

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  
November 2023



Executing Agency

GPCU, Uttar Pradesh Jal  
Nigam, Prayagraj, Uttar  
Pradesh  
211008



Funding Agency

National Mission for Clean  
Ganga, Ministry of Water  
Resources, New Delhi  
110002



Project Engineer

AECOM India Pvt. Ltd.,  
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Concessionaire

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and Organica Technologiak  
ZRT)  
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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 5<sup>th</sup> April 2019.

## 3. Objectives

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

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

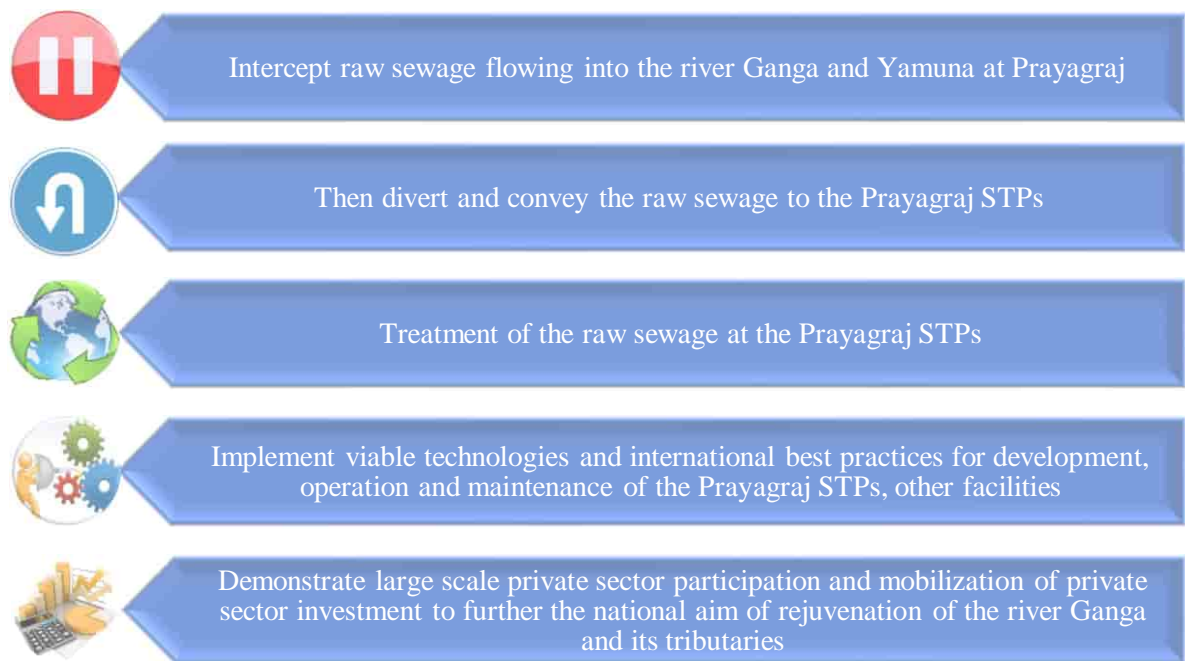


Figure 1 : Objectives of NMCG and UP JAL NIGAM

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

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#### 4. Project at Glance

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

Sr. No.	Particulars	Description
1.0	Name of Project	Development and Rehabilitation of Sewage Treatment Plants and Associated Infrastructure under HAM based PPP mode at Prayagraj, Uttar Pradesh
	Client	National Mission for Clean Ganga (NMCG) and Uttar Pradesh Jal Nigam (UPJN)
2.0	Executing Agency	Uttar Pradesh Jal Nigam, Ganga Pollution Control Unit, Prayagraj, Uttar Pradesh
3.0	Project Engineer	AECOM India Pvt. Ltd.
4.0	Concessionaire	Prayagraj Water Pvt. Ltd. (SPV of ADANI Enterprise Ltd. JV Organica Technologiak ZRT)
5.0	Contract Value (Capex + Opex)	INR 908.3 Crore
6.0	Effective Date	16 <sup>th</sup> 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), Jhuni (16 MLD) & Phaphamau (14 MLD)). Setup rooftop Solar Power Plant of capacity 930kW (110kW at Phaphamau, 800kW at Naini-II and 20kW at Jhuni).
- 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 and Trunk Sewer	3 Nos. Of Tapping
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 and Trunk Sewer	13 Nos. Tapping
			Main Pumping Station	16 MLD

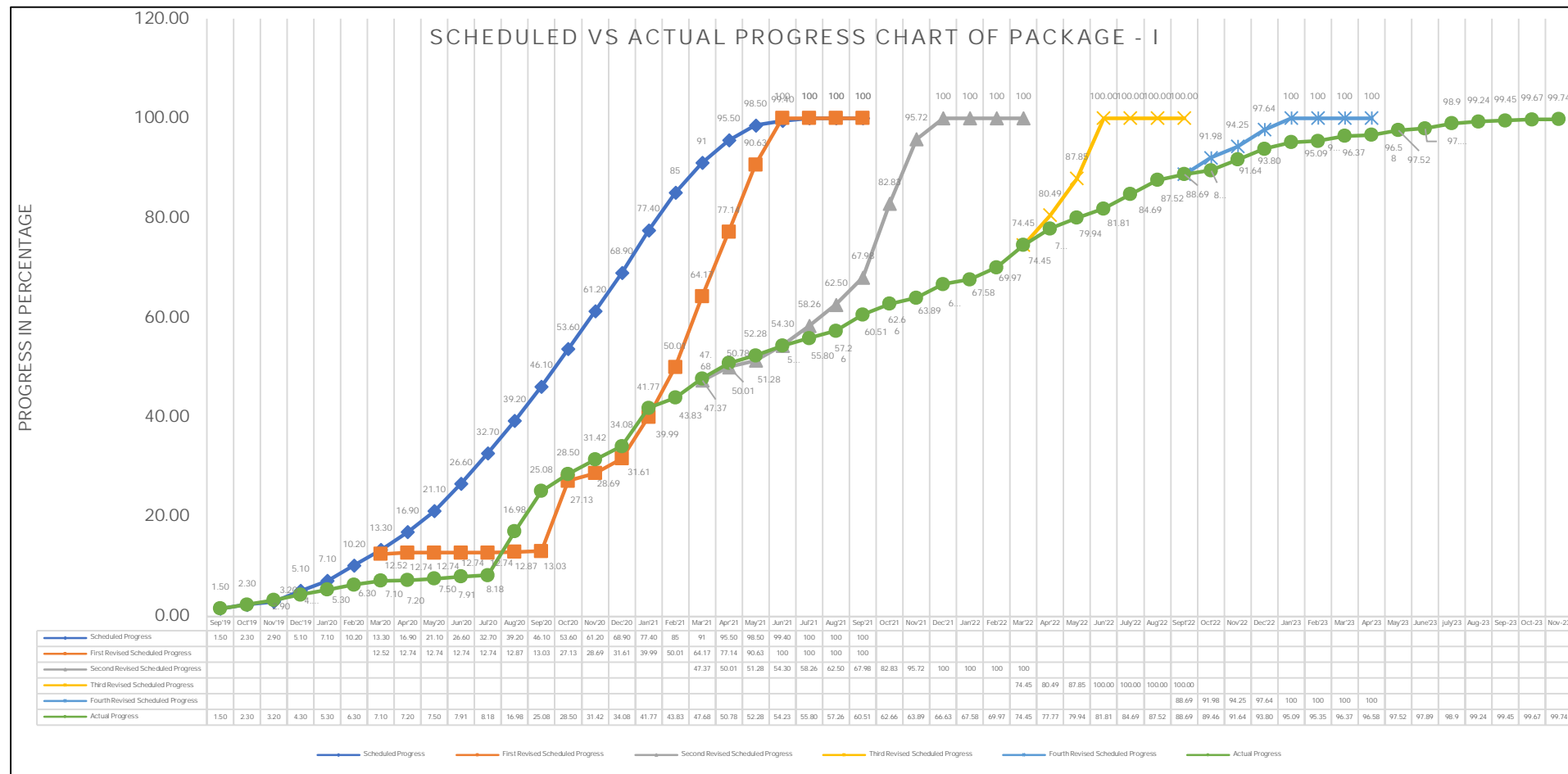


Package Number - II				
Nature of work		Facilities		
Rehabilitation		Design (wherever necessary), rehabilitate, restore, finance, operate and transfer two existing STP Facilities, one of capacity 80 MLD at Naini (District A) and other of capacity 60 MLD at Rajapur (District D) along with their Associated 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

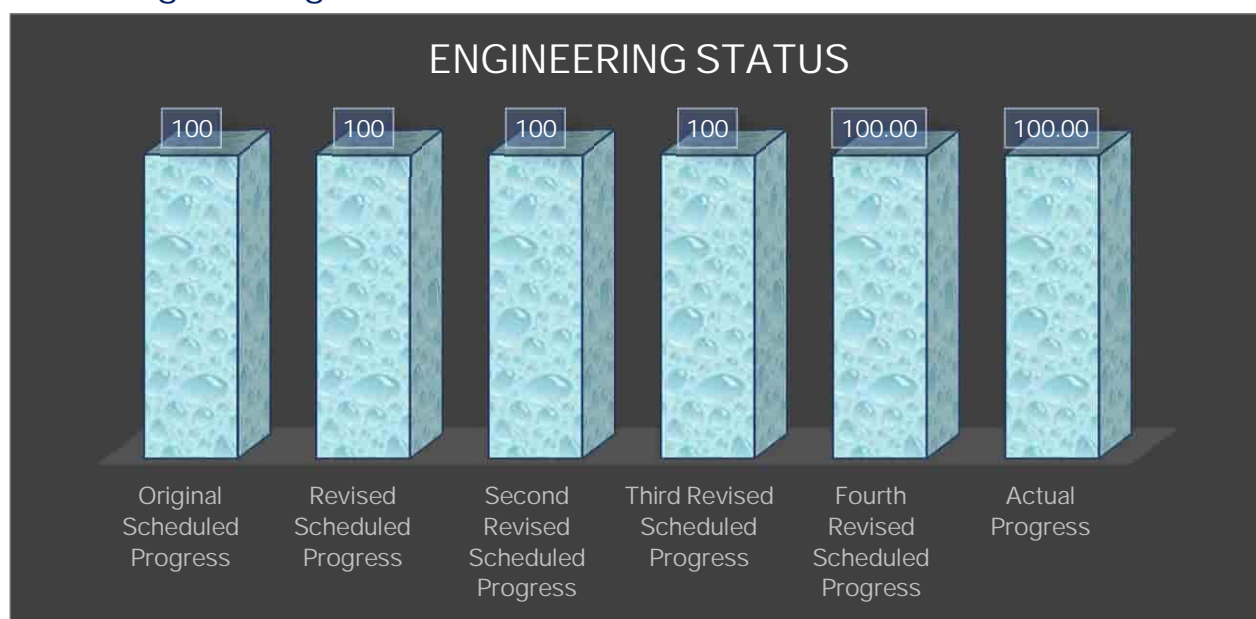
Package Number - III				
Nature of work		Facilities		
Rehabilitation		Design (wherever necessary), rehabilitate, restore, finance, operate and transfer four existing STP Facilities, one of capacity 50 MLD at Numayadahi (District B), one of capacity 29 MLD at Salori (District C), one of capacity 25 MLD 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



