64mm), Nozzle	
32.	South-east side	U1-ST-FH-003 TC	Hose Pipe (64mm), Nozzle	
33.	South side	U1-ST-FH-004 TC	Hose Pipe (64mm), Nozzle	
34.	South-west side	U1-ST-FH-005 TC	Hose Pipe (64mm), Nozzle	
STG Building 1st Floor				
35.	North side	U1-ST-FH-006 TC	Hose Pipe (64mm), Nozzle	
36.	North-east side	U1-ST-FH-007 TC	Hose Pipe (64mm), Nozzle	
37.	South-east side	U1-ST-FH-008 TC	Hose Pipe (64mm), Nozzle	
38.	South side	U1-ST-FH-009 TC	Hose Pipe (64mm), Nozzle	
39.	South-west side	U1-ST-FH-010 TC	Hose Pipe (64mm), Nozzle	
STG Building 2nd Floor				
40.	North side	U1-ST-FH-011 TC	Hose Pipe (64mm), Nozzle	
41.	North-east side	U1-ST-FH-012 TC	Hose Pipe (64mm), Nozzle	
42.	South-east side	U1-ST-FH-013 TC	Hose Pipe (64mm), Nozzle	

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Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
43.	South side	U1-ST-FH-014 TC	Hose Pipe (64mm), Nozzle	
44.	South-west side	U1-ST-FH-015 TC	Hose Pipe (64mm), Nozzle	

For Unit-2 Premises

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
		GTG Building		
1.	South East corner	U2-GT-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
2.	Middle-east	U2-GT-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
3.	North	U2-GT-Hydrant-003	Hose Pipe (64mm), Nozzle, Key	
4.	North-upper	U2-GT-Hydrant-004	Hose Pipe (64mm), Nozzle, Key	
5.	West-south	U2-GT-Hydrant-005	Hose Pipe (64mm), Nozzle, Key	
6.	West-north	U2-GT-Hydrant-006	Hose Pipe (64mm), Nozzle, Key	
		STG Building (Ground Floor)		
7.	North side	U2-ST-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
8.	North-west side	U2-ST-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
9.	South-west side	U2-ST-Hydrant-003	Hose Pipe (64mm), Nozzle, Key	
10.	South side	U2-ST-Hydrant-004	Hose Pipe (64mm), Nozzle, Key	
		STG Building (1st Floor)		
11.	North side	U2-ST-Hydrant-005	Hose Pipe (64mm), Nozzle, Key	
12.	North-west side	U2-ST-Hydrant-006	Hose Pipe (64mm), Nozzle, Key	
13.	South-west side	U2-ST-Hydrant-007	Hose Pipe (64mm), Nozzle, Key	

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Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
14.	South side	U2-ST-Hydrant-008	Hose Pipe (64mm), Nozzle, Key	
		STG Building (2nd Floor)		
15.	North side	U2-ST-Hydrant-009	Hose Pipe (64mm), Nozzle, Key	
16.	North-west side	U2-ST-Hydrant-010	Hose Pipe (64mm), Nozzle, Key	
17.	South-west Side	U2-ST-Hydrant-011	Hose Pipe (64mm), Nozzle, Key	
18.	South side	U2-ST-Hydrant-012	Hose Pipe (64mm), Nozzle, Key	
		Surrounding Area of Unit-2		
19.	South east of STG building	U2-FA-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
20.	East side of STG building	U2-FA-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
21.	East side of switch yard	U2-SY-Hydrant-003	Hose Pipe (64mm), Nozzle, Key	
22.	North of switch yard	U2-SY-Hydrant-004	Hose Pipe (64mm), Nozzle, Key	
23.	West of switch yard	U2-SY-Hydrant-005	Hose Pipe (64mm), Nozzle, Key	
		CCR Building		
24.	West side-rear entrance (Ground Floor)	U2-CCR-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
25.	In front of battery room of U-2 (Ground Floor)	U2-CCR-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
26.	In front of battery room of U-3 (Ground Floor)	U2-CCR-Hydrant-003	Hose Pipe (64mm), Nozzle, Key	
27.	East side (1st Floor)	U2-CCR-Hydrant-004	Hose Pipe (64mm), Nozzle, Key	
28.	West side (1st Floor)	U2-CCR-Hydrant-005	Hose Pipe (64mm), Nozzle, Key	
		WTP Building		
29.	West side (Ground Floor)	U2-WTP-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	

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Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
30.	East side (Ground Floor)	U2-WTP-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
31.	West side (1st Floor)	U2-WTP-Hydrant-003	Hose Pipe (64mm), Nozzle, Key	
32.	East side (1st Floor)	U2-WTP-Hydrant-004	Hose Pipe (64mm), Nozzle, Key	
33.	North of WT building	U2-WTP-Hydrant-005	Hose Pipe (64mm), Nozzle, Key	
34.	North of WTP	U2-WTP-Hydrant-006	Hose Pipe (64mm), Nozzle, Key	
		Admin Building		
35.	West side of Ground Floor	U2-Admin building-FH-004 (BS)	Hose Pipe (64mm), Nozzle, Key, Hose Pipe (38mm), Nozzle (38mm)	
36.	West side of 1st Floor	U2-Admin building-FH-005 (BS)	Hose Pipe (64mm), Nozzle, Key, Hose Pipe (38mm), Nozzle (38mm)	
37.	West side of 2nd Floor	U2-Admin building-FH-006 (BS)	Hose Pipe (64mm), Nozzle, Key, Hose Pipe (38mm), Nozzle (38mm)	
		Dormitory Area		
38.	Near Brahmaputra dormitory	Dormitory-FH-001(BS)	Hose Pipe (64mm), Nozzle	
39.	Near Karatoya Dormitory	Dormitory-FH-002(BS)	Hose Pipe (64mm), Nozzle	
40.	Near Mahananda Dormitory	Dormitory-FH-003(BS)	Hose Pipe (64mm), Nozzle	
41.	Near Indoor Games room	Dormitory-FH-004(BS)	Hose Pipe (64mm), Nozzle	
42.	Near Mosque Area	Dormitory-FH-005(BS)	Hose Pipe (64mm), Nozzle	

For Unit-3 Premises

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
		GTG Building		
1.	North-west side	U3-GT-Hydrant-001	Hose Pipe (64mm), Nozzle	
2.	North-east side	U3-GT-Hydrant-002	Hose Pipe (64mm), Nozzle	

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rishdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
3.	North-upper	U3-GT-Hydrant-003	Hose Pipe (64mm), Nozzle	
4.	South side	U3-GT-Hydrant-004	Hose Pipe (64mm), Nozzle	
5.	South-west side	U3-GT-Hydrant-005	Hose Pipe (64mm), Nozzle	
STG Building (Ground Floor)				
6.	South-east side	U3-ST-Hydrant-001	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
7.	South side	U3-ST-Hydrant-002	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
8.	South-west side	U3-ST-Hydrant-003	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
9.	North-west side	U3-ST-Hydrant-004	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
10.	North side	U3-ST-Hydrant-005	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
11.	North-east side	U3-ST-Hydrant-006	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
12.	ST Dossing room	U3-ST-Hydrant-007	Hose Pipe (64mm), Nozzle	
STG Building (1st Floor)				
13.	North-east side	U3-ST-Hydrant-008	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
14.	North side	U3-ST-Hydrant-009	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
15.	South-east side	U3-ST-Hydrant-010	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
16.	South Side	U3-ST-Hydrant-011	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
STG Building (2nd Floor)				
17.	South-east side	U3-ST-Hydrant-012	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
18.	North-east side	U3-ST-Hydrant-013	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
19.	North side	U3-ST-Hydrant-014	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
20.	South side	U3-ST-Hydrant-015	Hose Pipe (64mm), Nozzle, 19 mm hose pipe, 19 mm Nozzle	
Surrounding Area of Unit-3				
21.	North of switch yard	U3-SY-Hydrant-001	Hose Pipe (64mm), Nozzle	

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Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
22.	West of switch yard	U3-SY-Hydrant-002	Hose Pipe (64mm), Nozzle	
23.	West of STG building	U3-SY-Hydrant-003	Hose Pipe (64mm), Nozzle	
		Surrounding Area		
24.	Near RMS Gate	U3-RMS-Hydrant-001	Hose Pipe (64mm), Nozzle	
25.	East of Air Compressor Room	U3-A.Com.-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
26.	West of Air Compressor Room	U3-A.Com.-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
27.	West of Store House	U3-GBC-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
28.	Inside Store	U3-Store-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
29.	Inside Store	U3-Store-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
30.	North of fuel forwarding area	U3-PH-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
31.	North of CW Pump House	U3-PH-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
		HSD Area		
32.	North of HSD area	U3-HSD-Hydrant-001	Hose Pipe (64mm), Nozzle, Key	
33.	West of HSD area	U3-HSD-Hydrant-002	Hose Pipe (64mm), Nozzle, Key	
34.	South of HSD area	U3-HSD-Hydrant-003	Hose Pipe (64mm), Nozzle, Key	
35.	Middle-east of HSD area	U3-HSD-Hydrant-004	Hose Pipe (64mm), Nozzle, Key	
36.	North of HSD area	U3-HSD- Foam Hydrant-001	Hose Pipes, Coupler & Nozzle	
37.	West of HSD area	U3-HSD- Foam Hydrant-002	Hose Pipes, Coupler & Nozzle	
38.	West of HSD area	U3-HSD- Foam Hydrant-003	Hose Pipes, Coupler & Nozzle	
39.	South of HSD area	U3-HSD- Foam Hydrant-004	Hose Pipes, Coupler & Nozzle	
40.	South-east of	U3-HSD- Foam	Hose Pipes, Coupler & Nozzle	

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Approved by	Shafiqul Islam	Chief Engineer	

Sl. No.	Location	Hydrant No.	Necessary Equipment in Fire House Cabinet	Remarks
	HSD area	Hydrant-005		
41.	North-east of HSD area	U3-HSD- Foam Hydrant-006	Hose Pipes, Coupler & Nozzle	
		Mini Fire Station		
42.	Mini Fire Station	Fire Station-001	Hydrant Point	

INSTRUCTIONS FOR FIRE PREVENTION & FIREFIGHTING

1. Identify all the activities/location where there is a potential for fire/explosion.
2. Do not keep any flammable material near the potential hazardous area and electrical points.
3. Ensure that nobody smokes inside the plant premises as the whole plant is declared as smoking free area.
4. Do not allow any spillage or leakage in working Area; in case any spillage is noticed, immediately wipe off with cloth. Throw the cloth in the designated bin.
5. Make sure that non-compatible materials are not kept together; if required, refer the Material Safety Data Sheet.
6. Ensure availability of adequate number(s) of appropriate type Fire Extinguishers in the fire prone places.
7. Do not allow accumulation of wastes, dry leaves in fire prone areas as they are also a potential fire hazard.
8. Compressed Gas Cylinders shall not be stored near sources of heat or under direct sunlight; they shall also be chained / secured.
9. Never overload electrical points and connect equipment/appliances to correct Socket – check for the Ampere rating also.
10. Keep yourself informed about the type of fire and extinguisher to be used
11. Participate actively in the periodic Mock Drills to ensure emergency preparedness.
12. Never block the fire exits.

Portable / First Aid Fire Extinguishers are to be mounted at a comfortable height for easy access and usage.

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Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

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Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

GUIDELINES FOR USING APPROPRIATE FIRE EXTINGUISHER

EXTINGUISHER		Type of Fire				
Colour	Type	Solids (Wood,Paper, Cloth etc)	Flammable Liquids	Flammable Gasses	Electrical Equipment	Cooking Oils & Fats
	DCP	✓	✓	✓	✓	✗
	CO_2	✗	✓	✗	✓	✓
	Foam	✓	✓	✗	✗	✓
	Dry Sand Bucket	✓	✓	✓	✗	✗
	Water	✓	✗	✗	✗	✗

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Reviewed by	Md. Arique Yeasir Rishdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

1. CARBON DIOXIDE EXTINGUISHER

Check the cylinder weight after refilling.
Place the CO_2 extinguisher at appropriate location.
Check the condition of rubber parts, hose &horn and cylinder weight once in every month. If underweight (loss than 10 % of original weight), discard the extinguisher for refilling.

Use CO_2 extinguisher for extinguishing the following types of fire:
1) Oil
2) Gas
3) Electrical

2. DRY CHEMICAL POWDER TYPE

Check the cylinder after refilling and record the observation.

a) Weight of cartridge.
b) Condition of powder

Place the extinguisher at appropriate locations.
Check the extinguisher once in every month.

a) Powder condition: If it is wet, change the powder.
Check the needle in the gauge, it should be on Green portion of the gauge.
b) Check the siphon tube. If it is choked, clean the tube.

Use DCP type extinguisher for extinguish the liquid fire, gaseous fire and electrical fire.

3. FOAM TYPE

Check the cylinder after refilling and record the observation.

Foam fire extinguishers can be used on Class A and B fires.
They are most suited to extinguishing liquid **fires** such as petrol or diesel and are more versatile than water **jet extinguishers** because they can also be used on solids such as wood and paper.

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Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

GUIDELINES FOR USING FIRE HYDRANT

- Ensure that the line is charged @ 06 Bar. Ensure allied facilities like emergency pumps, jockey pumps, diesel engines are working satisfactorily. Do not tamper with the fire hydrant hose reels and boxes. Ensure periodic inspection and maintenance is being carried out and records are maintained.
- Do not operate the hydrant if you are not aware of the same as it may lead to serious physical injury. Ensure safety. Fire hydrants shoot out water at over high speeds, making the need for safety absolute. First, rope off the area around the hydrant so people don't stray into its path. Then check the fire hydrant. You should feel it to make sure it is rigid, immovable and doesn't have loose or faulty parts.
- Open the hydrant. Identify the opening valve and use the special, hydrant tool to open the fire hydrants valve. Generally, fire hydrant valves need to be turned counterclockwise to open. It is crucial that you open the valve slowly and fully. Opening the valve partially can cause serious damage to the fire hydrant and carries a risk of injury to you and to bystanders.
- Close the fire hydrant slowly and completely. To close the fire hydrant, use the pentagon shaped socket and turn clockwise. Close the fire hydrants valve slowly and make sure that you close it completely. Keep an eye on the fire hydrant for a minute to make sure that water stops flowing from all parts of the device before you leave

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Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Fire-fighting team:

Sl.No.	By Designation
01	Shift In charge (Operation), Group-01 (U-1,2,3)
02	Shift In charge (Operation), Group-02 (U-1,2,3)
03	Shift In charge (Operation), Group-03 (U-1,2,3)
04	Shift In charge (Operation), Group-04 (U-1,2,3)
05	Water Quality Analyst (IAM), Group-01 (U-1,2,3)
06	Water Quality Analyst (IAM), Group-02 (U-1,2,3)
07	Water Quality Analyst (WQA), Group-03 (U-1,2,3)
08	Water Quality Analyst (IAM), Group-04 (U-1,2,3)
09	SAE-Electrical (Operation), Group-01 (U-1,2,3)
10	SAE- Electrical (Operation), Group-02 (U-1,2,3)
11	SAE- Electrical (Operation), Group-03 (U-1,2,3)
12	SAE-Electrical (Operation), Group-04 (U-1,2,3)
13	Foreman (Mechanical) (U-1,2,3)
14	Electrician (U-1,2,3)
15	Work Assistant (Mechanical) (U-1,2,3)
16	Work Assistant (Mechanical) (U-1,2,3)
17	Work Assistant (I & C) (U-1,2,3)
18	O.S.S (U-1,2,3)
29	O.S.S (Operation), Group-01 (U-1,2,3)
20	O.S.S (Operation), Group - 02 (U-1,2,3)
21	O.S.S (Operation), Group-03 (U-1,2,3)

Rescue team:

Sl.No.	By Designation
01	AM (EHS)
02	SAE-Mech (Operation), Group-01 (U-1,2,3)
03	SAE-Mech (Operation), Group -02 (U-1,2,3)
04	SAE-Mech (Operation), Group -03 (U-1,2,3)
05	SAE -Mech (Operation), Group -04 (U-1,2,3)
06	Foreman (Electrical) (U-1,2,3)
07	Chemical Operator (WTP), Group-01 (U-1,2,3)

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Sl.No.	By Designation
08	Chemical Operator (WTP) Group-01 (U-1,2,3)
09	Chemical Operator (WTP) Group -02 (U-1,2,3)
10	Chemical Operator (WTP) Group -03 (U-1,2,3)
11	Chemical Operator (WTP) Group -04 (U-1,2,3)
12	Office Assistant (U-1,2,3)
13	(Operation) Group-01 ,Helper (U-1,2,3)
14	(Operation) Group-02, Helper (U-1,2,3)
15	(Operation) Group-03, Helper (U-1,2,3)
16	(Operation) Group-04, Work Assistant (U-1,2,3)
17	Helper (Store) (U-1,2,3)

First aid team:

Sl.No.	By Designation
01	Medical Officer
02	Assistant Engineer (Mech.)(U-1,2,3)
03	AE (Operation shift) Group-01 (U-1,2,3)
04	AE (Operation shift) Group -02 (U-1,2,3)
05	AE (Operation shift) Group -03 (U-1,2,3)
06	AE (Operation shift) Group -04 (U-1,2,3)
07	Assistant Engineer (I& C)(U-1,2,3)
08	Medical assistants

Evacuation/head counting team:

Sl.No.	By Designation
01	Assistant Security Officer
02	SAE (Electrical) (U-1,2,3)
03	SAE (7.6 Solar Plant)
04	Office Assistant (U-1,2,3)

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

ALARM SYSTEM

In case of emergency, the main / incident controller/s shall declare emergency. The evacuation, head count and other necessary arrangements will be performed under the guidance of Incident Controller/s. Alarm (sirens), PA System will be raised from Central Control Room (U-1,2,3, Solar) after receiving instructions from main / incident controller/s. Besides that, they will inform immediately in control room of Mini Fire Station, SPS for further necessary action to solve the emergency situation.

The Alarm for various emergency situations will be blown as per the following Chart.

Sl. No.	Type	Duration
1.	In case of Fire and other emergencies	30 seconds pitch four times with a gap of 15 seconds.
2.	All Clear Signal	Continuous siren for 180 sec.

Besides, to alert other people during the emergency, people have been instructed to run to various departments to make everybody alert and come to the emergency assembly areas ASAP.

ASSEMBLY AREA

On declaration of emergency and/or sounding of emergency alarm, all employees, workers, visitors, contractors shall assemble in designated assembly area. We have Four assembly areas, one is in front of the administration building, 2nd one is in front of CCR (U-2 &U-3), 3rd one is east side of HRSG of U2 and 4th one is south-west side of Solar Plant's Control building. Head count will be done by the Head counting team. The Assembly Area has been identified by a Display Board.

EMERGENCY CONTROL CENTRE

The Central Control Room has been designated as the Emergency Control Centre. It is manned for 24 hours and is equipped with;

- Site Plan
- Torches
- First aid box
- Clock
- List of all important phone numbers.

	Name	Designation	Signature
Originated by	Mushiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

In case any briefing is to be given to the press and media regarding the emergency, the same shall be given by SE (Unit-1,2,3) of the plant.

TRANSPORT ARRANGEMENTS

Whenever necessary, ambulance/vehicles are made available to transport affected people, to outside facilities such as Hospitals or Nursing Homes. This is co-ordinated by the Plant Head in consultation with the Medical Officer.

LIAISING

The various internal and external contacts for liaising during emergency are given below. Any employee or Security personnel can interact with the internal contacts, but under no circumstances, shall contact the external facilities, which is the sole authority of the Unit Head.

Sl. No.	Name / Description	Address & Contact No.	Remarks
1	Chief Engineer	Shafiqul Islam & 01755630007	
2	Plant Head, PM (SE), U1,2,3	Brojendra Kumar Sarkar & 01777736404 Md. Asad Halim & 01777736402 Shyamal Kumar Das & 01777736401	Main Controller (Unit-1,2,3)
3	Operation Head, U1,2,3 (XEN-Operation)	Shimul Kumar Barman & 01755630011 Md. Shamsur Rahman & 01755630081 Mir Masud Rana & 01777736433	Incident Controller (U1,2,3)
4	Operation Head (Solar)	Md. Asad Halim & 01777736402	Incident Controller (Solar)
5	DM (Environment, Health & Safety)	Mashiour Mahmud Khan & 01708152295	
6	Doctor / Dispensary Senior Medical Officer	Dr. Md. Golam Kibria & 01708152307	First Aid
7	Mini Fire Station, SPS	01313425824	
8	Sadar Thana Sirajganj	0751-62696	For Civil Aid
9	OC Sirajganj Sadar Thana	01320 128590	
10	OC Bonghoboondhu Setu West Thana	01320 128624	
11	Fire Service & Civil Defence, Sirajganj Sadar	0751-62622	For Fire Fighting
12	Sadar Hospital, Sirajganj	01715-422502	For treatment and medicines

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

TRAINING AND AWARENESS

Regular training is given to employees about various potential emergency situations and their roles and responsibilities during any such scenario. Besides, throughout the plant, Notices and Posters are displayed for spreading awareness to the employees and the contractors. The safety personnel/concerned host will apprise visitors to the plant on where to assemble during emergency and their Do's and Don'ts.
Identified personnel are also trained in First Aid and Fire Fighting.

MOCK DRILLS

Mock-drills are carried out at least once in six months to check the effectiveness of the emergency response as per the Emergency Preparedness Plan (After received instruction from our honorable CEO we do mock-drill in every month from February, 2021). In case of any deviation from the procedure described in this Emergency Plan, the Plan shall be revised adequately.

Response Times:
Information after emergency: 2 min
Alarm raised: 1.30 minutes
Fire fighters and first aiders arrival: 4 minutes

FIRST AID BOX

First aid boxes are available at all unit's Store, Mechanical Maintenance Department, Electrical Maintenance Department, I&C Department, Operation Department, WTP, Account & Finance, Security Gate. Medical officer will be responsible to ensure that contents are regularly checked and replaced as necessary. The contents are as per the requirements of the Labor rules.

PERSONNEL PROTECTIVE EQUIPMENT

To handle any chemical and oil splash / hazards or emergency situation, personal protective equipment has been provided.

MAINTENANCE AND REPAIR WORKS

Servicing, filling testing & controlling of the complete fire-fighting system

	Name	Designation	Signature
Originated by	Mashiour Mohmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Asique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

(extinguishers and hydrant) are regularly maintained according to good engineering practices and records are maintained by the Safety Officer.

CONTINUOUS SURVEILLANCE OF OPERATIONS

All operations are continuously kept under surveillance and the Work Instructions /Do's and Don'ts/Informative Displays are followed for preventing any emergency.

POST-EMERGENCY SITUATION

Fire will be extinguished using the appropriate type of fire extinguisher and the debris shall be sent to the scrap yard for disposal or filled in the Scrap Store.

However, if water is used in substantial quantity for firefighting, then the firewater will be diverted for the horticultural purposes. After the situation is under control, the Main Controller shall give the all-clear signal and the alarm/siren will be sounded again. The people in the assembly area shall also be informed for resuming work and normal Operation.

In case of environmental emergencies, the affected soil/plants shall be separated for treatment, safe disposal as necessary.

When environmental emergencies like failure of Pollution Control facilities happen, the Preventive Maintenance mechanism for the same shall be reviewed.

In case of emergencies involving human injury and/or ill-ness, the concerned person(s) shall be sent for appropriate medical treatment.

Besides, a meeting of the Management Review Committee shall be convened to analyze the actions taken and loss encountered, suggesting/incorporating any corrective and preventive mechanisms and for modifying the Emergency Preparedness Plan. If required, the Environmental Aspect Impact Analysis, OHS Hazard Identification & Risk Assessment shall also be reviewed and updated. Further training shall also be provided to the personnel based on identified needs.

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Originated by	Mashiour Mohmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Asique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

FIRST AID

First aid is the initial treatment provided to a victim of an accident or unexpected sickness prior to the arrival of a certified professional. The goal of first aid is to save lives, aid in recovery, prevent aggravation, and limit problems at a later date by utilizing whatsoever material is available.

Artificial Respiration

- ✓ Mouth to Mouth: This is appropriate and effective technique for emergency artificial respiration.
- ✓ Keep the head slightly backward and open the jaw.
- ✓ Seal the casualty's nose to prevent escape of air by pinching with thumb and index finger.
- ✓ Take a deep breath, open your mouth widely, place it over the victim's mouth and make a tight seal.
- ✓ Quickly blow the full breath into the mouth of victim.
- ✓ Remove your mouth from the victim and allow him to exhale passively.
- ✓ Repeat the procedure 12 to 15 times per minute, till medical aid is arranged.
- ✓ Arrange immediate medical aid.

CAUTIONARY NOTE

- ✓ Do not give mouth to mouth resuscitation during CPR in the presence of toxins such as cyanide, hydrogen supplied, corrosives and organo-phosphates. Ventilate the casualty by using a face mask or bag/valve/mask assembly.

- ✓ Avoid mouth to mouth resuscitation if there is possibility of transmission of infection between the victim and the rescuer, such as HIV, Hepatitis-B, Tuberculosis, Shigellosis, Meningococcal meningitis, Herpes simplex virus and Salmonella. Use an interposition airway device which must function effectively in both its resuscitation and protective roles and be immediately available at all times.

Control of Bleeding

- ✓ Apply direct pressure by thumb or finger.
- ✓ Apply dressing – gauze pad and bandage.
- ✓ Apply indirect pressure on pressure points.
- ✓ Apply tourniquet.
- ✓ Remove the injured to the hospital.

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Originated by	Mishkur Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Fractures

Signs of Fracture: Pain, Tenderness, Swelling, Loss of Power, Deformity

- ✓ Do not move the injured unless the life is endangered from other causes.
- ✓ Deal with the hemorrhage and breathing difficulties. Immobilize the fracture by using suitable splints.
- ✓ Immobilization should include one joint above and one joint below the fracture.
- ✓ Remove the injured to the hospital.

Burns

- ✓ Pour running cold water on the affected part.
- ✓ Do not apply ointments or oils or any other substance.
- ✓ Cover the wound with sterilized cloth.
- ✓ Give artificial respiration, if needed.
- ✓ Prevent shock.
- ✓ Arrange immediate medical aid.

Shock

- ✓ Lay the patient on his back.
- ✓ Stop bleeding, if any.
- ✓ Relieve pain by supporting the injured part.
- ✓ Keep the patient comfortable.
- ✓ Do not cause sweating.
- ✓ Fluids may be given by mouth in small amounts, if the patient is conscious.
- ✓ Reassure the patient.
- ✓ Arrange immediate medical aid.

Wounds

- ✓ Stop the bleeding, if any.
- ✓ Avoid touching the wounds.
- ✓ Cover the wound with sterilized cloth.
- ✓ Arrange immediate medical aid.

Eye Injuries

- ✓ Removal of foreign body should not be attempted.
- ✓ Do not apply oil or ointment.
- ✓ Apply sterile pad and loose bandage.
- ✓ Send the patient to the hospital.

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Approved by	Shafiqul Islam	Chief Engineer	

Abdominal Wounds

- ✓ No time should be lost in sending the patient to the hospital.
- ✓ Keep the patient flat on his back.
- ✓ Give nothing by mouth.
- ✓ Maintain warmth.
- ✓ If intestines protrude from the wound, do not attempt to touch or replace them.
- ✓ Apply sterile dressing and binder on the wound.
- ✓ Provide immediate transportation to the hospital.

Backbone Fracture

- ✓ Fracture of backbone may lead to paralysis of limbs. Hence, victim should be handled with great care.
- ✓ Transport on a rigid frame, which may be improvised by using available board.
- ✓ The rigid frame is to be placed on a stretcher for transportation.
- ✓ Immediate hospitalization is needed.

Heat Stroke

- ✓ Make the patient lie down.
- ✓ Remove all clothing except the underwear.
- ✓ Keep the patient under the fan.
- ✓ Pour cold water on the body repeatedly.
- ✓ Wash the head thoroughly with cold water and dry it with towel.
- ✓ Record body temperature falls up to 38°C stop pouring water.
- ✓ Give plenty of cold water with a pinch of common salt in each glass of water to drink.
- ✓ Send the patient to the hospital.

Bleeding Nose

- ✓ Make the patient sit on a Chair with head downward.
- ✓ Pinch the nose with fingers and thumb.
- ✓ Apply ice or cold compression.
- ✓ Do not plug the nostrils.
- ✓ Do not put water or any medicine through the nostrils.
- ✓ Send for medical aid immediately.

