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
August 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;**

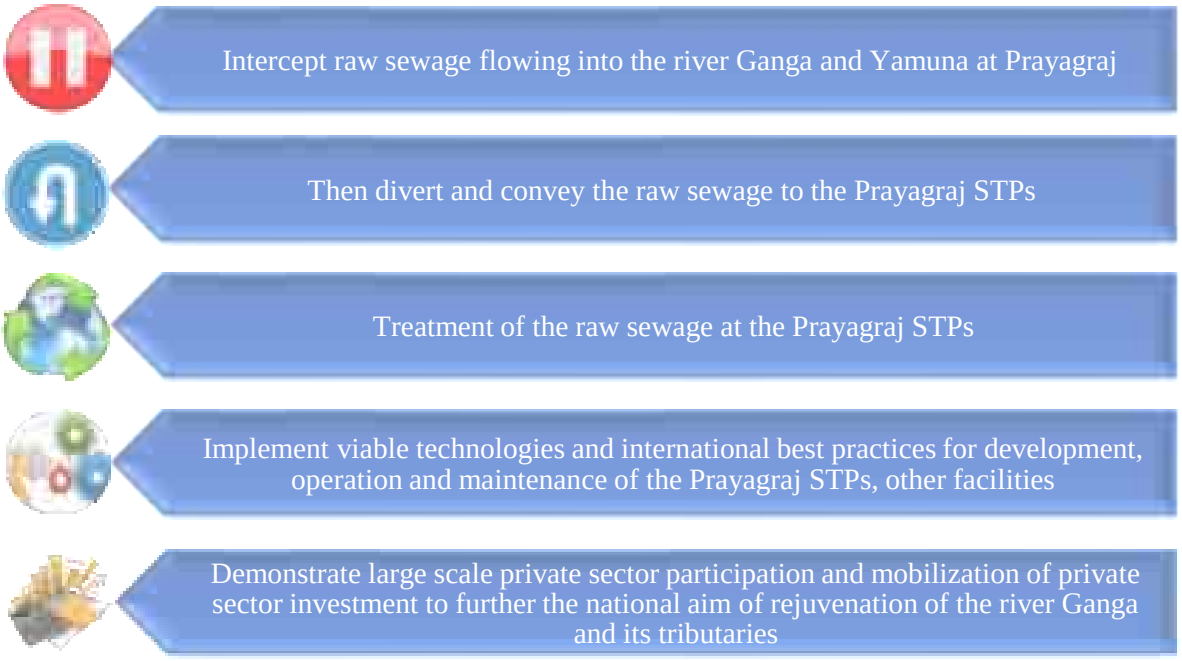


Figure 1 : Objectives of NMCG and UP JAL NIGAM

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.

National Mission for Clean Ganga (NMCG) appointed M/s. AECOM India Pvt. Ltd., Gurgaon 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.

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

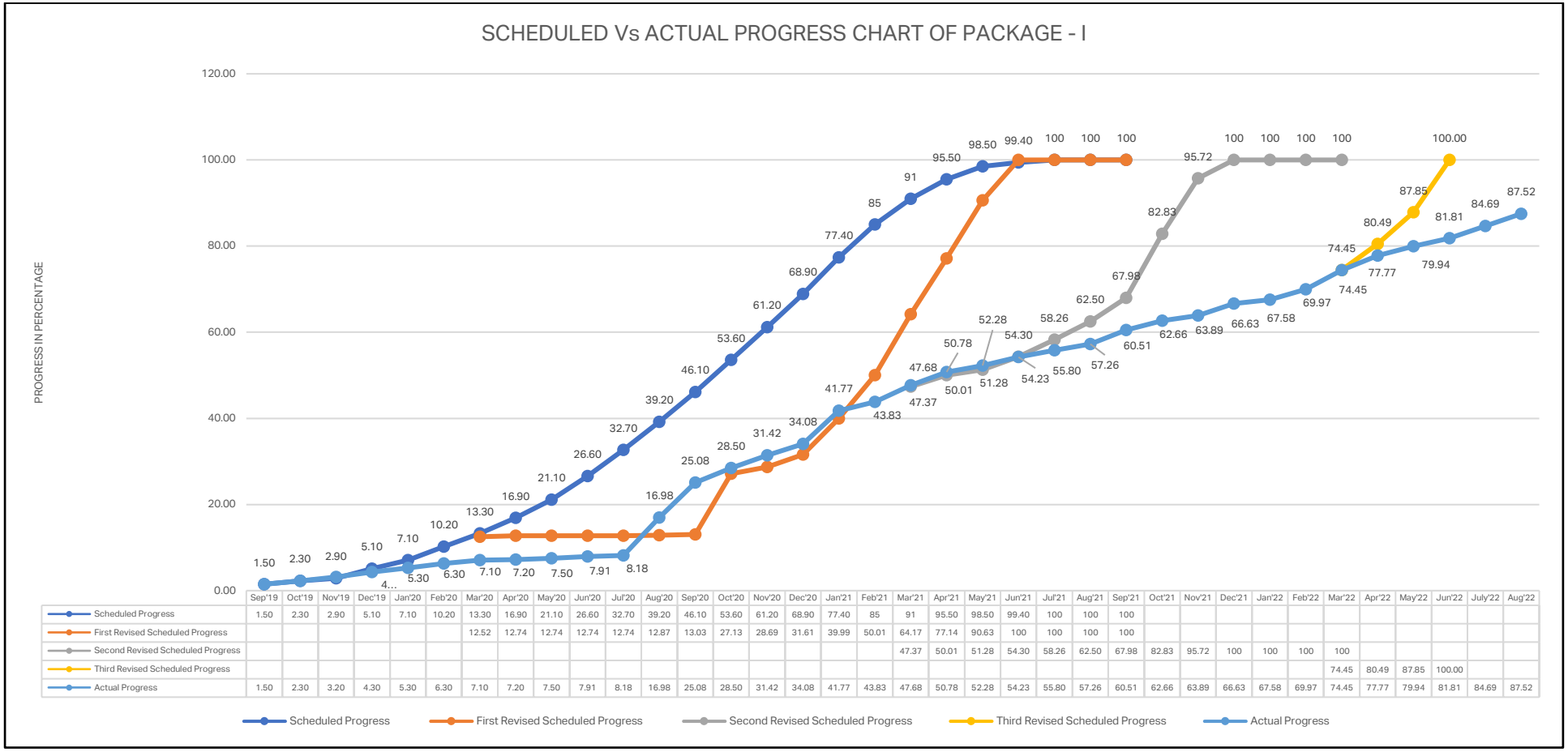
Package Number - I				
Nature of work	**Facilities**			
New construction	Design, develop, finance, construct, operate and maintain, and transfer the Package-I Facilities including three STP facilities with a proposed capacity of 42 MLD at Naini (District G), 14 MLD at Phaphamau (District F), and 16 MLD 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	Aug'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	87.52

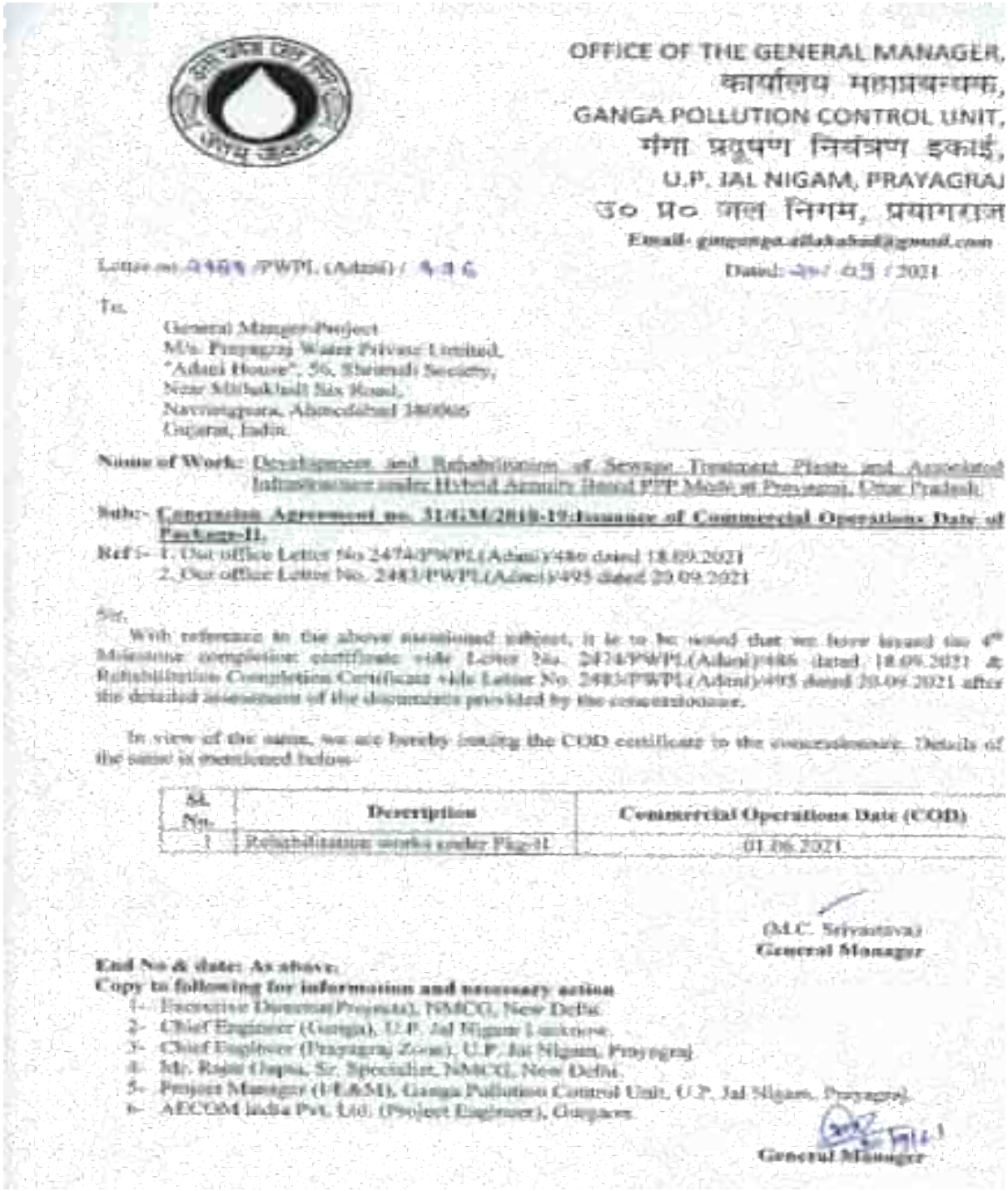
- **Project Engineer has provided observation on Concessionaire August'22-month MPR vide letter number AIPL/NMCG/PRAYAG/1484 on dated 16.09.2022 Therefore, status may be change after observation incorporated by Concessionaire.**

7.1.7 Physical construction Activities in August'22 month

PHYSICAL CONSTRUCTION ACTIVITIES, 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/ 09 /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 (I/E&M), GPCU, U.P. Jal Nigam Prayagraj.
7- AECOM India Pvt. Ltd. (Project Engineer), Gurgaon.

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

KPI REPORT'S OF PACKAGE - III

AND

PROJECT ENGINEER INSPECTION REPORT AND RECOMMENDATION IS MENTIONED IN

ANNEXURE - III

8. Meetings, Discussions and Site Visits:

Regular progress review meetings are being held at UPJN office & sites. Following meetings were held during the month of August' 2022.

