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
July 2022

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;**

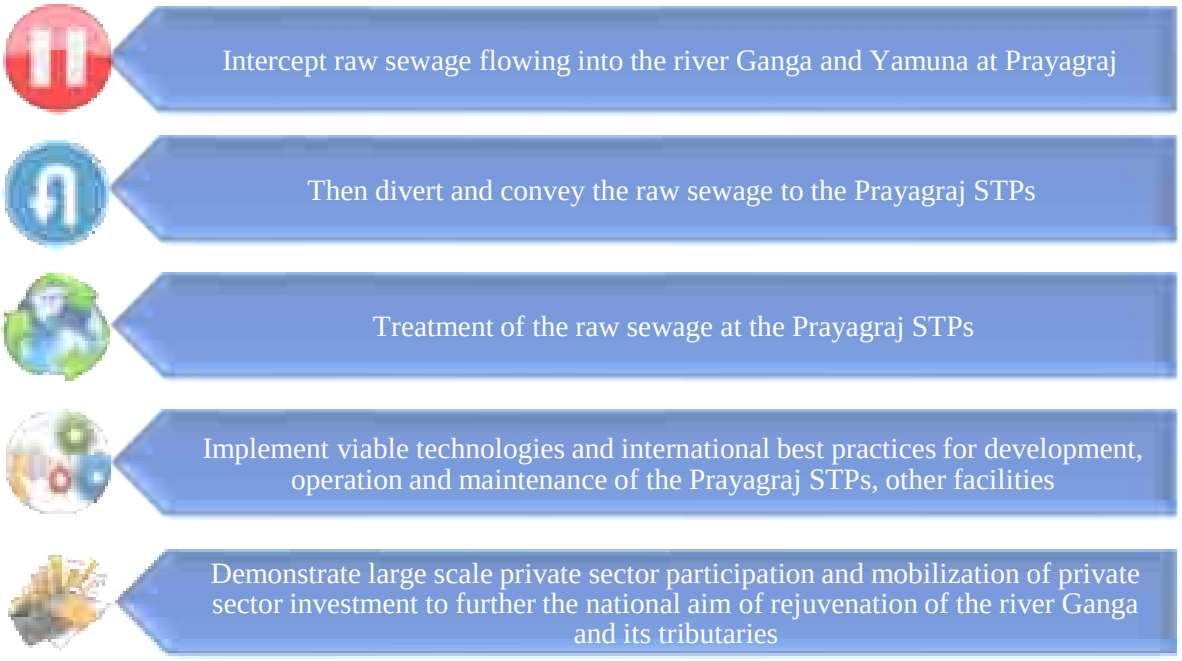

Figure 1 : Objectives of NMCG and UP JAL NIGAM

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

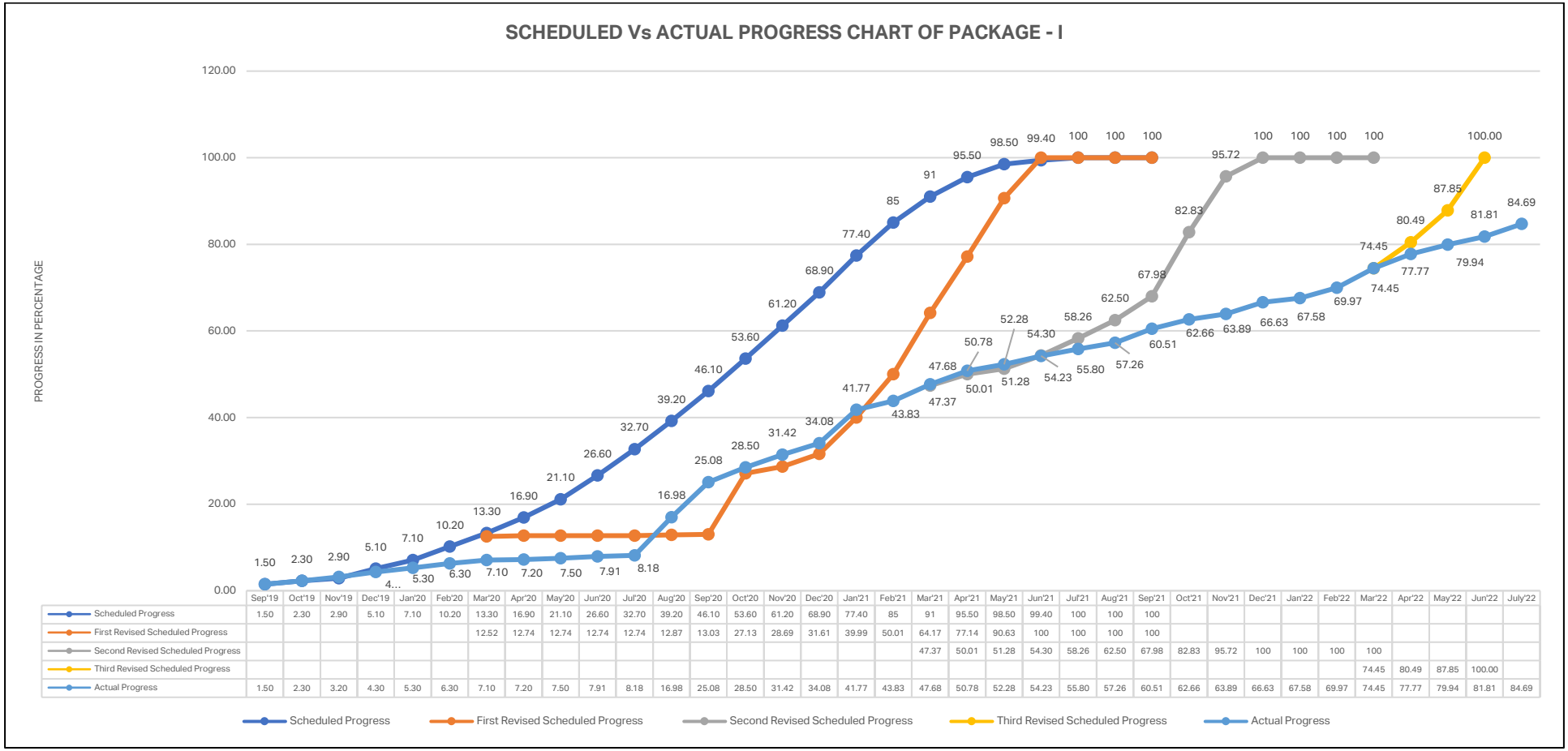
Package Number - I				
Nature of work	**Facilities**			
New construction	Design, develop, finance, construct, operate and maintain, and transfer the Package-I Facilities including three STP facilities with a proposed capacity of 42 MLD at Naini (District G), 14 MLD at Phaphamau (District F), and 16 MLD 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



	Sep'19	Oct'19	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20	Jul'20	Aug'20	Sep'20	Oct'20	Nov'20	Dec'20	Jan'21	Feb'21	Mar'21	Apr'21	May'21	Jun'21	Jul'21	Aug'21	Sep'21	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Apr'22	May'22	Jun'22	July'22
Scheduled Progress	1.50	2.30	2.90	5.10	7.10	10.20	13.30	16.90	21.10	26.60	32.70	39.20	46.10	53.60	61.20	68.90	77.40	85	91	95.50	98.50	99.40	100	100	100										
First Revised Scheduled Progress							12.52	12.74	12.74	12.74	12.74	12.87	13.03	27.13	28.69	31.61	39.99	50.01	64.17	77.14	90.63	100	100	100	100										
Second Revised Scheduled Progress																			47.37	50.01	51.28	54.30	58.26	62.50	67.98	82.83	95.72	100	100	100	100				
Third Revised Scheduled Progress																															74.45	80.49	87.85	100.00	
Actual Progress	1.50	2.30	3.20	4.30	5.30	6.30	7.10	7.20	7.50	7.91	8.18	16.98	25.08	28.50	31.42	34.08	41.77	43.83	47.68	50.78	52.28	54.23	55.80	57.26	60.51	62.66	63.89	66.63	67.58	69.97	74.45	77.77	79.94	81.81	84.69

- **Project Engineer has provided observation on Concessionaire July'22-month MPR vide letter number AIPL/NMCG/PRAYAG/1476 on dated 20.08.2022 Therefore, status may be change after observation incorporated by Concessionaire.**

7.1.7 Physical construction Activities in July'22 month

NEW CONSTRUCTION			
S. No.	**Structure Description**	**Structure Qty.**	**Status**
PACKAGE – I			
PHAPHAMAU STP			
1.	FCR tank	01 No.	• RCC work of FCR tank along with hydro testing is completed. • "C" profile for FCR module installation completed • "I" nut for diffuser grid installation completed. • FCR module basket installation work completed.
2.	Staff Quarter	01 Nos	• Finishing work under progress
3.	MPS	01 No.	• RCC work of MPS is completed • Cleaning work in under progress
4.	Tube Settler	01 No.	• RCC work of Tube settler is completed and hydro testing is under progress. • CCT Area: Tonner room brick work completed. All other structural casting completed.
5.	Process Building	01 No	• RCC work slab at 94.00 m level is completed • Brick work under progress
6.	Basna Nala SPS	01 No.	• 9th lift casting is completed, and slab casting work is under progress.
7.	Outfall Sewer	2000 mtr.	• Out fall sewer pipe laying completed 1870 mtr. Out of 2000 mtr.26 Nos. manhole completed out of total 29 Nos.
8.	Basna Nala SPS to Phaphamau STP	1123 mtr.	• Sewer laying completed 1014 Mtr.
NAINI – II STP			
9.	FCR tank	01 No.	• Tank A & B civil work has been completed. • Installation of C profile for bio module & diffuser grid frame in FCR tanks is under progress. • Installation of Plant rack in FCR tank is 50% completed and remaining under progress. • SS Piping for Air distribution of internal FCR tank is under Progress.

			• Grating installation is under progress over FCR tank.
10.	Tube Settler	01 No.	• RCC work of Tube settler is completed and hydro testing is under progress. • 3 No. tank Media installation is completed out of 8 and remaining work in progress
11.	Staff Quarter	01 No.	• Finishing work under progress
12.	MPS	01 No.	• Brick work is under progress in Panel room portion. • Wet well cleaning and finishing work in progress. • Cable laying is under progress. • 02 No. Mechanical screen installation work is under progress. • LT panel erection work under progress. • Submersible pump and header line erection work under progress.
13.	Process Building	01 No	• RCC work completed and finishing work under progress. • Installation of HT panel along with cabling is 100 % completed. (03 Nos) • AHF panel installation completed. (01 out of 01) • Cable laying work along and internal lighting work is under progress. • Installation of blower is under progress and 8 Nos blower installed out of 8 Nos. • 01 Nos. Transformer installation in STP is completed. • Installation of heat exchanger in blower line is completed. • LT panel installation work in under progress. • DG set installation work is under progress. • O2 No. Mechanical screen installation work is under progress. • VFD panel installation work is completed.
14.	Mahewaghat SPS	01 o.	• Wet well cleaning and finishing work started. • Panel room Brick work under progress • 2 no. Mechanical screen installation work is under progress. • DG set erection work under progress. • Submersible pump erection work under progress
15.	Mawaiya Nalla SPS	01 No.	• RCC work completed • Staff Quarter work under progress • 02 no. Mechanical screen installation work is under progress. • DG set erection work under progress.

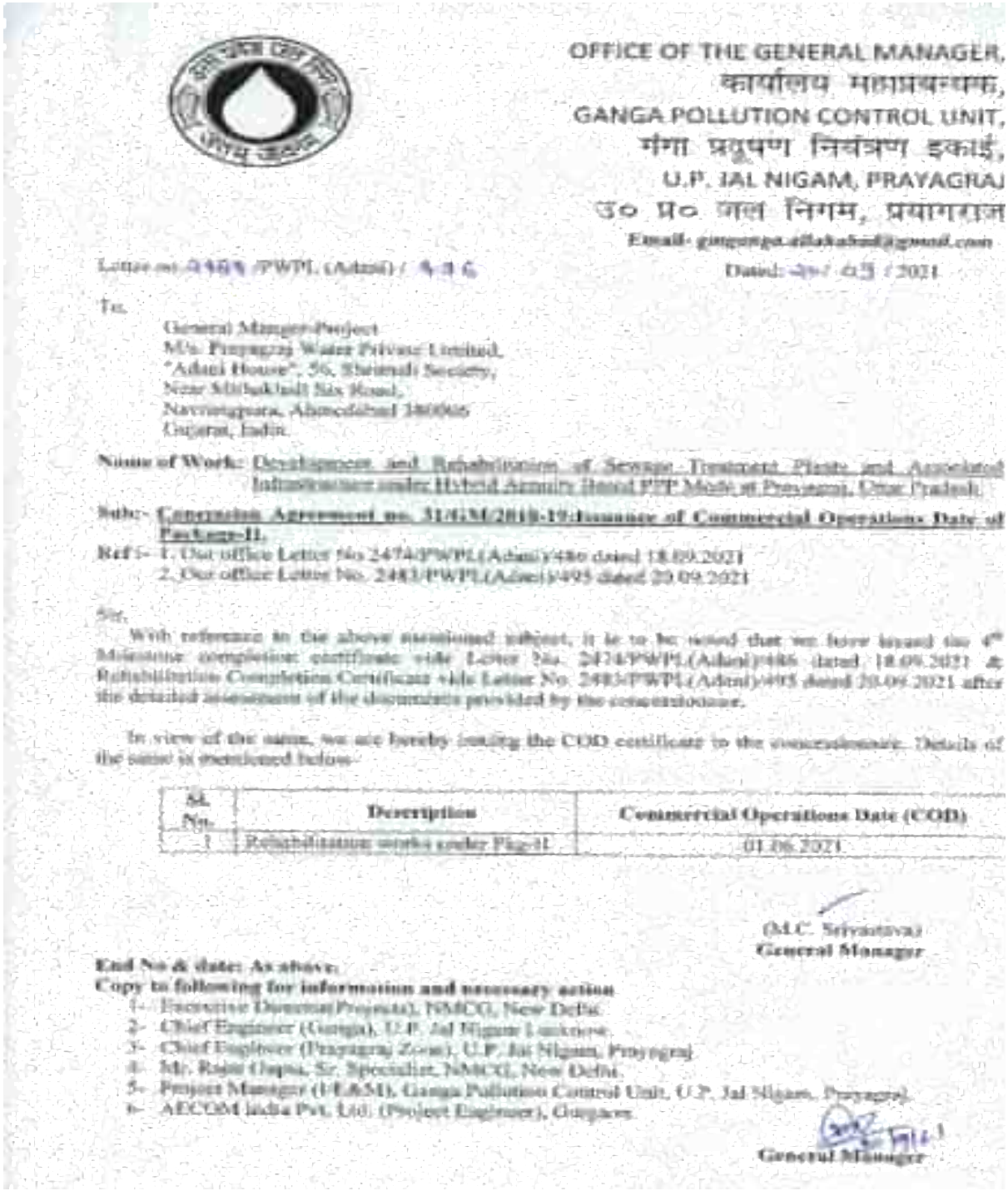
			• Submersible pump erection work under progress
16.	Boundary Wall	01 No.	• Work under progress
17.	DI Pipeline from Mahewaghat to Naini-II (300mm Dia.)	700 Rmt.	• Total 688 mtr. pipeline laying work is completed
18.	DI Pipeline from Mawaiya Nalla to Naini-II (800mm Dia.)	700 Rmt.	• Total 687 mtr. pipeline laying work is completed
19.	RCC 600 dia. From Mahewaghat to Naini-II	4077 RMT	• Total 4077 mtr. Completed.
20.	RCC 1400 dia. From Mawayiya to Naini-II	3042 RMT	• 2962 m Laying work completed,
21.	RCC 1600 mm Dia.	997 RMT	• 997 m Laying work completed,
22.	Out fall Sewer	730 RMT	• 685 m laying completed of 1600 Dia RCC pipe
23.	I &D work	6 Nos	• At 5 Nos I&D work is under progress.
JHUNSI STP			
24.	FCR tank	01 No.	• Civil and Hydrotesting work completed. • Diffuser Frame erection Work in Progress. • Installation of C profile in FCR along with bio module is 60% completed. • Installation of diffuser frame is 100% completed.
25.	Process Building	01 No	• Soil filling work up to tie beam is completed. Plinth beam casting is completed, and grade slab is also casted. Column shuttering work is under progress. (Part A). • Slab along with staircase at level 94 meter is casted. 2nd Lift column casting is also done and final top-level slab at level 98 meter is casted. (Part B and Part C RCC work is completed)
26.	Tube Settler	01 No.	• RCC Structure work 100% Completed with Hydrotest. • CCT Area: RCC work has been completed along with slab at level 91.2. • Hopper and Sludge holding tank portion: RCC work has been completed up to all 8 lifts at level 91.2 meter.