### 7.1.1. Engineering status



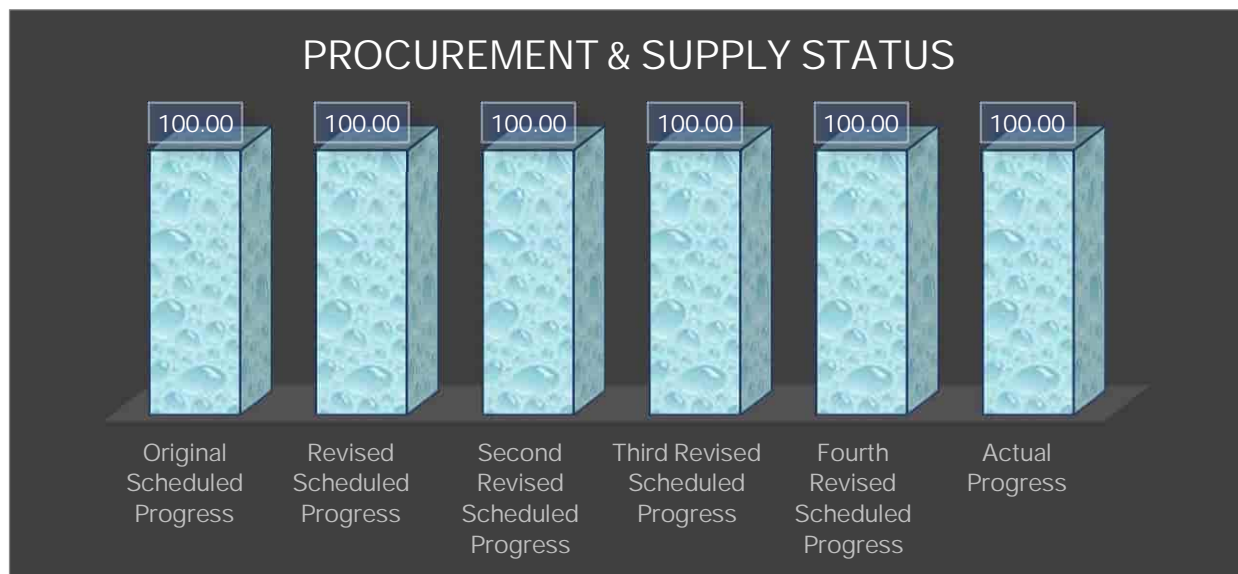
### 7.1.2. Engineering status as per construction plan

Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Schedul ed Comple tion (In %)	Completi on up to previous month (In %) (A)	This month Completi on (In%) (B)	Total Comple tion (In %) (A+B)
1.	Engineering	11-01-19	20-11-22				
2.	Basic Engineering	11-01-19	15-03-20				
3.	Phaphamau & Associated Infr	11-01-19	14-08-19				
4.	Submission of Basic Engg. Drawings/docume nts to UPJN	11-01-19	11-02-19	100%	100%	0%	100%
5.	Resubmission, review and Approval of Basic Engg. of drawings/documen ts from UPJN/PE/IIT	11-02-19	14-08-19	100%	100%	0%	100%
6.	Naini- II & Associated Infr	11-01-19	11-10-19				
7.	Submission of Basic Engg. Drawings/docume nts to UPJN	11-01-19	11-02-19	100%	100%	0%	100%

Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In%) (B)	Total Completion (In %) (A+B)
8.	Resubmission, review and Approval of Basic Engg. of drawings/documents from UPJN/PE/IIT	11-02-19	11-10-19	100%	100%	0%	100%
9.	Jhunsi STP	11-01-19	15-03-20				
10.	Submission of Basic Engg. Drawings/documents to UPJN (Based on old location)	11-01-19	11-02-19	100%	100%	0%	100%
11.	Submission of Basic Engg. Drawings/documents to UPJN (based on revised location)	10-11-19	10-12-19	100%	100%	0%	100%
12.	Resubmission, review and Approval of Basic Engg. of drawings/documents from UPJN/PE/IIT	10-12-19	15-03-20	100%	100%	0%	100%
13.	Jhunsi associated Infrastructure	11-01-19	15-03-20				
14.	Submission of Basic Engg. Drawings/documents to UPJN (Based on old location)	11-01-19	11-02-19	100%	100%	0%	100%
15.	Submission of Basic Engg. Drawings/documents to UPJN (based on revised location)	01-01-20	31-01-20	100%	100%	0%	100%
16.	Review and Approval of Basic Engg. of drawings/documents	25-10-19	15-03-20	100%	100%	0%	100%

Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In%) (B)	Total Completion (In %) (A+B)
	ts from UPJN/PE/IIT						
17.	Detail Engineering	01-03-20	20-11-22				
18.	Submission of Detailed Engineering drawings to UPJN	01-03-20	10-11-22				
19.	Mechanical	01-03-20	15-10-22	100%	100%	0%	100%
20.	Electrical and C&I	01-03-20	20-08-22	100%	100%	0%	100%
21.	Civil & Structure	01-03-20	10-11-22	100%	99%	1%	100%
22.	Review and Approval of Engineering drawings by UPJN/PE/IIT	01-03-20	20-11-22				
23.	Mechanical	01-03-20	30-10-22	100%	100%	0%	100%
24.	Electrical and C&I	01-03-20	05-10-22	100%	100%	0%	100%
25.	Civil	01-03-20	20-11-22	100%	99%	1%	100%

### 7.1.3 Procurement & Supply status



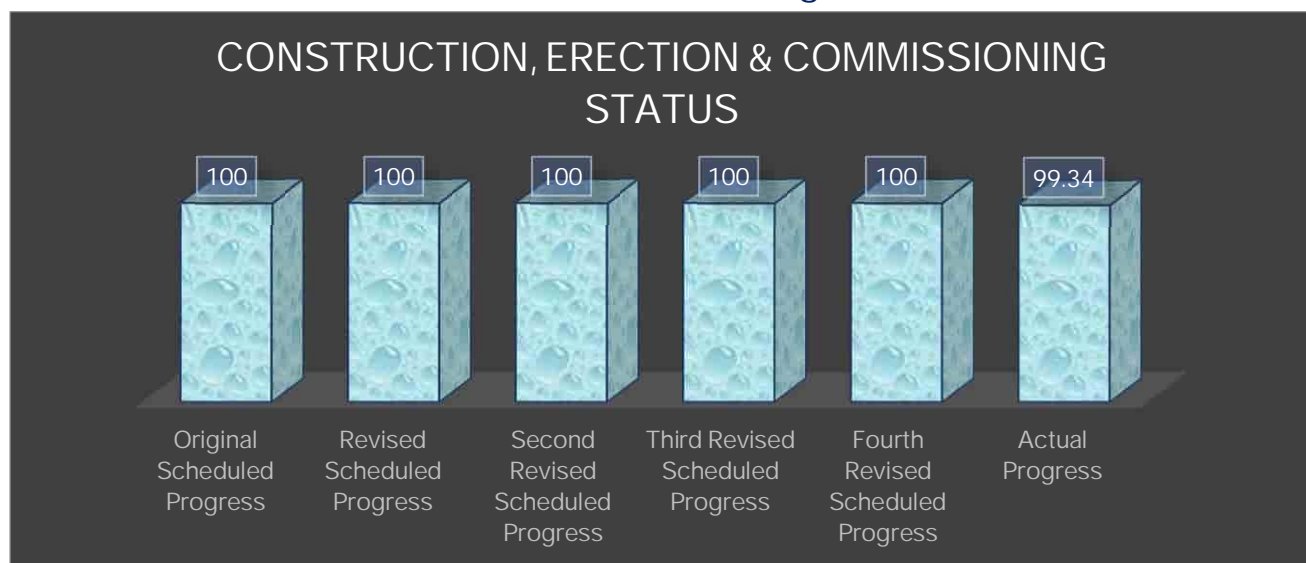
### 7.1.4 Procurement & Supply status as per construction plan

Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In %) (B)	Total Completion (In %) (A+B)
1.	Ordering of material	01-03-20	30-09-22				
2.	Mechanical	01-03-20	31-08-22	100%	100%	0.00%	100%
3.	Electrical and C&I	01-03-20	30-09-22	100%	100%	0.00%	100%
4.	Manufacturing Clearance and Supplies	01-10-20	30-11-22				
5.	Mechanical	01-10-20	10-11-22				
6.	Pumps	01-11-20	31-08-22	100%	100%	0.00%	100%
7.	Tube settler	01-11-20	25-04-22	100%	100%	0.00%	100%
8.	Screen (Coarse & fine)	01-12-20	25-04-22	100%	100%	0.00%	100%
9.	Grit removal system	01-12-20	25-04-22	100%	100%	0.00%	100%
10.	Blowers	01-11-20	15-10-22	100%	100%	0.00%	100%
11.	Volute press/ STE	15-01-21	31-01-22	100%	100%	0.00%	100%
12.	Diffuser	15-01-21	30-04-21	100%	100%	0.00%	100%
13.	Media/ Bio module	01-10-20	25-10-20	100%	100%	0.00%	100%
14.	Supply of pipes	15-01-21	15-10-22	100%	100%	0.00%	100%



Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In%) (B)	Total Completion (In %) (A+B)
15.	Chlorination	15-01-21	31-03-22	100%	100%	0.00%	100%
16.	Valves & Gates	15-01-21	10-11-22	100%	100%	0.00%	100%
17.	Other misc. Material	01-11-20	31-08-22	100%	100%	0.00%	100%
18.	Electrical and C&I	01-10-20	30-11-22				
19.	PLC Panel	01-11-20	20-04-22	100%	100%	0%	100%
20.	Flow Meters, Transmitters	01-11-20	20-04-22	100%	100%	0%	100%
21.	MCC Panel	28-02-21	30-09-22	100%	100%	0%	100%
22.	Analyzers	01-11-20	15-04-22	100%	100%	0%	100%
23.	HT/ LT switchgear	15-12-20	10-11-21	100%	100%	0%	100%
24.	Distribution Transformer	15-12-20	20-10-22	100%	100%	0%	100%
25.	Diesel Generators (DG's)	28-02-21	31-07-22	100%	100%	0%	100%
26.	Solar Panel	01-01-21	30-11-22	100%	100%	0%	100%
27.	CC TV	01-10-20	25-10-20	100%	100%	0%	100%
28.	HT/LT/C&I CABLES	01-11-20	20-10-22	100%	100%	0%	100%
29.	Other misc. material	01-12-20	31-10-22	100%	100%	0%	100%

### 7.1.5 Construction, Erection & Commissioning status



### 7.1.6 Construction, Erection & Commissioning status as per construction plan

Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In%) (B)	Total Completion (In %) (A+B)
1.	Finalization & Mobilization of Execution Contractors	01-01-20	15-04-22				
2.	Finalization & Mobilization of Civil Contractor (Phaphamau & Naini-II)	01-01-20	31-01-20	100%	100%	0.00%	100%
3.	Finalization & Mobilization of Civil Contractor (Jhunsii)	01-04-20	30-04-20	100%	100%	0.00%	100%
4.	Finalization & Mobilization of Mech. Contractor	01-01-21	18-11-21	100%	100%	0.00%	100%
5.	Finalization & Mobilization of Electrical Contractor	01-01-21	15-04-22	100%	100%	0.00%	100%
6.	Finalization & Mobilization of C&I Contractor	01-01-21	15-04-22	100%	100%	0.00%	100%
7.	Arrangement of Construction Power & Water and Site Office	01-06-20	30-06-20	100%	100%	0.00%	100%
Erection Commissioning, Trial Run and COD of Phaphamau STP (14 MLD) & Associated works							
8.	Tree cutting work	01-01-20	31-01-20	100%	100%	0.00%	100%
9.	Dismantling of existing structure	01-01-20	31-01-20	100%	100%	0.00%	100%
10.	FCR tank unit	01-12-19	15-01-23				

Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Compl eti on (In%) (B)	Total Compl etion (In %) (A+B)
11.	Excavation work	01-12-19	15-03-20	100%	100%	0.00%	100%
12.	Boulder filling work	15-03-20	10-10-20	100%	100%	0.00%	100%
13.	PCC work	01-10-20	09-10-20	100%	100%	0.00%	100%
14.	RCC upto completion	01-10-20	31-10-21	100%	100%	0.00%	100%
15.	Other Misc Works	01-01-22	15-01-23	100%	100%	0.00%	100%
16.	Hydrotesting	15-01-22	25-04-22	100%	100%	0.00%	100%
17.	Tube settler, CCT & Sludge storage Tank	16-01-21	20-01-23				
18.	Earth work & Boulder filling work	16-01-21	28-02-21	100%	100%	0.00%	100%
19.	PCC work	01-02-21	28-02-21	100%	100%	0.00%	100%
20.	RCC upto completion	01-02-21	20-04-22	100%	100%	0.00%	100%
21.	Other Misc Works	16-04-22	20-01-23	100%	100%	0.00%	100%
22.	Hydrotesting	25-07-22	20-08-22	100%	100%	0.00%	100%
23.	Main Process Building	01-03-21	20-01-23				
24.	Excavation	01-03-21	10-11-21	100%	100%	0.00%	100%
25.	Rubble soling/ Stone filling work	03-07-21	20-11-21	100%	100%	0.00%	100%
26.	PCC	10-07-21	10-12-21	100%	100%	0.00%	100%
27.	Structure completion (Expect finishing works)	20-07-21	10-11-22	100%	100%	0.00%	100%
28.	Other Misc Works	10-11-22	20-01-23	100%	100%	0.00%	100%
29.	Hydrotesting	10-11-22	20-11-22	100%	100%	0.00%	100%
30.	Basana Nala SPS and I&D Works	05-11-21	20-01-23				
31.	Excavation work	05-11-21	25-11-21	100%	100%	0.00%	100%
32.	PCC	25-11-21	05-12-21	100%	100%	0.00%	100%
33.	RCC upto completion	05-12-21	15-11-22	100%	100%	0.00%	100%
34.	Hydrotesting	15-11-22	25-11-22	100%	100%	0.00%	100%
35.	Boundary wall	01-12-22	20-01-23	100%	100%	0.00%	100%
36.	Staff quarter	01-12-22	20-01-23	100%	100%	0.00%	100%
37.	Other Misc Works	15-06-22	20-01-23	100%	95%	5%	100%
38.	Shantipuram MPS and I&D Works	01-09-20	20-01-23				
39.	Excavation work	01-11-20	28-03-21	100%	100%	0.00%	100%
40.	PCC	28-03-21	30-04-21	100%	100%	0.00%	100%
41.	RCC work upto completion	01-04-21	30-07-22	100%	100%	0.00%	100%
42.	Other Misc Works	01-05-22	20-01-23	100%	100%	0.00%	100%
43.	Hydrotesting	10-08-22	20-08-22	100%	100%	0.00%	100%
44.	Staff quarter	01-09-20	15-01-23	100%	100%	0.00%	100%

Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Compl eti on (In%) (B)	Total Compl etion (In %) (A+B)
45.	Pipe laying ( Rising Main & Gravity Main)	15-11-21	10-11-22				
46.	Rising main	01-04-22	09-11-22				
47.	Excavation, Laying & Jointing, Backfilling/ Restoration works	01-04-22	25-10-22	100%	100%	0%	100%
48.	Hydrotesting	25-10-22	09-11-22	100%	100%	0%	100%
49.	Gravity Main	15-11-21	10-11-22				
50.	Excavation, Laying & Jointing, Backfilling/ Restoration works	15-11-21	25-10-22	100%	100%	0%	100%
51.	Hydrotesting	26-10-22	10-11-22	100%	100%	0%	100%
52.	Other works	01-01-20	25-01-23	100%			
53.	Site office (Temporary office)	01-01-20	31-01-20	100%	100%	0%	100%
54.	Other misc works (Boundary Wall, Road, rainwater harvesting, Land scaping etc)	01-11-22	25-01-23	100%	100%	0%	100%
55.	Mechanical Erection- STP unit	15-06-22	30-01-23				
56.	Pumps	01-12-22	30-01-23	100%	100%	0%	100%
57.	Lamella clarifier/ Tube settler	15-11-22	30-01-23	100%	100%	0%	100%
58.	Grit removal system	15-11-22	30-01-23	100%	100%	0%	100%
59.	Blowers & Diffuser	15-07-22	30-01-23	100%	100%	0%	100%
60.	Firefighting System	15-12-22	30-01-23	100%	100%	0%	100%
61.	Screens	10-12-22	30-01-23	100%	100%	0%	100%
62.	Piping, Valves & Gates	20-07-22	30-01-23	100%	100%	0%	100%
63.	Chlorination	20-08-22	15-10-22	100%	100%	0%	100%
64.	Media Installation/ Bio module	15-06-22	10-12-22	100%	100%	0%	100%
65.	Other misc. work	10-12-22	30-01-23	100%	100%	0%	100%
66.	Mechanical Erection- SPS & MPS	20-08-22	30-01-23				
67.	Pumps	15-10-22	20-01-23	100%	100%	0%	100%
68.	Screens	20-08-22	20-01-23	100%	100%	0%	100%
69.	Piping, Valves & Gates	20-08-22	20-01-23	100%	100%	0%	100%
70.	Other misc. work	20-08-22	30-01-23	100%	100%	0%	100%
71.	Electrical and C&I- STP Unit	20-08-22	30-01-23				
72.	Transformer Installation	01-11-22	31-12-22	100%	100%	0%	100%

Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Completi on (In%) (B)	Total Compl etion (In %) (A+B)
73.	HT/LT Panel erection	01-11-22	31-12-22	100%	100%	0%	100%
74.	Instrumentation works	15-12-22	30-01-23	100%	100%	0%	100%
75.	CCTV	01-01-23	30-01-23	100%	100%	0%	100%
76.	Cable Laying	15-10-22	20-01-23	100%	100%	0%	100%
77.	PLC Panel & Online monitoring system	10-11-22	30-01-23	100%	100%	0%	100%
78.	Solar Panel	01-12-22	30-01-23	100%	70%	0%	70%
79.	DG Installation	20-08-22	31-08-22	100%	100%	0%	100%
80.	Other misc. work	01-12-22	30-01-23	100%	100%	0%	100%
81.	Electrical and C&I- SPS & MPS	20-08-22	31-01-23				
82.	Transformer Installation	20-11-22	10-01-23	100%	100%	0%	100%
83.	HT/LT Panel Erection	20-08-22	31-12-22	100%	100%	0%	100%
84.	CABLE LAYING	01-11-22	15-01-23	100%	100%	0%	100%
85.	DG Installation	15-11-22	15-12-22	100%	100%	0%	100%
86.	PLC Panel & Online monitoring system	20-11-22	30-01-23	100%	100%	0%	100%
87.	Other misc. work	20-12-22	30-01-23	100%	100%	0%	100%
88.	Commissioning of Mech., Electrical and C&I	30-01-23	31-01-23	100%	100%	0%	100%
89.	Trial Run, Final Inspection and COD	01-02-23	30-04-23				
90.	Trial Run and Final Inspection	01-02-23	30-04-23		100%	0%	100%
91.	COD	30-04-23	30-04-23		100%	0%	100%
92.	Erection Commissioning, Trial Run and COD of Naini-II (42 MLD) & Associated works						
93.	Removal of shrubs	01-01-20	28-02-20	100%	100%	0%	100%
94.	FCR tank unit	01-02-20	25-01-23				
95.	Excavation work	01-02-20	15-03-20	100%	100%	0%	100%
96.	Boulder filling work	26-10-20	30-11-20	100%	100%	0%	100%
97.	PCC work	01-11-20	30-11-20	100%	100%	0%	100%
98.	RCC work upto completion	01-12-20	31-12-21	100%	100%	0%	100%
99.	Other Misc Works	01-12-21	25-01-23	100%	100%	0%	100%
100.	Hydrotesting	01-03-22	15-03-22	100%	100%	0%	100%
101.	Tube settler, CCT & Sludge storage Tank	16-01-21	20-01-23				
102.	Earth work & Boulder filling work	16-01-21	22-01-21	100%	100%	0%	100%
103.	PCC work	19-01-21	31-01-21	100%	100%	0%	100%
104.	RCC work upto completion	01-03-21	10-05-22	100%	100%	0%	100%
105.	Other Misc Works	10-06-22	20-01-23	100%	100%	0%	100%

Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Completi on (In%) (B)	Total Compl etion (In %) (A+B)
106.	Hydrotesting	20-08-22	30-08-22	100%	100%	0%	100%
107.	Main Process Building	01-02-21	20-01-23				
108.	Excavation	01-02-21	31-05-21	100%	100%	0%	100%
109.	Rubble soling/ Stone filling work	01-07-21	31-07-21	100%	100%	0%	100%
110.	PCC	01-07-21	31-07-21	100%	100%	0%	100%
111.	Structure completion (Expect finishing works)	01-05-21	10-05-22	100%	100%	0%	100%
112.	Other Misc Works	01-06-22	20-01-23	100%	100%	0%	100%
113.	Hydrotesting	10-05-22	30-05-22	100%	100%	0%	100%
114.	Mawaiya SPS and I&D work	01-02-21	15-01-23				
115.	Excavation work	01-02-21	28-02-21	100%	100%	0%	100%
116.	PCC	01-05-21	15-06-21	100%	100%	0%	100%
117.	RCC WORK upto completion	15-05-21	20-05-22	100%	100%	0%	100%
118.	Hydrotesting	20-05-22	30-05-22	100%	100%	0%	100%
119.	Boundary wall	10-08-22	15-01-23	100%	100%	0%	100%
120.	Staff quarter	01-05-22	15-01-23	100%	100%	0%	100%
121.	I&D Other misc works	01-04-22	31-08-22	100%	100%	0%	100%
122.	Mahewaghat SPS and I&D work	01-01-21	30-01-23				
123.	Excavation work	01-01-21	15-04-21	100%	100%	0%	100%
124.	PCC	01-01-21	15-04-21	100%	100%	0%	100%
125.	RCC Work upto completion	30-05-21	10-05-22	100%	100%	0%	100%
126.	Other finishing work	01-06-22	20-01-23	100%	100%	0%	100%
127.	Hydrotesting	10-06-22	20-06-22	100%	100%	0%	100%
128.	Boundary wall	01-05-22	20-01-23	100%	100%	0%	100%
129.	Staff quarter	26-04-22	30-12-22	100%	100%	0%	100%
130.	I&D Other misc works	01-05-22	30-01-23	100%	100%	0%	100%
131.	Naini-II MPS and I&D work	26-10-20	30-01-23				
132.	Excavation work	16-01-21	25-04-21	100%	100%	0%	100%
133.	PCC	16-01-21	25-04-21	100%	100%	0%	100%
134.	RCC Work upto completion	01-05-21	15-05-22	100%	100%	0%	100%
135.	Other finishing work	26-04-22	30-01-23	100%	100%	0%	100%
136.	Hydrotesting	01-06-22	15-06-22	100%	100%	0%	100%
137.	Staff quarter	26-10-20	15-12-22	100%	100%	0%	100%
138.	I&D Other misc works	26-04-22	30-01-23	100%	100%	0%	100%
139.	Pipe laying ( Rising Main & Gravity Main)	16-01-21	20-09-22				
140.	Rising main	16-01-21	15-09-22	100%			



Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Compl eti on (In%) (B)	Total Compl etion (In %) (A+B)
141.	Excavation, Laying & Jointing, Backfilling/ Restoration works	16-01-21	15-09-22	100%	100%	0%	100%
142.	Hydrotesting	15-07-22	15-09-22	100%	100%	0%	100%
143.	Gravity Main	01-03-21	20-09-22				
144.	Excavation, Laying & Jointing, Backfilling/ Restoration works	01-03-21	05-09-22	100%	100%	0%	100%
145.	Hydrotesting	10-09-22	20-09-22	100%	100%	0%	100%
146.	Other works	01-01-20	30-01-23	100%			
147.	Site office (Temporary office)	01-01-20	31-01-20	100%	100%	0%	100%
148.	Other misc works (Boundary Wall, Road, rain water harvesting, Land scaping etc)	01-03-21	30-01-23	100%	100%	0%	100%
149.	Mechanical Erection- STP unit	01-04-22	30-01-23				
150.	Pumps	01-09-22	15-09-22	100%	100%	0%	100%
151.	Lamella clarifier/ Tube settler	01-05-22	15-09-22	100%	100%	0%	100%
152.	Grit removal system	01-06-22	15-09-22	100%	100%	0%	100%
153.	Piping, Valves & Gates	26-04-22	15-10-22	100%	100%	0%	100%
154.	Firefighting System	01-09-22	20-10-22	100%	100%	0%	100%
155.	Chlorination	01-09-22	30-09-22	100%	100%	0%	100%
156.	Blowers & Diffuser	01-05-22	30-09-22	100%	100%	0%	100%
157.	screens	01-06-22	30-06-22	100%	100%	0%	100%
158.	Media Installation/ Bio module	01-04-22	30-09-22	100%	100%	0%	100%
159.	Other misc. work	01-09-22	30-01-23	100%	100%	0%	100%
160.	Mechanical Erection- SPS & MPS	10-06-22	30-01-23				
161.	Pumps	15-07-22	30-09-22	100%	100%	0%	100%
162.	Screens	01-07-22	31-07-22	100%	100%	0%	100%
163.	Piping, Valves & Gates	10-06-22	31-10-22	100%	100%	0%	100%
164.	Other misc. work	01-07-22	30-01-23	100%	100%	0%	100%
165.	Electrical and C&I- STP Unit	01-05-22	30-01-23				
166.	Transformer Installation	01-07-22	31-08-22	100%	100%	0%	100%
167.	HT/LT panel erection	15-05-22	20-09-22	100%	100%	0%	100%



Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Completi on (In%) (B)	Total Compl etion (In %) (A+B)
168.	PLC Panel & Online monitoring system	16-08-22	31-12-22	100%	100%	0%	100%
169.	Instrumentation works	01-07-22	30-11-22	100%	100%	0%	100%
170.	CCTV	01-12-22	30-01-23	100%	100%	0%	100%
171.	CABLE LAYING	01-05-22	30-10-22	100%	100%	0%	100%
172.	Solar Panel	15-06-22	30-11-22	100%	100%	0%	100%
173.	Other misc. work	01-09-22	30-01-23	100%	100%	0%	100%
174.	Electrical and C&I- SPS & MPS	01-06-22	30-06-22				
175.	Transformer Installation	01-07-22	30-09-22	100%	100%	0%	100%
176.	HT/LT panel erection	01-07-22	30-09-22	100%	100%	0%	100%
177.	CABLE LAYING	01-07-22	30-10-22	100%	100%	0%	100%
178.	DG Installation	01-07-22	30-07-22	100%	100%	0%	100%
179.	PLC Panel & Online monitoring system	01-09-22	30-01-23	100%	100%	0%	100%
180.	Other misc. work	15-07-22	30-01-23	100%	100%	0%	100%
181.	Commissioning of Mech., Electrical and C&I	30-01-23	31-01-23	100%	100%	0%	100%
182.	Trial Run, Final Inspection and COD	01-02-23	30-04-23				
183.	Trial Run and Final Inspection	01-02-23	29-04-23		100%	0%	100%
184.	COD	30-04-23	30-04-23		100%	0%	100%
185.	Erection Commissioning, Trial Run and COD of Jhunsia STP (16 MLD) & Associated works						
186.	FCR tank unit	01-10-20	30-01-23				
187.	Excavation work	01-10-20	25-10-20	100%	100%	0%	100%
188.	Boulder filling work	26-10-20	29-10-20	100%	100%	0%	100%
189.	PCC work	30-10-20	30-10-20	100%	100%	0%	100%
190.	RCC up to completion	31-10-20	15-10-21	100%	100%	0%	100%
191.	Other finishing work	01-03-22	30-01-23	100%	100%	0%	100%
192.	Hydro testing	01-04-22	30-04-22	100%	100%	0%	100%
193.	Tube settler, CCT & Sludge storage Tank	01-01-21	30-01-23				
194.	Earth work & Boulder filling work	01-01-21	15-02-21	100%	100%	0%	100%
195.	PCC work	16-02-21	28-02-21	100%	100%	0%	100%
196.	RCC up to completion	01-03-21	05-04-22	100%	100%	0%	100%
197.	Other finishing work	01-02-22	30-01-23	100%	100%	0%	100%
198.	Hydro testing	05-04-22	20-04-22	100%	100%	0%	100%
199.	Main Process Building	01-06-21	30-01-23				
200.	Excavation & Column	01-06-21	16-06-21	100%	100%	0%	100%

Sr. No.	Work description	Scheduled Start Date	Schedule d End Date	Sched uled Compl etion (In %)	Completi on up to previous month (In %) (A)	This month Compl eti on (In%) (B)	Total Compl etion (In %) (A+B)
201.	Rubble soling/ Stone filling work	16-06-21	26-06-21	100%	100%	0%	100%
202.	PCC	26-06-21	30-06-21	100%	100%	0%	100%
203.	Structure completion (Except finishing works)	01-07-21	10-11-22	100%	100%	0%	100%
204.	Other finishing work	01-05-22	30-01-23	100%	100%	0%	100%
205.	Hydro testing	01-08-22	10-09-22	100%	100%	0%	100%
206.	Shastri bridge SPS and I&D work	16-04-22	30-01-23				
207.	Excavation work	16-04-22	28-04-22	100%	100%	0%	100%
208.	PCC	28-04-22	02-05-22	100%	100%	0%	100%
209.	RCC up to completion	02-05-22	10-12-22	100%	100%	0%	100%
210.	Other finishing work	01-11-22	30-01-23	100%	67%	8%	75%
211.	Hydro testing	10-12-22	20-12-22	100%	100%	0%	100%
212.	Boundary wall	15-12-22	30-01-23	100%			
213.	Staff quarter	20-11-22	30-01-23	100%	100%	0%	100%
214.	Other Misc. works	15-11-22	30-01-23	100%	75%	5%	80%
215.	Jhunsu MPS and I&D work	01-09-20	30-01-23				
216.	Excavation work	01-08-21	15-10-21	100%	100%	0%	100%
217.	PCC	16-10-21	20-10-21	100%	100%	0%	100%
218.	RCC up to completion	21-10-21	30-04-22	100%	100%	0%	100%
219.	Other finishing work	01-06-22	30-01-23	100%	100%	0%	100%
220.	Hydro testing	01-07-22	15-07-22	100%	100%	0%	100%
221.	Staff quarter	01-09-20	30-11-22	100%	100%	0%	100%
222.	Other Misc. works	01-07-22	30-01-23	100%	90%	0%	90%
223.	Pipe laying ( Rising Main & Gravity Main)	15-11-21	04-01-23				
224.	Rising main	15-11-21	25-12-22	100%			
225.	Excavation, Laying & Jointing, Backfilling/ Restoration works	15-11-21	15-12-22	100%	100%	0%	100%
226.	Hydro testing	05-12-22	25-12-22	100%	100%	0%	100%
227.	Gravity Main	16-01-22	04-01-23				
228.	Excavation, Laying & Jointing, Backfilling/ Restoration works	16-01-22	20-12-22	100%	100%	0%	100%
229.	Hydro testing	15-12-22	04-01-23	100%	95%	0%	95%
230.	Other works	01-02-20	30-01-23	100%			

Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In%) (B)	Total Completion (In %) (A+B)
231.	Site office (Temporary office)	01-02-20	30-04-20	100%	100%	0%	100%
232.	Other misc. works (Boundary Wall, Road, rain water harvesting, Land scraping etc.)	01-12-22	30-01-23	100%	20%	5%	25%
233.	Mechanical Erection- STP unit	01-04-22	30-01-23				
234.	Pumps	20-11-22	20-01-23	100%	100%	0%	100%
235.	Lamella clarifier/ Tube settler	01-04-22	30-10-22	100%	100%	0%	100%
236.	Fire fighting System	01-01-23	30-01-23	100%	100%	0%	100%
237.	Chlorination	20-11-22	30-01-23	100%	100%	0%	100%
238.	Grit removal system	01-12-22	30-01-23	100%	100%	0%	100%
239.	Blowers & Diffuser	01-07-22	31-12-22	100%	100%	0%	100%
240.	Screens	20-11-22	31-12-22	100%	100%	0%	100%
241.	Piping, Valves & Gates	01-07-22	25-01-23	100%	100%	0%	100%
242.	Media Installation/ Bio module	15-04-22	25-12-22	100%	85%	15%	100%
243.	Other misc. work	01-12-22	30-01-23	100%	100%	0%	100%
244.	Mechanical Erection- SPS & MPS	20-10-21	30-01-23				
245.	Pumps	20-11-22	20-01-23	100%	100%	0%	100%
246.	Screens	01-12-22	15-01-23	100%	70%	15%	85%
247.	Piping, Valves & Gates	20-10-21	30-01-23	100%	100%	0%	100%
248.	Other misc. work	01-12-22	30-01-23	100%	95%	0%	95%
249.	Electrical and C&I- STP Unit	01-09-22	31-01-23				
250.	Transformer Installation	25-10-22	31-01-23	100%	100%	0%	100%
251.	HT/LT panel erection	01-09-22	20-01-23	100%	100%	0%	100%
252.	PLC Panel & Online monitoring system	01-11-22	30-01-23	100%	90%	0%	90%
253.	Instrumentation works	01-11-22	30-01-23	100%	90%	0%	90%
254.	CCTV	01-11-22	30-01-23	100%	100%	0%	100%
255.	Cable laying	01-11-22	30-01-23	100%	100%	0%	100%
256.	DG Installation	01-09-22	25-01-23	100%	100%	0%	100%
257.	Solar Panel	15-11-22	30-01-23	100%	100%	0%	100%
258.	Other misc. work	01-12-22	30-01-23	100%	90%	0%	90%
259.	Electrical and C&I- SPS & MPS	01-11-22	31-01-23				
260.	Transformer Installation	01-11-22	30-01-23	100%	100%	0%	100%