Foreign Body in the Nose

- ✓ Do not try to remove the solid object.
- ✓ Ask the patient to breathe through mouth.
- ✓ Send the patient to the hospital.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Bleeding Ear

- ✓ Lay the patient with the head slightly raised.
- ✓ Incline the head to the affected side and apply a dry dressing over the ear with loose bandage.
- ✓ Do not plug the ear.
- ✓ Apply pressure in front of the ear.
- ✓ Send for medical aid immediately.

Foreign Body in the Ear

- ✓ Solid – Do not try to remove, scratch or probe it.
- ✓ Insects – Put a few drops of water in the ear and turn the head so that affected ear points upwards.
- ✓ Keep the head in that position for 5 minutes, and then turn the head downwards so that the water flows out.
- ✓ Arrange immediate medical aid.

Snake Bite

- ✓ Reassure the patient.
- ✓ Do not allow the person to run or walk.
- ✓ Apply a ligature above the wound (in between the heart and the wound) if the bite is in the leg or hand.
- ✓ Wash the wound with potassium permanganate solution or with soap and water.
- ✓ Allow free bleeding.
- ✓ Never suck the blood from the wound.
- ✓ Treat for shock.
- ✓ Arrange immediate hospitalization, by transporting the patient in a lying down position.

Dog Bite

- ✓ Clean the wound immediately with water.
- ✓ Then wash with antiseptic soap and water.
- ✓ Do not try to stop bleeding.
- ✓ Do not cover the wound.
- ✓ Send the patient to hospital for treatment.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Insect Bite

- ✓ The sting bite should be pulled out.
- ✓ Apply cold compression.
- ✓ Apply vinegar diluted with water.
- ✓ Soda-bicarbonate paste should be applied at the site.
- ✓ Prevent shock.
- ✓ Send for medical aid immediately.

Chemical Burns of the Eyes

- ✓ Immediate washing of the eye with clean water at least for fifteen minute or longer.
- ✓ Apply sterile dressing over the eye.
- ✓ Neutralizing agents or ointments should not be used.
- ✓ Send the patient to the hospital.

Suffocation

- ✓ Remove the patient from the source.
- ✓ Clean the airways.
- ✓ Restore breathing by artificial respiration.
- ✓ Send the patient to the hospital.

Electric Shock/ Injuries

- ✓ Do not touch the casualty while he is still in contact with electricity.
- ✓ Switch off the current at once.
- ✓ Do not attempt first aid until the contact has been broken.
- ✓ Make the air passage clear and clean.
- ✓ Restore breathing Artificial respiration and external cardiac massage, if needed.
- ✓ Call for immediate medical aid.
- ✓ Send the patient to the hospital.

Unconsciousness

- ✓ Make the patient lie down on his belly with head turned to one side.
- ✓ Check breathing and pulse.
- ✓ Loosen tight clothing.
- ✓ Clean the airway.
- ✓ Give artificial respiration and external Cardiac Massage, if needed.
- ✓ Transport the patient to the hospital.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Poisoning

- ✓ Find the nature of the poison.
- ✓ Give universal antidote mixture as given below to drink:
  Charcoal powder - 2 *tablespoons*
  Coffee powder - 2 *tablespoons*
  Chalk powder - 1 *tablespoon*
  Add it to a glass of warm water and mix well.
- ✓ Send the patient immediately to the hospital.

EMERGENCY PLANNING FOR FOOD POISONING

Food Poisoning: Food poisoning is the result of eating organisms or toxins in contaminated food.

Causes: Food poisoning can affect one person or it can occur as an outbreak in a group of people who all ate the same contaminated food.

Symptoms: Generally seen within 1 – 6 hours of consuming food.

- Abdominal cramps
- Diarrhea (may contain blood)
- Fever and chills
- Headache
- Nausea and vomiting
- Weakness (may be serious and lead to respiratory arrest, as in the case of botulism)

Treatment:

Inform Medical Officer; Call if any of the above symptoms has occurred and / or:

- Bleeding is excessive or your stools are maroon or black.
- You are short of breath or having trouble breathing.

Necessary treatment shall be arranged with the External Hospital after getting proper first-aid from Medical Officer.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

1. PURPOSE

The purpose of the document is to standardize and formalize infection prevention and control procedures in the workplace for the COVID-19 outbreak across Sirajganj Power Station (SPS). COVID-19. The guideline details the steps taken to enhance personal hygiene throughout the facility.

2. SCOPE

The following guidelines have been developed to ensure a safe return to work for the employees in the context of promoting personal hygiene to limit the spread of the virus.

3. REFERENCES

- World Health Organization's Guidelines
- EHS Policy
- Technical guidelines for prevention and control of COVID-19 social and institutional infections

(Min of Health &Family Welfare)

- Factories Act
- Public Health Act
- COVID-19 Generic guidelines
- National Guideline for Health Care Provider on Infection Prevention and Control of COVID-19 pandemic in Healthcare Setting (Min of Health & Family Welfare)

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

4. TERMS AND DEFINITIONS

The following definitions will apply:

- Harm - A negative safety and health consequence (e.g. injury, or ill health).
- Exposure - Concentration or amount of an agent that reaches a target organism, system or (sub) population in a specific frequency for a defined duration
- Hazard - Source, situation, or act with a potential for harm in terms of human injury or ill health, or a combination of these.
- HOD - Head of Department
- MOHFW - Ministry of Health and Family Welfare

5. RESPONSIBILITIES

5.1 Head of Departments

Ensure that adequate and appropriate resources are provided for the contents of this guideline to be applied.

5.2 Line Management

Ensure that the requirements of this procedure are implemented throughout their area of responsibility and engage employees on their responsibilities.

5.3 EHS Department

- Monitor compliance on implementation of the personal hygiene protocol

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

5.4 All employees, Contractors and Visitors

- Follow the guidelines established to prevent the spread of the virus and comply.
- Report any abnormality through the incident reporting procedure

6. Personal Hygiene Procedure

6.1 Use of Safety Masks

All SPS staff, contractors and customers are to continue observing the COVID-19 protocols with respect to prevention of spreading of the virus. The following should be observed at all times:

- Continued use of masks both at work and in public
- Disposable masks should not be reused.

6.2 Social Distancing

The Corporation will continue to enforce the adherence to COVID-19 protocols with respect to Social Distancing.

- Employees are to continue adhering to safe social distancing of at least one (1) meter apart
- The number of employees in offices should be reduced to meet the social distancing requirements depending on the size of the offices/halls.
- Implement social distancing protocols for transport safety.
- Seating arrangements should be re-assigned until the widespread threat of virus transmission has diminished.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

6.3 Use of Sanitizers

- For purposes of promoting personal hygiene, all employees, customers, visitors and contractors will be required to sanitize at any facility or before use of any equipment.
- Approved sanitizers of 70% or more alcohol content will be used as guided by the MOHFW.

6.4 Hand Wash Facilities

- For purposes of promoting personal hygiene, all employees, customers, visitors and contractors will be required to practice hand washing as a most effective way of preventing the spread of the virus.
- Hand wash facilities are installed at all SPS facilities are provided with soap.
- Hand sanitizers are provided to the employees to encourage frequent hand sanitization.

6.5 COVID-19 Information

- Employees, customers, contractors and visitors are encouraged to acquaint themselves with basic principles of personal hygiene to ensure that the virus is put at bay.
- Instruction regarding the Do's and Do not's during pandemic period is hanged within the plant premises.

7. SPS COVID-19 SCREENING PROTOCOL

Step 1: The screening will be done for all employees, suppliers or contractors entering the SPS premises or places of work on daily basis.

Step 2: All Officer, Staff members/Suppliers entering premises will be required to wash their hands with soap and or sanitize.

Step 3: All employees/suppliers entering the SPS premises will have their temperatures taken as guided by the personnel at the entrance

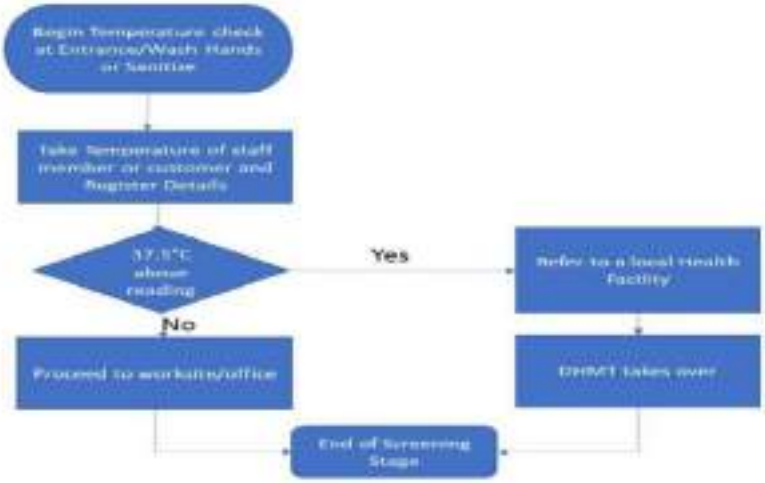
	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Step 4: All screened employees/suppliers with temperatures of 37.5°C will have their details registered by the screening officer.

Step 5: Anyone presenting with high temperature of above 37.5 will be advised to visit the nearest clinic and will not be allowed entry and for suppliers' assistance will be offered outside the office where possible with strict extreme social distancing.

Step 6: In cases where there is flu like symptoms, DHMT will be advised of such. The steps stated above are captured in the flow chart below:

SPS COVID-19 Screening Protocol (Thermometers)



	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

8. ENVIRONMENT AND EQUIPMENT DISINFECTION

- Disinfect all Offices, control rooms, passageways, guest houses in accordance with the Environment and equipment procedure.
- Each employee shall disinfect their hands before and after use of any tool, equipment or operating switchgear, control panel, documentation etc.
- Disinfectant trays are provided in front of important buildings (i.e., admin building, control rooms, water treatment plants etc.).

9. TRANSPORT SAFETY AND DISINFECTION

- Mandatory Social Distancing in all SPS vehicles transporting personnel shall be practiced. This will be achieved by limiting the number of persons in specific vehicles as follows:

  i. A 28-Seater Mini-Bus shall board a maximum of 13 passengers with face masks on.
  ii. A 10-Seater Microbus shall board a maximum of 7 passengers with face masks on.

- Exterior of all vehicles including tyre, door-hand shall be disinfected at main gate while entering power plant.

- All vehicles carrying personnel shall be disinfected at change of every shift or change of users and or when need arises.

10. TRANINGS, MEETINGS AND INTERVIEWS

Gatherings of groups of people should be avoided as much as possible and the following should be observed for meetings, interviews and inductions or any other situations that require a group of people to meet:

- All meetings/trainings will continue to be held using teleconferencing, or zoom video conferencing to maintain the social distancing requirements.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

• ICT department ensures that all employees who require such service are assisted.

11. LEAVE MANAGEMENT

Leave management will continue to be adhered to as per the HR policy Manual; however, supervisors should consider the following in furthering the management of COVID-19:

• Employees should be supported to take leave as and when they require during this period to reduce numbers and minimize contacts.

• Employees will still be required to produce medical certificates for any sick leave taken unless advised as part of COVID-19 Testing.

• When on leave, employees are not supposed to leave his habitant unless it is an emergency. In such cases, employees will be kept minimum 14 (Fourteen) days quarantine in SPS.

	Name	Designation	Signature
Originated by	Mashiour Mahmud Khan	Deputy Manager (EHS)	
Reviewed by	Md. Arique Yeasir Rushdi	Executive Engineer (MIS, SPS)	
Approved by	Shafiqul Islam	Chief Engineer	

Annex L: Health and Safety Preparedness

Annex L-1: Mock Drills and Training Conducted During February 2024 to January 2025

Emergency Mock Drills and Firefighting Trainings: In total 12 (Twelve) Drills and 11 (Eleven) Trainings were conducted during the reporting period. Details are listed below.

- Training on Basic Life Support and its Importance: 22 January 2024
- Fire Safety Training: 31 January 2024
- Firefighting Training: 20 February 2024
- Common EHS Practice: 24 March 2024
- Training on Heat Stress: 22 April 2024
- Fire Safety Training: 25 April 2024
- Firefighting Training: 24 June 2024
- Training to prevent Insect Bite: 08 June 2024
- Training on PPE and Incident, accident: 16 July 2024
- Training on emergency preparedness plan & IMS: 21 August 2024
- Training on First Aid: 19 August 2024
- Training on emergency preparedness plan & IMS: 26 October 2024
- Electric Shock Mock Drill: 24 January 2024
- Fire Drill: 20 February 2024
- Chemical Spillage Drill: 25 March 2024
- Fire Drill: 24 April 2024
- Emergency Evacuation Mock Drill: 26 May 2024
- Fire Drill: 25 June 2024
- Chemical Spillage Drill: 27 July 2024
- Fire Drill: 25 August 2024
- Fire Drill: 19 September 2024
- Work at Hight Mock Drill: 22 October 2024
- Fire Drill: 21 November 2024
- Fire Drill: 19 December 2024

Pictorial Evidence


FIRE

Annex L-2: Training Attendance Sheet

NORTH-WEST POWER GENERATION COMPANY LIMITED

NORTH-WEST POWER GENERATION COMPANY LIMITED

Training Attendance Sheet

FORM NO: NW-DH-HR-F-005
EFFECTIVE DATE: 21.04.2018
REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: প্রশাসন
Course Name and ID	: "ফায়ার সেফটি"
Date	: ৩০-০১-২০২৪ (১৫ই মাঘ ১৪৩০ - ৩০-০১-২০২৪)
Duration	: সকাল ০৯ টা থেকে ০৯ সেশন
Total Man Hour	:
Facilitator	: জনাব আব্দুল মান্নান, উপ-সহকারী পরিচালক, ফায়ার সার্ভিস ও সিভিল ডিফেন্স অধিদপ্তর

Office: Sirajganj 225 M.W. Combined Cycle Power Plant (Unit-2)

Sl. No.	Name of the Participants	Designation and Department/Office	Participant's Signature
1.	Md. Mariuj Hossain	SAE, Operation	
2.	Md. Shahadat Hossain	SAE, (Opn)	
3.	Gazi Sabbir Ahmmed	JAM (Chemical)	
4.	Md Kamrul Hasue	FORE MAN	
5.	[illegible]	[illegible]	
6.	[illegible]	[illegible]	
7.	Abdur Rahim	Welder	
8.	[illegible]	[illegible]	
9.	Abdul Kader Miraz	Technician (I&C)	
10.	[illegible]	[illegible]	
11.	Subrata Kumar Kuri	SDE (Operation)	
12.	Md. Rafiqul Islam	Tech (I&C)	
13.	Mukleswar Rahman	Tech (EMD)	
14.	Md. Nazmul Islam	Tech (I&C)	
15.	Md. Abdullah al Rasel	Foreman (EMD) U-2	
16.	[illegible]	[illegible]	
17.	Md Sahidul Hasan	JAM - Chemical	
18.	[illegible]	[illegible]	
19.	Md. Shafiul Islam	AE - MMD	
20.	Rasel Kabir	SAE - MMD	
21.	Abdul Kader Miraz	Technician (I&C)	
22.	Rafiqul Islam	Technician (I&C)	
23.	Mohammad Atiqur Rahman	OA	
24.	[illegible]	[illegible]	
25.	Nazam Ismail Kayes	JAM (Admin)	
26.	[illegible]	[illegible]	
27.	Md. Nazmul Islam	Tech. M. MMD	
28.	Muhammad Arrifin Rahman	[illegible] (I&C)	

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
25.	Jahidul Alam	SAE (OPN)	
26.	Md. Rasel	SAE (OPN)	
27.	Md. Shahadat Hossain	SAE (OPN)	
28.	Masud Rana	AE (OPN)	
29.	Foysal	Tech (Che)	
30.	Md. Sumon Mia	SAE (Solar)	
31.	Md. Rubel Hossen	AE (7.6MW Solar)	
32.	Md. Ismail Hossen	SAE (7.6MW solar)	
33.	Md. Shaddam Hossen	SDE (EMD)	
34.	Abdul Kader Miraz	Tech. (I&C)	
35.	Md. Kamrul Haque	Foreman MMP-2	
36.	Md. Mashiur Rahman	welder	
37.	G.A Mukul	fitter	
38.	Md. Nahid Hasan	W/A	2/7/24
39.	Md. Nazmul Islam	Tech. M U2	
40.	Md. Sakibul Hasan	JAM (chemical)	
41.	Md. Al-Amin	JAM (Chemical)	
42.	Gazi Sabbir Ahmed	JAM (chemical)	Sabbir
43.	Md. Kamal Hosen	Tech (Che)	Kamal
44.	Md. G. Azam	Tech (Che)	
45.	Md. Alamgir Hosen	Tech (Che)	
46.	Md. Sekdar Hosen	W/A	
47.	Md. Abdul Kabel	Foreman (Elec)	
48.	Md. Mariful Hosen	Tech (Che)	
49.	Md. Rakibul Islam Rakel	SAE (Solar)	
50.	Md. Nazrul Islam	Driver	
51.			
52.			
53.			
54.			

Signature of facilitator:

Date: 20/08/24

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
25.	Md. Shamim Hossain	SAE	
26.	Md. Mazrul Hossain	SAE (OPN)	
27.	Md. Shamim Hosen	AE (OP)	
28.	Md. Shakil Ahmed	SAE (OP)	
29.	Tohidul Alam	SAE (OPN)	Tohidul
30.	Md. Rasel	SAE (OPN)	
31.	Md. Shahadat Hossain	SAE (OPN)	
32.	Masud Rana	AE (OPN)	Masud Rana
33.	Foysal	Tech (Elec)	
34.	[illegible]	[illegible]	
35.	Sima Khatun	O/A	Sima
36.	[illegible]	[illegible]	
37.	[illegible]	[illegible]	
38.	~~Foysal Md. Shakil Khan~~	~~TEC DM (OPN)~~	~~[illegible]~~
39.	Md. Suman Mia	SAE (Solar)	
40.	MD. Rubel Hossen	AE (7.6MW Solar)	
41.	Md. Ismail Hossen	SAE (7.6MW Solar)	
42.	Md. Shoddam Hossen	SDE (U-2) EMD	
43.	Abdul Kader Miraj	Tech. (T&C)	
44.	Md. Kamrul Haque	Foreman MMD-2	
45.	Md. Mashiur Rahman	Welder	
46.	G.A. Mukul	Fitter	
47.	Md. Nahid Hasan	W/A	
48.	Md. Nazmul Islam	Tech. M U-2	
49.	Md. Sakibul Hasan	JAM (Chemist)	
50.	Md. Alamin	JAM (Chemist)	
51.	Md. Azmainur Rahman	JAM (Chemist)	
52.	Md. AB. Rasel	Foreman EMD	Rasel
53.	Md. Siddik Hosen	W/A	
54.	Md. Rabiul Islam Rubel	JAE (Solar)	

Signature of facilitator:
Date:

NORTH-WEST POWER GENERATION COMPANY LIMITED	NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 11.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	: Primary Management of Incident/Accident (First Aid).
Date	: 29.08.2024
Duration	: 11:00 AM to 01:00 PM
Total Man Hour	:
Facilitator(s)	: জনাব ডা. গোলাম কিবরিয়া, সিনিয়র মেডিকেল অফিসার ([illegible])

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

SL No	Name of the Participants	Designation and Department	Participant's Signature
✓	Md. Asad Haslim	SE - 2	
2.	M Arifur Rahman	Xen (I&C)	
3.	Tanvir Ahmed	SDE (Opn)	
4.	Md. Shamsur Rahman	XEN (Opn.)	
5.	Md Habibur Rahman	XEN (MMD)	
6.	Md. Sarwar Jahan	SAE	
7.	Md. Manir Hossen	SAE (Opn)	
8.	Md. Shafiul Islam	AE (MMD)	
9.	Md. Shariful Islam	DM (A&F)	
10.	Md. Nurun Nabi Siddique	Tech (Che)	
11.	Mohammad Arifur Rahman	QA	
12.	Anik Chowdhury	SAE (EMD)	
13.	Farukh Ahmed	SDE (MMD)	
14.	Md. Rafidul Islam	AE (MMD)	
15.	Md. Tanvirur Rahman	SDE (I&C)	
16.	মো: [illegible]	OSS	
17.	Md. Arif Hosen	OSS (Opn) U-2	
18.	MD. WALIULLAH	Water Assistant	WALIULLAH
19.	Md Shamim Hossain	AE (OP) (EE)	
20.	" Humayun Masud	SAE (Opn)	
21.	Md. Najmul Hossain	AE (Opn)	
22.	Kawser Ahmed Jewel	SDE (Opn)	
23.	Md. Delwar Hossen	SAE (Opn)	
24.	Md. Naved Sarkar	SAE (Opn)	
25.	Md. Tajul Islam	SAE, U-2	

Signature of facilitator:

Date: 29.08.2024

	NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-009 EFFECTIVE DATE: 22.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: officers team
Course Name and ID	: Onsite Site (Management)
Date	: 08/06/2024
Duration	: 02:00 am to 04:00 pm
Total Man Hour	:
Facilitator	: Dr. Mr. Md. Golam Kibria, Senior Medical officer

Office: Sirajganj 225 M.W. Combined Cycle Power Plant (Unit-2)

Sl. No.	Name of the Participant	Designation and Department/Office	Participant's Signature
1.	Md. Shakibul Islam	DM (A&F)	
2.	Mohammad Akibur Rahman	C/A (admin)	
3.	Alamin Uddin	AM (A&F)	
4.	Md. Rafiqul Islam	Tech (I&C)	
5.	Shadat Hossen	Driver EMD	
6.	Md. Waliullah	M/A (OP)	WALIULLAH
7.	Sree Shanu Kumar	Driver (OP)	
8.	Md. Arif Hosen	O.S.S (OPN)	
9.	Md. Mishat Sonkar	O.S.S (Solar)	
10.	Md. Riaz Parvez	O.S.S (PM)	
11.	Md. Saddam Hossen	M/A (MMD)	Saddam
12.	Avidas Saha	SDE (PM)	
13.	Md. Mamun Hossen	SAE (OP)	
14.	Md. Maruf Hossain	Tech (C&E)	Maruf
15.	Md. Rabiul Islam Rabel	SAE (Solar)	
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			

Signature of facilitator:
Date: 08.06.2024

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
27.	Md. Jahedul Islam	AM (chemical)	[signature]
28.	Md. Sakibul Hasan	JAM (Chemical)	[signature]
29.	~~Md. Rifat Mahmud~~	DM (chemical)	[signature]
30.	Raz Sabbir Ahmed	JAM (Chemical)	[signature]
31.	~~Md. Al. Amin~~	~~JAM (Chemical)~~	[signature]
32.	Md. Azmainur Rahman	JAM (Chemical)	[signature]
33.	Golam Azom	Tec. Chemical	[signature]
34.	[illegible]	[illegible]	[signature]
35.	~~Md. Ismail Hossen~~	SAE (Solar)	[signature]
36.	Md. Rubel Hossen	AE (7.6 MW Solar)	[signature]
37.	MD. Rabiul Islam	SAE (7.6 MW Solar)	[signature]
38.	Md. Sumon Mia	SAE (7.6 MW Solar)	[signature]
39.	Mostrion Rahman	Welder	[signature]
40.	Md. Kamrul Haque	Foreman	[signature]
41.	Md. Nazmul Islam	Tech. M U-2	[signature]
42.	Md Golam Azam Akhan Mukul	" "	[signature]
43.	Md. Abdullah al Rasel	Foreman (EMD)	[signature]
44.	Md. Anwar Hossen	Tech. Chemi. 2	[signature]
45.	Md Saddam hossen	W/A	[signature]
46.	Md. Siddik Hossen	Work Assistant	[signature]
47.	Md. Asad Halim	SE (PM)	[signature]
48.	~~Md. Ismail Hossen~~	~~SAE (7.6 MW Solar)~~	[signature]
49.	Mainuddin	AM (A&F)	
50.	Sree Sran Kumar	Driver (op)	[signature]
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Signature of facilitator
Date:

[signature]

FORM NO: NW-DH-HR-F-005
EFFECTIVE DATE: 22.04.2018
REVISION NO: 00

NORTH-WEST POWER GENERATION COMPANY LIMITED

Training Attendance Sheet

Location: Sirajganj Power Station

Organizer Department	: প্রশাসন
Course Name and ID	: উচ্চ তাপপ্রদায় থেকে কাজ সুরক্ষা
Date	: 22/04/2024
Duration	: দুপুর ০৩:০০ ঘটিকা থেকে বিকাল ৪:০০ ঘটিকা
Total Man Hour	:
Facilitator	: জনাব ডা. মোঃ গোলাম কিবরিয়া, সিনিয়র মেডিক্যাল অফিসার (ভারপ্রাপ্ত)

Office: Sirajganj 225 M.W. Combined Cycle Power Plant (Unit-2)

Sl. No.	Name of the Participants	Designation and Department/Office	Participant's Signature
1.	Md Rifat Mahmud	EE (Chemical)	
2.	Md. Ismail Hossen	SAE (Solar)	
3.	Mohammad Ariful Rahman	Office Assistant	
4.	Md MEHEDI HASAN Siddique	Tech (Che)	
5.	Md. Ali Amin	JAM (Chemical)	
6.	Md. Ershad Jahan	SAE	
7.	Md. Shamim Hasan	AE (OP)	
8.	Md. Najmul Hasan	AE (OP)	
9.	Md. Mahfuj Hossain	SAE (Opn)	
10.	Md. Shamim Hossain	SAE (Opn)	
11.	Md. Niazul Islam Nishat	AE (Opn)	
12.	Rikas Hore Barani	SDE (OP)	
13.	Md. Shakil Ahmed	SAE (OP)	
14.	Somlalon Barua	AE (OP)	
15.	Mangal Ram	AE (Opn)	
16.	Md. Shahadat Hossain	SAE (Opn)	
17.	Md Rasel	SAE (OP)	
18.	Jahidul Alam	SAE (OPN)	
19.	Mohammad Oli Ullah	SAE (OP)	
20.	RAQIB REZVE	O.S.S	
21.	Md Nahid hasan	W/M (EMD)	
22.	M.D. WALIUZZAMAN	W/A	
23.	Md. Arif Hosen	O.S.S (OP)	
24.	Md. Arefat Hossain	Technician (EMD)	
25.	MD. Alamgir Hossain	Tech (Chemical)	
26.	Md. Kamal Hossain	Tech (Che)	

Signature of facilitator:
Date: 22.04.2024

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
29.	MD. Rubel Hossen	AE (76MW Solar)	
30.	Md. Ismail Hossen	SAE (Solar)	
31.	Md. Sumon Mia	SAE (Solar)	
32.	Md. Arif Hosen	O.S.S (operation)	
33.	Nazan Ismayl Rayen	JAM (Admin)	
34.	Mj. Nazmul Islam	Tech. M. WMD	
35.	Abdur Rahim	Vendor	
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Signature of facilitator:
Date: 22-01-2024

NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 22.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	: Basic Life Support and its importance
Date	:22/01/2024
Duration	: 11:00 AM to 01:00 PM
Total Man Hour	:
Facilitator(s)	: জনাব ডা. গোলাম কিবরিয়া, সিনিয়র মেডিক্যাল অফিসার (ভারপ্রাপ্ত)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1.	Delower Hossain	AE (OPN)	
2.	Masud Rana	AE (OPN)	
3.	Md Rifat Mahmud	Deputy Manager (Chemical)	
4.	(illegible)	(illegible)	
5.	Gazi Sabbir Ahmed	JAM (Chemical)	
6.	Mohammad Ariful Rahman	OA (Admin)	
7.	F.M. Murad Nabi Siddique	Tech (C&I)	
8.	REZA PERVEZ	O.S.S	
9.	Sigma Khanom	OA (Admin)	
10.	(illegible)	(illegible)	
11.	Md. Rafiqul Islam	Tech (C&I)	
12.	Md. Sarwar Jahan	SAE	
13.	Md. Najmul Hossain	AE (OPN)	
14.	Md. Shahadat Hossain	SAE (OPN)	
15.	Md. Maruf Hossain	SAE (OPN)	
16.	Md. Shamim Hosen	AE (OP)	
17.	Jahidul Alam	SAE (OPN)	
18.	Tanbir Ahmad	SDE (OPN)	
19.	Humayun Masud	SAE (OPN)	
20.	Md. Manir Hossen	SAE (OPN)	
21.	Md. Saad Bin Rezwan	AE (OPN)	
22.	Md. Shamim Hossain	AE (OPN) (EE)	
23.	Md. Rasel	SAE (OP)	
24.	Md. Tajul Islam	SAE (OPN)	
25.	Mohammad Oli Ullah	SAE (OPN)	
26.	Subrata Kumar Kuri	SDE (OPN)	
27.	(illegible)	O&S	
28.	M.D. WALIULLAH	WORK ASSISTANT	