			• Media and launder installation in tube settler is 100% completed. • Poppet Valve installation is 100% completed.
27.	MPS	01 No.	• RCC work along with hydrotesting is completed.
28.	Security Cabin	01 No.	• Brick work completed and other finishing work under progress.
29.	Staff Quarter	01 No.	• Plaster work completed and other finishing work under progress.
30.	Shastri Bridge SPS	01 No	• 9th lift casting completed out of 19 lift and 10th lift reinforcement & shuttering work under progress
31.	I &D work	13 Nos	• Work under progress at 13 Site.
32.	Gravity main	3427 m	• Pipe laying 2993 meter completed.
33.	Raising main	3875m	• Pipe laying 2772 meter completed.
34.	Outfall sewer	250 m	• Pipe laying 52.5 meter completed.

PROJECT ENGINEER INSPECTION 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- gangaup.allahabad@gmail.com

Letter no. 2484 /PWPL (Adani) / 496 Dated: 29/ 05 /2021

To,

General Manager-Project
M/s. Prayagraj Water Private Limited,
"Adani House", 56, Shrimali Society,
Near Mithakhali Six Road,
Navrangpura, Ahmedabad 380009
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. 31/4/M/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. Rajiv 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.

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,

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, UPJN 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 (O/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 July' 2022.

Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
1.	Site inspection of Phaphmau STP	1-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
2.	Site inspection of Phaphmau STP	1-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
3.	Site inspection of Naini-II STP	4-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
4.	Site inspection of Naini-II STP	4-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
5.	Site inspection of Rajapur STP	6-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
6.	Site inspection of Phaphmau STP	6-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
7.	Site inspection of Phaphmau STP	6-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
8.	Site inspection of Jhunsi STP	7-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
9.	Site inspection of Numayadahi STP	7-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
10.	Site inspection of Naini-II STP	8-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
11.	Site inspection of Jhunsi STP	9-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
12.	Site inspection of Jhunsi STP	9-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
13.	Site inspection of Naini-II STP	11-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities

Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
14.	Site inspection of Naini-I STP	12-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
15.	Site inspection of Jhunsi STP	12-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
16.	Site inspection of Jhunsi STP	12-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
17.	Site inspection of Naini-II STP	13-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
18.	Site inspection of Naini-II STP	13-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
19.	Site inspection of Numayadahi STP	14-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
20.	Site inspection of Naini-II STP	14-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
21.	Site inspection of Naini-II STP	14-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
22.	Site inspection of Jhunsi STP	15-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
23.	Site inspection of Jhunsi STP	15-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
24.	Site inspection of Kodra STP	16-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
25.	Site inspection of Phaphmau STP	18-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
26.	Site inspection of Phaphmau STP	18-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
27.	Site inspection of Naini-II STP	19-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
28.	Site inspection of Naini-II STP	19-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities

Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
29.	Site inspection of Jhunsi STP	19-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
30.	Site inspection of Jhunsi STP	19-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
31.	Site inspection of Naini-I STP	21-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
32.	Site inspection of Rajapur STP	23-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
33.	Site inspection of Salori STP	24-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
34.	Site inspection of Kodra STP	25-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
35.	Site inspection of Ponghat STP	25-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
36.	Site inspection of Salori STP	25-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
37.	Site inspection of Numayadahi STP	25-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
38.	Site inspection of Numayadahi STP	26-Jul-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
39.	Site inspection of Naini-II STP	26-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
40.	Site inspection of Naini-II STP	26-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
41.	Site inspection of Phaphmau STP	28-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
42.	Site inspection of Phaphmau STP	28-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
43.	Site inspection of Jhunsi STP	29-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities

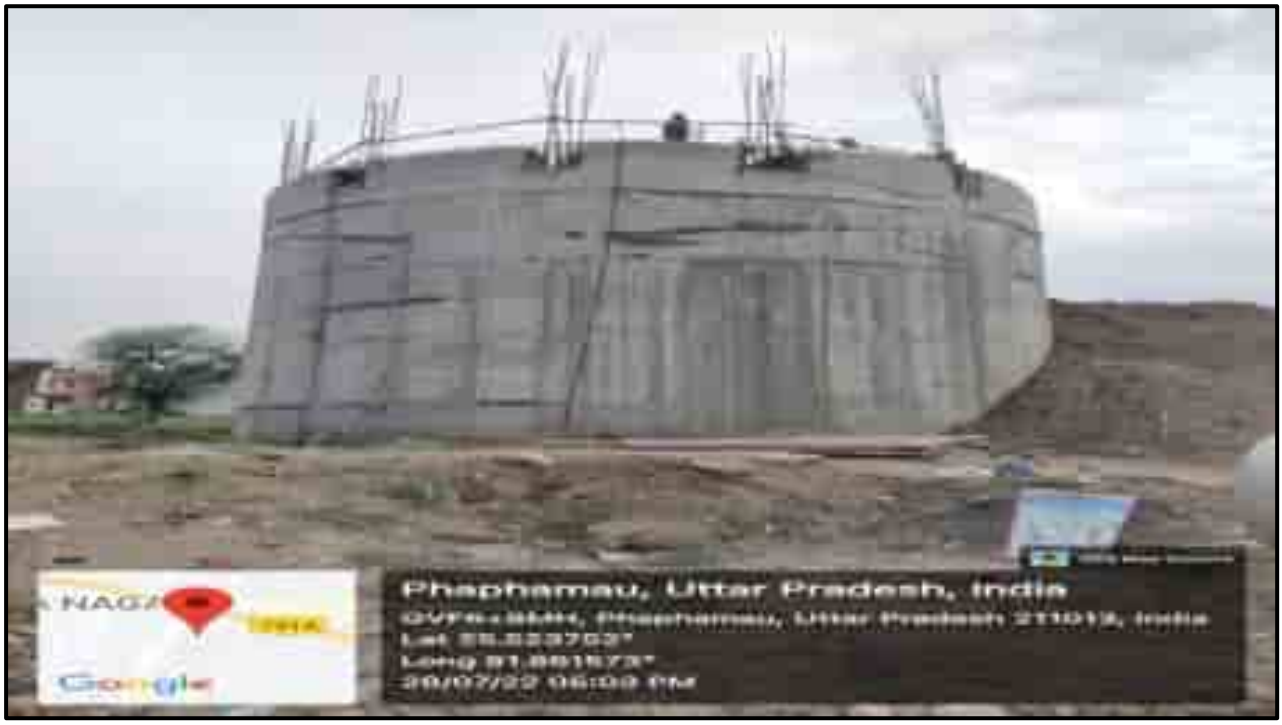
Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
44.	Site inspection of Jhunsi STP	29-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
45.	Site inspection of Naini-II STP	30-Jul-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
46.	Site inspection of Naini-II STP	30-Jul-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities

10. Photos of Meetings / Site Visits and Activities

PACKAGE - I

PHAPHAMAU FACILITY

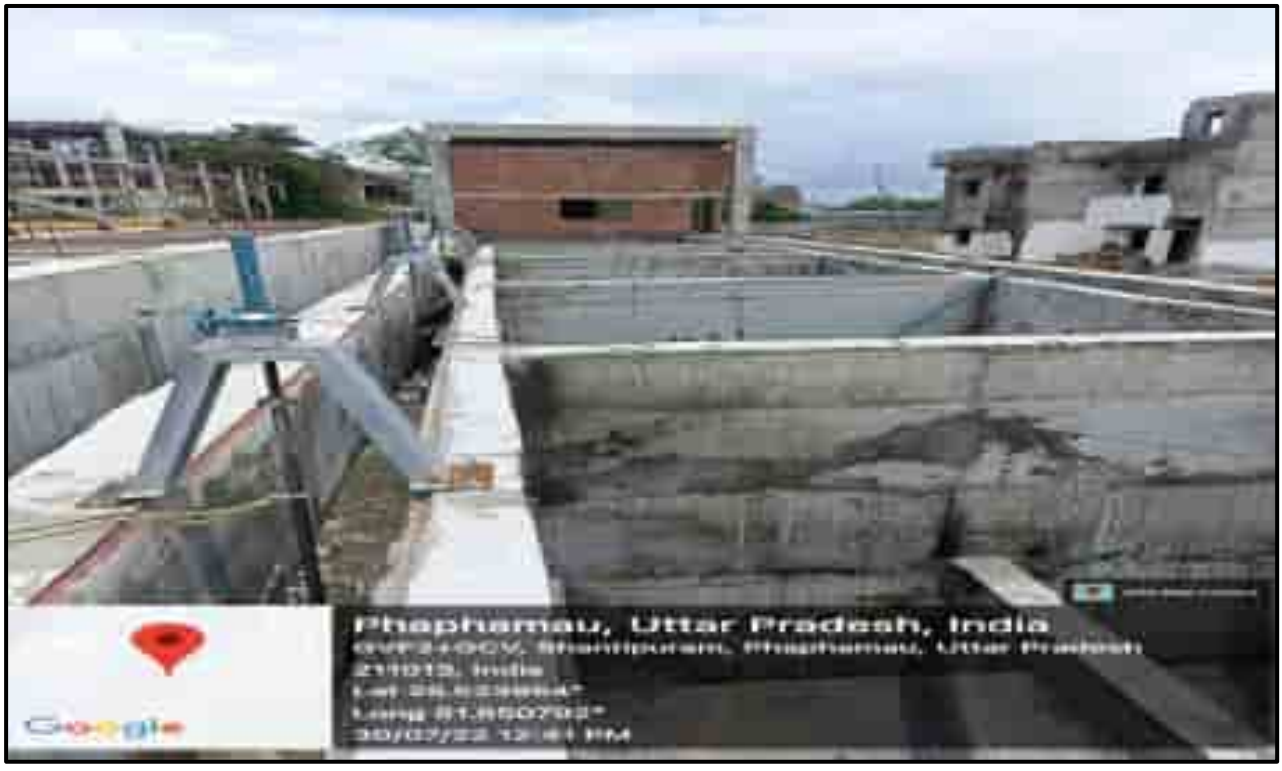
BasnaNalla SPS: I&D construction work under progress



Basna Nalla SPS: Top slab shuttering work under progress

PHAPHAMAU FACILITY

FCR (STP): Air diffuser piping erection work under progress for FCR module



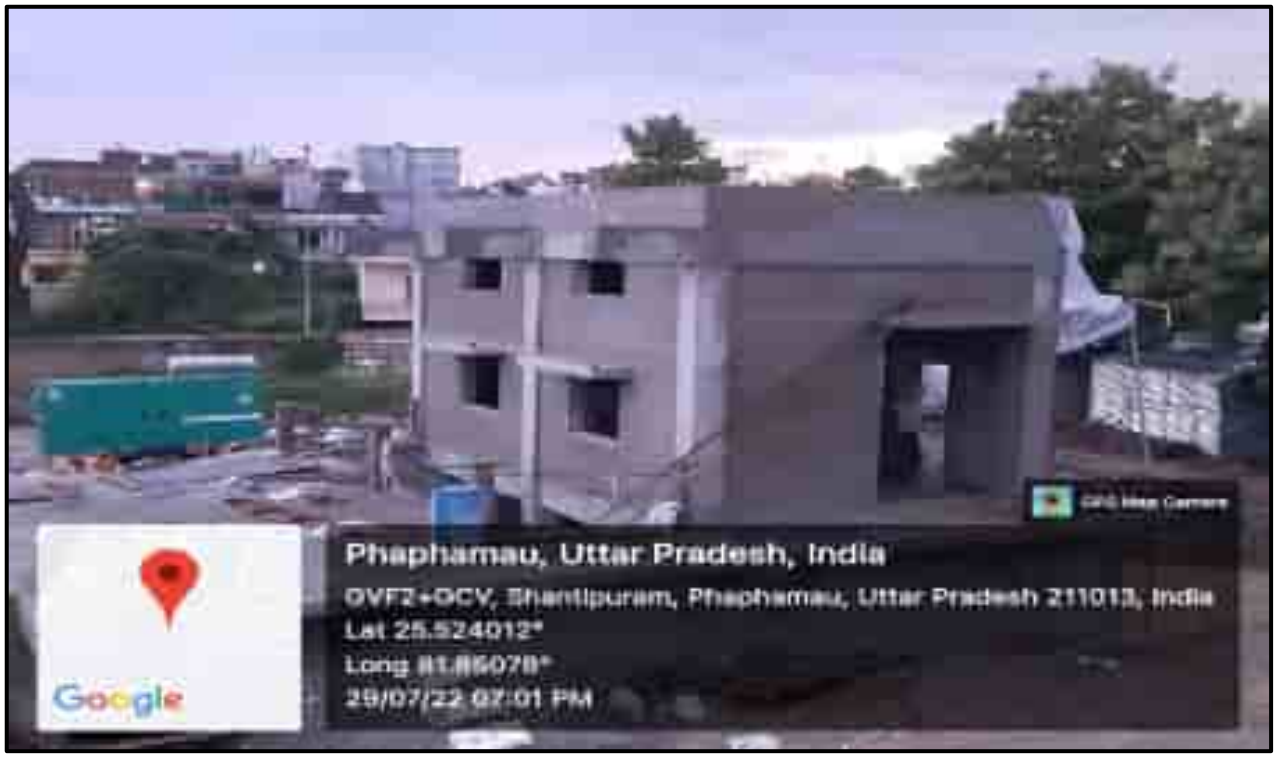
Tube Settler (STP) – Structure hydro testing started