Sr. No.	Work description	Scheduled Start Date	Scheduled End Date	Scheduled Completion (In %)	Completion up to previous month (In %) (A)	This month Completion (In%) (B)	Total Completion (In %) (A+B)
261.	HT/LT Panel erection	15-11-22	30-01-23	100%	100%	0%	100%
262.	Cable laying	15-11-22	30-01-23	100%	100%	0%	100%
263.	DG Installation	15-11-22	30-01-23	100%	100%	0%	100%
264.	PLC Panel & Online monitoring system	15-11-22	30-01-23	100%	90%	0%	90%
265.	Other misc. work	15-11-22	30-01-23	100%	80%	0%	80%
266.	Commissioning of Mech., Electrical and C&I	31-01-23	31-01-23	100%	80%	0%	80%
267.	Trial Run, Final Inspection and COD	01-02-23	30-04-23				
268.	Trial Run and Final Inspection	01-02-23	30-04-23		100%	0%	100%
269.	COD	30-04-23	30-04-23		100%	0%	100%

## 7.1.7 Package-I status

### Naini-II Facility COD



**OFFICE OF THE SUPERINTENDING ENGINEER,  
CIRCLE OFFICE,  
U.P. JAL NIGAM(RURAL), PRAYAGRAJ**

Email: [uon\\_ruralinfo@upjalnigam.com](mailto:uon_ruralinfo@upjalnigam.com)

Letter no. **83/PWPL/35** Dated: **11/08/2023**

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

**Subject:** Design, Build, Rehabilitate, finance, Operate and Transfer Sewage Treatment Plants (STPs) along with Associated Infrastructure with operation and maintenance period of 15 Years under Hybrid Annuity Based PPP model in Phaphamau, Jhansi, Naini-II, Naini-I, Salori, Numayadahi, Rajapur, Ponghat & Kodara at Prayagraj (erstwhile Allahabad), Uttar Pradesh, India - **Issuance of Commercial Operations Date for Naini-II facility under Package-I.**

**Ref:**

- 1) Concessionaire agreement No. 31/GM/2018/19 dated 11<sup>th</sup> January 2019
- 2) Effective Date declaration dated 16<sup>th</sup> Sept 2019
- 3) PWPL Letter No PWPL/UPJN/PRAYAGRAJ/SITE/862 dated 30<sup>th</sup> Nov 2022
- 4) PWPL Letter No PWPL/UPJN/PRAYAGRAJ/SITE/905 dated 11<sup>th</sup> May 2023
- 5) AECOM Letter No. AIPL/NMCG/PRAYAG/1607 dated 18<sup>th</sup> May 2023
- 6) NMCG Letter No. F. No. Pr 23012/2/2021 dated 26<sup>th</sup> May 2023
- 7) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/906 dated 30<sup>th</sup> May 2023
- 8) AECOM Letter No AIPL/NMCG/PRAYAG/1619 dated 08<sup>th</sup> Jun 2023.
- 9) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/911 dated 17<sup>th</sup> June 2023
- 10) UPJN Letter No. 68/PWPL/24 dated 19<sup>th</sup> Jun 2023.
- 11) UPJN Letter No. 1330/W-9/141 dated 20<sup>th</sup> Jun 2023.
- 12) NMCG Letter no. F. No. Pr-12012/6/2018/PPP/NMCG dated 07<sup>th</sup> Jul 2023.
- 13) UPJN letter no. 75/PWPL/19 dated 14<sup>th</sup> July 2023
- 14) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/917 dated 18<sup>th</sup> July 2023
- 15) AECOM letter no. AIPL/NMCG/PRAYAG/1637 dated 24<sup>th</sup> July 2023
- 16) UPJN Letter No: 83/PWPL/32 dated 27<sup>th</sup> July 2023
- 17) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/921 dated 02<sup>nd</sup> Aug 2023
- 18) UPJN Letter No: 85/PWPL/33 dated 02<sup>nd</sup> Aug 2023

**Dear Sir,**

With reference to the above cited subject, it is to be noted that we have issued the 8<sup>th</sup> Milestone completion certificate vide letter mentioned at Sr. no. 13, Construction completion certificate vide letter mentioned at Sr. no. 16 and Trial Run completion certificate vide letter mentioned at Sr. no. 18 after the detailed assessment of the documents provided from the Concessionaire.

In view of the same, we are hereby issuing the COD certificate to the Concessionaire. Details of the same are mentioned below:

Sl. No.	Description	Commercial Operations Date (COD)
1	Construction Works of Naini-II facility under Package-I	19.02.2023





This completion certificate is being issued on the basis of instructions received from NMCG vide letter mentioned at Sr. no. 6 & 12 and undertaking submitted by PWPL vide letter mentioned at Sr. no. 17.

Furthermore, all the conditions mentioned in Trial run completion certificate remains applicable.

Yours Faithfully


  
Project Manager  
Ganga Pollution Control Unit  
UPJN (Rural), Prayagraj

  
Executive Engineer  
Division office (E&M)  
UPJN (Rural), Prayagraj

  
Superintending Engineer  
Circle office, UPJN (Rural), Prayagraj

**Copy Forwarded to Following for information and necessary action:**

1. Executive Director (Project), NMCG, New Delhi
2. Additional Project director, NMCG Lucknow.
3. Chief Engineer (Ganga), UP Jal Nigam (Rural) Lucknow
4. Chief Engineer (Kanpur Zone), UP Jal Nigam (Rural) Lucknow
5. Shri Rajat Gupta, NMCG, New Delhi
6. Project Manager, GPCU, UP Jal Nigam (Rural), Prayagraj
7. Executive Engineer, Division office (E&M), UP Jal Nigam (Rural), Prayagraj
8. M/s. AECOM India Pvt Ltd.

  
Superintending Engineer  
Circle office, UPJN (Rural), Prayagraj

Commercial Operations Date was announced on 11.08.2023 vide letter no. 87/PWPL (Adani)/35



## Phaphamau Facility COD



OFFICE OF THE SUPERINTENDING ENGINEER,  
CIRCLE OFFICE,  
U.P. JAL NIGAM(RURAL), PRAYAGRAJ

Email - up\_jnrc@rediffmail.com

Letter no. 88/PWPL/36

Dated: 11/08/2023

To,

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

**Subject:** Design, Build, Rehabilitate, Finance, Operate and Transfer Sewage Treatment Plants (STPs) along with Associated Infrastructure with operation and maintenance period of 15 Years under Hybrid Annuity Based PPP model in Phaphamau, Jhansi, Naini-II, Naini-I, Salori, Numayadahi, Rajapur, Ponghat & Kodara at Prayagraj (erstwhile Allahabad), Uttar Pradesh, India- **Issuance of Commercial Operations Date for Phaphamau facility under Package-I.**

- Ref:**
- 1) Concessionaire agreement No. 31/GM/2018/19 dated 11<sup>th</sup> January 2019
  - 2) Effective Date declaration dated 16<sup>th</sup> Sept 2019
  - 3) PWPL Letter No PWPL/UPJN/PRAYAGRAJ/SITE/871-A dated 30<sup>th</sup> Dec 2022
  - 4) PWPL Letter No PWPL/UPJN/PRAYAGRAJ/SITE/905 dated 11<sup>th</sup> May 2023
  - 5) AECOM Letter No. AIPL/NMCG/PRAYAG/1607 dated 18<sup>th</sup> May 2023
  - 6) NMCG Letter No. F. No. Pr 23012/2/2021 dated 26<sup>th</sup> May 2023
  - 7) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/907 dated 30<sup>th</sup> May 2023
  - 8) AECOM Letter No AIPL/NMCG/PRAYAG/1620 dated 08<sup>th</sup> Jun 2023.
  - 9) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/911 dated 17<sup>th</sup> June 2023
  - 10) UPJN Letter No. 69/PWPL/25 dated 19<sup>th</sup> Jun 2023
  - 11) UPJN Letter No. 1329/W-9/140 dated 20<sup>th</sup> Jun 2023
  - 12) NMCG Letter no. F. No. Pr-12012/6/2018/PPP/NMCG dated 07<sup>th</sup> Jul 2023.
  - 13) UPJN letter no. 76/PWPL/30 dated 14<sup>th</sup> July 2023
  - 14) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/918 dated 18<sup>th</sup> July 2023
  - 15) AECOM letter no. AIPL/NMCG/PRAYAG/1638 dated 24<sup>th</sup> July 2023
  - 16) UPJN Letter No. 82/PWPL/31 dated 27<sup>th</sup> July 2023
  - 17) PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/921 dated 02<sup>nd</sup> Aug 2023
  - 18) UPJN Letter No. 86/PWPL/34 dated 02<sup>nd</sup> Aug 2023

Dear Sir,

With reference to the above cited subject, it is to be noted that we have issued the 8<sup>th</sup> Milestone completion certificate vide letter mentioned at Sr. no. 13, Construction completion certificate vide letter mentioned at Sr. no. 16 and Trial Run completion certificate vide letter mentioned at Sr. no. 18 after the detailed assessment of the documents provided from the Concessionaire.

In view of the same, we are hereby issuing the COD certificate to the Concessionaire. Details of the same are mentioned below:

Sl. No.	Description	Commercial Operations Date (COD)
1	Construction Works of Phaphamau facility under Package-I	28.03.2023







This completion certificate is being issued on the basis of instructions received from NMCG vide letter mentioned at Sr. no. 6 & 12 and undertaking submitted by PWPL vide letter mentioned at Sr. no. 17.

Furthermore, all the conditions mentioned in Trial run completion certificate remain applicable.

Yours Faithfully



Project Manager  
Ganga Pollution Control Unit  
UPJN (Rural), Prayagraj



Executive Engineer  
Division office (E&M)  
UPJN (Rural), Prayagraj



Superintending Engineer  
Circle office, UPJN (Rural), Prayagraj

Copy Forwarded to Following for information and necessary action:

1. Executive Director (Project), NMCG, New Delhi
2. Additional Project director, SMCG Lucknow.
3. Chief Engineer (Ganga), UP Jal Nigam (Rural) Lucknow
4. Chief Engineer (Kanpur Zone), UP Jal Nigam (Rural) Lucknow
5. Shri Rajat Gupta, NMCG, New Delhi
6. Project Manager, GPCU, UP Jal Nigam (Rural), Prayagraj
7. Executive Engineer, Division office (E&M), UP Jal Nigam (Rural), Prayagraj
8. M/s. AECOM India Pvt Ltd.



