National Mission for Clean Ganga (NMCG)
Ministry of Jal Shakti,
River Development & Ganga Rejuvenation
Government of India

Development and Rehabilitation of Sewage Treatment Plants and Associated Infrastructure Under Hybrid Annuity Based PPP Mode at Prayagraj, Uttar Pradesh

(LOA File Number: 50123/447/121, dated 10/11/2018)

Monthly Progress Report
of
Project Engineer
February 2023

Executing Agency	Funding Agency	Project Engineer	Concessionaire
GPCU, Uttar Pradesh Jal Nigam, Prayagraj, Uttar Pradesh 211008	National Mission for Clean Ganga, Ministry of Water Resources, New Delhi 110002	AECOM India Pvt. Ltd., 19/F, Bldg. 5-C, DLF Cyber City, DLF Phase-III, Gurgaon, Haryana-122002	Prayagraj Water Pvt. Ltd., (SPV of ADANI Enterprise Ltd. and Organica Technologiak ZRT) Adani House, 56 Shri Mall, Society, Navrangpura, Ahmedabad.

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1. Introduction

The GoI (Government of India), recognizing that the long-term rejuvenation of the river Ganga will have significant social and economic benefits on the lives of 500 Million people living along its basin, has identified cleaning of the river Ganga as one of its priorities. For this purpose, in May-2015, The Government of India approved the flagship Namami Gange Program for cleaning rejuvenation and protection of river Ganga and its tributaries. In january-2016, The Government of India approved a Hybrid annuity model to implement the STP project under the Namami Gange program on a PPP basis.

Subsequently, the MoWR (Ministry of Water Resources) issued the river Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 (Ganga 2016 Order) to constitute various authorities to assist the Government of India in achieving its aim of effective abatement of pollution in the river Ganga. The Ganga 2016 order designated NMCG as the nodal agency for implementation of the Ganga 2016 order.

Rapidly increasing population, rising standards of living and exponential growth of industrialization and urbanisation have exposed water resources, in general, and rivers to various forms of degradation. The mighty Ganga is no exception. The deterioration in the water quality impacts the people immediately. Ganga, in some stretches, particularly during lean seasons has become unfit even for bathing. The threat of global climate change, the effect of glacial melt on Ganga flow and the impacts of infrastructural projects in the upper reaches of the river, raise issues that need a comprehensive response.

In the Ganga basin approximately 12,000 million litres per day (MLD) sewage is generated, for which presently there is a treatment capacity of only around 4,000 MLD. Approximately 3000 MLD of sewage is discharged into the mainstream of the river Ganga from the Class I & II towns located along the banks, against which treatment capacity of about 1000 MLD has been created till date.

The Uttar Pradesh Jal Nigam (Jal Nigam) is a statutory body constituted under the Uttar Pradesh Water Supply and Sewerage Act, 1975, and has the power to develop, maintain and regulate water supply and sewerage works in Uttar Pradesh. With a view to implement the Namami Gange programme and the Ganga 2016 Order, the Jal Nigam, in association with the NMCG, has decided to undertake the Project;

- Development and Rehabilitation of Sewage Treatment Plants (STPs) and Associated Infrastructure at Prayagraj under Hybrid Annuity based PPP mode in State of Uttar Pradesh.

While the Jal Nigam will be the principal executing agency and bidding authority for the Project, NMCG will be responsible for making payments to the Concessionaire and Project Engineer.

2. Hybrid Annuity Model (HAM)

Government of India has approved the Namami Gange program as an integrated approach for effective abatement of pollution in river Ganga and Yamuna. As part of this and to ensure that no untreated domestic sewage flow into the river Ganga and Yamuna, various interventions are planned such as Interception & Diversion works and development & operation of Sewage Treatment Plants (STPs).

Considering various development models in practice for the construction, operation and maintenance of Sewage Treatment Plants, Government of India has approved the Hybrid Annuity based Public Private Partnership (PPP) mode as one of the options for the development & operation of STPs. Under this model, private investor/developer will design, build, finance, construct, rehabilitate, renovate, operate and maintain the asset (STPs, IPS, and MPS) to the Project Executing Agency/Jal Nigam at the end of the Concession Period (15 years). 40% of the Capital cost will be paid to the developer during construction of the STP. Balance 60% along with Operation & Maintenance (O&M) cost will be paid over the Concession Period on achievement of key performance indicators as per the contract. Entire cost of development and operation of the STPs will be 100% funded by the Government of India as central sector scheme.

National Mission for Clean Ganga (NMCG) and Uttar Pradesh Jal Nigam (UPJN) appointed M/s. AECOM India Pvt. Ltd., as Project Engineer for this project through tendering process. Letter of Award is issued dated 4th February 2019 and agreement signed between the parties on 5th April 2019.

3. Objectives

Objectives to achieve effective Development of Sewage Treatment Plants (STPs) at Jhunsi, Naini and Phaphamau, rehabilitation of existing STPs & associated Infrastructure and operation and maintenance of all assets for 15 years in Prayagraj, Uttar Pradesh, under Hybrid Annuity based PPP mode are proposed under this project.

The objectives that NMCG and the UP Jal Nigam wish to achieve through the Project is mentioned in **Figure 1;**

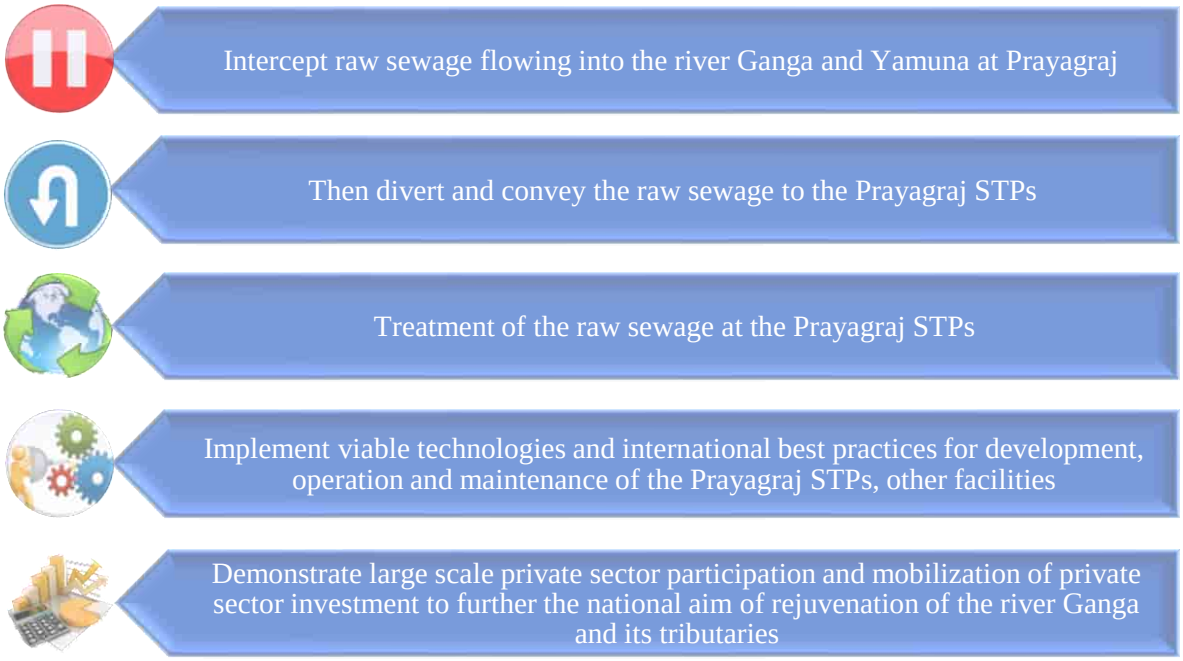

Figure 1 : Objectives of NMCG and UP JAL NIGAM

Government of India has approved the Namami Gange program as an integrated approach for effective abatement of pollution in river Ganga and Yamuna. As part of this and to ensure that no untreated domestic sewage flow into the river Ganga and Yamuna, various interventions are planned such as Interception & Diversion works and development & operation of Sewage Treatment Plants (STPs). Considering various development models in practice for the construction, operation and maintenance of Sewage Treatment Plants, Government of India has approved the Hybrid Annuity based Public Private Partnership (PPP) mode as one of the options for the development & operation of STPs. Under this model, private investor/developer will design, build, finance, construct, rehabilitate, renovate, operate and maintain the asset (STPs and Associate Infrastructure) to the Project Executing Agency/Jal Nigam/ at the end of the Concession Period (say 15 years). 40% of the Capital cost will be paid to the developer during construction of the STP. Balance 60% along with Operation & Maintenance (O&M) cost will be paid over the Concession Period on achievement of key performance indicators as per the contract. Entire cost of development and operation of the STPs will be 100% funded by the Government of India as central sector scheme.

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4. Project at Glance

The Project components details of each Facility, their grouping in each Package is presented below.

Sr. No.	Particulars	Description
1.0	**Name of Project**	**Development and Rehabilitation of Sewage Treatment Plants and Associated Infrastructure under HAM based PPP mode at Prayagraj, Uttar Pradesh**
	Client	National Mission for Clean Ganga (NMCG) and Uttar Pradesh Jal Nigam (UPJN)
2.0	Executing Agency	Uttar Pradesh Jal Nigam, Ganga Pollution Control Unit, Prayagraj, Uttar Pradesh
3.0	Project Engineer	AECOM India Pvt. Ltd.
4.0	Concessionaire	Prayagraj Water Pvt. Ltd. (SPV of ADANI Enterprise Ltd. JV Organica Technologiak ZRT)
5.0	Contract Value (Capex + Opex)	INR 908.3 Crore
6.0	Effective Date	16th September 2019
7.0	Construction Completion Date	Package-I; 24 months from effective date Package-II; 12 months from effective date Package-III; 6 months from effective date
6.0	Operation & Maintenance	Package-I; 15 years from commercial operation date Package-II; 16 years from commercial operation date Package-III; 16.5 years from commercial operation date

5. Site Location

Entire work has been divided/ distributed in the following 3 packages.

- Package-I: Construction of 03 Nos. new STP's with Associated Infrastructure (Naini-II (42 MLD), Jhunsi (16 MLD) & Phaphamau (14 MLD)). Setup rooftop Solar Power Plant of capacity 930kW (110kW at Phaphamau, 800kW at Naini-II and 20kW at Jhunsi).

- Package II: Rehabilitate and Restore 02 Nos. STP's with Associated Infrastructure (Rajapur (60 MLD) & Naini-I (60+20 MLD).

- Package III: Rehabilitate and Restore 04 Nos. STP's with Associated Infrastructure Numayadahi (50 MLD), Ponghat (10 MLD), Kodra (25 MLD) & Salori (29 MLD).

6. Project Components

The Project components details of each Facility, their grouping in each Package is presented below

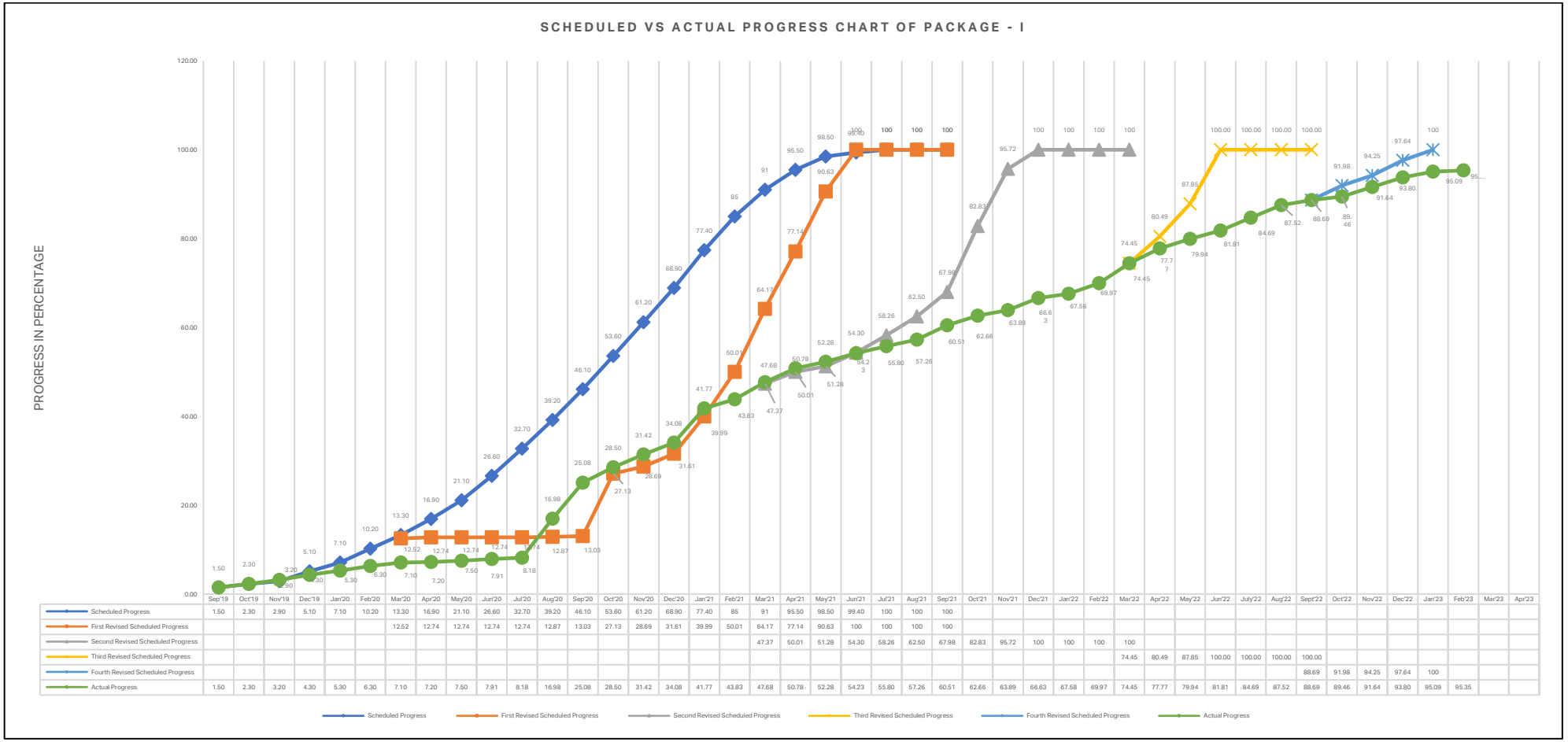
Package Number - I				
Nature of work	**Facilities**			
New construction	Design, develop, finance, construct, operate and maintain, and transfer the Package-I Facilities including three STP facilities with a proposed capacity of 42 MLD at Naini (District G), 14 MLD at Phaphamau (District F), and 16 MLD at Jhunsi along with their Associated Infrastructure, as per the provisions of the Concession Agreement, and in adherence to the applicable Key Performance Indicators			
Sr. No.	**Facility Name**	**Part Of**	**Details**	**Capacity (Average)**
1	Phaphamau Facilities (District -F)	Phaphamau STP Facilities	Phaphamau STP Plant	14 MLD
			Solar Power Plant	110 Kw
		Phaphamau Associated Infrastructure	Basna Nalla SPS	5.53 MLD
			Nalla Tapping and Trunk Sewer	2 Nos. Tapping
			Shantipuram Main Pumping Station	14 MLD
2	Naini Facilities (District - G)	Naini – II STP Facilities	Naini –II STP	42 MLD
			Solar Power Plant	800 Kw
		Naini -II Associated Infrastructure	Mawaiya Drain SPS	35.85 MLD
			Mawaiya Drain Tapping and Trunk Sewer	3 Nos. Tapping
			Mahewaghat Drain SPS	2.15 MLD
			Mahewaghat Drain a nd Trunk Sewer	3 Nos. Of Tapping
			Main Pumping Station	43.5 MLD
3	Jhunsi Facilities	Jhunsi STP Facilities	Jhunsi STP	16 MLD
			Solar Power Plant	20 Kw
		Jhunsi Associated Infrastructure	Shastri Bridge SPS	16 MLD
			Nalla Tapping a nd Trunk Sewer	13 Nos. Tapping
			Main Pumping Station	16 MLD

Package Number - II				
Nature of work	**Facilities**			
Rehabilitation	Design (wherever necessary), rehabilitate, restore, finance, operate and transfer two existing STP Facilities, one of capacity 80 MLD at Naini (District A) and other of capacity 60 MLD at Rajapur (District D) along with their Associated Infrastructure as per the provisions of the Concession Agreement, and in adherence to the applicable Key Performance Indicators.			
Sr. No.	**Facility Name**	**Part Of**	**Details**	**Capacity (Average)**
1	Naini -I Facilities (District A)	Naini–I STP Facilities	Naini –I STP (60 MLD) STP Technology: ASP	60 MLD
			Naini –I STP (20 MLD) STP Technology: ASP	20 MLD
			Naini- I Biogas Plant	600 KW
		Naini–I Associated Infrastructure	Chachar Nalla SPS	35 MLD with 2 Nos. Tapping
			Gaughat MPS	80 MLD
2	Rajapur Facilities (District D)	Rajapur STP Facilities	Rajapur STP STP Technology: UASB	60 MLD
		Rajapur Associated Infrastructure	Mumfordgunj SPS	55 MLD with 1 Nos. Tapping
			Rajapur SPS	25 MLD with 1 Nos. Tapping

Package Number - III				
Nature of work	**Facilities**			
Rehabilitation	Design (wherever necessary), rehabilitate, restore, finance, operate and transfer four existing STP Facilities, one of capacity 50 MLD at Numayadahi (District B), one of capacity 29 MLD at Salori (District C), one of capacity 25 MLD at Kodra (District E) and another of capacity 10 MLD at Ponghat (District E), along with their Associated Infrastructure, as per the provisions of the Concession Agreement, and in adherence to the applicable Key Performance Indicators.			
Sr. No.	**Facility Name**	**Part Of**	**Details**	**Capacity (Average)**
1	Salori Facilities (District - C)	Salori STP Facilities	Salori STP (29 MLD) STP Technology: FAB	29 MLD
		Salori Associated Infrastructure	Salori MPS	29 MLD with 1 Nos. Tapping
2	Numayadahi Facilities (District B)	Numayadahi STP Facilities	Numayadahi STP STP Technology: Bio tower + ASP	50 MLD
		Numayadahi Associated Infrastructure	Ghaggar Nalla SPS	50 MLD with 1 Nos. Tapping
			Sasur Kadheri SPS	15 MLD with 1 Nos. Tapping
			Lukarganj SPS	16.5 MLD with 1 Nos. Tapping
3	Kodra Facilities (District E)	Kodra STP Facilities	Kodra STP STP Technology:Bio tower + ASP	25 MLD
		Kodra Associated Infrastructure	Kodra MPS	25 MLD with 1 Nos. Tapping
4	Ponghat Facilities (District E)	Ponghat STP Facilities	Ponghat STP STP Technology: Bio tower + ASP	10 MLD
		Ponghat Associated Infrastructure	Ponghat MPS	10 MLD with 1 Nos. Tapping

7. Status of project

7.1 Package-I Overall progress status



- **Project Engineer has provided observation on Concessionaire February'23-month MPR vide letter number AIPL/NMCG/PRAYAG/1579 on dated 18.03.2023 Therefore, status may be change after observation incorporated by Concessionaire.**

7.1.7 Physical construction Activities in February'23 month

PHYSICAL CONSTRUCTION ACTIVITIES, PROJECT ENGINEER INSPECTION , KPI REPORT AND RECOMMENDATION FOR PACKAGE-I IS MENTIONED IN

ANNEXURE - I

7.2 Package-II status

OFFICE OF THE GENERAL MANAGER,
कार्यालय महाप्रबन्धक,
GANGA POLLUTION CONTROL UNIT,
गंगा प्रदूषण नियंत्रण इकाई,
U.P. JAL NIGAM, PRAYAGRAJ
उ० प्र० जल निगम, प्रयागराज
Email- ***gmganga.allahabad@gmail.com***

Letter no. 2484 /PWPL (Adani) / 496 Dated: 20/ 09 / 2021

To,

General Manger-Project
M/s. Prayagraj Water Private Limited,
"Adani House", 56, Shrimali Society,
Near Mithakhali Six Road,
Navrangpura, Ahmedabad 380006
Gujarat, India.

Name of Work: Development and Rehabilitation of Sewage Treatment Plants and Associated Infrastructure under Hybrid Annuity Based PPP Mode at Prayagraj, Uttar Pradesh.

Sub:- Concession Agreement no. 31/GM/2018-19:Issuance of Commercial Operations Date of Package-II.

Ref :- 1. Our office Letter No 2474/PWPL(Adani)/486 dated 18.09.2021
2. Our office Letter No. 2483/PWPL(Adani)/495 dated 20.09.2021

Sir,

With reference to the above mentioned subject, it is to be noted that we have issued the 4th Milestone completion certificate vide Letter No. 2474/PWPL(Adani)/486 dated 18.09.2021 & Rehabilitation Completion Certificate vide Letter No. 2483/PWPL(Adani)/495 dated 20.09.2021 after the detailed assessment of the documents provided by the concessionaire.

In view of the same, we are hereby issuing the COD certificate to the concessionaire. Details of the same is mentioned below-

Sl. No.	Description	Commercial Operations Date (COD)
1	Rehabilitation works under Pkg-II	01.06.2021

(M.C. Srivastava)
General Manager

End No & date: As above.
Copy to following for information and necessary action

1- Executive Director(Projects), NMCG, New Delhi.
2- Chief Engineer (Ganga), U.P. Jal Nigam Lucknow.
3- Chief Engineer (Prayagraj Zone), U.P. Jal Nigam, Prayagraj.
4- Mr. Rajat Gupta, Sr. Specialist, NMCG, New Delhi.
5- Project Manager (I/E&M), Ganga Pollution Control Unit, U.P. Jal Nigam, Prayagraj.
6- AECOM India Pvt. Ltd. (Project Engineer), Gurgaon.

20/9/21
General Manager

Commercial Operations Date was announced on 01.06.2021 vide letter no. 2484/PWPL (Adani)/496

KPI REPORT'S OF PACKAGE - II

AND

PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION IS MENTIONED IN

ANNEXURE - II

7.3 Package-III status

OFFICE OF THE GENERAL MANAGER,
कार्यालय महाप्रबन्धक,
GANGA POLLUTION CONTROL UNIT,
गंगा प्रदूषण नियंत्रण इकाई,
U.P. JAL NIGAM, PRAYAGRAJ
उ0 प्र0 जल निगम प्रयागराज,
दूरभाष : 0532-2684329, 2684691, फैक्स 0532-2684699

Letter No. 2336/PWPL(Adani)/423 Dated: 02/11/2020

To,

M/s. Prayagraj Water Private Limited,
"Adani House", 56, Shrimali Society,
Near Mithakhali Six Road,
Navrangpura, Ahmedabad-380006
Gujrat, India.

Name of Work: Development and Rehabilitation of Sewage Treatment Plants and Associated Infrastructure under Hybrid Annuity Based PPP Mode at Prayagraj, Uttar Pradesh.

Subject: **Concession Agreement no. 31/GM/2018-19:** Issuance of Commercial Operations Date of Package-III.

Sir,

With reference to the above mentioned subject, it is to be noted that we have issued the 2nd Milestone completion certificate vide Letter No. 2328/PWPL(Adani)/415 dated 31.10.2020 & Rehabilitation Completion Certificate vide Letter No. 2330/PWPL(Adani)/417 dated 31.10.2020 and LD Waiver Letter No. 2331/PWPL(Adani)/418 dated 31.10.2020 after the detailed assessment of the documents provided by the concessionaire.