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

Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
14.	Site inspection of Naini-II STP	9-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
15.	Site inspection of Jhunsi STP	10-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
16.	Site inspection of Jhunsi STP	10-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
17.	Site inspection of Naini-II STP	11-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
18.	Site inspection of Naini-II STP	13-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
19.	Site inspection of Phaphmau STP	14-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
20.	Site inspection of Phaphmau STP	14-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
21.	Site inspection of Kodra STP	16-Aug-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing Operation & Maintenance
22.	Site inspection of Jhunsi STP	16-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
23.	Site inspection of Jhunsi STP	16-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
24.	Site inspection of Naini-II STP	16-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
25.	Site inspection of Naini-II STP	16-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
26.	Site inspection of Jhunsi STP	19-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities
27.	Site inspection of Jhunsi STP	19-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
28.	Site inspection of Naini-II STP	19-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring of ongoing E&M activities

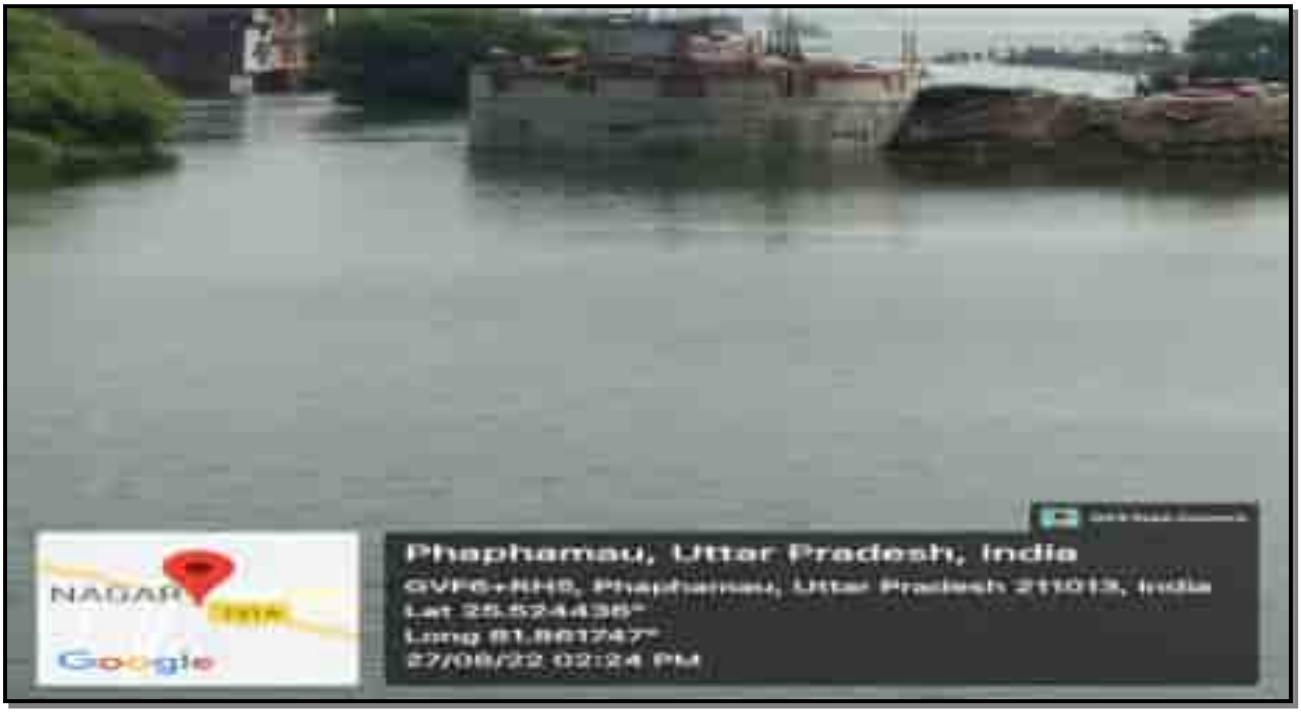
Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
29.	Site inspection of Naini-II STP	19-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
30.	Site inspection of Rajapur STP	23-Aug-22	Mr. Gaurav Gupta	Inspection, supervision and monitoring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

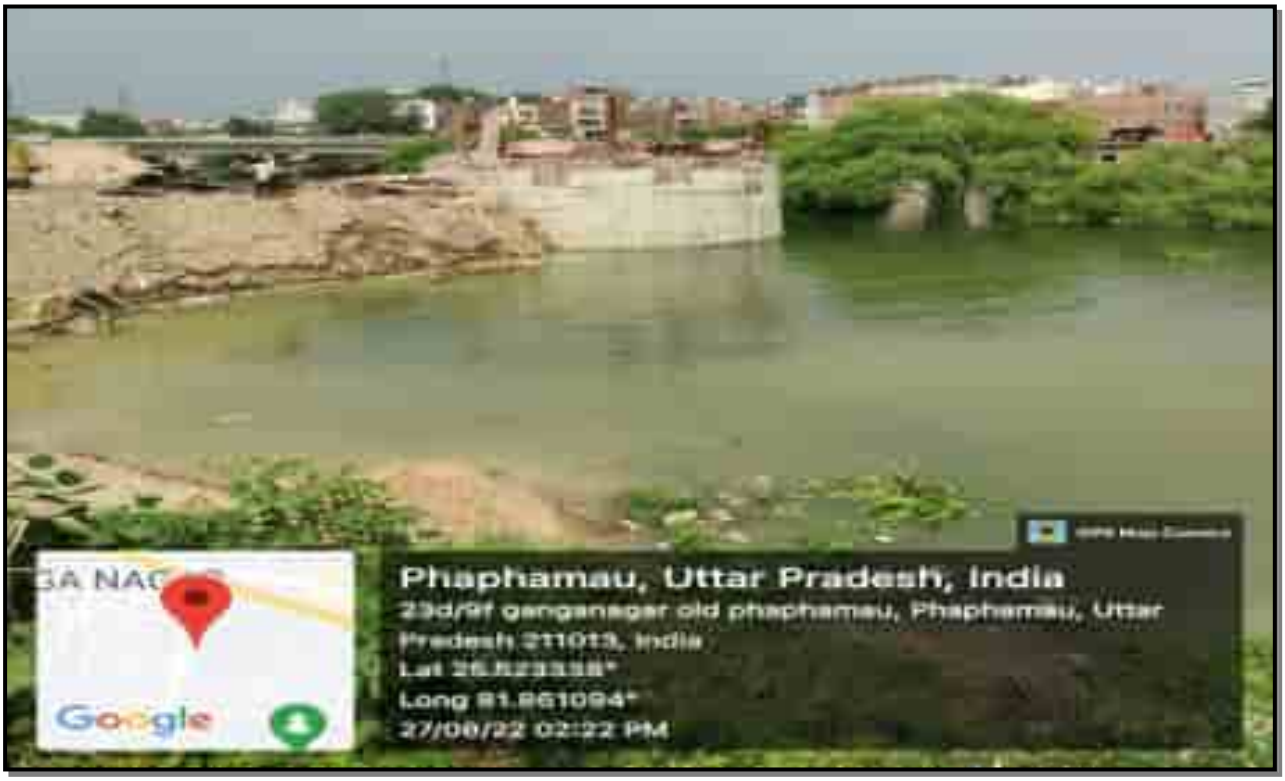
Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
44.	Site inspection of Jhunsi STP	29-Aug-22	Mr. Amit Ranjan	Inspection, supervision and monitoring of ongoing Civil activities
45.	Site inspection of Naini-II STP	30-Aug-22	Mr. Gaurav Pandey	Inspection, supervision and monitoring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

10. Photos of Meetings / Site Visits and Activities

PACKAGE - I

PHAPHAMAU FACILITY





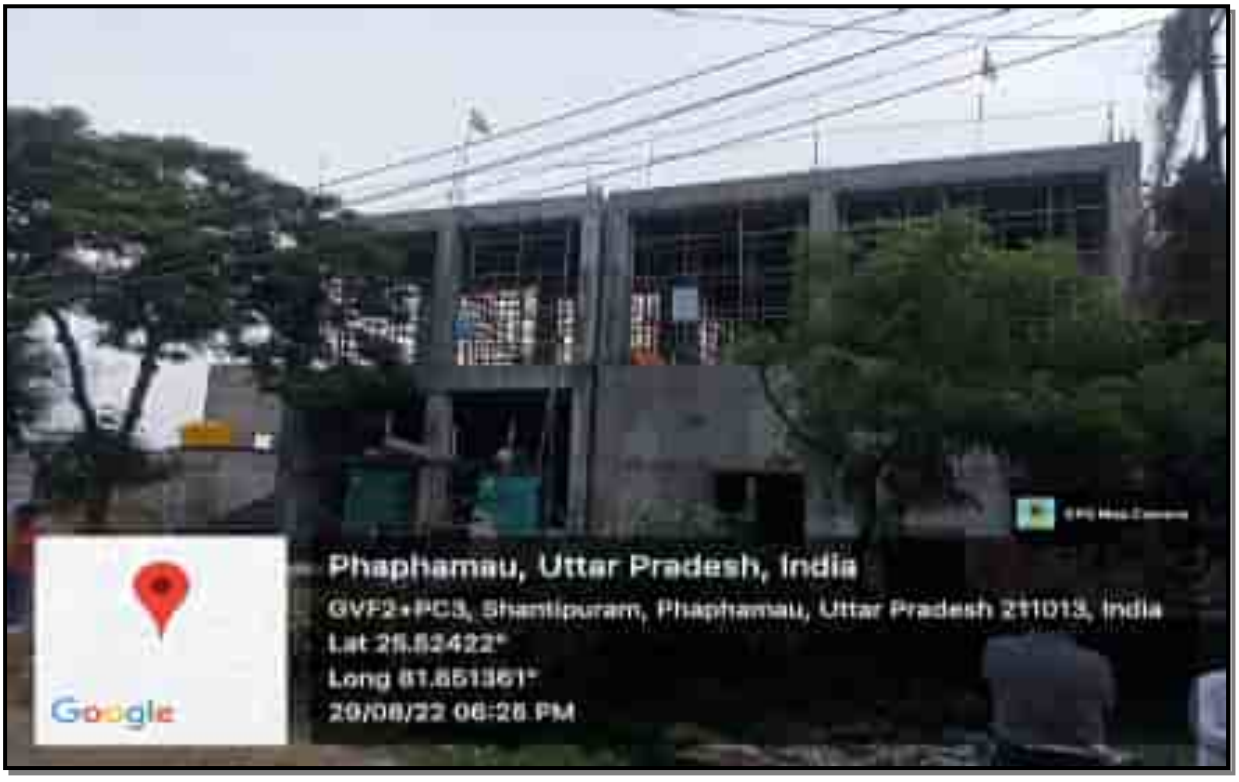
Basna Nalla SPS: Flood water status

PHAPHAMAU FACILITY

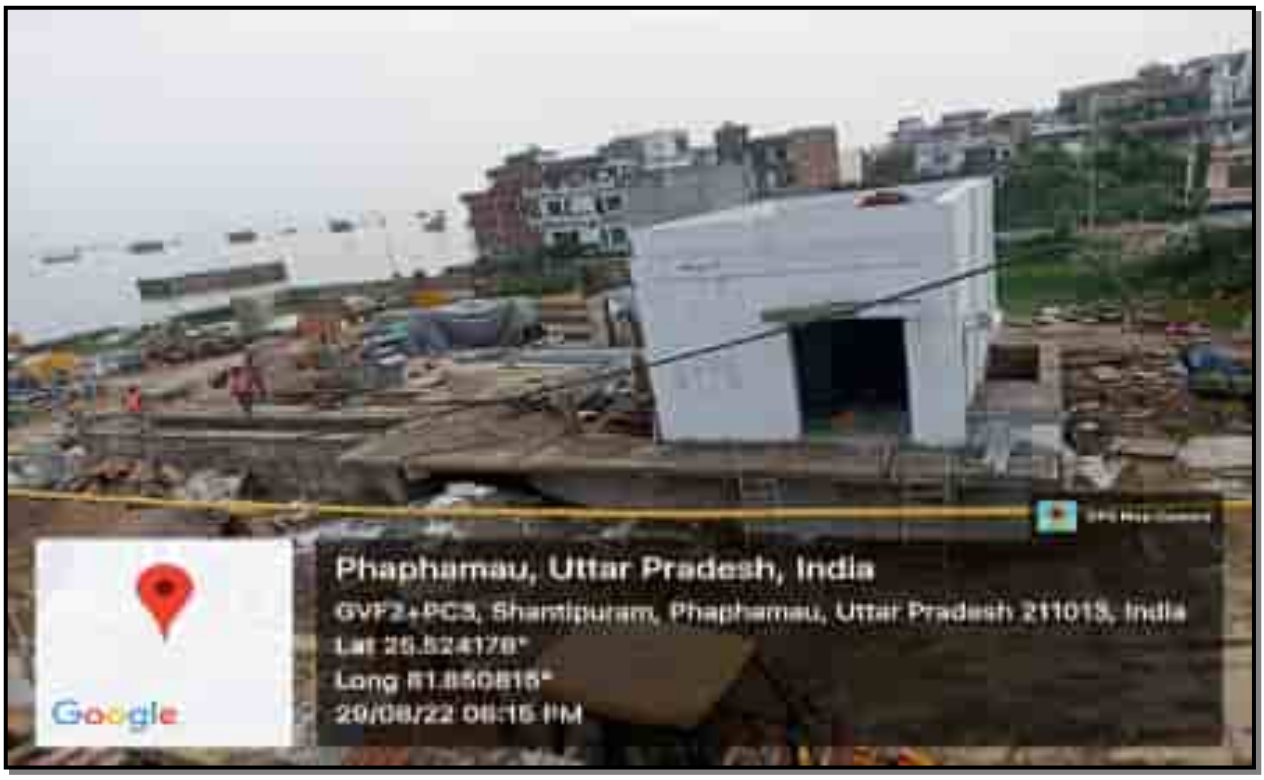
FCR (STP): Air diffuser piping erection work under progress for FCR module