Superintending Engineer  
Circle office, UPJN (Rural), Prayagraj

Commercial Operations Date was announced on 11.08.2023 vide letter no. 88/PWPL (Adani)/36

## Jhunshi Facility COD



OFFICE OF THE SUPERINTENDING ENGINEER,  
CIRCLE OFFICE,  
U.P. JAL NIGAM(RURAL), PRAYAGRAJ

Email - se\_2circle@rediffmail.com

Letter no. 110 1 P.L.P.L 146

Dated: 26/09/2023

To,

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

**Subject:** Design, Build, Rehabilitate, Finance, Operate and Transfer Sewage Treatment Plants (STPs) along with Associated Infrastructure with operation and maintenance period of 15 Years under Hybrid Annuity Based PPP model in Phaphamau, Jhunsi, Naini-II, Naini-I, Salori, Numayadahi, Rajapur, Ponghat & Kodara at Prayagraj (erstwhile Allahabad), Uttar Pradesh, India - **Issuance of Commercial Operations Date for Jhunsi facility under Package-I.**

**Reference:**

1. Concession Agreement dated 11th Jan 2019
2. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/896 dated 29th Mar 2023
3. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/901 dated 11th Apr 2023
4. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/902 dated 17th Apr 2023
5. NMCG Letter No. F. No. Pr 23012/2/2021 dated 26th May 2023
6. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/915 dated 13th July 2023
7. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/921 dated 25th July 2023
8. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/O&M/691 dated 26th Aug 2023
9. AECOM letter no. AIPL/NMCG/PRAYAG/1645 dated 28th Aug 2023
10. UPJN letter no. 96/PWPL/38 dated 29th Aug 2023
11. NMCG Letter No. F. No. Pr 12012/6/2018 dated 05th Sep 2023
12. PWPL letter no. PWPL/UPJN/PRAYAGRAJ/SITE/925 dated 05th Sep 2023
13. AECOM letter no AIPL/NMCG/PRAYAG/1653 dated 13th Sep 2023.
14. UPJN letter no 104/PWPL/40 dated 18th Sep 2023.
15. PWPL Letter no. PWPL/UPJN/PRAYAGRAJ/SITE/927 dated 18th Sep 2023
16. AECOM letter no. AIPL/NMCG/PRAYAG/1656 dated 20th Sep 2023.
17. UPJN Letter no. 105/PWPL/41 dated 21st Sep 2023
18. UPJN Letter no. 109/PWPL/45 dated 23rd Sep 2023

Dear Sir,

With reference to the above cited subject, it is to be noted that we have issued the 8<sup>th</sup> Milestone completion certificate vide letter mentioned at Sr. no. 14, Construction completion certificate vide letter mentioned at Sr. no. 17 and Trial Run completion certificate vide letter mentioned at Sr. no. 18 after the detailed assessment of the documents provided by you.

In view of the same, we are hereby issuing the COD certificate to you. Details of the same are mentioned below:

Sl. No.	Description	Commercial Operations Date (COD)
1	Construction Works of Jhunsi facility under Package-I	01.08.2023

This Commercial Operations Date certificate is being issued on the basis of instructions received from NMCG vide letter mentioned at Sr. no. 5 & 11.

Furthermore, all the conditions mentioned in Trial run completion certificate remains applicable.

  
**(Praveen Kutti)**  
**Superintending Engineer**

**Copy Forwarded to Following for information and necessary action:**


1. Executive Director (Project), NMCG, New Delhi
2. Additional Project director, NMCG Lucknow.
3. Chief Engineer (Ganga), UP Jal Nigam (Rural) Lucknow
4. Chief Engineer (Kanpur Zone), UP Jal Nigam (Rural) Lucknow
5. Shri Rajat Gupta, NMCG, New Delhi
6. Project Manager, GPCU, UP Jal Nigam (Rural), Prayagraj
7. Executive Engineer, Division office (E&M), UP Jal Nigam (Rural), Prayagraj
8. M/s. AECOM India Pvt Ltd.

  
**Superintending Engineer**

Commercial Operations Date was announced on 26.09.2023 vide letter no. 110/PWPL (Adani)/46

KPI REPORT'S OF PACKAGE - II,  
ACTION TAKEN REPORT AND RECOMMENDATION IS  
MENTIONED IN  
ANNEXURE - II

### 7.3 Package-II status


	<p>OFFICE OF THE GENERAL MANAGER, कार्यालय महाप्रबन्धक, GANGA POLLUTION CONTROL UNIT, गंगा प्रदूषण नियंत्रण इकाई, U.P. JAL NIGAM, PRAYAGRAJ उ० प्र० जल निगम, प्रयागराज Email- gmganga.allahabad@gmail.com Dated: 20/09/2021</p>												
<p>Letter no. 2484 /PWPL (Adani) / 496</p>													
<p>To, General Manger-Project M/s. Prayagraj Water Private Limited, "Adani House", 56, Shrimali Society, Near Mithakhall Six Road, Navrangpura, Ahmedabad 380006 Gujarat, India.</p>													
<p><b>Name of Work:</b> Development and Rehabilitation of Sewage Treatment Plants and Associated Infrastructure under Hybrid Annuity Based PPP Mode at Prayagraj, Uttar Pradesh.</p>													
<p><b>Sub:-</b> Concession Agreement no. 31/GM/2018-19: Issuance of Commercial Operations Date of Package-II.</p>													
<p><b>Ref :-</b> 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</p>													
<p>Sir, With reference to the above mentioned subject, it is to be noted that we have issued the 4<sup>th</sup> Milestone completion certificate vide Letter No. 2474/PWPL(Adani)/486 dated 18.09.2021 &amp; 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.</p>													
<p>In view of the same, we are hereby issuing the COD certificate to the concessionaire. Details of the same is mentioned below-</p>													
<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Commercial Operations Date (COD)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Rehabilitation works under Pkg-II</td> <td>01.06.2021</td> </tr> </tbody> </table>	Sl. No.	Description	Commercial Operations Date (COD)	1	Rehabilitation works under Pkg-II	01.06.2021	<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Commercial Operations Date (COD)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Rehabilitation works under Pkg-II</td> <td>01.06.2021</td> </tr> </tbody> </table>	Sl. No.	Description	Commercial Operations Date (COD)	1	Rehabilitation works under Pkg-II	01.06.2021
Sl. No.	Description	Commercial Operations Date (COD)											
1	Rehabilitation works under Pkg-II	01.06.2021											
Sl. No.	Description	Commercial Operations Date (COD)											
1	Rehabilitation works under Pkg-II	01.06.2021											
<p><b>End No &amp; date:</b> As above.</p>													
<p><b>Copy to following for information and necessary action</b></p>													
<ol style="list-style-type: none"> <li>Executive Director(Projects), NMCG, New Delhi.</li> <li>Chief Engineer (Ganga), U.P. Jal Nigam Lucknow.</li> <li>Chief Engineer (Prayagraj Zone), U.P. Jal Nigam, Prayagraj.</li> <li>Mr. Rajat Gupta, Sr. Specialist, NMCG, New Delhi.</li> <li>Project Manager (I/E&amp;M), Ganga Pollution Control Unit, U.P. Jal Nigam, Prayagraj.</li> <li>AECOM India Pvt. Ltd. (Project Engineer), Gurgaon.</li> </ol>													
<p>(M.C. Srivastava) General Manager</p>													
<p>General Manager</p>													

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

KPI REPORT'S OF PACKAGE - II,  
ACTION TAKEN REPORT AND RECOMMENDATION IS  
MENTIONED IN  
ANNEXURE - II



## 7.4 Package-III status



OFFICE OF THE GENERAL MANAGER,  
कार्यालय महाप्रबन्धक,  
GANGA POLLUTION CONTROL UNIT,  
गंगा प्रदूषण नियंत्रण इकाई,  
U.P. JAL NIGAM, PRAYAGRAJ  
उ.प्र. जल निगम प्रयागराज,  
सूचना : 0532-2664329, 2664691, फैक्स 0532-2664699

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

To,  
M/s. Prayagraj Water Private Limited,  
"Adani House", 56, Shrimali Society,  
Near Mithakhali Sia 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 2<sup>nd</sup> 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

Encl 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,  
ACTION TAKEN 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 November'2023.

Sr. No.	Site Visit & Meeting with UPJN / NMCG / PWPL	Date	Attendees	Description
1.	Site inspection of Salori STP	01-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
2.	Site inspection of Naini-I STP	02-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
3.	Site inspection of Numayadahi STP	03-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
4.	Site inspection of Kodra STP	04-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
5.	Site inspection of Ponghat STP	04-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
6.	Site inspection of Naini-II STP	06-Nov-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities of plant
7.	Site inspection of Naini-I STP	06-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
8.	Site inspection of Rajapur STP	07-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
9.	Site inspection of Salori STP	08-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
10.	Site inspection of Jhunsi STP	09-Nov-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities of plant
11.	Site inspection of Numayadahi STP	09-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant

12.	Site inspection of Phaphamau STP	10-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
13.	Site inspection of Naini-II STP	16-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
14.	Site inspection of Kodra STP	17-Nov-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities of plant
15.	Site inspection of Ponghat STP	17-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
16.	Site inspection of Phaphamau STP	18-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
17.	Site inspection of Naini-I STP	18-Nov-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities of plant
18.	Site inspection of Jhunsi STP	20-Nov-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities of plant
19.	Site inspection of Kodra STP	20-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
20.	Site inspection of Ponghat STP	20-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
21.	Site inspection of Rajapur STP	21-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
22.	Site inspection of Salori STP	22-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
23.	Site inspection of Numayadahi STP	23-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
24.	Site inspection of Rajapur STP	24-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
25.	Site inspection of Naini-I STP	25-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
26.	Site inspection of Jhunsi STP	28-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
27.	Site inspection of Naini-II STP	29-Nov-23	Mr. Gaurav Gupta	Inspection, supervision and monitoring of ongoing E&M activities of plant

28.	Site inspection of Phaphamau STP	29-Nov-23	Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant
29.	Site inspection of Salori STP	30-Nov-23	Mr. Gaurav Gupta Mr. Sudhir Tomar	Inspection, supervision and monitoring of ongoing E&M activities of plant