PHAPHAMAU FACILITY

Staff Quarter (STP)– Putty work started

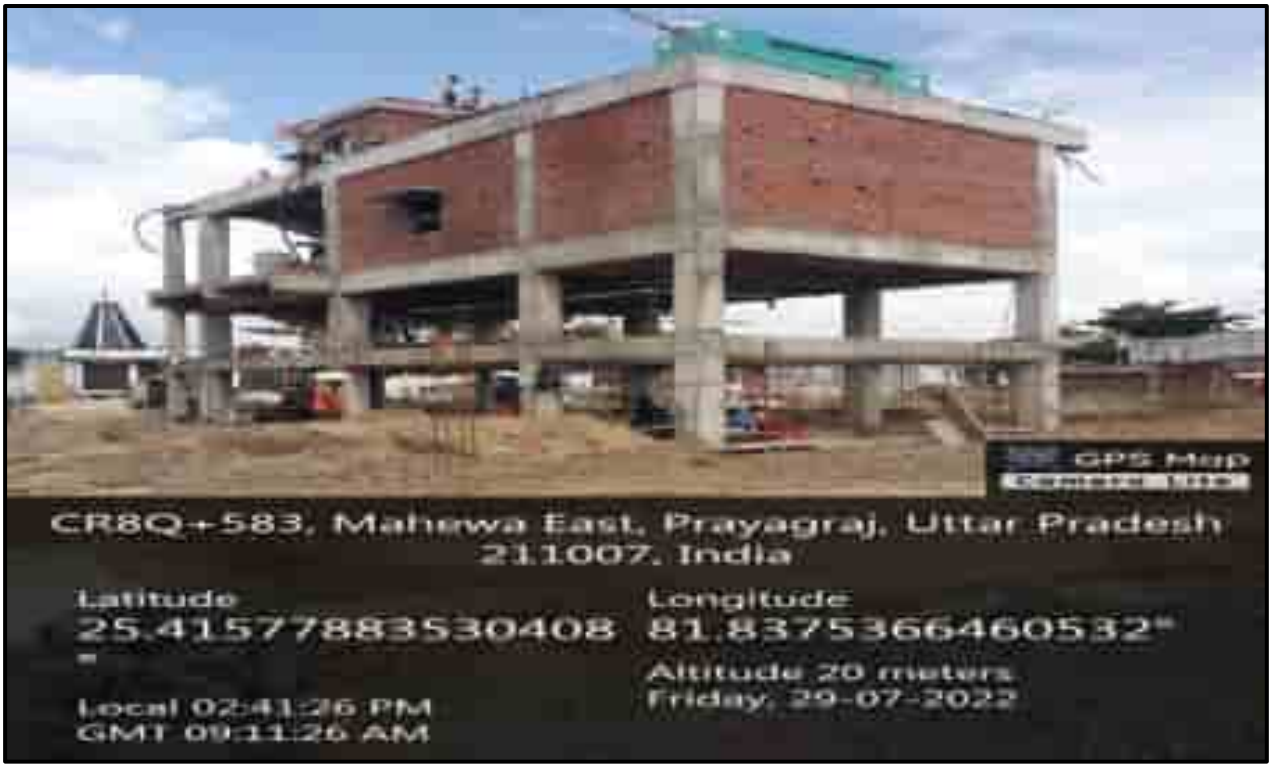
Process Building (STP) – Construction work under progress

PHAPHAMAU FACILITY



MPS – Plaster work under progress

NAINI-II FACILITY



Mahewaghat SPS – Metering panel room slab shuttering work under progress

Mahewaghat SPS (Wet well) – Mechanical work under progress

NAINI-II FACILITY

Mawaiya SPS – Panel room construction work under progress

Trenchless pipe work under progress at Arail ghat

NAINI-II FACILITY

Process Building – E&M work under progress as well as finishing work

FCR – E&M work under progress

NAINI-II FACILITY

Tube settler – Mechanical work under progress

Naini-II MPS – E&M work under progress as well as finishing work

JHUNSI FACILITY

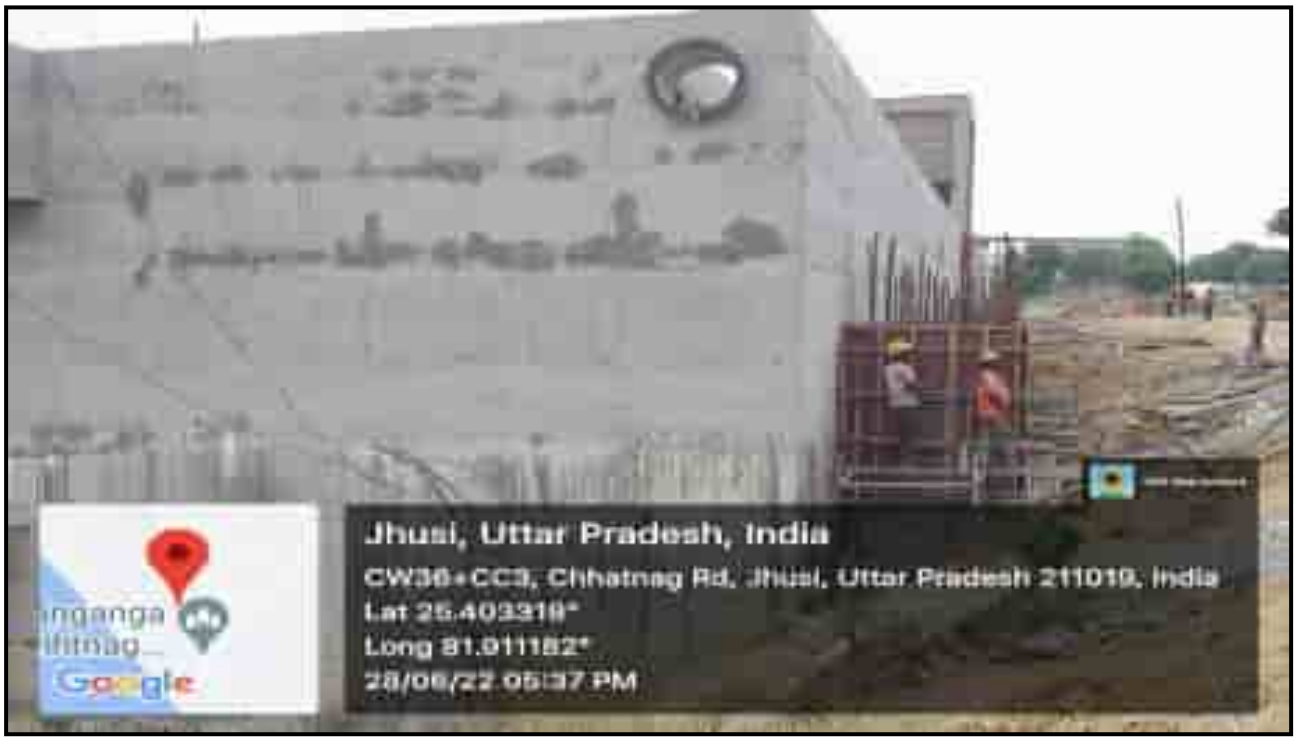
Shastri Bridge SPS – Wet well submerged

Jhunsi MPS – Finishing work under progress

JHUNSI FACILITY

Process Building – Column casting work under progress

FCR – FCR module basket erection work completed

JHUNSI FACILITY

Tube settler – Civil finishing work completed

Staff Quarter – Painting work 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)	Copies To
1.	AIPL/NMCG/PRAYAG/1456	Observation of revised O & M monthly progress report for the Month of March-2022 Package -II	5-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
2.	AIPL/NMCG/PRAYAG/1457	Observation of revised O & M monthly progress report for the Month of April-2022 Package -II	5-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s UPJN, Prayagraj
3.	AIPL/NMCG/PRAYAG/1458	Observation of revised O & M monthly progress report for the Month of May-2022 Package -II	5-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
4.	AIPL/NMCG/PRAYAG/1459	Regarding Reimbursment of O&M and power charges of package -II for extended period of February 2021 to May 2021.	5-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
5.	AIPL/NMCG/PRAYAG/1460	Regarding the Observation of MPR of May 2022	14-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
6.	AIPL/NMCG/PRAYAG/1461	Claim for setup for battery bank for solar power plant of package -I STP in line of change in law .	15-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj

Sr. No.	PE Transmittal/ Ref No	Description	Outward Date	To (Organization)	Copies To
7.	AIPL/NMCG/PRAYAG/1462	Regarding variation in solar power plant capacities in STP of package -I.	15-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
8.	AIPL/NMCG/PRAYAG/1463	Observation of technical documents for battery and battery charger for Package -I	15-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
9.	AIPL/NMCG/PRAYAG/1464	Regarding O&M Payment of Quarter – 4 i.e., Mar-22 to May-22 for Package-II facilities for the STP project at prayagraj under HAM based PPP model.	21-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
10.	AIPL/NMCG/PRAYAG/1465	Observation of O & M monthly progress report for the Month of June-2022 of Package -III	22-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
11.	AIPL/NMCG/PRAYAG/1466	Inspection Report ofJhunsi facility,Naini-II facility and phaphamau facility under Package-I	22-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
12.	AIPL/NMCG/PRAYAG/1467	Inspection Report of Package-II facilities June 2022	23-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj

Sr. No.	PE Transmittal/ Ref No	Description	Outward Date	To (Organization)	Copies To
13.	AIPL/NMCG/PRAYAG/1468	Observation of O & M monthly progress report for the Month of June-2022 of Package -II	25-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
14.	AIPL/NMCG/PRAYAG/1469	Inspection Report of Package-II facilities June 2022	26-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
15.	AIPL/NMCG/PRAYAG/1470	Submission of jhunsi old location structural drawing.	27-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
16.	AIPL/NMCG/PRAYAG/1471	Observation approval of submitted design and draing of location (i.e.at trivenipuram location jhunsi STP under package-1	30-Jul-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj

12. Inward Register

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

Sr. No.	PWPL Transmittal reference number	Description	Date	From
1.	PWPL/UPJN/PRAYAGRAJ/SITE /809	Regarding Trench Less Vs Opencut sewer pipe laying work under Naini-II & Jhunsi STP Facility under Package-I.	1-Jul-22	PM-I - UPJN
2.	PWPL/UPJN/PRAYAGRAJ/SITE /810	Regarding Inspection call note for Transformer of Naini-II STP and their associated infrastructure under Package-I.	4-Jul-22	Prayagraj water private limited
3.	PWPL/UPJN/PRAYAGRAJ/SITE /811	Regarding filling of Brought out earth for construction of approach road for Basana Nalla SPS under Package-I.	4-Jul-22	Prayagraj water private limited
4.	PWPL/UPJN/PRAYAGRAJ/SITE /812	Regarding Inspection call note for Rotary Air Blower of Jhunsi and Phaphamau STP under Package-I.	4-Jul-22	Prayagraj water private limited
5.	828PWPL/(PRAYAGRAJ)/223	Regarding the provision of sewer pipeline track crossing between Jhunsi-Darganj stations, being done by Ganga Pollution Control Unit, UP Jal Nigam (Rural), Prayagraj between Km. No. 321/077-123.	5-Jul-22	PM-I - UPJN
6.	PWPL/UPJN/PRAYAGRAJ/SITE /813	Regarding laying of pipe line under Sastri Bridge SPS for Jhunsi STP under Package-I.	5-Jul-22	Prayagraj water private limited
7.	PWPL/UPJN/PMCG/066/22	Submission of jhunsi old location structural drawing.	7-Jul-22	Prayagraj water private limited
8.	PWPL/UPJN/PMCG/067/22	Submission of technical documents for Battery & battery charger for- package-1	7-Jul-22	Prayagraj water private limited
9.	PWPL/UPJN/PRAYAGRAJ/SITE /814	Regarding the submission of MPR of June'22.	7-Jul-22	Prayagraj water private limited

Sr. No.	PWPL Transmittal reference number	Description	Date	From
10.	PWPL/UPJM/PMCG/066/22	Submission of Jhunsi Old location Structural drawing	7-Jul-22	Prayagraj water private limited
11.	PWPL/UPJM/PMCG/067/22	Submission of Technical Documents for Battery & battery charger for Pkg-1	7-Jul-22	Prayagraj water private limited
12.	832PWPL/(PRAYAGRAJ)/224	Payment certification for O&M work of Package-I of Ouarter-]V	8-Jul-22	PM-I - UPJN
13.	PWPL/UPJN/PRAYAGRAJ/SITE /815	Regarding Extension of Time for Package-I.	11-Jul-22	Prayagraj water private limited
14.	PWPL/UPJN/PRAYAGRAJ/SITE /816	Regarding Delay in achieving schedule progress as per approved construction plan for Package-I.	11-Jul-22	Prayagraj water private limited
15.	844PWPL/(PRAYAGRAJ)/231	Regarding submission of technical proposal to achieve the current norms of Hon'ble NGT and CPCB to achieve the discharge parameters of treated water.	12-Jul-22	PM-I - UPJN
16.	845PWPL/(PRAYAGRAJ)/232	Regarding compliance of observation raised by CPCB	12-Jul-22	PM-I - UPJN
17.	846PWPL/(PRAYAGRAJ)/233	Regarding Slow progress of 16 MLD Jhunsi STP	14-Jul-22	PM-I - UPJN
18.	847PWPL/(PRAYAGRAJ)/234	Regarding Slow progress of 14 MLD Phaphamau STP	14-Jul-22	PM-I - UPJN
19.	PWPL/UPJN/PRAYAGRAJ/SITE /818	Regarding hindrance due to Kavad Yatra in the City Prayagraj under Package-I.	16-Jul-22	Prayagraj water private limited
20.	864PWPL/(PRAYAGRAJ)/238	Regarding maintenance of Bio Tower 1 at 10 MLD STP, Ponghat, Prayagrai	16-Jul-22	PM-I - UPJN
21.	234PWPL/(PRAYAGRAJ)/115	HAM Project closure Report package- II and III	18-Jul-22	PM-I - UPJN

Sr. No.	PWPL Transmittal reference number	Description	Date	From
22.	893PWPL/(PRAYAGRAJ)/245	Regarding Slow progress of Naini-II under Package-I	21-Jul-22	PM-I - UPJN
23.	908PWPL/(PRAYAGRAJ)/256	Regarding Technical & Financial Proposal to achieve NGT norms -Reg	23-Jul-22	PM-I - UPJN
24.	909PWPL/(PRAYAGRAJ)/253	Regarding Site Inspection Report of Naini-I	23-Jul-22	PM-I - UPJN
25.	PWPL/UPJM/PMCG/067/22	Notice intimating "Qualifying Change in Law" under clause 14.2 (b) read with clause 14.	23-Jul-22	Prayagraj water private limited
26.	PWPL/UPJM/PMCG/068/22	Notice intimating "Qualifying Change in Law" under clause 14.2 (b) read with clause 14.	23-Jul-22	Prayagraj water private limited
27.	PWPL/UPJM/PMCG/069/22	Regarding Technical & Financial Proposal to achieve NGT norms -Reg	25-Jul-22	Prayagraj water private limited
28.	242PWPL/(PRAYAGRAJ)/117	Regarding Shut down of Gharghar Nala and Shasurkhaderi Pumping Station due to damage or rising main of Numayadahi STP	26-Jul-22	PM-I - UPJN
29.	PWPL/UPJM/PMCG/068-22/2022	Notice intimating "Qualifying Change in Law" under clause 14.2 (b) read with clause 14	23-Jul-22	PM-I - UPJN
30.	913PWPL/(PRAYAGRAJ)/257	Regarding sample collection and testing of Influent and Effluent of all the STPs at Prayagraj under HAM Schemes	26-Jul-22	PM-I - UPJN
31.	PWPL/UPJN/PRAYAGRAJ/SITE /821	Regarding approval of submitted design & drawings of old location (i.e. at Tirvenipuram location) Jhunsi STP under Package-I.	27-Jul-22	Prayagraj water private limited
32.	PWPL/UPJN/PRAYAGRAJ/SITE /822	Regarding claim for Naini-II STP Facility for Package-I.	28-Jul-22	Prayagraj water private limited

13. EHS targets, Achievement & compliance report for the month of July' 2022

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
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.
7	Revenue Road cutting & crossing	Panchayat/Local Authority	NA	Not Required

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
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
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.
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

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
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

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
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
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.	Dumper	1	2	2	5
2.	Proclaim	-	-	-	-
3.	Ajax	1	2	2	5
4.	Hydra	1	3	2	6
5.	Roller	-	1	1	2
6.	Submersible Pump 2HP	-	1		1
7.	Diesel Pump 5 HP	3	1	7	11
8.	5KV generator	1	-	-	1
9.	Total Station	4	3	3	10
10.	Water tanker	-	1	-	1
11.	Auto level	1	1	1	3
12.	Mixing machine	1	2	2	5
13.	Vibrator	1	4	1	6
14.	Tractor	4	10	6	20
15.	Concrete Chipping Machine	3	3	1	7
16.	Welding Machine	-	-	2	2
17.	Grinding Machine	2	14	2	18
18.	Gas cutting set	1	23	2	26
19.	Chain saw machine	-	6	1	7
20.	Chain Block	-	-	1	1
21.	RM 800	-	3	-	3
22.	Plywood cutting machine	-	-	-	-
23.	Steel cutting machine	3	9	2	14
Grand Total		**31**	**98**	**40**	**169**

16. ANNEXURE'S

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

Table of Contents

1. JHUNSI STP AND ASSOCIATE INFRASTRUCTURE

1.1 Inspection Report

Date of site visit	12th,15th &19th July 2022
Site Visitor	1. Mr. Santosh Kumar, UPJN 2. Mr. Tauseef Ahmed, UPJN 3. Mr. Satwant Singh, UPJN 4. Mr. Amit Ranjan, AECOM 5. Mr Gaurav Pandey, AECOM 6. Mr. Sharad, PWPL.
Name of Facility	16 MLD Jhunsi STP & Associated Infrastructure, Prayagraj.