Signature of facilitator:
Date: 22.01.2024

NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 22.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

29.	Md. Kamal Hossain	Tech. (Chemical)	
30.	Md. Alomgir Hossain	Tech. (Chemical)	
31.	Md. Mintar Sarkar	OSS	
32.	Md. Abdullahal Basel	Foreman (EMD)	
33.	Md. Ismail Hossen	SAE (7.6MW solar)	
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Signature of facilitator:
Date: 26/10/24

NORTH-WE	NORTH-WEST POWER GENERATION COMPANY LIMITED - Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 11.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	: Emergency Preparedness plan (EPP), IMS (Integrated Management System) awareness.
Date	: 26/10/24
Duration	: 11:00 AM to 01:00 PM
Total Man Hour	:
Facilitator(s)	: জনাব মোঃ জুলকার নাইন, উপ-ব্যবস্থাপক (ইএইএস)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1.	Md. Kamrul Hasan	Foreman Mech MMD	
2.			
3.	Md. Nahid Hasain	W/A EMd.	
4.	md. maruf Hossain	Tech (Chemian)	
5.	Md. Saddam Hossain	W/A	
6.	~~Tanvir Ahmed~~	~~SDE (Opn)~~	
7.	Md. Shahadat Hossain		
8.	Md. Rasel	SAE (OPn)	
9.	~~Md. Shakib Hasan~~	~~AE~~	
10.	Mohammad Atiqur Rahman	OA (Admin)	
11.	[illegible]	[illegible]	
12.	[illegible]	[illegible]	
13.	[illegible]	[illegible]	
14.	Sima Khatun	OA (Admin)	
15.	[illegible]	Tech (Che)	
16.	Md. Sabbir Rahman	Technician MMd-2	
17.	Md. Arif Hosen	O.S.S (opn)	
18.	Md. Tajul Islam	SAE. (OPn)	
19.	Md. Belal Hossen	SAE (Opn)	
20.	Kawser Ahmed Jewel	SDE (Opn)	
21.	Md. Saad Bin Razzak	AE (OPN)	
22.	MD. WALIULLAH	MAINTAINER Assistant	
23.	Abdul Kader Mirza	Tech. (IBC)	
24.	Mostafizur Rahman	Welder (MMD)	
25.	Md. [illegible]	Tech. M. U-2	
26.	Golam Rasul Khandaker	Technician-MMD-2	
27.	Md. Siddik Hossen	Work Assistant	
28.	Golam Azam	Tech. (Chemist)	

Sl No	Name of the Participants	Department	Signature
26	Md. Rasel	SAE (Opn)	
27	Md - Shahadat Hossain	SAE (Opn)	
28	Masud Rana	AE (Opn)	
29	Md. Surron Mia	SAE (Solar)	
30	Md. Rubel Ahsen	AE (76MW Solar)	
31	Md. Ismail Hossen	SAE (2.6MW Solar)	
32	Md. Sakibul Hasan	JAM (Chemical)	

	NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 21.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	: Emergency Preparedness Plan (EPP) and IMS (Integrated Management System) awareness
Date	21/08/24
Duration	: 11:00 AM to 01:00 PM
Total Man Hour	:
Facilitator(s)	: [illegible]

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1.	Md. Asad Halim	SE-2	
2.	Tanbir Ahmad	SDE (Opn)	
3.	Md. Shamsur Rahman	XEN (Opn.)	
4.	Md. Habibur Rahman	XEN (MMD)	
5.	Md Shariful Islam	DM (A&F)	
6.	Mithun Chandra Das	AE (EMD)	
7.	[illegible]	SAE (EMD)	
8.	Farrukh Ahmed	SDE (MMD)	
9.	Md. Shafiul Islam	AE (MMD)	
10.	Md. Rafiqul Islam	AE (MMD)	
11.	Md. Tanjimur Rahman	SDE (IAC)	
12.	Md. Shamim Hossain	AE (OP)(EE)	
13.	Md. Manir Hossen	SAE (Opn)	
14.	Md. [illegible] Jahan	SAE	
15.	Humayon Masud	SAE (OP)	
16.	Md. Nojomul Hossain	AE (Opn)	
17.	Kawsar Ahmed Jewel	SDE (Opn)	
18.	Md. [illegible] Hossen	SAE (Opn)	
19.	Md. Navid Sarkar	SAE (Opn)	
20.	Md. Tajul Islam	SAE	
21.	Md. Shamim Hossain	SAE	
22.	Md. Mamun Hossain	SAE (Opn)	
23.	Md. Shamim Hosen	AE (OP)	
24.	Elahi Bux Alam	SAE (Opn)	
25.	Md. Shakil Ahmed	SAE (OP)	

Signature of facilitator:

Date: 21.08.2024

NORTH-WEST POWER GENERATION COMPANY LIMITED	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 21.04.2018 REVISION NO: 00
Training Attendance Sheet	

Location: Sirajganj Power Station

Organizer Department	: Admin, SPS
Course Name and ID	: Incident, Accident, Near-miss, Effective use of PPE & Safe Management of Special Works
Date	: 16-07-2024
Duration	: 11:00 AM (02 Sessions)
Total Man Hour	:
Facilitator(s)	: জনাব মোঃ জুলকার নাইন, উপ-ব্যবস্থাপক (ইএইচএস)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation & Department	Participant's Signature
1.	Mohammad Ariful Rahman	OA (Admin)	
2.	Md. Nurgar Kabir Siddiquee	Tech (ele)	
3.	Md. Kamal Hosen	Tech (ele)	
4.	Md. Nahid Hasan	Lab (Envt)	
5.	[illegible]	[illegible]	
6.	MD. WALIULLAH	Work Assistant	WALIULLAH
7.	[illegible]	[illegible]	
8.	Md. Alamgir Hossain	Tech (chemical)	
9.	Md. Golam Azam	Tech (ele)	
10.	Md. Atif Hosen	O.S.S (opn) U-2	
11.	Fojlar	Tech. (chem)	
12.	Abdul Kader Miraz	Tech. (I&C)	
13.	Md. Rafiqul Islam	"	
14.	Md. Nahid Hasan	W/A	
15.	Md. Golam Azam	Tech (mech)	
16.	Md. Nazmul Islam	"	
17.	Md. Maruf Hossain	Technician Chemical	
18.	Md. Siddik Hosen	Work Assistant	
19.	MD. Saddam Hosen	W/A	Saddam
20.	Mostafizur Rahman	welder	
21.	Md. Kamrul Haque	Foreman	
22.	MD. WALIULLAH	Work Assistant	
23.	Md. Sahidul Hasan	JAM (chemical)	
24.	MD. Anwar Hossen	Tech-Chemical-2	
25.	Md. Sabbir Rahman	Technician	

Signature of facilitator:
Date: 16/07/2024

NORTH-WEST POWER GENERATION COMPANY LIMITED	NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-009 EFFECTIVE DATE: 21.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: [illegible]
Course Name and ID	: Use of portable fire extinguisher and confined space safety
Date	: 27/06/2024
Duration	: 02:00 am to 04:00 pm
Total Man Hour	:
Facilitator	: Mr. Mashiour Mahmud Khan, Deputy Manager (EHS)

Office: Sirajganj 225 M.W. Combined Cycle Power Plant (Unit-2)

Sl. No.	Name of the Participant	Designation and Department/Office	Participant's Signature
1.	Md. Shafiqul Islam	CAM (A & F)	[illegible]
2.	~~Mohammad Arifur Rahman~~	~~O/A Admin~~	~~[illegible]~~
3.	Md. Rafiqul Islam	Tech (I & C)	[illegible]
4.	Main Uddin	AM (A & F)	[illegible]
5.	Sree Shom Kumar	Driver (OP)	[illegible]
6.	Md. Waliullah	W/A (OP)	WALIULLAH
7.	Md. Arif Hosen	OSS (OPN)	Arif
8.	Reaz Parvez	OSS	[illegible]
9.	Md. Minhaj Sarkar	OSS (Solar)	[illegible]
10.	Md. Saddam Hosen	W/A (MMD)	Saddam
11.	Shahat Hossen	Driver (EMD)	[illegible]
12.	Mohammad Arifur Rahman	OA (Admin)	Arif
13.	Md. Manir Hossen	SAE (OP)	[illegible]
14.	Md. Maruf Hossain	Tech (C&C)	maruf
15.	Md. Rabiul Islam Rabel	SAE (Solar)	[illegible]
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Signature of facilitator: [signature]
Date: 27/06/2024

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
26.	Md. Sakibul Hasan	JAM (Chemical)	
27.	Gazi Sabbir Ahmed	JAM (Chemical)	
28.	Al - Amin	JAM (Chemical)	
29.	Md. Fazlainur Rahman	JAM (Chemical)	
30.	Md. Rifat Mahmud	DM (Chemical)	
31.	Golam Azom	Tech. Chemical	
32.	[illegible]	[illegible]	
33.	Md. Ismail Hossen	SAE (Solar)	
34.	Md. Rubel Hossen	AE (76MW Solar)	
35.	MD. Rabiul Islam	SAE (7.6MW Solar)	
36.	MD. Suman Mia	SAE (7.6MW Solar)	
37.	Mostafiz Palin	Welder	
38.	Md. Kamrul Haque	Foreman	
39.	Md. Golam Azom Khan Nikul	Tech. M. U-2	
40.	Md. Nazmul Islam	Tech. M - U-2	
41.	Md. Abdullah al Rasel	Foreamen (EMD)	
42.	Md. Anwar Hossen	Tech. Cheme-2	
43.	Md. Siddik Hossen	Work Assistant	
44.	MD. Saddam Hossen	N/A	
45.	Md. Asad Halim	SE (PM)	
46.	Md. Ismail Hossen	SAE (0.6MW Solar)	
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Signature of facilitator: Kawsar
Date:

NORTH-WEST POWER GENERATION COMPANY LIMITED	**NORTH-WEST POWER GENERATION COMPANY LIMITED** Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 22.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	: Fire Safety
Date	: 25.04.2024
Duration	: সকাল ১১:০০ থেকে দুপুর ০১:০০ টা পর্যন্ত
Total Man Hour	:
Facilitator	: জনাব মশিউর মাহমুদ খান, সহকারী ব্যবস্থাপক (ইএইচএস)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1.	Tanbir Ahmed	SDE (Opn.)	[illegible]
2.	Zubair Ibne Rabbani	SDE (Opn)	[illegible]
3.	Sonkolon Barua	AE (Opn)	[illegible]
4.	Md. Shamim Hossain	SAE (OPn)	[illegible]
5.	Md. Najmul Hossain	AE (opn)	[illegible]
6.	Mohammad Arifur Rahman	OA	[illegible]
7.	Md. Nazrul Nabi Siddique	Tech (Che)	[illegible]
8.	Md. Sohel Jahan	SAE	[illegible]
9.	Md. Shamim Hosen	AE (OP)	[illegible]
10.	Md. Maruf Hossain	SAE (opn)	[illegible]
11.	Md. Niazul Islam Nishat	AE (OP)	[illegible]
12.	Md Nahid hasan	W/A (EMD)	[illegible]
13.	MD WALIULLAH	W/A (OP)	WALIULLAH
14.	Md. Shakil Ahmed	SAE (OP)	[illegible]
15.	Masud Rana	AE (opn)	Masud Rana
16.	Md. Shahadat Hossain	SAE (opn)	[illegible]
17.	Md. Rasel	SAE (OP)	[illegible]
18.	Jahidul Alam	SAE (OP)	[illegible]
19	Mohammad Oli ullah	SAE (OP)	[illegible]
20.	Md. Arif Hosen	O.S.S (OP)	[illegible]
21.	Md. Arafat Hossain	Technician (EMD)	[illegible]
22.	Reaz Parvez	O.S.S	[illegible]
23.	MD. Alamgir Hossain	Technician (chemical)	[illegible]
24.	Md. Kamal Hossain	Tech (Che)	Kamal
25.	Md. Jahedul Islam	AM (chemical)	[illegible]

Signature of facilitator: [illegible]

Date:

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
26.	Tariqum Rahman	SDE (Sbc)	[illegible]
27.	[illegible]	[illegible]	[illegible]
28.	Md. Rabiu Islam	SAE (Solar 7-Lm)	[illegible]
29.	Md. Ismail Hossen	SAE (Solar)	Ismail
30.	MD. Rubel Hossen	AE (76MW Solar)	[illegible]
31.	MD. Sumon Mia	SAE (Solar)	Sumon
32.	Md Azmainur Rahman	JAM (Chemical)	[illegible]
33.	MD. Anwar Hossen	Tech - Che - 2	[illegible]
34.	Abdul kader Miraz	Tech - I&C 2	[illegible]
35.	Foysal	Tech-Che-B-B.S	[illegible]
36.	WT-JVLLAIA	W/A	[illegible]
37.	Md. Nazmul Hossain	AE (operation)	[illegible]
38.	Md. Shamim Hosen	AE (OP)	[illegible]
39.	Md. Arif Hosen	O.S.S (operation)	[illegible]
40.	Md. Shamim Hossain	AE (OP)(EE)	[illegible]
41.	Kawser Ahmed Jewel	SDE (opn)	[illegible]
42.	Md. Tajul Islam	SAE (OP)	[illegible]
43.	md. Naved Sarkar	SAE	[illegible]
44.	Mohammad Obi ullah	SAE (op)	[illegible]
45.	Md. Belal Hossen	SAE (opn)	[illegible]
46.	Md. Shamim Hossain	SAE (opn)	[illegible]
47.	Md. Maruf Hossain	SAE (opn)	[illegible]
48.	Md. Nazmul Islam Nishat	AE (opn)	[illegible]
49.	Md. Shakil Ahmed	SAE (OP)	[illegible]
50.	Sonkolon Barua	AE (OP)	Sonkolon
51.	Md Rifat Mahmud	AM (Chemical)	[illegible]
52.	Md. Arafat Hossain	Technician (EMD)	Arafat
53.			
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Signature of facilitator [illegible]
Date 24/03/24

NORTH-WEST POWER GENERATION COMPANY LIMITED

Training Attendance Sheet

FORM NO: NW-DH-HR-F-005
EFFECTIVE DATE: 22.04.2018
REVISION NO: 02

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	: Common EHS Practices (Occupational Health Safety)
Date	: 24-03-2024
Duration	: 11:00 AM to 01:00 PM
Total Man Hour	:
Facilitator(s)	: জনাব মশিউর মাহমুদ খান, উপ-ব্যবস্থাপক (ইএইচএস)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1.	Tanbir Ahmed	SDE (Op.)	[signature]
2.	Md. Saiful Islam	XEN (EMD)	[signature]
3.	Haridas Saha	SDE	[signature]
4.	Faruk Ahmed	SDE	[signature]
5.	Md. Rafiqul Islam	AE	[signature]
6.	Md. Nazrul Nadi...	Tech. (C&C)	[signature]
7.	Main Uddin	AM	[signature]
8.	Md. Shafiul islam	AE	[signature]
9.	Gazi Sabbir Ahmed	JAM (Chemical)	[signature]
10.	Md. Manuf Hossain	Technician Chemical	[signature]
11.	Md. Alamin	SAM (C&C)	[signature]
12.	Md. Kamal	Tech. (C&C)	[signature]
13.	Md. Siddik Hossen	Work Assistant	[signature]
14.	Golam Azom...	Technician	[signature]
15.	Md. Saddam hossen	W/A	[signature]
16.	Md. Abdullahal Baki	Foreman	[signature]
17.	Md. Sabbir Rahman	Technician	[signature]
18.	Md. Kamrul Haque	Foreman	[signature]
19.	Golam Azom	Tec. chemical U-2	[signature]
20.	Md. Kamal Hossain	Tec. chemical U-2	[signature]
21.	Md. Alamgir Hossain	tec. chemical U-2	[signature]
22.	Reaz Parvez	O.S.S	[signature]
23.	Md. Shariful islam	SAE (MMD)	[signature]
24.	Md. Nahid Hasan	W/A (EMD)	[signature]
25.	Tiren Chandra Das	SAE (EMD)	[signature]

Signature of facilitator: [signature]
Date: 24/03/24

NORTH-WEST POWER GENERATION COMPANY LIMITED	NORTH-WEST POWER GENERATION COMPANY LIMITED Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 22.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

Organizer Department	: Admin, Sirajganj Power Station
Course Name and ID	Effective use of Portable Fire Extinguisher Cylinders and Manual Fire-Fighting System
Date	: ~~19/02/2023~~ 20/02/2024
Duration	: 11:00am to 01:00 PM
Total Man Hour	:
Facilitator(s)	জনাব মোঃ জুলকার নাইন ,উপ-ব্যবস্থাপক (EHS)

Office: Sirajganj 225 MW Combined Cycle Power Plant (Unit-02)

Sl. No	Name of the Participants	Designation and Department	Participant's Signature
1.	Mohammad Ashfaq Rahman	DA	
2.	Abdur Rahim	Welder	
3.	[illegible]	Tech (C&E)	
4.	MD. Golam Azam Khan	Tech-(M&MO)	
5.	[illegible]	[illegible]	
6.	[illegible]	[illegible]	
7.	[illegible]	[illegible]	
8.	MD. Saddam Hosen	LO/A	
9.	Md. Rafiqul Islam	Tech (I&C)	
10.	[illegible]	[illegible]	
11.	Reaz parvez	OSS (Admin)	
12.	Md. Arif Hosen	OSS (O&P)	
13.	Md. Kamrul Haque	Foreman	
14.	Md. Nazmul Islam	Tech-(M) MMD-U-2	
15.	Md. Mashiour Rahman	Chemist	
16.	Md. Manub Hossain	Technician Chemical	
17.	Md Alomgir Hossain	Tech.	
18.	Md. Anwar Hossain	Technician	
19.	Md. Golam Azam	Tech (C&I)	
20.	[illegible]	[illegible]	
21.	Md! Sobbir Rahman	Technician (M&MO)	
22.	Md. Arafat Hossain	EMO	
23.	Md. Abdulla Rakel	Junior Man EMO	
24.			
25.			

Signature of facilitator:
Date: 20/02/2024

NORTH-WEST POWER GENERATION COMPANY LIMITED	**NORTH-WEST POWER GENERATION COMPANY LIMITED** Training Attendance Sheet	FORM NO: NW-DH-HR-F-005 EFFECTIVE DATE: 21.04.2018 REVISION NO: 00

Location: Sirajganj Power Station

29.	Md. ASAD Halim	SE	[illegible]
30.	Md. [illegible]	[illegible] (a/f)	[illegible]
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Signature of facilitator: [signature]
Date: 05/03/25

Annex L-3: Emergency Fire Mock Drill

নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোম্পানি লিমিটেড
(বাংলাদেশ বিদ্যুৎ উন্নয়ন বোর্ডের একটি প্রতিষ্ঠান)
এম আই এস বিভাগ
প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র
সয়দাবাদ, সিরাজগঞ্জ

তারিখ: ৬ ফাল্গুন ১৪৩০ বঙ্গাব্দ
১৯ ফেব্রুয়ারি ২০২৪ খ্রিষ্টাব্দ

স্মারক নম্বর: [illegible]

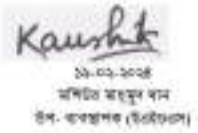
বিষয়: সিরাজগঞ্জ বিদ্যুৎ কেন্দ্রে অগ্নি নির্বাপণ প্রশিক্ষণ সংক্রান্ত।

সিরাজগঞ্জ বিদ্যুৎ কেন্দ্রের ফায়ার সেফটি নিশ্চিতকরণের লক্ষ্যে, আগামী ২০/০২/২০২৪ ইং তারিখে রোজ মঙ্গলবার সকাল ১১:০০ ঘটিকায় সিরাজগঞ্জ বিদ্যুৎ কেন্দ্রের ইউনিট-০১-এর ওয়ার্কশপের সম্মুখে অগ্নি নির্বাপণ প্রশিক্ষণের আয়োজন করা হয়েছে। উক্ত মহড়ায় সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র (ইউনিট-০১, ০২ ও ০৩)-এর যান্ত্রিক সংরক্ষণ, তড়িৎ সংরক্ষণ ও আইএন্ডসি বিভাগের কর্মকর্তা ও কর্মচারীবৃন্দকে যথাসময়ে উপস্থিত থাকার জন্য নির্দেশ প্রদান করা হলো।

১৯-০২-২০২৪
শফিকুল ইসলাম
প্রধান প্রকৌশলী

বিতরণ (জ্যেষ্ঠতার ক্রমানুসারে নয়):

১। প্লান্ট ম্যানেজার (তত্ত্বাবধায়ক প্রকৌশলী), সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম/২য়/৩য় ইউনিট);
২। নির্বাহী প্রকৌশলী (যান্ত্রিক সংরক্ষণ), যান্ত্রিক সংরক্ষণ বিভাগ, সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম ইউনিট);
৩। নির্বাহী প্রকৌশলী, যান্ত্রিক বিভাগ, সিরাজগঞ্জ ২২৫ মে. ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ইউনিট);
৪। নির্বাহী প্রকৌশলী, যান্ত্রিক সংরক্ষণ বিভাগ, সিরাজগঞ্জ ২২৫ মে. ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (৩য় ইউনিট);
৫। নির্বাহী প্রকৌশলী (পরিচালন ও নিয়ন্ত্রণ), পরিচালন ও নিয়ন্ত্রণ বিভাগ, সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম ইউনিট);
৬। নির্বাহী প্রকৌশলী, তড়িৎ বিভাগ, সিরাজগঞ্জ ২২৫ মে. ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ইউনিট);
৭। নির্বাহী প্রকৌশলী, তড়িৎ সংরক্ষণ বিভাগ, সিরাজগঞ্জ ২২৫ মে. ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (৩য় ইউনিট);
৮। নির্বাহী প্রকৌশলী (বৈদ্যুতিক সংরক্ষণ), বৈদ্যুতিক সংরক্ষণ বিভাগ, সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম ইউনিট);
৯। নির্বাহী প্রকৌশলী, আইএন্ডসি বিভাগ, সিরাজগঞ্জ ২২৫ মে. ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (৩য় ইউনিট) এবং
১০। নির্বাহী প্রকৌশলী, আইএন্ডসি বিভাগ, সিরাজগঞ্জ ২২৫ মে. ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ইউনিট)।



Annex L-3: Firefighting Training

নর্থ-ওয়েস্ট পাওয়ার জেনারেশন কোম্পানি লিমিটেড
(বাংলাদেশ বিদ্যুৎ উন্নয়ন বোর্ডের একটি প্রতিষ্ঠান)
এম আই এস বিভাগ
প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র
সাবাবাদ, সিরাজগঞ্জ

নম্বর: [illegible]

তারিখ: ৯ বৈশাখ ১৪৩১ বঙ্গাব্দ
২২ এপ্রিল ২০২৪ খ্রিস্টাব্দ

বিজ্ঞপ্তি/নোটিশ

বিষয়: সিরাজগঞ্জ বিদ্যুৎ কেন্দ্রে অগ্নি নির্বাপণ প্রশিক্ষণ সংক্রান্ত।

সিরাজগঞ্জ বিদ্যুৎ কেন্দ্রের কায়ার সেফটি নিশ্চিতকরণের লক্ষ্যে, আগামী ২৪/০৪/২০২৪ ইং তারিখে ব্রোজ বুধবার সকাল ১১:০০ ঘটিকায় সিরাজগঞ্জ বিদ্যুৎ কেন্দ্রের ইউনিট-০১-এর ওয়ার্কশপের সম্মুখে অগ্নি নির্বাপণ প্রশিক্ষণের আয়োজন করা হয়েছে। উক্ত মহড়ায় সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র (প্রধান প্রকৌশলীর দপ্তর, ইউনিট-০১, ০২ ও ০৩)-এর প্ল্যান্ট ম্যানেজারের অফিস, প্রশাসন, হিসাব ও অর্থ, মেডিক্যাল, লিকুইড ফুয়েল ইউনিট, পুরকৌশল, স্টোর, সিকিউরিটি, এমআই-এস বিভাগ ও সোলার-এর কর্মকর্তা এবং কর্মচারীবৃন্দকে যথাসময়ে উপস্থিত থাকার জন্য নির্দেশ প্রদান করা হলো।
(বিঃদ্রঃ- সকলকে অবশ্যই সেফটি সু, সেফটি হেলমেট ও দাপ্তরিক পোষাক পরে মহড়ায় অংশগ্রহণ করতে হবে।)

২২-০৪-২০২৪
শফিকুল ইসলাম
প্রধান প্রকৌশলী

বিতরণ আজ্ঞার্থে/অবগার্থে ও কার্যার্থে (জ্যেষ্ঠতার ক্রমানুসারে নয়):

১। প্লান্ট ম্যানেজার (তত্ত্বাবধায়ক প্রকৌশলী), সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম/২য়/৩য় ইউনিট);
২। নির্বাহী প্রকৌশলী (পুরকৌশল), পুরকৌশল বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৩। নির্বাহী প্রকৌশলী (এমআইএস), এম আই এস বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৪। ব্যবস্থাপক (হিঃ ও অঃ) (অতিরিক্ত দায়িত্ব), হিসাব ও অর্থ বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৫। ব্যবস্থাপক (প্রশাসন) (ভারপ্রাপ্ত), প্রশাসন বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৬। সিনিয়র সিকিউরিটি অফিসার, সিকিউরিটি বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৭। সিনিয়র মেডিকেল অফিসার (ভারপ্রাপ্ত), মেডিক্যাল বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৮। উপ-বিভাগীয় প্রকৌশলী, স্টোর বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
৯। উপ-ব্যবস্থাপক (আইসিটি), এম আই এস বিভাগ, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
১০। উপ-বিভাগীয় প্রকৌশলী, লিকুইড ফুয়েল ইউনিট, প্রধান প্রকৌশলীর দপ্তর, সিরাজগঞ্জ বিদ্যুৎ কেন্দ্র;
১১। উপ-বিভাগীয় প্রকৌশলী, প্লান্ট ম্যানেজার (তত্ত্বাবধায়ক প্রকৌশলী)-এর বিভাগ, সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম ইউনিট);
১২। উপ-ব্যবস্থাপক (হিসাব ও অর্থ), হিসাব ও অর্থ বিভাগ , সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম ইউনিট);
১৩। উপ-ব্যবস্থাপক (প্রশাসন), প্রশাসন বিভাগ, সিরাজগঞ্জ ২২৫ মে.ও. কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (১ম ইউনিট);
১৪। উপ-বিভাগীয় প্রকৌশলী, প্লান্ট ম্যানেজার (তত্ত্বাবধায়ক প্রকৌশলী)-এর বিভাগ, সিরাজগঞ্জ ২২৫ মে: ও: কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ইউনিট);
১৫। উপ-ব্যবস্থাপক (হিসাব ও অর্থ), হিসাব ও অর্থ বিভাগ, সিরাজগঞ্জ ২২৫ মে: ও: কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ইউনিট);
১৬। উপ-ব্যবস্থাপক (প্রশাসন) (ভারপ্রাপ্ত), প্রশাসন বিভাগ, সিরাজগঞ্জ ২২৫ মে: ও: কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ইউনিট);

Annex M: CSR Program

Annex M-1: Cultural Development

North-West Power Generation Company Ltd. (NWPGCL)
Sirajganj Power Station
Soydabad, Sirajganj

Community Development Programme

Date: 25.01.2024

Title	**Distributed blankets to 1000 helpless and destitute families.**
Organizer	**Sirajganj Power Station, NWPGCL, Soydabad, Sirajganj**
Time	11:00 AM-03.00 PM
Venue	Various Sadar Upazilas of Sirajganj District like Chauhali, Kazipur, Belkuchi and surrounding areas of SPS.
Participants	With the co-operation of the local administration of various Sadar Upazilas of Sirajganj District like Chauhali, Kazipur, Belkuchi; CE, SPS & Employees of Sirajganj Power Station.
No of blankets	700 (Seven Hundred)

Pictorial Evidence


25.01.2024


25.01.2024


25.01.2024

Annex M-2: Aid to Community

North-West Power Generation Company Ltd. (NWPGCL)
Sirajganj Power Station
Soydabad, Sirajganj

Community Development Programme

Date: 06.04.2024

Title	**Humanitarian relief to poor people before Eid-ul-fitr near Sirajganj Power Station.**
Organizer	**Sirajganj Power Station, NWPGCL, Soydabad, Sirajganj**
Time	11:00 AM-04.00 PM
Venue	Various places
Participants	DC, Sirajganj;Director, NWPGCL; CE, SPS & Employees of Sirajganj Power Station.
No of bags	600 (Six Hundred) bags
Each bag contains:	1. 05 kg rice 2. 0.5 kg pulse 3. 0.5 liter soyabean Oil 4. 1 kg salt 5. 1 packet milk powder 6. 2 packet vermicelli 7. 1 kg sugar

Pictorial Evidence


ঈদ উপহার সামগ্রী বিতরণ
06.04.2024


06.04.2024


ঈদ উপহার সামগ্রী বিতরণ
06.04.2024


06.04.2024

Environmental and Social Verification in Operation Phase for Sirajganj 225 MW CCPP (2nd Unit-Dual Fuel)

Final Report

7th AUDIT

January 2025

Prepared For

NORTH-WEST POWER GENERATION COMPANY LIMITED

UTC Building (Level- 3 & 4), Panthapath, Kawranbazar, Dhaka-1215

Prepared By

EQMS Consulting Limited

House# 53, Road# 04, Block# C, Banani, Dhaka-1213, Website: www.eqms.com.bd

Quality Information

Document	:	Environmental and Social Verification in Operation Phase for Sirajganj 225 MW CCPP (Dual Fuel-2nd Unit)
Client Name	:	North West Power Generation Company Limited (NWPGCL)
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Revision History

Revision	Revision Date	Details	Authorized	
			Name/Position/Organization	Remarks
V-I	02 January 2025	Draft Report	EQMS Consulting Limited	
V-II	15 January 2025	Final Report	EQMS Consulting Limited	

Disclaimer

Prepared By:	Md. Mahfuzur Rahman Social Compliance Auditor
	Sadman Khaled Monsur Environmental Compliance Auditor
	Syful Islam EHS Expert
Review and Approved By	 Approved by: Tauhidul Hasan Executive Director

EQMS Consulting Limited

(ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified)

This report has been prepared and reviewed by EQMS Consulting Limited with all responsible skill, care and diligence within the terms of the Contact with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client, and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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Abbreviations

BPDB	Bangladesh Power Development Board
CAP	Corrective Action Plan
CCPP	Combined Cycle Power Plant
CEMS	Continuous Emission Monitoring System
CLO	Community Liaison Officer
CO	Carbon Monoxide
COC	Cycles of Concentration
CSR	Corporate Social Responsibility
CW	Cooling Water
CMC	China National Machinery Import & Export Corporation
DoE	Department of Environment
EHS	Environment, Health and Safety
EHS&S	Environment, Health, Safety and Social
EPC	Engineering, Procurement and Construction
ERP	Emergency Response Plan
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMS	Environmental and Social Management System
FY	Financial Year
FEDI	Fujian Electric Power Survey & Design Institute
GHG	Greenhouse Gas
GIIP	Good International Industry Practices
GoB	Government of Bangladesh
GRM	Grievance Redress Mechanism
GT	Gas Turbine
GTG	Gas Turbine Generator
HR	Human Resources
HRSG	Heat Recovery Steam Generator
HSD	High Speed Diesel
IFC	International Finance Corporation
IMP	Improvement Management Program
L&FS	Life and Fire Safety
NOC	No Objection Certification

NWPGCL	North-West Power Generation Company Limited
OHSAS	Occupational Health and Safety Management System
PAP	Project Affected People
PGCB	Power Grid Company of Bangladesh Limited
PM	Particulate Matter
PPA	Power Purchase Agreement
PPE	Personnel Protective Equipment
PS	Performance Standards
QRA	Quantitative Risk Assessment
RFP	Request for Proposal
SEP	Stakeholder Engagement Plan
SOP	Standard Operating Procedure
ST	Steam Turbine
STG	Steam Turbine Generator
TSS	Total Suspended Solids
WB	The World Bank

Executive Summary

The project is sponsored by North-West Power Generation Company Limited (NWPGCL), a state-owned power generation utility and a wholly owned subsidiary of the Bangladesh Power Development Board (BPDB), incorporated in 2007. The Sirajganj Unit 2 Project involves operating a 225 MW combined-cycle power plant (CCPP) within the Sirajganj Power Complex.