## 10. Photos of Meetings / Site Visits and Activities

### PACKAGE - I

#### PHAPHAMAU FACILITY



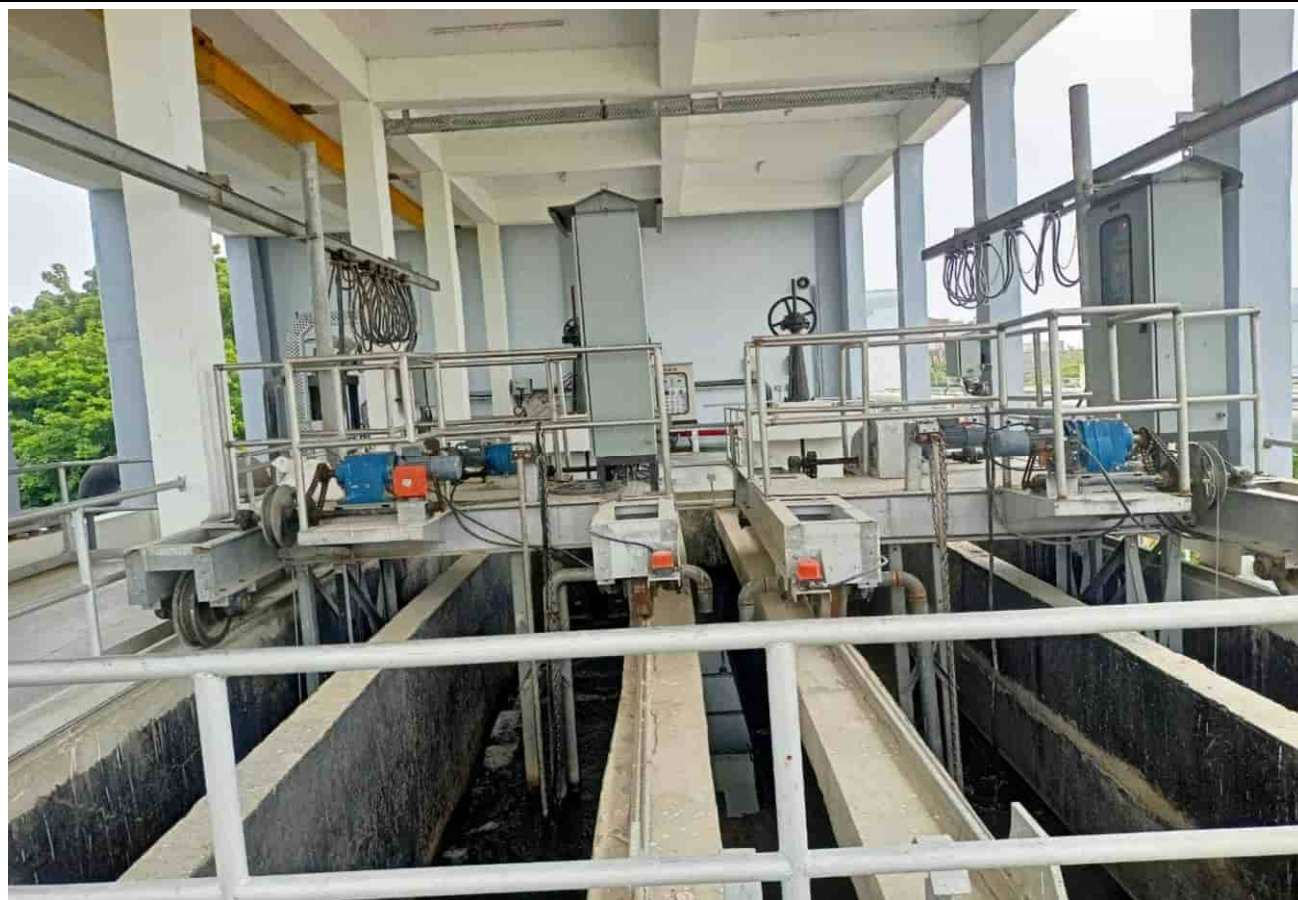
Main Plant view of 14 MLD Phaphamau STP



STP campus – Road and Finishing work status



PHAPHAMAU FACILITY



Process Building: Current status (Functional)





Shantipuram MPS: Current status (Functional)



FCR Tank: Current status (Functional)



FCR Tank





Basna Nalla SPS Current status (Functional)

#### NAINI-II FACILITY



Naini-II STP Process area.





Naini-II STP Staff quarter and Solar area

#### NAINI-II FACILITY



NAINI-II MPS– Current status (Functional)



FCR Tank – Current status (Functional)



Mahewaghat SPS– Current status (Functional)



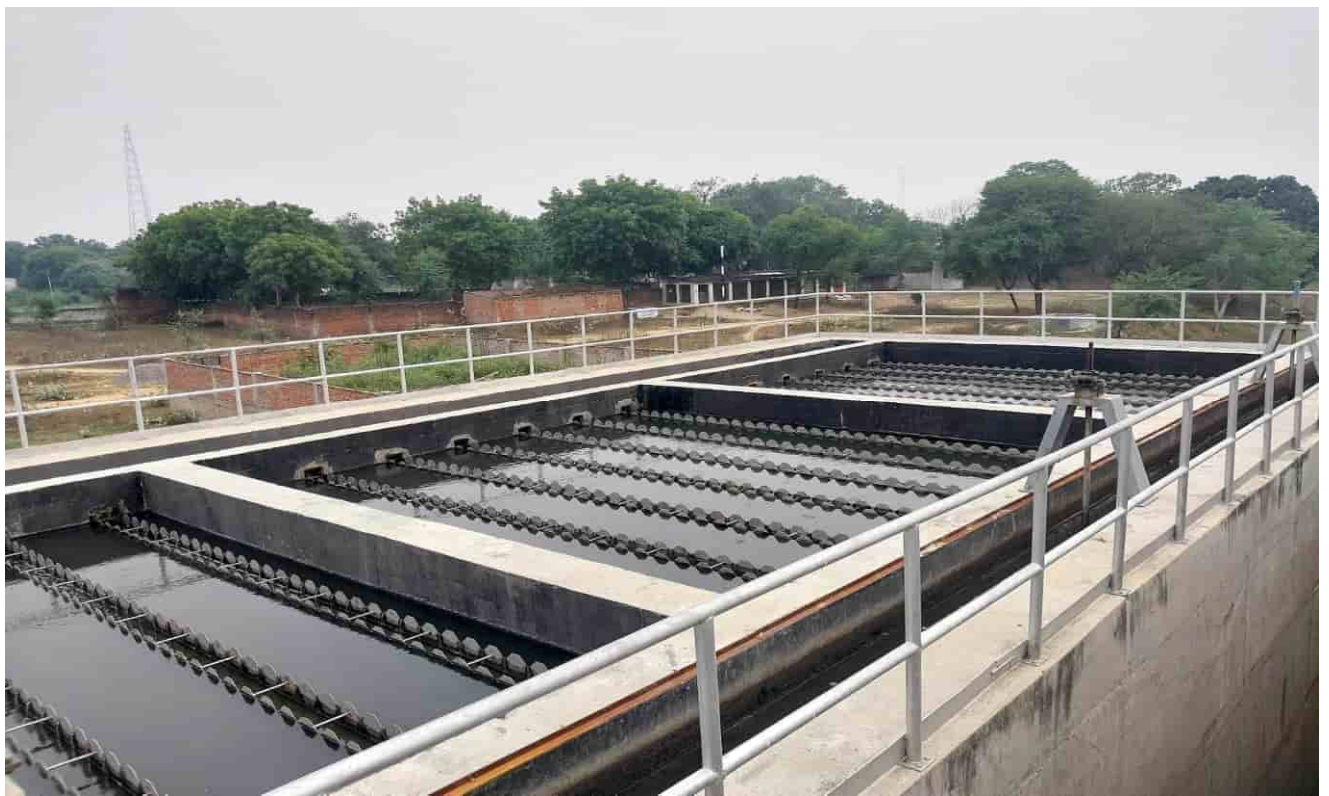


Mawaiya SPS– Current status (Functional)

#### JHUNSI FACILITY



Jhansi MPS – Current Status (Functional)



Tube settler– Current Status (Functional)

#### JHUNSI FACILITY





FCR Tank – Current status (Functional)



Shastri Bridge SPS – OutSide finishing Work is progress

## 11. Outward Register

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

Sr. No.	PE Transmittal/ Ref No	Description	Outward Date	To (Organization)
1.	AIPL/NMCG/PRAYAG/1680	Project Engineer Services for Prayagraj STP Project on Hybrid Annuity based PPP Mode.	1-Nov-2023	NMCG, New Delhi
2.	AIPL/NMCG/PRAYAG/1681	Submission of O & M Monthly Progress report for the month of Feb 2023 (19th Feb, 2023 to 28th Feb, 2023) of Naini-II Facility under Package – I	1-Nov-2023	S.E.-2 Circle(Rural) - UPJN
3.	AIPL/NMCG/PRAYAG/1682	Regarding finalization revised Guaranteed Energy Consumption for Phapahmau facility under Package-I.	3-Nov-2023	S.E.-2 Circle(Rural) - UPJN
4.	AIPL/NMCG/PRAYAG/1683	Submission of O & M Monthly Progress report for the month of March 2023 of Naini-II Facility under Package – I	3-Nov-2023	NMCG, New Delhi
5.	AIPL/NMCG/PRAYAG/1684	Submission of O & M Monthly Progress report for the month of September, 2023 of Package – III	3-Nov-2023	NMCG, New Delhi
6.	AIPL/NMCG/PRAYAG/1685	Submission of O & M Monthly Progress report for the month of April 2023 of Naini-II Facility under Package – I	4-Nov-2023	S.E.-2 Circle(Rural) - UPJN
7.	AIPL/NMCG/PRAYAG/1686	Submission of O & M Monthly Progress report for the month of May 2023 of Naini-II Facility under Package – I	6-Nov-2023	S.E.-2 Circle(Rural) - UPJN
8.	AIPL/NMCG/PRAYAG/1687	Submission of O & M Monthly Progress report for the month of October 2023 for Package - III Facility	20-Nov-2023	S.E.-2 Circle(Rural) - UPJN



Sr. No.	PE Transmittal/ Ref No	Description	Outward Date	To (Organization)
9.	AIPL/NMCG/PRAYAG/1688	Submission of O & M Monthly Progress report for the month of October 2023 for Package - II Facility	21-Nov-2023	S.E.-2 Circle(Rural) - UPJN
10.	AIPL/NMCG/PRAYAG/1689	Regarding testing of sludge sample as per methodology given in Concession Agreement at Jhansi STP under Package-I	29-Nov-2023	S.E.-2 Circle(Rural) - UPJN
11.	AIPL/NMCG/PRAYAG/1690	Inspection Reports of Package-II facilities	29-Nov-2023	S.E.-2 Circle(Rural) - UPJN
12.	AIPL/NMCG/PRAYAG/1691	Inspection Reports of Package-III facilities	30-Nov-2023	S.E.-2 Circle(Rural) - UPJN
13.	AIPL/NMCG/PRAYAG/1692	Inspection Reports of Package-I facilities	30-Nov-2023	S.E.-2 Circle(Rural) - UPJN

## 12. Inward Register

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

Sr. No.	PWPL / UPJN Transmittal reference number	Description	Date	From
1.	PWPL/UPJN/PRAYAGRAJ/O&M /731	Submission of O & M Invoice for the PIM difference of 9th , & 10th quarter of Package – III	01-Nov-23	Prayagraj water private limited
2.	PWPL/UPJN/PRAYAGRAJ/O&M /731	Submission of O&M monthly progress report for the month of Sep-23 of Package-III.	02-Nov-23	Prayagraj water private limited
3.	126/PWPL/51	Regarding release of final Milestone Payment for Phaphamau Facility under Package-I	01-Nov-23	S.E.-2 Circle (Rural)-UPJN
4.	PWPL/UPJN/PRAYAGRAJ/O&M /732	Regarding rectification and replacement of Diffusers at Naini I and Kodra STP	02-Nov-23	Prayagraj water private limited
5.	PWPL/UPJN/PRAYAGRAJ/O&M /733	Submission of O & M Invoice for the PIM difference of 6th & 7th quarter of Package – II.	02-Nov-23	Prayagraj water private limited
6.	PWPL/UPJN/PRAYAGRAJ/SITE /930	Re: Development of STP & Associated infrastructure at Prayagraj, Uttar Pradesh on PPP HAM Basis – Gravity main pipeline of Jhansi Facility under Package-I.	08-Nov-23	Prayagraj water private limited
7.	PWPL/UPJN/PRAYAGRAJ/O&M /738	Submission of O & M Monthly Progress report for the month of October 2023 for Package - III Facility	08-Nov-23	Prayagraj water private limited
8.	PWPL/UPJN/PRAYAGRAJ/O&M /739	Submission of O & M Monthly Progress report for the month of October 2023 for Package - II Facility	09-Nov-23	Prayagraj water private limited