A. FCR Tank-

- RCC work at FCR tank along with Hydrotesting is completed.
- Erection of all the structural steel member must adhere **clause 1.21.2 a & B of schedule 10 Part-B of Concession Agreement.**

- Concessionaire is required to finalize the framing arrangement of solar system along with base plate & railing at the top of FCR at earliest.

- 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 1.4.1, schedule 10 PART-B of concession agreement & as per approved Drawing of FCR tank.
- "C" profile installation completed for FCR module arrangement.
- "I" nut installation completed for diffuser grid frame.
- Diffuser grid frame installation completed in FCR tank.
- Air diffuser piping work is under progress
- FCR module basket installation work is under progress.

B. Staff Quarter –

- RCC work of Staff Quarter is completed.
- Brick work, Plumbing & Lighting work is completed.
- At Staff quarter Plaster work of inside & outside wall is completed & putty work is under progress.
- Painting & Flooring of staff quarter should be done as per approved Drawing.

DESCRIPTION	
SCHEDULE OF FLOORING	
ROOM	DESCRIPTION
SCHEDULE OF PAINTING	
ROOM	DESCRIPTION

C. Process Building-

- Excavation at Process building is completed.
- Boulder Soling work is completed.
- PCC of Process Building is completed.
- Bottom Raft of Process Building is completed.
- RCC work of Tie Beam is completed.
- Column above Tie Beam is completed.
- Soil filling above Tie Beam up to plinth beam is completed.
- RCC work of Plinth Beam is 100% completed.
- Column above plinth beam is 100% completed.
- RCC work of Slab at 98 m level is completed.
- Slab at 93.6 Lever completed at PTU.
- Cable trench work completed.
- Blower foundation with Grade slab work is completed.
- Concessionaire is suggested to expedite the work with additional manpower & Resources as execution of Process Building is lagging far behind construction plan.
- Concessionaire is required to expedite the foundation and flooring work of DG, Transformer, Air blower, Dewatering unit and other E&M equipment foundation at earliest.

D. Tube Settler-

- Excavation work At Tube settler is completed.
- Boulder Soling work is completed.
- PCC (72 cum) work is completed.
- Reinforcement of Raft is completed.
- RCC work of Raft is completed.
- RCC work of CCT portion & Tube settler area is 100 % completed.
- Total 1442.5 cum RCC work is completed at Tube Settler.
- Hydrotesting of CCT portion & tube settler is completed.
- Concessionaire is suggested to expedite the work with additional manpower & Resources as Execution of Tube Settler is lagging far behind construction plan.
- Concessionaire is suggested to expedite the gates installation work, construction of screw pump foundation as earliest.
- RCC work of Valve Chamber is under progress.
- Tube settler media, launder and poppet valve installation completed.

E. Security Cabin-

- Excavation work is completed.
- PCC work is completed.
- Footing work is completed.
- RCC (23.75 cum) work of security cabin is completed.
- Brick Work at tube Settler is completed.
- Plaster work at security cabin is completed.
- Putty of security cabin is completed.
- Concessionaire is required to finish all the Remaining work of security cabin without any further delay.

F. Main Pumping Station-

- RCC work along with hydrotesting is completed.
- Shuttering and stagging materials removing from tank in progress.
- Concessionaire is suggested to start the E & M work with additional manpower & Resources as execution of MPS is lagging far behind construction plan

G. Shastri bridge SPS-

- 8^{th} lift of wall is completed and 9^{th} Lift of wall shuttering and reinforcement is under progress.
- Provide GI sheet barricading around plot area.
- It is suggested to concessionaire plan for pouring of concrete of wall every 3^{rd} days.

H. Rising Main from Shastri bridge SPS to Jhunsi MPS:

- Total 2685-meter (DI 700 mm Día) laying is completed out of 3875 m.
- During the visit, the bedding is not found as per specification. It is instructed to concessionaire strictly follow the specification.
- It is suggested to provide hard Barricades (Pipe & Pipe) around excavated trench & GI sheet at the end of daily work around open Trench to avoid any inconvenience to Local Public.
- Concessionaire is suggested to take approval of Design/Drawing of Thrust Block/Anchor Block/Pedestal for Rising main so that laying of rising main can be done in Continuity without unnecessary gaps.

I. Trunk Main & I & D works

- Total 389 m laying of Trunk Main (700 mm Dia) from Ulta Quila-I to Haveliya Nalla is completed.
- Total 535 m laying of Trunk Main (500 mm Dia) from Lakkar Nalla to Haveliya Nalla is completed.
- Total 692 m laying of Trunk Main (300mm Dia) from Gangoli Shivalay to Bhola Mandir is completed.
- Total 155 M laying of dia. 200 mm completed.
- Total 1055 m laying of dia. 800 mm completed.
- Total 52 m laying of outfall completed.
- During the visit, the bedding is not found as per specification. It is instructed to concessionaire strictly follow the specification.
- 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

J. Applicable Permits:

- 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.

K. Other miscellaneous activities-

- Concessionaire is suggested to take all the precaution during execution & follow all the standard safety Norms to avoid any causality during work.
- 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.

1.2 Recommendation's-

- 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 Joint of RCC Wall /Column by grouting method.
- It is suggested to provide enough manpower (at least 150 labors) & resources to expedite the work.
- resolve all above-mentioned shortcomings so that in future, work can be executed smoothly.
- It is suggested to maintain all the Safety & Quality measures at site & carry out works with good engineering practice.
- Concessionaire should also strictly follow schedule 10 PART-B of concession agreement & relevant IS Standard for all civil execution works.
- Concessionaire is suggested to improve the workmanship quality to achieve the desired outcome.
- Approved Designs/Drawings/document should be kept at site during construction work.
- Concessionaire shall submit the micro level plan day wise for current milestone for better monitoring and project schedule completion controls.
- 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 tix the Top Level of Manhole at HFL.
- Concessionaire is suggested to provide the balance material at site as earliest to avoid the further delay like VFD panel, APFCR panel, PMCC panel, Transformer, metering panel, Diesel generator, Air blower, Sluice gates, distribution panel, HT cable, Interconnecting piping and etc.
- Concessionaire is suggested to start the HT cable laying and Interconnecting pipeline within Sewage treatment plant.
- Concessionaire is suggested to maintain all the necessary safety at the time of electrical and mechanical work as per schedule 8 of Concession agreement.

2. NAINI-II STP AND ASSOCIATE INFRASTRUCTURE

2.1 Inspection Report

Name of Facility	42 MLD Naini – II STP & Associated Infrastructure, Prayagraj.
Date of visit	8th,13th,14th & 19th July 2022
Site Visitors	1. Mr. Santosh Kumar, UPJN. 2. Mr. Arvind Yadav, UPJN 4. Mr. Amit Ranjan AECOM. 5. Mr Gaurav Pandey, AECOM 5. Mr. Pushpender, PWPL.

A. FCR unit:

- FCR Civil construction completed - 100 %
- Tank A – Hydrotesting Completed.
- Tank B – Hydrotesting Completed
- It is instructed to concessionaire to complete repairing of joints with special materials & grinding of internal & external surface otherwise Milestone certification would not be possible by UPJN and Project Engineer.
- 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 1.4.1, schedule 10 PART-B of concession agreement & as per approved Drawing of FCR tank.
- It is suggested to concessionaire proper repairing & grinding shall be done for outer wall wherever required.
- Erection of all the structural steel member must adhere clause 1.21.2 a & B of schedule 10 Part-B of Concession Agreement.

1.21.2 **Painting on structural steel work**

Primer and finish paints shall be compatible with each other to avoid cracking and wrinkling and shall be from the same manufacturer for each painting system.

a. **Primer**

Two coats of primer shall be applied on the steel structures. First coat of lead-free, oil-based, high-quality, corrosive resistant steel primers such as Red Oxide/ Zinc Chromate as specified shall be applied before any member of steel structure are placed in position or taken out of workshop. Second coat of primer shall be applied after the erection is completed and before painting commences.

b. **Paint**

Two coats of epoxy paint shall be applied on all structural steel members. Paint delivered to the fabrication shop/site shall be ready mixed, in original sealed containers, as packed by the manufacturer. The application of paint shall be as per manufacturer's instructions. The coating thickness shall consist of the following minimum dry film thickness, or as recommended by the manufacturer, if thicker:

First coating : 100 µm

Second coating : 100 µm

- Concessionaire is required to finalize the framing arrangement of solar system along with base plate & railing at the top of FCR at earliest.

- At Tank A, C" profile installation is completed. Diffuser grid frame installation work is completed.
- At Tank B, "C" profile and diffuser grid frame installation is completed in three sections out of nine. Wall Grinding work is under progress for installation of "C" profile.
- Air blower installation work and header pipe erection work completed.
- Installation of Plant rack in FCR tank is 50% completed and under progress
- Air diffuser piping work is under progress
- DI pipe laying work is under progress from grit chamber to FCR tank
- Grating installation work is under progress on FCR tank.
- FCR module basket installation work is under progress

B. Tube-Settler Unit:

- The RCC work of this unit has been completed but its hydrotesting, internal and external finishing work, joint filling and painting work is still pending.
- It is instructed to concessionaire to complete repairing of joints with special materials & grinding of internal & external surface and hydrotesting within 10 days otherwise the completion of this unit is considered as incomplete.
- The slab casting of CCT portion is completed.
- Start the painting work of tank after completion of finishing work. Painting works should be done as per clause 1.4.1, schedule 10 PART-B of concession agreement & as per approved drawing of Tube Settler tank.
- The 6 nos out of 8 Chamber is completed. It is instructed to expedite the construction of Chambers of this unit otherwise completion of work cannot possible.
- Concessionaire is suggested to expedite the work of frame arrangement for tube settler media.
- Launder support installation work is completed in 3 section out of 8 sections.

C. Process Building unit:

- Part A:
  - Excavation & PCC is completed. RCC work of raft is completed.
  - Slab casting completed at Level 92.5
  - At Level + 98.85 slab casting completed.
  - Grit Chamber final lift wall RCC work is completed.
  - Grit channel at 94.25 walkway slab RCC work is completed
  - Foundation and flooring work under progress.
- The RCC work has been completed in PTU. The brick masonry work, wall electrification, plumping and other misc. works are under progress. The current progress of this unit not as per approved construction plan.

- Part B:
    1. Ground floor:
        - VFD panel installation work is completed.
        - Harmonic panel installation work completed.
        - HT panel installation work completed.
        - HT cable laying completed from metering panel to HT panel.
        - HT cable laying completed from HT panel to transformer foundation.
        - 6 No. FCR air blower installation work is completed.
        - FCR air blower header erection work is completed
        - Cable trench work in metering room, VFD panel room, HT panel room, DG room, APFCR panel room, PMCC panel room, transformer room under progress.
        - DG installation work completed.
        - 01 no. transformer installation work completed
        - 02 no. APFC panel installation work completed.
    2. First floor:
        - It is suggested to concessionaire start the foundation and finishing work on first floor.
        - Grit mechanism installation work is under progress
        - 02 no. Mechanical screen installation work completed.

D. Boundary Wall:

- RCC for boundary wall columns, Brick work, plastering work are in progress,
- 80% RCC & Brick work Completed.
- Work is very slow. It is suggested Concessionaire work should be expedite by increasing manpower.

E. Naini-II MPS and I&D works:

- RCC work is completed.
- It is instructed to concessionaire to complete repairing of joints with special materials & grinding of internal & external surface otherwise Mile stone certification would not be possible by UPJN and Project Engineer.
- LT panel installation work completed.
- 02 No. mechanical screen installation work completed.
- Submersible pump Branch pipeline and header pipeline work is under progress.
- 01 no. submersible pump installation work completed out of 5.
- I&D works Status

Sl. No	I&D Name	Work Status
1	Mawaiya Nalla	Work under progress
2	Sachha Baba	Work under progress
3	Khakhrauni Nalla	Work is under progress

4	Mahewaghat-I Nalla	Work under progress
5	Mahewaghat -II Nalla	Work under progress
6	Mahewaghat-III Nalla	Work under progress

F. Mahewaghat SPS:

- Wet well and Inlet channel is completed.
- For battery & panel room, RCC slab at level 93 is completed and brickwork is under progress.
- Boundary wall work is under progress.
- It is suggested to concessionaire, gradation of construction material (Aggregate and sand) must be done before RCC work. At the start of concrete pouring, Slump Cone, Cube moulds & admixture measuring jar must be available at site.
- Steel reinforcement was directly placed on ground surface. steel reinforcement should not be stacked direct on ground, that can be stacked on wooden batten, Steel reinforcement shall ordinarily be stored in such a way as to avoid distortion and to prevent deterioration and corrosion.
- At one side SPS wall was out of plumb, it is suggested to concessionaire kindly take necessary action to rectify.
- Concessionaire has not provided safety barricades as per standard norms, it is suggested that construction site should be properly barricaded with Pipe & Pipe along with GI Sheet to avoid any incident or unauthored access at site.
- During inspection it is observed that only 15 labors were deployed at site.
- Mechanical screen erection work is under progress.

G. Mawaiya Nalla SPS:

- Excavation, stone pitching, and PCC is completed.
- 2nd lift wall was completed on 03.12.2021.
- 5th lift wall was completed on 03.01.2022.
- Slab at the level 99 shuttering and reinforcement work under progress.
- In Inlet channel 6th lift wall casting completed & RCC work of slab completed.
- Staff quarter work is under progress.
- During site inspection it is observed that 25 labors were deployed at site.
- During site inspection it is observed that, concessionaire has not provided safety barricades as per standard norms, it is suggested that construction site should be properly barricaded with Pipe & Pipe along with GI Sheet to avoid any incident or unauthored access at site.
- It was observed that steel reinforcement was directly placed on ground surface. steel reinforcement should not be stacked direct on ground, that can be stacked on wooden batten, Steel reinforcement shall ordinarily be stored

in such a way as to avoid distortion and to prevent deterioration and corrosion.

- Site instruction register was not available at site, concessionaire is suggested to keep instruction register at site on regular basis.
- Mechanical screen erection work is completed.
- Air valve installation is not started as on date.
- Hydro-Testing of laid pipes has not been started till date.
- The concessionaire is requested to carry-out all pending works and Hydro-Testing earliest

H. Trunk Sewer pipeline:

- **Rising main:**
- MPS: 900 mm dia - 120 m laid out of 187
- Mawaiya SPS: 800 mm dia - 683.50 m Laid out of 700m
- Mahewaghat SPS : 350 mm dia - 687.00 m laid out of 700m
- **Gravity Main** - (Proposed Length/Laid Length)
- Mawaiya SPS: 1400 mm dia - 2962.50 m laid out of 3082.50 m
  1600 mm dia - 997.50 m laid out of 997.50 m
- .Mahewaghat SPS:
  600 dia - 4077.50 m laid out of 4077.50 m
- Effluent Pipeline: 1600 mm dia - 685.0 m laid out of 730

I. Staff Quarter:

- The individual building, staff quarter is not completed as on date. Electrical, plumbing & finishing work is balance in staff quarter.
- It is noticed that the work in Staff quarter started in Feb-March'20 and still work is balance, it is showing the progress of work is very poor.
- The concessionaire is requested to increase the manpower and expedite the work to meet the progress & follow all the safety norms at site.