EQMS Consulting Limited was commissioned by NWPGCL to conduct an "Audit of Environmental and Social Verification during the Operation Phase for the Sirajganj 225 MW Combined Cycle Power Plant (2nd Unit-Dual Fuel)" (hereafter referred to as "the Project") in Bangladesh. This audit represents the 6th annual audit of Unit 2 during its operational phase.

This audit report is primarily structured to review the development of the Corrective Action Plan (CAP) based on findings from the previous audit and to outline the current scenario to assess the status of the CAP and document new observations related to relevant regulations and policies.

During the 7th audit (1st Audit of Second Agreement) of Unit 2, a total of 68 observations were made: 59 were aligned, 7 were partially aligned, and 2 clauses were deemed not applicable to the operational phase of the Sirajganj 225 MW CCPP (2nd Unit-Dual Fuel) power plant.

The Legal Register was found to be aligned and updated based on the review.

In total, 5 Corrective Action Plans (CAPs) have been developed based on their significance, assigned responsibilities, and timelines for completing the necessary actions.

1 Introduction

1.1 Background

EQMS Consulting Limited was commissioned by North-West Power Generation Company Limited (NWPGCL) to conduct an Independent Environmental, Health, Safety, and Social Compliance Audit ("the Audit") for the Sirajganj 225 MW Combined Cycle Power Plant Project (2nd Unit - Dual Fuel) (hereafter referred to as "the Project") in Bangladesh, which is currently in operation.

The Project is a 225 MW combined-cycle power plant (CCPP) comprising one Gas Turbine (GT), one Heat Recovery Steam Generator (HRSG), and one Steam Turbine (ST). The project site is located in Barashimul Mouza, Soydabad Union, under Sirajganj Sadar Thana, in the Sirajganj District. The site is approximately 15 km southeast of Sirajganj town.

The Jamuna Multipurpose Bridge (Bangabandhu Bridge) is located to the north of the site, with Khas Barashimul village to the south, the Jamuna River to the east, and Soydabad to the west. The site is situated about 130 km northwest of the capital city of Dhaka.

1.2 Objectives and Scope of Work

The objective of the Auditing of Environmental and Social Verification in Operation Phase of the Project is provided as follows:

a) Review of assessment documents to ensure that risk and impact identification is in accordance with the compliance audit evaluation criteria and mitigation plans meet the provisions of the same. If not, identify gaps and recommend corrective measures;

b) Management of emissions and discharges are in line with and meet the limits specified in the Environmental Conservation Rules of Bangladesh as well as limits specified the WBG EHS General Guidelines and WBG EHS Guideline specific to the industry

c) Adequacy of Environment, Health, Safety and Social organization and a review of adequacy and appropriateness of the monitoring, reporting, audit and review plan;

d) To review the main raw materials, supply chain, quantities and storage of raw materials of hazardous nature;

e) To review the water quality monitoring data both ground and surface water quality including drinking water;

f) To review the sources and quantities of all waste types and their disposal;

g) To review the sources, content and quality of effluent from production processes, other sources of effluent such as rain runoff from vehicle loading or maintenance area;

h) To review the work place environment (e.g. housekeeping, temperature/ventilation, odor, dust) accident and incident history, site safety provisions, fire safety and related

regulatory compliance, equipment, training), and in line with Bangladesh Labour Law 2006;

i) To review the employees HR policies and procedures that includes various elements of non-discrimination and equal opportunity, employment of young person under age 18, wage level, overtime, working hours, trade union presence etc.

j) To review and of the implementation of social mitigation plans, livelihood restoration plan, grievance mechanism, stakeholder engagement plan etc.

k) To review other relevant plans, community health and safety plan, security personnel plan, indigenous people's development plan, community development plan, biodiversity management plan, and plans to identify and mitigate impacts on cultural heritage as applicable during operation.

l) To review of OHS compliance against applicable national and local level regulations;

m) To review of facility operations against IFC General EHS Guidelines of Occupational, Health and Safety, Occupational Health and Safety Management Systems (ISO 45001: 2018). This will cover following OHS topics:

- Occupational Health and Safety policy;
- Hazard identification and risk assessment;
- OHS objectives, targets and programs;
- Competence, training and awareness;
- Communication and participations;
- OHS documentation and records;
- Emergency preparedness and response;
- Performance measurement and monitoring of existing mechanism;
- Incident investigation, Non-Conformity, Corrective and Preventive Action as well as root cause analysis and implementation plan;
- The coverage, frequency and status of action plan of internal audit and inspection;
- Availability of occupational health center, first aid facilities and mechanism of pre-employment and periodical medical examination;
- General facility available at workspace including housekeeping, fire safety measures, lighting, ventilation, dust and odor exposure, potable water supply etc.; and
- Existing provision of machine guarding, personal protective equipment,

electrical safety and work permit system.

n) To review the OHS specific requirements and mitigation or monitoring measures compliance as mentioned in Environmental and Social Action Plan.

o) To response any other queries from NWPGCL/MIGA.

1.3 Compliance Audit Framework and Evaluation Criteria

The EHS&S compliance assessment was carried out and evaluated against the following criteria:

- Applicable Local and National Environment, Occupational Health and Safety and Social legislations;
- The operation phase of unit 2 audit complies with the Bangladesh Labor Law (2006) and Amendments (2015);
- IFC Performance Standards on Social and Environmental Sustainability (2012);
- IFC/WB Environment, Health and Safety Guidelines - General and for Thermal Power Plants;
- Good International Industry Practices (GIIP) including elements of ISO 14001:2015, ISO 45001: 2018, Occupational Health and Safety Management Systems;
- All requirements and mitigating or monitoring measures for operation phase of unit 2 which has been specified in the ESMMP of the EIA report;
- All requirement specified in the Environmental & Social Monitoring report;
- All requirements and mitigating or monitoring measures specified in the Environmental Impact Assessment (EIA);

1.4 Approach to the Compliance Audit

The Audit was broadly divided into the following tasks:

- Document review;
- Review of 6th audit aligned documents to understand level of compliance;
- Site visit and consultation with Project Developer;
- Consultation with local people; and
- Reporting.

1.5 Document Review

EQMS has reviewed the provided documentation to evaluate the extent to which the potential EHS&S impacts of the operation phase for the unit 2 Project which have been assessed and management systems developed and the consistency of these assessments with the guidance prescribed in the Applicable Standards. This includes the following key documents:

- Updated Legal Register;
- Quantitative Risk Assessment Report
- Risk Assessment Documents;
- Corporate Social Responsibility Related Documents;
- Chemical List with MSDS;
- Monitoring Report (Unit-02);
- Energy Consumption Data;
- Process Flow and Layout of the Water Recycling Unit;
- Improvement Management Program;
- Sludge Monitoring Report;
- Vehicle Entry Data;
- Water Balance Diagram;
- Water Consumption Data;
- Water Quality Test Report from Clarifier Unit;
- Zero Discharge Plan;
- Mock Drill Documents and Training Documents;
- Waste Management plan;
- Vendor Agreement for all type of waste handling;
- Updated Emergency Response Plan;
- Stakeholder Engagement Plan;
- Occupational Health and Safety Documents;
- Section Specific Emergency Evacuation Plan;
- Community Health Safety Security Plan; and

Identification and assessment of potential Project impacts during operation phase of unit 2 has been based on an understanding of the components, methods and activities of the Project and considering the environmental and social context of the Project area. As such, EQMS reviewed the description of the Project contained in the documentation and also the assessment of baseline social and environmental conditions for the operation phase of the unit 2. (The site visits later provided an opportunity to identify any further environmental or social receptors and sensitivities, understand the context of the site, current status of the project activities, implementation of the management plans and mitigation measures and discussion with Project representatives etc.).

EQMS also evaluated the methodology for the assessment of impacts (but did not redo any impact assessment work). EQMS also reviewed the management and mitigation measures in the

EIA and other supporting documentation for operation phase. The appropriateness of these measures has been evaluated with respect to the extent to which all documented and agreed mitigation measures are in line with the requirements of components of the applicable Standards.

EQMS also reviewed available management plans and evaluated the extent to which they are consistent with international good practice. EQMS evaluated the management plans against the IFC standards to identify gaps and deficiencies.

1.5.1 Site Visit

EQMS conducted the site visit and consultations from 27 November 2024 to 28 November 2024. The site visit served several purposes, including:

- Allowed the inspection of the current status of the Project and its associated components;
- Enabled EQMS to observe implementation of the mitigation measures and management plans pertaining to environment, health, safety and social aspects as delineated in the EIA and HSE management system;
- Enabled EQMS to visit the Project site, Operation areas and surrounding areas including community consultation;

The gap between EIA, ESMS, HSE management system and its implementation with respect to the requirements of the Applicable Standards are identified and described in this report. Recommendations on measures to address these gaps and assist the Project in aligning with the Applicable Standards are also provided in **Section 3**.

Table 1-1: Site Assessment and Consultations with EHS Team

Date	Summary of Activities
27 November 2024	• Opening meeting with the EHS Team of SPS, Plant Manager of Unit-2; • Safety Induction by the EHS Team of SPS; • Discussion on the last Audit CAP with NWPGCL/ Unit-2 designated persons; • Document collection and review; • Visit to the ETP outlet area; • Review the 6th audit observation/gap to identify the level of compliance of NWPGCL/ Unit-2; • Visit to the entire Unit 2 Plant Area with the EHS team of SPS; • Discussion with the Chemical Department Personnel;
28 November 2024	• Discussion on status on document review and field visit; • Review the 6th audit observation/gap to identify the level of compliance of NWPGCL/ Unit-2; • Visit to the Oil unloading area; • Discussion with Security in Charge; • Discussion with the Community Liaison Officer (CLO);

Date	Summary of Activities
	• Discussion with the Community People; • Discussion with the Chief Engineer of SPS and Plant Manager to brief about key observations in presence of NWPGCL Management; • Closing meeting with the EHS cell in presence of NWPGCL/Unit-2 Management; • Wrap up Audit Program;

1.6 Limitations

While this assessment has endeavored to provide a comprehensive review against the requirements of the Applicable Standards, however, there remains certain limitations to the assessment that should be considered:

- This report is based on the site visit and review of information made available to EQMS during operation phase audit for Unit-2. Note that the findings in this report are subject to change depending upon other information that may come up in future;
- We cannot guarantee that these activities will necessarily yield complete information; and
- The independent review is a high-level assessment of environmental and social risks/issues and should not be interpreted as a detailed legal compliance review to the conditions stipulated by enforcement agencies in the regulatory approvals and limited to the environmental and social approvals already accorded to the Project and shared with EQMS;

1.7 Uses of the Report

EQMS is not engaged in consulting or reporting for the purpose of advertising, sales promotion, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Client acknowledges that this report has been prepared for their exclusive use and agrees that EQMS reports, or correspondence will not be used or reproduced in full or in part for such purposes and may not be used or relied upon in any prospectus or offering circular. Client also agrees that none of its advertising, sales promotion, or other publicity matter containing information obtained from this assessment and report will mention or imply the name of EQMS.

1.8 Layout of the Report

The draft report is structured as under:

Section 1	*Introduction and Background (this section);*
Section 2	*Brief Project Description and Context Setting;*
Section 3	*Gap assessment to the Applicable Reference Framework;*
Section 4	*Update of Legal Register*

2 Project Description

2.1 The Project

The Government of Bangladesh (GoB) has adopted the Millennium Development Goals and has targeted to provide electricity to all citizens by 2028. As per the assessment of power in FY2012, about 60% (including off Grid Renewable Energy) of the total population of Bangladesh has access to electricity and per capita energy generation is limited to 292 kWh. Present electricity demand growth is 12% per annum and the Government expects that the power demand could be 19,701 MW in 2019 and 24,000 MW in 2030. With a view to reducing the gap of existing and future demand-supply situation and with the aim of providing quality and reliable electricity to people, the Government has given priority to the development of the power sector by increasing the generation capacity and extending the transmission and distribution facilities. To this end, government has formulated a Power System Master Plan 2010 (PSMP 2010). Based on the directives of PSMP 2010, number of steps to increase the power generation in an accelerated manner.

The operation of the Project is being sponsored by North West Power Generation Company Limited (NWPGCL), a state-owned power generation utility that is a 100% wholly owned subsidiary of Bangladesh Power Development Board (BPDB), which was incorporated in 2007. The Sirajganj Unit 2 Project involves the operation of a 225 MW dual fuel CCPP within the Sirajganj Power Complex.

The Sirajganj Power Complex, which is owned and operated by NWPGCL, was developed in 2007 by in-filling "char land" (i.e., sandy, unconsolidated land that has emerged adjacent to the river through the gradual accumulation of sediment, on the Brahmaputra-Jamuna Floodplain) to create 54 acres for the construction of power stations. In order to prevent flooding, the entire complex area has been built up approximately 10 feet above the surrounding floodplain (based on flood modelling undertaken for construction of the Jamuna Bridge). Presently, Engineering, Procurement and Construction contractor (a consortium of China National Machinery Import & Export Corporation (CMC) and Fujian Electric Power Survey & Design Institute (FEDI), also from China) is in charge for operation of the Project, after which, operation of the Project will be handed over to NWPGCL. CMC is the consortium leader and has provided overall project management while FEDI has provided technical expertise, including concept design and basic engineering. The turbines have been supplied by Siemens AG. The 225 MW Combined Cycle Power Plant project (2nd Unit-Dual Fuel) has started its commercial operation on February 2018.

2.2 Project Location

The 2nd Unit is located at Barashimul Mouza of Soydabad Union of Sirajganj Sadar Thana under the District of Sirajganj. This is about 15 KM south-east of Sirajganj town. The Jamuna Multipurpose Bridge (Bangabandhu Bridge) is on the north of the site, Khas Barashimul village on the south, Jamuna River on the east and Soydabad is on the west side of the power plant site. The site is about 130 km north-west of the capital city of Dhaka. This site lies between N 24°23'4" and N 24°23'16" and between E 89°44'33" and E 89°44'51".

2.3 Major Equipment

The following equipment has been used for the Sirajganj 225MW CCPP (2nd Unit Dual Fuel):

i. Gas Turbine (GT);
ii. Heat Recovery Steam Generator (HRSG);
iii. Steam Turbine (ST);
iv. Generator;
v. Power Transformer;
vi. Cooling water system;
vii. Stack (Main/ Bypass); and
viii. Air Compressor.

3 Gap Assessment to the Applicable Reference Framework

3.1 Applicable Standards

This section reviews the EHS&S performance of the operation phase of the Project with respect to the Applicable Standards, as defined in Section 1.3. In terms of IFC PS standard EQMS review the following 4 PS standards.

- PS1: Assessment and Management of Environmental and Social Risks and Impacts;
- PS2: Labor and Working Conditions;
- PS3: Resource Efficiency and Pollution Prevention;
- PS4: Community Health, Safety and Security.

In addition, the WBG EHS General Guidelines and Guidelines for Thermal Power Plants apply to this Project.

The findings are categorized as per **Alignment Definitions**:

Table 3-1: Alignment Definitions

Rating	Definition
Aligned	Information available indicates that the Project fulfils the requirement and/or is aligned with intended outcome of the requirement.
Partially Aligned	Information available indicates that the Project partially fulfils the requirement and/or is partially aligned with intended outcome of the requirement.
Not Aligned	Information available indicates that the Project does not fulfil the requirement.
Insufficient Information for the assessment	There is insufficient information to make an assessment of the level of alignment.
Not Applicable	The requirements do not apply to the Project at the current time.

The gap assessment with respect to applicable standards primarily focuses on the operation phase environmental and social management and monitoring plan (ESMMP) is developed as part of the EIA study, Project level environmental, health, safety and social policies, procedures and plans as being developed by NWPGCL as well as their implementation on ground.

Table 3-2: Gap Assessment in compliance with requirements of the IFC Performance Standards (2012)

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
1	**IFC PS 1: Assessment and Management of Environmental and Social Risks and Impacts** This section provides a high-level assessment of the adequacy of environmental and social management systems that have been put in place by North West Power Generation Company Limited (NWPGCL) and reviews any gaps/ conformance aspects to its implementation with respect to the Project and its associated facilities/components. The company is an Enterprise of Power Development Board under the Ministry of Energy and Power, People Republic of Bangladesh. As a government enterprise entity, NWPGCL has diversified footprint in energy & power sector here in Bangladesh.			
1.1	Policy: The client has established and maintained an Environmental and Social Management System (ESMS) appropriate to the nature and scale of the project and commensurate with the level of social and environmental risks and impacts. The ESMS has incorporated the following elements: • Social and Environmental Assessment (SEA or EIA); • Management program; • Organizational capacity; • Training;	Environmental and Social Management System (ESMS) has already established and developed by the NWPGCL which includes Social and Environmental Assessment, management program, organizational capacity, training, and community engagement and monitoring. Moreover, as ESMS is a live document, and needs to be updated throughout the project phase, an internal maturity audit on implementation of ESMS documents has been developed dated on December, 2024 which includes; • Operations and Compliances • Occupational and Community Health and Safety Management Plan • Contractor Management Plan	**Partially Aligned**	• NWPGCL to update the ESMS considering new facilities risk associated with it, their management program, training need and monitoring and reporting requirements etc.

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	• Community engagement; • Monitoring; • Reporting.	• Emergency Preparedness and Response Plan • Pollution Prevention Plan • Hazardous Materials Management Plan • Community Development Plan • Stakeholder Engagement Plan • Information Disclosure, Consultation, and Participation; and • Community Grievance Redress Plan Most of the above-mentioned elements of ESMS has been updated and implemented with evidential documents such as attendance sheet, picture etc. Following discussions with the NWPGCL team, it has been noted that the Environmental and Social Management System (ESMS) has been updated to align with the conditions outlined by WARPO (Water Resources Planning Organization). The updated ESMS is available for review. During the site visit, it was observed that chemical warehouse is currently under construction. It is necessary to update the ESMS further to		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		incorporate the new facilities currently under construction.		
1.2	Policy: The client will establish an overarching policy defining the environmental and social objectives and principles that guide the project to achieve sound environmental and social performance. The client will communicate the policy to all levels of its organization	NWPGCL has adopted an Environment, Health & Safety and Social Policy which is generically applied for its all projects. The policy defines the environment, health and safety objectives of the company, which are focused on commitment to the principle of sustainable development and continuous improvement on health and safety performance with a goal of zero incidents. During the site visit, it has been observed that the EHS&S Policies were displayed at several places onsite.	**Aligned**	Ongoing
1.3	Identification of Risks and Impacts: The client will conduct a process of Social and Environmental Assessment that will consider in an integrated manner the potential social and environmental (including labor, health, and safety) risks and impacts of the project. The EIA should cover the project area of	In order to identify and mitigate the environmental and social impacts associated with the project, following actions have been taken: • NWPGCL has initiated an application to the environmental clearance from DoE and in the process, the company has applied to DoE letter dated 15/07/2013 to exempt IEE study and approve the TOR for EIA study. DoE has exempted IEE study and approved the TOR for	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	influence (AOI) across the project lifecycle.	Environmental Impact Assessment (EIA) letter dated 19/09/2013 for the 225MW combined cycle power plant (2nd unit dual fuel) at Soydabad under Sirajganj district. NWPGCL has engaged Engineers Associates Limited (EAL) for conducting the EIA Report on Sirajganj 225 MW Combined Cycle Power Plant Project (2nd Unit-Dual Fuel), later, NWPGCL submitted final report to DOE on dated 11 May 2014. The report has been accepted and given EIA by DOE on dated 19/06/2014 on its 376th meeting. Later on, ECC was obtained on 25th October 2017 and have been renewed on 12/11/2024 and Valid till 25/10/2025. Besides, ECC has been displayed at the admin building at visible location. The environmental and social impact assessments provided in the EIA report were reviewed against the Applicable Standards as part of the compliance audit. It was observed that the EIA study has broadly captured majority of the, Environmental, EHS and Social impacts associated with the Project as well as associated components (based on		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		available information) during the operation phase of the Project. Key impacts identified due to the Project are: • Impact on air quality • Impact due to noise • Impact on surface water quality • Traffic induced impacts • Impact on biodiversity • Impact on soil quality • Impact due to waste generation Furthermore, impacts due to off-site infrastructure (i.*e*., gas pipeline, transmission line and sand mining) were also assessed in limited scope as part of the EIA study based on the available information of these components. Quantitative impact assessments have been provided for air quality, noise, in the EIA report. Environmental and Social Management System (ESMS) of NWPGCL has provided an Environmental and Social Management and Monitoring Plan for the Project, covering all the phases of the Project. It further assigns broader level roles and responsibilities of		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		NWPGCL for implementation and monitoring of the mitigation measures. NWPGCL corporate management office also included under this plan.		
1.4	Establish Legal requirements for both social and environmental parameters Applicable laws and regulations of the jurisdictions in which the project operates that pertain to social and environmental matters, including those laws implementing host country obligations under international law, will also be taken into account.	The EIA and ESMS report have been provided a detailed policy, legal and administrative framework for the Project, to address the requirements of local and national statutory requirements, national policies, and international legal obligations (treaties signed/ratified by Bangladesh) as well as IFC Performance Standards, General EHS guidelines and sector specific guidelines for thermal power plants provided by IFC. It has been found that NWPGCL has also maintained a legal register.	**Aligned**	
1.5	Management Programs Management of a programmed (with defined desired outcomes as measurable events) to mitigate and implement improvement measures and actions that address identified social and environmental risks and impacts.	The ESMS document has provided an Environmental and Social Management and Monitoring Plan for the Project. It further assigns broader level roles and responsibilities of NWPGCL/ Contractor for implementation and monitoring of the mitigation measures. The EQMS reference for ESMS study mentions development of specific plans for operation phases of the Project, which include:	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		• Operations and Compliances • Occupational and Community Health and Safety Management Plan • Contractor Management Plan • Emergency Preparedness and Response Plan • Pollution Prevention Plan • Hazardous Materials Management Plan • Community Development Plan • Stakeholder Engagement Plan • Information Disclosure, Consultation, and Participation; and • Community Grievance Redress Plan It further states that the ESMS of the project shall have provisions of routine monitoring, training schedules for operational staff, monitoring schedule, implementation schedule as well as follow-up of recommendations of monitoring/ inspection. It has been noted that an EHS Plan has already been developed by the NWPGCL and being rolled out for the operation phase of the Project. This also includes an emergency response plan for the onsite emergencies.		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		Registers of Hazard Identification and Risk Assessment dated on 01.01.2022 and 13.03.2022 have been shared for review. It was noted that HIRA has been conducted department wise that includes electrical maintenance and instrument & Control. A standalone Quantitative Risk Assessment (QRA) report has been prepared and shared for review. NWPGCL has prepared a SOP for Fuel Oil transportation through pipeline.		
1.6	Define organizational structure with well-defined roles, responsibilities and authorities.	NWPGCL has well defined organization structures with proper roles and responsibilities.	**Aligned**	
1.7	Training to employees and contractors with direct responsibilities for activities related to the project's social and environmental performance	The trainings to the employees with direct responsibilities for activities related to the project's social and environmental performance are continuous processes and these should be in practice throughout the entire project life cycle. Training to employees has been conducted based on annual training calendar of NWPGCL. Moreover, photo evidence on training has been found. During the site assessment, it has been	**Partially Aligned**	• NWPGCL to provide training to the drivers of diesel carrying trucks. The training should include the aspects of safe driving, community safety and hazardous material handling, (whenever applicable).