In view of the same, we are hereby issuing the COD certificate to the concessionaire. Details of the same is mentioned below-

Sl. No.	Description	COD Commencement Date
1	Rehabilitation works under Pkg-III	01.11.2020

Yours faithfully

General Manager

Endt No. & and date as above:

Copy to following:

1- E.D.(Projects), NMCG, New Delhi.
2- MD, UPIN Lucknow.
3- Chief Engineer (Ganga), U.P. Jal Nigam Lucknow.
4- Chief Engineer (Prayagraj Zone), U.P. Jal Nigam Prayagraj.
5- Shri. Madav Kumar, Sr. Economics and Financial Expert, NMCG, New Delhi.
6- Project Manager (I/E&M), GPCU, U.P. Jal Nigam Prayagraj.
7- AECOM India Pvt. Ltd. (Project Engineer), Gurgaon.

Commercial Operations Date was announced on 02.11.2020 vide letter no. 2336/PWPL (Adani)/423

KPI REPORT'S OF PACKAGE - III

AND

PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION IS MENTIONED IN

ANNEXURE - III

8. Meetings, Discussions and Site Visits:

Regular progress review meetings are being held at UPJN office & sites. Following meetings were held during the month of February 2023.

Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
1.	Site inspection of Naini-II STP & Associate infrastructure	1-Feb-23	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing E&M activities and operation and maintenance of plant
2.	Site inspection of Phaphamau STP & Associate infrastructure	2-Feb-23	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities and operation and maintenance of plant
3.	Site inspection of Naini-II STP & Associate infrastructure	12-Feb-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities and operation and maintenance of plant
4.	Site inspection of Phaphamau STP & Associate infrastructure	20-Feb-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities and operation and maintenance of plant
5.	Site inspection of Jhunsi STP & Associate infrastructure	22-Feb-23	Mr. Gaurav Gupta Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities of plant
6.	Site inspection of Naini-II STP & Associate infrastructure	24-Feb-23	Mr. Gaurav Gupta Mr.Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities and operation and maintenance of plant
7.	Site inspection of Jhunsi STP & Associate infrastructure	26-Feb-23	Mr. Gaurav Pandey Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
8.	Site inspection of Phaphamau STP & Associate infrastructure	27-Feb-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities and operation and maintenance of plant
9.	Site inspection of Jhunsi STP & Associate infrastructure	27-Feb-23	Mr. Gaurav Gupta Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities of plant

10. Photos of Meetings / Site Visits and Activities

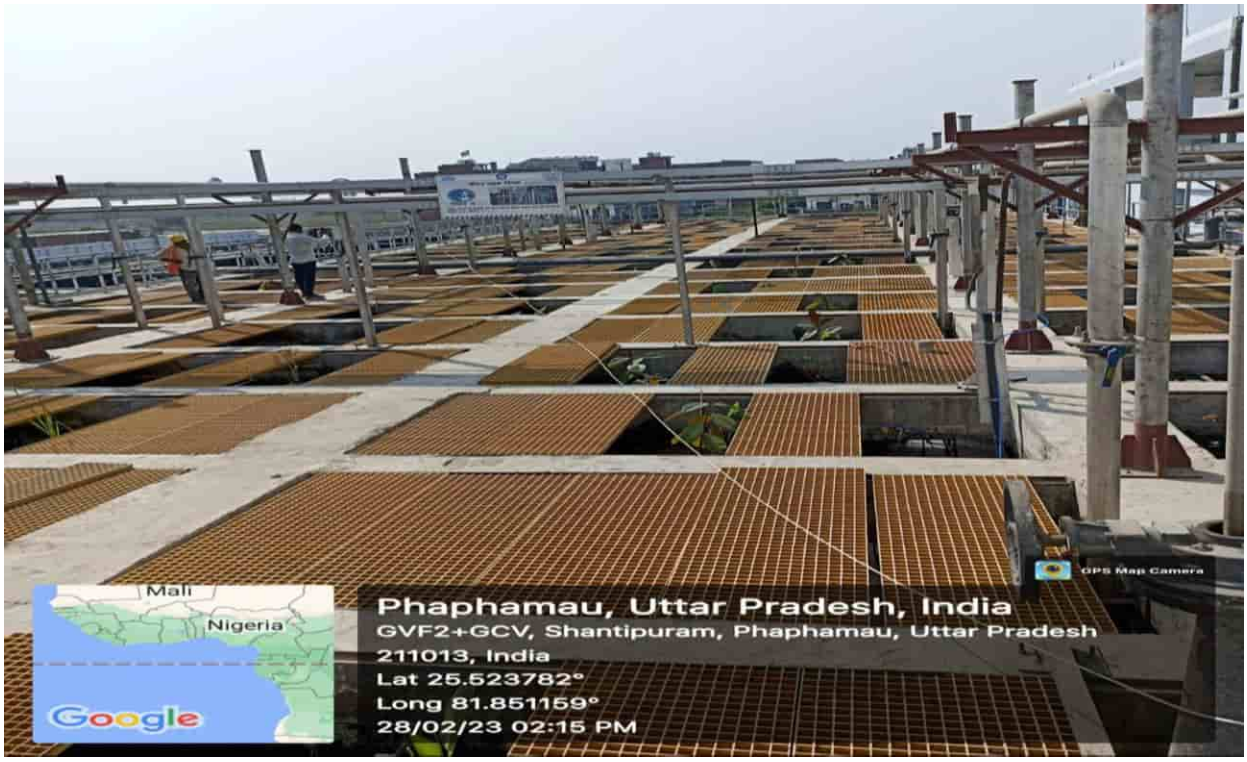
PACKAGE - I

PHAPHAMAU FACILITY

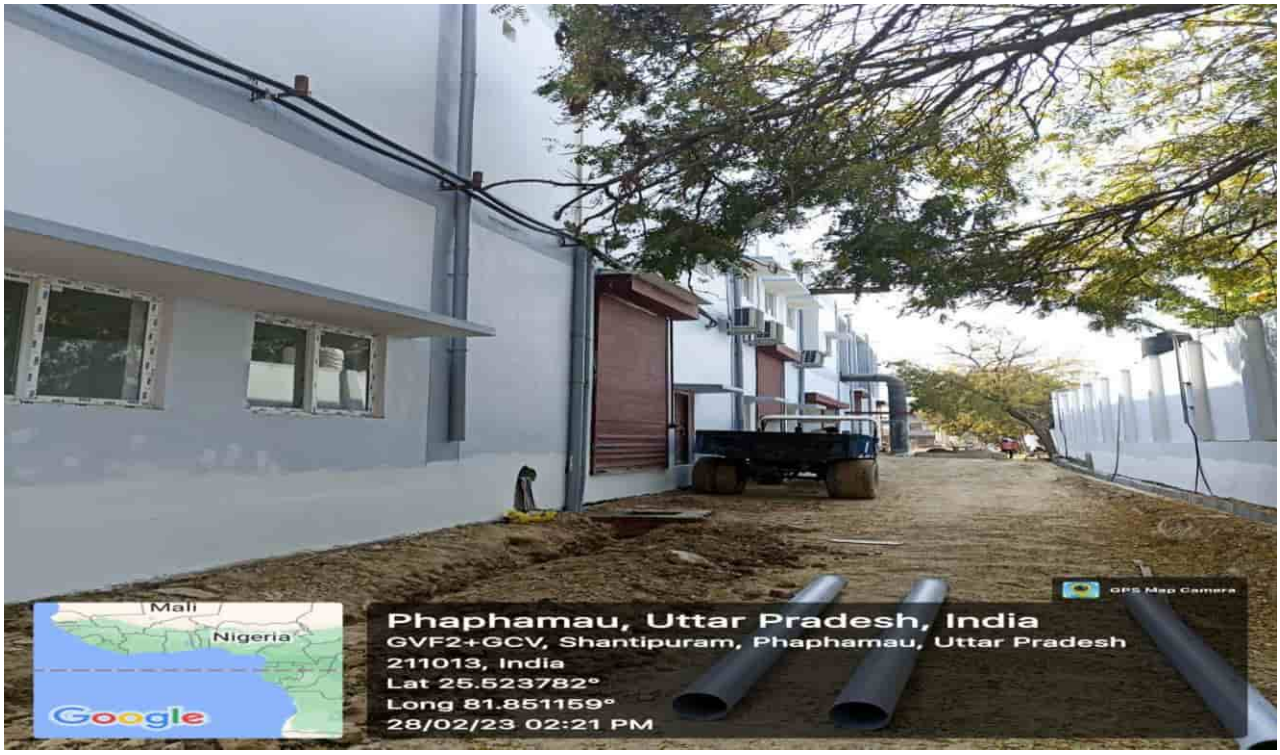
Basna Nalla SPS: Finishing work in progress

MPS – Finishing and Room electrical work in progress

PHAPHAMAU FACILITY

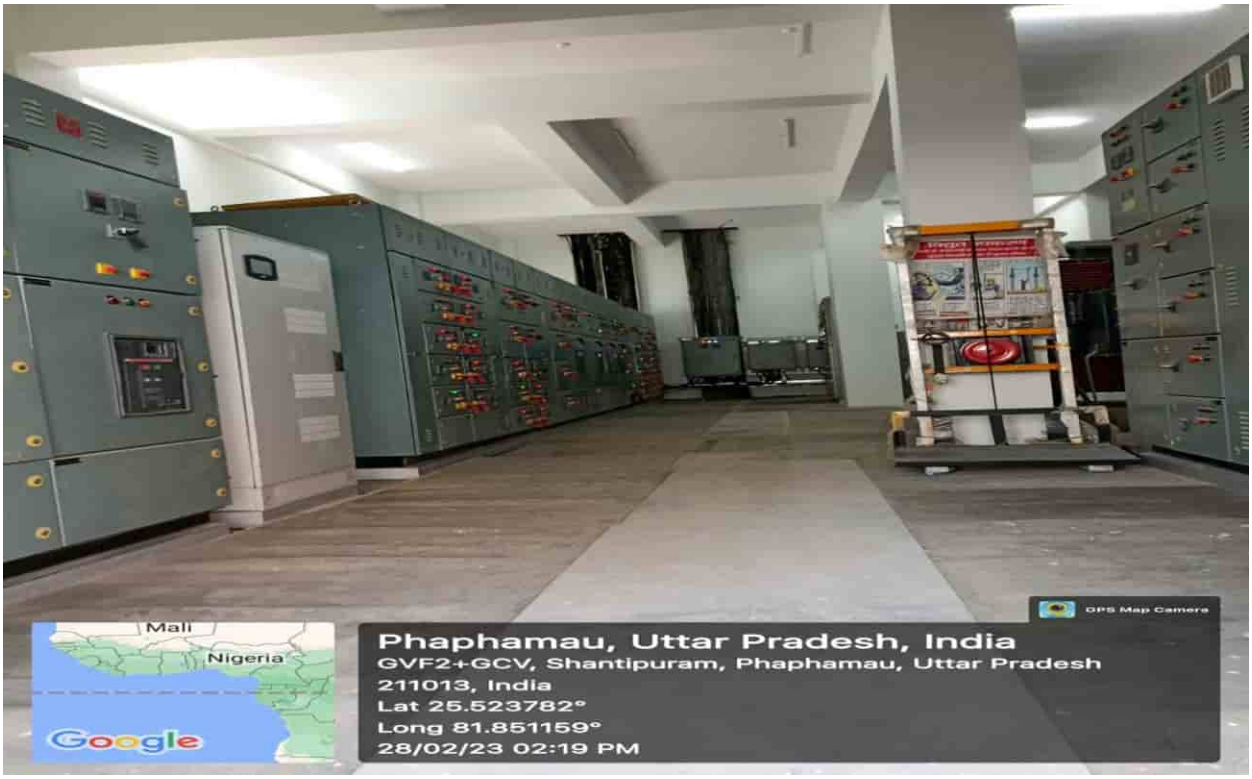


FCR (STP): Instrument calibration, MS structure painting is pending



Process Building – Finishing, MS structure painting and cable dressing work is under progress

PHAPHAMAU FACILITY



Process Building (STP) – Panel erection work completed

PTU – Finishing and MS structure painting work is progress

NAINI-II FACILITY

Naini-II (STP) Process Building– Finishing and MS structure Painting work is under progress

Naini-II (STP) – Concertina wiring, and aera development in progress

NAINI-II FACILITY

Naini-II (STP) Chlorination Room– Analyzer calibration is pending

Naini-II (PTU) – MS structure painting and cable dressing work in progress

JHUNSI FACILITY

Shastri Bridge SPS – Construction under progress

Jhunsi MPS – Finishing as well as E&M work under progress

JHUNSI FACILITY

FCR – E&M work is under progress

Process Building – Finishing, E&M work is under progress

11. Outward Register

List of key design & documents were reviewed by Project Engineer during this period as below.

Sr. No.	PE Transmittal/ Ref No	Description	Outward Date	To (Organization)
1.	AIPL/NMCG/PRAYAG/1562	Regarding Slow Progress of construction works under Package-I	3-Feb-23	S.E.-2 Circle - UPJN
2.	AIPL/NMCG/PRAYAG/1563	Regarding monthly attendance of Project Engineer's staff	7-Feb-23	PM-1, UPJN
3.	AIPL/NMCG/PRAYAG/1564	Regarding Monthly Progress Report of Jan-23 for Package III facilities for the STP Project at Prayagraj under HAM based PPP model.	8-Feb-23	S.E.-2 Circle - UPJN
4.	AIPL/NMCG/PRAYAG/1565	Regarding Monthly Progress Report of Jan-23 for Package III facilities for the STP Project at Prayagraj under HAM based PPP model.	9-Feb-23	S.E.-2 Circle - UPJN
5.	AIPL/NMCG/PRAYAG/1566	Regarding O&M Payment of Quarter- 9 i.e., Nov-22 to Jan-23 for Package IJJ facilities for the STP Project at Prayagraj under HAM based PPP model.	10-Feb-23	S.E.-2 Circle - UPJN
6.	AIPL/NMCG/PRAYAG/1567	Regarding the submission of MPR of Jan'23	20-Feb-23	PM-1, UPJN
7.	AIPL/NMCG/PRAYAG/1568	Submission of O & M Monthly Progress report for the month of January, 2023 of Package – II	20-Feb-23	S.E.-2 Circle - UPJN
8.	AIPL/NMCG/PRAYAG/1569	Inspection Reports of Package-II facilities	22-Feb-23	S.E.-2 Circle - UPJN
9.	AIPL/NMCG/PRAYAG/1570	Inspection reports of Package-III facilities	22-Feb-23	S.E.-2 Circle - UPJN
10.	AIPL/NMCG/PRAYAG/1571	Inspection reports of Package-I facilities	25-Feb-23	S.E.-2 Circle - UPJN
11.	AIPL/NMCG/PRAYAG/1572	Regarding low power factors maintained at facilities under Package-II and Package-III	28-Feb-23	S.E.-2 Circle - UPJN

12. Inward Register

List of key design & documents were received by Project Engineer during this period as below.

Sr. No.	PWPL / UPJN Transmittal reference number	Description	Date	From
1.	PWPL/UPJN/PRAYAGRAJ/SITE /884	Regarding change of applicable GST percentage for Package-I, II & III.	1-Feb-23	Prayagraj water private limited
2.	PWPL/UPJN/PRAYAGRAJ/SITE /886	Regarding the submission of MPR of Jan'23	7-Feb-23	Prayagraj water private limited
3.	19/PWPL/(PRAYAGRAJ)/10	Regarding Phaphamau STP Variation Claim under Package-I	9-Feb-23	S.E.-2 Circle (Rural)-UPJN
4.	22/PWPL/(PRAYAGRAJ)/13	Regarding Reimbursement of O&M, Electricity & Diesel for operation of Naini-II STP COD of Package-I..	9-Feb-23	S.E.-2 Circle (Rural)-UPJN
5.	23/PWPL/(PRAYAGRAJ)/14	Regarding release withheld O&M Payment of 5th Quarter of Package-II	9-Feb-23	S.E.-2 Circle (Rural)-UPJN
6.	24/PWPL/(PRAYAGRAJ)/15	Regarding release withheld O&M Payment of 6th Quarter of Package-II	9-Feb-23	S.E.-2 Circle (Rural)-UPJN
7.	PWPL/UPJN/PRAYAGRAJ/O&M/583	Submission of O & M Monthly progrees report for the month of January 2023 of Package	9-Feb-23	Prayagraj water private limited
8.	26/PWPL/(PRAYAGRAJ)/16	Regarding reimbursement of O&M Charges, Electricity and Diesel for operation of Phaphamau Facility Package-I	13-Feb-23	S.E.-2 Circle (Rural)-UPJN
9.	27/PWPL/(PRAYAGRAJ)/17	O&M Payment Package-III 9th Quarter	13-Feb-23	S.E.-2 Circle (Rural)-UPJN
10.	PWPL/UPJN/PRAYAGRAJ/O&M/587	Replacement of Rising main of Ghagharnala damaged due to illegal houses Construction & Ponghat inlet gravity line.	21-Feb-23	Prayagraj water private limited
11.	PWPL/UPJN/PRAYAGRAJ/SITE /886	Regarding Extension of Time for Package-I.	25-Feb-23	Prayagraj water private limited

13. EHS targets, Achievement & compliance report for the month of February 2023

Sr. No.	Goals	Target of the month	Achievement of this Month	Previous Month achievement	Remark
1	Zero total recordable injuries	100%	100%	100%	
2	All personnel Health and Safety inducted	100%	100%	100%	
3	100% incident reporting and investigation	100%	100%	100%	
4	100% adherence of usage of appropriate PPE's at work	100%	100%	100%	

14. Status of statutory permits:

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
	Phaphamau Facility (Package - I)			
1	Power connection (During commissioning Period)	Electricity Board	2 No.	Approved by NMCG vide letter no-Pr-12012/6/ 2018 /PPP / NMCG Dated 24.06.2022 • Power connection at STP is completed. • Power connection at Basna Nalla SPS. is completed.
2	Consent to Establish	State Pollution Control Board (SPCB)	1 No.	Received
3	Tree cutting	Forest Department	88 No.	Received NOC From Forest Dept for Cutting 88 Nos. of trees.
4	Road cutting & crossing	Public Works Department	NA	Not Required
5	Railway Crossing	Commissioner Railway Safety	NA	Not Required
6	National Highway cutting & crossing	National Highway Authority of India	1 No.	Permission Received from NH PWD vide letter no. 70/NH-96/330 dated 12th Jan 2022 and work has been completed.

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
7	Revenue Road cutting & crossing	Panchayat/Local Authority	NA	Not Required
8	Obtaining No Objection Certificate for various sewerage facilities under the ULB for handing them over to JN	ULB/District Administration	NA	Not Required
9	Construction of Weirs/pipeline crossings	Irrigation department/ULB	2 No.	Received
10	Approach Road to new Facilities	Forest Department/ Panchayat/Local Authority/Irrigation Department	NA	Not Required
11	Consent to operate for Existing Facilities	ULB and SPCB	NA	NA
	Naini-II Facility (Package - I)			
1	Power connection (During commissioning Period)	Electricity Board	3 No.	• Approved by NMCG vide letter no-Pr-12012/6/ 2018 /PPP / NMCG Dated 24.06.2022 • Power connection at STP and Mawaiya SPS and Mahewaghat is completed.
2	Consent to Establish	State Pollution Control Board (SPCB)	1 No.	Received
3	Tree cutting	Forest Department	-	Will be applied as and when required, presently not required.
4	Road cutting & crossing	Public Works Department	1 No.	Applied on dated 19.10.2020 for STP main line. NOC received from Mahewaghat SPS to Naini-II MPS on 08th Dec'2020 from Provincial Division. NOC received from PDA on 03.02.2021.

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
5	Railway Crossing	Commissioner Railway Safety	1 No.	Permission received from Railway vide Letter No. 86-W/KM/821/L-PRYJ-NYN Dated:16.07.2021
6	National Highway cutting & crossing	National Highway Authority of India	NA	NA
7	Revenue Road cutting & crossing	Panchayat/Local Authority	1 No.	Total 01 nos. NOC received from PDA on 03.02.2021
8	Obtaining No Objection Certificate for various sewerage facilities under the ULB for handing them over to JN	ULB/District Administration	NA	Not Required
9	Construction of Weirs/pipeline crossings	Irrigation department/ULB	6 No.	Received
10	Approach Road to new Facilities	Forest Department/ Panchayat/Local Authority/Irrigation Department	NA	Not Required
11	Consent to operate for Existing Facilities	ULB and SPCB	1 No.	NA
	Jhunsi Facility (Package - I)			
1	Power connection (During commissioning Period)	Electricity Board	2 No.	Approved by NMCG vide letter no-Pr-12012/6/ 2018 /PPP / NMCG Dated 24.06.2022
2	Consent to Establish	State Pollution Control Board (SPCB)	1 No.	Received
3	Tree cutting	Forest Department	NA	Not Required
4	Road cutting & crossing	Public Works Department	NA	NA
5	Railway Crossing	Commissioner Railway Safety	1 No.	Permission received from railway vide letter No W/98-13/2020/71/W- DATED 29/03/2022

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
w	National Highway cutting & crossing	National Highway	NA	NA
7	Revenue Road cutting & crossing	Panchayat/Local Authority	1 No.	Permission received
8	Obtaining No Objection Certificate for various sewerage facilities under the ULB for handing them over to UPJN	ULB/District Administration	NA	Not Required
9	Construction of Weirs/pipeline crossings	Irrigation department/ULB	13 No	Received
10	Approach Road to new Facilities	Forest Department/ Panchayat/Local Authority/Irrigation Depar4ent	NA	Not Required
11	consent to operate for Existing Facilities	ULB and SPCB	NA	NA

15. Plant & Machinery Status

Sr. No.	Machinery	Phaphamau 14 MLD	Naini II 42 MLD	Jhunsi 16 MLD	Total
1.	JCB	1	1	3	5
2.	Dumper	-	-	-	-
3.	Proclaim	-	1	2	3
4.	Ajax	1	1	1	3
5.	Hydra	-	1	2	3
6.	Roller	-	1	-	1
7.	Submersible Pump 2HP	3	1	4	8
8.	Diesel Pump 5 HP	-	-	1	1
9.	5KV generator	3	2	4	9
10.	Total Station	1	2	2	5
11.	Water tanker	-	1	2	3
12.	Auto level	1	-	1	2
13.	Mixing machine	2	2	4	8
14.	Vibrator	7	6	10	23
15.	Tractor	1	2	1	4
16.	Concrete Chipping Machine	2	-	2	4
17.	Welding Machine	7	7	4	18
18.	Grinding Machine	4	4	6	14
19.	Gas cutting set	3	2	2	7
20.	Chain saw machine	-	-	-	-
21.	Chain Block	1	3	1	5
22.	RM 800	-	-	-	-
23.	Plywood cutting machine	4	5	5	14
24.	Steel cutting machine	6	6	5	17

16. ANNEXURE'S

Annexure- I: PROJECT ENGINEER INSPECTION AND KPI REPORT AND RECOMMENDATION FOR PACKAGE-I

Annexure- II: KPI REPORTS OF PACKAGE -II AND PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION

Annexure- III: KPI REPORTS OF PACKAGE -III AND PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION

Annexure- IV: PROJECT ENGINEER ACTIVITY AS PER TOR

Annexure- V: QUALITY CONTROL / QUALITY ASSURANCE

ANNEXURE-I

PROJECT ENGINEER INSPECTION AND KPI REPORT AND RECOMMENDATION FOR PACKAGE-I

Table of Contents

1. JHUNSI STP AND ASSOCIATE INFRASTRUCTURE

1.1 Inspection Report

Date of site visit	2nd, 9th and 17th February 2023
Site Visitor	1. Mr. Santosh Kumar, PM, GPCU, UPJN(R), Prayagraj 2. Mr. Tauseef Ahmed, PE, GPCU, UPJN(R), Prayagraj 3. Mr. Satwant Singh, APE, GPCU, UPJN(R), Prayagraj 4. Mr. Gaurav Gupta, AECOM 5. Mr. Gaurav Pandey, AECOM 6. Mr Sudhir Tomar, AECOM 7. Mr. Sharad, PWPL.
Name of Facility	16 MLD Jhunsi STP & Associated Infrastructure, Prayagraj.