J. Other miscellaneous activities:

- The Progress at site is very slow. Availability of manpower is less at site.
- Supply of Electro Mechanical equipment's such Transformer- 05 Nos (STP- 1 No, Mawaiya SPS- 2 Nos & Mahewagha SPS -2 Nos), Suice Valve of 900 mm dia of bypass line-1, Flow meter fittings Reducer 700 mm x 500 mm- 06 Nos, Tee -700 mm x 700 mm x 500 mm- 3 Nos, Gate at Fine Screen D/S open channel of size- 1200 mm X 1500 mm – 2 Nos, Grit Chamber Inlet Gate – 1200 mm X 600 mm – 2 Nos, blower pipeline SS clamps are still balance to supply at site. The e/m work is hampered since long time due to unavailability material at site.
- The trenchless pushing work is very slow at Arail Ghat due unavailability of adequate resource.
- The work of Brick work, Flooring, Plaster and fixing of door & window in

Process Building is very slow.

- Finishing and Grouting work is required in MPS .
- The construction work of flow meter chamber of MPS is very slow and its raft casting is still pending. Rainfall is also started and its would not be possible if its work is immediately not taken.
- In MPS, the levelling is also required at the bottom of wet well.
- At tube settler, the hydrotesting in three numbers of compartment is pending since long time and due to delay in hydrotesting, it may also delay in completion of electro-mechanical work.
- The quality of hand railing is not good and any accident may happen in future.
- The painting work of all treatment unit is still pending since long time for which we are continuously requesting for more than two months but this work is still pending.
- Toilets are not operational at site due to unavailability of water and absence of cleaning, which violate the sanitation guidelines and involves health risk for workers. It suggested to concessionaire resolve this issue earliest and make all toilets operational at site.
- There is regular issue in availability of concrete from batching plant.
- Availability of concrete pump is not adequate.
- 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.
- Proper Stacking of Steel should be done at site & cement slurry should be sprayed on steel to protect from corrosion due to moisture.
- It is found that the cement stacked and covered, but it is too close to the wall, also proper height to be provided. It is suggested provided to close all the openings of shed to protect it from rainwater and moistures. SRC Cement stack also checked at RMC Plant and same observations provided for compliance.
- Approach road is still pending at Naini -II STP after several verbal & written instructions, no action taken by you till date. It is pertinent to mention that monsoon may arrive in Prayagraj by 17-19 June by this month and without approach road, it is impossible to move any vehicle inside the plant.

2.2 Recommendation's

- The Average labour strength at Naini-II STP site is 138 nos. As the progress of work is far behind the construction schedule, concessionaire is requested to increase the labours (at least 200) and arrange separate labour gangs at different construction units. UPJN SE also instructed to Concessionaire, engage Manpower and separate gang for all unit & Concessionaire Committed to UPJN for increasing manpower.
- It suggested to concessionaire, Exposed surfaces of concrete shall be kept continuously in a damp of wet condition by ponding or by covering with a layer of sacking, canvas, hessian or similar materials and kept constantly wet for at least seven days from the date of concrete.
- It is suggested to concessionaire, Expedite the work by deploying additional manpower and machinery & pipes should be made available at site.
- It is suggested to concessionaire make alternate batching plant arrangement. So that work will not be delay due to unavailability of concrete.
- It is already suggested to concessionaire; hindrance register must be maintained at all the facilities.
- Proper Finishing is required at Joint of RCC Wall /Column by grouting method.
- Work quality should be maintained & proper arrangement should be made for curing of structure.
- Copy of all approved design and drawing should be available at site.
- The concessionaire is suggested to implement all ESHS norms at site.
- The concessionaire is requested to follow 'Schedule-10 Part-B' of the concessionaire agreement and IS-456 and other relevant IS codes for all the site execution activities and works as and when required.
- The concessionaire is suggested to take necessary action to incorporate all the observation otherwise timely completion of milestones will not be possible and any delay will be attributed at the concessionaire's end.
- 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.
- Concessionaire is suggested to provide the E&M balance material at site as earliest to avoid the further delay like Gates, transformer, piping and fitting and etc.
- Concessionaire is suggested to maintain all the necessary safety at the time of electrical and mechanical work as per schedule 8 of Concession agreement.

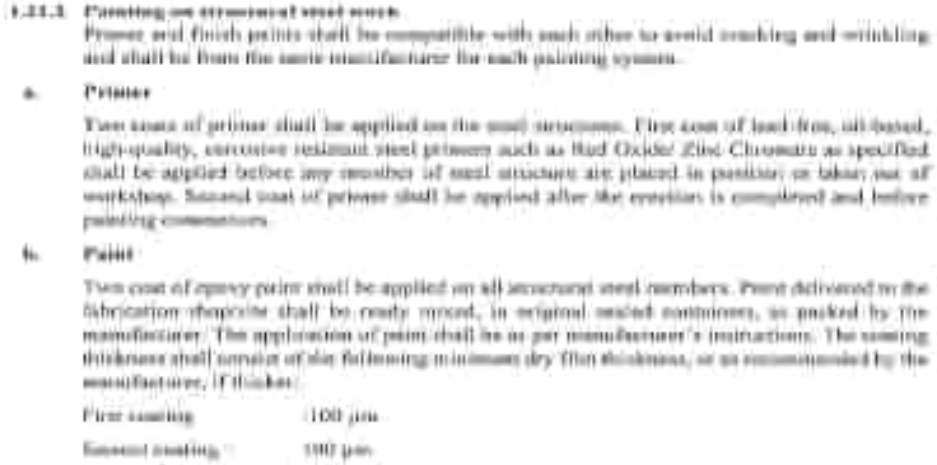
3. PHAPHAMAU STP AND ASSOCIATE INFRASTRUCTURE

3.1 Inspection Report

Date of site visit	6th & 18th July 2022
Site Visitor	Mr. Santosh Kumar, UPJN Mr. Tauseef Ahmed, UPJN Mr. Amit Ranjan, AECOM Mr Gaurav Panday,AECOM Mr. Ashish Singhai, PWPL Mr. Rahul Sharma PWPL
Name of Facility	14 MLD Phaphamau STP & Associated Infrastructure

A. FCR Tank-

- FCR Civil Construction work completed. Hydrotesting work also completed.
- It is informed to concessionaire proper finishing must be done at all the grouting points.
- 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 1.4.1, schedule 10 PART-B of concession agreement & as per approved Drawing of FCR tank.
- Erection of all the structural steel member must adhere clause 1.21.2 a & B of schedule 10 Part-B of Concession Agreement.



1.21.3 Painting on structural steel work

Primer and finish paints shall be compatible with each other to avoid cracking and wrinkling and shall be from the same manufacturer for each painting system.

a. Primer

Two coats of primer shall be applied on the steel structures. First coat of lead-free, oil-based, high-quality, corrosive resistant steel primers such as Red Oxide/ Zinc Chromate as specified shall be applied before any member of steel structure are placed in position or taken out of workshop. Second coat of primer shall be applied after the erection is completed and before painting commences.

b. Paint

Two coat of epoxy paint shall be applied on all structural steel members. Paint delivered to the fabrication shop/site shall be ready mixed, in original sealed containers, as packed by the manufacturer. The application of paint shall be as per manufacturer's instructions. The coating thickness shall consist of the following minimum dry film thickness, or as recommended by the manufacturer, if thicker:

First coating 100 µm

Second coating 100 µm

- Concessionaire is required to finalize the framing arrangement of solar system along with base plate & railing at the top of FCR at earliest.

1.21.3 Galvanizing of structural steel

Galvanizing of structural member shall conform to IS 4759, 209, 2629, 2633 and 6745.

- 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 1.4.1, schedule 10 PART-B of concession agreement & as per approved Drawing of FCR tank.

- Concessionaire is required to finalize the framing arrangement of FCR module along with Air diffuser grid piping & railing at the top of FCR at earliest.

B. Staff Quarter –

- Staff Quarter structure work is completed. Finishing, electrification and plumbing work is balance.
- It is informed to Concessionaire door & window must be install as per concessionaire agreement & specification.
- Painting & Flooring of staff quarter should be done as per approved Drawing.

C. Process Building-

- Part A: Grit Chamber slab (92.10) completed. 3rd lift column complete above plinth beam. PE Tank completed.

- Part B: slab completed upto 94.00 lvl . 20 nos of 2nd lift column completed above 94.00.
- Part C: AAC Block work is in progress.
- It is suggested to concessionaire, speed up the work of process building as the work progress is very slow. It is suggested to concessionaire provide shear key at construction joint.
- Concessionaire is required to expedite the foundation and flooring work of DG, Transformer, Air blower, Dewatering unit and other E&M equipment foundation at earliest.
- It is informed to concessionaire all site observation given by UPJN & Project engineer must be closed at the earliest
- Concessionaire is suggested to expedite the work with additional manpower & Resources as Execution of Process Building is lagging far behind construction plan.

D. Tube Settler-

- CCT: Civil work completed
- Tube Settler tank hydrotesting is pending

- Hopper area and Sludge holding portion work completed.
- During site visit it is observed that wall finishing work is not proper, it is suggested to concessionaire proper wall finishing should be done.
- Concessionaire is suggested to expedite the work of frame arrangement for tube settler media.
- Concessionaire is suggested to expedite the erection work of launder and weir arrangement for tube settler media.

E. Security Cabin-

- Execution work at Security Cabin is not started yet.

F. Main Pumping Station-

- RCC work of MPS is completed and Cleaning work in progress

.

G. Basna Nalla SPS-

- 9^{th} lift casting is completed, and slab shuttering and steel work is under progress Concessionaire is also suggested, entire construction site should be properly barricaded.
- It is informed to concessionaire increase manpower and speed up work progress.

H. Trunk Sewer & I & D works

- Total laying of 800 dia. RCC pipe along NH 845 m completed with 11 nos manhole out of 845 m
- Execution work of I & D structures are under progress at 2 nalla locations.

Sl No	I&D Name	Work Status
1	Basna Nalla	Work under progress
2	Shantipuram Nalla	Work under progress

I. Applicable Permits:

- 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 Prathama Facility as no hindrance will be accepted in future due to new applicable permit issue.

J. Other miscellaneous activities-

- Concessionaire is suggested to take all the precaution during execution & follow all the standard safety Norms to avoid any causality during work.
- 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.

3.2 Recommendation's

- It is observed that work progress is very slow which may impact the scheduled-on time completion of this project. Concessionaire is suggested to increase the manpower, material and machinery and expedite the work without any further delay and complete the work within the timelines of Approved Construction Plan.
- 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 Joint of RCC Wall /Column by grouting method.
- It is suggested to provide enough manpower (at least 150 labors) & resources to expedite the work.
- resolve all above-mentioned shortcomings so that in future, work can be executed smoothly.
- It is suggested to maintain all the Safety & Quality measures at site & carry out works with good engineering practice.
- Concessionaire should also strictly follow schedule 10 PART-B of concession agreement & relevant IS Standard for all civil execution works.
- Concessionaire is suggested to improve the workmanship quality to achieve the desired outcome.
- Approved Designs/Drawings/document should be kept at site during construction work.
- Concessionaire is suggested to provide the balance material at site as earliest to avoid the further delay like VFD panel, APFCR panel, PMCC panel, Transformer, metering panel, Diesel generator, Air blower, Sluice gates, distribution panel, HT cable, Interconnecting piping and etc.
- Concessionaire shall submit the micro level plan day wise for current milestone for better monitoring and project schedule completion controls.

ANNEXURE-II

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

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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
	IN1	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 - <450 mg/l)	Final COD (Design - <250 mg/l)	Inlet TSS (Design- <300 mg/l)	Final TSS (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-Jun-22	121400	121.40	7.29	7.38	148	20	311	40	286	40	NA	500	0.2	25.2	2400000	
2-Jun-22	123560	123.56	7.31	7.36	129	18	335	44	259	32	NA	400	0.2	25.4	2200000	
3-Jun-22	123380	123.38	7.32	7.39	133	20	349	40	286	33	NA	500	0.3	25.2	2300000	
4-Jun-22	124100	124.10	7.29	7.36	139	23	341	48	301	34	NA	700	0.3	25.2	1700000	
5-Jun-22	123400	123.40	7.33	7.35	128	20	352	40	303	35	NA	500	0.2	25.3	1800000	
6-Jun-22	123000	123.00	7.29	7.36	131	21	340	44	305	34	NA	600	0.2	25.2	1400000	
7-Jun-22	122000	122.00	7.32	7.41	129	18	339	38	288	32	NA	400	0.2	25.3	1700000	
8-Jun-22	127140	127.14	7.28	7.38	135	20	344	40	288	36	NA	700	0.2	25.2	1800000	
9-Jun-22	126600	126.60	7.33	7.39	133	23	340	48	303	33	NA	500	0.2	25.3	2200000	
10-Jun-22	123000	123.00	7.35	7.37	129	19	332	40	305	30	NA	600	0.2	25.1	1800000	
11-Jun-22	122500	122.50	7.34	7.39	133	21	343	44	309	32	NA	700	0.2	25.6	1900000	
12-Jun-22	121400	121.40	7.39	7.41	139	20	336	40	295	34	NA	600	0.2	25.6	1600000	
13-Jun-22	118310	118.31	7.31	7.38	135	23	348	48	299	35	NA	500	0.3	25.3	1700000	
14-Jun-22	119180	119.18	7.33	7.41	129	20	339	40	301	33	NA	600	0.3	25.1	1900000	
15-Jun-22	117700	117.70	7.31	7.38	139	24	331	48	305	30	NA	700	0.3	25.5	1700000	
16-Jun-22	109940	109.94	7.28	7.34	133	21	340	40	299	32	NA	600	0.2	25.4	1800000	
17-Jun-22	109900	109.90	7.33	7.36	129	21	331	44	305	28	NA	500	0.3	25.6	1600000	
18-Jun-22	116000	116.00	7.28	7.35	135	21	348	36	300	31	NA	400	0.2	25.3	1800000	
19-Jun-22	118700	118.70	7.29	7.38	139	20	340	40	287	33	NA	600	0.3	25.4	1400000	
20-Jun-22	123530	123.53	7.33	7.37	129	21	332	44	306	32	NA	400	0.3	25.5	1900000	
21-Jun-22	124000	124.00	7.29	7.35	136	23	344	48	309	35	NA	700	0.2	25.4	1800000	
22-Jun-22	127400	127.40	7.33	7.37	133	20	336	40	305	31	NA	600	0.3	25.2	1900000	
23-Jun-22	131210	131.21	7.28	7.36	133	21	348	44	308	32	NA	500	0.2	25.3	1900000	
24-Jun-22	125840	125.84	7.28	7.38	129	20	339	40	305	34	NA	600	0.3	25.6	1700000	
25-Jun-22	124000	124.00	7.32	7.33	133	23	342	44	299	33	NA	700	0.2	25.3	1400000	
26-Jun-22	108000	108.00	7.39	7.33	139	24	345	48	302	30	NA	600	0.3	24.8	1700000	
27-Jun-22	108210	108.21	7.31	7.41	136	20	348	40	305	32	NA	700	0.2	25.4	1900000	
28-Jun-22	100020	100.02	7.29	7.36	133	23	335	46	302	34	NA	600	0.2	25.0	1400000	
29-Jun-22	103280	103.28	7.33	7.39	136	20	329	40	307	31	NA	500	0.3	25.5	1900000	
30-Jun-22	108700	108.70	7.38	7.34	128	22	340	48	305	33	NA	700	0.3	25.1	1800000	
31-Jun-22	110410	110.41	7.33	7.36	131	20	332	40	301	30	NA	600	0.3	25.5	1700000	
Average	118098.03	118.09	7.31	7.37	132.97	20.87	338.23	42.08	302.81	33.13	NA	577.42	0.26	25.29	1835483.87	

Source: Logbook of Laboratory at Sewage Treatment Plant

1.2 Inspection Report

Month of Site Inspection	July 2022
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN 2. Mr. Arvind Yadav, AE, UPJN 3. Mr. Rahul Paswan, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Rahul Chaudhary, PWPL. 6. Mr. Prashant, 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 27th June 2022, 12th July 2022, 21st July 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Naini-I STP	103.95 to 133.90
2	Gaughat MPS	115.46 to 128.44
3	Chacharnalla SPS	34.62 to 47.28

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	18 to 24 mg/l
2	TSS – Effluent	< 50 mg/l	29 to 35 mg/l
3	pH – Effluent	6.5 – 9.0	7.34 to 7.41
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.30 to 25.60 %
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	Naini I STP	35.17 to 52.72
2	Naini I Associated Infrastructure	71.91 to 81.61

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

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

1. Online Analyzer at Inlet is not working. Concessionaire have committed earlier that Service engineer from OEM will come in first week of July for rectifying the problem but the same is not done yet.
2. Communication of data from PLC system of Chacharnalla SPS has started coming to SCADA system of STP but the same is not started for Gaughat MPS due to problem in router fitted at PLC system of Gaughat MPS for which Concessionaire has committed to rectify the problem by 30th July 2022. Report generation regarding raw sewage pumped, level of sump and running hour of equipment is not started yet.
   Also, 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. Concessionaire to please rectify the same also.