Tube Settler (STP) – Media and support structure erection work under progress

PHAPHAMAU FACILITY

Staff Quarter (STP)– Finishing work under progress

Process Building (STP) – Construction work under progress

PHAPHAMAU FACILITY



MPS – E&M work under progress

NAINI-II FACILITY

Mahewaghat SPS – Flood water status

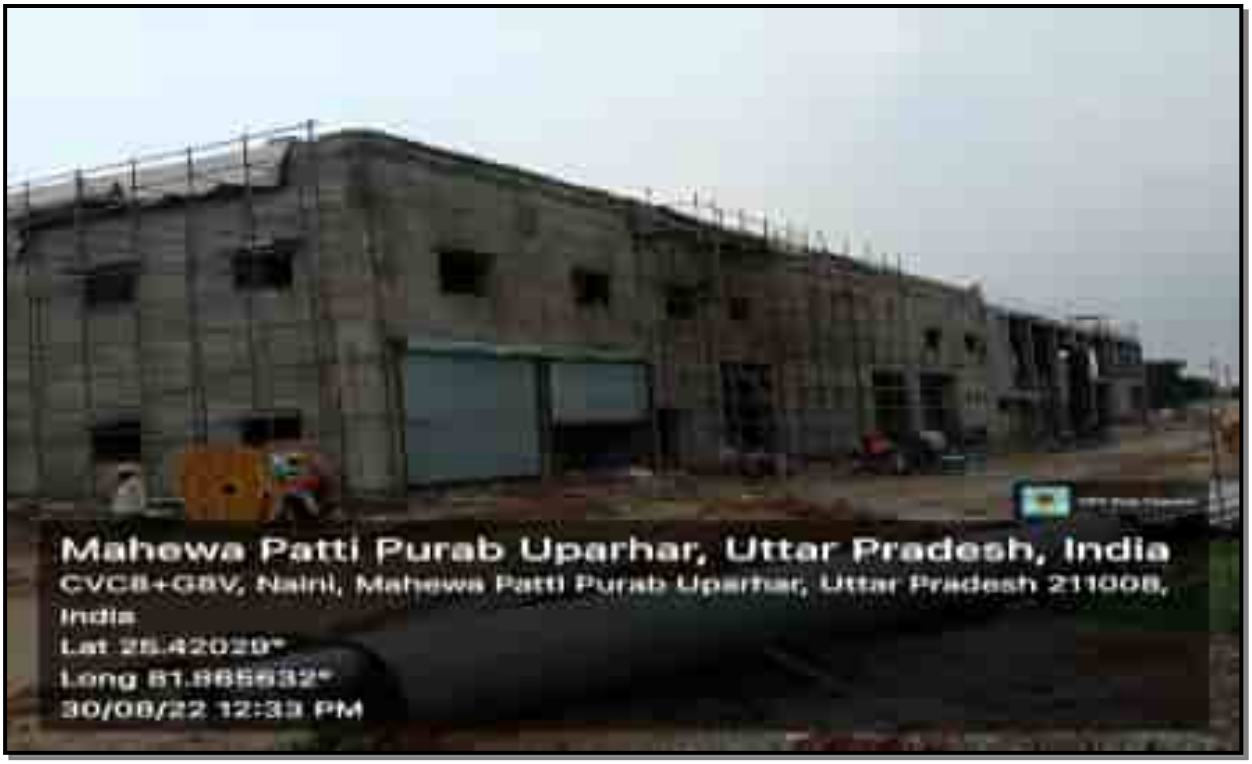
Mahewaghat SPS – Flood water status

NAINI-II FACILITY

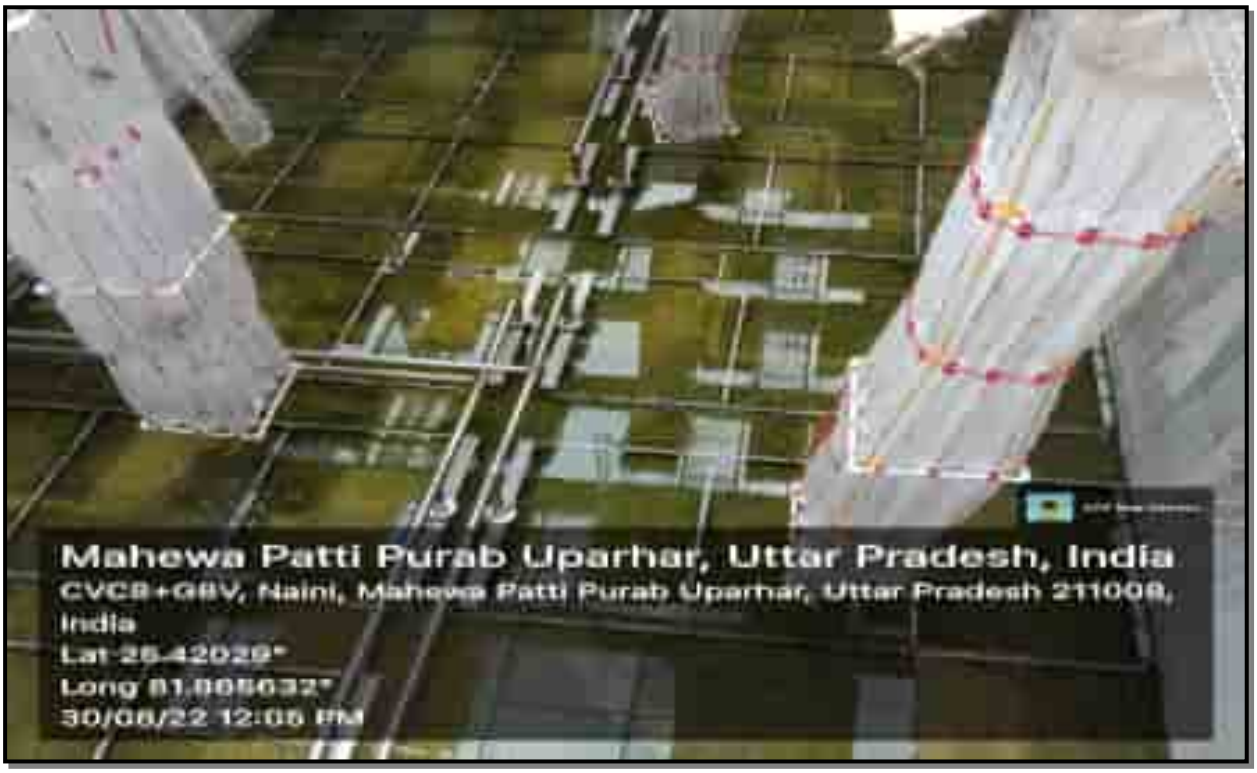
Mawaiya SPS – Plaster & E&M work under progress

Mawaiya SPS (Staff Quarter) – Column reinforcement under progress

NAINI-II FACILITY



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



FCR – E&M (Air diffuser grid piping) work under progress

NAINI-II FACILITY

Process Building – Sludge Dewatering unit erection work under progress

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

JHUNSI FACILITY

Shastri Bridge SPS – Wet well submerged in Flood water

Jhunsi MPS – Brick work under progress

JHUNSI FACILITY

Process Building – Brick work under progress

FCR –Mechanical work under progress

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/1472	Submission of O & M monthly progress report for the Month of may-2022 of Package -II	6-Aug-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/1473	Regarding Slow Progress of work at Phaphamau facilities under Package-I.	8-Aug-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
3.	AIPL/NMCG/PRAYAG/1474	Regarding inspection of LT panels of Phaphamau STP and Jhunsi STP under Package – I.	11-Aug-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/1475	Submission of O & M monthly progress report for the Month of July-2022 of Package -III	19-Aug-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/1476	Regarding the submission of MPR of July'22.	20-Aug-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/1477	Submission of O & M monthly progress report for the Month of July-2022 of Package -II	20-Aug-22	S.E.-2 Circle - UPJN	1. NMCG, New Delhi 2. M/s PWPL, Prayagraj 3. PM-E&M - UPJN, Prayagraj
7.	AIPL/NMCG/PRAYAG/1478	Inspection reports of Package-II Facilities	24-Aug-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/1479	Inspection reports of Package-III Facilities	26-Aug-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/1480	Inspection Reports of Jhunsi facility, Naini-II facility and Phaphamau facility under Package-I	30-Aug-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 /826	Regarding submission of Design & Drawing for Phaphamau MPS as per the original bid condition under Package-I.	5-Aug-22	Prayagraj water private limited
2.	PWPL/UPJN/PRAYAGRAJ/SITE /829	Regarding the submission of MPR of July'22.	7-Aug-22	Prayagraj water private limited
3.	PWPL/UPJN/PRAYAGRAJ/SITE /828	Regarding Inspection call note for PMCC, APFC and DG LT Panels for Jhunsi STP, Phaphamau STP and their associated infrastructure under Package-I.	5-Aug-22	Prayagraj water private limited
4.	959PWPL/(PRAYAGRAJ)/270	Regarding slow progress of 14 MLD Phaphamau STP	10-Aug-22	PM-I - UPJN
5.	965PWPL/(PRAYAGRAJ)/273	Regarding testing of samples that have been callected jointly by UPJN,UPPCB,High court council AECOM,PWPL	16-Aug-22	PM-I - UPJN
6.	966PWPL/(PRAYAGRAJ)/274	Regarding testing of samples that have been callected jointly by UPJN,UPPCB,High court council AECOM,PWPL	16-Aug-22	PM-I - UPJN
7.	966PWPL/(PRAYAGRAJ)/275	Regarding testing of samples that have been callected jointly by UPJN,UPPCB,High court council AECOM,PWPL	16-Aug-22	PM-I - UPJN
8.	PWPL/UPJN/PRAYAGRAJ/SITE /830	Regarding replecement of ACC block work GI hand railing in primaring treatment unit under building of Package-I STP.	17-Aug-22	Prayagraj water private limited
9.	986PWPL/(PRAYAGRAJ)/277	Regarding Slow construction work of Basna SPS.	18-Aug-22	PM-I - UPJN
10.	990PIL/(4003)/05	Compliance report of Honble high court order dated-27-07-2022	22-Aug-22	PM-I - UPJN
11.	1016PWPL/(PRAYAGRAJ)/284	Regarding deployment of adequate manpower resources at prayagraj.	27-Aug-22	PM-I - UPJN
12.	918PWPL/(PRAYAGRAJ)/262	Regarding deployment of adequate manpower resources at Prayagraj.	28-Aug-22	PM-I - UPJN

Sr. No.	PWPL Transmittal reference number	Description	Date	From
13.	PWPL/UPJN/PRAYAGRAJ/SITE /833	Regarding Inspection call note for PMCC and DG LT Panels for Jhunsi STP, Phaphamau STP and their associated infrastructure under Package-I.	23-Aug-22	PM-I - UPJN
14.	PWPL/UPJN/PRAYAGRAJ/SITE /834	Regarding flood water in nearby area of Mahewaghat SPS & Kharkuni Nalla I&D under Package-I STP.	24-Aug-22	PM-I - UPJN
15.	PWPL/UPJN/PRAYAGRAJ/SITE /835	Regarding reimbursement of O&M Charges & Power Charges of Package-II for the extended period of February – May 2022.	25-Aug-22	Prayagraj water private limited
16.	PWPL/UPJN/PRAYAGRAJ/SITE /836	Regarding Inspection call note for Transformer under Package-I.	27-Aug-22	Prayagraj water private limited
17.	1003/PWPL/(PRAYAGRAJ)/278	Regarding road restoration from Mahewaghat.	26-Aug-22	PM-I - UPJN
18.	PWPL/UPJN/PRAYAGRAJ/SITE /837	Notification of Force Majeure Event as Flood in the City of Prayagraj.	31-Aug-22	Prayagraj water private limited

13. EHS targets, Achievement & compliance report for the month of August' 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 • Pole and wire erection work completed at metering room. • Electrical safety officer NOC is received
2	Consent to Establish	State Pollution Control Board (SPCB)	1 No.	Received
3	Tree cutting	Forest Department	-	Will be applied as and when required, presently not required.
4	Road cutting & crossing	Public Works Department	1 No.	Applied on dated 19.10.2020 for STP main line. NOC received from Mahewaghat SPS to Naini-II MPS on 08th Dec'2020 from Provincial Division. NOC received from PDA on 03.02.2021.

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

Sr. No.	Applicable Permit	Authority	Quantity	Remarks
4	Road cutting & crossing	Public Works Department	NA	NA
5	Railway Crossing	Commissioner Railway Safety	1 No.	Permission received from railway vide letter No W/98-13/2020/71/W- DATED 29/03/2022
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

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	10th,16th &19th August 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 Completed
- Installation of FCR module framework and plant rack is completed.

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-

- RCC work is completed and plaster work at ground floor is under progress
- Installation of EOT at Blower room and SDU is completed.
- Concessionaire is suggested to expedite the Electrotechnical work with additional manpower & Resources as execution of Process Building is lagging far behind construction plan.

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.
- Hydrotesting of CCT portion & tube settler is completed.
- Painting work 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
- 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.
- Tube settler media, launder, poppet valve installation and installation of EOT at Tonner room is 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.

- Painting work 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.
- 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-

- 9^{th} lift of wall is completed and 10^{th} Lift of wall shuttering, and reinforcement is under progress. Work is stopped due to flood.
- Provide GI sheet barricading around plot area.

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

- Total 2965-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, 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.
- 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.