A) Civil Works:

1. At Jhunsi STP, rectification for discrepancy regarding outlet launder of tube settlers is pending.
2. At Jhunsi STP, painting work of FCR tank is not started yet. It is suggested to start the painting work at the earliest. Painting should be done as per clause no. 1.4.1 in Schedule-10 of Concession Agreement & as per approved Drawing of FCR tank.
3. At Jhunsi STP, construction of boundary wall is pending.
4. At Jhunsi STP, work of earth filling is pending.
5. At Jhunsi STP, construction Works for Road & Drain are pending.
6. At Jhunsi STP, fixing of hand railing for some parts of STP are pending.
7. At Jhunsi STP, landscaping work for the site is pending.
8. At Jhunsi STP, finishing works for the STP are pending.
9. At Jhunsi STP, water proofing for all units is pending.
10. At Jhunsi STP, laying of effluent pipeline is pending.
11. At Shastri Bridge SPS, progress of civil construction works is very slow. As on dated, RCC work is completed till 13 out of 19 lift only for MPS wall.
12. At Shastri Bridge SPS, staff quarter, which is to be constructed in campus of Jhunsi STP, is under construction but progress is very slow.
13. At Shastri Bridge SPS, construction of approach road is pending.

B) E&M Works:

1. At Shastri Bridge SPS, all E&M works are pending as civil works are not completed yet.
2. At Jhunsi MPS, testing of submersible pumps is pending.
3. At Jhunsi MPS, testing of mechanical screens is pending.
4. At Jhunsi MPS, installation of differential level transmitter for mechanical screen is pending.
5. At Jhunsi MPS, installation of level transmitter in raw sewage sump is pending.
6. At Jhunsi MPS, outlet flowmeter is not installed.
7. At Jhunsi MPS, installation of fire alarm and fire-fighting system is not started yet.
8. At Jhunsi MPS, installation of CCTV system is not started yet.
9. At Jhunsi MPS, work for ventilation system is pending.
10. At Jhunsi MPS, installation of EOT is pending.
11. At Jhunsi MPS, installation of sluice valve in bypass line of flowmeter.
12. At Jhunsi STP, laying of pipeline from MPS to STP is pending.

13. At Jhunsi STP, installation of chute for mechanical screens is pending.
14. At Jhunsi STP, testing of grit removal system is pending. Pipeline laying for scum removal is pending.
15. At Jhunsi STP, testing of grit blowers is pending.
16. At Jhunsi STP, testing of aeration blowers is pending.
17. At Jhunsi STP, installation of inlet and outlet analyzers is pending.
18. At Jhunsi STP, installation of diffuser and biomodules for FCR tanks are pending.
19. At Jhunsi STP, installation of DO analyzers for FCR tanks is pending.
20. At Jhunsi STP, installation of plants for FCR tanks are pending.
21. At Jhunsi STP, laying of pipelines from PTU to FCR is pending and installation of flowmeters is pending.
22. At Jhunsi STP, laying of sludge pipeline from sludge sump to dewatering building is pending.
23. At Jhunsi STP, laying of supernatant pipeline from dewatering building to MPS is pending
24. At Jhunsi STP, installation of outlet flowmeter is pending.
25. At Jhunsi STP, installation of chlorination system and laying of related pipelines is pending.
26. At Jhunsi STP, installation of various instruments related to equipment are pending.
27. At Jhunsi STP, installation of sludge dewatering building is pending.
28. At Jhunsi STP, installation of poly dosing system is pending.
29. At Jhunsi STP, installation of sludge transfer pumps is pending.
30. At Jhunsi STP, installation works for solar power plant are not started yet.
31. At Jhunsi STP, installation of PLC/SCADA system is pending.
32. At Jhunsi STP, installation of EOTs for all units are pending.
33. At Jhunsi STP, work for providing potable water reservoir and related pipeline is pending.
34. At Jhunsi STP, installation of fire alarm and fire-fighting system is not started yet.
35. At Jhunsi STP, installation of CCTV system is not started yet.
36. At Jhunsi STP, set-up of laboratory is pending.
37. At Jhunsi STP, installation of chimney for DG as per CPCB norms is pending.
38. At Jhunsi STP, testing of compressors is pending.
39. At Jhunsi STP, works for leak detection system and neutralization tower are pending.
40. At Jhunsi STP, installation of asset management system is not started yet.
41. At Jhunsi STP, work for ventilation system is pending.
42. At Jhunsi STP, sluice valve of 400 mm is installed in place of approved size of 600mm in bypass line of STP which is not as per valve schedule.

C) I & D works

- Execution work of I & D structures are under progress at 9 nalla locations

Sl. No.	I&D Name	Work Status
1	Augharwa Nalla	RCC work is completed and fixing of gates and Screen is not started
2	Bhola Mandir Nalla	RCC work is completed and fixing of gates and Screen is not started
3	Gangoli Shivalla Nalla-I	RCC work is completed and fixing of gates and Screen is not started
4	Gangoli Shivalla Nalla-II	RCC work is completed and fixing of gates and Screen is not started
5	Savitri Nagar Nalla	RCC work is completed and fixing of gates and Screen is not started

6	Dham Nalla	RCC work is completed and fixing of gates and Screen is not started
7	Shastri Bridge Nalla	RCC work is completed and fixing of gates and Screen is not started
8	Triveni Marg Nalla-I	RCC work is completed and fixing of gates and Screen is not started
9	Triveni Marg Nalla-II	RCC work is completed and fixing of gates and Screen is not started
10	Ulta Quila Nalla -I	RCC work is completed and fixing of gates and Screen is not started
11	Ulta Quila Nalla-II	RCC work is completed and fixing of gates and Screen is not started
12	Havelia Nalla	RCC work is completed and fixing of gates and Screen is not started
13	Lakkar Nala	RCC work is completed and fixing of gates and Screen is not started

1.2 Recommendations:

- Concessionaire is suggested to update The Status of Applicable Permit to UPJN/Project Engineer on Weekly Basis. Also, it is suggested to check, identify & apply for all the applicable permits required for whole Jhunsi Facility as no hindrance will be accepted in future due to new applicable permit issue.
- Concessionaire is required to provide proper Hard barricading (Pipe & pipe with G.I sheet) around Deep excavated area to avoid any casualty at site during construction.
- It is suggested to avoid direct placing of steel on ground & also cement slurry should be sprayed on steel to protect from corrosion due to moisture.
- Concessionaire is required to start the construction of Retaining wall & boundary wall at earliest.
- Concessionaire is suggested to execute the construction work with proper planning & prior information (or RFI) should be given for all the activities.
- Proper Finishing is required at joints of RCC Wall /Column by grouting method.
- It is suggested to maintain all Safety & Quality measures at site & carry out works with good engineering practice.
- Concessionaire should also strictly follow all the specifications given in schedule 10 of Concession agreement & relevant IS Standards for all civil, E&M works.
- Concessionaire is suggested to improve the planning and work quality to achieve the desired outcome in schedule time.
- Approved Designs/Drawings/document should be kept at site during constructions work.
- Concessionaire is suggested to deploy enough manpower during the day and night shifts to expedite the Electrical and mechanical work to avoid further delay where civil construction work is completed.
- It is suggested to Concessionaire fix the Top Level of Manhole at HFL.
- Concessionaire is suggested to start the HT cable laying and Interconnecting pipeline within Sewage treatment plant.
- Concessionaire is suggested to maintain all necessary safety measures at the time of electrical and mechanical work as per schedule-8 of Concession Agreement.

- It is suggested to start the painting work at the earliest. Painting should be done as per clause 1.4.1 of Part-B in schedule-10 of Concession agreement & as per approved Drawing.
- Concessionaire is required to expedite the remaining civil and E&M works as mentioned above at the earliest.
- Concessionaire is required to check and confirm that all gates/valves are 100% leak proof.
- Concessionaire, please note as per the latest construction plan for Package-I Facilities, total progress of 100% was to be achieved by dated 31st January 2023, whereas total progress of 95.85% has been claimed by Concessionaire as on dated 31st Jan 2023 which is under scrutiny. Therefore, Concessionaire is required to deploy enough manpower & resources to expedite the work to avoid further delay. It is pertinent to mention here that, in meeting held on 12th Jan 2023, NMCG has clearly instructed that no further Extension of Time for completing the pending works related to all facilities under Package-I will be given and Liquidated Damages will be applicable as per conditions given in Concession Agreement if the works are not completed by construction completion date as per approved construction plan.

2. NAINI-II STP AND ASSOCIATE INFRASTRUCTURE

2.1 Inspection Report

Date of visit	4th, 11th and 16th February 2023
Site Visitors	1. Mr. Santosh Kumar, PM, GPCU, UPJN(R), Prayagraj 2. Mr. Tauseef Ahmed, PE, GPCU, UPJN(R), Prayagraj 3. Mr. Sudheer Kumar, APE, GPCU, UPJN(R), Prayagraj 4. Mr. Gaurav Gupta, AECOM 5. Mr. Gaurav Pandey, AECOM 6. Mr. Sudhir Singh Tomar, AECOM 7. Mr. Rahul Choudhary, PWPL. 8. Mr. R. P. Maurya, PWPL
Name of Facility	42 MLD Naini – II STP & Associated Infrastructure, Prayagraj.

A) Civil Works:

1. At Naini-II STP, launders of tube settlers get submerged in sewage during peak hours due to which the quality of outlet from tube settlers gets deteriorated. Therefore, rectification of the issue is required for improving the quality of effluent.
2. At Naini-II STP, painting work of FCR tank is not started yet. It is suggested to start the painting work at the earliest. Painting should be done as per clause no. 1.4.1 in Schedule-10 of Concession Agreement & as per approved Drawing of FCR tank.
3. At Naini-II STP, construction works for Road & Drain are pending.
4. At Naini-II STP, landscaping work for the site is pending.
5. At Naini-II STP, finishing works for the STP are pending.
6. At Naini-II STP, water proofing for all units is pending.
7. At Mawaiya SPS, fixing of hand railing and painting work are pending.
8. At Mawaiya SPS, Saccha Baba Nall I&D construction work is pending
9. At Mawaiya SPS, staff quarter is under construction, but progress is very slow.
10. At Mawaiya SPS, installation of door/windows, finishing works are pending.
11. At Mahewaghat SPS, fixing of hand railing and painting work are pending.
12. At Mahewaghat SPS, staff quarter, which is to be constructed in campus of Naini-II STP, is under construction but progress is very slow.
13. At Mahewaghat SPS, installation of door/windows, finishing works are pending.

B) E&M Works:

1. At Mawaiya SPS, outlet flowmeter is working but its calibration from OEM side is pending.
2. At Mawaiya SPS, installation of differential level transmitter for mechanical screen is pending.
3. At Mawaiya SPS, installation of level transmitter in raw sewage sump is pending.
4. At Mawaiya SPS, work for installation of PLC system is pending.
5. At Mawaiya SPS, installation of fire alarm and fire-fighting system is not started yet.
6. At Mawaiya SPS, installation of CCTV system is not started yet.
7. At Mawaiya SPS, work for ventilation system is pending.
8. At Mahewaghat SPS, outlet flowmeter is working but its calibration from OEM side is pending.
9. At Mahewaghat SPS, lighting work is pending.

10. At Mahewaghat SPS, installation of differential level transmitter for mechanical screen is pending.
11. At Mahewaghat SPS, installation of level transmitter in raw sewage sump is pending.
12. At Mahewaghat SPS, work for installation of PLC system is pending.
13. At Mahewaghat SPS, installation of fire alarm and fire-fighting system is not started yet.
14. At Mahewaghat SPS, installation of CCTV system is not started yet.
15. At Mahewaghat SPS, work for ventilation system is pending.
16. At Naini-II MPS, outlet flowmeter is working but its calibration from OEM side is pending.
17. At Naini-II MPS, installation of differential level transmitter for mechanical screen is pending.
18. At Naini-II MPS, installation of level transmitter in raw sewage sump is pending.
19. At Naini-II MPS, work for installation of PLC system is pending.
20. At Naini-II MPS, installation of fire alarm and fire-fighting system is not started yet.
21. At Naini-II MPS, installation of CCTV system is not started yet.
22. At Naini-II MPS, work for ventilation system is pending.
23. At Naini-II STP, 1 out of 2 mechanical screens is not working.
24. At Naini-II STP, installation of chute for mechanical screens is pending.
25. At Naini-II STP, pump for 1 out of 2 grit removal system is not working.
26. At Naini-II STP, pipeline laying for scum removal from grit removal system is pending.
27. At Naini-II STP, inlet and outlet analyzers are working but its calibration from OEM side is pending.
28. At Naini-II STP, DO analyzers for FCR tanks are working but its calibration from OEM side is pending.
29. At Naini-II STP, solenoid valves for DO analyzers at FCR tanks are not installed for periodic cleaning of sensors.
30. At Naini-II STP, flowmeters in pipelines from PTU to FCR are working but its calibration from OEM side is pending
31. At Naini-II STP, outlet flowmeter is working but its calibration from OEM side is pending.
32. At Naini-II STP, installation of various instruments related to equipment are pending.
33. At Naini-II STP, installation of chute for sludge dewatering unit is pending.
34. At Naini-II STP, modification of agitators of poly tank is required for proper mixing.
35. At Naini-II STP, solar power plant is not started operating at full load.
36. At Naini-II STP, work for installation of PLC/SCADA system is pending.
37. At Naini-II STP, installation of EOTs for all units are pending.
38. At Naini-II STP, work for providing potable water reservoir and related pipeline is pending.
39. At Naini-II STP, installation of fire alarm and fire-fighting system is not started yet.
40. At Naini-II STP, installation of CCTV system is not started yet.
41. At Naini-II STP, works for set-up of laboratory are pending.
42. At Naini-II STP, installation of chimney for DG sets as per CPCB norms is pending.
43. At Naini-II STP, compressors are not taken in operation.
44. At Naini-II STP, leakage rectification from poppet valve at inlet of tube settlers is required.
45. At Naini-II STP, works for leak detection system and neutralization tower are pending.
46. At Naini-II STP, installation of asset management system is not started yet.
47. At Naini-II STP, work for ventilation system is pending.

2.2 Recommendations:

- Concessionaire is suggested to execute the construction work with proper planning & prior information (or RFI) should be given for all the activities.
- Proper Finishing is required at joints of RCC Wall /Column by grouting method.
- It is suggested to maintain all Safety & Quality measures at site & carry out works with good engineering practice.
- Concessionaire should also strictly follow all the specifications given in schedule 10 of Concession agreement & relevant IS Standards for all civil, E&M works.
- Concessionaire is suggested to improve the planning and work quality to achieve the desired outcome in schedule time.
- Approved Designs/Drawings/document should be kept at site during constructions work.
- Concessionaire is suggested to deploy enough manpower during the day and night shifts to expedite the Electrical and mechanical work to avoid further delay where civil construction work is completed.
- It is suggested to Concessionaire fix the Top Level of Manhole at HFL.
- Concessionaire is suggested to start the HT cable laying and Interconnecting pipeline within Sewage treatment plant.
- Concessionaire is suggested to maintain all necessary safety measures at the time of electrical and mechanical work as per schedule-8 of Concession Agreement.
- It is suggested to start the painting work at the earliest. Painting should be done as per clause 1.4.1 of Part-B in schedule-10 of Concession agreement & as per approved Drawing.
- Concessionaire is required to expedite the remaining civil and E&M works as mentioned above at the earliest.
- Concessionaire is required to check and confirm that all gates/valves are 100% leak proof.
- Concessionaire, please note as per the latest construction plan for Package-I Facilities, total progress of 100% was to be achieved by dated 31st January 2023, whereas total progress of 95.85% has been claimed by Concessionaire as on dated 31st Jan 2023 which is under scrutiny. Therefore, Concessionaire is required to deploy enough manpower & resources to expedite the work to avoid further delay. It is pertinent to mention here that, in meeting held on 12th Jan 2023, NMCG has clearly instructed that no further Extension of Time for completing the pending works related to all facilities under Package-I will be given and Liquidated Damages will be applicable as per conditions given in Concession Agreement if the works are not completed by construction completion date as per approved construction plan.

2.3 KPI Report

Naini-2 STP, 42 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design-25 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design-<20 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design-<50 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design <30 mg/l)	Inlet (Design-NA)	Final (Design-<1000 MPN/100 ml)	Final (Design-0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	35610	35.61	7.32	7.36	160	24	356	44	308	23	NA	500	0.5	22.80	1300000	
2-Feb-23	36940	36.94	7.29	7.37	170	26	348	40	302	21	NA	700	0.3	24.20	1700000	
3-Feb-23	37840	37.84	7.26	7.34	165	26	352	45	310	24	NA	800	0.4	24.50	1400000	
4-Feb-23	35530	35.53	7.30	7.36	155	27	350	42	307	22	NA	600	0.5	-	-	Dewatering building was not operated
5-Feb-23	36420	36.42	7.28	7.40	160	23	346	38	312	20	NA	500	0.2	-	-	Dewatering building was not operated
6-Feb-23	35470	35.47	7.34	7.39	170	25	354	39	305	23	NA	700	0.3	23.40	1400000	
7-Feb-23	36420	36.42	7.26	7.37	165	28	362	43	312	22	NA	700	0.3	23.20	1400000	
8-Feb-23	36890	36.89	7.29	7.40	155	22	348	46	318	26	NA	600	0.2	24.36	1700000	
9-Feb-23	36410	36.41	7.21	7.32	160	24	337	44	309	24	NA	700	0.3	23.58	1300000	
10-Feb-23	35640	35.64	7.26	7.40	175	26	348	42	314	30	NA	800	0.2	23.28	1400000	
11-Feb-23	35890	35.89	7.33	7.48	165	25	364	40	318	24	NA	500	0.3	24.35	1700000	
12-Feb-23	36980	36.98	7.23	7.37	170	27	356	36	310	28	NA	600	0.2	22.24	1300000	
13-Feb-23	36200	36.20	7.26	7.39	155	24	360	44	316	26	NA	700	0.3	22.60	1700000	
14-Feb-23	35210	35.21	7.31	7.42	160	22	344	40	312	24	NA	400	0.2	22.55	1400000	
15-Feb-23	36370	36.37	7.40	7.48	150	24	348	36	318	22	NA	500	0.3	24.29	1300000	
16-Feb-23	35410	35.41	7.33	7.46	165	23	352	40	313	21	NA	600	0.2	23.87	1700000	
17-Feb-23	36120	36.12	7.29	7.47	155	24	356	44	322	25	NA	700	0.3	25.20	1400000	
18-Feb-23	35870	35.87	7.31	7.43	160	24	360	40	315	20	NA	800	0.2	24.00	1700000	
19-Feb-23	36720	36.72	7.27	7.40	170	23	348	36	320	18	NA	600	0.2	24.50	1300000	
20-Feb-00	35120	35.12	7.29	7.36	165	26	320	32	282	20	NA	700	0.2	-	-	Dewatering building was not operated
21-Feb-23	35410	35.41	7.28	7.33	155	23	328	48	302	26	NA	500	0.3	22.59	1700000	
22-Feb-23	36740	36.74	7.33	7.37	150	26	356	44	308	23	NA	800	0.2	-	-	Dewatering building was not operated
23-Feb-23	36540	36.54	7.29	7.41	160	24	360	28	324	27	NA	700	0.3	-	-	Dewatering building was not operated
24-Feb-23	36240	36.24	7.42	7.48	155	28	344	44	316	26	NA	800	0.2	23.22	1400000	
25-Feb-23	35640	35.46	7.39	7.48	170	24	368	40	327	29	NA	600	0.3	24.92	1700000	
26-Feb-23	36210	36.21	7.44	7.45	150	25	336	36	315	26	NA	500	0.2	25.32	1300000	
27-Feb-23	36440	36.44	7.43	7.83	155	23	352	44	357	28	NA	600	0.3	25.40	1400000	
28-Feb-23	36120	36.12	7.57	7.81	150	26	324	40	305	25	NA	800	0.3	24.80	1300000	
Average	36157.14	36.15	7.32	7.43	160.54	24.68	345.18	40.54	313.46	24.04	NA	642.86	0.28	23.88	1473913.04	

Source: Logbook of Laboratory at Sewage Treatment Plant

3. PHAPHAMAU STP AND ASSOCIATE INFRASTRUCTURE

3.1 Inspection Report

Date of site visit	1st, 9th and 15th February 2023
Site Visitor	1. Mr. Santosh Kumar, PM, GPCU, UPJN(R), Prayagraj 2. Mr. Tauseef Ahmed, PE, GPCU, UPJN(R), Prayagraj 3. Mr Gaurav Gupta, AECOM 4. Mr Gaurav Pandey, AECOM 5. Mr. Sudhir Tomar, AECOM 6. Mr. Ashish Singhai, PWPL 7. Mr. Rahul Sharma PWPL
Name of Facility	14 MLD Phaphamau STP & Associated Infrastructure

A) Civil Works:

1. At Phaphamau STP, rectification for discrepancy regarding outlet launder of tubesettlers is pending.
2. At Phaphamau STP, painting work of FCR tank is not started yet. It is suggested to start the painting work at the earliest. Painting should be done as per clause no. 1.4.1 in Schedule-10 of Concession Agreement & as per approved Drawing of FCR tank.
3. At Phaphamau STP, construction Works for Road & Drain are pending.
4. At Phaphamau STP, fixing of hand railing for some parts of STP are pending.
5. At Phaphamau STP, landscaping work for the site is pending.
6. At Phaphamau STP, finishing works for the STP are pending.
7. At Phaphamau STP, water proofing for all units is pending.
8. At Basna Nalla SPS, flooring work, fixing of kota Stone and tiles, fixing of hand railing, construction of boundary wall and painting work are pending.
9. At Basna Nalla SPS, staff quarter, which is to be constructed in campus of Phaphamau STP, is under construction but progress is very slow.
10. At Basna Nalla SPS, construction of approach road is pending.
11. At Basna Nalla SPS, finishing works are pending.

B) E&M Works:

1. At Basna Nalla SPS, alignment work for mechanical screen is pending. Currently, mechanical screen is not in operation and sewage is taken through manual screen only.
2. At Basna Nalla SPS, outlet flowmeter is not working.
3. At Basna Nalla SPS, lighting work is pending.
4. At Basna Nalla SPS, installation of differential level transmitter for mechanical screen is pending.
5. At Basna Nalla SPS, installation of level transmitter in raw sewage sump is pending.
6. At Basna Nalla SPS, work for installation of PLC system is pending.
7. At Basna Nalla SPS, installation of EOT is pending.
8. At Basna Nalla SPS, installation of fire alarm and fire-fighting system is not started yet.
9. At Basna Nalla SPS, installation of CCTV system is not started yet.
10. At Basna Nalla SPS, work for ventilation system is pending.
11. At Shantipuram MPS, 2 out of 5 pumps are not working.
12. At Shantipuram MPS, installation of differential level transmitter for mechanical screen is pending.