3. 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. 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 this 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.
4. 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.
5. It has been found that Gas engine is operated for only, 38 days since 01st May 2022 due to problem in Chiller. This is not good as the biogas generated from digesters is wasted by flaring due to improper operation of gas engine. Also, decrease in power generation from renewable resources will increase the power requirement from grid resulting in increase of electricity bill of the facility which is borne by UPJN.
6. 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.
7. In mechanical screens of 60 MLD, rectification of problem for misplaced bars was completed but during recent visit it was found that bars got loose again. Concessionaire is required to rectify the problem and provide a permanent solution.
8. All two 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.
9. For 60 MLD, all grit removal units are working.

10. For 20 MLD, all grit removal units are working.
11. 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, it must be made operational for efficient removal of scum.
12. In all PSTs, it is observed that lumps of sludge are coming to the top in some parts due to which outlet quality of PSTs is deteriorating.
    It is observed that supernatant coming from digesters is very thick and this supernatant is mixed into main process through filtrate pumps. Now, this supernatant is coming from digesters containing dead mass completely which in turn decreases efficiency of the process and increases load on PSTs. Hence, it is suggested to either improve the quality of supernatant from digester or avoid mixing of this supernatant into main process so that efficiency of treatment process in PSTs can be increased.
13. Telescopic valves of Primary Settling Tanks are not working.
14. 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.
15. Eight surface aerators are working, one surface aerator is in maintenance. It is recommended to install DO analyzer in this tank also for better monitoring.
16. For Aeration tank of 60 MLD, it is observed that DO is maintained around 1.0 mg/l only which means that aeration process is not performed efficiently in the aeration tanks. Also, the appearance of sewage in the same is blackish in color which must be brownish in appearance in ideal conditions. Effect of the same can be seen in effluent quality also as the clarity of the same is not up to the mark. Concessionaire has told that this problem can only be rectified by installing diffused aeration system in place of surface aerators hence Concessionaire is suggested to submit to submit proposal regarding the same.
17. Aeration tank of 20 MLD is in operation. Commissioning of DO analyzer is not completed yet.
18. All Aeration blowers are working.
19. All Final Settling Tanks are working.
20. It is suggested to install torque switches in all clarifiers for having better protection against excessive load on scrapper.
21. 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.
22. In RSPH unit of 60 MLD, 2 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. Concessionaire has committed to rectify the problem by 31st July 2022.
23. In RSPH unit of 20 MLD, 1 out of 2 pumps are working, one pump is 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. Concessionaire has committed to rectify the problem by 31st July 2022.

24. 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.
25. Commissioning of Leak absorption system is completed. Checklist forthe same must be prepared and recorded properly every month.
26. Process analyzers at outlet is working. KPI reports of this Multiparameter analyzer generated through SCADA system were studied and it was found that value of parameters remains almost same throughout the day and are not varying as per changes in sewage flow received at STPs during peak/lean period of day as change in quality of effluent during peak/lean period of day is visible through naked eye. Also, variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in reports generated by multiparameter analyzers through SCADA system which is more than prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. Concessionaire is required to rectify the discrepancies as mentioned above and check the working/calibration of Multiparameter Analyzers and get it verified by UPJN/Project Engineer at the earliest.
27. Chlorine analyzer at outlet is not working.
28. 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.
29. Both thickeners are in working condition. Installation of actuators for drain valves is pending. Installation of flowmeter in one out of two lines from blending tank to thickener is pending.
30. Effluent quality must be improved.
31. All thickened sludge transfer pumps are working. It is suggested to install exhaust blowers in thickened sludge pump house for releasing the gases generated inside the room for safety purposes.
32. In TEPH, all pumps are OK for operation for Dandi and Naini Area.
33. For TEPH panel, modification of room is in progress for fulfilling the electrical norms due to installation of new double front panel in old room. Concessionaire has committed to rectify the problem by 31st July 2022.
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 is pending.
36. Currently, two sludge drying beds are empty. Concessionaire is suggested to keep at least 10 sludge drying beds empty for ensuring proper withdrawal of sludge from the system in all conditions.
37. All filtrate pumps are working.
38. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. This problem must be rectified.
39. There is major difference in recorded values of flow from inlet flowmeter at Naini-I STP and outlet flowmeters of Gaughat MPS, please rectify the problem.
40. Both dewatering feed pumps are working.
41. All Digesters are working.
42. Heat exchangers, sludge recirculation pumps for all digesters are working.
43. In compressor room, all six compressors are working.
44. Both Gas holders are working.
45. Gas flare is working.
46. H2S scrubber unit is working. Analyzers fitted at inlet & outlet unit are working.
47. Installation of service water pumps is pending. It is observed that ground water is 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. Concessionaire has committed to start the work in Aug 2022.

48. Rehabilitation works for storm water pump house are pending.
49. As already decided, repairing/construction of retaining wall must be completed at the earliest for neutralizing the effect of floods. Since the monsoon season will start from July therefore work for the same must be completed at the earliest so that the situation which was faced last year due to floods can be avoided.
50. Rehabilitation works for tube well are pending.
51. As already discussed, printed logbooks must be present at site for daily records. Same is started but not applied for all records. Concessionaire to please do the needful at the earliest.
52. Landscaping work of the plant must be improved.
53. Construction/repairing of roads is not completed yet, Concessionaire to please complete the work at the earliest. Construction of storm water drains is in progress.
54. 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 completed yet, Concessionaire to pleasedo the needful.
55. As already discussed, painting of all units from inside and outside is not started yet. Concessionaire to please do the needful. Proper consent for the color coding must be taken from the UPJN.
56. 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.
57. 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) All HNC pumps are working.
    c) All submersible pumps are working.
    d) Both mechanical screens of HNC pumps are working. Currently sensor of one screen which provides overload protection is broken, it must be replaced at the earliest as excessive wear and tear can be caused in screen due to overload.
    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) One out of two mechanical screens for submersible pumps are working, one is in 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.
    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) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.
    i) In PLC panels, indication for ON/OFF of mechanical screens, belt/screw conveyor is not coming.

58. 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) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.
g) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.

59. 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) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
b) 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.
c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
d) Quarterly report as per Part-G in Schedule-10 of CA.
e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
f) Procedure for recording & disposal of complaints.
g) Safety & Health Records. Incident reports must also be submitted along with action plan.
h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
i) 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

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- [illegible])	Final pH (Design- 6.5 to 8.5)	Inlet BOD (Design- [illegible] mg/l)	Final BOD (Design- [illegible] mg/l)	Inlet COD (Design- [illegible] mg/l)	Final COD (Design- [illegible] mg/l)	Inlet TSS (Design- [illegible] mg/l)	Final TSS (Design- [illegible] mg/l)	Inlet (Design- NA)	Final (Design- [illegible])	Final (Design- [illegible] mg/l)	[illegible]	[illegible]	
1-Jul-22	[illegible]	[illegible]	7.39	7.55	125	16	[illegible]	[illegible]	432	27	NA	400	0.2	23.87	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	7.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
5-Jul-22	23450	23.45	7.35	7.85	175	15	324	38	278	24	NA	700	0.4	24.15	1700000	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
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[illegible]	[illegible]	[illegible]	[illegible]	7.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
9-Jul-22	20950	20.95	7.45	7.47	155	17	344	44	312	25	NA	400	0.3	22.08	1700000	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
18-Jul-22	87450	87.45	7.43	7.58	130	17	328	40	312	25	NA	600	0.2	23.35	1500000	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	92060	92.06	7.39	7.71	130	18	324	44	307	26	NA	500	0.3	23.57	1400000	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	700	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	7.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
Average	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	

Source: Logbook of Laboratory at Sewage Treatment Plant

2.2 Inspection Report

Month of Site Inspection	July 2022
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Arvind Yadav, AE, UPJN. 3. Mr. Manish Srivastava, JE, UPJN 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Girijesh, PWPL. 6. 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 6th July 2022, 23rd July 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Rajapur STP	80.92 to 95.21
2	Rajapur SPS	14.23 to 21.80
3	Mumfodganj MPS	64.34 to 75.94

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 mg/l
2	TSS – Effluent	< 30 mg/l	23 to 29 mg/l
3	pH – Effluent	6.5 – 9.0	7.58 to 7.72
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	21.87 to 24.63 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1100000 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	10.52 to 26.82
2	Rajapur Associated Infrastructure	42.09 to 53.10

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

- **Status of various units & records at site:**
  1. Online Analyzer at Inlet is not giving correct values of parameters which can be due to incorrect sample reaching the analyzer or due to some problem in analyzer. Concessionaire to please check and rectify the problem.
  2. Communication of data from PLC system of Mumfordganj SPS has started coming to SCADA system of STP but report generation regarding raw sewage pumped, level of sump and running hour of equipment is not started yet. Also, 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. Concessionaire to please rectify the same also.
  3. Both Grit removal units are working.
  4. 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.
  5. Both UASBs were working satisfactorily. Cleaning of launders and scum from top must be done regularly.
  6. Permanent solution must be provided to rectify the leakages in HDP pipes of UASB reactors. 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.
  7. 12 surface aerators were found running, all 15 surface aerators are in working condition.
  8. In meter room, no permanent arrangement is being made for safe approach to the electrical panel at increased height which is very dangerous and violates all safety norms. Concessionaire is required to look into the matter & do the needful at the earliest.
  9. Both DG sets are working. It is suggested to increase the height of chimney of DG sets as per CPCB norms.
  10. Three sludge transfer pumps are working. Sludge transfer pump no. 4 is under maintenance.
  11. Sludge dewatering unit is working. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
  12. 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.
  13. Chlorine analyzer at outlet of STP is not working.
  14. At flood pumping station, one pump is under maintenance. Problem for the same must be rectified at the earliest as monsoon season will start in first week of July.
  15. 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.
  16. Process analyzers at outlet is working. KPI reports of this Multiparameter analyzer generated through SCADA system were studied and it was found that value of parameters remains almost same throughout the day and are not varying as per changes in sewage flow received at STPs during peak/lean period of day as change in quality of effluent during peak/lean period of day is visible through naked eye. Also, variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in reports generated by multiparameter analyzers through SCADA system which is more than prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. Concessionaire is required to rectify the discrepancies as mentioned above and check the working/calibration of Multiparameter Analyzers and get it verified by UPJN/Project Engineer at the earliest.

17. Flowmeter at outlet is working. Calibration of flowmeter is completed by site team, Concessionaire is required to get the calibration of flowmeter verified by OEM and submit calibration certificates.
18. Calibration of flowmeter in outlet line of effluent pumps is pending. Concessionaire to please do the needful and submit calibration reports.
19. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. This problem must be rectified.
20. 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.
21. Repairing of roads was started but still some roads of plant are broken. Concessionaire to please complete remaining work at the earliest.
22. As already discussed, printed logbooks must be present at site for daily records. Same is started but not applied for all records. Concessionaire to please do the needful at the earliest.
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 or it must be properly stacked at one place after taking proper consent from UPJN.
24. 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.
25. At Rajapur SPS following observations were made:

    a) Temporary Bund at tapping pint 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.

26. At Mumfodganj MPS following observations were made:

    a) Both Mechanical coarse screens at MPS are not working properly as screens are not lifting waste material properly. Concessionaire to please rectify the problem. 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.
    b) At Mumfodganj 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 pump can start & stop on the basis of level in the sump.
    c) Dismantling joint must be provided along with flowmeter for ease in maintenance.
    d) NRV must be provided in common header to reduce the effect of water hammering.
    e) Site house Keeping & landscaping must be improved. Concessionaire is suggested to keep the Old material Properly.

f) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.

27. 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) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    b) 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.
    c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    d) Quarterly report as per Part-G in Schedule-10 of CA.
    e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    f) Procedure for recording & disposal of complaints.
    g) Safety & Health Records. Incident reports must also be submitted along with action plan.
    h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    i) 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

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 8.0)	Inlet BOD (Design- <230 mg/l)	Final BOD (Design- <20 mg/l)	Inlet COD (Design- [illegible] mg/l)	Final COD (Design- [illegible] mg/l)	Inlet TSS (Design- <600 mg/l)	Final TSS (Design- <30 mg/l)	Inlet (Design- NA)	Final (Design- <1000 MPN/100 ml)	Final (Design- 2.2 mg/l)	Solids Content value (<20%)	Final Coliform (25,00,000 MPN/gTS)	
1-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
2-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
3-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
4-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
5-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
6-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
7-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
8-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
9-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
10-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
11-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
12-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
13-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
14-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
15-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
16-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
17-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
18-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
19-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
20-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
21-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
22-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
23-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
24-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
25-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	21.41	-	Numayadahi STP is in shutdown from 3:30 PM on 24.07.2022 due to damage in rising main from Ghaghardala MPS to Numayadahi STP. Subsequently, [illegible] IPS is also stopped.
26-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	-	-	
27-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	-	-	Maintenance work for rising main from Ghaghardala MPS to Numayadahi STP is in progress.
28-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	-	-	
29-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	-	-	
30-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	-	-	
31-Jul-22	0	0	-	-	-	-	-	-	-	-	NA	-	-	-	-	
Average	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	

Source: Logbook of Laboratory at Sewage Treatment Plant

1.2 Inspection Report

Month of Site Inspection	July 2022
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Tauseef Ahmed, AE, UPJN. 3. Mr. Satwant, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Rahul Kumar Azaad, PWPL. 6. Mr. Vijay Dwivedi, PWPL. 7. 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 07th July 2022, 14th July 2022, 25th July 2022 and 26th July 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Numayadahi STP	54.76 to 67.63
2	Ghagharnalla MPS	56.15 to 69.98
3	Sasur Kadheri SPS	27.52 to 36.90
4	Lukerganj SPS	4.38 to 6.32

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	12 to 18 mg/l
2	TSS – Effluent	< 30 mg/l	18 to 28 mg/l
3	pH – Effluent	6.5 – 9.0	7.50 to 7.81
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	21.72 to 24.97 %
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	Numayadahi STP	20.72 to 70.10
2	Numayadahi Associated Infrastructure	99.27 to 103.31