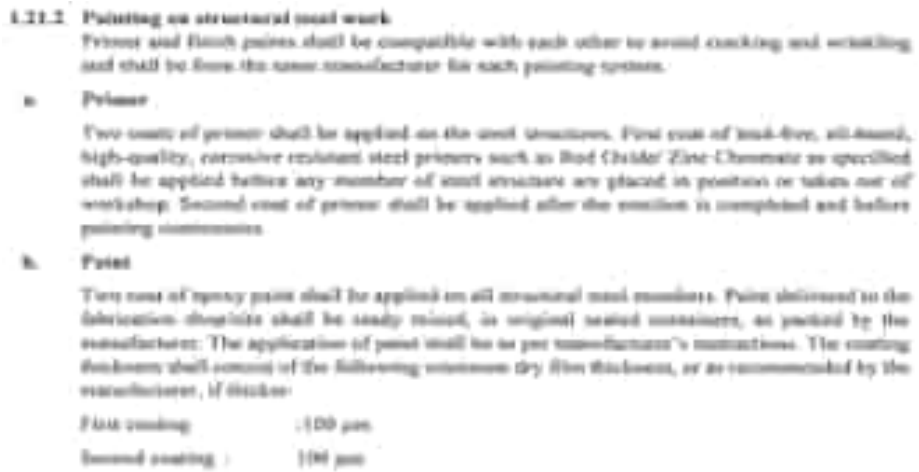
2. NAINI-II STP AND ASSOCIATE INFRASTRUCTURE

2.1 Inspection Report

Name of Facility	42 MLD Naini – II STP & Associated Infrastructure, Prayagraj.
Date of visit	8th ,9th ,16th ,19th, and 23rd Aug 2022
Site Visitors	1. Mr. R.K. Sharma, Chief Engineer, UPJN 2. Mr. A.K Singh, SE, UPJN 3. Mr. Santosh Kumar, PM-I, UPJN. 4. Mr. Arvind Yadav, UPJN 5. Mr. Amit Ranjan AECOM. 6. Mr Gaurav Pandey, AECOM 7. 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 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

- At Tank A, C" profile installation is completed. Diffuser grid frame installation work is completed.
- At Tank B, C" profile installation is completed. Diffuser grid frame installation work is completed.
- Air blower installation work and header pipe erection work completed.
- Installation of Plant rack in FCR tank is 50% completed and remaining under progress.
- Air diffuser piping work is under progress
- DI pipe (lean, average and peak) 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 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 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 8 nos. out of 8 Chamber is completed.
- Concessionaire is suggested to expedite the work of frame arrangement for tube settler media.
- Launder support installation work is completed in 7 sections 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.
- Bypass pipeline (DI) from grit chamber to Parshall flumes is in under progress.

2. First floor:
   - PLC panel installation is under progress.
   - 02 no. Grit mechanism installation work is completed.
   - 02 no. Mechanical screen installation work completed.
   - 01 no. Manual screen installation work completed.
   - Installation of gates are completed at inlet and outlet of screens.
   - Installation of gates are completed at inlet and outlet of grit chamber.

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.
- 01 No. manual screen installation work completed
- Submersible pump Branch pipeline and header pipeline work is completed.
- 02 no. submersible pump installation work completed out of 5.
- All gates installation is completed.
- I&D works Status

Sl. No	I&D Name	Work Status
1	Mawaiya Nalla	Work under progress

2	Sachha Baba	Work not started
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.
- Painting work 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.
- 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.
- 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.
- E&M erection work almost completed some leakages are rectifying in DI lines.

G. Mawaiya Nalla SPS:

- RCC work is completed
- Painting work 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.
- 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 & manual 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.
- Pump installation work is completed.

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.
- 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.
- 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.
- 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.

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 maintain all the necessary safety at the time of electrical and mechanical work as per schedule 8 of Concession agreement.

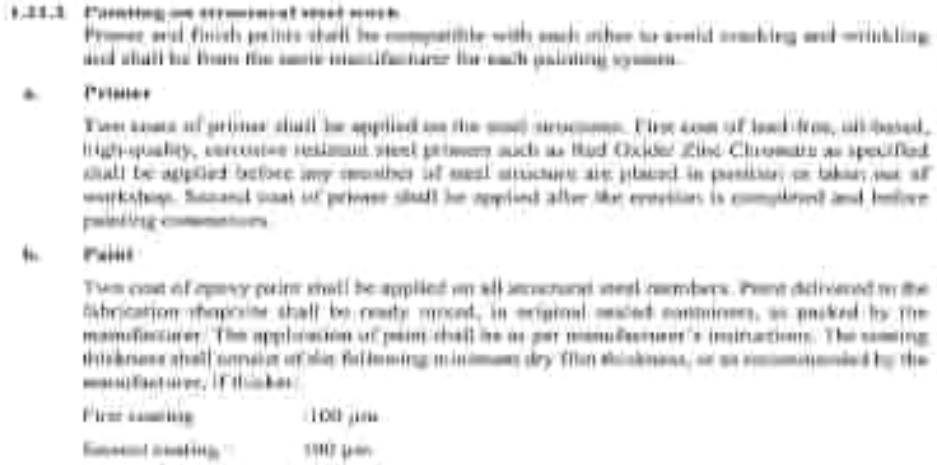
3. PHAPHAMAU STP AND ASSOCIATE INFRASTRUCTURE

3.1 Inspection Report

Date of site visit	7th, 14th and 24th Aug 2022
Site Visitor	1. Mr. R.K. Sharma, Chief Engineer, UPJN 2. Mr. A.K Singh, SE, UPJN 3. Mr. Santosh Kumar, PM-I, UPJN. 4. Mr. Tauseef Ahmed, UPJN 5. Mr. Amit Ranjan, AECOM 6. Mr Gaurav Panday,AECOM 7. Mr. Ashish Singhai, PWPL 8. 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: RCC work of slab along with beam is completed at level of 93.60. PE Tank completed.

- Part B: Cable trench work, Grid slab work and Blower foundation work is under progress.
- 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 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.
- Erection work of launder and weir arrangement for tube settler media is completed.

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 along with slab is completed.
- Work is very slow.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.

ANNEXURE-II

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

Table of Contents

Naini-I STP, 80 MLD STP at Prayagraj

INLET FLOW & QUALITY REPORT

Date	Daily Feed Quantity MLD (Design-80 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH	Final pH	Inlet BOD	Final BOD	Inlet COD	Final COD	Inlet TSS	Final TSS	Inlet	Final	Final	Outlet Consistency	Fecal Coliform	
1-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
2-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
3-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
4-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
5-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
6-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
7-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
8-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
9-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
10-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
11-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
12-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
13-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
14-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
15-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
16-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
17-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
18-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
19-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
20-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
21-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
22-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
23-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
24-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
25-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	1. [illegible] 2. [illegible] 3. [illegible] 4. Currently, no sewage is coming to Naini-I STP.
26-Aug-22	[illegible]	[illegible]	-	-	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	
27-Aug-22	0	0	-	-	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	
28-Aug-22	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
29-Aug-22	0	0														
30-Aug-22	0	0														
31-Aug-22	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
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	Aug 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 Azaad, PWPL. 6. Mr. Rahul Chaudhary, PWPL. 7. 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 July 2022, 28th July 2022, 01st Aug 2022, 13th Aug 2022, 14th Aug 2022, 17th Aug 2022, 22nd Aug 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Naini-I STP	111.02 to 130.13
2	Gaughat MPS	112.89 to 133.67
3	Chacharnalla SPS	35.25 to 56.15

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	17 to 22 mg/l
2	TSS – Effluent	< 50 mg/l	28 to 37 mg/l
3	pH – Effluent	6.5 – 9.0	7.33 to 7.41
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 800 MPN/100 ml
5	Consistency – Sludge	> 20 %	24.80 to 25.70 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1200000 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	29.48 to 53.31
2	Naini I Associated Infrastructure	69.45 to 86.36

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

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

1. Joint sampling for effluent of STP was done on 14th Aug 2022 in presence of High Court officials, UPPCB officials, UPJN officials and Project Engineer officials. Samples were sent to IIT-Kanpur, MNIT-Allahabad and UPPCB lab for testing.
2. Online analyzer at inlet is working but it is not showing correct values of parameters as compared to lab reports. Service Engineer from OEM has come to the site in first week of Aug-22 for rectification of the problem and calibration of the inlet analyzer. Work for the same was completed by the service engineer but after 2-3 days, again the values shown by inlet analyzer were incorrect. As per current situation, inlet analyzer requires calibration several times a day for showing correct values of inlet parameters which is not a correct working condition.
3. Online analyzer at outlet is replaced by new analyzer on 05th Aug 2022 which is currently working. KPI reports of this Multiparameter analyzer generated through SCADA system were studied and it was found that 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. Also, it is observed that errors are coming 7-8 times a day in these SCADA reports for values of BOD, COD and TSS of effluent. 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.
4. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, data is not available from 10 AM on 05th Aug 2022 to 10:15 AM on 23rd Aug 2022. These types of incidents related to breakage in transmission of data has observed in past also. Also, sudden spikes can be seen in the graphs available at the online portal which is fundamentally not correct. Concessionaire is required to rectify these problems.
5. 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 but the same has not been completed yet. Also, report generation regarding raw sewage pumped, level of sump and running hour of equipment is not started yet.
   Furthermore, there is problem in receiving signals at PLC/SCADA control system from some equipment/instruments and it is also not possible to control some of the equipment (mainly mechanical screens) from PLC/SCADA control system. Also, mechanical screens have provisions in PLC system for being remotely operated and differential level sensors were also installed for the same. Therefore, the system is available, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement.

6. Flowmeters at inlet of STP is working.
7. 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.
8. In Naini-I STP, main MCC panel doesn't have provision for taking power from secondary sources like DG, Solar power generation system and Biogas power generation system simultaneously. Also, it is observed that Biogas engine is operated in daytime due to

which power generated from solar system is wasted during daytime. Therefore, it is suggested to operate Biogas engine in nighttime so that solar power generation system can be operated at full efficiency and full power generated from the same can be used to run equipment.

It is true that Guaranteed Power Consumption of the facility is within limit as per CA but since increase in operation of gas engine will increase the power generation from renewable resources and decrease the power requirement from grid resulting in lowering of electricity bill of the facility which is borne by UPJN.

9. Gas engine is working. Currently, Biogas engine is operated for 9 hours only during the day but as per clause no. 1.1. of Part-G in Schedule-10, the facilities shall run 24 hours every day. Hence, Concessionaire is requested to do the needful as the biogas generated from digesters is wasted by flaring due to improper operation of gas engine.

   Also, reply for Concessionaire's letter PWPL/UPJN/PRAYAGRAJ/O&M/352 dated 5th Feb 2022 is given vide our letter no. AIPL/NMCG/PRAYAG/1367 dated 04th March 2022 for which their response is awaited.
10. All three mechanical screens of 60 MLD part are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
11. In mechanical screens of 60 MLD, rectification of problem for misplaced bars was completed but during recent visit it was found that bars have got loose again. Concessionaire is required to rectify the problem and provide a permanent solution.
12. 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.
13. For 60 MLD, all grit removal units are working. Grit scrapper of Grit removal unit no. 3 is making abnormal noise, problem must be rectified for the same.
14. For 20 MLD, all grit removal units are working.
15. All Primary Settling Tanks are working. Scum removal is done manually but it is not efficient as good amount of scum can be seen floating on the surface. Since, Scum removing arrangement is installed, modification are required for the same so that scum collection and removal can be done automatically.
16. 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. Earlier it was 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. For this, pipeline laying work is in progress for taking supernatant from sludge digester to sludge drying beds, Concessionaire is required to expedite the work.
17. Telescopic valves of Primary Settling Tanks are not working.
18. Installation of actuators is pending for drain valves of Primary Settling Tanks. Concessionaire has told that installation of actuators is not feasible in existing valve arrangement. Existing drain valves were replaced during rehab period and at the same time actuators were also purchased for installation, if these two were not matching then the problem must have been resolved during rehab period itself but since the same is not being done, Concessionaire is required to do necessary modification/replacement work

done so that installation work can be completed.

19. All surface aerators are in working condition. It is recommended to install DO analyzer in this tank also for better monitoring.
20. 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 proposal regarding the same.
21. Aeration tank of 20 MLD is in operation. Air is coming out vigorously from 3-4 points due to which air distribution is not proper in the tank which could affect the quality of treatment in aeration tanks. Commissioning of DO analyzer is not completed yet.
22. All Aeration blowers are working.
23. All Final Settling Tanks are working.
24. It is suggested to install torque switches in all clarifiers for having better protection against excessive load on scrapper.
25. 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.
26. 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 2nd week of August 2022 but the same is not completed yet.
27. 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 2nd week of August 2022 but the same is not completed yet.
28. 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.
29. Commissioning of Leak absorption system is completed. Checklist forthe same must be prepared and recorded properly every month.
30. Chlorine analyzer at outlet is not working. Concessionaire have told that it is not required as per CA but clause no. 1.2.1 and clause no. 1.3.1 in Part-E of Schedule-10 in CA clearly states that "Online residual chlorine measuring system" is to be installed.
31. 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.
32. All thickened sludge transfer pumps are working.
33. In TEPH, all pumps are OK for operation for Dandi and Naini Area.
34. 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.
35. Both DGs are in operation. Installation work of chimney for DGs as per CPCB norms is pending.
36. Sludge dewatering unit is in operation. Installation of various instruments like flowmeter (in poly dosing line), pressure gauge, etc., as per approved drawing are pending.