13. At Shantipuram MPS, installation of level transmitter in raw sewage sump is pending.
14. At Shantipuram MPS, outlet flowmeter is working but its calibration from OEM side is pending.
15. At Shantipuram MPS, installation of fire alarm and fire-fighting system is not started yet.
16. At Shantipuram MPS, installation of CCTV system is not started yet.
17. At Shantipuram MPS, work for ventilation system is pending.
18. At Shantipuram MPS, installation of EOT is pending.
19. At Phaphamau STP, installation of chute for mechanical screens is pending.
20. At Phaphamau STP, 1 out of 2 grit removal system is not in operation. Commissioning of grit removal system from OEM side is pending. Pipeline laying for scum removal is pending.
21. At Phaphamau STP, installation of inlet and outlet analyzers is pending.
22. At Phaphamau STP, installation of DO analyzers for FCR tanks is pending.
23. At Phaphamau STP, installation of plants for FCR tanks are pending.
24. At Phaphamau STP, flowmeters in pipelines from PTU to FCR are working but its calibration from OEM side is pending
25. At Phaphamau STP, outlet flowmeter is not working.
26. At Phaphamau STP, installation of various instruments related to equipment are pending.
27. At Phaphamau STP, sludge dewatering building is not taken into operation due to various pending works.
28. At Phaphamau STP, poly dosing system is not taken into operation due to various pending works.
29. At Phaphamau STP, installation works for solar power plant are not started yet.
30. At Phaphamau STP, work for installation of PLC/SCADA system is pending.
31. At Phaphamau STP, installation of EOTs for all units are pending.
32. At Phaphamau STP, work for providing potable water reservoir and related pipeline is pending.
33. At Phaphamau STP, installation of fire alarm and fire-fighting system is not started yet.
34. At Phaphamau STP, installation of CCTV system is not started yet.
35. At Phaphamau STP, works for set-up of laboratory are pending.
36. At Phaphamau STP, installation of chimney for DG as per CPCB norms is pending.
37. At Phaphamau STP, compressors are not taken in operation.
38. At Phaphamau STP, leakage rectification from poppet valve at inlet of tubesettlers is required.
39. At Phaphamau STP, works for leak detection system and neutralization tower are pending.
40. At Phaphamau STP, installation of asset management system is not started yet.
41. At Phaphamau STP, work for ventilation system is pending.
42. At Phaphamau STP, sluice valve of 600 mm is installed in place of approved size of 500mm in bypass line of STP which is not as per approved valve schedule.

3.2 Recommendations

- Concessionaire is required to provide proper Hard barricading (Pipe & pipe with G.I sheet) around Deep excavated area to avoid any casualty at site during construction.
- It is suggested to avoid direct placing of steel on ground & also cement slurry should be sprayed on steel to protect from corrosion due to moisture.
- Concessionaire is required to start the construction of Retaining wall & boundary wall at earliest.
- Concessionaire is suggested to execute the construction work with proper planning & prior information (or RFI) should be given for all the activities.

- Proper Finishing is required at joints of RCC Wall /Column by grouting method.
- It is suggested to maintain all Safety & Quality measures at site & carry out works with good engineering practice.
- Concessionaire should also strictly follow all the specifications given in schedule 10 of Concession agreement & relevant IS Standards for all civil, E&M works.
- Concessionaire is suggested to improve the planning and work quality to achieve the desired outcome in schedule time.
- Approved Designs/Drawings/document should be kept at site during constructions work.
- Concessionaire is suggested to deploy enough manpower during the day and night shifts to expedite the Electrical and mechanical work to avoid further delay where civil construction work is completed.
- It is suggested to Concessionaire fix the Top Level of Manhole at HFL.
- Concessionaire is suggested to start the HT cable laying and Interconnecting pipeline within Sewage treatment plant.
- Concessionaire is suggested to maintain all necessary safety measures at the time of electrical and mechanical work as per schedule-8 of Concession Agreement.
- It is suggested to start the painting work at the earliest. Painting should be done as per clause 1.4.1 of Part-B in schedule-10 of Concession agreement & as per approved Drawing.
- Concessionaire is required to expedite the remaining civil and E&M works as mentioned above at the earliest.
- Concessionaire is required to check and confirm that all gates/valves are 100% leak proof.
- Concessionaire, please note as per the latest construction plan for Package-I Facilities, total progress of 100% was to be achieved by dated 31st January 2023, whereas total progress of 95.85% has been claimed by Concessionaire as on dated 31st Jan 2023 which is under scrutiny. Therefore, Concessionaire is required to deploy enough manpower & resources to expedite the work to avoid further delay. It is pertinent to mention here that, in meeting held on 12th Jan 2023, NMCG has clearly instructed that no further Extension of Time for completing the pending works related to all facilities under Package-I will be given and Liquidated Damages will be applicable as per conditions given in Concession Agreement if the works are not completed by construction completion date as per approved construction plan.

3.3 KPI Report

Phaphamau STP, 14 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design-10 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design -<20 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design <50 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	7020	7.02	7.24	7.72	165	15	356	28	328	16	NA	400	0.2	-	-	Dewatering building was not in operation.
2-Feb-23	7010	7.01	7.32	7.63	145	14	348	36	317	17	NA	500	0.3	-	-	
3-Feb-23	7020	7.02	7.31	7.62	155	15	352	32	327	18	NA	400	0.3	-	-	
4-Feb-23	8230	8.23	7.33	7.74	150	13	360	36	329	16	NA	500	0.3	-	-	
5-Feb-23	8350	8.35	7.32	7.75	160	15	348	24	317	18	NA	400	0.2	-	-	
6-Feb-23	8530	8.53	7.21	7.65	150	13	352	28	318	17	NA	600	0.3	-	-	
7-Feb-23	7530	7.53	7.27	7.71	160	15	348	36	315	15	NA	700	0.2	-	-	
8-Feb-23	9970	9.97	7.35	7.68	155	14	352	28	324	18	NA	500	0.3	-	-	
9-Feb-23	10060	10.06	7.31	7.63	145	13	360	32	320	17	NA	400	0.2	-	-	
10-Feb-23	10280	10.28	7.28	7.73	150	15	348	36	312	16	NA	500	0.2	-	-	
11-Feb-23	10580	10.58	7.35	7.72	160	14	352	24	322	17	NA	600	0.3	-	-	
12-Feb-23	2390	2.39	7.28	7.67	155	16	348	32	318	18	NA	400	0.3	-	-	1. Dewatering building was not in operation. 2. Sewage pumping was stopped from 10:35 AM on 12.02.2023 to 4:00 PM on 13.02.2023 due to leakage in joint between CCT and partial flume.
13-Feb-23	4210	4.21	7.33	7.72	150	15	356	28	321	16	NA	500	0.2	-	-	
14-Feb-23	10280	10.28	7.26	7.69	160	14	364	24	327	18	NA	400	0.3	-	-	Dewatering building was not in operation.
15-Feb-23	10370	10.37	7.36	7.74	155	16	356	32	315	19	NA	500	0.2	-	-	
16-Feb-23	10750	10.75	7.27	7.68	160	15	360	36	309	21	NA	400	0.3	-	-	
17-Feb-23	11050	11.05	7.26	7.71	165	17	344	32	315	18	NA	500	0.2	-	-	
18-Feb-23	12250	12.25	7.25	7.67	162	18	348	36	321	17	NA	400	0.3	-	-	
19-Feb-23	12270	12.27	7.35	7.78	155	15	364	40	327	22	NA	500	0.3	-	-	
20-Feb-23	12370	12.37	7.29	7.67	165	16	368	36	331	24	NA	500	0.3	24.76	1400000	
21-Feb-23	12540	12.54	7.32	7.71	160	17	352	32	319	21	NA	600	0.3	23.57	1300000	
22-Feb-23	12740	12.74	7.36	7.73	155	15	364	40	327	23	NA	500	0.2	25.37	1700000	
23-Feb-23	12750	12.75	7.34	7.71	165	16	362	38	320	24	NA	400	0.3	24.80	1300000	
24-Feb-23	10150	10.15	7.28	7.67	150	14	368	36	335	21	NA	500	0.3	24.89	1400000	
25-Feb-23	10250	10.25	7.29	7.65	155	16	356	32	312	18	NA	400	0.2	24.86	1300000	
26-Feb-23	10050	10.05	7.34	7.76	160	15	368	40	332	21	NA	500	0.3	25.79	1400000	
27-Feb-23	10020	10.02	7.38	7.73	165	17	364	36	327	19	NA	400	0.3	25.48	1700000	
28-Feb-23	9560	9.56	7.36	7.65	155	15	356	40	323	23	NA	600	0.2	23.94	1300000	
Average	9592.14	9.59	7.31	7.70	156.68	15.11	356.21	33.21	321.71	18.89	NA	489.29	0.26	24.87	1422222.22	

Source: Logbook of Laboratory at Sewage Treatment Plant.

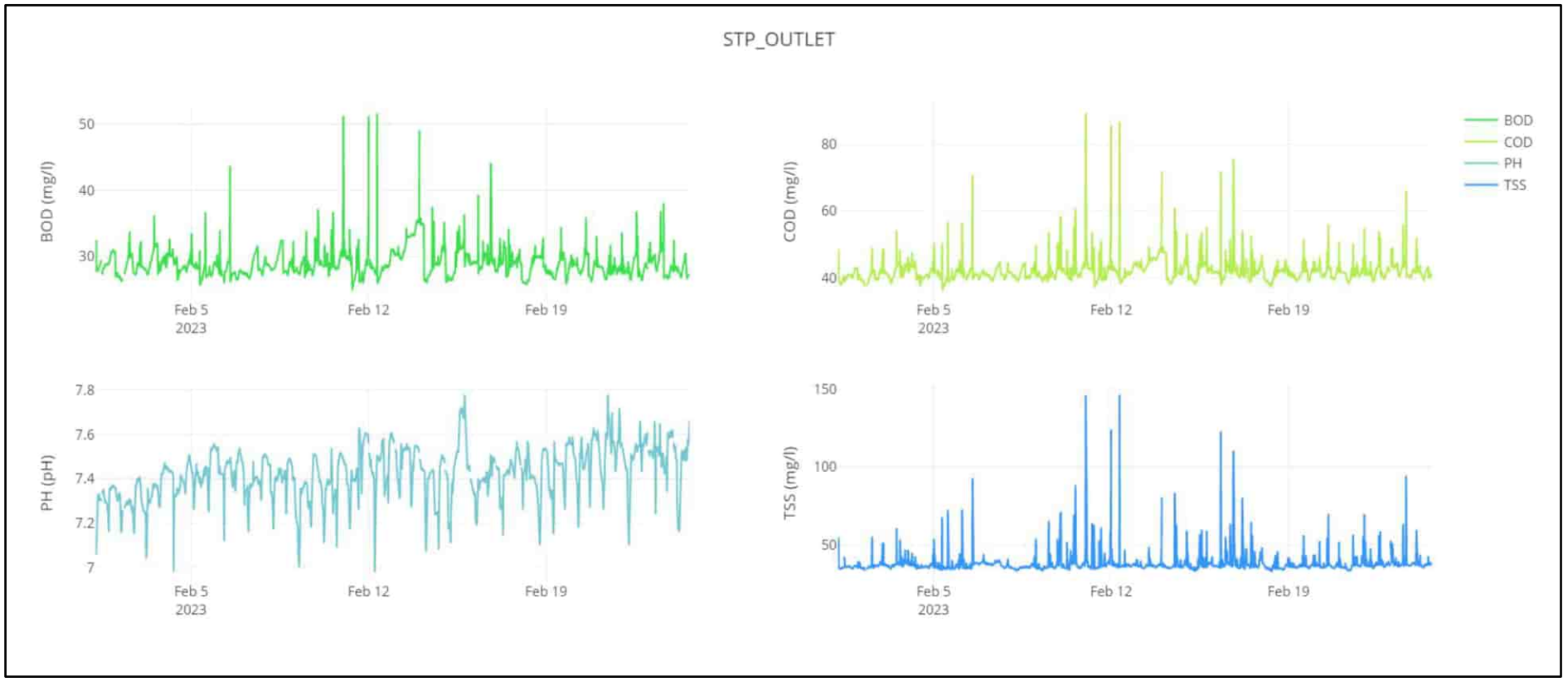
ANNEXURE-II

KPI REPORTS OF PACKAGE -II, PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION

Table of Contents

1. NAINI-I STP AND ASSOCIATE INFRASTRUCTURE

1.1 KPI Report



Source: Online analyzer,

*** BOD in Mg/L, COD in Mg/L and TSS in Mg/L**

Note: 1. Rectification of problem for variation in data is going on as calibration of multi parameter analyzer from OEM is in progress.

Naini-I STP, 80 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design- 80 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <30 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design- <50 mg/l)	Inlet TSS (Design- <500 mg/l)	FinalTSS (Design - <50 mg/l)	Inlet (Design - NA)	Final (Design <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	123880	123.88	7.26	7.32	120	28	328	40	302	35	NA	700	0.5	24.89	1400000	
2-Feb-23	117130	117.13	7.07	6.78	125	25	348	36	300	32	NA	600	0.4	24.57	1200000	
3-Feb-23	124710	124.71	7.64	7.31	140	28	356	41	312	36	NA	500	0.5	25.24	1700000	
4-Feb-23	121710	121.71	7.34	7.41	130	29	348	41	315	37	NA	800	0.5	24.13	1400000	
5-Feb-23	123310	123.31	7.90	7.43	145	28	356	42	311	39	NA	500	0.4	25.22	1700000	
6-Feb-23	120410	120.41	7.88	7.45	135	27	352	43	314	41	NA	400	0.5	24.85	1100000	
7-Feb-23	122520	122.52	7.44	7.41	130	26	340	40	312	36	NA	700	0.3	24.40	1300000	
8-Feb-23	121950	121.95	7.39	7.39	125	29	328	39	303	34	NA	500	0.2	25.10	1400000	
9-Feb-23	122540	122.54	7.36	7.35	130	28	332	44	305	42	NA	800	0.3	24.80	1700000	
10-Feb-23	123740	123.74	7.27	7.40	140	29	338	40	308	37	NA	700	0.2	25.07	1300000	
11-Feb-23	119620	119.62	7.32	7.45	145	28	344	42	313	39	NA	500	0.3	24.13	1400000	
12-Feb-23	119500	119.50	7.36	7.44	130	29	324	43	301	34	NA	600	0.2	25.10	1100000	
13-Feb-23	113200	113.20	7.39	7.48	125	30	322	46	305	39	NA	800	0.3	24.90	1200000	
14-Feb-23	113160	113.16	7.35	7.39	140	29	338	45	302	42	NA	600	0.3	25.10	1700000	
15-Feb-23	115340	115.34	7.41	7.47	135	28	329	42	308	37	NA	500	0.2	25.50	1400000	
16-Feb-23	115900	115.90	7.36	7.39	140	29	336	40	301	35	NA	700	0.2	25.20	1300000	
17-Feb-23	117500	117.50	7.38	7.45	130	28	348	44	304	41	NA	400	0.3	24.95	1700000	
18-Feb-23	117460	117.46	7.33	7.49	145	27	324	41	307	36	NA	600	0.2	25.09	1400000	
19-Feb-23	117940	117.94	7.28	7.43	125	28	332	43	310	40	NA	800	0.2	24.58	1200000	
20-Feb-00	116560	116.56	7.30	7.47	130	29	344	42	303	38	NA	500	0.3	25.14	1700000	
21-Feb-23	117590	117.59	7.41	7.54	120	27	335	40	308	36	NA	600	0.3	25.20	1400000	
22-Feb-23	118560	118.56	7.37	7.51	135	25	324	41	306	37	NA	700	0.2	24.81	1300000	
23-Feb-23	113980	113.98	7.35	7.49	140	28	338	43	310	39	NA	400	0.3	25.11	1700000	
24-Feb-23	114490	114.49	7.37	7.51	130	27	347	42	298	34	NA	600	0.2	24.60	1400000	
25-Feb-23	111490	111.49	7.38	7.56	120	28	252	41	300	37	NA	400	0.3	25.05	1200000	
26-Feb-23	113200	113.20	7.36	7.52	125	29	316	43	294	38	NA	700	0.2	24.86	1700000	
27-Feb-23	112850	112.89	7.47	7.57	135	30	339	46	303	42	NA	500	0.3	24.70	1400000	
28-Feb-23	112740	112.74	7.43	7.54	120	28	328	44	305	41	NA	600	0.3	25.30	1700000	
Average	**120822.14**	**117.97**	**7.40**	**7.43**	**131.79**	**28.00**	**333.79**	**41.93**	**305.71**	**37.64**	**NA**	**596.43**	**0.30**	**24.91**	**1432142.86**	

Source: Logbook of Laboratory at Sewage Treatment Plant

1.2 Inspection Report

Month of Site Inspection	February 2023
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Tauseef, AE, UPJN. 3. Mr. Satwant, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Sudhir Kumar Tomar, AECOM. 6. Mr. Rahul Azaad, PWPL. 7. Mr. Rahul Choudhary PWPL.
Place(s) of Inspection	• 80 MLD STP at Naini-i, Prayagraj • 80 MLD MPS at Gaughat, Prayagraj • 35 MLD SPS at Chacharnalla, Prayagraj

Visit was done on 30th Jan 2023, 6th Feb 2023, 10th Feb 2023, 16th Feb ` 2023, 21st Feb 2023 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Naini-I STP	113.16 to 124.71
2	Gaughat MPS	114.90 to 126.07
3	Chacharnalla SPS	34.98 to 40.73

Note: 1) Source for above data is Site record for flow of STP/MPS/SPS.

- **Status of KPIs:**

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 30 mg/l	25 to 30 mg/l
2	TSS – Effluent	< 50 mg/l	32 to 42 mg/l
3	pH – Effluent	6.5 – 9.0	6.78 to 7.48
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 800 MPN/100 ml
5	Consistency – Sludge	> 20 %	24.13 to 25.50 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1100000 to 1700000 MPN/gTS

Note: 1) Source for above data is Site record for Laboratory of STP maintain by Concession.

- **Status of Energy Consumption:**

S. No.	Facility Name	Actual Energy Consumption (KWH/MLD)
1	Naini I STP	39.81 to 66.39
2	Naini I Associated Infrastructure	72.24 to 77.65

Note: 1) Source for above data is site record for Power Consumption of STP.

- **Status of various units & records at site:**

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized as the values are recorded at an interval of 1 hour.
2. Variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in SCADA reports of inlet analyzers which are more than the prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. For the rectifications of the problem, Concessionaire have informed that they are in process of replacing the current online analyzers at inlet with new ones. This is a long-term pending issue hence Concessionaire is required to do the needful at the earliest as per commitment given by them.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. For associated infrastructure of Naini-I STP, reports are being generated for both Chacharnalla SPS and Gaughat MPS except for one out of two streams in Gaughat MPS due to problem in flowmeter of one stream. Currently, flow reports of Chacharnalla SPS are not accurate and flow reports of Gaughat MPS are incomplete. Concessionaire is required to rectify the problem and submit the reports along with Monthly Progress Reports every month.

   Furthermore, there is problem in receiving signals at PLC/SCADA control system from some equipment/instruments and it is also not possible to control some of the equipment (mainly mechanical screens) from PLC/SCADA control system. Also, mechanical screens have provisions in PLC system for being remotely operated and differential level sensors were also installed for the same. Therefore, the system is available, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement.

5. Flowmeters at inlet of STP is working.
6. Outlet flowmeter is not working. This is a long-term pending issue hence Concessionaire to please rectify the problem at the earliest. Also, RCC chamber for the flowmeter is not constructed.
7. SCADA reports regarding flow for Naini-I facilities were checked and it was found that flow records generated from SCADA for both inlet flowmeters of Naini-I STP are matching with manual site records but not matching for outlet flowmeter of Naini-I STP.
8. In Naini-I STP, main MCC panel doesn't have provision for taking power from secondary sources like DG, Solar power generation system and Biogas power generation system simultaneously. Also, it is observed that Biogas engine is operated in daytime due to which power generated from solar system is wasted during daytime. Therefore, it is suggested to operate Biogas engine in nighttime so that solar power generation system can be operated at full efficiency and full power generated from the same can be used to run equipment.
   It is true that Guaranteed Power Consumption of the facility is within limit as per CA but since increase in operation of gas engine will increase the power generation from

renewable resources and decrease the power requirement from grid resulting in lowering of electricity bill of the facility which is borne by UPJN.

9. Gas engine is working. Currently, Biogas engine is operated for 9 hours only during the day but as per clause no. 1.1. of Part-G in Schedule-10, the facilities shall run 24 hours every day. Hence, Concessionaire is requested to do the needful as the biogas generated from digesters is wasted by flaring due to improper operation of gas engine.
   Also, reply for Concessionaire's letter PWPL/UPJN/PRAYAGRAJ/O&M/352 dated 5th Feb 2022 is given vide our letter no. AIPL/NMCG/PRAYAG/1367 dated 04th March 2022 for which their response is awaited.
10. All three mechanical screens of 60 MLD part are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
11. In mechanical screens of 60 MLD, rectification of problem for misplaced bars must be rectified at the earliest as garbage is passing these mechanical screens and getting deposited in later stages of the STP. Concessionaire is required to rectify the problem and provide a permanent solution.
12. All two mechanical screens of 60 MLD part are working. Cleaning brush is not working properly hence replacement of brush is required. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
13. For 60 MLD, all grit removal units are working.
14. For 20 MLD, all grit removal units are working.
15. Sludge accumulation in all Primary Settling Tanks, Thickeners has found to be increased beyond normal during latest visit which was due to improper sludge withdrawal from the said structures Concessionaire is required to increase sludge withdrawal time, sludge feeding time of Digester and expedite the work of cleaning sludge drying beds for maintaining proper withdrawal of sludge from said structures. Currently, only two sludge drying beds are empty at STP.
16. All Primary Settling Tanks are working. Scum removal is done manually but it is not efficient as good amount of scum can be seen floating on the surface. Since, Scum removing arrangement is installed, modification are required for the same so that scum collection and removal can be done automatically.
17. For PST 1, 2 & 3, maintenance of telescopic valves must be completed for ensuring proper sludge withdrawal.
18. Installation of actuators is pending for drain valves of Primary Settling Tanks. Concessionaire has told that installation of actuators is not feasible in existing valve arrangement. Existing drain valves were replaced during rehab period and at the same time actuators were also purchased for installation, if these two were not matching then the problem must have been resolved during rehab period itself but since the same is not being done, Concessionaire is required to do necessary modification/replacement work done so that installation work can be completed.
19. In Aeration Unit of 60 MLD 8 surface aerators out of 9 are in working condition except for Surface aerator no. 1. It is recommended to install DO analyzer in this tank also for better monitoring.
20. Aeration tank of 20 MLD is in operation. Air distribution is proper in the tank . Commissioning of DO analyzer is not completed yet.
21. All Aeration blowers are working.
22. All Final Settling Tanks are working.
23. It is suggested to install torque switches in all clarifiers for having better protection against excessive load on scrapper.

24. Installation of actuators is pending for drain valves of Final Settling Tanks. Concessionaire has told that installation of actuators is not feasible in existing valve arrangement. Existing drain valves were replaced during rehab period and at the same time actuators were also purchased for installation, if these two were not matching then the problem must have been resolved during rehab period itself but since the same is not being done, Concessionaire is required to do necessary modification/replacement work done so that installation work can be completed.
25. In RSPH unit of 60 MLD, 3 out of 4 pumps are working, two pumps are under maintenance. Hence, no pump is in stand-by. This is a long-term pending issue and hence rectification of the problem must be done at the earliest.
26. In RSPH unit of 20 MLD, both Pumps are working.
27. Both chlorinators are in working condition. Both booster pumps are working. One out of two vacuum injectors are not in working condition and hence none is in stand-by. During the visit we are found the filled chlorine cylinder are kept in unproper way it is very risky.
28. Commissioning of Leak absorption system is completed. Checklist forthe same must be prepared and recorded properly every month.
29. Chlorine analyzer at outlet is not working. Concessionaire have told that they will replace it with new one but new analyzer is not received till date.
30. Both thickeners are in working condition. Installation of actuators for drain valves is pending. Installation of flowmeter in lines from blending tank to thickener is completed but calibration is pending.
31. All thickened sludge transfer pumps are working.
32. In TEPH, all pumps are OK for operation for Dandi and Naini Area.
33. For TEPH panel, modification of room is completed but penal erection is not started yet for fulfilling electrical norms.
34. Both DGs are in operation. Installation work of chimney for DGs as per CPCB norms is pending.
35. Sludge dewatering unit is in operation. Installation of various instruments like flowmeter (in poly dosing line), pressure gauge, etc., as per approved drawing are pending.
36. All filtrate pumps are working.
37. There is variation in recorded values of flow from inlet flowmeter at Naini-I STP and outlet flowmeters of Gaughat MPS, please rectify the problem.
38. Both dewatering feed pumps are under maintenance. Currently, submersible pump is being used for transferring sludge from digesters to dewatering building.
39. For sludge drying beds, it is required to check filter media and gravels as water percolation is not happening.
40. All Digesters are working.
41. Heat exchangers, sludge recirculation pumps for all digesters are working.
42. In compressor room, all six compressors are working.
43. Both Gas holders are working.
44. Gas flare is working.
45. H2S scrubber unit is working. Analyzers fitted at inlet & outlet unit are working.
46. Installation of service water pumps is pending. It is observed that ground water is being used as service water in whole STP which is a violation of environmental norms. Hence, to stop this installation of service water pumps and laying of required pipeline must be completed at the earliest.
47. Rehabilitation works for storm water pump house are pending. Discussions regarding the feasibility of same has already been done during rehab period and hence the work must be done accordingly.