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		informed that a number of oils carrying truck entering into the project site at the beginning of the year 2023 but now oils carrying truck are not entering because oils are not used for power generation. Moreover, it has been informed that drivers were informed to maintain speed limits, precautions when passing through the communities if required. Even security guards were informed to check the matter in that regard. The drivers of these trucks have direct responsibility to maintain project sites and associated facility's rules and regulation regarding occupational health and safety, safe driving through the plant premise and the community as well as handling of hazardous material (diesel). Additionally, it was discovered during the audit trial that staff members need to receive training on "Water Governance and Compliance Monitoring" in accordance with WARPO's NOC. Training documents documents made available for review. During audit trial, it has been observed that construction workers are working on the township area for road construction and chemical warehouse development on the		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		facility premises. NWPGCL needs to be share contract agreements for review.		
1.8	Emergency Preparedness and Response: Where the project involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, the ESMS will establish and maintain an emergency preparedness and response system. The emergency preparedness and response activities will be periodically reviewed and revised, as necessary, to reflect changing conditions.	During audit trial, NWPGCL provided both on-site and off-site ERP in compliance with ESMS and ESMMP with version controlled for review. In accordance with safety record book 30.10.2024, fire extinguishers were fully charged and mounted. However, during audit trial, it has been observed for some location that Fire extinguisher was placed at floor. According to BLR, 2015 section 55-7(d): "(d) In applicable case, supporting wall or cabinet made of wood, metals or plastic should be installed in such a way so that the bottom of the fire extinguisher remains 1000 mm high from the ground level." During the audit trial it has been observed that evacuation plan has been displayed all the factory premises. As per BLR, 2015 section 55-8: The arrangement should be made to show evacuation plan of exit/ means of egress in one or more places easily visible in each floor of each floor of the factory. Moreover, the design of the evacuation plan of exit or means of egress details has been given in the BNBC,	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		2020-part IV, chapter 3 procedure. During audit trail, documents and evidence related with offsite emergency preparedness implementation which are related with adjacent community were made available for review.		
1.9	Monitoring and Review: Establish procedures for monitoring and measurement of the effectiveness of the management programme.	The environmental and social monitoring plan (ESMP) developed for the Project during different phases of the Project with institution level roles and responsibilities and frequency of monitoring. Furthermore, Aspect Impact Assessment (AIA) for several departments specifically register of Environmental Aspect and Impact Assessment report has been provided by the NWPGCL to sustain the effectiveness of management program. The assessment included Environmental Aspect and Impact of Air Compressor Operation, Cooling Tower Operation, Gas Conditioning station operation and Removal /Fixing of instrument from/ to pipeline for calibration. During the audit trail, E&S verification audit during operation phase of the project has been provided by the NWPGCL. E&S	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		verification audit date is 27.11.2024. Additionally E&S monitoring during operation phase of the project by DoE and ELRC has been provided by the NWPGCL. During audit trial, it has been informed that an ETP will be developed and Chemical warehouse are developing on the facility premises.		
1.10	Provision for internal reporting as well as external reporting on action plans. Where appropriate, client will consider involving representatives from Affected Communities to participate in monitoring activities.	During audit trial, NWPGCL has been provided Community Health safety and Emergency Preparedness Program documents.	**Aligned**	Ongoing
1.11	Stakeholder Engagement: The client will develop and implement a Stakeholder Engagement Plan that is scaled to the project risks and impacts and development stage and be tailored to the characteristics and interests of the Affected Communities.	A well-organized version-controlled stakeholder engagement plan has been made available for review. Also, a Stakeholder Engagement Report, October 2024 has been provided for review. The report summarizes the key findings and observations from the consultations (public consultation meetings, FGDs and KIIs) conducted in 2024. Implementation of SEP through consultations	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	The client will provide Affected Communities with access to relevant information on: "The purpose, nature, and scale of the project; the duration of project activities".	and other activities were also noted during audit.		
1.12	External Communications Clients will implement and maintain a procedure for external communications that includes methods to: i. receive and register external communications from the public; ii. screen and assess the issues raised and determine how to address them; iii. Provide, track, and document responses, if any; and adjust the management program, as appropriate.	Local people were also pleased for the CSR initiatives taken by the project proponent	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
2	**IFC PS 2 Labour and Working Conditions** No labour currently works for Unit 2 as the project went on operation phase. NWPGCL has a warranty agreement with CMC as the O&M contractor for next two years of the operation stage. No of O & M employee engagement is very limited.			
2.1	Human Resources Policies and Procedures: A Human Resources policy which sets out its approach to manage employees consistent with the requirement of this PS.	NWPGCL's employee service rule, 2016. The service rules cover: • Recruitment and General Conditions of Service • Fixation of Seniority • Criteria for Promotion • Fixation of Pay • Allowances and Honorarium • Combination of Appointment • Joining Time • Leave • Traveling Allowance • Medical Facility • Residential Accommodation and House Support. • Contributory Provident Fund • Gratuity • Benevolent Fund and Group • General Conduct and Discipline • Punishment and Appeal • Retirement and Release from • Advances to Employees	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		• Departmental Examination		
2.2	The client will document and communicate to all employees and workers directly contracted, their working conditions and terms of employment, including entitlement to wages and benefits, hours of work, overtime arrangements and compensation etc.), where such agreements are respected. At the minimum comply with the national law.	NWPGCL's employee service rule, 2016 allowed: *CAPTER IV* *GRATUITY* 116. Admissibility-Gratuity shall be admissible to- (a) all regular employees who rendered at least five years' continuous service in the Board, and V) have not been dismissed, discharged or removed from service as a measure of punishment; or have not resigned, left or discontinued the service without permission of the competent Authority; and a regular employee whose service is terminated before completion of five years on the following grounds, namely: (i) the post to which he is appointed is abolished or the is retrenched from service for reduction of strength; (ii) S/he is discharged from service due to total or partial disablement; or (iii) he. died while in service; (c) the work-charged period of service of an employee shall be counted towards	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		computation of gratuity subject to the conditions that- (i) the work-charged period of service may be counted only when it is found to be continuous .and immediately followed, without any break, by service on regular basis. (ii) Work charged service for 2 years shall reckoned as regular service for one year for the purpose of calculation of gratuity only. Chapter XV *BENEVOLENT FUND AND GROUP INSURANCE* 121. Application of this Chapter :-(1) This Chapter shall apply to all regular employees of the Board. (2) The provision of this Chapter' shall not affect the right to receive any provident fund, gratuity or other benefits accruing to the employee on his retirement or invalidation; or on his family upon his death under these rules. *CHAPTER-XIII* *CONTRIBUTORY PROVIDENT FUND* 88. Application of the Chapter-This Chapter shall apply to all regular employees, except-		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		(a) the transferred Government employees who hold lien on pensionable Government service; (b) casual employees and the employees who are paid from contingency; (c) Retired Government servants who have been re-employed under the Board; and (d) officers appointed on contract, if so, provided in the contract. 89. Constitution and Management of the Fund-(l) There shall be constituted a Fund to be called the NWPGCL Contributory Provident Fund. (2) The management of the fund shall vest in the Board and its officers authorized in this behalf. 90. Eligibility of being subscribe to the Fund-(1) An employee to whom this Chapter applies shall be eligible to subscribe to the Fund. (Chapter 6) The rules also covered nation standard allowances and honorarium. After discussion with NWPGCL, evidence of insurance, PF, GF have been made available for		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		review.		
2.3	The client will identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out similar work.	As discussed with the NWPGCL, due to the construction of chemical warehouse, 10-15 workers are working during the audit trail. Equivalent terms and conditions to non-migrant workers carrying out similar work were maintained properly.	**Aligned**	Ongoing
2.4	Where accommodation services are provided to workers covered by the scope of this Performance Standard, the client will put in place and implement policies on the quality and management of the accommodation and provision of basic services. This also includes the applicable requirements of the IFC Guidelines on Worker Accommodation.	**NWPGCL Accommodation** At present approximately 66 NWPGCL employees are accommodated at the site. It serves as the office space, canteen as well as the accommodation space. Moreover, the workers also working for the development of chemical warehouse, road construction has no provision of accommodation in the plant area**.**	**Aligned**	Ongoing
2.5	Worker's Organization Where law recognizes worker's rights to form and join worker organizations of their choice without interference, and collectively bargain, the client	There is no collective bargaining agreement or any worker union at the site presently. NWPGCL employee service rule 2016 does not allow any trade union or worker organization for collective bargain.	**Not Applicable**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	will comply with the national law.			
2.6	Non-Discrimination and Equal Opportunity Non-discrimination and equal opportunity: Employment decisions will not be made on the basis of personal characteristics unrelated to job requirements. Job opportunities will be provided on the principles of equal opportunity and fair treatment. The principles of non-discrimination apply to migrant workers.	NWPGCL employee service rule 2016 followed Non-Discrimination and Equal Opportunity.	**Aligned**	Ongoing
2.7	Grievance Mechanism Grievance mechanism for workers where they can raise reasonable workplace concerns.	Grievance Mechanism for NWPGCL employee also in place as per service rule, 2016. The temporary workers working for the construction of chemical warehouse were also aware of grievance mechanism.	**Aligned**	Ongoing
2.8	Protecting the Work Force: **Child Labour** The client will not employ children in a manner that is	Since the unit 2 is in operation phase, no workers found for the mentioned unit at the project site. As a result, the mentioned requirements are not applicable.	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	economically exploitative or is likely to be hazardous or to interfere with child's development. All work of persons under the age of 18 will be subject to an appropriate risk assessment and regular monitoring of health, working conditions, and hours of work. **Effective abolition of child labour** The ILO Minimum Age Convention, 1973 (No. 138) and its accompanying Recommendation (No. 146) set the goal of elimination of child labour, and the basic minimum age for employment or work (in developing countries at 14 years of age or the end of compulsory schooling, whichever is higher; and 15 or the end of compulsory schooling for developed countries). The Convention sets a minimum age of 2 years	The NWPGCL policy also strictly abide by country labor law especially use of child labor/force labor.		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	younger respectively; and a higher minimum age for dangerous or hazardous work (basically 18 years of age, but 16 in certain circumstances).			
2.9	**Forced Labour** The client will not employ forced labour, which consists of any work or service not voluntarily performed and that is extracted for an individual under threat of force or penalty. The client will not employ trafficked persons. Elimination of all forms of forced or compulsory labour According the Forced Labour Convention, 1930 (No. 29), the ILO defines forced labour for the purposes of international law " all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered him	Since the unit 2 is in operation phase, no workers found for the mentioned unit at the project site. As a result, the mentioned requirements are not applicable. The NWPGCL policy also strictly abide by country labor law especially use of child labor/force labor.	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	voluntarily" The other fundamental ILO instrument, the Abolition of Forced Labour Convention, 1957 (No. 105), specifies that forced labour can never be used for the purpose of economic development or as a means of political education, discrimination, labour discipline, or punishment for having participated in strikes.			
2.10	**Occupational Health & Safety** The client will take steps to prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, as far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice, as reflected in various internationally recognized sources including the World Bank Group Environmental,	The following observations were noted during the site visit: Identification of potential hazards The process of task specific hazard identification and risk assessment (HIRA) were made available by NWPGCL. Provision of preventive and protective measures Implementation document of the control measures against the specific activities was observed at the site. i.e., confined space, Hot work, Electric work etc. Usage of PPEs	**Partially Aligned**	• NWPGCL recommended to store chemical drums in proper manner up until completion of development of the designated chemical.

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	Health and Safety Guidelines, the client will address areas that include the (i) Identification of potential hazards to workers, particularly those that may be life threatening; (ii) provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) training of workers; (iv) documentation and reporting of occupational accidents, diseases, and incidents; and Emergency prevention, preparedness, and response arrangements.	During site assessment it was observed that operators and supervisors were equipped with mandatory and job specific PPEs at the site. Documentation and reporting of Accident & Incident NWPGCL developed an Incident investigation report format. Some sample accident investigation reports were reviewed and exhibited that the root causes were identified in detail. First Aid center is responsible to carry out accident investigation involving root cause analysis on its own with limited understanding on the safety front. Emergency Response Procedures NWPGCL provided the operation phase specific Emergency response plan for review. However, during site visit at several locations of Unit-02, leakage of water in fire hydrant system were fixed properly. Additionally, evacuation plans were found at all buildings. General Facility design and Operation The workplace of the NWPGCL employee was organized by workspace and exit, fire safety measures, lavatories and showers,		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		potable water supply, clean eating area, lighting and general housekeeping at facility. During site visit it has been observed that proper electrical safety sign was made available on the SDB board. Moreover, precautionary safety guidelines were found in front of the battery room. NWPGCL has shared the meeting minutes of safety meeting and well-maintained safety record book for review. The safety committee meeting held in every three months as per the Bangladesh Labour Rules 2015 (Schedule IV-3). Moreover, chemical drums were stored haphazardly at several locations. However, NWPGCL is developing chemical storage at the plant premises. **Safety Signboard** During the audit trail, it was observed that "Beware of Snake" sign was posted in designated places the plant premise for safety purpose. Pest control kit found at several location of the plant as well. Moreover, reflection mirror for onsite traffic control was also observed onsite.		

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		In general, good housekeeping was observed all over the plant premises. Motor bikes were parked in dedicated parking zone of the main plant area. ***PPE*** During audit trial, it has been observed that construction workers were working on the township area for road construction on the facility premises. The workers need to maintain proper PPE and found satisfactory.		
3	**IFC PS 3: Resource Efficiency and Pollution Prevention** The Project is currently in the operation phase. The observations related to resource efficiency and pollution prevention are made here based on the available information provided in the EIA report, provided report from the proponent and site inspection.			
3.1	During the design, construction, operation and decommissioning of the project (project life cycle), the client is to consider ambient conditions and apply pollution prevention and control technologies and techniques	It was reported by the proponent that they are ensuring use of efficient equipment and machines to meet the emission standards applicable in Bangladesh and IFC Emission Standards. NWPGCL ensured that the emissions, ambient conditions as well as pollution prevention as per ESMMP been operationalized complying the Department of Environment (DoE) standards and	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		applicable IFC Emission Standards for operation phase of unit 2.		
3.2	The client will refer to the EHS Guidelines or other internationally recognized sources, as appropriate, when evaluating and selecting resource efficiency and pollution prevention and control techniques for the project.	Proponent has adopted standard policy for sustainability techniques for gaining resource efficiency.	**Aligned**	Ongoing
3.3	**Resource Efficiency:** The client will implement technically and financially feasible and cost-effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on areas that are considered core business activities.	The Project is based on cleaner fuel natural gas and higher efficiency combined cycle system and alternatively use HSD (Fuel Oil) during unavailability of natural gas. During site visit, initiative to install delivery line of sampling water at sand filter with achievement target year May 2023 was observed and found functional. Monthly energy consumption data has been shared as well. An initiative to Zero Discharge Plan for the consumption of water has been taken by	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		NWPGCL under resource efficiency. Documents regarding ETP water calculation along with Zero Discharge Plan have been shared by NWPGCL for review.		
3.4	**Greenhouse Gases:** • The client will consider alternatives and implement technically and financially feasible and cost-effective options to reduce project related GHG emissions during the design and operation of the project.	NWPGCL estimates yearly GHG emissions for unit 2 using the IFC recommended Carbon Emission Estimation Tool (CEET model – Version February 2014)[1]. Since NWPGCL owns multiple power plants which are fueled by natural gas, HFO, Coal, solar and wind energy, it has been challenging to adopt a consolidated climate change adaptation policy and require further discussion. Moreover, NWPGCL is planning to offset GHG emission by constructing power plants fueled by renewable energy sources. As per the plan, at present, the project proponent solely owns a Sirajganj 6.55 MW (AC) grid connected solar PV project. Additionally, NWPGCL's other joint venture renewable energy projects include: (i) Pabna 60 MW Solar Park, (ii) Sirajganj 68 MW Solar Park Project and (iii) Payra 50 MW Wind Power Project.	**Aligned**	

[1] http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/CB_Home/Measuring+Reporting/

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
		These existing and proposed renewable energy power projects would substantially aid in reducing the NWPGCL's net emissions.		
3.5	**Water Consumption:** The client shall adopt measures that avoid or reduce water usage so that the project's water consumption does not have significant adverse impacts on others. These measures include, but are not limited to, the use of additional technically feasible water conservation measures within the client's operations, the use of alternative water supplies, water consumption offsets to reduce total demand for water resources to within and the available supply, and evaluation of alternative project locations.	During audit, water balance diagram for unit 2 has been shared for review. Moreover, cumulative clarified water production and consumption record has been made available for review. According to the EIA study, the power plant will consume 600 m3/h or 14400 m3/day water. The water consumption record book shows that NWPGCL unit-2 is consuming water within the required amount. NWPGCL has adopted measures that avoid or reduce water loss from Turbidity meter in WTP area and adopted technically feasible water conservation measures under Improvement Management Program (IMP).	**Aligned**	
3.6	**Pollution Prevention:** To avoid release of pollutants or when avoidance is not feasible minimize or control the intensity	NWPGCL engaged third party to monitor the Ambient Air Quality, Noise Level, Surface Water Quality, Storm Water Quality, Wastewater Quality and Ground Water	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	or load of the release. To address potential adverse project impacts on existing ambient conditions, the client will consider relevant factors, including, for example: • existing ambient conditions; • the finite assimilative capacity of the environment; • existing and future land use • The project's proximity to areas of importance to biodiversity; • The potential for cumulative impacts with uncertain and/or • irreversible consequences.	Quality to address existing ambient conditions to avoid release of pollutants or when avoidance is not feasible minimize or control the intensity or load of the release. During the audit trial, third party monitoring report has been reviewed. Intervals of monitoring report are quarterly. Only GHG emission report is annually produced. Reviewed documents for all environmental parameters were found satisfactory according to ECR 2023.		
3.7	**Wastes:** To avoid and minimize generation of hazardous and non-hazardous waste materials	NWPGCL has engaged third party, M/S Suraya Enterprise for Removal of Waste Materials (household & related other waste)	**Aligned**	

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	as far as practicable. Where waste generation cannot be avoided, but has been minimized, the client will recover and reuse wastes, where wastes cannot be recovered or reused, the client will treat, destroy and dispose of in an environmentally sound manner. If the generated waste is considered hazardous, the client will explore commercially reasonable alternatives for its environmentally sound disposal, considering the limitations applicable to its transboundary movement.	from Sirajganj Power Station to any designated place of Sirajganj Municipality. During the site visit, a contract agreement with Mess Asa Enterprise for empty drum collection has been provided by NWPGCL. During the site visit, a contract agreement with Mess Emon Construction for solid waste collection was provided by NWPGCL. During the site visit, it was observed that general waste collection and segregation of the site is almost satisfactory. During the audit trail it has been noted that sludge has been generated from the blow down area. As per discussion with the team it has been confirmed that a study will be conducted for disposal of the sludge. During the site visit, it has been observed Sludge Management Plan has been prepared as per DOE Guideline.		
3.8	**Hazardous Materials Management:** The client will avoid or, when avoidance is not possible, minimize and control the release of hazardous materials. In this	NWPGCL identifies different attributable hazardous waste that have been generated from plant and maintain its inventory. An inventory on hazardous (empty drum, e-waste, waste lube oil etc.) has been maintained as recorded and segregated waste	**Partially Aligned**	• NWPGCL is recommended to keep a drip tray underneath the fuel connecting pipe during the time of unloading (if

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	context, the production, transportation, handling, storage, and use of hazardous materials for project activities should be assessed. The client will consider less hazardous substitutes where hazardous materials are intended to be used in manufacturing processes or other operations.	management procedure already established for unit-2 under EHS department. Moreover, an enterprise has been identified for disposal of hazardous waste (empty drum). However, there is another hazardous waste i.e., sludge, e-waste in the context of Hazardous Materials Management. For e-waste disposal i.e., batteries, no vendor has been selected yet. During the site visit it was observed that at the loading unloading area there was no work going on. So, no spillage observed onsite. However, regular monitoring should be in place during the period of unloading. The regular follow up should be focused to prevent spillages and any leakages in the oil pipe. A register/log/checklist should be maintained for monitoring. During the site visit, a contract agreement with Mess Emon Construction for solid waste collection was provided by NWPGCL which includes empty drum as well.		required). • NWPGCL is recommended to check the leakages in the pipe that connects the fuel truck and the diesel tank and keep record of them (if required). • NWPGCL is recommended to provide trainings on safe transportation and handling of hazardous materials to those who are associated in the unloading of diesel (if required).
3.9	**Pesticide Use and Management:**	NWPGCL formulated and implemented an Integrated Pest Management (IPM) Plan and a 3rd party vendor for pest management has	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	Formulate and implement an integrated pest management (IPM) and or integrated vector management (IVM) approach to pest management.	been selected. Moreover, Pest control kit found at several location of the plant.		
4	IFC PS 4: Community Health, Safety and Security			
4.1	The client will evaluate the risks and impacts to the health and safety of the Affected Communities during the project life cycle and will establish preventive and control measures consistent with good international industry practice (GIIP), such as in the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) or other internationally recognized sources	To evaluate the risks and impacts to the health and safety of the Affected Communities during the project life cycle, NWPGCL is required to be provided a Community Health and Safety Plan. During the site visit, a Community Health and Safety plan was provided by NWPGCL.	**Aligned**	Ongoing
4.2	**Infrastructure and Equipment Design and Safety:** The client will design, construct, operate, and decommission the structural elements or	Documents have been made available by NWPGCL for review in relation to unit 2.	**Aligned**	Ongoing

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	components of the project in accordance with GIIP, taking into consideration safety risks to third parties or Affected Communities.			
4.3	**Hazardous Materials Management and Safety:** The client will avoid or minimize the potential for community exposure to hazardous materials and substances that may be released by the project.	NWPGCL provided Hazard Identification and Risk Assessment (HIRA) and Aspect-Impact Register of unit 2 for review. During the site assessment, it has been informed that a number oil carrying truck entering into the project site at the beginning of the year 2023. Moreover, it has been informed that drivers were informed to maintain speed limit, precautions when passing through the communities. Even security guards were informed to check the matter in that regard. The drivers of these trucks have direct responsibility to maintain project sites and associated facility's rules and regulation in regard to occupational health and safety, safe driving through the plant premise and the community as well as handling of hazardous material (diesel). If oil require for the Unit 2, NGPGCL will provide training for drivers.	**Partially Aligned**	• NWPGCL is recommended to provide trainings to the drivers of diesel carrying trucks. The trainings should include the aspects of safe driving, community safety and hazardous material handling (if required).

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
4.4	**Community Exposure to Disease:** The client will avoid or minimize the potential for community exposure to water-borne, water- based, water related, and vector- borne diseases, and communicable diseases that could result from project activities. The client will avoid or minimize transmission of communicable diseases that may be associated with the influx of temporary or permanent project labour.	As per shared stakeholder engagement report, NWPGCL already conducted consultation with Ministry of Health and Family Welfare personnel. As per discussion, there is no record available regarding community exposure to disease. To know the real scenario, this type of consultation should be continued periodically.	**Aligned**	Ongoing
4.5	**Security Personnel:** • Client to assess risks to those within and outside the project site from the security arrangements provided; • Providing training on rules of conduct, handling of security equipment to all the security personnel; • Provide a grievance mechanism for the community	Same as 1.12	**Aligned**	Same as 1.12

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	to raise concerns about security arrangements; • Ensure that any unlawful or abusive acts by the security are investigated appropriately.			
5	**IFC PS 5: Land Acquisition and Involuntary Resettlement** The components of the overall project that have resulted in land acquisition comprise: ✓ NWPGCL Power Plant unit 2; ✓ A 230KV Switching Station for the installation of an Electrical Sub-station (constructed by PGCB); Transmission line and approached road has been developed from unit 1			
5.1	The project will consider feasible alternative project designs to avoid or at least minimize physical or economic displacement, while balancing environmental, social, and financial costs and benefits, paying particular attention to impacts on the poor and vulnerable	The EIA report mentions that the There is no need for land acquisition. Additionally, there is no settlement in this designated area. Therefore, no population was displaced, and no resettlement was required for the construction of the power plant. There is land lease agreement between BPDB and NWPGCL on dated 1 Jan 2008 with a tenure of 25 years next. The total land is appx 10 acres (10x43560) square feet. As per lease agreement NWPGCL has to pay taka 21.82 per square feet. per year to BPDB.	**Not Applicable**	
6	**IFC PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources**			

S. No	Requirements	Observation/Gap	Level of Compliance	Recommendation
	PS 6 is not applicable for the project as per the MIGA's "Environmental and Social Review Summary (ESRS), February 23, 2015			
7	**IFC PS 7: Indigenous Peoples** **The EIA does not indicate any form of social sensitiveness or project associates' impact on the indigenous peoples or ethnic groups part of the community.**			
8	**IFC PS 8: Cultural Heritage** **The EIA does not indicate any form of impact on the cultural heritage as a result of the project.**			

Table 3-3: Gap Assessment for the IFC General EHS guideline and Thermal Power Plant

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
1	**Environmental**				
1.1	**Air Emissions & Ambient Air Quality**				
1.1.1	Projects with significant sources of air emissions should prevent or minimize impacts by ensuring that: • Emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards by applying national legislated standards, or WHO Air Quality Guidelines • Guideline suggests emission at 25 percent of ambient quality guidelines and standards to allow additional, future sustainable development in the same air shed • Estimate by the use of baseline air quality assessments and	**Emissions Offsets Approach** Projects should minimize incremental impacts by achieving emissions values outlined in the EHS Guidelines for Thermal Power (or national requirements depending on which is more stringent). Where these emissions values result nonetheless in excessive ambient impacts relative to local ambient air quality regulatory standards (or in their absence, other international recognized standards or guidelines, including World Health Organization guidelines), the project should explore and implement site-	Same as **Table 3-2**, S. No. 3.4, 3.6;	**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
	atmospheric dispersion models	specific offsets that result in no net increase in the total emissions of those pollutants.			
1.1.2	Projects located within or next to areas established as ecologically sensitive (e.g. national parks), should ensure that any increase in pollution levels is as small as feasible, and amounts to a fraction of the applicable and annual average air quality guidelines or standards as established in the project specific environmental assessment.		As per project data, the unit 2 is not located within or next to areas established as ecologically sensitive (e.g. national parks).	**Aligned**	
1.1.3	Emissions from point sources should be avoided and controlled according to good international industry practice (GIIP) applicable to the relevant industry sector.	• The primary emissions to air from the combustion of fossil fuels or biomass are Sulphur dioxide (SO_2), nitrogen oxides (NO_X), particulate matter (PM), carbon monoxide (CO), and greenhouse gases, such as carbon dioxide	• Emissions from point sources of the Project has been from the main stack of combined cycle power plant, which have the stack height as 60 m for better dispersion of pollutants. • The Plant has a continuous emission	**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		(CO_2). • Depending on the fuel type and quality, mainly waste fuels or solid fuels, other substances such as heavy metals (i.e., mercury, arsenic, cadmium, vanadium, nickel, etc.), halide compounds (including hydrogen fluoride), unburned hydrocarbons and other volatile organic compounds (VOCs) may be emitted in smaller quantities.	monitoring system (CEMS) for monitoring of NOX, O2, SOX, CO, particulate, Temperature & pressure, Humidity, Pressure and flue gas flow. During the operation phase 2nd audit for unit-2, CEMS stack emissions data was made available for review. In addition, during site visit auditors observed visually CEMS monitoring, Meteorological monitoring for unit -2. All the emitted items under below of the country threshold.		
1.1.4	**Stack Height** The stack height for all point sources of emissions, whether "significant" or not should be designed according to GIIP.		Stack height for the main stack and bypass stack have been provided higher than the DoE Guidelines for stack height which is 60 meters.	**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
1.1.5	**Greenhouse Gases (GHGs)** GHGs may be generated from direct emissions from facilities within the physical project boundary and indirect emissions associated with the off-site production of power used by the project. Recommendations for reduction and control of greenhouse gases include carbon financing and host of other approaches in the guideline.	Carbon dioxide is emitted from the combustion of fossil fuels. Recommendations to avoid, minimize, and offset emissions of carbon dioxide from new and existing thermal power plants include: • Use of less carbon intensive fossil fuels (i.e., less carbon containing fuel per unit of calorific value -- gas is less than oil and oil is less than coal) or co-firing with carbon neutral fuels (i.e., biomass); • Use of combined heat and power plants (CHP) where feasible; • Use of higher energy conversion efficiency technology of the same fuel type / power plant size than that of the country/region average. • Consider efficiency-	Same as **Table 3-2**, SL. 3.4	**Aligned**	Same as **Table 3-2**, SL. 3.4

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		relevant trade-offs between capital and operating costs involved in the use of different technologies. • Use of high-performance monitoring and process control techniques, good design and maintenance of the combustion system so that initially designed efficiency performance can be maintained; • Where feasible, arrangement of emissions offsets including reforestation, afforestation, or capture and storage of CO_2 or other currently experimental options[2]. • Where feasible, include transmission and distribution loss reduction and demand			

[2] The application of carbon capture and storage (CCS) from thermal power projects is still in experimental stages worldwide although consideration has started to be given to CCS-ready design. Several options are currently under evaluation including CO_2 storage in coal seams or deep aquifers and oil reservoir injection for enhanced oil recovery.