37. Currently, three 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.
38. All filtrate pumps are working.
39. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. Also, there is variation in between flow recorded in SCADA reports and flow recorded in logbooks. This problem must be rectified.
40. There is variation in recorded values of flow from inlet flowmeter at Naini-I STP and outlet flowmeters of Gaughat MPS, please rectify the problem.
41. Both dewatering feed pumps are working.
42. All Digesters are working.
43. Heat exchangers, sludge recirculation pumps for all digesters are working.
44. In compressor room, all six compressors are working.
45. Both Gas holders are working.
46. Gas flare is working.
47. H2S scrubber unit is working. Analyzers fitted at inlet & outlet unit are working.
48. Installation of service water pumps is pending. It is observed that ground water is being used as service water in whole STP which is a violation of environmental norms. Hence, to stop this installation of service water pumps and laying of required pipeline must be completed at the earliest. Concessionaire has committed to start the work in Aug 2022.
49. Rehabilitation works for storm water pump house are pending. Discussions regarding the feasibility of same has already been done during rehab period and hence the work must be done accordingly.
50. As already decided, repairing/construction of retaining wall is in progress and must be completed at the earliest for neutralizing the effect of floods so that situation which was faced last year due to floods can be avoided. It must be kept in mind that river level in Yamuna and Ganga has started rising.
51. Rehabilitation works for tube well unit are pending.
52. Landscaping work of the plant must be improved.
53. 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 completed yet. Concessionaire to please do the needful.
56. CCTV camera at the outlet point of STP is not working.
57. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement or it must be properly stacked at one place after taking proper consent from UPJN. Concessionaire have told that this is out of their jurisdiction for which Concessionaire is required to go through the mentioned clause and plan for the same accordingly.
58. 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) Two submersible pumps are in working condition and one is under maintenance.

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) Both mechanical screens for submersible pumps are working.
Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
f) DG set of 1000 KVA and DG sets of submersible pumps are working. Repairing work of 11 KV DG synchronization panel is pending. Repairing work of 500 KVA/11KV DG set is pending. Concessionaire to please complete all pending works.
g) It is suggested to install manual screen in receiving chamber of SPS for reducing load on mechanical screens.
h) 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.

59. 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) Installation of pressure transmitter on header line of VNC pumps is pending.
e) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.
f) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.

60. Since COD is announced for all Package – II facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:
a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
b) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
c) Testing of TN, NH4-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
e) Quarterly report as per Part-G in Schedule-10 of CA.
f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
g) Procedure for recording & disposal of complaints.
h) Safety & Health Records. Incident reports must also be submitted along with action plan.
i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

1.3 Recommendation's

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

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
	MI	MI-II	Inlet pH (Design ~7)	Final pH (Design 6.5 to 8.5)	Inlet BOD (Design <250 mg/l)	Final BOD (Design <10 mg/l)	Inlet COD (Design [illegible])	Final COD (Design [illegible])	Inlet TSS (Design <300 mg/l)	Final TSS (Design <10 mg/l)	Inlet (Design NA)	Final (Design <1000 MPN/100 ml)	Final (Design 0.2 mg/l)	[illegible] (cum)	Fecal Coliform ([illegible] MPN/g)	
1-Aug-22	81330	81.33	7.42	7.70	135	16	320	38	255	36	NA	500	0.2	24.67	1400000	
2-Aug-22	79030	79.03	7.38	7.75	130	18	331	40	237	38	NA	500	0.3	23.68	1700000	
3-Aug-22	79500	79.50	7.35	7.58	125	17	322	[illegible]	308	[illegible]	NA	800	0.2	24.41	1500000	
4-Aug-22	[illegible]	[illegible]	7.37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
5-Aug-22	75220	75.22	7.34	7.22	138	18	324	31	232	24	NA	200	0.3	22.35	1700000	
6-Aug-22	80330	80.33	7.41	7.72	135	17	333	40	332	27	NA	700	0.2	22.11	1400000	
7-Aug-22	81130	81.13	7.33	7.71	140	15	319	[illegible]	298	23	NA	900	0.2	23.13	1900000	
8-Aug-22	80120	80.12	7.47	7.72	125	18	325	50	258	22	NA	800	0.2	23.78	1200000	
9-Aug-22	79330	79.33	7.56	7.27	135	17	324	44	297	32	NA	500	0.3	24.57	1700000	
10-Aug-22	80110	80.11	7.52	7.78	150	16	331	46	309	31	NA	700	0.2	22.99	1500000	
11-Aug-22	80550	80.55	7.51	7.74	145	19	338	44	294	29	NA	400	0.2	21.75	1700000	
12-Aug-22	78010	78.01	7.41	7.73	122	16	324	40	237	35	NA	200	0.2	22.17	1400000	
13-Aug-22	75130	75.13	7.47	7.71	128	17	322	32	238	38	NA	800	0.3	22.24	1300000	
14-Aug-22	86180	86.18	7.44	7.68	175	16	375	44	281	29	NA	600	0.6	24.27	1400000	
15-Aug-22	73930	73.93	7.38	7.67	160	16	300	44	286	27	NA	600	0.3	22.54	1300000	
16-Aug-22	78110	78.11	7.39	7.58	132	17	324	38	272	24	NA	900	0.2	24.02	1200000	
17-Aug-22	75000	75.00	7.42	7.75	142	18	322	40	227	32	NA	900	0.3	22.12	1200000	
18-Aug-22	62330	62.33	7.58	7.65	120	17	300	44	281	28	NA	500	0.2	22.84	1100000	
19-Aug-22	18600	18.60	7.31	7.52	110	15	182	30	170	18	NA			24.16	1200000	
20-Aug-22	5180	5.18	7.29	7.52	85	18	148	11	122	22	NA	—	—	—	—	
21-Aug-22	6140	6.14	7.27	7.55	90	11	144	20	138	17	NA	-	-	24.17	1900000	1. Inlet gate at [illegible] point for [illegible] drain is closed at around 1:05 PM on 18.08.2022 due to rise in water level of Ganga river due to flood. 2. [illegible] SPS was in operation but [illegible] to [illegible] was [illegible] for bypassing sewage as Rajapur STP was not in operation due to flood at 8:23 AM on 19.08.2022. 3. Currently raw sewage due to leakage in valves is coming in STP.
22-Aug-22	6140	6.14	7.43	7.53	85	10	151	30	135	15	NA	800	-	26.33	1300000	
23-Aug-22	6270	6.27	7.54	7.79	80	16	140	22	135	22	NA	500	-	23.31	1200000	
24-Aug-22	6340	6.34	7.40	7.88	35	9	98	28	78	21	NA	800	-	23.85	1300000	
25-Aug-22	7230	7.23	7.47	7.81	46	11	92	33	79	17	NA	800	-	24.58	1200000	
26-Aug-22	6180	6.18	7.43	7.87	52	9	88	32	83	16	NA	700	-	25.59	1100000	
27-Aug-22	7850	7.85	7.42	7.85	58	19	99	20	85	18	NA	900	-	-	-	
28-Aug-22	8530	8.53	7.45	7.83	92	11	92	24	75	14	NA	300	-	-	-	
29-Aug-22	9470	9.47	7.41	7.73	65	9	56	30	78	16	NA	-	-	-	-	
30-Aug-22	11790	11.79	7.29	7.82	39	10	92	18	81	13	NA	-	-	-	-	
31-Aug-22	14790	14.79	7.35	7.78	97	11	111	24	87	18	NA	-	-	-	-	
Average	[illegible]	45.47	7.38	7.72	108.32	14.33	237.84	32.87	213.87	22.98	NA	556.00	0.21	23.36	[illegible]	

Source: Logbook of Laboratory at Sewage Treatment Plant

2.2 Inspection Report

Month of Site Inspection	Aug 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. Rahul Azaad, PWPL. 6. Mr. Girijesh, PWPL. 7. 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 Aug 2022, 10th Aug 2022, 14th Aug 2022, 23rd Aug 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Rajapur STP	5.16 to 86.18
2	Rajapur SPS	4.32 to 14.83
3	Mumfodganj MPS	59.84 to 76.80

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	16 to 19 mg/l
2	TSS – Effluent	< 30 mg/l	18 to 29 mg/l
3	pH – Effluent	6.5 – 9.0	7.45 to 7.78
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.98 to 25.68 %
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	Rajapur STP	13.28 to 222.09
2	Rajapur Associated Infrastructure	51.47 to 59.26

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

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

1. Joint sampling for effluent of STP was done on 14th Aug 2022 in presence of High Court officials, UPPCB officials, UPJN officials and Project Engineer officials. Samples were sent to IIT-Kanpur, MNIT-Allahabad and UPPCB lab for testing.
2. Due to flood, inlet gate of Rajapur SPS is closed at 01:00 PM on 18th Aug 2022 as tapping point has got submerged in the river water. Currently, sewage due to leakage from inlet gate is coming inside SPS.
3. Due to flood, outlet gate of Rajapur STP is closed at 10:30 PM on 18th Aug 2022 as it got submerged in the river water. Currently, effluent is being pump from treated effluent pump house (TEPH).
4. Online analyzer at inlet is working but it is not showing correct values of parameters as compared to lab reports. Service Engineer from OEM has come to the site in first week of Aug-22 for rectification of the problem and calibration of the inlet analyzer. Work for the same was completed by the service engineer but after 2-3 days, again the values shown by inlet analyzer were incorrect. As per current situation, inlet analyzer requires calibration every day for showing correct values of inlet parameters which is not a correct working condition.
5. Online 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.
6. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, data is not available from 10:35 AM on 09th Aug 2022 to till date. Also, from 01st Aug 2022 to 09th Aug 2022, the graph is not continuous as communication has broken several times. These types of incidents related to breakage in transmission of data has observed in past also. Also, sudden spikes can be seen in the graphs available at the online portal which is fundamentally not correct. Concessionaire is required to rectify these problems.
7. 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. All the data coming from instruments installed in pumping stations must be recorded in report format similar to the way it has been done for STP.

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

8. Flowmeters at inlet of STP is working.
9. 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.
10. Both Grit removal units are working.
11. 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.
12. Both UASBs were working satisfactorily. Cleaning of launders and scum from top must be done regularly. Also, several distribution cells were found in choked condition, cleaning for the same must be done on regular basis for avoiding such kind of situations. If it is required to increase the manpower, then same must be done at the earliest.
13. Rectification of problem for leakage from HDP pipes of UASB reactors was in progress. 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.
14. 12 surface aerators were found running, all 15 surface aerators are in working condition. It is recommended to install DO analyzer in this tank also for better monitoring.
15. 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.
16. Both DG sets are working. It is suggested to increase the height of chimney of DG sets as per CPCB norms.
17. All sludge transfer pumps are in working condition.
18. Sludge dewatering unit is working.
19. For chlorination system, temporary arrangement is provided for using effluent water at the inlet of booster pumps. Concessionaire is suggested to make this arrangement permanent.
20. Chlorine analyzer at outlet of STP is not working. Concessionaire have told that it is not required as per CA but clause no. 1.2.1 and clause no. 1.3.1 in Part-E of Schedule-10 in CA clearly states that "Online residual chlorine measuring system" is to be installed.
21. At flood pumping station, one pump is under maintenance. Problem for the same must be rectified at the earliest.
22. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
23. Calibration of flowmeter in outlet line of effluent pumps is pending. Concessionaire to please do the needful and submit calibration reports.
24. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. Also, there is variation in between flow recorded in SCADA reports and flow recorded in logbooks. This problem must be rectified.
25. There is variation in recorded values of flow from inlet flowmeter at Rajapur STP and outlet flowmeter of Mumfordganj SPS, please rectify the problem.
26. There is variation in recorded values of flow from inlet flowmeters at Rajapur STP and outlet flowmeter of Rajapur STP, please rectify the problem.
27. 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.

28. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement or it must be properly stacked at one place after taking proper consent from UPJN. Concessionaire have told that this is out of their jurisdiction for which Concessionaire is required to go through the mentioned clause and plan for the same accordingly.
29. 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.
30. 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.

31. At Mumfodganj MPS following observations were made:

    a) Due to flood, scour valve in rising main from Mumfordganj SPS to Rajapur STP is opened at 08:25 AM on 19th Aug 2022 as it got completely submerged soon afterwards. Currently, sewage is being pumped from Mumfordganj SPS, but it is not being received at Rajapur STP.
    b) At tapping point of SPS, manual screen is broken from bottom side, maintenance for the same is required as lot of waste is going inside SPS which can in turn will choke the pumps.
    c) Civil maintenance is required for the floor below bypass gate at tapping point for stopping the leakage from bypass gate.
    d) It was found that level of sewage in the sump was very high during the time of visit. It is strongly recommended to keep level of sump low such that free fall of sewage can be seen inside the sump for avoiding silt deposition in inlet pipe.
    e) 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.
    f) 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.
    g) One DG is under maintenance, and one is in working condition.
    h) Dismantling joint must be provided along with flowmeter for ease in maintenance.
    i) NRV must be provided in common header to reduce the effect of water hammering.
    j) Site house Keeping & landscaping must be improved. Concessionaire is suggested to keep the Old material Properly.
    k) Painting for all units in the MPS is not started yet. Concessionaire to please do the needful.