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

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

1. Sewage is not being received at STP as Ghagharnalla MPS and Sasur Kadheri SPS are in shutdown as rising main from Ghagharnalla MPS to STP is damaged 9:30 PM on 24th July 2022 for which Concessionaire has given intimation vide letter no. PWPL/UPJN/PRAYAGRAJ/O&M/466 dated 25th July 2022. Meanwhile, one blower and other necessary units are being operated in STP for keeping biological process alive.
2. Online Analyzer at Inlet is not giving correct values of parameters which can be due to incorrect sample reaching the analyzer or due to some problem in analyzer. Concessionaire to please check &rectify the problem.
3. Communication of data from PLC system of Ghagharnalla MPS, Sasur Kadheri SPS and Lukerganj SPS has started coming to SCADA system of STP but report generation regarding raw sewage pumped, level of sump and running hour of equipment is not started yet. Also, 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. Concessionaire to please rectify the same also.
4. Both grit removal units were in operation.
5. Both Mechanical Screens are working. Differential level sensors are not synchronized with mechanical screens hence screens cannot run in auto mode.
6. All Biotowers were in operation. Replacement of net is required for all biotowers.
7. 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.
8. All Aeration tanks are working.
9. In aeration tank no. 1 & 2, air is coming out vigorously from 1-2 points due to which air distribution is not proper in the tank which could affect the quality of treatment in aeration tanks. Maintenance for these tanks must be completed.
10. All Aeration blowers are in working condition & two blowers were found running. Ammeters of blower no. 3 & 4 are not working, please rectify the problem.
11. DO analyzer at the outlet of Aeration tank no. 2 is not working properly, please check & rectify the problem.
12. Pressure transmitter & temperature transmitter are not installed yet on header line of Aeration blowers.
13. All Centrifuges are working along with Sludge Feed pumps and Poly dosing pumps. Sludge generation is 6-7 trolleys per day.
14. All Sludge Recirculation Pumps are in working condition.
15. Both Secondary clarifiers were found in operation.
16. Both booster pumps & both chlorinators are in working condition & chlorine dosing was found to be running Residual chlorine was checked & found to be around 0.2 – 0.3 mg/l.
17. 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.
18. Process analyzers at outlet is working. Validation of Calibration was done in presence of representatives of Aaxis Nano Technologies (OEM of Multiparameter analyzer) with the help of stock solutions of pH, COD, TSS and a sample was collected from outlet chamber which was tested in laboratory as well as with analyzer and following were the results:

S. No.	Parameters	Lab Value (mg/l)	Online Value (mg/l)	Variation (%)
	pH	7.76	7.26	-0.50
	BOD	15.00	13.10	-12.67 %
	COD	40.00	35.00	-12.50 %
	TSS	16.00	18.90	+18.12 %

19. Chlorine analyzer for the effluent is not giving correct values.
20. Minor Seepages from Biotowers & some other units can be seen, and this must be rectified.
21. 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.
22. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
23. 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.
24. 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.
25. For Ghagharnalla MPS, following issues are required to be resolved:

    a) Currently, Ghagharnalla MPS is in shutdown as rising main from Ghagharnalla MPS to STP is damaged 9:30 PM on 24th July 2022 for which Concessionaire has given intimation vide letter no. PWPL/UPJN/PRAYAGRAJ/O&M/466 dated 25th July 2022. Work for repairing of rising main is in progress.
    b) It is 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.
    c) Repairing of wall of pump house towards sump is required so that no sewage can go inside the pump house in any situation.
    d) Currently, all HNC pumps (5 new + 1 old) are in working condition.
    e) There is minor leakage of sewage from the retaining wall at the tapping point of MPS, this must be rectified as raw swage is going directly into the river.
    f) Both Mechanical screens are working.
    g) Both DG sets are working.
    h) 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.
    i) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.

26. For Sasur Kadheri SPS, following issues are required to be resolved:

    a) Generally, 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) Currently all submersible pumps in the SPS are OK for operations. It is suggested to complete repairing of old pumps also so that they can be used during emergency situation.
c) Calibration for the outlet flowmeter is completed.
d) Both Mechanical screens are working.
e) Both DG sets are OK for operation.
f) Painting for all units in SPS is in progress.

27. 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.

28. 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) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    b) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    d) Quarterly report as per Part-G in Schedule-10 of CA.
    e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    f) Procedure for recording & disposal of complaints.
    g) Safety & Health Records. Incident reports must also be submitted along with action plan.
    h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    i) 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.

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- [illegible])	Final pH (Design- 6.5 to 8.5)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design- <20 mg/l)	Inlet COD (Design- [illegible] mg/l)	Final COD (Design- <50 mg/l)	Inlet TSS (Design- <[illegible] mg/l)	Final TSS (Design- <[illegible] mg/l)	Inlet (Design- NA)	Final (Design- <1000 MPN/100 ml)	Final (Design- 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform ([illegible] MPN/gTS)	
1-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
2-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
3-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
4-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
5-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
6-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
7-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
8-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
9-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
10-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
11-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
12-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
13-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
14-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
15-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
16-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
17-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
18-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
19-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
20-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
21-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
22-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
23-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
24-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
25-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
26-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
27-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
28-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
29-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	Tapping point at [illegible] is closed at [illegible] PM on [illegible] due to increase in river level. Currently, raw sewage is being received from [illegible] drain and [illegible] connections
30-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
31-Jul-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
Average	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	

Source: Logbook of Laboratory at Sewage Treatment Plant

2.2 Inspection Report

Month of Site Inspection	July 2022
Site Inspectors	1. Mr. A.K. Singh, SE, UPJN. 2. Mr. Santosh Kumar, PM-I, UPJN. 3. Mr. Tauseef, AE, UPJN. 4. Ms. Shilpa, JE, UPJN. 5. Mr. Gaurav Gupta, 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 28th June 2022, 24th July 2022, 25th July 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Salori STP	33.42 to 43.17
2	Salori MPS	33.42 to 43.17

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	24 to 29 mg/l
2	TSS – Effluent	< 50 mg/l	31 to 48 mg/l
3	pH – Effluent	6.5 – 9.0	7.32 to 7.97
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 800 MPN/100 ml
5	Consistency – Sludge	> 20 %	21.10 to 25.80 %
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	91.61 to 115.61
2	Salori MPS	47.44 to 53.24

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

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

1. During visit operation of 14 MLD STP maintained by M/s Toshiba Water was also checked and it was found that they are not taking sufficient sewage during peak hours due to which 29 MLD STP is getting overloaded and maintaining quality in 29 MLD STP during peak hours is getting extremely difficult. Hence, officials of 14 MLD STP were instructed to optimize their treatment process so that raw sewage capacity of STP can be increased and load on 29 MLD STP can be decreased.
2. During visit effluent outfall area was checked and it was found that appearance of effluent at the outlet is good even though the quality inside STP is being maintained. Hence, it was decided to make arrangement for scattering the effluent for making its appearance good. Concessionaire was instructed to start work for same as soon as the monsoon period gets over.
3. Process analyzers at inlet is working but it is showing major variation in values of parameters as per LAB reports, please check & rectify the problem.
4. Process analyzers at outlet is working. KPI reports of this Multiparameter analyzer generated through SCADA system were studied and it was found that value of parameters remains almost same throughout the day and are not varying as per changes in sewage flow received at STPs during peak/lean period of day as change in quality of effluent during peak/lean period of day is visible through naked eye. Also, variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in reports generated by multiparameter analyzers through SCADA system which is more than prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. Concessionaire is required to rectify the discrepancies as mentioned above and check the working/calibration of Multiparameter Analyzers and get it verified by UPJN/Project Engineer at the earliest.
5. Chlorine analyzer at outlet is removed, Concessionaire is requested to provide reason for that.
6. All Grit Removal Units are working.
7. 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.
8. Both FAB units are working.
9. DO analyzers for both FAB units are not showing correct values, please rectify the problem.
10. All Aeration blowers are working.
11. 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.
12. 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.
13. Quality of effluent is not good during peak hours. Concessionaire is requested to ensure proper withdrawal of sludge so that quality of effluent can be improved during peak hours also.
14. For Sludge dewatering unit, installation of instruments (flowmeter for poly dosing line, etc.) is pending, Concessionaire to please do the needful.
15. Both Sludge transfer pumps for Clarisettler are working.

16. Both Filtrate pumps are working.
17. Both chlorinators and chlorine booster pumps are working.
18. 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 forthe same must be prepared and recorded properly every month.
19. Thickener unit is working.
20. 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.
21. At Salori MPS, 5 pumps are OK for operation and 1 pump is in maintenance hence only one pump is in stand-by. Since the programming for running pumps in auto mode is completed, it is suggested to operate them in auto mode for optimum performance.
22. At Salori 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. 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 pumps. Hence, UPJN is requested to instruct M/s Passavant to rectify the problem.
24. 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.
25. 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.
26. Installation & commissioning of Public Address System is not completed yet.
27. Installation of FeCl3 dosing system is completed but it is not made operational yet. Concessionaire to please complete the work at the earliest so that the quality of effluent can be improved further.
28. Housekeeping in dewatering area must be improved, lot of sludge can be seen scattered in this area.
29. All CCTV cameras 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) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    b) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    d) Quarterly report as per Part-G in Schedule-10 of CA.
    e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    f) Procedure for recording & disposal of complaints.
    g) Safety & Health Records. Incident reports must also be submitted along with action plan.
    h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    i) 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.

Kodra STP, 25 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 <350 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/g TS)	
1-Jul-22	[illegible]	27.89	7.18	7.49	156	14	322	42	264	22	NA	700	0.2	22.41	1400000	
2-Jul-22	[illegible]	27.83	7.23	7.52	148	12	321	44	272	21	NA	500	0.3	22.90	1300000	
3-Jul-22	27590	27.34	7.34	7.66	156	13	312	36	258	18	NA	900	0.2	23.27	1600000	
4-Jul-22	28110	28.11	7.21	7.62	144	14	316	40	275	20	NA	900	0.3	23.58	1300000	
5-Jul-22	26720	26.72	7.28	7.53	166	13	308	36	230	17	NA	700	0.2	22.94	1600000	
6-Jul-22	27960	27.96	7.19	7.67	156	12	320	44	252	21	NA	500	0.3	24.08	1600000	
7-Jul-22	28030	28.03	7.32	7.59	149	13	309	40	268	18	NA	600	0.3	23.79	1400000	
8-Jul-22	26870	26.87	7.24	7.71	138	12	316	44	274	20	NA	700	0.2	24.21	1300000	
9-Jul-22	27250	27.25	7.18	7.54	142	15	324	40	265	22	NA	500	0.3	23.56	1600000	
10-Jul-22	28120	28.12	7.29	7.54	136	12	308	36	263	19	NA	400	0.2	24.12	1200000	
11-Jul-22	26360	26.36	7.36	7.58	148	13	320	44	278	21	NA	700	0.2	23.76	1400000	
12-Jul-22	[illegible]	[illegible]	7.21	7.68	158	12	312	40	308	20	NA	800	0.3	23.48	1300000	
13-Jul-22	26890	26.89	7.32	7.48	151	14	304	32	258	18	NA	500	0.2	24.38	1700000	
14-Jul-22	27130	27.13	7.19	7.41	126	12	312	36	265	21	NA	600	0.3	24.26	1400000	
15-Jul-22	26340	26.34	7.24	7.56	160	13	322	40	271	20	NA	400	0.2	23.86	1200000	
16-Jul-22	31890	31.89	7.35	7.57	156	14	308	44	284	22	NA	700	0.3	23.47	1300000	
17-Jul-22	26020	26.02	7.28	7.61	136	12	304	40	276	19	NA	600	0.2	24.41	1400000	
18-Jul-22	27360	27.36	7.21	7.62	143	13	316	36	305	21	NA	500	0.2	23.68	1200000	
19-Jul-22	27720	27.72	7.33	7.57	148	12	308	42	278	18	NA	400	0.3	24.12	1300000	
20-Jul-22	28120	28.12	7.27	7.64	156	14	332	36	264	20	NA	700	0.2	23.92	1400000	
21-Jul-22	31720	31.72	7.38	7.58	150	12	324	44	300	22	NA	500	0.3	24.20	1300000	
22-Jul-22	28230	28.23	7.24	7.68	168	13	316	42	230	20	NA	800	0.2	23.78	1300000	
23-Jul-22	24460	24.46	7.31	7.34	128	11	304	36	268	18	NA	500	0.3	24.14	1700000	
24-Jul-22	[illegible]	[illegible]	7.42	7.84	150	14	312	40	280	21	NA	700	0.2	24.48	1600000	
25-Jul-22	[illegible]	31.04	7.27	7.53	136	12	320	44	274	15	NA	500	0.2	23.84	1300000	
26-Jul-22	[illegible]	[illegible]	7.34	7.46	131	11	308	36	308	18	NA	400	0.3	23.79	1300000	
27-Jul-22	28320	28.32	7.28	7.57	148	12	316	46	222	20	NA	800	0.2	24.08	1400000	
28-Jul-22	[illegible]	30.06	7.29	7.52	136	12	324	44	276	22	NA	700	0.3	23.54	1300000	
29-Jul-22	[illegible]	29.43	7.34	7.51	148	15	340	56	308	19	NA	500	0.3	23.86	1300000	
30-Jul-22	31630	31.43	7.13	7.32	166	14	328	40	276	21	NA	400	0.2	24.45	1300000	
31-Jul-22	29580	29.58	7.26	7.51	136	12	320	36	279	20	NA	700	0.3	24.17	1400000	
Average	28248.36	28.25	7.28	7.58	128.48	12.66	315.61	38.48	274.26	19.84	NA	601.29	0.25	23.86	1406451.61	

Source: Logbook of Laboratory at Sewage Treatment Plant

3.2 Inspection Report

Month of Site Inspection	July 2022
Site Inspectors	1. Mr. Santosh Kumar PM-I, UPJN. 2. Mr. Tauseef Ahamed, AE, UPJN. 3. Mr. Narendra, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Jagdish, PWPL. 6. Mr. Rajan, PWPL.
Place(s) of Inspection	• 25 MLD STP at Kodra, Prayagraj • 25 MLD MPS at Kodra, Prayagraj

Visit was done on 25th June 2022, 16th July 2022, 25th July 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Kodra STP	25.92 to 31.84
2	Kodra MPS	25.92 to 31.84

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 14 mg/l
2	TSS – Effluent	< 30 mg/l	17 to 22 mg/l
3	pH – Effluent	6.5 – 9.0	7.41 to 7.71
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.42 to 24.42%
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	78.24 to 99.54
2	Kodra MPS	94.84 to 103.77

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

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

1. Process analyzers at inlet is working but it is showing major variation in values of parameters as per LAB reports, please check & rectify the problem.
2. Both grit removal units are working.
3. 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.
4. 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.
5. Replacement of net is required for all biotowers.
6. All Aeration tanks are working.
7. In aeration tank no. 1 & 2, air is coming out vigorously from 1-2 points due to which air distribution is not proper in the tank which could affect the quality of treatment in aeration tanks. Maintenance for these tanks must be completed.
8. Both DO Analyzer are not working at aeration tank.
9. All Aeration blowers are working.
10. All Centrifuges are in working condition.
11. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
12. All Sludge Recirculation Pumps are working.
13. Both Centrifuge Feed Pumps are working.
14. Both Secondary Clarifiers are working.
15. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be around 0.2 to 0.3 mg/l.
16. 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.
17. Process analyzers at outlet is not working due to problem in sensor, problem must be rectified at the earliest. Earlier, KPI reports of this Multiparameter analyzer generated through SCADA system were studied and it was found that value of parameters remains almost same throughout the day and are not varying as per changes in sewage flow received at STPs during peak/lean period of day as change in quality of effluent during peak/lean period of day is visible through naked eye. Also, variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in reports generated by multiparameter analyzers through SCADA system which is more than prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. Concessionaire is required to rectify the discrepancies as mentioned above and check the working/calibration of Multiparameter Analyzers and get it verified by UPJN/Project Engineer at the earliest.
18. 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.
19. 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.