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		side measures. • Consider fuel cycle emissions and off-site factors (e.g., fuel, supply, proximity to load centers, potential for off-site use of waste heat, or use of nearby waste gases (blast furnace gases or coal bed methane) as fuel etc.).			
1.1.6	**Monitoring** Emissions and air quality monitoring programs provide information that can be used to assess the effectiveness of emissions management strategies. The air quality monitoring program should consider the following elements: • Monitoring parameters • Baseline calculations • Monitoring type and frequency • Monitoring locations • Sampling and analysis	Emissions levels for the design and operation of each project should be established through the EA process on the basis of country legislation and the recommendations provided in this guidance document, as applied to local conditions. Emissions from a single project should not contribute more than 25% of the applicable ambient air quality standards to allow additional, future	Same as **Table 3-2**, SL. 3.6	**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
	methods	sustainable development in the same air shed.			
1.2	**Energy Conservation**				
1.2.1	**Applicability and Approach** • Energy Management Program • Energy Efficiency • Process heating • Process cooling • Compressed air systems	**Energy Consumption and Efficiency** Use of higher energy conversion efficiency technology of the same fuel type/power plant size than that of the country/region average. New facilities should be aimed to be in top quartile of the country/ region average of the same fuel type and power plant size.	Same as **Table 3-2**, SL. 3.3	**Aligned**	Same as **Table 3-2**, SL. 3.3
1.3	**Wastewater and Ambient Water Quality**				
1.3.1	**Wastewater Management** • Industrial Wastewater Sanitary Wastewater • Emissions from Wastewater Treatment • Operations • Residuals from Wastewater Treatment • Occupational Health	Effluents from thermal power plants include thermal discharges, wastewater effluents, and sanitary wastewater. Recommended water treatment and wastewater conservation methods are discussed in Sections 1.3	Same as **Table 3-2**, SL. 3.6	**Aligned**	Same as **Table 3-2**, SL. 3.6

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
	and Safety Issues in Wastewater Treatment	and 1.4, respectively of the General EHS Guidelines. In addition, recommended measures to prevent minimize, and control wastewater effluents from thermal power plants are provided in the guidelines. Sewage and other wastewater generated from washrooms, etc. are similar to domestic wastewater. Impacts and management of sanitary wastewater is addressed in Section 1.3 of the General EHS Guidelines.			

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
1.3.2	**Monitoring:** A wastewater and water quality monitoring program with adequate resources and management oversight should be developed and implemented to meet the objective(s) of the monitoring program. The wastewater and water quality monitoring program should consider the following elements: • Monitoring parameters • Monitoring type and frequency • Monitoring locations • Data quality	Effluent guidelines are applicable for direct discharges of treated effluents to surface waters for general use. Guideline values include pH = 6-9; TSS = 50 mg/l; O&G = 10 mg/l; Total residual chlorine = 0.2 mg/l; Total Chromium = 0.5 mg/l; Copper = 0.5 mg/l; Iron = 1.0 mg/l; Zinc = 1.0 mg/l; Lead = 0.5 mg/l; Cadmium = 0.1 mg/l; Mercury = 0.005, mg/l; Arsenic = 0.5 mg/l	Same as **Table 3-2**, SL. 3.6	**Aligned**	Same as **Table 3-2**, SL. 3.6
1.4	**Water Conservation**				
1.4.1	Water conservation programs should be implemented commensurate with the magnitude and cost of water use. These programs should promote the continuous reduction in water consumption and achieve	Water conservation measures may include water monitoring/ management techniques; process and cooling/heating water recycling, reuse, and other techniques; and sanitary	Same as **Table 3-2**, SL. 3.5	**Aligned**	Same as **Table 3-2**, SL. 3.5

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
	savings in the water pumping, treatment and disposal costs.	water conservation techniques.			
1.4.2	The essential elements of a water management program involve: • Identification, regular measurement, and recording of principal flows within a facility; • Definition and regular review of performance targets, which are adjusted to account for changes in major factors • Affecting water use (e.g. industrial production rate); • Regular comparison of water flows with performance targets to identify where action should be taken to reduce water use. • Water measurement (metering) should emphasize areas of		Same as **Table 3-2**, SL. 3.5	**Aligned**	Same as **Table 3-2**, SL. 3.5

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
	greatest water use based on review of metering data. • "Uncounted" use indicating major leaks at industrial facilities could be identified.				
1.5	**Hazardous Materials and Waste Management**				
1.5.1	Applicability and Approach: • General Waste Management • Waste Management Planning • Waste Prevention • Treatment and Disposal Hazardous Waste Management • Waste Storage • Transportation • Treatment and Disposal • Commercial or Government Waste Contractors • Small Quantities of Hazardous Waste • Monitoring	Hazardous materials stored and used at combustion facilities include solid, liquid, and gaseous waste-based fuels; air, water, and wastewater treatment chemicals; and equipment and facility maintenance chemicals (e.g., paint certain types of lubricants, and cleaners). Spill prevention and response guidance is addressed in Sections 1.5 and 3.7 of the General EHS Guidelines. In addition, recommended measures to prevent, minimize, and	Same as **Table 3-2**, SL. 3.8	**Partially Aligned**	Same as **Table 3-2**, SL. 3.8

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		control hazards associated with hazardous materials storage and handling at thermal power plants include the use of double-walled containers for fuel oil storage etc.			
1.6	**Noise Level Management and Monitoring**				
1.6.1	• Applicability • Prevention and Control • Noise Level Guidelines • Monitoring	Principal sources of noise in thermal power plants include the turbine generators and auxiliaries; boilers and auxiliaries, such as reciprocating engines; fans and ductwork; pumps; compressors; condensers; precipitators, including rappers and plate vibrators; piping and valves; motors; transformers; circuit breakers; and cooling towers. Thermal power plants used for base load operation may operate	Same as **Table 3-2**, SL. 3.6	**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		continually while smaller plants may operate less frequently but still pose a significant source of noise if located in urban areas. Noise impacts, control measures, and recommended ambient noise levels are presented in Section 1.7 of the General EHS Guidelines. Additional recommended measures are presented in the guideline. Noise propagation models may be effective tools to help evaluate noise management options such as alternative plant locations, general arrangement of the plant and auxiliary equipment, building enclosure design, and, together with the results of a baseline noise assessment, expected			

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		compliance with the applicable community noise requirements.			
1.7	**Contaminated Land**				
1.7.1	• Applicability and Approach • Risk Screening • Interim Risk Management • Detailed Risk Assessment • Permanent Risk Reduction Measures • Occupational Health and Safety Considerations	Management approaches for land contamination due to anthropogenic releases of hazardous materials, wastes, or oil, including naturally occurring substances. Releases of these materials may be the result of historic or current site activities, including, but not limited to, accidents during their handling and storage, or due to their poor management or disposal. Land is considered contaminated when it contains hazardous materials or oil concentrations above background or naturally occurring levels. Contaminated lands may involve surficial soils or		**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		subsurface soils that, through leaching and transport, may affect groundwater, surface water, and adjacent sites. Where subsurface contaminant sources include volatile substances, soil vapor may also become a transport and exposure medium and create potential for contaminant infiltration of indoor air spaces of buildings.			
2	**Occupational Health and Safety (OHS)**				
2.1	• Integrity of Workplace Structures • Severe Weather and Facility Shutdown • Workspace and Exit • Fire Precautions • Lavatories and Showers • Potable Water Supply • Clean Eating Area • Lighting • Safe Access • First Aid	The following Occupational health and safety impacts are of particular concern during operation of thermal power plants: • Non-ionizing radiation • Heat • Noise • Confined spaces • Electrical hazards	Same as Table 3-2, SL 2.10	**Partially Aligned**	Same as Table 3-2, SL 2.10

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
	• Air Supply/ventilation • Work Environment • Temperature				
2.2	**Communication and Training** • OHS Training • Visitor Orientation • New Task Employee and • Contractor Training • Basic OHS Training • Area Signages • Labelling of Equipment • Communicate Hazard Codes		Same as Table 3-2, SL 2.10	**Aligned**	
2.3	**Physical Hazards** • Rotating and Moving Equipment • Noise and Vibration • Electrical Hazards • Eye Hazards • Welding / Hot Work • Industrial Vehicle Driving and Site Traffic • Working Environment Temperature • Ergonomics, Repetitive Motion, Manual Handling • Working at Heights • Illumination	**Heat Hazard** Occupational exposure to heat occurs during operation and maintenance of combustion units, pipes, and related hot equipment. Recommended prevention and control measures to address heat exposure at thermal power plants are presented in the guidelines. **Noise Hazards** Noise sources in	Same as Table 3-2, SL 2.10	**Aligned**	Same as Table 3-2, SL 2.10

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		combustion facilities include the turbine generators and auxiliaries; boilers and auxiliaries, such as diesel engines; fans and ductwork; pumps; compressors; condensers; precipitators, including rappers and plate.			
2.4	**Chemical and Fire Hazards** • Air Quality • Fire and Explosions • Corrosive, oxidizing, and reactive chemicals. • Asbestos Containing Materials (ACM)	**Fire and Explosion Hazard** Thermal power plants store, transfer, and use large quantities of fuels; therefore, careful handling is necessary to mitigate fire and explosion risks. In particular, fire and explosion hazards increase as the particle size of coal is reduced. Fire and explosion prevention management guidance is provided in section 2.1 and 2.4 of the General EHS Guidelines. **Chemical Hazards** Thermal power plants utilize hazardous	Same as Table 3-2, SL 2.10	**Aligned**	Same as Table 3-2, SL 2.10

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		materials, including ammonia for NOX control systems, and chlorine gas for treatment of cooling tower and boiler water. Guidance on chemical hazards management is provided in Section 2.4 of the General EHS Guidelines.			
2.5	**Personal Protective Equipment (PPE)**		Same as Table 3-2, SL 2.10	**Aligned**	
3	**Community Health and Safety**				
3.1	**Water Availability and Community Exposure to Diseases**		Same as Table 3-2, SL 4.4	**Aligned**	Same as Table 3-2, SL 4.4
4	**Traffic Safety**				
4.1	• Impact Assessment • General Hazardous Materials Transport • Major Transportation Hazards	Operation of a thermal power plant will increase traffic volume, in particular for facilities with fuels transported via land and sea, including heavy trucks carrying fuel, additives, etc. The increased traffic can be especially significant in sparsely populate areas where some thermal	The power plant complex comprises of 4 units that use HSD as fuel. Since the existing access road from the highway is the only way to the 4 units, an initial Traffic Impact Assessment (TIA)/Traffic Safety Assessment is in place under ESMS.	**Aligned**	

SL	Requirement under IFC General EHS Guideline	Requirement under IFC Thermal Power Plants Guideline	Observation/Gap	Level of Compliance	Recommendation
		power plants are located. Prevention and control of traffic related injuries are discussed in Section 3.4 of the General EHS Guidelines.			

4 Update of Legal Register

Table 4-1: Legal Register

SL No	Regulatory Requirement	Finding/Observation Compliance	Compliance Rating	Implication
1	**Environmental Clearance under Environmental Conservation Rules, 1997**			
1.1	Environmental Clearance	• Site clearance certificate was obtained from the DoE. • EIA was approved by DoE. • ECC has been obtained by DoE. • ECC renewal was done as per schedule.	**Aligned**	Issuing Date: 12.11.2024 Issue Date: 25.10.2025
2	**Bangladesh Energy Regulatory Commission (BERC)**			
2.1	Under the terms and conditions incorporated in the *Section 27 & 28 of the Bangladesh Energy Regulatory Commission Act, 2003 & Regulation 16 of the Bangladesh Energy Regulatory Commission License Regulation, 2006 (Amended om 2016)* license has been issued and renewed for 1294 MW Power generation.	• License has been obtained from BERC	**Aligned**	Issuing Date: 22.12.2022 Valid Till: 21.12.2024
3	**License for HSD Storage by Department of Explosive**			
3.1	License for HSD Storage: *Section 7 of Petroleum Act, 1934:* No license is required for transport or storage class II petroleum if the total quantity in	• License for HSD Storage has been obtained from Department of Explosive.	**Aligned**	Renewal Date: 01.12.2022 Valid Till: 31.12.2025

SL No	Regulatory Requirement	Finding/Observation Compliance	Compliance Rating	Implication
	his possession at any one place does not exceed 2000 litters and none of it contained in a receptacle exceeding in capacity Rule 90 of The Petroleum Rules, 1937; as amended till 1989. Same as provided in section 7, 8 and 9 of the Act and by Rule 109 no one shall store any petroleum except under a license granted underneath these rules.			
4	**Boiler License**			
4.1	Boiler Registration/Certificate: *Rule 7 (1) of Boiler Act, 1923:* The owner of any boiler which is not registered under the provisions of this Act may apply to the Inspector to have the boiler registered. Every such application shall be accompanied by the prescribed fee.	It has been observed during site inspection that Unit 2 has valid Boiler Registration/Certificate obtained from the Chief Inspector of Boiler. *Under Boiler Act, 1923 Section 9*- an interim order has been issued in where boiler registration certificate is valid for 6 months from the date of 20 November 2021 (online reg.). Moreover, boiler operator certificates were made available for review.	**Aligned**	Issuing Date: 16.05.2024 Valid Till: 15.05.2025

SL No	Regulatory Requirement	Finding/Observation Compliance	Compliance Rating	Implication
5	**Fire Service and Civil Defense License**			
5.1	Legislation to form rules and regulations for Fire Prevention and Extinction and Rescue Work from the *Fire Combustion, 2003 and amendments 2013. According to the FSCD Act No 7 (2) (b)* "Operational activities" such as fire prevention, fire extinction, rescue work from the fire combustion, operation of ambulance service, repair and maintenance of fire extinction equipment, inquiry, inspections, supervision, communication activities should be conducted in a standard manner after obtaining an NOC from FSCD.	The unit 2 has obtained the License from Fire Service and Civil Defense (FSCD) authority.	**Aligned**	Issuing Date: 25.06.2024 Valid Till: 30.06.2025
6	**Permission of Acid/Alkali Storage**			
6.1	Thus, the provisions of the *Acid Control Act, 2002 (Rules no. 1)* and the rules enacted thereafter *Acid Control Rules, 2004* and subject to the terms mentioned in the license- Permission of Acid/Alkali Storage has been issued.	• Obtained from DC Office, Sirajganj • Acid that can be used under this license are Hydrochloric Acid, Hydrogen Chloride	**Aligned**	Issuing Date: 26.06.2024 Valid till: 30.06.2025

SL No	Regulatory Requirement	Finding/Observation Compliance	Compliance Rating	Implication
7	**Trade License for Power Generation**			
7.1	Trade license for the company has been given in the context of *Model Tax Schedule 2016 (Paragraph no 10) which has powered by section 84 Local Government (City Corporation) Rules, 2009*. This Corporate Trade License has been obtained for Power Generation from Dhaka North City Corporation	• Trade License for Power Generation have been obtained by NWPGCL from Dhaka North City Corporation	**Aligned**	Issuing Date: 18.08.2024 Valid Till: 30.06.2025
7.2	Local Trade License for Power Generation has been issued in the context of *Model Tax Schedule 2003 for Local Union Parishad which is powered by Section 55 of The Local Government (Union Parishad) ordinance 1983 (ord Li. Of 1983) S.R.O no 332 -Law/2003*.	• Trade License for Power Generation have been obtained by NWPGCL from 10 No. Soydabad UP Office	**Aligned**	Issuing Date: 30.12.2024 Valid Till: 30.06.2025
8	**Factory License**			
8.1	Factory License has been issued under *Bangladesh Labour Law 2016 (Form 78)* for class D type company.	• Factory License has been obtained from DIFE (Department of Inspection for Factories and Establishments), Ministry of Labour and Employment, GoB.	**Aligned**	Issuing Date: 8.09.2024 Valid Till: 17.08.2025
9				

SL No	Regulatory Requirement	Finding/Observation Compliance	Compliance Rating	Implication
9.1	NOC for Extraction of Ground Water from WARPO	• NOC has been obtained from Water Resource and Planning Organization • NOC has been issued subject to certain conditions.	**Aligned**	Issuing Date: 22/05/2023 Valid Till: 22/05/2025

5 Corrective Action Plan

Based on the independent EHS&S Compliance Audit of Sirajganj 225 MW Combined Cycle Power Plant, during the operation phase, a Corrective Action Plan (CAP) (**Table 5-1**) has been prepared by prioritizing the key issues and recommendations from the gap assessment.

The CAP has been organized to include the following:

- Measure and corrective actions;
- Reference to the findings in the report;
- Significance;
- Responsibilities;
- Deliverables and recommendation;
- Timelines for completion.

Table 5-1: Corrective Action Plan

SL#	Measures and/or Corrective Actions	Reference in the audit Report	Significance	Responsibility	Deliverables/ Recommendation	Suggested Timelines for Completion
PS 1: Assessment and Management of Environmental and Social Risks and Impacts						
1.	Policy (Environmental and Social Management System)	**Table 3-2**, S. No. 1.1	Medium	NWPGCL	• NWPGCL to update the ESMS considering new facilities risk associated with it, their management program, training need and monitoring and reporting requirements etc. (Example: Chemical Warehouse)	10 Months

SL#	Measures and/or Corrective Actions	Reference in the audit Report	Significance	Responsibility	Deliverables/ Recommendation	Suggested Timelines for Completion
2.	Training to employees and contractors	**Table 3-2**, S. No. 1.7	Medium	NWPGCL	• NWPGCL is recommended to provide trainings to the drivers of diesel carrying trucks. The trainings should include the aspects of safe driving, community safety and hazardous material handling. (whenever applicable).	8 Months
PS 2: Labour and Working Conditions						
3.	Occupational Health & Safety	**Table 3-2**, S. No. 2.10	Medium	NWPGCL	• NWPGCL recommended to store chemical drums in proper manner up until they complete the set up the designated chemical warehouse and maintain proper firefighting system besides it.	6 Months
PS 3: Resource Efficiency and Pollution Prevention						
4.	Hazardous Material Management	**Table 3-2**, S. No. 3.8 **Table 3-3**, S. No. 1.5.1	High	NWPGCL	• NWPGCL has been developing the chemical warehouse for management of improper and indiscriminate storage	8 Months

SL#	Measures and/or Corrective Actions	Reference in the audit Report	Significance	Responsibility	Deliverables/ Recommendation	Suggested Timelines for Completion
					of chemicals in the project area. Before completing the construction of the chemical warehouse, NWPGCL needs to handle chemical drums proper manner.	
PS 4: Community Health, Safety and Security						
5.	Community Health, Safety and Security Plan	**Table 3-2**, S. No. 4.4	Medium	NWPGCL	• NWPGCL is recommended to raise awareness in the community regarding fuel truck movement if required. • NWPGCL is recommended to provide trainings on safe driving through community to the drivers of diesel carrying trucks if required.	8 Months

6 Conclusion

During the 7th audit of Unit 2, a total of 68 observations were made: 59 were aligned, 7 were partially aligned, and 2 clauses were deemed not applicable to the operational phase of the Sirajganj 225 MW CCPP (Dual Fuel) power plant.

The Legal Register was found to be aligned and updated based on the review.

In total, 5 Corrective Action Plans (CAPs) have been developed based on their significance, assigned responsibilities, and timelines for completing the necessary actions.

ANNEX A: LEGAL REGISTER

Government of the People's Republic of Bangladesh

Bangladesh Energy Regulatory Commission

DHAKA, BANGLADESH

Bangladesh Energy Regulatory Commission is pleased to renew the Licence issued on 23 February 2021 bearing reference number: 28.01.0000.015.08.001.15(Part-3)/PSPGC-003/734 for generation of 1399 (One thousand three hundred ninety nine) MW electricity as per sections 27 & 28 of the Bangladesh Energy Regulatory Commission Act, 2003 & regulation 16 of the Bangladesh Energy Regulatory Commission Licence Regulations, 2006 at Khulna, Sirajgonj, Bheramara & Bagerhat in favour of

North-West Power Generation Company Limited
UTC Building (Level 3 & 4), 8 Panthapath, Kawranbazar, Dhaka-1215.

This Licence will remain valid from 22 December 2022 to 21 December 2024 under the terms and conditions stipulated in the Reference Number : 28.01.0000.015.08.001.15(Part-4)/PSPGC-003/2860 Dated: 11 June 2023 (Attached).

Licence No. PSPGC-003

Dated: 11 June 2023

Barrister Md. Khalilur Rahman Khan
Secretary

BERC Certificate

ফরম VI

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
প্রধান বয়লার পরিদর্শকের কার্যালয়

সংখ্যা: রাজশাহী-০৫৪৮-১০২৩-২০২৪-১৮৭২

তারিখ: ২০/০৫/২০২৪

বয়লার ব্যবহারের প্রত্যয়নপত্র
(প্রবিধি- ৩৬৯)

বয়লার নিবন্ধন সংখ্যা: বাঃবয়১০১৫০	বয়লারের প্রকার: হরিজন্টাল ফায়ার টিউব বয়লার
বয়লার রেটিং: ৫৬৮৭১৫ বর্গফুট	নির্মাণের স্থান ও বৎসর: চায়না, ২০১৭
সর্বোচ্চ একটানা বাষ্পীকরণ:	
মালিকের নাম: প্রকৌঃ কাজী আবসার উদ্দীন আহমেদ	
বয়লারের অবস্থান: নর্থ ওয়েষ্ট পাওয়ার জেনারেশন কোং লিঃ ইউনিট-০২, সায়দাবাদ, সিরাজগঞ্জ, সিরাজগঞ্জ	
মেয়াদত:	
মন্তব্য: ২৩/০৫/০০১৮ তারিখে:	১৪০.২৫ কেজি/বর্গ সে.মি. পর্যন্ত জলীয় পরীক্ষাকৃত।

আমি এতদ্বারা প্রত্যয়ন করিতেছি যে, আমি প্রধান বয়লার পরিদর্শকের ১৯২৩ সালের বয়লার আইন এর

৭/৮ ধারা বলে উপরে বর্ণিত সর্বোচ্চ: ৯৩.৪ কেজি/বর্গ সে.মি.

চাপে ১৬/০৫/২০২৪ খ্রি: হইতে ১৪/০৫/২০২৫ খ্রি: পর্যন্ত চালনার অনুমতি প্রদান করিয়াছি।

সেফটি ভালবের চাপ ৯৩.৪ কেজি/বর্গ সে.মি. অতিক্রম করিবে না।

আমি আরো প্রত্যয়ন করিতেছি যে, প্রধান বাষ্পনল

চাপে তারিখে জলীয় পরীক্ষাকৃত হইয়াছে।

ফি ৯৯০০০/- টাকা ১৩/০৫/২০২৪ খ্রি: তারিখে পরিশোধকৃত।

তারিখে: স্থান:

অদ্য: দিবস: -

প্রকৌঃ তানভীর আহম্মদ নাঈম বয়লার পরিদর্শক	প্রকৌঃ মোঃ নজরুল ইসলাম উপ-প্রধান বয়লার পরিদর্শক	প্রকৌঃ মোহাম্মদ আব্দুল মান্নান প্রধান বয়লার পরিদর্শক

ফরম VI

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
প্রধান বয়লার পরিদর্শকের কার্যালয়

সংখ্যা: রাজশাহী-০৫৩৭-২০২৩-২০২৪-১৮৭১

তারিখ: ২০/০৫/২০২৪

বয়লার ব্যবহারের প্রত্যয়নপত্র
(প্রবিধি- ৩৬৯)

বয়লার নিবন্ধন সংখ্যা: বাঃবঃ১০১৫১ | বয়লারের প্রকার: হরিজন্টাল ফায়ার টিউব বয়লার

বয়লার রেটিং: ৩৬৪৩০৪ বর্গফুট | নির্মাণের স্থান ও বৎসর: চায়না, ২০১৭

সর্বোচ্চ একটানা বাষ্পীকরণ:

মালিকের নাম: প্রকৌঃ কাজী আবসার উদ্দীন আহমেদ

বয়লারের অবস্থান: নর্থ ওয়েষ্ট পাওয়ার জেনারেশন কোং লিঃ ইউনিট-০২, সয়দাবাদ, সিরাজগঞ্জ, সিরাজগঞ্জ

মেরামত:

মন্তব্য: ২০/০৫/২০২৮ তারিখে ১৫ কেজি/বর্গ সে.মি. পর্যন্ত জলীয় পরীক্ষাকৃত।

আমি এতদ্বারা প্রত্যয়ন করিতেছি যে, আমি প্রধান বয়লার পরিদর্শকের ১৯২৩ সালের বয়লার আইন এর

৭/৮ ধারা বলে উপরে বর্ণিত সর্বোচ্চ: ১০ কেজি/বর্গ সে.মি.

চাপে ১৬/০৫/২০২৪ খ্রি: হইতে ১৫/০৫/২০২৫ খ্রি: পর্যন্ত চালনার অনুমতি প্রদান করিয়াছি।

সেফটি ভালবের চাপ ১০ কেজি/বর্গ সে.মি. অতিক্রম করিবে না।

আমি আরো প্রত্যয়ন করিতেছি যে, প্রধান বাষ্পনল

চাপে তারিখে জলীয় পরীক্ষাকৃত হইয়াছে।

ফি ৩৯০০০/- টাকা ১৫/০৫/২০২৪ খ্রি: তারিখে পরিশোধকৃত।

তারিখে: স্থান:

অন্য: মিবল: -

প্রকৌঃ তানভীর আহম্মদ নাঈম
বয়লার পরিদর্শক

প্রকৌঃ মোঃ নজরুল ইসলাম
উপ-প্রধান বয়লার পরিদর্শক

প্রকৌঃ মোহাম্মদ আব্দুল মান্নান
প্রধান বয়লার পরিদর্শক

Boiler License

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
শ্রম ও কর্মসংস্থান মন্ত্রণালয়
কলকারখানা ও প্রতিষ্ঠান পরিদর্শন অধিদপ্তর
উপ মহাপরিদর্শকের কার্যালয়, সিরাজগঞ্জ
http://dife.sirajganj.gov.bd/

কারখানা লাইসেন্স

লাইসেন্স নং: ৯৮-৭৮-১-০৪১-০০০০১ রেজিস্ট্রেশন নং: ৮৮-৭৮-১-০৪১-০০০০১ তারিখ: ১৮ আগস্ট ২০২৪
শ্রেণী: ঝি প্রতিষ্ঠান/শিল্পের ধরণ: বিদ্যুৎ-পাওয়ার স্টেশন লাইসেন্স ফি (টাকা): ২,০০০.০০
বাংলাদেশ শ্রম আইন, ২০০৬-এর বিধান সাপেক্ষে এতদ্বারা কারখানা লাইসেন্স প্রদান করা হইলো। উক্ত কেসল
সিরাজগঞ্জ ২২২ মেঃ৩: কম্বাইনড সাইকেল পাওয়ার প্লান্ট (২য় ও ৩য় ইউনিট) সহ পরিচালিত হইবে ও
বড়শিমুল, পঞ্চাশোনা, সয়দাবাদ, সিরাজগঞ্জ, সিরাজগঞ্জ সদর, সিরাজগঞ্জ, রাজশাহী স্থানে অবস্থিত কারখানা এবং অংশ
Eng. Md. Harunur Rashid কারখানা-এর জন্য প্রযোজ্য।

এই লাইসেন্স ২০২৫ সালের ১৭ আগস্ট পর্যন্ত বলবৎ থাকিবে।

০৮/০৯/২০২৪
উপমহাপরিদর্শক
উপ মহাপরিদর্শকের কার্যালয়, সিরাজগঞ্জ

Factory License

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিবেশ অধিদপ্তর
সিরাজগঞ্জ জেলা কার্যালয়
সপ্তর্ষি হাউস, হোল্ডিং নং-১৭৫, হোসেনপুর (দক্ষিণ)
সি. ও. রোড, সদর, সিরাজগঞ্জ-৬৭০০
www.doe.gov.bd

পরিবেশগত ছাড়পত্র নবায়ন

ছাড়পত্র নং: ২৪-১২৮২৫০

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

প্রতিষ্ঠান/প্রকল্পের নাম	:	সিরাজগঞ্জ ২২৫ মেগাওয়াট সিসিপিপি (ডুয়েল ফুয়েল ২য় ইউনিট)
উদ্যোক্তার নাম	:	ব্যবস্থাপনা পরিচালক
সনাক্তকরণ নং	:	৬৭১২৮
প্রতিষ্ঠান/প্রকল্পের কার্যক্রম	:	২২৫ মেগাওয়াট বিদ্যুৎ উৎপাদন।
প্রতিষ্ঠান/প্রকল্পের শ্রেণী	:	Red
প্রতিষ্ঠান/প্রকল্পের ঠিকানা	:	সয়দাবাদ, সদর, সিরাজগঞ্জ।
প্রদানের তারিখ	:	১২ নভেম্বর ২০২৪
মেয়াদ উত্তীর্ণের তারিখ	:	২৫ অক্টোবর ২০২৫

এ ছাড়পত্র সনদের সাথে পৃথকভাবে সংযুক্ত প্রদত্ত শর্তাবলী যথাযথভাবে প্রতিপালন করতে হবে, অন্যথায় ছাড়পত্র বাতিল/ক্ষতিপূরণ আদায়সহ যে কোন আইনানুগ ব্যবস্থা গ্রহণ করা হবে।