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

a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
b) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement. Concessionaire have told to submit it by 5th July but the same is not done yet.
c) Testing of TN, NH4-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
e) Quarterly report as per Part-G in Schedule-10 of CA.
f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
g) Procedure for recording & disposal of complaints.
h) Safety & Health Records. Incident reports must also be submitted along with action plan.
i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

2.3 Recommendation's

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

ANNEXURE-III

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

Table of Contents

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

adani

Date	Daily Feed Quantity MLD (Design 50 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	MT	MLD	Inlet pH (Design 7-8)	Final pH (Design 6.5 to 8.5)	Inlet BOD (Design <250 mg/l)	Final BOD (Design <30 mg/l)	Inlet COD (Design <500 mg/l)	Final COD (Design <100 mg/l)	Inlet TSS (Design <500 mg/l)	Final TSS (Design <30 mg/l)	Inlet (Design - NIL)	Final (Design <1000 MPN/100 ml)	Final (Design > 0.2 mg/l)	Gutter Removed (MT) (>28%)	Fecal Coliform (50,00,000 MPN/gTS)	
1-Aug-22	0	0									NA			24.23		Maintenance work for laying main from Dhaghamnala MPS to Narmadanala STP is in progress.
2-Aug-22	--	--	--	--	--	--	--	--	--	--	NA	--	--	--	--	
3-Aug-22	0	0	----	----	----	----	----	----	----	----	NA	----	----	----	----	
4-Aug-22	8499	8.49	7.26	7.67	245	18	524	44	264	27	NA	4200	0.6	24.27	44000000	Maintenance work in rising main from Dhaghamnala MPS to Numayadahi STP was completed on 04.08.2022 at 5 PM. Subsequently, Dhaghamnala MPS, Sewa Khadani (STC) and Narmadanala STP were taken into operation
5-Aug-22	10000	10.00	7.28	7.67	248	12	532	48	272	22	NA	4600	0.6	24.00	43000000	
6-Aug-22	9700	9.70	7.25	7.58	244	10	512	36	260	20	NA	4200	0.6	24.02	43000000	
7-Aug-22	9500	9.50	7.26	7.64	240	14	528	40	265	22	NA	4300	0.6	24.00	43000000	
8-Aug-22	9400	9.40	7.25	7.72	252	16	517	42	258	24	NA	4200	0.6	23.98	43000000	
9-Aug-22	9300	9.30	7.24	7.74	250	15	525	38	261	21	NA	4200	0.6	24.04	43000000	
10-Aug-22	9400	9.40	7.26	7.69	245	13	520	36	263	19	NA	4200	0.6	24.07	43000000	
11-Aug-22	9200	9.20	7.25	7.78	255	17	528	45	270	24	NA	4300	0.6	23.95	43000000	
12-Aug-22	9100	9.10	7.24	7.71	248	12	515	34	264	20	NA	4200	0.6	24.03	43000000	
13-Aug-22	9000	9.00	7.23	7.70	242	14	510	40	260	22	NA	4200	0.6	23.90	43000000	
14-Aug-22	9200	9.20	7.27	7.68	246	11	518	36	268	20	NA	4200	0.6	24.00	43000000	
15-Aug-22	9000	9.00	7.24	7.66	240	12	512	38	262	21	NA	4200	0.6	23.97	43000000	
16-Aug-22	10240	10.24	7.19	7.64	232	13	500	32	253	20	NA	4200	0.6	23.71	43000000	Sewa Khadani MPS was stopped up to 10 PM on 16.08.2022 due to over flowing of Pakhrain main manhole of Rajrooti
17-Aug-22	10000	10.00	7.23	7.76	240	11	488	28	238	23	NA	4000	0.6	24.04	43000000	Sewa Khadani MPS is not in operation since 16.08.2022 due to flood
18-Aug-22	11000	11.00	7.18	7.71	230	12	490	31	240	24	NA	4050	0.6	23.91	44000000	1. Inlet open cut of Dhaghamnala MPS was reduced by 70% for reducing raw sewage pumping from Dhaghamnala MPS as 10.30 AM on 18.08.2022 due to due to water level of Yamuna river fluctuate at flood 2. Tulsi Radhani SPS is not in operation since 16.08.2022 due to flood
19-Aug-22	12100	12.10	7.21	7.74	228	10	480	26	232	18	NA	3950	0.6	23.88	43000000	
20-Aug-22	13000	13.00	7.20	7.68	225	11	472	30	228	21	NA	4000	0.6	24.00	43000000	
21-Aug-22	14000	14.00	7.22	7.70	220	10	460	28	220	20	NA	4000	0.6	23.92	43000000	
22-Aug-22	15000	15.00	7.21	7.69	218	9	450	25	215	18	NA	3900	0.6	23.95	43000000	
23-Aug-22	16000	16.00	7.20	7.67	215	8	440	22	210	16	NA	3900	0.6	24.00	43000000	
24-Aug-22	17000	17.00	7.19	7.66	210	8	430	20	205	15	NA	3900	0.6	23.97	43000000	1. Raw sewage pumping from Dhaghamnala MPS is reduced since 16.08.2022 due to flood. 2. Tulsi Radhani SPS is not in operation since 16.08.2022 due to flood
25-Aug-22	18000	18.00	7.18	7.65	205	7	420	18	200	14	NA	3900	0.6	24.05	43000000	
26-Aug-22	19000	19.00	7.17	7.64	200	6	410	16	195	12	NA	3900	0.6	24.00	43000000	
27-Aug-22	20000	20.00	7.16	7.63	195	5	400	14	190	10	NA	3900	0.6	23.98	43000000	
28-Aug-22	21000	21.00	7.15	7.62	190	5	390	12	185	9	NA	3900	0.6	24.02	43000000	
29-Aug-22	22000	22.00	7.14	7.61	185	4	380	10	180	8	NA	3900	0.6	24.00	43000000	
30-Aug-22	23000	23.00	7.13	7.60	180	4	370	9	175	7	NA	3900	0.6	23.95	43000000	
31-Aug-22	24000	24.00	7.12	7.59	175	3	360	8	170	6	NA	3900	0.6	24.00	43000000	
Average	407119.91	48.12	7.24	7.67	119.00	13.46	503.29	37.71	253.00	23.19	NA	333.14	0.28	23.96	73997716.28	

Source: Logbook of Laboratory at Sewage Treatment Plant

1.2 Inspection Report

Month of Site Inspection	Aug 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 28th July 2022, 04th Aug 2022, 14th Aug 2022, 25th Aug 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Numayadahi STP	0.00 to 67.37
2	Ghagharnalla MPS	0.00 to 69.86
3	Sasur Kadheri SPS	0.00 to 38.89
4	Lukerganj SPS	4.80 to 10.20

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 27 mg/l
3	pH – Effluent	6.5 – 9.0	7.21 to 7.85
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.41 to 24.59 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1200000 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	37.07 to 84.83
2	Numayadahi Associated Infrastructure	75.18 to 122.46

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

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

1. Joint sampling for effluent of STP was done on 14th Aug 2022 in presence of High Court officials, UPPCB officials, UPJN officials and Project Engineer officials. Samples were sent to IIT-Kanpur, MNIT-Allahabad and UPPCB lab for testing.
2. Due to flood, pumping from Sasur Kadheri SPS is completely stopped at 05:10 PM on 16th Aug 2022 as tapping point has got submerged in the river water.
3. Due to flood, pumping from Ghagharnalla MPS is reduced at 10:30 AM on 18th Aug 2022 as tapping point has got submerged in the river water. Currently, inlet gate of receiving chamber is closed by 70% for taking raw sewage from Lukerganj SPS and house connections.
4. Sewage was not received at STP as Ghagharnalla MPS and Sasur Kadheri SPS were in shutdown as rising main from Ghagharnalla MPS to STP is damaged at 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. However, maintenance work for the rising main was completed at 5 PM on 4th Aug 2022 and all the related facilities were normalized soon after.
5. Online Analyzer at Inlet is not giving correct values of parameters as compared to lab reports which can be due to incorrect sample reaching the analyzer or due to some problem in analyzer. Concessionaire is required to please check &rectify the problem.
6. Online analyzer at outlet is working. Validation of Calibration was done in presence of representatives of Aaxis Nano Technologies (OEM of Multiparameter analyzer) along with UPJN officials with the help of stock solutions of pH, COD, TSS on 14th July 2022. Since then, reports generated through SCADA system were studied and it was found that still 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. Also, it is observed that errors are coming 7-8 times a day in these SCADA reports for values of BOD, COD and TSS of effluent and sudden spikes can be seen in the values of parameters given in the report which is fundamentally not correct. 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.
7. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, data is not available from 01st Aug 2022 to 09:15 PM on 04th Aug 2022 which is due to shutdown of STP due to maintenance of rising main from Ghagharnalla MPS to Numayadahi STP. Sudden spikes can be seen in the graphs available at the online portal which is fundamentally not correct. Concessionaire is required to rectify this problem.
8. 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. All the data coming from instruments installed in pumping stations must be recorded in report format similar to the way it has been done for STP.
   Furthermore, there is problem in receiving signals at PLC/SCADA control system from some equipment/instruments and it is also not possible to control some of the equipment (mainly mechanical screens) from PLC/SCADA control system. Also, mechanical screens have provisions in PLC system for being remotely operated and differential level sensors were also installed for the same. Therefore, the system is

available, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement.

9. Flowmeter at inlet of STP is working.
10. Flowmeter at outlet of STP is working but it is not showing correct readings as compared to that of inlet flowmeter.
11. Both grit removal units were in operation.
12. Both Mechanical Screens are working. Differential level sensors are not synchronized with mechanical screens hence screens cannot run in auto mode.
13. All Biotowers were in operation. Replacement of net is required for all biotowers.
14. 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.
15. All Aeration tanks are working.
16. In aeration tank no. 1 & 2, air is coming out vigorously from 3-4 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.
17. 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.
18. DO analyzer at the outlet of Aeration tank no. 2 is not working properly, please check & rectify the problem.
19. Pressure transmitter & temperature transmitter are not installed yet on header line of Aeration blowers.
20. All Centrifuges are working along with Sludge Feed pumps and Poly dosing pumps. Sludge generation is 6-7 trolleys per day.
21. All Sludge Recirculation Pumps are in working condition.
22. Both Secondary clarifiers were found in operation.
23. Both booster pumps & both chlorinators are in working condition & chlorine dosing was found to be running at 3 Kg/hr. Residual chlorine was checked & found to be around 0.2 – 0.3 mg/l.
24. 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.
25. Chlorine analyzer for the effluent is not giving correct values.
26. Minor Seepages from Biotowers & some other units can be seen, and this must be rectified.
27. As per Clause no. 1.6 & 1.7.1 of Concession Agreement, Computer Maintenance Management System (CMMS) must be implemented at all Sites. This is not started yet, Concessionaire to pleasedo the needful.
28. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
29. 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.
30. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. Also, there is variation in between flow recorded in SCADA reports and flow recorded in logbooks. This problem must be rectified.
31. There is variation in recorded values of flow from inlet flowmeter at Numayadahi STP and

outlet flowmeter of Ghagharnalla MPS, please rectify the problem.

32. There is variation in recorded values of flow from inlet flowmeter at Numayadahi STP and outlet flowmeter of Numayadahi STP, please rectify the problem.
33. For Ghagharnalla MPS, following issues are required to be resolved:

    a) Currently due to flood, pumping from Ghagharnalla MPS is reduced at 10:30 AM on 18th Aug 2022 as tapping point has got submerged in the river water. Currently, inlet gate of receiving chamber is closed by 70% for taking raw sewage from Lukerganj SPS and house connections.
    b) Earlier during normal days, it was observed that overflow occurs sometimes during peak time due to deposition of sludge in the path of nalla towards tapping point even after running MPS at full capacity. Hence, UPJN is requested to please look into the matter and do the needful.
    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) Earlier during normal days, there was minor leakage of sewage from the retaining wall at the tapping point of MPS, this must be rectified as raw 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.

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

    a) Currently due to flood, pumping from Sasur Kadheri SPS is completely stopped at 05:10 PM on 16th Aug 2022 as tapping point has got submerged in the river water.
    b) Earlier during normal days, 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.
    c) Since the SPS is in shutdown due to flood, cleaning of raw sewage sump is in progress.
    d) Currently all submersible pumps in the SPS are OK for operations.
    e) Both Mechanical screens are working.
    f) Both DG sets are OK for operation.
    g) Painting for all units in SPS is in progress.

35. 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.

36. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

    a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    b) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    e) Quarterly report as per Part-G in Schedule-10 of CA.
    f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    g) Procedure for recording & disposal of complaints.
    h) Safety & Health Records. Incident reports must also be submitted along with action plan.
    i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

1.3 Recommendation's

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

Salori STP, 29 MLD STP at Prayag
INLET FLOW & QUALITY REPOR

Date	Daily Feed Quantity MLD (Design-29 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	Ml	MLD	Initial pH (Design-<9)	Final pH (Design-6.5 to 8.5)	Initial BOD (Design-<250 mg/l)	Final BOD (Design <30 mg/l)	Initial COD (Design-[illegible] mg/l)	Final COD (Design [illegible] mg/l)	Initial TSS (Design-<[illegible] mg/l)	Final TSS (Design <30 mg/l)	Initial (Design-NA)	Final (Design <1000 MPN/100 ml)	Final (Design 0.2 mg/l)	Outlet Content (often >20%)	Fecal Coliform (23,00,000 MPN/g TS)	
1-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	Tapping point at Amitabh bachchan culvert is closed at 6:30 PM on 29.07.2022 due to increase in river level. Currently, raw sewage is being received from Allahpur drain and house connections.
2-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
3-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
4-Aug-22	[illegible]	[illegible]	[illegible]	7.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	Tapping point at Amitabh bachchan culvert was opened at 2:00 PM on 04.08.2022 due to increase in river level. Currently, complete raw sewage is being received at Salori STP.
5-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
6-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
7-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
8-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
9-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
10-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
11-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
12-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
13-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
14-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
15-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
16-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	1. Tapping point at Amitabh bachchan culvert is closed at 4:15 PM on 16.08.2022 due to increase in river level. 2. Inlet gate for raw sewage from Allahpur drain were closed at 10:15 AM on 16.08.2022 by flood department due to increase in river level. 3. Currently, raw sewage is being received from house connections only.
17-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
18-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
19-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
20-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
21-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
22-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
23-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
24-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
25-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
26-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
27-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
28-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
29-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
30-Aug-22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	[illegible]	[illegible]	[illegible]	
31-Aug-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	Aug 2022
Site Inspectors	1. Mr. Santosh Kumar, PM-I, UPJN. 2. Mr. Tauseef, AE, UPJN. 3. Ms. Shilpa, JE, UPJN. 4. Mr. Gaurav Gupta, AECOM. 5. Mr. Rahul Azaad, PWPL. 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 14th Aug 2022, 26th Aug 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Salori STP	7.25 to 43.20
2	Salori MPS	7.25 to 43.20

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	19 to 26 mg/l
2	TSS – Effluent	< 50 mg/l	26 to 40 mg/l
3	pH – Effluent	6.5 – 9.0	7.23 to 7.56
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 800 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.20 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	75.05 to 264.50
2	Salori Associated Infrastructure	43.11 to 54.92

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

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

1. Joint sampling for effluent of STP was done on 14th Aug 2022 in presence of High Court officials, UPPCB officials, UPJN officials and Project Engineer officials. Samples were sent to IIT-Kanpur, MNIT-Allahabad and UPPCB lab for testing.
2. Due to flood, flood department has closed open channel gates of Allahpur drain at 10:15 AM on 16th Aug 2022. Also, tapping point at Amitabh Bachchan Culvert is completely submerged in river water therefore isolation gate for tapping point is closed at 4:15 PM on 16th Aug 2022. Currently, raw sewage from house connections only is coming into the STP only.
3. Online analyzer at inlet is working but it is not showing correct values of parameters as compared to lab reports. Service Engineer from OEM has come to the site in first week of Aug-22 for rectification of the problem and calibration of the inlet analyzer. Work for the same was completed by the service engineer but after 2-3 days, again the values shown by inlet analyzer were incorrect. As per current situation, inlet analyzer requires calibration every day for showing correct values of inlet parameters which is not a correct working condition.
4. Online analyzer 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 required to install the same per CA but clause no. 1.2.1 and clause no. 1.3.1 in Part-E of Schedule-10 in CA which clearly states that "Online residual chlorine measuring system" is to be installed.
6. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that data is not available from 02:30 PM on 01st Aug 2022 to 05:00 PM on 04th Aug 2022, 11:30 PM on 08th Aug 2022 to 07:00 PM on 21st Aug 2022, 12:45 PM on 23rd Aug 2022 to 06:15 PM on 23rd Aug 2022 and graph for pH is not available completely. These types of incidents related to breakage in transmission of data has observed in past also. Also, sudden spikes can be seen in the graphs available at the online portal which is fundamentally not correct. Concessionaire is required to rectify these problems.
7. Flowmeter at inlet of STP is working.
8. Flowmeter at outlet of STP is working but it is not showing correct readings as compared to that of inlet flowmeter.
9. Earlier during normal days, 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.
10. All Grit Removal Units are working.
11. 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.

12. Both FAB units are working.
13. DO analyzers for both FAB units are not working, please rectify the problem.
14. All Aeration blowers are working.
15. 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.
16. 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.
17. Quality of effluent is satisfactory.
18. For Sludge dewatering unit, installation of instruments (flowmeter for poly dosing line, etc.) is pending, Concessionaire to please do the needful.
19. Both Sludge transfer pumps for Clarisettler are working.
20. Both Filtrate pumps are working.
21. Both chlorinators and chlorine booster pumps are working.
22. 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.
23. Thickener unit is working.
24. 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.
25. At Salori MPS, all pumps are OK for operation. Since the programming for running pumps in auto mode is completed, it is suggested to operate them in auto mode for optimum performance.
26. 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.
27. 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.
28. 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.
29. 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.
30. Installation & commissioning of Public Address System is not completed yet.
31. 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.
32. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. Also, there is variation in between flow recorded in SCADA reports and flow recorded in logbooks. This problem must be rectified.
33. There is variation in recorded values of flow from inlet flowmeter at Salori STP and outlet flowmeter of Salori STP, please rectify the problem.
34. Housekeeping in dewatering area must be improved, lot of sludge can be seen scattered

in this area.

35. All CCTV cameras are working
36. 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:

    k) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    l) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    m) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    n) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    o) Quarterly report as per Part-G in Schedule-10 of CA.
    p) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    q) Procedure for recording & disposal of complaints.
    r) Safety & Health Records. Incident reports must also be submitted along with action plan.
    s) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    t) 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.

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 <10 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 <1000 MPN/100 ml)	Final (Design 0.2 mg/l)	Outlet Content (Moisture <[illegible]%)	Fecal Coliform (20,00,000 MPN/g,TS)	
1-Aug-22	27520	27.52	7.32	7.58	190	13	328	37	388	21	NA	800	0.2	24.25	1500000	
2-Aug-22	31220	31.22	7.15	7.56	131	14	331	35	274	18	NA	400	0.2	23.87	1700000	
3-Aug-22	30730	30.73	7.24	7.53	143	15	324	40	284	20	NA	700	0.2	24.46	1400000	
4-Aug-22	27760	27.76	7.25	7.61	133	12	330	38	279	19	NA	500	0.3	23.94	1300000	
5-Aug-22	[illegible]	[illegible]	7.34	7.45	138	13	[illegible]	31	286	21	NA	600	0.2	23.38	1400000	
6-Aug-22	[illegible]	[illegible]	7.22	7.69	131	12	312	38	271	22	NA	500	0.2	22.80	1200000	
7-Aug-22	[illegible]	[illegible]	7.33	7.39	130	24	324	40	282	20	NA	700	0.3	22.38	1200000	
8-Aug-22	28180	28.18	7.43	7.66	136	15	316	44	276	19	NA	600	0.3	23.94	1100000	
9-Aug-22	28870	28.87	7.31	7.50	130	13	308	40	288	21	NA	400	0.3	24.30	1700000	
10-Aug-22	26960	26.96	7.28	7.43	133	14	320	38	273	22	NA	700	0.2	23.58	1400000	
11-Aug-22	27540	27.54	7.39	7.59	140	15	321	32	289	18	NA	500	0.3	23.93	1200000	
12-Aug-22	31020	31.02	7.42	7.58	126	14	308	40	285	22	NA	300	0.3	24.22	1300000	
13-Aug-22	31290	31.29	7.25	7.57	130	15	300	35	275	20	NA	500	0.2	23.74	1700000	
14-Aug-22	29920	29.92	7.34	7.45	136	13	304	44	262	21	NA	700	0.3	24.16	1600000	
15-Aug-22	28430	28.43	7.25	7.51	130	16	290	40	253	18	NA	600	0.2	23.58	1700000	
16-Aug-22	28190	28.19	7.24	7.57	123	14	288	44	279	22	NA	600	0.3	23.25	1400000	
17-Aug-22	28870	28.87	7.18	7.49	120	12	291	40	264	20	NA	500	0.3	24.25	1300000	
18-Aug-22	31190	31.19	7.15	7.40	116	13	272	35	255	23	NA	400	0.3	23.74	1700000	
19-Aug-22	23700	23.70	7.20	7.51	110	14	260	40	240	22	NA	700	0.3	24.46	1600000	
20-Aug-22	27170	27.17	7.20	7.57	113	12	258	36	234	19	NA	500	0.2	23.94	1200000	
21-Aug-22	26810	26.81	7.31	7.65	108	14	236	31	218	20	NA	700	0.3	23.37	1300000	
22-Aug-22	27220	27.22	7.29	7.61	122	12	240	38	227	22	NA	800	0.2	22.17	1400000	
23-Aug-22	26480	26.48	7.17	7.54	103	12	228	40	196	21	NA	300	0.3	22.79	1700000	
24-Aug-22	27820	27.82	7.06	7.48	110	14	224	36	205	18	NA	400	0.3	22.17	1200000	
25-Aug-22	27240	27.24	7.21	7.56	105	15	208	30	204	20	NA	700	0.2	23.07	1400000	
26-Aug-22	27410	27.41	7.14	7.86	108	13	204	32	189	18	NA	400	0.3	22.47	1500000	1. Inlet gate at tapping point for nearby drain is closed at around [illegible] AM on [illegible].08.2022 due to rise in water level of [illegible] river due to flood. 2. Currently, raw sewage is being received from [illegible] park SPS and [illegible] SPS.
27-Aug-22	26780	26.78	7.18	7.52	110	14	212	36	187	21	NA	500	0.3	23.08	1700000	
28-Aug-22	28010	28.01	7.25	7.45	105	13	220	40	184	20	NA	700	0.2	22.30	1300000	
29-Aug-22	27400	27.40	7.22	7.58	103	10	204	35	225	22	NA	400	0.3	22.14	1200000	
30-Aug-22	27580	27.58	7.15	7.46	113	14	216	45	200	18	NA	400	0.3	22.73	1700000	
31-Aug-22	26880	26.88	7.31	7.48	120	13	213	32	217	20	NA	700	0.3	23.43	1400000	
Average	28211.25	28.21	7.26	7.57	121.84	13.55	273.22	37.68	245.03	20.22	NA	564.52	0.25	23.53	1383548.39	

Source: Logbook of Laboratory at Sewage Treatment Plant

3.2 Inspection Report

Month of Site Inspection	Aug 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. Rahul Azaad, PWPL. 6. Mr. Jagdish, PWPL. 7. Mr. Rajan, PWPL.
Place(s) of Inspection	• 25 MLD STP at Kodra, Prayagraj • 25 MLD MPS at Kodra, Prayagraj

Visit was done on 14th Aug 2022, 24th Aug 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Kodra STP	21.94 to 31.85
2	Kodra MPS	21.94 to 31.85

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	12 to 15 mg/l
2	TSS – Effluent	< 30 mg/l	18 to 23 mg/l
3	pH – Effluent	6.5 – 9.0	7.42 to 7.70
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.86 to 24.46%
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	Kodra STP	45.62 to 98.89
2	Kodra Associated Infrastructure	95.69 to 103.61

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

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

1. Joint sampling for effluent of STP was done on 14th Aug 2022 in presence of High Court officials, UPPCB officials, UPJN officials and Project Engineer officials. Samples were sent to IIT-Kanpur, MNIT-Allahabad and UPPCB lab for testing.
2. Due to flood, tapping point at Kodra MPS is completely submerged in river water therefore isolation gate for tapping point is closed at 9:32 AM on 18th Aug 2022. Currently, raw sewage from Vivekanand park SPS and Kalimandir SPS is coming into the STP only.
3. Online analyzer at Inlet is not working. This is a long-term pending issue and must be rectified at the earliest.
4. Online analyzer at outlet is replaced by new analyzer on 19th Apr 2022 which is currently working. Reports generated through SCADA system were studied and 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. Also, it is observed that sudden spikes can be seen in the values of parameters given in the report which is fundamentally not correct. 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. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that data is not available from 02:30 PM on 01st Aug 2022 to 05:00 PM on 04th Aug 2022, 11:30 PM on 08th Aug 2022 to 07:00 PM on 21st Aug 2022, 12:45 PM on 23rd Aug 2022 to 06:15 PM on 23rd Aug 2022 and graph for pH is not available completely. These types of incidents related to breakage in transmission of data has observed in past also. Also, sudden spikes can be seen in the graphs available at the online portal which is fundamentally not correct. Concessionaire is required to rectify these problems.
6. Flowmeter at inlet of STP is working.
7. Flowmeter at outlet of STP is working but it is not showing correct readings as compared to that of inlet flowmeter.
8. One grit removal unit is working, one grit removal unit is under maintenance.
9. Both Mechanical Fine Screens at PTU are working. Though the screens are running in auto mode through timer, differential level sensors must also be made operational for running mechanical screens more efficiently through level difference during peak and lean period.
10. 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.
11. Replacement of net is required for all biotowers.
12. All Aeration tanks are working.
13. 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 is required at the earliest.
14. Both DO Analyzer are not working at aeration tank.
15. All Aeration blowers are working.
16. All Centrifuges are in working condition.
17. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
18. All Sludge Recirculation Pumps are working.