48. As already decided, repairing/construction of retaining wall is not completed yet. In 2022 also, river has come inside the STP during flood and various equipment in different units of STP are required to be dismantled and hence when river water has gone down, restarting of STP took 5-6 days which could have been avoided if retaining wall of the STP was repaired/constructed correctly.
49. Rehabilitation works for tube well unit are pending.
50. Landscaping work of the plant must be improved.
51. Construction of storm water drains is in progress.
52. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, data from Computer Maintenance Management system (CMMS) must be provided in MPR as supporting documents for maintenance data. Currently, CMMS system is installed at Naini-I STP is installed but not working as per requirements of day-to-day maintenance activities. Concessionaire is required to the needful at the earliest.
53. As already discussed, painting of all units from inside and outside is not completed yet. Concessionaire to please do the needful.
54. CCTV camera at the outlet point of STP is not working.
55. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement or it must be properly stacked at one place after taking proper consent from UPJN. Concessionaire have told that this is out of their jurisdiction for which Concessionaire is required to go through the mentioned clause and plan for the same accordingly.
56. For Gaughat MPS, following observations were made during visit:

    a) Replacement of NRV in header line of HNC pumps in Gaughat MPS is required for reducing the effect of water hammering on the pumps. Concessionaire to please do the needful.
    b) 3 HNC pumps are working. One pump is not working due to problem of capacitor fuse.
    c) Two submersible pumps are in working condition and one is under maintenance.
    d) Both mechanical screens of HNC pumps are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
    e) Both mechanical screens for submersible pumps are working.
    Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
    f) DG set of 1000 KVA and DG sets of submersible pumps are working. Repairing work of 11 KV DG synchronization panel is pending. Repairing work of 500 KVA/11KV DG set is pending. Concessionaire to please complete all pending works.
    g) It is suggested to install manual screen in receiving chamber of SPS for reducing load on mechanical screens.
    h) In PLC panels, indication for ON/OFF of mechanical screens, belt/screw conveyor is not coming.

57. For Chacharnalla SPS, following observations were made during visit:

    a) Currently all VNC pumps are working.
    b) One out of two mechanical screens are working. One mechanical screen and belt conveyor are under maintenance.

c) Both DG sets are OK for operation.
d) Old DG set is working.
e) Installation of pressure transmitter on header line of VNC pumps is pending.
f) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.

58. Since COD is announced for all Package – II facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
b) Calibration for field instruments like multiparameter analyzer at inlet, outlet flowmeter, DO analyzers, level transmitter is not carried out yet. Calibration for lab instruments is completed but reports are not submitted yet. It is again reiterated that as per clause no. 9.8 (a)(viii) of Concession Agreement, "*The meters/devices shall be calibrated at the start of the relevant O&M Period and then at the start of each subsequent year during the relevant O&M Period in accordance with Good Industry Practices and the meters/devices shall be jointly tested by the Jal Nigam and the Concessionaire to ensure the accuracy of the meters installed by the Concessionaire".* Hence, Concessionaire is required to do the needful and submit reports timely at the start of each subsequent year of O&M.
c) Testing of TN, NH4-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
e) Quarterly report as per Part-G in Schedule-10 of CA.
f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
g) Procedure for recording & disposal of complaints.
h) Safety & Health Records. Incident reports must also be submitted along with action plan.
i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

1.3 Recommendation's

- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.
- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

2. RAJAPUR STP AND ASSOCIATE INFRASTRUCTURE

2.1 KPI Report

Source: Online analyzer,

*** BOD in Mg/L, COD in Mg/L and TSS in Mg/L**

Note: 1. Rectification of problem for variation in data is going on as calibration of multi parameter analyzer from OEM is in progress.

2.In the blank areas, data was not transfer due to some issue in router and flood.

Rajapur STP, 60 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design- 60 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 8.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <30 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design- <50 mg/l)	Inlet TSS (Design- <500 mg/l)	FinalTSS (Design <50 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	81620	81.62	7.26	7.53	140	18	344	48	295	29	NA	600	0.3	23.41	1700000	
2-Feb-23	82320	82.32	7.28	7.52	130	17	324	44	307	28	NA	500	0.2	22.99	1400000	
3-Feb-23	78160	78.16	7.26	7.54	135	18	336	40	312	26	NA	700	0.3	26.15	1700000	
4-Feb-23	79030	79.03	7.32	7.50	130	17	316	44	305	27	NA	400	0.2	23.01	1400000	
5-Feb-23	78970	78.97	7.23	7.49	140	18	332	48	309	28	NA	600	0.3	23.27	1700000	
6-Feb-23	77660	77.66	7.25	7.48	125	17	328	40	286	26	NA	500	0.2	23.59	1300000	
7-Feb-23	77930	77.93	7.18	7.45	130	18	312	44	291	27	NA	700	0.3	23.73	1400000	
8-Feb-23	75060	75.06	7.21	7.44	135	17	336	40	311	26	NA	600	0.2	24.02	1700000	
9-Feb-23	78750	78.79	7.28	7.36	125	18	336	44	326	28	NA	500	0.2	24.17	1300000	
10-Feb-23	78960	78.96	7.33	7.45	130	17	312	40	304	26	NA	700	0.3	23.89	1700000	Nalla tapping of Rajapur SPS is closed at 5:16 PM on 07.01.2023 for taking more sewage from household network as per instructions given by UPJN. Also, retaining wall at tapping point is broken. Hence, raw sewage discharge from Rajapur SPS is less
11-Feb-23	77500	77.50	7.28	7.42	140	19	316	44	287	29	NA	400	0.2	23.79	1400000	
12-Feb-23	77870	77.87	7.26	7.50	135	18	324	48	305	30	NA	600	0.3	23.65	1700000	
13-Feb-23	74700	74.70	7.31	7.53	145	17	330	40	286	28	NA	700	0.2	26.78	1400000	
14-Feb-23	73490	73.49	7.25	7.55	130	16	328	44	298	27	NA	500	0.3	25.32	1700000	
15-Feb-23	80360	80.36	7.29	7.52	140	18	336	40	293	26	NA	600	0.3	23.62	1300000	
16-Feb-23	77530	77.53	7.28	7.51	130	19	324	44	279	25	NA	500	0.2	25.98	1400000	
17-Feb-23	83030	83.03	7.32	7.50	135	18	312	40	283	26	NA	400	0.3	22.98	1300000	
18-Feb-23	82910	82.91	7.24	7.49	145	19	324	44	286	25	NA	600	0.2	26.16	1700000	
19-Feb-23	79430	79.43	7.27	7.50	130	17	336	48	308	27	NA	700	0.3	23.13	1400000	
20-Feb-00	81960	81.96	7.24	7.49	135	16	328	44	297	28	NA	600	0.2	25.76	1300000	
21-Feb-23	79070	79.07	7.27	7.43	140	18	332	40	313	29	NA	500	0.3	24.47	1700000	
22-Feb-23	80870	80.87	7.29	7.51	135	17	324	44	297	26	NA	400	0.2	24.43	1400000	
23-Feb-23	72760	72.76	7.26	7.54	130	16	332	40	305	27	NA	600	0.3	23.69	1300000	
24-Feb-23	73840	73.84	7.31	7.57	140	17	328	44	295	25	NA	700	0.2	23.61	1700000	
25-Feb-23	80320	80.32	7.27	7.58	145	18	324	40	287	27	NA	600	0.3	24.39	1400000	
26-Feb-23	81760	81.76	7.23	7.57	130	17	316	44	293	26	NA	500	0.2	23.22	1700000	
27-Feb-23	76500	76.50	7.29	7.62	135	16	332	40	297	25	NA	700	0.3	23.72	1400000	
28-Feb-23	74830	74.83	7.33	7.55	140	18	336	44	310	26	NA	400	0.2	25.42	1300000	
Average	78472.50	78.47	7.27	7.51	135.00	17.46	326.71	43.00	298.75	26.89	NA	564.29	0.25	24.23	1492857.14	

Source: Logbook of Laboratory at Sewage Treatment Plant

2.2 Inspection Report

Month of Site Inspection	February 2023
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Tuseef, AE, UPJN. 3. Mr. Manish Srivastava, JE, UPJN 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Sudhir Kumar Tomar, AECOM. 6. Mr. Rahul Azaad, PWPL. 7. Mr. Girijesh, PWPL. 8. Mr. Saurabh, PWPL
Place(s) of Inspection	• 60 MLD STP at Rajapur, Prayagraj • 25 MLD SPS at Rajapur, Prayagraj • 55 MLD MPS at Mumfodganj Prayagraj

Visit was done on 30th Jan 2023, 6th Feb 2023, 10th Feb 2023 16th Feb 2023, and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Rajapur STP	73.49 to 83.03
2	Rajapur SPS	5.56 to 9.83
3	Mumfodganj MPS	67.96 to 76.86

Note: 1) Source for above data is Register for flow record of STP & MPS.

- **Status of KPIs:**

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 20 mg/l	17 to 19 mg/l
2	TSS – Effluent	< 30 mg/l	25 to 30 mg/l
3	pH – Effluent	6.5 – 9.0	7.36 to 7.55
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.98 to 26.78 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1300000 to 1700000 MPN/gTS

Note: 1) Source for above data is Register for Laboratory of STP.

- **Status of Energy Consumption:**

S. No.	Facility Name	Actual Energy Consumption (KWH/MLD)
1	Rajapur STP	2.06 to 24.32
2	Rajapur Associated Infrastructure	47.87 to 62.96

Note: 1) Source for above data is Register for Power Consumption Record of STP.

- **<u>Status of various units & records at site:</u>**

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized as the values are recorded at an interval of 1 hour.
2. Variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in SCADA reports of inlet analyzers which are more than the prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. For the rectifications of the problem, Concessionaire have informed that they are in process of replacing the current online analyzers at inlet with new ones. This is a long-term pending issue hence Concessionaire is required to do the needful at the earliest as per commitment given by them.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. Communication of data from PLC system of Mumfordganj SPS is not coming to SCADA system of STP due to problem in receiving signals since 10th Dec 2022.

   Furthermore, there is problem in receiving signals at PLC/SCADA control system from some equipment/instruments and it is also not possible to control some of the equipment (mainly mechanical screens) from PLC/SCADA control system. Also, mechanical screens have provisions in PLC system for being remotely operated and differential level sensors were also installed for the same. Therefore, the system is available, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement. Concessionaire is required to look into the matter & do the needful at the earliest.
5. Flowmeters at inlet of STP is working.
6. Flowmeter at outlet is working but not giving correct values.
7. Both Grit removal units are working.
8. SCADA reports regarding flow for Rajapur STP was checked and it was found that flow records generated from SCADA are not matching for flowmeter of Mumfordganj SPS at Rajapur STP and outlet flowmeter of Rajapur STP. Concessionaire is required to do the needful.
9. Both Mechanical Fine screens at PTU are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
10. Both UASBs were working satisfactorily. Cleaning of launders and scum from top must be done regularly. Also, several distribution cells were found in choked condition, cleaning for the same must be done on regular basis for avoiding such kind of situations. If it is required to increase the manpower, then same must be done at the earliest.
11. It is suggested to clean the UASB reactors for removing dead sludge from the reactors which in turn will increase the efficiency of UASBs. Hence, Concessionaire is suggested to plan for the same. Cleaning of launders and scum from top must be done regularly.

12. It is observed that problem of leakage from HDP inlet pipes is very frequent. For minimizing this problem, it was suggested to give proper supports under the pipes. Concessionaire to please do the needful.
13. 14 surface aerators were found running, all 15 surface aerators are in working condition. It is recommended to install DO analyzer in this tank also for better monitoring.
14. It is also suggested to clean the Aeration tank for removing dead sludge which in turn will increase the efficiency of Aeration.
15. For Quiescent zone, it is suggested to plan for cleaning of the same for removing dead sludge which in turn will increase the efficiency of Quiescent zone. Currently, lot of dead sludge deposited in quiescent zone is coming along with effluent which is deteriorating the quality of effluent.
16. Both DG sets are working. It is suggested to increase the height of chimney of DG sets as per CPCB norms.
17. All sludge transfer pumps are in working condition.
18. Sludge dewatering unit is working.
19. For chlorination system, temporary arrangement is provided for using effluent water at the inlet of booster pumps. Concessionaire is suggested to make this arrangement permanent.
20. Chlorine analyzer at outlet of STP is not working. Concessionaire have told that it is not required as per CA but clause no. 1.2.1 and clause no. 1.3.1 in Part-E of Schedule-10 in CA clearly states that "Online residual chlorine measuring system" is to be installed.
21. At flood pumping station, one pump is under maintenance. Problem for the same must be rectified at the earliest.
22. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
23. There is variation in recorded values of flow from inlet flowmeter at Rajapur STP and outlet flowmeter of Mumfordganj SPS, please rectify the problem.
24. There is variation in recorded values of flow from inlet flowmeters at Rajapur STP and outlet flowmeter of Rajapur STP, please rectify the problem.
25. Gas holder and gas flare are not in operation. It is part of STP facility hence must be made operational. Also, amount of Gas generation also indicates the performance level of UASBs. Concessionaire is requested to complete the maintenance works and take both into operation as follow-up for the same is being done since rehab period.
26. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement or it must be properly stacked at one place after taking proper consent from UPJN. Concessionaire have told that this is out of their jurisdiction for which Concessionaire is required to go through the mentioned clause and plan for the same accordingly.
27. As per Clause no. 1.6 & 1.7.1 of Concession Agreement, Computer Maintenance Management System (CMMS) must be implemented at all Sites. This is not started yet, Concessionaire to please do the needful.
28. At Rajapur SPS following observations were made:

    a) Temporary Bund at tapping Point is damaged due to the rain. It is not repaired yet. Most of the Raw Sewage from nearby nalla is going directly into the Ganga River. Concessionaire is suggested to rectify on urgent basis.
    b) Mechanical coarse Screens at SPS is working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.

c) Operation of mechanical screen at SPS is not possible from SCADA.
d) All submersible pumps are in working condition. Pressure transmitter is not installed in common header line of pumps yet. Also, pumps must be kept in auto mode so that pump can start & stop on the basis of level in the sump.

29. At Mumfodganj MPS following observations were made:

a) At tapping point of SPS, manual screen is broken from bottom side, maintenance for the same is required as lot of waste is going inside SPS which can in turn will choke the pumps.
b) Civil maintenance is required for the floor below bypass gate at tapping point for stopping the leakage from bypass gate.
c) Both Mechanical coarse screens at MPS are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
d) At Mumfodganj MPS, 4 pumps are OK for operation out of 6 Pumps. Pressure transmitter is not installed in common header line of pumps yet. Also, pumps must be kept in auto mode so that pump can start & stop on the basis of level in the sump.
e) Dismantling joint must be provided along with flowmeter for ease in maintenance.
f) NRV must be provided in common header to reduce the effect of water hammering.
g) Site house Keeping & landscaping must be improved. Concessionaire is suggested to keep the Old material Properly.

30. Since COD is announced for all Package – II facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
b) Calibration for field instruments like multiparameter analyzer at inlet, outlet flowmeter, DO analyzers, level transmitter is not carried out yet. Calibration for lab instruments is completed but reports are not submitted yet. It is again reiterated that as per clause no. 9.8 (a)(viii) of Concession Agreement, "*The meters/devices shall be calibrated at the start of the relevant O&M Period and then at the start of each subsequent year during the relevant O&M Period in accordance with Good Industry Practices and the meters/devices shall be jointly tested by the Jal Nigam and the Concessionaire to ensure the accuracy of the meters installed by the Concessionaire".* Hence, Concessionaire is required to do the needful and submit reports timely at the start of each subsequent year of O&M.
c) Testing of TN, NH4-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
e) Quarterly report as per Part-G in Schedule-10 of CA.
f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
g) Procedure for recording & disposal of complaints.
h) Safety & Health Records. Incident reports must also be submitted along with action plan.

i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

2.3 Recommendation's

- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of UASBs also for checking the efficiency of UASBs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.
- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

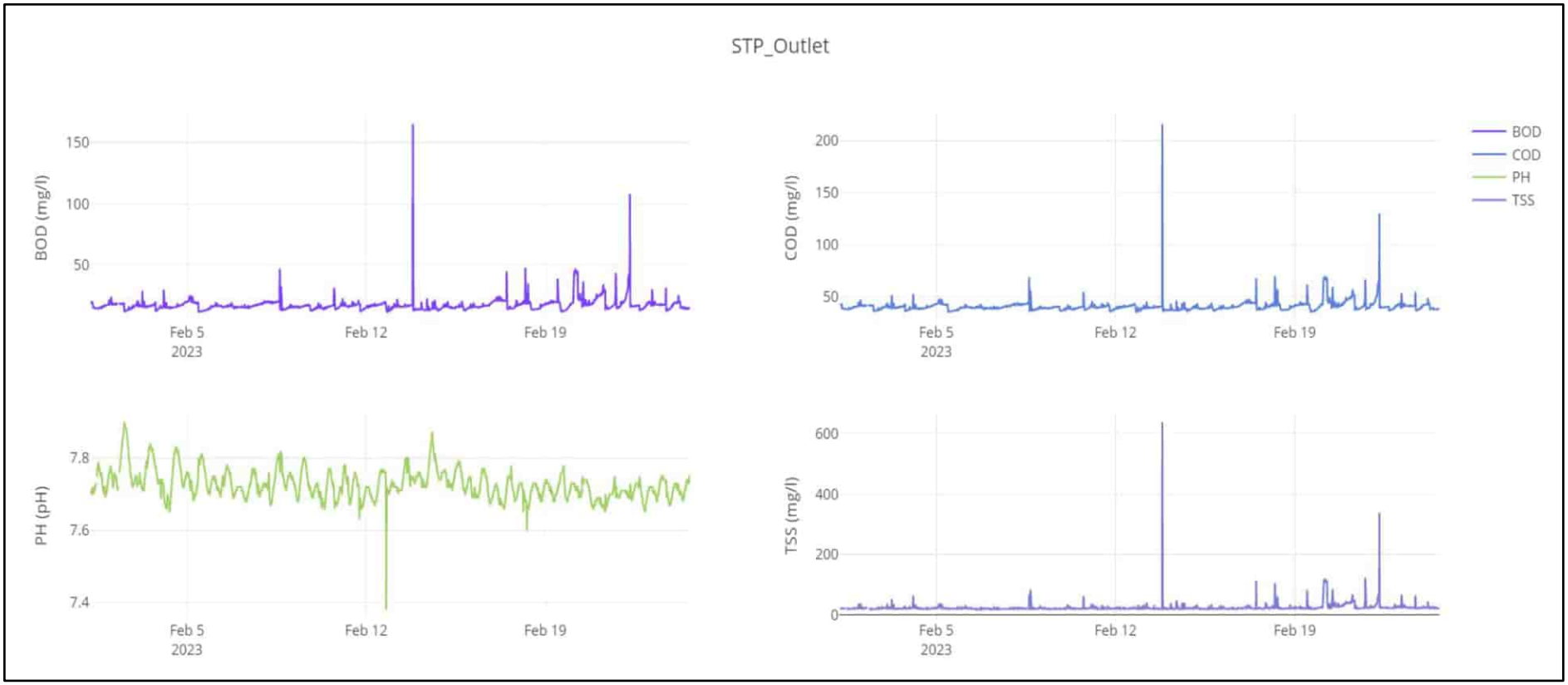
ANNEXURE-III

KPI REPORTS OF PACKAGE -III, PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION

Table of Contents

1. NUMAYADAHI STP AND ASSOCIATE INFRASTRUCTURE

1.1 KPI Report



Source: Online analyzer,

*** BOD in Mg/L, COD in Mg/L and TSS in Mg/L**

Note: 1. Rectification of problem for variation in data is going on as calibration of multi parameter analyzer from OEM is in progress.

2. In the blank areas, data was not transfer due to some issue in router.

Numayadahi STP, 50 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design- 50 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design - <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	61250	61.25	7.24	7.73	140	17	312	44	286	24	NA	700	0.3	24.47	1300000	
2-Feb-23	61330	61.33	7.26	7.69	135	15	328	40	291	22	NA	500	0.4	23.89	1700000	
3-Feb-23	58310	58.31	7.27	7.62	145	17	300	36	278	24	NA	700	0.4	23.50	1400000	
4-Feb-23	61190	61.19	7.22	7.73	150	18	304	44	284	22	NA	600	0.3	24.26	1300000	
5-Feb-23	61870	61.87	7.26	7.66	135	16	320	40	297	25	NA	400	0.3	23.69	1700000	
6-Feb-23	61730	61.73	7.22	7.74	145	17	308	36	279	23	NA	500	0.2	24.37	1400000	
7-Feb-23	59050	59.05	7.28	7.76	130	15	312	44	288	22	NA	700	0.2	23.56	1300000	
8-Feb-23	61820	61.82	7.19	7.69	145	18	304	40	293	24	NA	600	0.3	23.64	1700000	
9-Feb-23	61750	61.75	7.24	7.73	135	17	300	36	296	22	NA	400	0.2	23.22	1400000	
10-Feb-23	59440	59.44	7.28	7.71	130	16	328	40	289	21	NA	500	0.3	24.58	1700000	
11-Feb-23	59380	59.38	7.22	7.67	140	15	316	44	291	23	NA	700	0.3	23.69	1400000	
12-Feb-23	54650	54.65	7.24	7.74	145	17	324	44	295	22	NA	600	0.2	23.66	1300000	
13-Feb-23	57820	57.82	7.26	7.68	135	18	328	40	298	24	NA	400	0.3	23.78	1700000	
14-Feb-23	59760	59.76	7.28	7.74	150	15	308	36	286	23	NA	600	0.2	23.57	1400000	
15-Feb-23	58320	58.32	7.21	7.72	145	14	300	40	278	21	NA	700	0.2	24.35	1300000	
16-Feb-23	56260	56.26	7.28	7.73	150	18	308	44	294	24	NA	400	0.3	23.45	1400000	
17-Feb-23	58780	58.78	7.26	7.68	140	18	324	40	298	26	NA	500	0.2	23.5	1700000	
18-Feb-23	61350	61.35	7.18	7.72	145	16	360	44	258	25	NA	700	0.3	25.05	1300000	
19-Feb-23	60040	60.04	7.12	7.68	135	18	356	44	262	24	NA	700	0.2	23.58	1300000	
20-Feb-00	59080	59.08	7.18	7.60	140	17	336	40	248	26	NA	400	0.3	24.04	1400000	
21-Feb-23	60130	60.13	7.10	7.64	130	18	320	40	284	26	NA	600	0.3	23.14	1700000	
22-Feb-23	59290	59.29	7.18	7.62	140	19	312	44	292	27	NA	700	0.2	23.21	1300000	
23-Feb-23	62470	62.47	7.18	7.72	130	16	328	40	280	22	NA	400	0.2	22.17	1700000	
24-Feb-23	61300	61.30	7.19	7.84	145	17	316	44	286	25	NA	600	0.3	23.55	1400000	
25-Feb-23	57880	57.88	7.21	7.74	140	18	328	44	291	23	NA	500	0.3	24.23	1300000	
26-Feb-23	59480	59.48	7.26	7.68	135	17	304	40	296	22	NA	700	0.2	23.64	1400000	
27-Feb-23	58920	58.92	7.22	7.73	140	16	320	44	293	25	NA	600	0.3	24.82	1700000	
28-Feb-23	53520	53.52	7.24	7.70	145	17	312	40	297	26	NA	700	0.2	23.22	1700000	
Average	59506.97	59.51	7.22	7.70	140.00	16.75	316.43	41.14	286.00	23.68	NA	575.00	0.25	23.79	1475000.00	

Source: Logbook of Laboratory at Sewage Treatment Plant

1.2 Inspection Report

Month of Site Inspection	February 2023
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Abhishek Shrivastava, AE, UPJN. 3. Mr. Rahul Paswan, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Sudhir Kumar Tomar, AECOM. 6. Mr. Rahul Kumar Azaad, PWPL. 7. Mr. Vijay Dwivedi, PWPL. 8. Mr. Jitender, PWPL.
Place(s) of Inspection	• 50 MLD STP at Numayadahi, Prayagraj • 50 MLD MPS at Ghagharnalla, Prayagraj • 15 MLD SPS at Sasur Kadheri, Prayagraj • 16.5 MLD SPS at Lukarganj, Prayagraj

Visit was done on 31st Jan 2023, 3rd Feb 2023, 11th Feb 2023, 17th Feb 2023 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Numayadahi STP	54.65 to 61.85
2	Ghagharnalla MPS	56.30 to 63.28
3	Sasur Kadheri SPS	27.68 to 36.14
4	Lukerganj SPS	4.51 to 5.05

Note: 1) Source for above data is Site record for flow of STP/MPS/SPS.