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

পরিবেশগত ছাড়পত্র নবায়ন এর জন্য প্রযোজ্য শর্তাবলী:

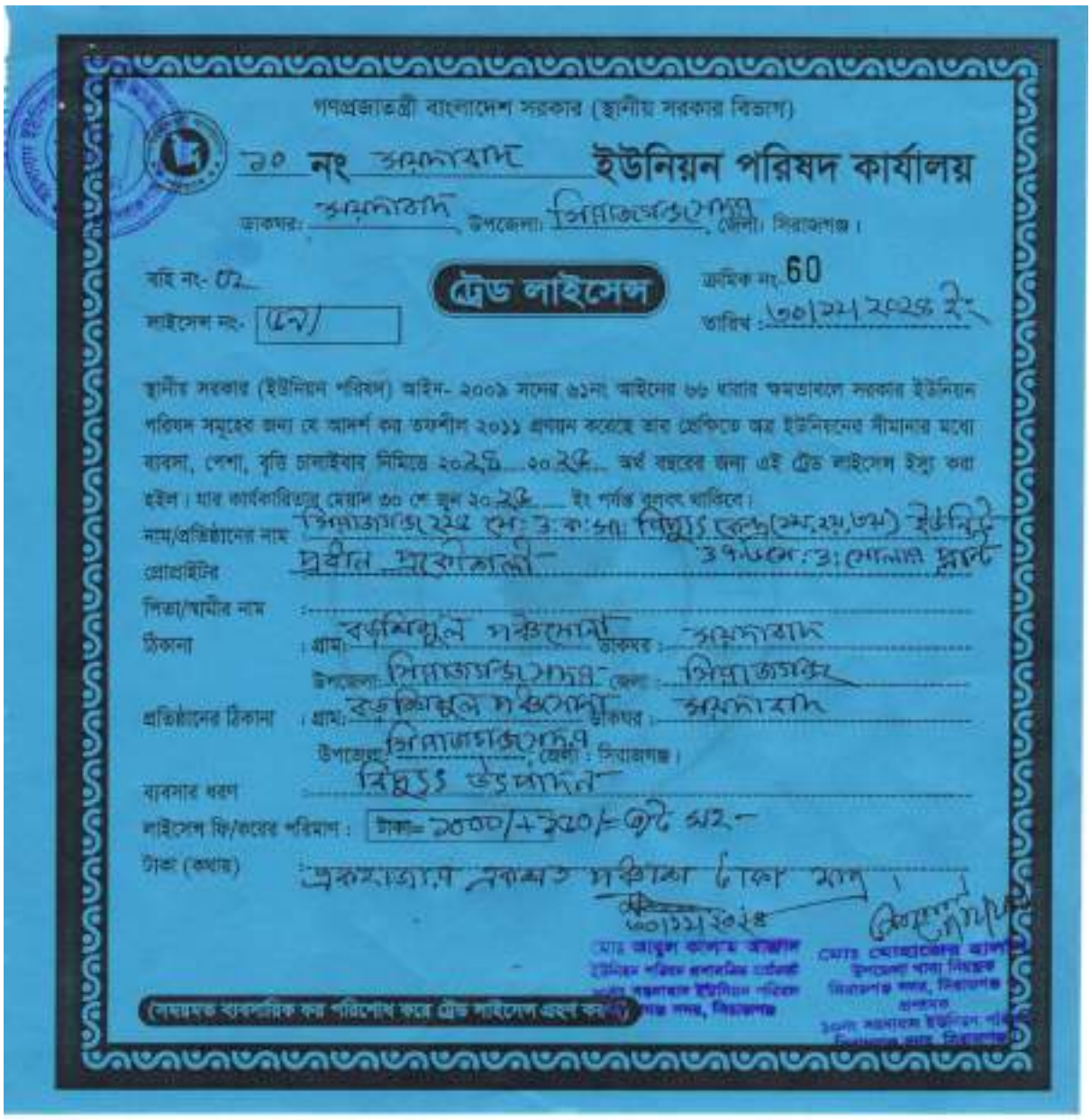
ছাড়পত্রটি যাচাই করতে ভিজিট করুন: https://ecc.doe.gov.bd/certificate_verification
Page 1 of 2

Renewal ECC

ঢাকা উত্তর সিটি কর্পোরেশন

www.dncc.gov.bd

ই-ট্রেড লাইসেন্স



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার (স্থানীয় সরকার বিভাগ)

২০ নং ইউনিয়ন পরিষদ কার্যালয়

ট্রেড লাইসেন্স

Local Trade License

বিস্ফোরক পরিদপ্তর

www.explosives.gov.bd

লাইসেন্স নং: 176-3(L)-0153

... Executive Director (P&D) North-West Power Generation Company Ltd. UTC Building (Level-...), ... Panthapath, Kawranbazar, Dhaka ...

[illegible]

স্মারক নং- 176-3(L)-0153 (1) & (2)

Explosive License

ক্রমিক নং:

অনিবেন্ধ ০০৩
প্রথম সংস্করণ ২০১২
V-09, P-35

ফায়ার লাইসেন্স

লাইসেন্স নম্বর: এডি/পাবনা-৩৮৪১/২০২১-২০২২

এতদ্বারা অগ্নি প্রতিরোধ ও নিরাপত্তা আইন ২০০৩ এর ৪ ধারা অনুযায়ী এবং উল্লেখিত শর্তাবলী সাপেক্ষে ফায়ার লাইসেন্স ইস্যু করা হইল।

১। মালামাল/কারখানার মালিক/ব্যবস্থাপক/কর্তৃপক্ষের নাম, পদবী ও ঠিকানা ঃ

প্রতিষ্ঠানের নাম ঃ সিরাজগঞ্জ ২২৫ মেঃওঃ সংযুক্ত বিদ্যুৎ কেন্দ্র(১ম,২য়,৩য়)ইউনিট ও ৭.৬ মেঃওঃ সোলার প্লান্ট

মালিকের নাম ঃ প্রধান প্রকৌশলী।

গ্রাম/রাস্তা:মন্ডলগাতী,ডাকঘর:ভেকুটিয়া-৭৪০০,যশোর সদর,যশোর ।

ফোন ঃ ফ্যাক্স ই-মেইল ঃ

২। মালামাল/কারখানার অবস্থান ঃ (ক) প্লট নং/হোল্ডিং নং: বড়শিমুল পঞ্চসোনা

(খ) দাগ নং: (গ) খতিয়ান নং: (ঘ) জে এল নং:

(ঙ) মৌজা (চ) রোড নং: (ছ) ডাকঘর সয়দাবাদ

(জ) থানা সিরাজগঞ্জ (ঝ) উপজেলা সিরাজগঞ্জ (ঞ) জেলা সিরাজগঞ্জ

৩। ভবনের ব্যবহার শ্রেণী ঃ

৪। ভবনের নির্মাণ শ্রেণী ও পরিমাণ ঃ পাকা ভবন

শ্রেণী-১	শ্রেণী-২	শ্রেণী-৩	দৈর্ঘ্য	প্রস্থ	উচ্চতা	মোট মেঝের ক্ষেত্রফল (বর্গ মিটার)
						৩,৪৯,৩৫০ বর্গফুট।

৫। দাহ্য বস্তুর নাম ও মজুদ পরিমাণ ঃ প্লাস্টিক জাতীয় দ্রব্য।

৬। ব্যবসার ধরন ঃ বিদ্যুৎ উৎপাদন।

৭। অগ্নি ঝুঁকির মাত্রা ঃ (ক) হালকা-১ (খ) হালকা-২ (গ) সাধারণ-১ (ঘ) সাধারণ-২ (ঙ) সাধারণ-৩ (চ) অতিমাত্রা

৮। অগ্নি ঝুঁকির শ্রেণীবিন্যাস (মোট ফ্লোর এরিয়ার আনুপাতিক ভিত্তিতে) ঃ A.....%, B.....%, C.....%, D.....%, K.....%

০৯। মাশুলের পরিমান=১২০০/-টাকা, ভ্যাট=১৮০/- টাকা।

১০। নবায়ন অর্থবছর ২০২১-২০২২(৩০ জুন ২০২২ খ্রিঃ পর্যন্ত)।

মো: নিজাম উদ্দিন
উপজেলা নির্বাহী কর্মকর্তা
ফায়ার সার্ভিস ও সিভিল ডিফেন্স
সিরাজগঞ্জ।

শিশুশ্রম নিষিদ্ধ

জরুরী প্রয়োজনে

সিরাজগঞ্জ ফায়ার স্টেশন-০১৭৩০-০০২৫৪৯
বিভাগীয় নিয়ন্ত্রণ কক্ষ- ০১৭৩০-৩৩৬৬৫৫

লাইসেন্সের শর্তাবলী

(১) প্রতি বছর ৩০ জুনের মধ্যে এই লাইসেন্সের অনুকূলে মাশুলের টাকা অগ্রিম লাইসেন্স ফি হিসাবে পরিশোধ করিতে হইবে।

(২) এই লাইসেন্স হস্তান্তরযোগ্য নহে এবং কেবলমাত্র ক্রমিক ২ এ উল্লেখিত অবস্থানের জন্যই প্রযোজ্য হইবে।

(৩) লাইসেন্সের শর্তাবলী যথাযথভাবে পালিত হইতেছে কিনা তাহা যাচাই করার জন্য অধিদপ্তরের ক্ষমতাপ্রাপ্ত কর্মকর্তা যে কোন কার্য দিবসে গুদাম বা কারখানা পরিদর্শন করিতে পারিবেন এবং পরিদর্শনকালে সংশ্লিষ্ট কর্তৃপক্ষ ইস্যুকৃত ফায়ার লাইসেন্সটি প্রদর্শন করিতে বাধ্য থাকিবেন।

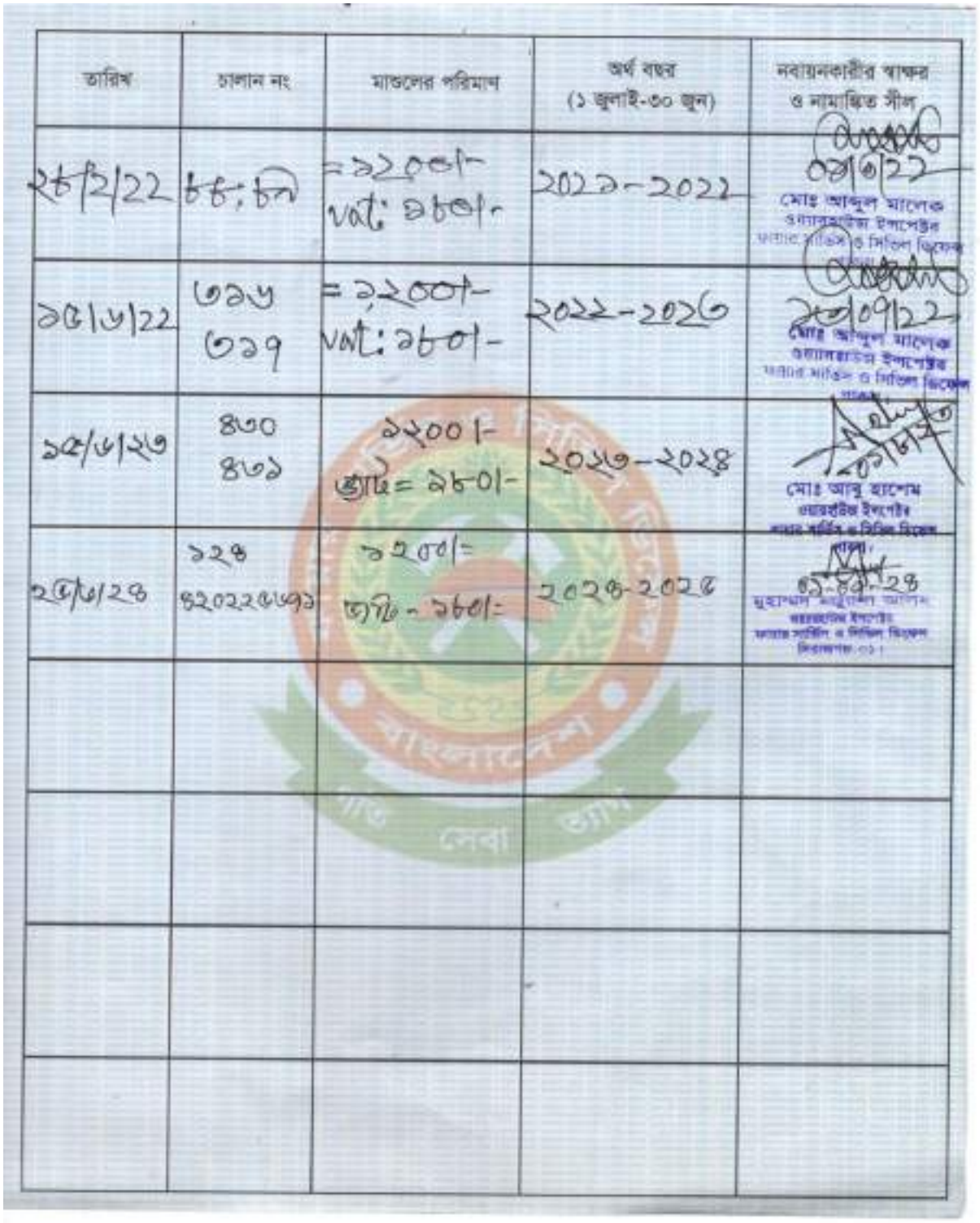
(৪) সার্বিক অগ্নি নিরাপত্তা ব্যবস্থা বাংলাদেশ ন্যাশনাল বিল্ডিং কোড ও অগ্নি প্রতিরোধ ও নির্বাপণ আইন ২০০৩ এবং সংশ্লিষ্ট বিধির ভিত্তিতে নিশ্চিত করিতে হইবে।

(৫) অগ্নি প্রতিরোধ ও নির্বাপণ আইন ২০০৩ মোতাবেক লাইসেন্সের শর্ত ভঙ্গ করিলে শাস্তিযোগ্য অপরাধ হিসাবে গণ্য হইবে।

০৬। উক্ত প্রতিষ্ঠানে অটোমেশন মান সম্পন্ন ৫/৬ কেজি ৪২২ টি ডিসিপি, ২১১ টি সিওটু, ০৯/১০ লিঃ ফোম ১০ টি ফায়ার এক্সটিংগুইশার সংরক্ষণ করিতে হইবে।

০৭। ০১ টি হোজরীল ব্যবস্থা এবং পর্যাপ্ত পানি ধারণ ক্ষমতা সম্পন্ন ছাদস্থ জলাধার রাখতে হবে।

কর্মকর্তা ও কর্মচারিদের ফায়ার সার্ভিস কর্তৃক প্রশিক্ষণের ব্যবস্থা করতে হবে। এছাড়াও আরও কোন শর্ত আরোপিত হলে তা পালন করতে হবে।



তারিখ	চালান নং	মাশুলের পরিমাণ	অর্থ বছর (১ জুলাই-৩০ জুন)	নবায়নকারীর স্বাক্ষর ও নামাঙ্কিত সীল
২৮/২/২২	৮৪৮৮	=২২০০/- VAT: ২৮০/-	২০২১-২০২২	০৩/৩/২২ মোঃ আব্দুল মালেক ওয়্যারহাউজ ইন্সপেক্টর
২৫/৬/২২	৩২৬ ৩২৭	=২২০০/- VAT: ২৮০/-	২০২২-২০২৩	২৩/০৯/২২ মোঃ আব্দুল মালেক ওয়্যারহাউজ ইন্সপেক্টর
১৫/৬/২৩	৪৩০ ৪৩১	২২০০/- ভ্যাট= ২৮০/-	২০২৩-২০২৪	২০/৬/২৩ মোঃ আবু হাশেম ওয়্যারহাউজ ইন্সপেক্টর
২৬/৬/২৪	১২৪ ৪২০২২৬৯২	২২০০/= ভ্যাট - ২৮০/=	২০২৪-২০২৫	২৬-৬৪-২৪ মুহাম্মদ আবুল কাশেম ওয়্যারহাউজ ইন্সপেক্টর

Fire License

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গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

সার্টিফিকেট নম্বর ৬৬৭১ সন ২০১৯খ্রিঃ

১৯৫৩ সালের বয়লার পরিচালক রুলস

যোগ্যতা প্রত্যায়ন পত্র

বয়লার পরিচালক দ্বিতীয় শ্রেণি

জনাব মোঃ মিজানুর রহমান বিগত প্রায় ২৯ বৎসর

বয়স্ক বর্তমান বলবৎ নিয়মাবলী অনুযায়ী দ্বিতীয় শ্রেণির বয়লার পরিচালকের কর্তব্য পালনের যোগ্যতা সম্পর্কে আমাদের সন্তুষ্টি বিধান করিতে সক্ষম হওয়ায়, এতদ্বারা ১৯৫৩ সালের বয়লার পরিচালক নিয়মাবলী অনুসরণে অত্র দ্বিতীয় শ্রেণির যোগ্যতা প্রত্যায়ন পত্র প্রদান করিতেছি।

অদ্য দিবস ২৪ মাস ১০ সন ২০১৯ খ্রিঃ

সম্পাদক
পরীক্ষা-পর্ষদ

সভাপতি
পরীক্ষা-পর্ষদ

(১) সার্টিফিকেট নম্বর : ৬৬৭১
(২) অধিকারীর স্বাক্ষর :
(৩) জন্ম তারিখ ও স্থান : ০২/০১/১৯৮০ইং, সিরাজগঞ্জ।
(৪) অধিকারীর ঠিকানা : গ্রামঃ চালা, পোষ্টঃ উল্লাপাড়া- ৬৭৬০, উপজেলাঃ উল্লাপাড়া, জেলাঃ সিরাজগঞ্জ।
(৫) দৈহিক বর্ণনা

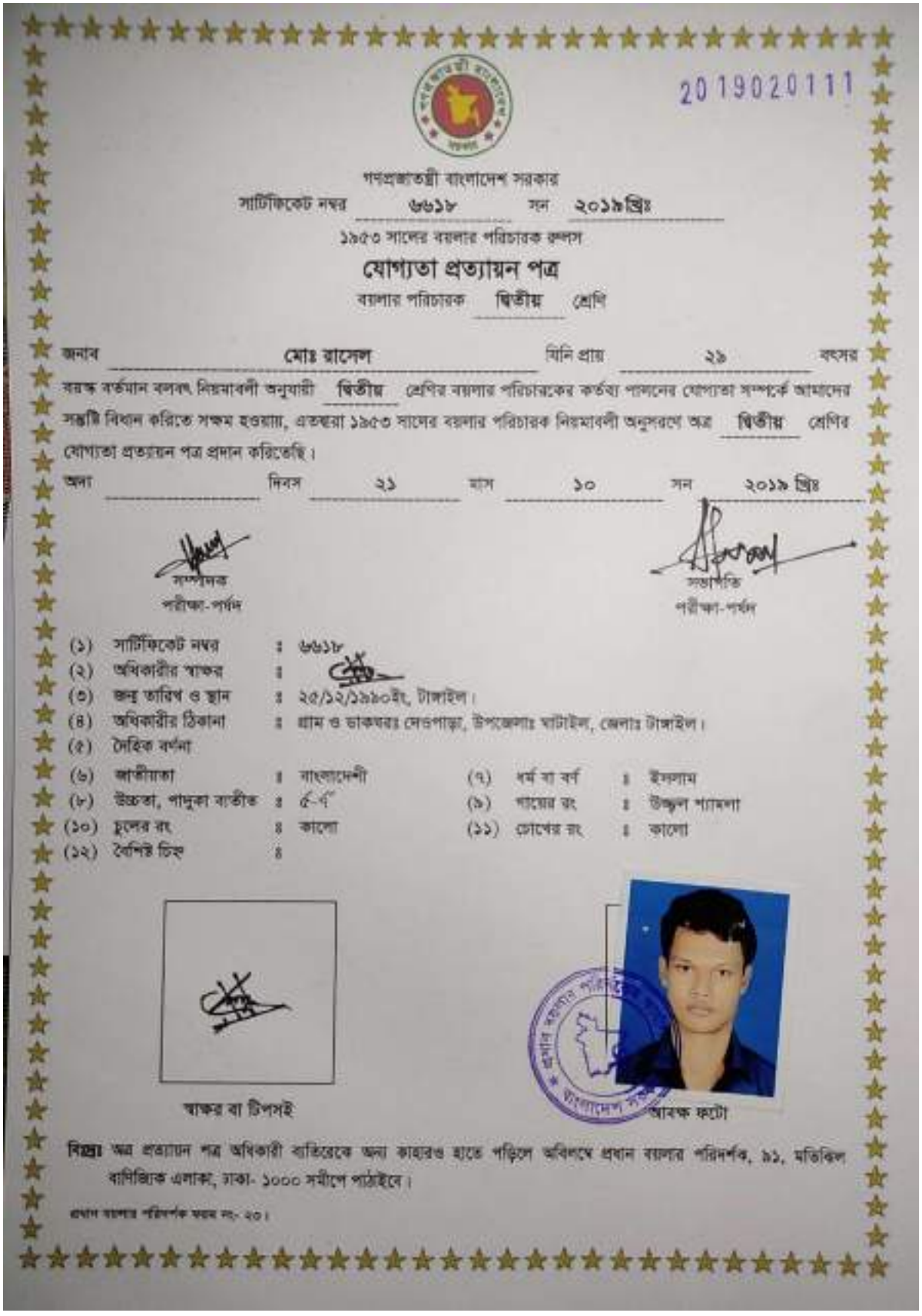
(৬)	জাতীয়তা	: বাংলাদেশী	(৭)	ধর্ম বা বর্ণ	: ইসলাম
(৮)	উচ্চতা, পাদুকা ব্যতীত	: ৫'-৭"	(৯)	গায়ের রং	: ফর্সা
(১০)	চুলের রং	: কালো	(১১)	চোখের রং	: কালো
(১২)	বৈশিষ্ট চিহ্ন	:			

স্বাক্ষর বা টীপসই

আবক্ষ ফটো

বিঃদ্রঃ অত্র প্রত্যায়ন পত্র অধিকারী ব্যতিরেকে অন্য কাহারও হাতে পড়িলে অবিলম্বে প্রধান বয়লার পরিদর্শক, ৯২, মতিঝিল বাণিজ্যিক এলাকা, ঢাকা- ১০০০ সমীপে পাঠাইবে।

প্রধান বয়লার পরিদর্শক ফরম নং- ২৩।



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গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

সার্টিফিকেট নম্বর ৬৬১৮ সন ২০১৯খ্রিঃ

১৯৫৩ সালের বয়লার পরিচালক রুলস

যোগ্যতা প্রত্যায়ন পত্র

বয়লার পরিচালক দ্বিতীয় শ্রেণি

জনাব মোঃ রাসেল যিনি প্রায় ২৯ বৎসর বয়স্ক বর্তমান বলবৎ নিয়মাবলী অনুযায়ী দ্বিতীয় শ্রেণির বয়লার পরিচালকের কর্তব্য পালনের যোগ্যতা সম্পর্কে আমাদের সন্তুষ্টি বিধান করিতে সক্ষম হওয়ায়, এতদ্বারা ১৯৫৩ সালের বয়লার পরিচালক নিয়মাবলী অনুসরণে অত্র দ্বিতীয় শ্রেণির যোগ্যতা প্রত্যয়ন পত্র প্রদান করিতেছি।

অদ্য দিবস ২১ মাস ১০ সন ২০১৯ খ্রিঃ

সম্পাদক
পরীক্ষা-পর্ষদ

সভাপতি
পরীক্ষা-পর্ষদ

(১)	সার্টিফিকেট নম্বর	ঃ ৬৬১৮			
(২)	অধিকারীর স্বাক্ষর	ঃ			
(৩)	জন্ম তারিখ ও স্থান	ঃ ২৫/১২/১৯৯০ইং, টাঙ্গাইল।			
(৪)	অধিকারীর ঠিকানা	ঃ গ্রাম ও ডাকঘরঃ দেওপাড়া, উপজেলাঃ ঘাটাইল, জেলাঃ টাঙ্গাইল।			
(৫)	দৈহিক বর্ণনা				
(৬)	জাতীয়তা	ঃ বাংলাদেশী	(৭)	ধর্ম বা বর্ণ	ঃ ইসলাম
(৮)	উচ্চতা, পাদুকা ব্যতীত	ঃ ৫'-৭"	(৯)	গায়ের রং	ঃ উজ্জ্বল শ্যামলা
(১০)	চুলের রং	ঃ কালো	(১১)	চোখের রং	ঃ কালো
(১২)	বৈশিষ্ট চিহ্ন	ঃ			

স্বাক্ষর বা টিপসই

আবক্ষ ফটো

বিঃদ্রঃ অত্র প্রত্যায়ন পত্র অধিকারী ব্যতিরেকে অন্য কাহারও হাতে পড়িলে অবিলম্বে প্রধান বয়লার পরিদর্শক, ৯১, মতিঝিল বাণিজ্যিক এলাকা, ঢাকা- ১০০০ সমীপে পাঠাইবে।

প্রধান বয়লার পরিদর্শক ফরম নং- ২০।

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গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

সার্টিফিকেট নম্বর ৬৬৪০ সন ২০১৯খ্রিঃ

১৯৫৩ সালের বয়লার পরিচারক রুলস

যোগ্যতা প্রত্যায়ন পত্র

বয়লার পরিচারক দ্বিতীয় শ্রেণি

জনাব মোঃ তৌহিদ ফারহান বিনি প্রায় ২৭ বৎসর বয়স্ক বর্তমান বলবৎ নিয়মাবলী অনুযায়ী দ্বিতীয় শ্রেণির বয়লার পরিচারকের কর্তব্য পালনের যোগ্যতা সম্পর্কে আমাদের সন্তুষ্টি বিধান করিতে সক্ষম হওয়ায়, এতদ্বারা ১৯৫৩ সালের বয়লার পরিচারক নিয়মাবলী অনুসরণে অত্র দ্বিতীয় শ্রেণির যোগ্যতা প্রত্যায়ন পত্র প্রদান করিতেছি।

অদ্য দিবস ২২ মাস ১০ সন ২০১৯ খ্রিঃ

সম্পাদক
পরীক্ষা-পর্ষদ

সভাপতি
পরীক্ষা-পর্ষদ

(১) সার্টিফিকেট নম্বর : ৬৬৪০
(২) অধিকারীর স্বাক্ষর :
(৩) জন্ম তারিখ ও স্থান : ১৮/১২/১৯৯২ইং, নওগাঁ।
(৪) অধিকারীর ঠিকানা : গ্রামঃ চকমুক্তার উত্তরপাড়া, ডাকঘরঃ নওগাঁ সদর, থানা + জেলাঃ নওগাঁ।
(৫) দৈহিক বর্ণনা
(৬) জাতীয়তা : বাংলাদেশী (৭) ধর্ম বা বর্ণ : ইসলাম
(৮) উচ্চতা, পাদুকা ব্যতীত : ৫'-৪" (৯) গায়ের রং : শ্যামলা
(১০) চুলের রং : কালো (১১) চোখের রং : কালো
(১২) বৈশিষ্ট চিহ্ন :