19. Both Centrifuge Feed Pumps are working.
20. Both Secondary Clarifiers are working.
21. Thickener unit is working.
22. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be around 0.2 to 0.3 mg/l.
23. Chlorine analyzer for the effluent is not giving correct values.
24. 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.
25. In SCADA system, flow variation can be seen in recorded values of daily and monthly flow as per site records. Also, there is variation in between flow recorded in SCADA reports and flow recorded in logbooks. This problem must be rectified.
26. There is variation in recorded values of flow from inlet flowmeter at Kodra STP and outlet flowmeter of Kodra STP, please rectify the problem.
27. 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.
28. At Kodra MPS, all 6 pumps are OK for operation. Electrical panel for one pump is under maintenance. Pressure transmitter is not installed in common header line of pumps yet. Also, pumps must be kept in auto mode so that they can start & stop on the basis of level in the sump.
29. 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.
30. Landscaping of site must be improved; it needs to be made better.
31. 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.
32. 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.
33. Installation of Public Address System is done but its commissioning is not completed yet.
34. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
35. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

    a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    b) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    e) Quarterly report as per Part-G in Schedule-10 of CA.
    f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    g) Procedure for recording & disposal of complaints.
    h) Safety & Health Records. Incident reports must also be submitted along with action plan.

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

3.3 Recommendation's

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

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 8.5)	Inlet BOD (Design <200 mg/l)	Final BOD (Design <10 mg/l)	Inlet COD (Design [illegible] mg/l)	Final COD (Design <50 mg/l)	Inlet TSS (Design <[illegible] mg/l)	Final TSS (Design <30 mg/l)	Inlet (Design NA)	Final (Design <1000 MPN/100 ml)	Final (Design 0.3 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (28.80.368 MPN/gTS)	
1-Aug-22	13390	13.39	7.27	7.38	140	13	320	40	271	22	NA	400	0.3	22.48	1100000	
2-Aug-22	13300	13.35	7.24	7.38	142	19	330	36	284	20	NA	500	0.3	21.87	[illegible]	
3-Aug-22	14690	14.69	7.19	7.43	138	16	316	40	269	23	NA	700	0.3	20.38	1700000	
4-Aug-22	15200	15.20	7.29	7.36	146	15	324	44	270	21	NA	400	0.3	22.36	[illegible]	
5-Aug-22	15310	15.31	7.26	7.71	136	14	312	40	271	21	NA	600	0.3	21.37	[illegible]	
6-Aug-22	15540	15.54	7.22	7.76	149	13	330	36	269	24	NA	500	0.3	23.38	1400000	
7-Aug-22	13730	13.73	7.31	7.08	145	14	316	40	278	23	NA	400	0.3	22.75	1200000	
8-Aug-22	13190	13.19	7.28	7.61	137	13	304	42	263	20	NA	500	0.3	22.38	1400000	
9-Aug-22	14290	14.29	7.23	7.68	131	15	312	38	273	22	NA	600	0.3	22.38	1700000	
10-Aug-22	13780	13.78	7.31	7.48	138	14	338	40	267	21	NA	700	0.3	22.88	1300000	
11-Aug-22	14190	14.19	7.25	7.36	146	13	320	42	280	20	NA	500	0.3	22.40	1100000	
12-Aug-22	12100	12.10	7.18	7.61	136	15	304	36	277	22	NA	400	0.3	21.39	1400000	
13-Aug-22	13700	13.72	7.27	7.32	143	15	316	42	265	19	NA	800	0.3	22.44	1200000	
14-Aug-22	14830	14.83	7.20	7.57	132	13	300	38	259	21	NA	400	0.3	22.34	1300000	
15-Aug-22	14120	14.12	7.29	7.64	136	14	338	40	269	23	NA	400	0.3	21.84	1700000	
16-Aug-22	14920	14.92	7.23	7.38	140	13	336	38	259	22	NA	500	0.3	22.11	[illegible]	
17-Aug-22	16270	16.27	7.32	7.57	133	14	324	40	287	23	NA	800	0.3	21.56	1300000	
18-Aug-22	13060	13.06	7.26	7.43	138	15	315	36	258	21	NA	950	0.3	22.13	1200000	
19-Aug-22	12940	12.94	7.24	7.35	138	13	304	32	270	20	NA	500	0.3	21.74	1400000	
20-Aug-22	12160	12.16	7.30	7.20	140	14	330	36	278	22	NA	600	0.3	22.13	[illegible]	
21-Aug-22	12350	12.35	7.31	7.64	135	15	308	40	271	24	NA	700	0.3	22.37	[illegible]	
22-Aug-22	13180	13.18	7.21	7.56	141	13	316	38	283	23	NA	500	0.3	22.46	1400000	
23-Aug-22	14850	14.85	7.28	7.58	133	14	311	32	259	21	NA	400	0.3	21.66	1700000	
24-Aug-22	14780	14.78	7.23	7.58	130	15	320	38	275	22	NA	600	0.3	21.35	1300000	
25-Aug-22	16470	16.47	7.33	7.61	121	14	304	32	263	20	NA	500	0.3	20.13	1200000	
26-Aug-22	12680	12.68	7.36	7.66	125	16	293	40	249	21	NA	700	0.3	21.86	1400000	
27-Aug-22	13540	13.54	7.16	7.48	117	15	330	38	330	23	NA	600	0.3	22.48	1200000	
28-Aug-22	12710	12.71	7.33	7.51	130	14	288	40	302	20	NA	600	0.3	22.37	[illegible]	
29-Aug-22	12510	12.51	7.29	7.38	111	13	276	38	255	22	NA	600	0.3	22.58	1400000	
30-Aug-22	12670	12.67	7.20	7.32	119	16	294	40	302	21	NA	600	0.3	21.70	[illegible]	
31-Aug-22	11790	11.79	7.24	7.56	137	15	304	36	271	23	NA	500	0.3	21.39	1700000	
Average	13536.13	13.54	7.26	7.49	133.84	14.23	308.39	38.70	269.35	21.85	NA	533.30	0.34	21.96	1371870.33	

Source: Logbook of Laboratory at Sewage Treatment Plant

4.2 Inspection Report

Month of Site Inspection	Aug 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. Rahul Azaad, PWPL. 6. Mr. Jagdish, PWPL. 7. Mr. Anjani, PWPL.
Place(s) of Inspection	• 10 MLD STP at Ponghat, Prayagraj • 10 MLD MPS at Ponghat, Prayagraj

Visit was done on 14th Aug 2022, 24th Aug 2022 and following observations were made:

- **Status of Availability:**

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Ponghat STP	12.16 to 15.84
2	Ponghat MPS	12.16 to 15.84

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	13 to 16
2	TSS – Effluent	< 30 mg/l	19 to 24
3	pH – Effluent	6.5 – 9.0	7.52 to 7.76
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700
5	Consistency – Sludge	> 20 %	20.58 to 23.26
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1100000 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	101.43 to 165.30
2	Ponght Associated Infrastructure	75.76 to 83.97

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

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

1. Joint sampling for effluent of STP was done on 14th Aug 2022 in presence of High Court officials, UPPCB officials, UPJN officials and Project Engineer officials. Samples were sent to IIT-Kanpur, MNIT-Allahabad and UPPCB lab for testing.
2. Due to flood, tapping point at Ponghat MPS is completely submerged in river water. Currently, two submersible pumps are operated inside MPS for maintaining level in the sump.
3. Online Analyzer at Inlet is not giving correct values of parameters as compared to lab reports which can be due to incorrect sample reaching the analyzer or due to some problem in analyzer. Concessionaire is required to please check &rectify the problem.
4. Online analyzer at outlet is replaced by new analyzer on 20th Apr 2022 which is currently working. Reports generated through SCADA system were studied and 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. Also, it is observed that errors are coming 7-8 times a day in these SCADA reports for values of BOD, COD and TSS of effluent and it is observed that sudden spikes can be seen in the values of parameters given in the report which is fundamentally not correct. 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. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes can be seen in the graphs available at the online portal which is fundamentally not correct. Concessionaire is required to rectify these problems.
6. Flowmeter at inlet of STP is working.
7. Flowmeter at outlet of STP is working but it is not showing correct readings as compared to that of inlet flowmeter.
8. 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.
9. Both Grit Removal Units are working.
10. 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.
11. Replacement of net is required for both biotowers.
12. 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.
13. 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.
14. Both DO Analyzers at aeration tanks are not working.
15. All Aeration Air Blowers are working.
16. All Centrifuges are working along with Sludge Feed pumps and Poly dosing pumps. Sludge generation is 4–5 trolleys per day.
17. Quality of effluent is satisfactory.
18. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.

19. Both Sludge Recirculation Pumps are working.
20. 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.
21. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be 0.2 to 0.3 mg/l.
22. Chlorine analyzer for the effluent is not giving correct values.
23. 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.
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. At Ponghat MPS, all 6 pumps are OK for operation. Presser transmitter is not installed at pump discharge common header.
26. One mechanical coarse screen at MPS is working and 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.
27. 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.
28. 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.
29. 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.
30. Installation of Public Address System is done but its commissioning is not completed yet.
31. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
32. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:
    a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
    b) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
    c) Testing of TN, NH4-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
    d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
    e) Quarterly report as per Part-G in Schedule-10 of CA.
    f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
    g) Procedure for recording & disposal of complaints.
    h) Safety & Health Records. Incident reports must also be submitted along with action plan.
    i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
    j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

4.3 Recommendation's

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

ANNEXURE-IV

PROJECT ENGINEER ACTIVITY AS PER TOR

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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.	NA	NA	NA
4.1(xi)	The Project Engineer shall submit regular periodic reports, as specified in the Concession Agreement to Uttar Pradesh Jal Nigam and	YES	YES	YES

Activities carried out as per TOR				
Clouse as per TOR	**Scope**	**Period from 1st Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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.	NA	NA	NA
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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 Aug 2022 to 31st Aug 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 August 2022 to 31st August 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	1	1	0	Aggregate Impact value test conduct in Jhunsi. found satisfactory
3	Aggregate Impact Value	IS 2386-Part 4	ONE TEST/300 CUM	1	1	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	1	1	0	Sand Gradation Test conduct in, Jhunsi, and

S.NO	Description	Instrument	Duration: 1st August 2022 to 31st August 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
							found satisfactory
6	Sand gradation	IS 2386-Part 1	ONE TEST/300CUM	2	2	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.	32	32	0	Staff Quarter (Mawaiya nala) Naini-II, Process Building ,Shastri bridge (Jhunsi STP) . Phaphamau (Basana Nalla SPS & Process Building), Cube test is acceptable for 7 Days

S.NO	Description	Instrument	Duration: 1st August 2022 to 31st August 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	26	26	0	, Staff Quarter (Mawaiya nala) (Mahewaghat) Naini-II, Process Building Shastri Bridge, (Jhunsi STP) . Phaphamau (Basana 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 Jhunsi and found satisfactory

S.NO	Description	Instrument	Duration: 1st August 2022 to 31st August 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
11	Silt Content in Sand	IS 2386: 1963-Part 2	50 M3 – 1 TEST	2	2	0	Silt Content Test conduct in, Jhunsi, and found satisfactory
12	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	2	2	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, Jhunsi site as per quality of material found acceptable
14	Sieve analysis (Aggregate 10mm)	IS 2386	ONE TEST/300 M3	2	2	0	Sieve Test Activity conduct in Jhunsi, site as per quality of material found acceptable

S.NO	Description	Instrument	Duration: 1st August 2022 to 31st August 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
15	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	2	2	0	Sieve Test Activity conduct in Naini-II, site as per quality of material found acceptable
16	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	2	2	0	Sieve Test Activity conduct in, Jhunsi site as per quality of material found acceptable
17	Sieve analysis (Aggregate 20mm)	IS 2386	ONE TEST/300 M3	2	2	0	Sieve Test Activity conduct in Jhunsi, site as per quality of material found acceptable
18	Brick Test	IS 1077 & 3495	1 SAMPLE/50 000 BRICKS	2	2	0	As per site brick test activity conduct at Naini- II & Jhunsi and result found

S.NO	Description	Instrument	Duration: 1st August 2022 to 31st August 2022				Remarks
			As per IS no of test required	No of test conducted	No of test accepted	No of test rejected	
							acceptable as per IS
19	OPC CEMENT 43 GRADES	IS 4031	I TEST PER LOT	1	1	0	Ultratech (Third party batch report Submitted)