- **Status of KPIs:**

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 20 mg/l	15 to 18 mg/l
2	TSS – Effluent	< 30 mg/l	21 to 26 mg/l
3	pH – Effluent	6.5 – 9.0	7.62 to 7.76
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.22 to 25.05%
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1300000 to 1700000 MPN/gTS

Note: 1) Source for above data is Site record for Laboratory of STP.

- **Status of Energy Consumption:**

S. No.	Facility Name	Actual Energy Consumption (KWH/MLD)
1	Numayadahi STP	65.14 to 72.19
2	Numayadahi Associated Infrastructure	96.53 to 101.49

Note: 1) Source for above data is Site record for Power Consumption of STP.

- **Status of various units & records at site:**

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized as the values are recorded at an interval of 1 hour.
2. Variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in SCADA reports of inlet analyzers which are more than the prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. For the rectifications of the problem, Concessionaire have informed that they are in process of replacing the current online analyzers at inlet with new ones. This is a long-term pending issue hence Concessionaire is required to do the needful at the earliest as per commitment given by them.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. Report generation for associated infrastructure of Numayadahi STP was started earlier but currently reports are not being generated due to problem in receiving signals. Currently, Ghagharnalla MPS, Sasur Kadheri SPS and Lukerganj SPS are not available due to problem in signal transmission. Concessionaire is required to rectify the problem and submit the reports along with Monthly Progress Reports every month. In addition to this, run-hour reports for equipment available at associated infrastructure of Numayadahi STP must also be available in SCADA system.
   Furthermore, there is problem in receiving signals at PLC/SCADA control system from some equipment/instruments and it is also not possible to control some of the equipment (mainly mechanical screens) from PLC/SCADA control system. Also, mechanical screens have provisions in PLC system for being remotely operated and differential level sensors were also installed for the same. Therefore, the system is available, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement.

5. Flowmeter at inlet of STP is working.
6. Flowmeter at outlet of STP is working. Calibration of flowmeter is completed but it is not giving accurate values as compared to inlet flowmeter. Concessionaire is required to resolve the problem.
7. Both grit removal units are in operation.
8. Both Mechanical Screens are working. Differential level sensors are not synchronized with mechanical screens hence screens cannot run in auto mode. Screen electric panel repairing is required.
9. All Biotowers were in operation. Replacement of net is required for all biotowers.
10. Though overhauling of mechanical screens is completed in rehabilitation period but still considerable amount of plastic waste is reaching the biotowers hence the gap must be checked around mechanical screens or otherwise this plastic waste can choke up the media which will ultimately lower the efficiency of Biotowers.
11. All Aeration tanks are working.
12. All Aeration blowers are in working condition & two blowers were found running.
13. DO analyzer at the outlet of Aeration tank no. 2 is not working properly, please check & rectify the problem.

14. Pressure transmitter & temperature transmitter are not installed yet on header line of Aeration blowers.
15. All Centrifuges are working along with Sludge Feed pumps and Poly dosing pumps. Sludge generation is 7-8 trolleys per day.
16. All Sludge Recirculation Pumps are in working condition.
17. Both Secondary clarifiers were found in operation.
18. Both booster pumps & both chlorinators are in working condition & chlorine dosing was found to be running at 3 to 4 Kg/hr. Residual chlorine was checked & found to be around 0.3 mg/l.
19. Rehabilitation of Leak absorption system is completed. Testing of system for working in auto modewas checked and it was found that air blower & caustic pump start running at 3 ppm, but it must be set around 1 ppm for providing better safety measures. Concessionaire is requested to do the needful.
20. Chlorine Analyzer at outlet of STP is not working. As per Clause No.1.2.1 and clause No.1.3.1 in Part E of schedule – 10 in CA, installation of online residual chlorine analyzer is mandatory. As per current information provided by Concessionaire, they are in process of replacing the chlorine analyzers for rectifying the problem.
21. Minor Seepages from Biotowers & some other units can be seen, and this must be rectified.
22. As per Clause no. 1.6 & 1.7.1 of Concession Agreement, Computer Maintenance Management System (CMMS) must be implemented at all Sites. This is not started yet, Concessionaire to pleasedo the needful.
23. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
24. All CCTV cameras are working. It is suggested to change the position of CCTV camera at outlet so that it can show the free fall area of effluent at CCT.
25. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records.
26. There is variation in recorded values of flow from inlet flowmeter at Numayadahi STP and outlet flowmeter of Ghagharnalla MPS, please rectify the problem.
27. For Ghagharnalla MPS, following issues are required to be resolved:

    a) Currently, it was observed that overflow occurs sometimes during peak time due to deposition of sludge in the path of nalla towards tapping point even after running MPS at full capacity. Hence, UPJN is requested to please look into the matter and do the needful.
    b) Repairing of wall of pump house towards sump is required so that no sewage can go inside the pump house in any situation.
    c) Currently, all HNC pumps (5 new + 1 old) are in working condition.
    d) Earlier during normal days, there was minor leakage of sewage from the retaining wall at the tapping point of MPS, this must be rectified as raw sewage is going directly into the river.
    e) Both Mechanical screens are working.
    f) Both DG sets are working.
    g) During the shutdown taken in the month of May-21, NRV was taken out from the main header line for maintenance purpose but it is not reinstalled till date. Concessionaire to please do the needful so that effect of back hammering on the pumps can be reduced.
    h) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.

28. For Sasur Kadheri SPS, following issues are required to be resolved:
    a) Currently, it was found that raw sewage keeps overflowing from the retaining wall even when the pumping from this SPS is around 25-30 MLD which is around 170 – 200% of the total capacity of SPS i.e., 15 MLD. Due to the amount of overloading on the SPS, overflow of the sewage from retaining wall cannot be stopped. Hence, UPJN is requested to please look into the matter and do the needful.
    b) Repairing of boundary wall for the SPS is required.
    c) Currently all submersible pumps in the SPS are OK for operations.
    d) Both Mechanical screens are working.
    e) Both DG sets are OK for operation.
    f) Painting for all units in SPS is in progress.

29. At Lukerganj SPS,
    a) All 6 pumps are OK for operation. It is suggested to complete repairing of old pumps also so that they can be used during emergency situation.
    b) Calibration for the outlet flowmeter is completed.
    c) One mechanical screen is working, and one is in maintenance.
    d) Painting for units is in progress
    e) Both DG sets are working.
30. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

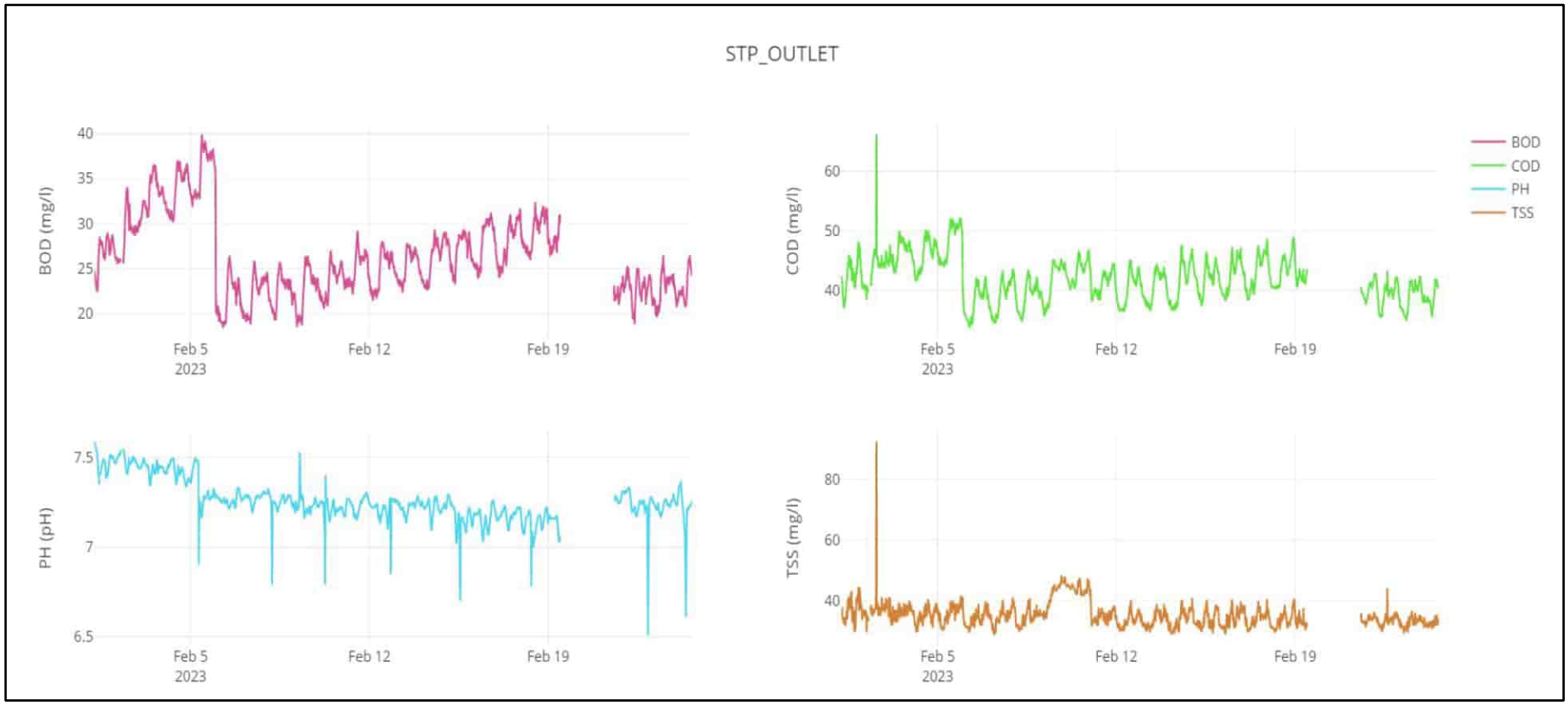
    a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    b) Calibration for field instruments like multiparameter analyzer at inlet, outlet flowmeter, DO analyzers, level transmitter is not carried out yet. Calibration for lab instruments is completed but reports are not submitted yet. It is again reiterated that as per clause no. 9.8 (a)(viii) of Concession Agreement, "*The meters/devices shall be calibrated at the start of the relevant O&M Period and then at the start of each subsequent year during the relevant O&M Period in accordance with Good Industry Practices and the meters/devices shall be jointly tested by the Jal Nigam and the Concessionaire to ensure the accuracy of the meters installed by the Concessionaire".* Hence, Concessionaire is required to do the needful and submit reports timely at the start of each subsequent year of O&M.
    c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    e) Quarterly report as per Part-G in Schedule-10 of CA.
    f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    g) Procedure for recording & disposal of complaints.
    h) Safety & Health Records. Incident reports must also be submitted along with action plan.
    i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

1.3 Recommendation's

- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.
- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

2. SALORI STP AND ASSOCIATE INFRASTRUCTURE

2.1 KPI Report



Source: Online analyzer,

*** BOD in Mg/L, COD in Mg/L and TSS in Mg/L**

Note: 1. Rectification of problem for variation in data is going on as calibration of multi parameter analyzer from OEM is in progress.

2. In the blank areas, data was not transfer due to some issue in router.

Salori STP, 29 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design- 29 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design - <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design - <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	41070	41.07	7.39	7.52	165	28	360	44	297	39	NA	600	0.3	24.7	1400000	
2-Feb-23	46460	46.46	7.37	7.61	170	31	364	48	315	41	NA	700	0.2	24.6	1700000	
3-Feb-23	45430	45.43	7.42	7.59	155	30	372	44	322	38	NA	500	0.3	24.9	1300000	
4-Feb-23	43520	43.52	7.40	7.55	160	31	368	48	320	37	NA	600	0.3	25.3	1400000	
5-Feb-23	41850	41.85	7.38	7.50	155	32	372	48	328	36	NA	800	0.2	25.1	1700000	
6-Feb-23	39880	39.88	7.35	7.40	160	23	360	40	345	37	NA	900	0.3	24.8	1700000	
7-Feb-23	38680	38.68	7.31	7.36	165	24	340	40	307	34	NA	700	0.2	24.7	1300000	
8-Feb-23	39390	39.39	7.30	7.35	160	24	364	36	319	36	NA	800	0.2	25	1400000	
9-Feb-23	38160	38.16	7.34	7.40	155	23	356	44	330	39	NA	600	0.3	25.4	1100000	
10-Feb-23	35610	35.61	7.36	7.38	150	25	364	44	340	40	NA	700	0.3	25.5	1200000	
11-Feb-23	36520	36.52	7.33	7.35	160	27	368	40	322	37	NA	800	0.2	24.1	1400000	
12-Feb-23	35770	35.77	7.28	7.35	165	26	364	40	309	35	NA	800	0.2	24.6	1700000	
13-Feb-23	37200	37.20	7.29	7.34	170	28	360	44	290	36	NA	600	0.3	24.9	1300000	
14-Feb-23	39330	39.33	7.12	7.28	160	27	364	44	298	35	NA	700	0.2	25.1	1400000	
15-Feb-23	41900	41.90	7.15	7.25	165	29	356	40	308	37	NA	800	0.3	25.3	1700000	
16-Feb-23	39500	39.50	7.25	7.33	160	28	360	44	317	36	NA	500	0.3	24.2	1300000	
17-Feb-23	39950	39.95	7.31	7.37	155	29	352	44	312	35	NA	700	0.2	24.7	1700000	
18-Feb-23	38690	38.69	7.29	7.30	160	27	364	40	316	36	NA	700	0.3	25.3	1400000	
19-Feb-23	37920	37.92	7.45	7.28	165	28	368	44	320	36	NA	600	0.2	24.9	1100000	
20-Feb-00	34020	34.02	7.46	7.26	160	29	360	48	329	38	NA	800	0.3	25	1700000	
21-Feb-23	34480	34.48	7.57	7.40	155	27	356	44	318	36	NA	700	0.2	24.5	1400000	
22-Feb-23	35750	35.75	7.63	7.38	165	25	364	40	321	35	NA	500	0.2	24.7	1300000	
23-Feb-23	36710	36.71	7.58	7.37	160	24	352	36	316	34	NA	800	0.3	24.8	1400000	
24-Feb-23	37940	37.94	7.56	7.39	170	24	356	40	319	35	NA	600	0.2	25.1	1200000	
25-Feb-23	39470	39.47	7.51	7.36	165	25	364	40	320	34	NA	700	0.3	25.3	1400000	
26-Feb-23	39420	39.42	7.50	7.20	155	26	360	36	314	35	NA	900	0.3	24.7	1700000	
27-Feb-23	38550	38.55	7.48	7.15	170	27	368	44	318	33	NA	800	0.2	24.9	1300000	
28-Feb-23	35710	35.71	7.46	7.14	165	27	364	40	316	34	NA	700	0.3	24.6	1400000	
Average	**38888.57**	**38.89**	**7.39**	**7.36**	**161.43**	**26.93**	**361.43**	**42.29**	**317.36**	**36.29**	**NA**	**700.00**	**0.25**	**24.88**	**1428571.43**	

Source: Logbook of Laboratory at Sewage Treatment Plant

2.2 Inspection Report

Month of Site Inspection	February 2023
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Abhishek Shrivastava, AE, UPJN. 3. Mr. Rahul Paswan, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Sudhir Kumar Tomar, AECOM. 6. Mr. Rahul Kumar Azaad, PWPL. 7. Mr. Vaibhav, PWPL
Place(s) of Inspection	• 29 MLD STP at Salori, Prayagraj. • 29 MLD MPS at Salori, Prayagraj.

Visit was done on 27th Jan 2023, 4th Feb 2023, 9th Feb 2023, 14th Feb 2023 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Salori STP	35.61 to 46.46
2	Salori MPS	35.61 to 46.46

Note: 1) Source for above data is site record for flow of STP & MPS.

- **Status of KPIs:**

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 30 mg/l	23 to 32 mg/l
2	TSS – Effluent	< 50 mg/l	34 to 41 mg/l
3	pH – Effluent	6.5 – 9.0	7.28 to 7.61
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	500 to 900 MPN/100 ml
5	Consistency – Sludge	> 20 %	24.10 to 25.50 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1100000 to 1700000 MPN/gTS

Note: 1) Source for above data is site record for Laboratory of STP.

- **Status of Energy Consumption:**

S. No.	Facility Name	Actual Energy Consumption (KWH/MLD)
1	Salori STP	96.86 to 122.35
2	Salori Associated Infrastructure	50.98 to 54.11

Note: 1) Source for above data is site record for Power Consumption of STP.

- **Status of various units & records at site:**

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized as the values are recorded at an interval of 1 hour.
2. Variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in SCADA reports of inlet analyzers which are more than the prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. For the rectifications of the problem, Concessionaire have informed that they are in process of replacing the current online analyzers at inlet with new ones. This is a long-term pending issue hence Concessionaire is required to do the needful at the earliest as per commitment given by them.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that data is not available from 11:15 AM from 19th Feb 2023 to 01:45 PM on 21st Feb 2023. Also, sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. Chlorine analyzer at outlet is removed, Concessionaire is required to install the same per CA but clause no. 1.2.1 and clause no. 1.3.1 in Part-E of Schedule-10 in CA which clearly states that "Online residual chlorine measuring system" is to be installed.
5. Flowmeter at inlet of STP is working.
6. Flowmeter at outlet of STP is working.
7. All Grit Removal Units are working.
8. Both Mechanical Screens are working but mechanical screen no.2 is not lifting screenings efficiently. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period. Concessionaire is required to rectify the problem.
9. Both FAB units are working.
10. DO analyzers for both FAB units are not working, please rectify the problem.
11. All Aeration blowers are working.
12. Both clarisettlers are working. In Clarisettler no. 1, levelling of outlet launders must be checked as supernatant is not coming equally in all outlet lauders & this can affect the quality of effluent. Concessionaire to please look into the matter & rectify the problem at the earliest.
13. In clarisettlers it is observed that when agitators are operated, sludge starts coming to the top due to which quality deteriorates. Hence, it is suggested to do necessary modifications in agitators so that the problem can be rectified.
14. Quality of effluent is not satisfactory.
15. For Sludge dewatering unit, installation of instruments (flowmeter for poly dosing line, etc.) is pending, Concessionaire to please do the needful.
16. Currently, 4 sludge drying beds are empty for emergency use. Concessionaire is suggested to get more drying beds empty. Also, filter media for sludge drying beds must be checked and replaced/refilled as per requirement.
17. Both Sludge transfer pumps for Clarisettler are working.
18. Both Filtrate pumps are working.
19. Both chlorinators and chlorine booster pumps are working.
20. Leak absorption system was checked in auto mode, but it was not working. Concessionaire is required to rectify the problem. Also, as instructed earlier also,

checklist for the same must be prepared and recorded properly every month.

21. Thickener unit is working.
22. It was found that sludge is being dumped within the STP. Concessionaire to please look into the matter and dump sludge only in the land which is being allotted by UPJN for sludge disposal.
23. At Salori MPS, 6 pumps are OK for operation. Since the programming for running pumps in auto mode is completed, it is suggested to operate them in auto mode for optimum performance.
24. At Salori MPS, it is suggested to rectify problems in old pumps also so that they be used in emergency Currently, all old pumps are not in working condition.
25. At Salori MPS, one coarse screen is working, and one coarse screen is in maintenance before sump due to which lot of waste is passing and pumps are getting choked and lot of wear and tear is happening in the which lot of waste is passing and pumps are getting choked and lot of wear and tear is happening in the pumps. Hence, UPJN is requested to instruct M/s Passavant to rectify the problem.
26. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement.
27. As per Clause no. 1.6 & 1.7.1 of Concession Agreement, Computer Maintenance Management System (CMMS) must be implemented at all Sites. This must be implemented from day 1 of O&M period but the same is not completed till date, Concessionaire to please do the needful.
28. Installation & commissioning of Public Address System is not completed yet.
29. Housekeeping near FeCl3 dosing system needs to be improved.
30. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records.
31. Housekeeping in dewatering area must be improved, lot of sludge can be seen scattered in this area.
32. All CCTV cameras are working
33. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

    a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    b) Calibration for field instruments like multiparameter analyzer at inlet, outlet flowmeter, DO analyzers, level transmitter is not carried out yet. Calibration for lab instruments is completed but reports are not submitted yet. It is again reiterated that as per clause no. 9.8 (a)(viii) of Concession Agreement, "*The meters/devices shall be calibrated at the start of the relevant O&M Period and then at the start of each subsequent year during the relevant O&M Period in accordance with Good Industry Practices and the meters/devices shall be jointly tested by the Jal Nigam and the Concessionaire to ensure the accuracy of the meters installed by the Concessionaire".* Hence, Concessionaire is required to do the needful and submit reports timely at the start of each subsequent year of O&M.
    c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession

Agreement.