20. At Kodra MPS, 5 pumps are OK for operation. Pump no. 3 is under maintenance. Pressure transmitter is not installed in common header line of pumps yet. Also, pumps must be kept auto so that pump can start & stop on the basis of level in the sump.
21. 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.Site house Keeping must be improved.
22. Landscaping of site is very bad; it needs to be made better.
23. As already discussed, printed logbooks must be present at site for daily records. Use of printed logbooks is started but it is still not implemented for all records yet. Concessionaire to please do the needful at the earliest.
24. 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.
25. 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.
26. Installation of Public Address System is done but its commissioning is not completed yet.
27. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
28. Cleaning of outlet launders for secondary clarifier must be done as too much algae is deposited.
29. Raw sewage is leaking from the retaining wall at the tapping point of MPS, this must be rectified. Also, strengthening of the wall must be done so that it does not broke during rains and floods.
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) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    b) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    d) Quarterly report as per Part-G in Schedule-10 of CA.
    e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    f) Procedure for recording & disposal of complaints.
    g) Safety & Health Records. Incident reports must also be submitted along with action plan.
    h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    i) 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.

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 <10 mg/l)	Inlet COD (Design- [illegible])	Final COD (Design- <50 mg/l)	Inlet TSS (Design <300 mg/l)	Final TSS (Design <[illegible] mg/l)	Inlet (Design - NA)	Final (Design- <1000 MPN/100 ml)	Final (Design 0.2 mg/l)	Outlet Concentrations (>20%)	Final Coliform (20,00,000 MPN/gTS)	
1-Jul-22	13800	13.80	7.24	7.58	135	16	304	36	265	22	NA	400	0.3	22.11	[illegible]	
2-Jul-22	13310	13.31	7.26	7.68	148	11	328	40	276	23	NA	600	0.2	21.54	[illegible]	
3-Jul-22	14930	14.93	7.29	7.47	146	14	328	36	284	25	NA	500	0.3	23.11	[illegible]	
4-Jul-22	14880	14.88	7.21	7.54	155	16	330	40	271	23	NA	700	0.2	21.68	1700000	
5-Jul-22	13030	13.03	7.52	7.67	158	17	324	34	282	25	NA	600	0.3	23.51	1600000	
6-Jul-22	14610	14.61	7.26	7.51	142	11	308	40	268	22	NA	500	0.3	22.74	[illegible]	
7-Jul-22	14960	14.96	7.44	7.71	152	13	341	36	279	24	NA	400	0.2	21.20	1200000	
8-Jul-22	13350	13.35	7.25	7.61	145	14	312	40	263	21	NA	400	0.3	21.83	1400000	
9-Jul-22	15480	15.48	7.18	7.34	159	18	320	44	270	23	NA	700	0.2	22.38	[illegible]	
10-Jul-22	15390	15.39	7.61	7.76	160	14	328	36	288	25	NA	500	0.3	21.46	[illegible]	
11-Jul-22	14370	14.37	7.28	7.68	146	13	316	44	277	22	NA	600	0.2	23.16	[illegible]	
12-Jul-22	14280	14.28	7.22	7.56	148	13	324	35	260	20	NA	500	0.2	22.80	[illegible]	
13-Jul-22	14470	14.47	7.33	7.73	155	14	328	32	280	23	NA	400	0.3	21.51	1200000	
14-Jul-22	14470	14.47	7.24	7.60	142	15	320	36	271	21	NA	700	0.2	21.44	1400000	
15-Jul-22	14850	14.85	7.51	7.65	138	16	312	42	266	23	NA	500	0.2	22.57	1200000	
16-Jul-22	15390	15.39	7.21	7.71	175	13	324	44	280	22	NA	400	0.3	23.12	1700000	
17-Jul-22	14980	14.98	7.26	7.67	138	14	316	40	270	20	NA	300	0.2	23.11	1300000	
18-Jul-22	13410	13.41	7.36	7.61	130	13	304	44	251	24	NA	600	0.2	21.29	1400000	
19-Jul-22	14820	14.82	7.23	7.17	148	14	328	34	268	22	NA	400	0.3	21.98	1200000	
20-Jul-22	14290	14.29	7.29	7.66	133	11	312	40	268	25	NA	500	0.2	22.27	[illegible]	
21-Jul-22	14260	14.26	7.18	7.52	136	14	328	36	273	23	NA	600	0.2	21.90	1400000	
22-Jul-22	13370	13.37	7.26	7.58	158	12	308	44	260	25	NA	500	0.3	22.50	[illegible]	
23-Jul-22	13830	13.83	7.24	7.63	139	11	300	40	271	22	NA	700	0.2	21.88	1400000	
24-Jul-22	15220	15.22	7.31	7.35	145	16	312	44	280	24	NA	450	0.3	20.41	1700000	
25-Jul-22	16890	16.89	7.15	7.51	148	14	334	40	288	23	NA	500	0.2	22.11	1200000	
26-Jul-22	12910	12.91	7.15	7.38	135	13	316	36	270	21	NA	300	0.3	21.78	1300000	
27-Jul-22	10720	10.72	7.34	7.64	130	11	300	40	262	24	NA	400	0.3	23.38	1700000	
28-Jul-22	14200	14.20	7.17	7.58	139	14	320	36	276	22	NA	500	0.2	22.34	1200000	
29-Jul-22	13660	13.66	7.21	7.66	133	16	312	44	328	20	NA	800	0.2	21.44	1400000	
30-Jul-22	13310	13.31	7.26	7.33	148	13	316	40	255	23	NA	400	0.3	22.75	[illegible]	
31-Jul-22	16010	16.01	7.33	7.62	135	13	304	36	264	21	NA	500	0.2	21.81	1200000	
Average	14328.71	14.34	7.27	7.61	146.08	14.74	316.20	39.35	271.74	22.74	NA	552.26	0.25	22.41	1406666.26	

Source: Logbook of Laboratory at Sewage Treatment Plant

4.2 Inspection Report

Month of Site Inspection	July 2022
Site Inspectors	1. Mr. Santosh Kumar PM-I, UPJN. 2. Mr. Tauseef Ahamed, AE UPJN. 3. Mr. Narendra, JE UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Jagdish, PWPL. 6. Mr. Anjani, PWPL.
Place(s) of Inspection	• 10 MLD STP at Ponghat, Prayagraj • 10 MLD MPS at Ponghat, Prayagraj

Visit was done on 25th June 2022, 25th July 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Ponghat STP	13.01 to 15.48
2	Ponghat MPS	13.01 to 15.48

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	13 to 17
2	TSS – Effluent	< 30 mg/l	20 to 26
3	pH – Effluent	6.5 – 9.0	7.47 to 7.76
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700
5	Consistency – Sludge	> 20 %	21.46 to 23.53
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	107.24 to 143.76
2	Ponght MPS	80.19 to 87.32

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

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

1. Process analyzers at inlet is working but it is showing major variation in values of parameters as per LAB reports, please check & rectify the problem.
2. 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.
3. Both Grit Removal Units are working.
4. 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.
5. Replacement of net is required for both biotowers.
6. All Aeration tanks are working. In Aeration tank no. 2, air is coming out vigorously from 1 point due to which air distribution is not proper in the tank which could affect the quality of treatment in aeration tanks. Maintenance for these tanks must be completed.
7. In Aeration tanks, the appearance of sewage is blackish in color which must be brownish in appearance in ideal conditions. Effect of the same can be seen in effluent quality also as the clarity of the same is not up to the mark. Hence, Concessionaire is required to rectify the problem so that effluent quality can be improved.
8. Both DO Analyzers at aeration tanks are not working.
9. All Aeration Air Blowers are working.
10. All Centrifuges are working along with Sludge Feed pumps and Poly dosing pumps. Sludge generation is 4–5 trolleys per day.
11. Quality of effluent is not good. Concessionaire is requested to ensure proper withdrawal of sludge so that quality of effluent can be improved during peak hours also.
12. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
13. Both Sludge Recirculation Pumps are working.
14. Both Secondary Clarifiers are working. In Secondary clarifier no. 1, it is found that dead sludge is coming to the top of water surface in some parts. Concessionaire is suggested to rectify the problem.
15. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be 0.2 to 0.3 mg/l.
16. 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.
17. Process analyzers is working and calibration for the same is in progress. Earlier, KPI reports of this Multiparameter analyzer generated through SCADA system were studied and it was found that value of parameters remains almost same throughout the day and are not varying as per changes in sewage flow received at STPs during peak/lean period of day as change in quality of effluent during peak/lean period of day is visible through naked eye. Also, variation can be seen in between recorded values of KPIs in laboratory and recorded values of KPIs in reports generated by multiparameter analyzers through SCADA system which is more than prescribed limit given in 'Guidelines for Online Continuous Effluent Monitoring Systems (OCEMS)' by Central Pollution Control Board. Concessionaire is required to rectify the discrepancies as mentioned above and check the working/calibration of Multiparameter Analyzers and get it verified by UPJN/Project Engineer at the earliest.
18. 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.

19. At Ponghat MPS, all 6 pumps are OK for operation. Presser transmitter is not installed at pump discharge common header.
20. 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.
21. 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.
22. As already discussed, printed logbooks must be present at site for daily records. Use of printed logbooks is started but it is still not implemented for all records yet. Concessionaire to please do the needful at the earliest.
23. Site house Keeping & landscaping must be improved.
24. 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.
25. 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.
26. Installation of Public Address System is done but its commissioning is not completed yet.
27. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
28. 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) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    b) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    d) Quarterly report as per Part-G in Schedule-10 of CA.
    e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    f) Procedure for recording & disposal of complaints.
    g) Safety & Health Records. Incident reports must also be submitted along with action plan.
    h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    i) 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 July 2022 to 31st July 2022**		
		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 July 2022 to 31st July 2022**		
		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	Review of remaining drawing design of Civil/Mech/Electrical
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 July 2022 to 31st July 2022**		
		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	NA	NA	NA
	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.	Yes	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 July 2022 to 31st July 2022**		
		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 July 2022 to 31st July 2022		
		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 July 2022 to 31st July 2022**		
		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 July 2022 to 31st July 2022**		
		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 July 2022 to 31st July 2022**		
		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 July 2022 to 31st July 2022**		
		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 July 2022 to 31st July 2022**		
		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, in particular, 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	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	work methodology adopted, 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	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	directions to the 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

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
6.11	In the event that the Concessionaire fails to 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.	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
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 Construction Works that should be suspended for ensuring safety in respect thereof.	NA	NA	NA
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	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	attributable to the Concessionaire, the Project Engineer shall determine the extension of dates set forth in the project completion 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	NA	NA
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	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	necessary recommendation/s to Uttar Pradesh Jal Nigam for issuance of 'Milestone Construction Certificates'.			
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	NA	NA	NA
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	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	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			
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	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	for change, if any. The O&M Manual shall cover: a) O&M Procedures; b) O&M Plan; 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.	NA	NA	NA
7.4	The Project Engineer shall review the reports generated from online monitoring systems to assess adherence to KPIs and submit the monthly	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	KPI Adherence Report to Uttar Pradesh Jal Nigam			
7.5	The Project Engineer shall verify the daily reports submitted by the concessionaire regarding the volume of sewage and its quality re influent standards and monitor and record the same on regular basis;	Yes	Yes	Yes
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	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire 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	Yes	Yes	Yes

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	specify the tests, if any, that the Concessionaire shall carry out, or cause to be carried out, 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

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
7.15	The Project Engineer shall undertake sewage flow sampling, as and when required by the NMCG/ Uttar Pradesh Jal Nigam, under and in accordance with the provisions of this agreement.	Yes	Yes	Yes
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	NA	NA	NA

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st July 2022 to 31st July 2022**		
		Undertaken till previous months	**Undertaken during this month**	**Expected for next month**
	will include, but not limited to the following: 7.18.1 Preparation of a road map/policy note for 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	Duration: 1st July 2022 to 31st July 2022				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 Naini-II. found satisfactory
2	Aggregate Impact Value	IS 2386-Part 4	ONE TEST/300 CUM	2	2	0	Aggregate Impact value test conduct in Phaphamau found satisfactory
3	Aggregate Impact Value	IS 2386-Part 4	ONE TEST/300 CUM	3	3	0	Aggregate Impact value test conduct in Jhunsi. found satisfactory
4	Sand gradation	IS 2386-Part 1	ONE TEST/300CUM	1	1	0	Sand Gradation Test conduct in, Naini-II, and found satisfactory
5	Sand gradation	IS 2386-Part 1	ONE TEST/300CUM	2	2	0	Sand Gradation Test conduct in, Phaphamau, and found satisfactory

S.NO	Description	Instrument	Duration: 1st July 2022 to 31st July 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
6	Sand gradation	IS 2386-Part 1	ONE TEST/300CUM	3	3	0	Sand Gradation Test conduct in, , Jhunsi and found satisfactory
7	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.	50	50	0	Staff Quarter (Mawaiya Nalla) (Mahewaghat) Naini-II, Process Building, Sashtri bridge (Jhunsi STP). Phaphamau (Basna Nalla SPS & Process Building), Cube test is acceptable for 7 Days

S.NO	Description	Instrument	Duration: 1st July 2022 to 31st July 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
8	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	70	70	0	Staff Quarter (Mawaiya Nalla) (Mahewaghat) Naini-II, Process Building Sashtri Bridge, (Jhunsi STP). Phaphamau (Basna Nalla SPS & Process Building), Cube test is acceptable for 28 Days
9	Silt Content in Sand	IS 2386: 1963-Part 2	50 M3 – 1 TEST	1	1	0	Silt Content Test conduct in Naini-II, and found satisfactory
10	Silt Content in Sand	IS 2386: 1963-Part 2	50 M3 – 1 TEST	2	2	0	Silt Content Test conduct in Phaphamau and found satisfactory
11	Silt Content in Sand	IS 2386: 1963-Part 2	50 M3 – 1 TEST	3	3	0	Silt Content Test conduct in, Jhunsi, and found satisfactory

S.NO	Description	Instrument	Duration: 1st July 2022 to 31st July 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
12	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	1	1	0	Sieve Test Activity conduct in , Naini-II, site as per quality of material found acceptable
13	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	2	2	0	Sieve Test Activity conduct in , Phaphamau site as per quality of material found acceptable
14	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	3	3	0	Sieve Test Activity conduct in Jhunsi, site as per quality of material found acceptable
15	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	1	1	0	Sieve Test Activity conduct in Naini-II, site as per quality of material found acceptable

S.NO	Description	Instrument	Duration: 1st July 2022 to 31st July 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
16	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	2	2	0	Sieve Test Activity conduct in , Phaphamau site as per quality of material found acceptable
17	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	3	3	0	Sieve Test Activity conduct in Jhunsi, site as per quality of material found acceptable
18	Brick Test	IS 1077 & 3495	1 SAMPLE/ 50000 BRICKS	1	1	0	As per site brick test activity conduct at Naini- II and result found acceptable as per IS
19	Cube test	IS 516-2001	Quantity of concrete (m3) Number of samples 1-5 1 6-15 2 16-30 3 31-50 4	08	08	0	As per cube test report Phaphamau road manhole acceptable for 28 days

S.NO	Description	Instrument	Duration: 1st July 2022 to 31st July 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
			51 and above 4 plus one additional sample				
20	SRC CEMENT	IS 4031	1 TEST PER LOT	1	1	0	Chetak (Third party batch report Submitted)
21	OPC CEMENT 43 GRADE	IS 4031	I TEST PER LOT	1	1	0	Ultratech (Third party batch report Submitted)