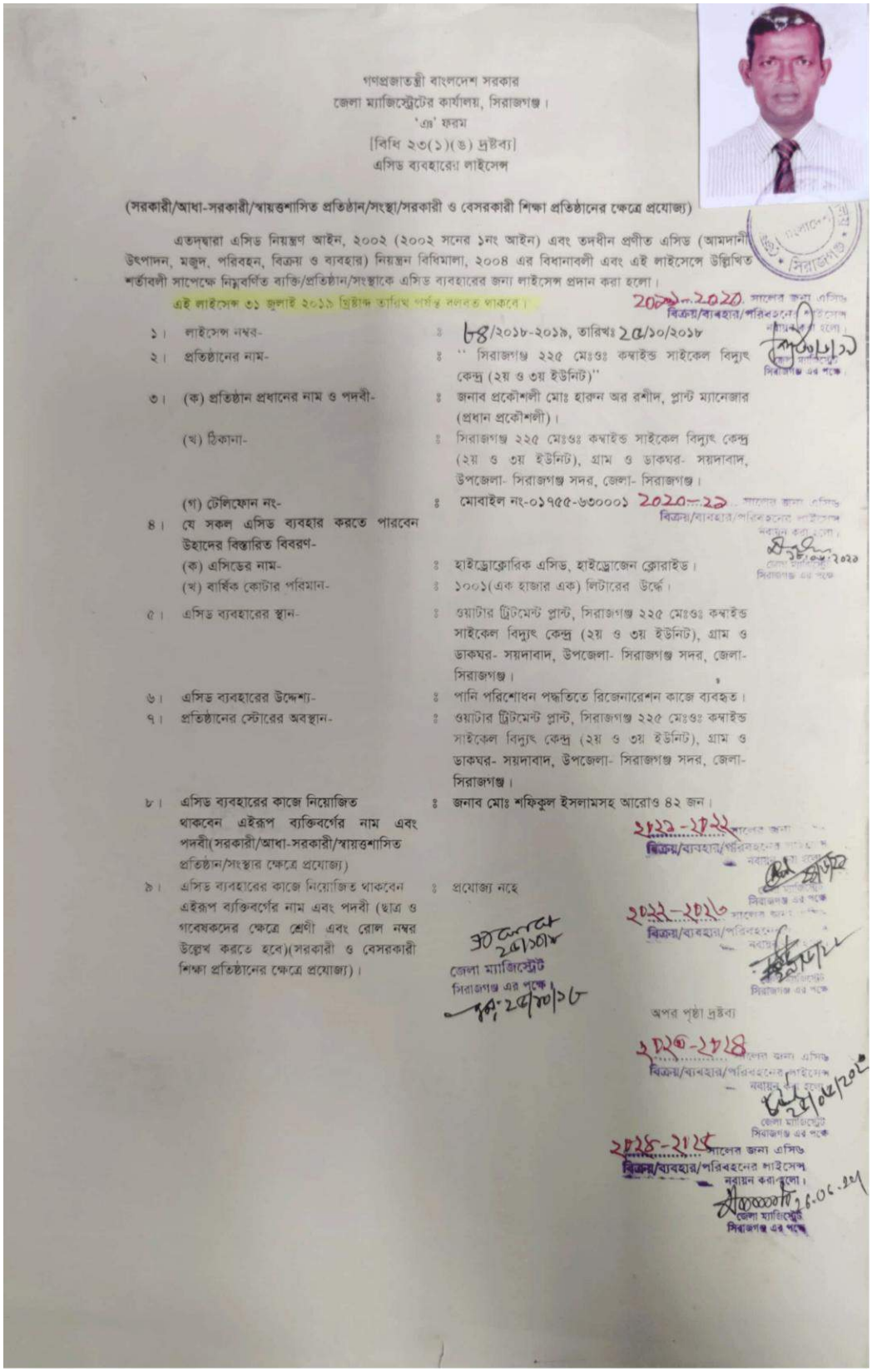
স্বাক্ষর বা টিপসই

আবক্ষ ফটো

বিঃদ্রঃ অত্র প্রত্যায়ন পত্র অধিকারী ব্যতিরেকে অন্য কাহারও হাতে পড়িলে অবিলম্বে প্রধান বয়লার পরিদর্শক, ৯১, মতিঝিল বাণিজ্যিক এলাকা, ঢাকা- ১০০০ সমীপে পাঠাইবে।

প্রধান বয়লার পরিদর্শক ফরম নং- ২৩।

Boiler Operator's License



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
জেলা ম্যাজিস্ট্রেটের কার্যালয়, সিরাজগঞ্জ।
'এ' ফরম
[বিধি ২৩(১)(ঙ) দ্রষ্টব্য]
এসিড ব্যবহারের লাইসেন্স

(সরকারী/আধা-সরকারী/স্বায়ত্তশাসিত প্রতিষ্ঠান/সংস্থা/সরকারী ও বেসরকারী শিক্ষা প্রতিষ্ঠানের ক্ষেত্রে প্রযোজ্য)

এতদ্দ্বারা এসিড নিয়ন্ত্রণ আইন, ২০০২ (২০০২ সনের ১নং আইন) এবং তদধীন প্রণীত এসিড (আমদানী, উৎপাদন, মজুদ, পরিবহন, বিক্রয় ও ব্যবহার) নিয়ন্ত্রন বিধিমালা, ২০০৪ এর বিধানাবলী এবং এই লাইসেন্সে উল্লিখিত শর্তাবলী সাপেক্ষে নিম্নবর্ণিত ব্যক্তি/প্রতিষ্ঠান/সংস্থাকে এসিড ব্যবহারের জন্য লাইসেন্স প্রদান করা হলো।

এই লাইসেন্স ৩১ জুলাই ২০১৯ খ্রিষ্টাব্দ তারিখ পর্যন্ত বলবত থাকবে।

২০১৯-2020 সালের জন্য এসিড বিক্রয়/ব্যবহার/পরিবহনের লাইসেন্স নবায়ন করা হলো।
সিরাজগঞ্জ এর পক্ষে

১।	লাইসেন্স নম্বর-	ঃ ৮৪/২০১৮-২০১৯, তারিখঃ ২৫/১০/২০১৮
২।	প্রতিষ্ঠানের নাম-	ঃ "সিরাজগঞ্জ ২২৫ মেঃওঃ কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ও ৩য় ইউনিট)"
৩।	(ক) প্রতিষ্ঠান প্রধানের নাম ও পদবী-	ঃ জনাব প্রকৌশলী মোঃ হারুন অর রশীদ, প্লান্ট ম্যানেজার (প্রধান প্রকৌশলী)।
	(খ) ঠিকানা-	ঃ সিরাজগঞ্জ ২২৫ মেঃওঃ কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ও ৩য় ইউনিট), গ্রাম ও ডাকঘর- সয়দাবাদ, উপজেলা- সিরাজগঞ্জ সদর, জেলা- সিরাজগঞ্জ।
	(গ) টেলিফোন নং-	ঃ মোবাইল নং-০১৭৫৫-৬৩০০০১
৪।	যে সকল এসিড ব্যবহার করতে পারবেন উহাদের বিস্তারিত বিবরণ-	
	(ক) এসিডের নাম-	ঃ হাইড্রোক্লোরিক এসিড, হাইড্রোজেন ক্লোরাইড।
	(খ) বার্ষিক কোটার পরিমান-	ঃ ১০০১(এক হাজার এক) লিটারের উর্দ্ধে।
৫।	এসিড ব্যবহারের স্থান-	ঃ ওয়াটার ট্রিটমেন্ট প্লান্ট, সিরাজগঞ্জ ২২৫ মেঃওঃ কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ও ৩য় ইউনিট), গ্রাম ও ডাকঘর- সয়দাবাদ, উপজেলা- সিরাজগঞ্জ সদর, জেলা- সিরাজগঞ্জ।
৬।	এসিড ব্যবহারের উদ্দেশ্য-	ঃ পানি পরিশোধন পদ্ধতিতে রিজেনারেশন কাজে ব্যবহৃত।
৭।	প্রতিষ্ঠানের স্টোরের অবস্থান-	ঃ ওয়াটার ট্রিটমেন্ট প্লান্ট, সিরাজগঞ্জ ২২৫ মেঃওঃ কম্বাইন্ড সাইকেল বিদ্যুৎ কেন্দ্র (২য় ও ৩য় ইউনিট), গ্রাম ও ডাকঘর- সয়দাবাদ, উপজেলা- সিরাজগঞ্জ সদর, জেলা- সিরাজগঞ্জ।
৮।	এসিড ব্যবহারের কাজে নিয়োজিত থাকবেন এইরূপ ব্যক্তিবর্গের নাম এবং পদবী(সরকারী/আধা-সরকারী/স্বায়ত্তশাসিত প্রতিষ্ঠান/সংস্থার ক্ষেত্রে প্রযোজ্য)	ঃ জনাব মোঃ শফিকুল ইসলামসহ আরোও ৪২ জন।
৯।	এসিড ব্যবহারের কাজে নিয়োজিত থাকবেন এইরূপ ব্যক্তিবর্গের নাম এবং পদবী (ছাত্র ও গবেষকদের ক্ষেত্রে শ্রেণী এবং রোল নম্বর উল্লেখ করতে হবে)(সরকারী ও বেসরকারী শিক্ষা প্রতিষ্ঠানের ক্ষেত্রে প্রযোজ্য)।	ঃ প্রযোজ্য নহে

২০২১-২০২২ সালের জন্য বিক্রয়/ব্যবহার/পরিবহনের লাইসেন্স নবায়ন করা হলো।
সিরাজগঞ্জ এর পক্ষে

২০২২-২০২৩ সালের জন্য বিক্রয়/ব্যবহার/পরিবহনের লাইসেন্স নবায়ন করা হলো।
সিরাজগঞ্জ এর পক্ষে

জেলা ম্যাজিস্ট্রেট
সিরাজগঞ্জ এর পক্ষে

অপর পৃষ্ঠা দ্রষ্টব্য

২০২৩-২০২৪ সালের জন্য এসিড বিক্রয়/ব্যবহার/পরিবহনের লাইসেন্স নবায়ন করা হলো।
জেলা ম্যাজিস্ট্রেট
সিরাজগঞ্জ এর পক্ষে

২০২৪-২০২৫ সালের জন্য এসিড বিক্রয়/ব্যবহার/পরিবহনের লাইসেন্স নবায়ন করা হলো।
জেলা ম্যাজিস্ট্রেট
সিরাজগঞ্জ এর পক্ষে

Acid/Alkali Storage License

Government of the People's Republic of Bangladesh
Ministry of Water Resources
Water Resources Planning Organization
www.warpo.gov.bd

Memo.No: 42.02.0000.010.36.017.22-784 Date: 22/05/2023

Sub: No Objection Certificate (NOC) for abstraction of groundwater by 'North-West Power Generation Company Limited', Soidabad, Sirajgonj.

In reference to your application to grant permission for abstraction of Groundwater by your Company as per Bangladesh Water Act, 2013 and Bangladesh Water Rules, 2018; Water Resources Planning Organization (WARPO) has reviewed your application, data and information regarding water resources availability (groundwater & surface water) on the surrounding areas of the proposed project and agreed to allow using groundwater water on certain conditions.

The 'No Objection Clearance (NOC)' hereby issued subject to the following conditions.

1. Permit for abstraction of Ground Water of maximum amount 400 m3/hour by submersible pumps for the 'North-West Power Generation Company Limited', Soidabad, Sirajgonj.
2. Two or more pumps shouldn't be operated concurrently. Maximum operation of per pump should be limited to ten hours /day. If the aquifer water level decline and doesn't recover, ground water abstraction should be stopped.
3. The permit would be valid for 2 (two) years from the date of issue and will require renewal before 30 days of the end period.
4. The Water will not be used in other purposes except the approved case i.e. Company's manufacturing, daily uses for the employees etc.
5. To reduce the pressure on ground water, it is strongly encouraged to use of Surface Water from nearby River and other Water Sources.
6. A detailed study on "water resources availability and impact due to abstraction, use and discharge to the project area and surroundings considering the shallow and deep aquifer, EIA, SIA and model simulation" has to be submitted to WARPO within next six months.
7. Monitoring well has to be installed on project side to measure the groundwater level.
8. The daily measured or collected groundwater level data of the monitoring well, volume and quality of abstracted Water, Water demand by the industry have to be provided to WARPO on quarterly basis.
9. The Depth of Deep Tube well, Diameter of Pipe, Horse power (HP) of Pump cannot be changed without permission of WARPO Authority.
10. The Distance between the two Deep Tube wells will have to be followed as per condition no 5 of Topsil-1 of "Groundwater Management Rules for Agricultural Purposes 2019".
11. The project will not pollute the nearby water body and will not deteriorate bio-diversity and freshwater ecosystems dependent upon the water body concerned and will not hamper water security and water right of nearby community.
12. The project will not change the natural flow of water as per Bangladesh Water Act, 2013, article 34.

13. The treated discharge water might be reserved in a pond excavated by the Authority within the boundary of the Project area and the discharge water will not do any harm to the aquatic bionetwork. It is strongly discouraged to discharge treated the waste water in the natural Channel or River. However, There should have a mechanism of '3Rs" (reduce, reuse and recycle) policy for management of waste water.
14. There should have a rainwater harvesting system and the harvested water can be used for different purposes.
15. In case of any adverse impact on the nearby community due to groundwater abstraction by company, immediate mitigation measures and compensation must be ensured and be reported to WARPO.
16. There should have adequate green space with vegetation around the plant area. It is recommended to build a water reservoir for recharge to Groundwater. However, it is strictly prohibited to inject the contaminated water or wastewater to the underground aquifer.
17. The Company will arrange the Training Programme regarding 'Water Governance and Compliance Monitoring' time to time to their employees.
18. Extensive awareness need to be built regarding water use and impact to the employees of the company and the nearby community of project area.
19. The NOC is not transferable/exchangeable without the prior approval.
20. Within the validity period of the NoC, any decision (imposition of water charges, issuance/renewal fee or service charge for NoC/ Clearing Cerificate, levy of penalty for violation of enforcement or protection order, etc.) taken by the Government under the Bangladesh Water Act, 2013 and Bangladesh Water Rules, 2018 shall be applicable.
21. WARPO authority can change the existing conditions or add new conditions if necessary within the clearance time period. Moreover, the Authority reserve the power to cancel the 'NOC' if any condition of 'NOC' or Provision of Bangladesh Water Act, 2013 and Bangladesh Water Rules, 2018 is violated.
22. 'Clearance Certificate' will have to be taken from 'Department of Environment (DoE).

22/05/2023

(Md. Rezaul Maksud Jabedi)
Director General, WARPO
Phone: 44819006
E-mail: dg@warpo.gov.bd

Chief Engineer
North-West Power Generation Company Limited,
Soidabad, Sirajgonj.

Copy for kind information:
1. Director General, Department of Environment (DoE), Agargaon, Dhaka
2. Deputy Commissioner & Chairman, District Integrated Water Resources Management Committee, Sirajgonj.
3. PS to Secretary (for kind information to Secretary), Ministry of Water Resources.
4. PS to DG, WARPO (For kind information of DG, WARPO)
5. Office Copy.

NOC form WARPO

ক্রঃ ০৯৫১৮৮৫

Ref. No.: 27.28.8878.002.07.002.19.607 Date: 31-10-2023

Contract Agreement

THIS AGREEMENT is made on the day of 31st October, 2023 between Chief Engineer, Sirajganj Power Station, NWPGCL, Soydabad, Sirajganj (hereinafter called "the Procuring Entity") of the one part and M/S Surzya Enterprise, Hossaingpur, Sirajganj (hereinafter called "the Contractor") of the other part:

WHEREAS the Procuring Entity invited Quotation for certain works and physical services named "Removal of Waste Materials (Household, Unusable used/Old filter, Grass-leaves and related wastage materials) from Sirajganj Power Station to any designated place of Sirajganj Municipality" and has accepted the Quotation submitted by the Quotationer for the execution of those works in the sum of Tk 9,60,000.00 (Taka Nine Lakh Sixty Thousand Only), (hereinafter called "the Contract Price").

Now, this agreement witnessed as follows:

1. The documents forming the Contract shall be interpreted in the following order of priority:
   a) the signed Contract Agreement
   b) the Letter of Invitation
   c) the Specifications
   d) the Bill of Quantities
   e) any other document listed anywhere in the Contract.

2. The total Contract Price is BDT **Tk 9,60,000.00 (Taka Nine Lakh Sixty Thousand Only).**

3. Initially the contract is made for 1 (One) years only starting from the 1st November 2023 and the contract period may be extended upon mutual agreement of both parties.

4. The Contractor shall have to commence the works from 1st November, 2023.

5. The Procuring Entity shall check and verify the works executed by the Contractor and notify the Contractor of any defects found.

Page 1 of 3

"দেশপ্রেমের শপথ নিন, দুর্নীতিকে বিদায় দিন"

ক্রম ০৯৫১৮৮৬

6. The Contractor's rates or prices shall be inclusive of profit and overhead and, all kinds of taxes, duties, fees, levies, and other charges to be paid under the Applicable Law.

7. If it is not possible by the Contractor to remove waste from Sirajganj Power Station for any day/days in a month, a proportion of amount will be deducted for that/those particular day/days from the bill.

8. The Contractor shall submit the bill quarterly (Every 03 months). The bill shall be paid by the Procuring Entity within 15(Fifteen) working days from the date of submission of the bill/invoice by the Contractor.

9. No works under extra work orders shall be permissible and, works under variation orders (except in case of Lump-sum basis) shall under no circumstances exceed fifteen (15) percent of the Contract Price subject to threshold specified in Rule 69 (1) and 69 (6) (ka) & (ga) of the Public Procurement Rules, 2008, as appropriate.

10. The Procuring Entity contracting shall amend the Contract incorporating required approved changes subsequently introduced to the original Conditions of Contract in line with Rules, where necessary.

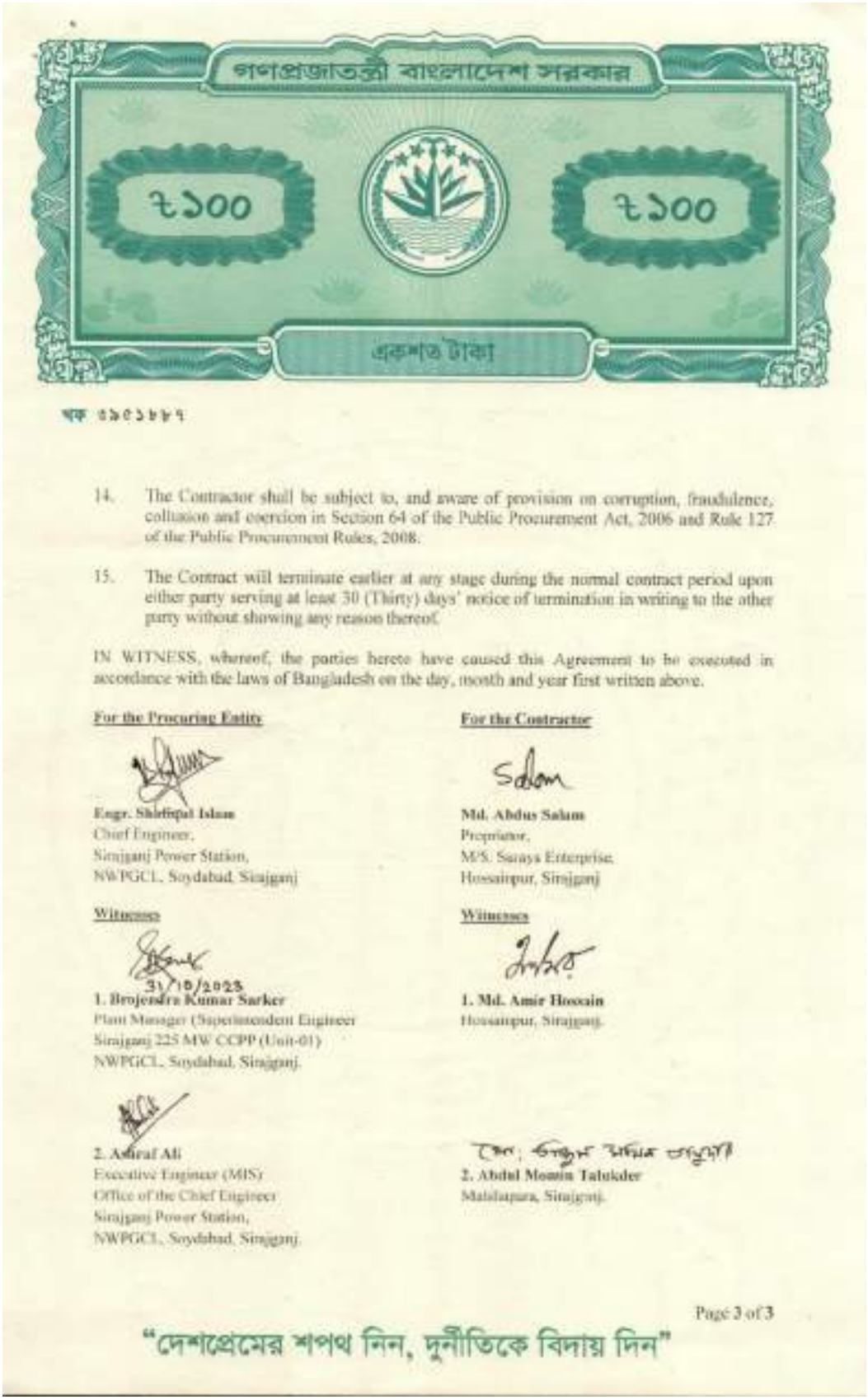
11. The Contractor shall keep the Procurement Entity harmless and indemnify from any claim, loss of property or life to himself/herself, his/her workmen or staff, any staff of the Procurement Entity or any third party while executing the work. Any claim arising out of execution of the works shall be settled by the Contractor at his/her own cost and responsibility.

12. The Procuring Entity may, by written notice sent to the Contractor, terminate the Contract in whole or in part at any time, if the Contractor:
   a) fails to sign the Contract or commence the work within the specified time.
   b) after receipt of a written notice from the Procuring Entity does not remedy its failure within the time period specified therein.
   c) in the judgment of the Procuring Entity, has engaged in any corrupt, fraudulent, collusive or coercive practices in competing for or in executing the Work.
   d) fails to perform any other obligation(s) under the Contract.

13. The Procuring Entity and the Contractor shall use their best efforts to settle amicably all possible disputes arising out of or in connection with this Contract or its interpretation.

Page 2 of 3

"দেশপ্রেমের শপথ নিন, দুর্নীতিকে বিদায় দিন"



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

৳১০০ ৳১০০

একশত টাকা

ক্রম ১৯৫১৮৮৭

14. The Contractor shall be subject to, and aware of provision on corruption, fraudulence, collusion and coercion in Section 64 of the Public Procurement Act, 2006 and Rule 127 of the Public Procurement Rules, 2008.

15. The Contract will terminate earlier at any stage during the normal contract period upon either party serving at least 30 (Thirty) days' notice of termination in writing to the other party without showing any reason thereof.

IN WITNESS, whereof, the parties hereto have caused this Agreement to be executed in accordance with the laws of Bangladesh on the day, month and year first written above.

For the Procuring Entity

Engr. Shafiqul Islam
Chief Engineer,
Sirajganj Power Station,
NWPGCL, Soydabad, Sirajganj

For the Contractor

Md. Abdus Salam
Proprietor,
M/S. Sarays Enterprise,
Hossainpur, Sirajganj

Witnesses

31/10/2023

1. Brojendra Kumar Sarker
Plant Manager (Superintendent Engineer
Sirajganj 225 MW CCPP (Unit-01)
NWPGCL, Soydabad, Sirajganj.

2. Ashraf Ali
Executive Engineer (MIS)
Office of the Chief Engineer
Sirajganj Power Station,
NWPGCL, Soydabad, Sirajganj.

Witnesses

1. Md. Amir Hossain
Hossainpur, Sirajganj.

2. Abdul Momin Talukder
Malalapara, Sirajganj.

Page 3 of 3

"দেশপ্রেমের শপথ নিন, দুর্নীতিকে বিদায় দিন"

Contract Agreement between NWPGCL and 3rd Party Waste Collector

BUREAU VERITAS

Bureau Veritas Certification

NORTH-WEST POWER GENERATION COMPANY LIMITED

HEAD OFFICE: UNIQUE TRADE CENTER (LEVEL- 03 AND 04), 8 PANTHAPATH, KAWRANBAZAR, DHAKA-1215, BANGLADESH

This is a multi-site certificate, additional site(s) are listed on the next page(s)

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System Standards detailed below.

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

CORPORATE MANAGEMENT OF POWER PLANTS, POWER GENERATION & SUPPLY TO THE NATIONAL GRID.

Original cycle start date for ISO 9001 & ISO 14001:	**14 October 2016**
Original cycle start date for ISO 45001:	**28 August 2018**
Expiry date of previous cycle:	**13 October 2022**
Recertification Audit date:	**07 August 2022**
Recertification cycle start date:	**11 October 2022**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **13 October 2025**

Certificate No. **IND.22.8649/IM/U** Version: **1** Issue date: **11 October 2022**

Signed on behalf of BVCH SAS UK Branch
Jagdheesh N. MANIAN
Director – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

UKAS MANAGEMENT SYSTEMS 0008

Certification body address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom.

Local office: Bureau Veritas (Bangladesh) Pvt. Ltd. Synesthesy (5th Floor), Plot- SE(F)9, Road-142 South Avenue, Gulshan-1, Dhaka-1212, Bangladesh.

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call + 88 (02) 8836765.

Bureau Veritas Certification

NORTH-WEST POWER GENERATION COMPANY LIMITED

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

CORPORATE MANAGEMENT OF POWER PLANTS, POWER GENERATION & SUPPLY TO THE NATIONAL GRID.

SITE	ADDRESS	SCOPE
HEAD OFFICE	UNIQUE TRADE CENTER (LEVEL- 03 AND 04), 8 PANTHAPATH, KAWRANBAZAR, DHAKA-1215, BANGLADESH	CORPORATE MANAGEMENT OF POWER PLANTS
SIRAJGANJ POWER STATION (UNIT-1, UNIT-2, UNIT-3)	SOYDABAD, SIRAJGANJ, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
KHULNA 225 MW COMBINED CYCLE POWER PLANT	GOALPARA, KHALISHPUR, KHULNA, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
BHERAMARA 410 MW COMBINED CYCLE POWER PLANT	BHERAMARA, KUSHTIA, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
MADHUMATI 100 MW HFO BASED POWER PLANT	MOLLAHAT, BAGERHAT, BANGLADESH	POWER GENERATION & SUPPLY TO THE NATIONAL GRID
SIRAJGANJ 7.6 MW GRID CONNECTED SOLAR PV POWER PLANT	SOYDABAD, SIRAJGANJ, BANGLADESH	POWER GENERATION & SUPPLY TO NORTHERN ELECTRICITY SUPPLY COMPANY

Certificate No. IND.22.8649/IM/U **Version: 1** **Issue date: 11 October 2022**

Signed on behalf of BVCH SAS UK Branch
Jagdheesh N. MANIAN
Director – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

UKAS

Certification body address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom

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ISO Certificate

ANNEX B: PHOTO DOCUMENTATION

Opening meeting with NWPGCL management

Proper safety cautions board on the way to premise

Proper safety cautions on the way to premises

Good housekeeping observed at the premise

Fire Extinguisher found in box at some locations

Fire Extinguisher were found hanging on the wall at some locations

Speed limit signage properly display

Convex Traffic Mirrors for Traffic Control

Eye wash basin observed at the chemical storage

Good housekeeping observed at chemical storage

Segregated waste bins observed at the plant premise

Good condition of the hose pipe

Proper Caution Signage

Pest Control at plant area

Signages of assembly point displayed in several visible locations at the premise

Fuel unloading area

Proper safety instruction and signage observed

Grievance box at entry point of the plant

Properly segregated used oil drum	Consultation with the community people
	
Proper safety cautions on the way to premises	Consultation with the community people
	
LED Emergency Signage found different part of the Project Area	Entry Log Book at Main Gate
	
PA System found at Project Area for Emergency Evacuation	Security Watchtower at Project Area

Demarkation of Assembly Point

Pillar Hydrant System at Project Area

Chemical Warehouse Under Construction at Project Area

Security Camera at Project Area

Emmergency Contact Number at project site

Toilet and Washroom are found with good condition

Ambulance Found at Project Area

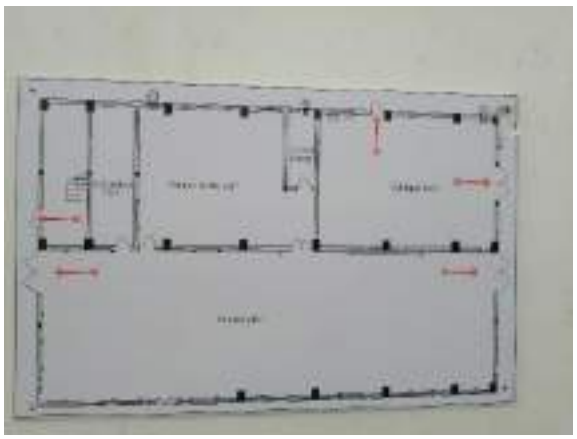
Road Construction at Residential Area

Designated Site Proposed for Administrative Building-2

Designated Site Proposed for Motorcycle Garage

Dedicated parking area

Security Check at Entry Gate

Fire service vehicles at project area	Tree plantation at whole project area
	
Aedes mosquito warning sign at project area	Chemical storage in open area
	
MSDS at Chemical storage	Precaution from Snake
	
Waste are found with proper managment	Emergency Evacution Plan at WTP

Grievance Box Found at Local Community During Site Visit

Consultation at Local Community During Site Visit

Closing Meeting after Field Visit and Audit

Closing Meeting after Field Visit and Audit