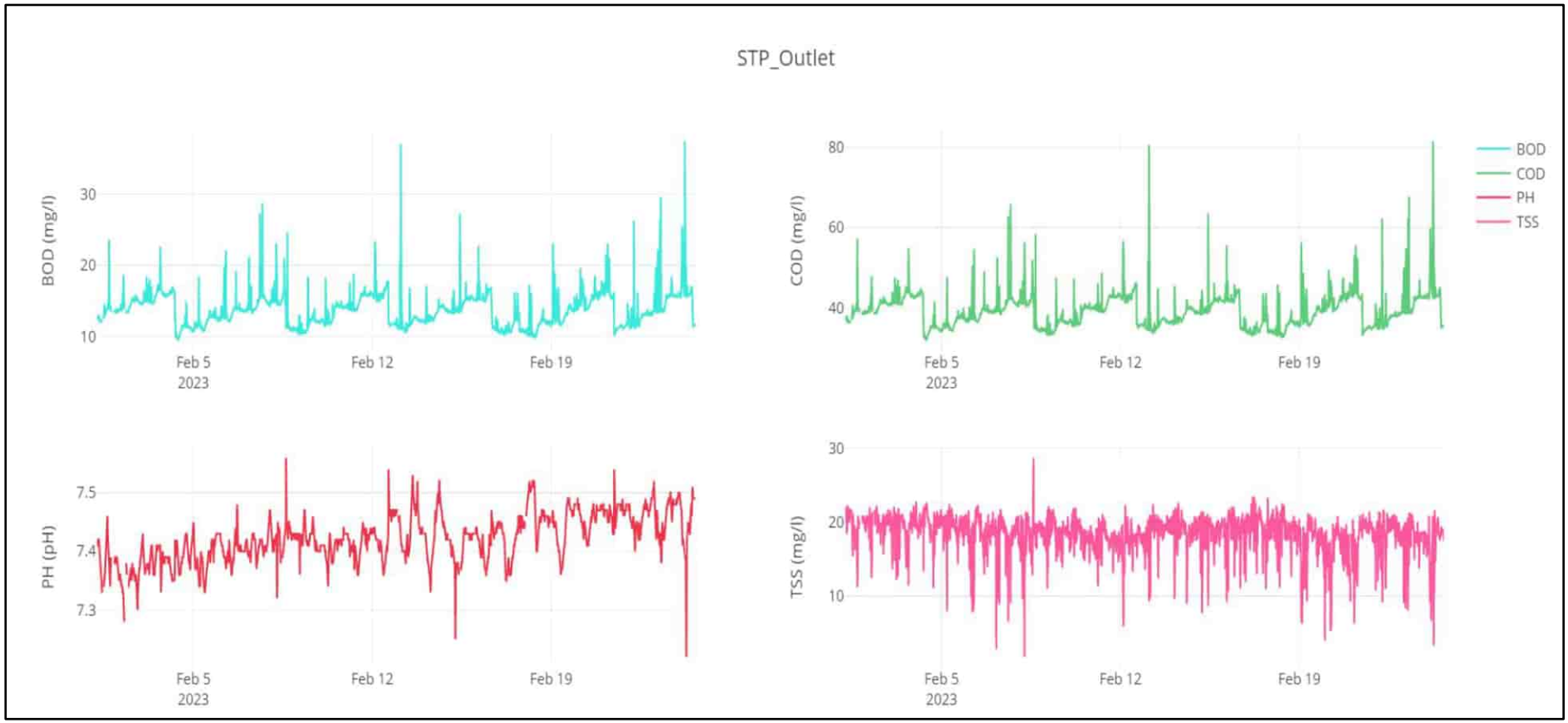
e) Quarterly report as per Part-G in Schedule-10 of CA.
f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
g) Procedure for recording & disposal of complaints.
h) Safety & Health Records. Incident reports must also be submitted along with action plan.
i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

2.3 Recommendation's

- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.
- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

3. KODRA STP AND ASSOCIATE INFRASTRUCTURE

3.1 KPI Report



Source: Online analyzer,

*** BOD in Mg/L, COD in Mg/L and TSS in Mg/L**

Note: 1. Rectification of problem for variation in data is going on as calibration of multi parameter analyzer from OEM is in progress.

2. In the blank areas, data was not transfer due to some issue in router.

Kodra STP, 25 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design-10 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design -<20 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design -<50 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design -<30 mg/l)	Inlet (Design - NA)	Final (Design -<1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	28480	28.48	7.24	7.52	150	14	312	40	291	21	NA	600	0.5	24.27	1400000	
2-Feb-23	26960	26.96	7.21	7.44	140	15	320	44	280	20	NA	700	0.4	23.38	1700000	
3-Feb-23	30130	30.13	7.26	7.48	135	16	308	40	273	21	NA	500	0.5	23.46	1300000	
4-Feb-23	29990	29.99	7.23	7.53	145	13	316	36	268	22	NA	400	0.5	24.41	1200000	
5-Feb-23	31870	31.87	7.18	7.56	150	12	324	36	270	23	NA	600	0.3	24.07	1400000	
6-Feb-23	29490	29.49	7.22	7.49	145	14	312	40	283	19	NA	700	0.2	24.18	1300000	
7-Feb-23	31370	31.37	7.24	7.45	150	15	316	44	271	18	NA	500	0.3	24.03	1700000	
8-Feb-23	29990	29.99	7.18	7.47	140	14	308	40	267	21	NA	600	0.2	24.27	1400000	
9-Feb-23	29940	29.94	7.20	7.38	135	11	312	36	276	22	NA	500	0.3	23.81	1300000	
10-Feb-23	30380	30.38	7.25	7.50	145	13	320	40	281	19	NA	400	0.2	24.12	1700000	
11-Feb-23	29740	29.74	7.28	7.56	150	15	304	44	265	18	NA	600	0.3	24.35	1400000	
12-Feb-23	30530	30.53	7.24	7.51	155	13	316	40	273	20	NA	700	0.3	23.56	1300000	
13-Feb-23	29810	29.81	7.30	7.57	145	12	308	36	268	21	NA	500	0.2	24.17	1400000	
14-Feb-23	29750	29.75	7.18	7.48	140	14	312	40	280	20	NA	600	0.2	24.45	1700000	
15-Feb-23	29240	29.24	7.16	7.43	150	15	320	44	277	19	NA	400	0.3	23.91	1400000	
16-Feb-23	28500	28.50	7.22	7.55	155	13	328	40	266	21	NA	500	0.3	24.28	1300000	
17-Feb-23	31170	31.17	7.19	7.52	135	12	316	36	279	20	NA	700	0.2	23.61	1700000	
18-Feb-23	31860	31.86	7.24	7.49	140	11	304	36	270	19	NA	600	0.2	24.15	1400000	
19-Feb-23	32950	32.95	7.21	7.45	145	14	312	40	281	18	NA	500	0.3	23.59	1200000	
20-Feb-00	29300	29.30	7.26	7.51	155	16	324	44	269	17	NA	400	0.2	24.26	1300000	
21-Feb-23	29640	29.64	7.20	7.43	150	14	308	36	276	20	NA	600	0.2	24.11	1400000	
22-Feb-23	2918	29.18	7.23	7.44	140	13	316	40	265	20	NA	700	0.3	23.45	1200000	
23-Feb-23	29340	29.34	7.18	7.50	145	16	320	44	280	17	NA	500	0.2	23.51	1700000	
24-Feb-23	29760	29.76	7.22	7.47	155	14	328	40	277	20	NA	600	0.3	24.34	1400000	
25-Feb-23	28790	28.79	7.25	7.43	140	13	312	36	284	19	NA	500	0.2	24.19	1300000	
26-Feb-23	29710	29.71	7.28	7.52	135	15	308	40	269	20	NA	400	0.2	24.54	1200000	
27-Feb-23	29160	29.16	7.24	7.48	130	14	300	44	266	18	NA	600	0.3	23.39	1700000	
28-Feb-23	30520	30.52	7.20	7.51	140	12	316	36	271	19	NA	500	0.2	24.17	1400000	
Average	**28974.57**	**29.91**	**7.22**	**7.49**	**144.29**	**13.68**	**314.29**	**39.71**	**273.43**	**19.64**	**NA**	**550.00**	**0.28**	**24.00**	**1421428.57**	

Source: Logbook of Laboratory at Sewage Treatment Plant

3.2 Inspection Report

Month of Site Inspection	February 2023
Site Inspectors	1. Mr. Santosh Kumar PM-I, UPJN. 2. Ms. Shilpa, AE, UPJN. 3. Mr. Narendra, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Sudhir Kumar Tomar, AECOM. 6. Mr. Rahul Azaad, PWPL. 7. Mr. Rajan, PWPL.
Place(s) of Inspection	• 25 MLD STP at Kodra, Prayagraj • 25 MLD MPS at Kodra, Prayagraj

Visit was done on 28th Jan 2023, 3rd Fed 2023, 10th Feb 2023 15th Feb 2023, and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Kodra STP	26.96 to 31.87
2	Kodra MPS	26.96 to 31.87

Note: 1) Source for above data is Register for flow record of STP & MPS.

- **Status of KPIs:**

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 20 mg/l	11 to 16 mg/l
2	TSS – Effluent	< 30 mg/l	18 to 22 mg/l
3	pH – Effluent	6.5 – 9.0	7.38 to 7.57
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.38 to 24.45%
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1200000 to 1700000 MPN/gTS

Note: 1) Source for above data is Register for Laboratory of STP.

- **Status of Energy Consumption:**

S. No.	Facility Name	Actual Energy Consumption (KWH/MLD)
1	Kodra STP	81.34 to 96.50
2	Kodra Associated Infrastructure	97.28 to 102.04

Note: 1) Source for above data is Register for Power Consumption Record of STP.

- **Status of various units & records at site:**
  1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized as the values are recorded at an interval of 1 hour.
  2. Variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in SCADA reports of inlet analyzers which are more than the prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. For the rectifications of the problem, Concessionaire have informed that they are in process of replacing the current online analyzers at inlet with new ones. This is a long-term pending issue hence Concessionaire is required to do the needful at the earliest as per commitment given by them. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
  3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
  4. Flowmeter at inlet of STP is working.
  5. Flowmeter at outlet of STP is working but it is not showing correct readings as compared to that of inlet flowmeter.
  6. Both grit removal unit are working.
  7. Both Mechanical Fine Screens at PTU are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
  8. All Biotowers are working. Small amount of plastic waste is reaching the biotowers which must be rectified by doing overhauling of mechanical screens at PTU.
  9. All Aeration tanks are working.
  10. Both DO Analyzer are not working at aeration tank.
  11. All Aeration blowers are working.
  12. All Centrifuges are in working condition.
  13. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
  14. All Sludge Recirculation Pumps are working.
  15. Both Centrifuge Feed Pumps are working.
  16. Both Secondary Clarifiers are working.
  17. Thickener unit is working.
  18. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be around 0.2 to 0.3 mg/l.
  19. Chlorine Analyzer at outlet of STP is not working. As per Clause No.1.2.1 and clause No.1.3.1 in Part E of schedule – 10 in CA, installation of online residual chlorine analyzer is mandatory. As per current information provided by Concessionaire, they are in process of replacing the chlorine analyzers for rectifying the problem.
  20. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
  21. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records.

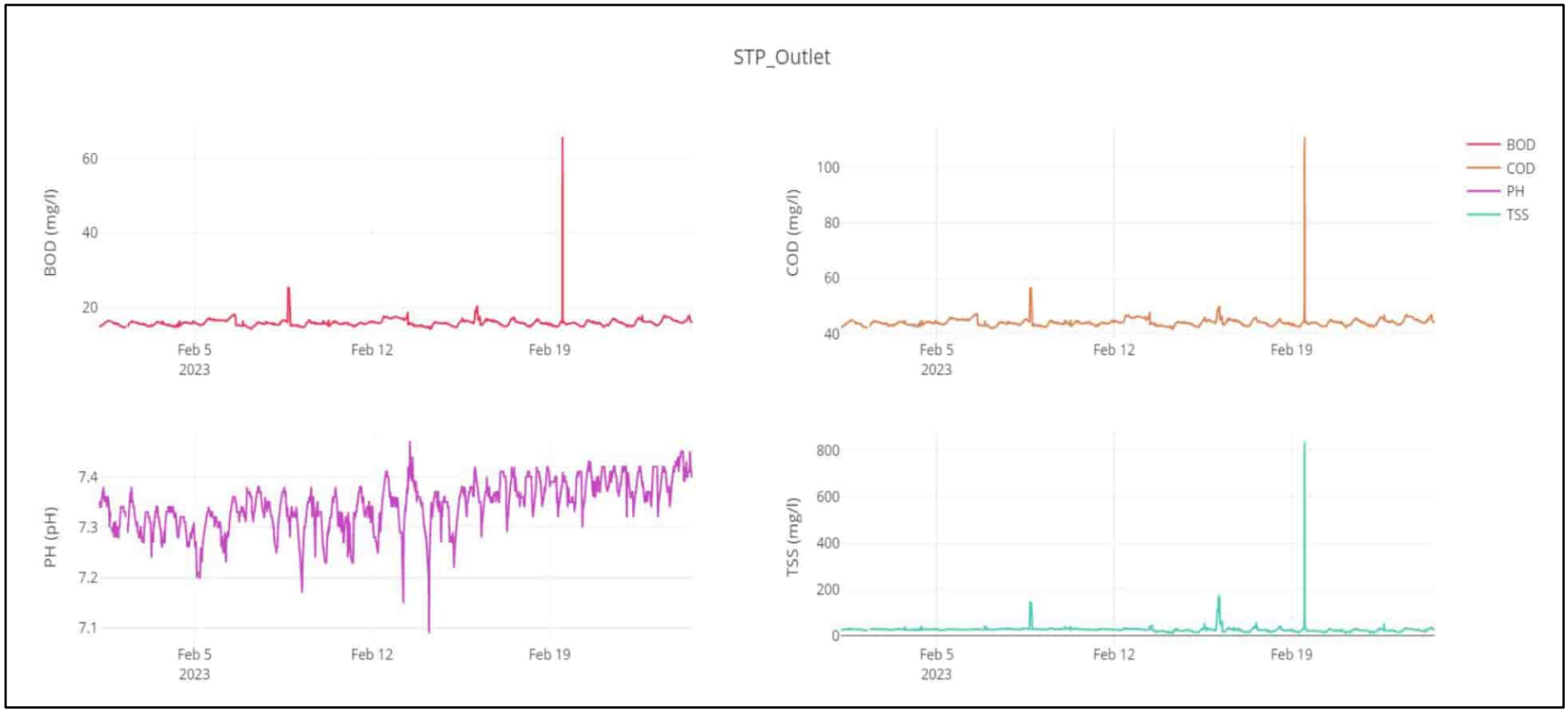
22. There is variation in recorded values of flow from inlet flowmeter at Kodra STP and outlet flowmeter of Kodra STP, please rectify the problem.
23. One Mechanical coarse Screens at MPS is working. One Mechanical coarse Screens is under maintenance Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
24. At Kodra MPS, all 6 pumps are OK for operation. Pressure transmitter is not installed in common header line of pumps yet. Also, pumps must be kept in auto mode so that they can start & stop on the basis of level in the sump.
25. At Kodra MPS, it is suggested to rectify problems in old pumps also so that they be used in emergency situation. Currently, all old pumps are not in working condition.
26. Landscaping of site must be improved; it needs to be made better.
27. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement.
28. As per Clause no. 1.6 & 1.7.1 of Concession Agreement, Computer Maintenance Management System (CMMS) must be implemented at all Sites. This is not started yet, Concessionaire to please do the needful.
29. Installation of Public Address System is done but its commissioning is not completed yet.
30. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
31. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:
    a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    b) Calibration for field instruments like multiparameter analyzer at inlet, outlet flowmeter, DO analyzers, level transmitter is not carried out yet. Calibration for lab instruments is completed but reports are not submitted yet. It is again reiterated that as per clause no. 9.8 (a)(viii) of Concession Agreement, "*The meters/devices shall be calibrated at the start of the relevant O&M Period and then at the start of each subsequent year during the relevant O&M Period in accordance with Good Industry Practices and the meters/devices shall be jointly tested by the Jal Nigam and the Concessionaire to ensure the accuracy of the meters installed by the Concessionaire".* Hence, Concessionaire is required to do the needful and submit reports timely at the start of each subsequent year of O&M.
    c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    e) Quarterly report as per Part-G in Schedule-10 of CA.
    f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    g) Procedure for recording & disposal of complaints.
    h) Safety & Health Records. Incident reports must also be submitted along with action plan.
    i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

3.3 Recommendation's

- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.
- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

4. PONGHAT STP AND ASSOCIATE INFRASTRUCTURE

4.1 KPI Report



Source: Online analyzer,

*** BOD in Mg/L, COD in Mg/L and TSS in Mg/L**

Note: 1. Rectification of problem for variation in data is going on as calibration of multi parameter analyzer from OEM is in progress.

2. In the blank areas, data was not transfer due to some issue in router.

Ponghat STP, 10 MLD STP at Prayagraj
INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design- 10 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design - <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Feb-23	12600	12.60	7.29	7.40	145	17	304	40	286	26	NA	500	0.3	23.31	1300000	
2-Feb-23	12030	12.03	7.30	7.42	140	15	312	44	294	27	NA	600	0.3	23.23	1700000	
3-Feb-23	11710	11.71	7.26	7.41	130	17	302	48	278	26	NA	500	0.4	22.90	1200000	
4-Feb-23	12640	12.64	7.30	7.44	150	15	304	40	295	24	NA	400	0.3	22.86	1300000	
5-Feb-23	13320	13.32	7.25	7.38	145	17	310	48	279	26	NA	600	0.3	23.61	1400000	
6-Feb-23	12450	12.45	7.29	7.40	140	15	298	44	284	27	NA	500	0.3	23.42	1700000	
7-Feb-23	12000	12.00	7.30	7.42	150	16	312	40	292	26	NA	400	0.3	22.99	1300000	
8-Feb-23	12560	12.56	7.33	7.44	130	15	309	48	285	29	NA	500	0.3	23.62	1500000	
9-Feb-23	12890	12.89	7.40	7.42	145	16	305	44	289	27	NA	600	0.3	23.22	1700000	
10-Feb-23	12010	12.01	7.30	7.45	135	17	312	40	267	25	NA	400	0.2	25.13	1400000	
11-Feb-23	12490	12.49	7.36	7.51	140	15	308	44	272	26	NA	700	0.3	24.17	1200000	
12-Feb-23	13520	13.52	7.27	7.38	145	18	300	48	286	24	NA	500	0.2	23.05	1700000	
13-Feb-23	12700	12.70	7.17	7.31	150	15	304	44	269	21	NA	400	0.3	24.07	1400000	
14-Feb-23	11280	11.28	7.15	7.29	130	17	312	40	275	19	NA	600	0.2	23.69	1300000	
15-Feb-23	11200	11.20	7.29	7.46	145	16	302	44	282	22	NA	700	0.3	23.86	1400000	
16-Feb-23	11500	11.85	7.26	7.32	130	18	304	48	290	28	NA	500	0.3	24.14	1200000	
17-Feb-23	12600	12.60	7.28	7.40	150	16	310	44	284	24	NA	400	0.3	24.01	1300000	
18-Feb-23	14180	14.18	7.24	7.35	135	17	300	40	292	23	NA	400	0.3	23.64	1400000	
19-Feb-23	12500	12.50	7.27	7.41	145	16	305	44	273	19	NA	500	0.3	22.90	1700000	
20-Feb-00	11870	11.87	7.23	7.40	130	15	302	48	287	20	NA	600	0.3	23.63	1500000	
21-Feb-23	12530	12.53	7.29	7.42	150	16	295	44	296	22	NA	500	0.3	22.72	1400000	
22-Feb-23	12060	12.06	7.30	7.41	135	17	304	48	292	23	NA	400	0.3	24.01	1200000	
23-Feb-23	11530	11.53	7.28	7.44	150	18	312	44	268	24	NA	400	0.2	22.48	1400000	
24-Feb-23	13120	13.12	7.30	7.43	140	15	310	48	298	25	NA	600	0.3	24.22	1300000	
25-Feb-23	12990	12.99	7.29	7.40	135	16	308	40	287	26	NA	500	0.3	23.49	1200000	
26-Feb-23	13600	13.60	7.25	7.43	130	17	304	48	295	27	NA	600	0.2	22.80	1400000	
27-Feb-23	12680	12.68	7.30	7.40	150	16	302	44	298	28	NA	400	0.3	22.57	1500000	
28-Feb-23	13680	13.68	7.24	7.37	145	15	310	48	282	27	NA	500	0.3	23.86	1700000	
Average	12508.21	12.52	7.28	7.40	140.89	16.25	305.71	44.43	284.86	24.54	NA	507.14	0.29	23.49	1417857.14	

Source: Logbook of Laboratory at Sewage Treatment Plant

4.2 Inspection Report

Month of Site Inspection	February 2023
Site Inspectors	1. Mr. Santosh Kumar PM-I, UPJN. 2. Ms. Shilpa, AE, UPJN. 3. Mr. Narendra, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Sudhir Kumar Tomar, AECOM. 6. Mr. Rahul Azaad, PWPL. 7. Mr. Anjani, PWPL.
Place(s) of Inspection	• 10 MLD STP at Ponghat, Prayagraj • 10 MLD MPS at Ponghat, Prayagraj

Visit was done on 28th Jan 2023, 3rd Feb 2023, 10th Feb 2023, 17th Feb 2023, and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Ponghat STP	11.20 to 14.18
2	Ponghat MPS	11.20 to 14.18

Note: 1) Source for above data is Register for flow record of STP & MPS.

- **Status of KPIs:**

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 20 mg/l	15 to 18
2	TSS – Effluent	< 30 mg/l	19 to 28
3	pH – Effluent	6.5 – 9.0	7.29 to 7.51
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700
5	Consistency – Sludge	> 20 %	22.86 to 25.13
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1200000 to 1700000

Note: 1) Source for above data is Register for Laboratory of STP.

- **Status of Energy Consumption:**

S. No.	Facility Name	Actual Energy Consumption (KWH/MLD)
1	Ponght STP	107.99 to 163.39
2	Ponght Associated Infrastructure	87.67 to 96.85

Note: 1) Source for above data is Register for Power Consumption Record of STP.

- **Status of various units & records at site:**

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized as the values are recorded at an interval of 1 hour.
2. Variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in SCADA reports of inlet analyzers which are more than the prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. For the rectifications of the problem, Concessionaire have informed that they are in process of replacing the current online analyzers at inlet with new ones. This is a long-term pending issue hence Concessionaire is required to do the needful at the earliest as per commitment given by them. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. Flowmeter at inlet of STP is working.
5. Flowmeter at outlet of STP is working but it is not showing correct readings as compared to that of inlet flowmeter.
6. Both Mechanical fine screens at PTU are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
7. Both Grit Removal Units are working.
8. Both Biotowers are working. Small amount of plastic waste is reaching the biotowers which must be rectified by doing overhauling of mechanical screens at PTU.
9. All Aeration tanks are working.
10. Both DO Analyzers at aeration tanks are not working.
11. All Aeration Air Blowers are working.
12. All Centrifuges are working along with Sludge Feed pumps and Poly dosing pumps. Sludge generation is 5–6 trolleys per day.
13. Quality of effluent is satisfactory.
14. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
15. Both Sludge Recirculation Pumps are working.
16. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be 0.2 to 0.3 mg/l.
17. Chlorine Analyzer at outlet of STP is not working. As per Clause No.1.2.1 and clause No.1.3.1 in Part E of schedule – 10 in CA, installation of online residual chlorine analyzer is mandatory. As per current information provided by Concessionaire, they are in process of replacing the chlorine analyzers for rectifying the problem.
18. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
19. Recording of flow from flowmeters at inlet & outlet is not accurate in SCADA system and the same is not matching site record also, Concessionaire to please check & rectify the problem.

20. At Ponghat MPS, all 6 pumps are OK for operation. Presser transmitter is not installed at pump discharge common header.
21. Both mechanical coarses screen at MPS are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
22. At Ponghat MPS, it is suggested to rectify problems in old pumps also so that they be used in emergency situation. Currently, all old pumps are not in working condition.
23. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement.
24. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, data from Computer Maintenance Management system (CMMS) must be provided in MPR as supporting documents for maintenance data. Currently, CMMS system is installed at Naini-I STP is installed but not working as per requirements of day-to-day maintenance activities. Concessionaire is required to the needful at the earliest.
25. Installation of Public Address System is done but its commissioning is not completed yet.
26. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
27. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
b) Calibration for field instruments like multiparameter analyzer at inlet, outlet flowmeter, DO analyzers, level transmitter is not carried out yet. Calibration for lab instruments is completed but reports are not submitted yet. It is again reiterated that as per clause no. 9.8 (a)(viii) of Concession Agreement, "*The meters/devices shall be calibrated at the start of the relevant O&M Period and then at the start of each subsequent year during the relevant O&M Period in accordance with Good Industry Practices and the meters/devices shall be jointly tested by the Jal Nigam and the Concessionaire to ensure the accuracy of the meters installed by the Concessionaire".* Hence, Concessionaire is required to do the needful and submit reports timely at the start of each subsequent year of O&M.
c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
e) Quarterly report as per Part-G in Schedule-10 of CA.
f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
g) Procedure for recording & disposal of complaints.
h) Safety & Health Records. Incident reports must also be submitted along with action plan.
i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

4.3 Recommendation's

- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.
- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

ANNEXURE-IV

PROJECT ENGINEER ACTIVITY AS PER TOR

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
4.1 (i)	Review, analysis and qualifying assessment of field investigations carried out and reported by the Concessionaire in respect of topographical surveys, hydraulic & hydrologic data verification, sub-surface investigation including laboratory testing and reports of geologists wherever applicable, investigation of construction material including lab testing.	Yes	Yes	Review of construction material including lab testing.
4,1(ii)	Review, analysis and qualifying assessment of Design Memorandums, specifications and construction drawings prepared and submitted by the concessionaire.	Yes	Yes	Review of construction drawing
4.1(iii)	Conduct Kick Off meetings	Yes	NA	NA
4.1(iv)	Review and Monitor the submissions of the Concessionaire such as: a. Work Schedule b. Detailed Survey report c. Basic Engineering d. Detailed design and Drawings for i. Civil Works 1. Geo-tech reports 2. Lab testing reports 3. Third Party Inspection report ii. Mechanical and Electrical Works iii. Automation and Instrumentation works iv. Any other allied works e.QA/QC plans	Yes	Yes	Review of remaining drawing design of Civil/Mech/Electrical

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	f. Environment Health and Safety Plan, material safety data and hazardous chemicals if any.			
4.1(v)	Review of the Drawings and Documents as set forth in Paragraph 4 and 5;	Yes	Yes	Yes
4.1(vi)	Identification of Construction Milestones & Project progress monitoring and issue of Milestone Construction Certificates, Construction Completion Certificate, monitoring Trail run, recommendations for issuance of COD certificate by Jal Nigam etc..	Review and Monitoring of project	Review and Monitoring of project	Review and Monitoring of project
4.1(vii)	To Assist NMCG for getting Statutory permissions	NA	NA	NA
4.1(viii)	Ensure compliance with Statutory provisions under various applicable laws	Yes	Yes	Yes
4.1(ix)	Review, inspection, supervision and monitoring of Construction Works as set forth in Paragraph 6; conducting Tests on completion of construction and issuing Completion/ Provisional Certificate as set forth in Paragraph 6	Yes	Yes	Yes
	Review, inspection and monitoring of O&M as set forth in Paragraph 6;	Yes	Yes	Yes
	determining, as required under the Concession Agreement, the costs of any works or	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	services and/or their reasonableness;			
	determining, as required under the Concession Agreement, the period or any extension thereof, for performing any duty or obligation	Yes	Yes	Yes
	Determining the Events of default and guidance on consequent Termination notices and Payment as detailed in clauses 16.1 to 16.5of the Concession Agreement	NA	NA	NA
	Determine deficiencies in the commissioning & trial runs; prepare the final acceptance document for acceptance of commissioning & trial runs. Prepare & Issue Commercial Operation certificate through Uttar Pradesh Jal Nigam	Yes	Yes	Yes
	Any other matter which is not specified in ((vi),(vii), or (viii) above and which creates an obligation or liability on the Employer /NMCG beyond the provisions of the Concession Agreement.	Yes	Yes	Yes
4.1(x)	Ensuring Interim Availability of the existing Facilities during construction period and certifying Scheduled Outages during Scheduled Maintenance.	NA	NA	NA
4.1(xi)	The Project Engineer shall submit regular periodic reports, as specified in the Concession Agreement to Uttar Pradesh Jal Nigam and	YES	YES	YES

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	NMCG, in respect of its duties and functions under the Concession Agreement.			
4.1(xii)	The Project Engineer shall aid and advise the Employer on any proposal for variation under Article 20 of the Concession Agreement.	Yes	Yes	Yes
4.1(xiii)	Assisting the Parties in resolution of Disputes as set forth in Paragraph 9;	Yes	Yes	Yes
4.1(xiv)	Assisting the employer in the fulfilment of Hand back requirements as detailed in clause 20.3 of the Concession Agreement; and	NA	NA	NA
4.1(xv)	Undertaking all other duties and functions in accordance with this agreement. Project Engineer shall utilize best of analytical tools /computational models for review/analysis of structural/hydraulics wherever essential.	Yes	Yes	Yes
4.2	The Project Engineer shall discharge its duties in an efficient manner, consistent with the highest standards of professionalism and Good Industry Practice.	Yes	Yes	Yes
4.3	The Project Engineer must function in a manner to assist and equip the employer to ascertain that the Concessionaire shall operate and maintain the Facilities in a manner that: (i) Is in compliance with the Technical Specifications,	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Applicable Laws, Applicable Permits and Good Industry Practice; Results in the Facilities achieving the KPIs as detailed in schedule 9of the Concession Agreement and certify within 7 days the KPI adherence Report as per clause 9.12 of the Concession Agreement; (ii) Ensures that the Allahabad Facilities are capable of treating Sewage up to the Design Capacity on a daily basis; (iii) Ensures efficient treatment of Sewage and handling and disposal of STPs By- Products and the Treated Effluent (iv) STPs are safe and reliable, subject to normal wear and tear of the Facilities and the Associated Infrastructure; (v) Is in compliance with the technology license agreement executed by the Concessionaire for the technology, processes, know-how and systems used or incorporated into the Facilities and/or the Associated Infrastructure; (vi) Maintains the safety and security of personnel, material and property at the Site, in accordance with the approved EHS Plan, Applicable			

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Laws and Applicable Permits; and (vii) Ensures that all waste materials and hazardous substances are stored and/or disposed in accordance with the EHS Plan, Applicable Laws and Applicable Permits.			
4.4	Overall, The Project Engineer shall assist the Uttar Pradesh Jal Nigam in supervising the construction, rehabilitation, operation and maintenance of the Facilities and shall work closely with the Uttar Pradesh Jal Nigam and NMCG to monitor compliance with the KPIs. The detailed scope of work of the Project Engineer during various stages of the project, to be read in conjunction with the provisions of the Concession Agreement, is outlined in Paragraphs 4-12 of the TOR.	Yes	Yes	Yes
5.1	During the Development Period, the Project Engineer shall undertake a detailed review of the basic engineering Designs, furnished by the Concessionaire along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys and Sewage Flow Analysis. The Project Engineer shall complete such review and	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	send its comments/observations to the Uttar Pradesh Jal Nigam and the Concessionaire within 10 (ten) days of receipt of such Drawings. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.			
5.2	The Project Engineer shall review and assist the Uttar Pradesh Jal Nigam in approval of the submissions by the concessionaire relating to the "design and, Construction Plan, rehabilitation Plan of existing facilities" so as to confirm to the scope as per Schedule 1 of the Concession Agreement.	Yes	Yes	Yes
5.3	The basic engineering drawings for the construction and rehabilitation in the above case shall mean the designs and documents to be submitted by the Concessionaire and approved by the Uttar Pradesh Jal Nigam as a Condition Precedent and shall include but not limited to (a) Conduct Kick off meeting, Scrutiny of contractor's submittals (b) Process description, process calculations and hydraulic calculations;	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	(c) List of design codes and standards; (d) Master drawing schedule; (e) Drainage design; (f) STP Facilities layout; (g) Process flow diagram; (h) Hydraulic flow diagram; (i) Mass balance diagram; (j) Process and instrumentation diagram; (k) Single line diagram; (l) Electrical load list; and (m) Structure design and drawings (n) Pump Characteristics and (o) General arrangement diagrams of all units of Facilities and; (p) Any other information, design, drawings, etc needed for effective development/rehabilitation and operation of Facilities..			
5.4	The Project Engineer shall review any modified Drawings or supporting Documents sent to it by the Concessionaire and furnish its comments within 10 (ten) days of receiving such Drawings or Documents.	Yes	Yes	Yes
5.5	The Project Engineer shall review the detailed design, construction methodology, quality assurance procedures and the procurement, engineering and construction time schedule sent to it by the	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Concessionaire and furnish its comments within 10 (ten) days of receipt thereof.			
5.6	Upon reference by the NMCG/Uttar Pradesh Jal Nigam, the Project Engineer shall review and; comment on the EPC Contract or any other contract for construction, operation and maintenance of the Project, and furnish its comments within 10 (ten) days from receipt of such reference from the NMCG/Uttar Pradesh Jal Nigam	NA	NA	NA
6.1	In respect of the Designs Drawing and Documents received by the Project Engineer for its review and comments during the Construction Period, the provisions of Paragraph 4 shall also apply, mutatis mutandis.	Yes	Yes	Yes
6.2	The Project Engineer shall review, and assist the Uttar Pradesh Jal Nigam in reviewing the submissions by the concessionaire, the Construction plan as defined in clause 8.3, 8.4 and 8.5 of the Concession Agreement including Phase 1 and Phase II Design & Drawings, as well as the 'As Built' drawings on completion and EHS plans as defined in clause 8.6 of the Concession Agreement.	Yes	Yes	Yes
6.3	The Project Engineer shall assist the Uttar Pradesh Jal Nigam submit their comments	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	on effectiveness or otherwise of the Work plan submitted for meeting the specified payment milestones and completion of the work on or before the scheduled construction completion date.			
6.4	The Project Engineer shall review the submissions by the Concessionaire as per Schedule 1 of the Concession Agreement and assist Uttar Pradesh Jal Nigam in assessing the effectiveness them.	Yes	Yes	Yes
6.5	The Project Engineer shall review the monthly progress report furnished by the Concessionaire and send its comments thereon to the / Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of receipt of such report.	Yes	Yes	Yes
6.6	The Project Engineer shall inspect the Construction Works and the Project as and when necessary and submit a report of such inspection (the "Inspection Report"), preferably after receipt of the monthly progress report from the Concessionaire, but before the 20th (twentieth) day of each month in any case. The report shall contain, an overview of the status, progress, quality and safety of construction, including the work methodology adopted,	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	the materials used and their sources, and conformity of Construction Works with the Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Project Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project. The Project Engineer shall send a copy of its Inspection Report to the / Uttar Pradesh Jal Nigam and the Concessionaire within 3 (three) days of the inspection.			
6.7	However serious lapses, defects and/or deficiencies shall be reported to the Uttar Pradesh Jal Nigam/NMCG immediately without waiting for the monthly progress submissions as mentioned in the previous paragraph.	Yes	Yes	Yes
6.8	For determining that the Construction Works conform to Specifications and Standards, the Project Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Project Engineer in accordance with approved norms/Good Industry Practice for quality assurance. The Project Engineer shall issue necessary directions to the	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Concessionaire for ensuring that the tests are conducted in a fair and efficient manner and shall monitor and review the results thereof.			
6.9	The timing of tests referred to in Paragraph 6.8, and the criteria for acceptance/ rejection of their results shall be determined by the Project Engineer in accordance with the norms /rules and Good Industry Practice. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Concessionaire for its own quality assurance in accordance with Good Industry Practice.	Yes	Yes	Yes
6.10	In the event that the Concessionaire carries out any remedial works for removal or rectification of any defects or deficiencies, the Project Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests to determine that such remedial works have brought the Construction Works into conformity with the Specifications and Standards, and the provisions of this Paragraph 5 shall apply to such tests.	Yes	Yes	Yes
6.11	In the event that the Concessionaire fails to	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	achieve any of the Project Milestones, the Project Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Project Engineer identifies that completion of the Project is not feasible within the time specified in the Concession Agreement, it shall require the Concessionaire to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which COD shall be achieved. Upon receipt of a report from the Concessionaire, the Project Engineer shall review the same and send its comments to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire forthwith.			
6.12	If at any time during the Construction Period, the Project Engineer determines that the Concessionaire has not made adequate arrangements for the safety of workers and common public in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the common public, it shall make a recommendation to the NMCG/ Uttar Pradesh Jal Nigam forthwith, identifying the whole or part of the	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Construction Works that should be suspended for ensuring safety in respect thereof.			
6.13	In the event that the Concessionaire carries out any remedial measures to secure the safety of suspended works and common public, it may, by notice in writing, require the Project Engineer to inspect such works, and within 3 (three) days of receiving such notice, the Project Engineer shall inspect the suspended works and make a report to the NMCG/ Uttar Pradesh Jal Nigam forthwith, recommending whether or not such suspension may be revoked by the NMCG/ Uttar Pradesh Jal Nigam.	NA	NA	NA
6.14	If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Project Engineer shall determine the extension of dates set forth in the project completion	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	schedule, to which the Concessionaire is reasonably entitled, and shall notify the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire of the same.			
6.15	Upon reference from the NMCG/ Uttar Pradesh Jal Nigam, the Project Engineer shall make a fair and reasonable assessment of the costs of providing information, works and services and certify the reasonableness of such costs for payment by the NMCG/ Uttar Pradesh Jal Nigam to the Concessionaire.	NA	NA	NA
6.16	The Project Engineer shall aid and advise the Concessionaire in preparing the Operation & Maintenance Manual.	NA	Yes	Yes
6.17	Upon reference from the NMCG/ Uttar Pradesh Jal Nigam the Project Engineer shall undertake the assessment of cost of civil works, as per applicable schedule of rates, for the reduction of Scope of work if any as per Article 21.	Yes	Yes	Yes
6.18	The Project Engineer shall review the construction progress as per payment milestones proposed by the concessionaire and provide necessary recommendation/s to Uttar Pradesh Jal Nigam for issuance of 'Milestone Construction Certificates'.	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
6.19	The Project Engineer shall support the employer in ensuring that the provisions specified in Clause 8, of the Concession Agreement including those for liquidated damages and Bonus, are being complied with.	Yes	Yes	Yes
6.20	On completion of construction and at behest of Employer, the Project Engineer may review the work done as per 'as built' drawings and identify defects and suggest changes as per clause 8.14(a)of the Concession Agreement.	Yes	NA	NA
6.21	Similarly, the Project Engineer may inspect the trial process and may point out the defects and cause changes or retrial of the process as per clause 8.15(d) of the Concession Agreement	Yes	Yes	Yes
6.22	Project Engineer shall ensure that the Concessionaire shall meet the Guaranteed Interim Availability of the existing Allahabad STPs and associated infrastructure within 30 days from the Effective Date of the Concession Agreement.	Yes	NA	NA
6.23	Project Engineer shall also ensure that the STP by-products and Treated Effluents discharged from the Existing Facilities meet the relevant Discharge Standards in accordance with the Clause 9.12(c) of the Concession	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Agreement, from 1 year from the Effective Date			
6.24	Project Engineer shall ensure that the Concessionaire shall meet the Guaranteed Interim Availability of the existing Allahabad STP and associated infrastructure within 30 days from the Effective Date of the Concession Agreement.	Yes	NA	NA
6.25	Project Engineer shall also ensure that the STP by-products and Treated Effluents discharged from the Existing Facilities meet the relevant Discharge Standards in accordance with the Clause 9.12(c) of the Concession Agreement, from 1 year from the Effective Date.	Yes	Yes	Yes
7.1	In respect of the Designs, Drawings, and Documents received by the Project Engineer for its review and comments during the Operation Period, the provisions of Paragraph 4 shall apply, mutatis mutandis.	Yes	Yes	Yes
7.2	The Project Engineer shall review the O&M Manual (Clause 9.2) and the Scheduled Maintenance Programme submitted by the concessionaire and provides its recommendations on the same, including suggestions for change, if any. The O&M Manual shall cover: a) O&M Procedures; b) O&M Plan;	NA	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	c) Provision of Spare Parts; d) Sampling and Testing Methodologies; e) Storage and control of Inventory; f) Arrangements for data security and Integrity; g) Procedures for recording and disposal of complaints; h) Operational Contingencies Plans; i) Human Resources Plans; j) EHS Plans; k) Emergency procedures; l) Management of Assets Plans. And m) Annual Scheduled Maintenance Programme.			
7.3	The Project Engineer shall review the annual Maintenance Program furnished by the Concessionaire and send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 10 (ten) days of receipt of the Maintenance Program.	Yes	Yes	Yes
7.4	The Project Engineer shall review the reports generated from online monitoring systems to assess adherence to KPIs and submit the monthly KPI Adherence Report to Uttar Pradesh Jal Nigam	Yes	Yes	Yes
7.5	The Project Engineer shall verify the daily reports	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	submitted by the concessionaire regarding the volume of sewage and its quality re influent standards and monitor and record the same on regular basis;			
7.6	The Project Engineer shall monitor, review and advise the Uttar Pradesh Jal Nigam on the reports submitted by the concessionaire as per clause 9.8(b)(iii) (A) to (G) of the Concession Agreement.	Yes	Yes	Yes
7.7	The Project Engineer shall regularly verify the report submitted by the concessionaire on the tests conducted at the Inlet Point, the Outlet Point or at any other point at the Facilities for the Digested Sludge. Separately, the Project Engineer shall also have the right to take random samples of the incoming Sewage, the Digested Sludge and the Treated Effluent at any time during the O&M Period to test compliance with the Influent Standards and the Discharge Standards.	Yes	Yes	Yes
7.8	The Project Engineer shall review the monthly status report furnished by the Concessionaire (as required under clause 9.8(b)(iii)(E) the Concession Agreement) and send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	within 7 (seven) days of receipt of such report			
7.9	The Project Engineer shall inspect the Project once every month, preferably after receipt of the monthly status report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, and make out an O&M Inspection Report setting forth an overview of the status, quality and safety of O&M including its conformity with the Maintenance Requirements and Safety Requirements. In a separate section of the O&M Inspection Report, the Project Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in O&M of the Project. The Project Engineer shall send a copy of its O&M Inspection Report to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of the inspection.	Yes	Yes	Yes
7.10	The Project Engineer may inspect the project more than once in a month, if any lapses, defects or deficiencies require such inspections.	Yes	Yes	Yes
7.11	The Project Engineer shall in its O&M Inspection Report specify the tests, if any, that the Concessionaire shall carry out, or cause to be carried out,	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	for the purpose of determining that the project is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Concessionaire in this behalf.			
7.12	The Project Engineer shall determine if any delay has occurred in completion of repair or remedial works in accordance with the Concession Agreement, and shall also determine the Damages, if any, payable by the Concessionaire to the NMCG/ Uttar Pradesh Jal Nigam for such delay.	Yes	Yes	Yes
7.13	The Project Engineer shall monitor and review the curing of defects and deficiencies by the Concessionaire.	Yes	Yes	Yes
7.14	In the event that the Concessionaire notifies the Project Engineer of any modifications that it proposes to make to the project, the Project Engineer shall review the same and send its comments to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 15 (fifteen) days of receiving the proposal.	NA	NA	NA
7.15	The Project Engineer shall undertake sewage flow sampling, as and when required by the NMCG/ Uttar	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	Pradesh Jal Nigam, under and in accordance with the provisions of this agreement.			
7.16	The Project Engineer shall review and report to the employer on all the reports (Daily, Monthly, Quarterly and Annual), including monthly Environmental Monitoring Reports as detailed in Schedule 10(Part G) of the Concession Agreement.	Yes	Yes	Yes
7.17	The Project Engineer shall provide necessary training/capacity building to the operators/technicians of the STP, as and when required, so as to address the gap in skill sets of the manpower deployed by the Concessionaire.	Yes	Yes	Yes
7.18	The Project Engineer will provide necessary assistance to NMCG and UP Jal Nigam for the understanding various projects undertaken through other Central Government/State Government schemes /Urban Local Bodies and advice NMCG/UP Jal Nigam accordingly so that the overall objective preventing flow of untreated sewage into the river Yamuna is accomplished. The support by the proposed PE will include, but not limited to the following: 7.18.1 Preparation of a road map/policy note for	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Feb to 28th Feb 2023**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	completion of sewage related work at the City Level taking into consideration various schemes implemented through NMCG/Central/State Government funding and/or through Urban Local Body funding; 7.18.2 Assist in developing dovetailing partnerships with other schemes in the sewage sector like AMRUT, SMART City Mission and Swachh Bharat Mission to develop Synergistic plans. 7.18.3 Assist in identification of suitable new technologies for improving sewage infrastructure, economizing investment and for sustainable development and operation of the project; 7.18.4 Collecting information on regular monitoring and of implementation of various projects by the project implementing agencies/Urban Local Bodies and to produce status report;			
7.19	Assist in identification of bottlenecks in implementation of projects and suggesting remedial actions.	Yes	Yes	Yes

ANNEXURE-V

QUALITY CONTROL / QUALITY ASSURANCE

S. NO	Description	Instrument	1st February to 28th February 2023				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
1	Aggregate Impact Value	IS 2386-Part 4	ONE TEST/300 CUM	1	1	0	Aggregate Impact value test conduct in Jhunsi. found satisfactory
2	Aggregate Impact Value	IS 2386-Part 4	ONE TEST/300 CUM	1	1	0	Aggregate Impact value test conduct in Jhunsi. found satisfactory
3	Sand gradation	IS 2386-Part 1	ONE TEST/300CUM	1	1	0	Sand Gradation Test conduct in, Jhunsi and found satisfactory
4	Sand gradation	IS 2386-Part 1	ONE TEST/300CUM	1	1	0	Sand Gradation Test conduct in, , Jhunsi and found satisfactory
5	Cube test	IS 516-2001	Quantity of concrete (m3) Number of samples 1-5 1 6-15 2 16-30 3 31-50 4 51 and above 4 plus one additional sample for each additional 50 m3 or part thereof.	04	04	0	Jhunsi SPS cube test at Jhunsi site. Cube test is acceptable for 7 Days
6	Cube test	IS 516-2001	Quantity of concrete (m3) Number of samples 1-5 1 6-15 2	06	06	0	Jhunsi SPS cube test at Jhunsi site. Cube test is acceptable for 28 Days.

S. NO	Description	Instrument	1st February to 28th February 2023				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
			16-30 3 31-50 4 51 and above 4 plus one additional sample				
7	Cube test (Manhole)	IS 516-2001	Quantity of concrete (m3) Number of samples 1-5 1 6-15 2 16-30 3 31-50 4 51 and above 4 plus one additional sample	00	00	0	NIL
8	Cube test (Manhole)	IS 516-2001	Quantity of concrete (m3) Number of samples 1-5 1 6-15 2 16-30 3 31-50 4 51 and above 4 plus one additional sample	01	01	0	Jhunsi Manhole cube test conduct at Jhunsi. Cube test is acceptable for 28 Days.

S. NO	Description	Instrument	1st February to 28th February 2023				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
9	Silt Content in Sand	IS 2386: 1963-Part 2	50 M3 – 1 TEST	1	1	0	Silt Content Test conduct in Jhunsi and found satisfactory
10	Silt Content in Sand	IS 2386: 1963-Part 2	50 M3 – 1 TEST	1	1	0	Silt Content Test conduct in, Jhunsi, and found satisfactory
11	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	1	1	0	Sieve Test Activity conduct in, Jhunsi site as per quality of material found acceptable
12	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	1	1	0	Sieve Test Activity conduct in Jhunsi, site as per quality of material found acceptable
13	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	1	1	0	Sieve Test Activity conduct in, Jhunsi site as per quality of material found acceptable
14	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	1	1	0	Sieve Test Activity conduct in Jhunsi, site as per quality of material found acceptable
15	Brick Test	IS 1077 & 3495	1 SAMPLE/50000 BRICKS	1	1	0	As per site brick test activity conduct at Jhunsi (Phaphamau bricks) and result found acceptable as per IS
16	OPC CEMENT 43 GRADES	IS 4031	I TEST PER LOT	1	1	0	Ultratech (Third party batch report Submitted)