Sr. No.	PWPL / UPJN Transmittal reference number	Description	Date	From
9.	PWPL/UPJN/PRAYAGRAJ/O&M /740	Ghagharnala Nala is required to be Cleaned before the starting of Auspicious Magh Mela to avoid overflow during the peak time	11-Nov-23	Prayagraj water private limited
10.	PWPL/UPJN/PRAYAGRAJ/O&M /741	Excess Flow receiving at Sewage Treatment Plants & Sewage Pumping Stations (Flow Record for the month of Oct 2023)	16-Nov-23	Prayagraj water private limited
11.	PWPL/UPJN/PRAYAGRAJ/O&M /742	Rectification work of Gravity main pipeline at Jhunsi Facility under Package-I	17-Nov-23	Prayagraj water private limited
12.	PWPL/UPJN/PRAYAGRAJ/SITE /931	Submission Pile foundation for Boundary Wall of Shastri Bridge SPS for Jhunsi Facility under Package-I.	17-Nov-23	Prayagraj water private limited
13.	PWPL/UPJN/PRAYAGRAJ/O&M /743	Regarding Rectification work of Gravity main pipeline at Jhunsi Facility under Package-I	20-Nov-23	Prayagraj water private limited
14.	PWPL/UPJN/PRAYAGRAJ/O&M /744	Submission of O & M Tax Invoice of 12th quarter (Aug 2023 – Oct 2023) of Package - III	20-Nov-23	Prayagraj water private limited
15.	PWPL/UPJN/PRAYAGRAJ/PMC G/72-23	Regarding claim for Setup for battery Bank for Solar Power Plant of Pkg-I STP's in lieu of Change in Law.	25-Nov-23	Prayagraj water private limited
16.	PWPL/UPJN/PRAYAGRAJ/O&M /745	Rectification work of Gravity main pipeline at Jhunsi Facility under Package-I	25-Nov-23	Prayagraj water private limited
17.	PWPL/UPJN/PRAYAGRAJ/O&M /746	Information regarding the energy meter malfunctioning at Mahewaghat SPS of Naini 2 Facility under Pkg- 1	25-Nov-23	Prayagraj water private limited

Sr. No.	PWPL / UPJN Transmittal reference number	Description	Date	From
18.	PWPL/UPJN/PRAYAGRAJ/O&M /747	Submission of O & M Monthly Progress report of Phaphamau Facility under Package – I, for the month of March 2023	27-Nov-23	Prayagraj water private limited
19.	PWPL/UPJN/PRAYAGRAJ/O&M /748	Information regarding the dismantling of old bio tower arms and installation of new bio tower arms at Numayadahi STP for one bio tower	28-Nov-23	Prayagraj water private limited
20.	PWPL/UPJN/PRAYAGRAJ/SITE /932	Submission of Design & Drawing of Toe wall of Shastri Bridge SPS for Jhansi Facility under Package-I.	28-Nov-23	Prayagraj water private limited
21.	PWPL/UPJN/PRAYAGRAJ/O&M /749	Submission of O & M Monthly Progress report for the month of October 2023 for Package - III Facility	29-Nov-23	Prayagraj water private limited

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

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

## 14. ANNEXURES

Annexure- I: KPI REPORTS OF PACKAGE -I, ACTION TAKEN  
REPORT AND RECOMMENDATION

Annexure- II: KPI REPORTS OF PACKAGE -II, ACTION  
TAKEN REPORT AND RECOMMENDATION

Annexure- III: KPI REPORTS OF PACKAGE -III, ACTION  
TAKEN REPORT AND RECOMMENDATION

Annexure- IV: PROJECT ENGINEER ACTIVITY AS PER TOR

ANNEXURE-I

*ACTION TAKEN REPORT AND KPI REPORT FOR  
PACKAGE-I*




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# 1. JHUNSI STP AND ASSOCIATE INFRASTRUCTURE

## 1.1 KPI Report:

<div><div></div><div>JHUNSI STP, 16 MLD STP at Prayagraj</div><div>adani</div></div>																
INLET FLOW & QUALITY REPORT																
Date	Daily Feed Quantity MLD (Design- 16 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design: <8)	Final pH (Design: 6.5 to 8.5)	Inlet BOD (Design: <150 mg/l)	Final BOD (Design: <20 mg/l)	Inlet COD (Design: <580 mg/l)	Final COD (Design: <58 mg/l)	Inlet TSS (Design: <580 mg/l)	Final TSS (Design: <30 mg/l)	Inlet (Design: NA)	Final (Design: <1000 MPN/100 ml)	Final (Design: <2 mg/l)	Outlet Concentra- tion (>20%)	Fecal Coliform (20,00,000 MPN/g TS)	
1-Nov-23	11350	11.35	7.84	7.78	155	13	350	44	323	14	NA	500	0.2	-	-	Since the sludge did not start generating as the STP was started after long time due to flood. Hence, sludge testing was not performed.
2-Nov-23	10840	10.84	7.93	7.67	160	15	285	46	250	16	NA	400	0.1	25.68	1100000	
3-Nov-23	11800	11.80	7.83	7.78	183	18	278	41	235	18	NA	400	0.2	23.19	1400000	
4-Nov-23	11550	11.55	7.79	7.69	160	16	282	44	240	16	NA	400	0.2	25.73	1400000	
5-Nov-23	8540	8.54	7.83	7.78	155	17	298	48	283	17	NA	600	0.3	23.01	1700000	
6-Nov-23	10630	10.63	7.87	7.60	180	18	302	43	280	18	NA	500	0.2	24.52	1300000	
7-Nov-23	11080	11.08	7.92	7.70	183	19	310	44	288	14	NA	600	0.2	23.60	1400000	
8-Nov-23	10680	10.68	7.78	7.58	180	17	320	41.3	280	16	NA	500	0.2	24.44	1300000	
9-Nov-23	9060	9.06	7.88	7.91	183	16	334	46	288	17	NA	400	0.3	23.01	1100000	
10-Nov-23	14080	14.08	7.78	7.67	180	15	330	36	280	19	NA	300	0.2	24.88	1400000	
11-Nov-23	11910	11.91	7.84	7.68	155	14	316	40	295	18	NA	500	0.3	23.04	1300000	
12-Nov-23	10970	10.97	7.88	7.73	160	13	329	42	290	19	NA	400	0.3	24.09	1100000	
13-Nov-23	10540	10.54	7.78	7.67	165	17	330	38	280	17	NA	600	0.2	23.61	1400000	
14-Nov-23	10720	10.72	7.83	7.79	155	16	340	46	307	19	NA	500	0.3	23.78	1300000	
15-Nov-23	10780	10.78	7.75	7.61	160	14	338	44	310	18	NA	600	0.2	24.43	1700000	
16-Nov-23	11090	11.09	7.82	7.68	165	15	348	44	305	16	NA	500	0.2	24.80	1400000	
17-Nov-23	11560	11.56	7.73	7.76	155	17	348	42	310	19	NA	400	0.2	23.77	1100000	
18-Nov-23	10980	10.98	7.67	7.74	180	18	340	40	301	17	NA	700	0.3	24.10	1700000	
19-Nov-23	10540	10.54	7.83	7.79	185	15	338	41	307	18	NA	600	0.3	23.88	1300000	
20-Nov-23	10260	10.26	7.92	7.67	190	14	330	38	306	18	NA	400	0.2	24.50	1400000	
21-Nov-23	10290	10.29	7.54	7.37	195	12	336	40	310	13	NA	500	0.3	23.58	1100000	
22-Nov-23	10580	10.58	7.83	7.78	180	15	342	44	312	15	NA	400	0.3	24.48	1300000	
23-Nov-23	10670	10.67	7.54	7.61	195	18	340	46	308	14	NA	500	0.2	23.50	1400000	
24-Nov-23	11130	11.13	7.83	7.67	195	16	344	42	314	17	NA	600	0.3	24.56	1100000	
25-Nov-23	11560	11.56	7.79	7.63	180	14	340	40	308	18	NA	500	0.2	23.60	1400000	
26-Nov-23	11840	11.84	7.83	7.79	183	17	342	44	312	18	NA	400	0.3	24.28	1300000	
27-Nov-23	11880	11.88	7.84	7.62	180	15	348	42	323	13	NA	700	0.3	23.73	1700000	
28-Nov-23	12180	12.18	7.79	7.35	155	18	344	40	314	18	NA	500	0.3	24.23	1400000	
29-Nov-23	12080	12.08	7.71	7.68	180	14	342	48	308	14	NA	400	0.2	23.64	1200000	
30-Nov-23	10380	10.38	7.67	7.78	155	18	348	44	310	18	NA	600	0.3	24.48	1100000	
Average:	11088.67	11.08	7.78	7.71	158.83	15.88	334.83	43.44	282.57	16.38	NA	508.88	0.25	24.13	1337831.83	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 1.2 Action taken Report:

Month of Site Inspection	November 2023
Site Inspectors	<ol style="list-style-type: none"><li>1. Mr. Syed Mohd Shabaz, EE-E&amp;M, UPJN(R), Prayagraj</li><li>2. Mr. Karunakar Singh, AE, UPJN(R), Prayagraj</li><li>3. Mr. Nirender, APE, GPCU, UPJN(R), Prayagraj</li><li>4. Mr. Jitender Yadav, JE, UPJN(R), Prayagraj</li><li>5. Mr. Gaurav Gupta, AECOM</li><li>6. Mr. Sudhir Tomar, AECOM</li><li>7. Mr. Teekam Singh, PWPL</li><li>8. Mr. Rahul Kumar Azaad, PWPL</li><li>9. Mr. Rahul Chaudhary, PWPL</li></ol>
Place(s) of Inspection	<ul style="list-style-type: none"><li>• 16 MLD Jhunsi STP</li><li>• 16 MLD Jhunsi MPS</li><li>• 16 MLD Shastri Bridge SPS</li></ul>

Visit was done on 9<sup>th</sup> November 2023, 20<sup>th</sup> November 2023, & 28<sup>th</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Jhunsi STP	8.54 to 14.08
2	Jhunsi MPS	8.54 to 14.08
3	Shastri Bridge SPS	8.68 to 14.18

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	13 to 19 mg/l
2	TSS – Effluent	< 50 mg/l	13 to 19 mg/l
3	pH – Effluent	6.5 – 9.0	7.37 to 7.88
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.19 to 25.04 %
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)
1	Jhunsi Facility	3109 to 4398

Note: 1) Source for above data is site record for power consumption of STP/MPS/SPS.

- Status of tasks related to Construction phase:

A. Civil Works:

A1. Works as per Scope of Works given in Schedule-1 of Concession Agreement:

Sr. No.	Work description	Status	Concessionaire action taken as on 09 <sup>th</sup> December 2023
1	At Shastri Bridge SPS, progress of civil construction works is very slow. As per current status, casting work for 18 <sup>th</sup> lift out 19 is in progress. After casting of all lifts, construction works for super structure and other civil works for the SPS will start.	Currently, RCC work, brick work and flooring work is completed. Plaster work and painting work is pending.	Outer plaster / outer painting work is under progress.
2	At Shastri Bridge SPS, construction of boundary wall and approach road is pending.	Work is pending.	Toe wall construction work has been completed & Pile work is under process.
3	At all 13 Interception and diversion points, arrangement for conveying sewage from existing nalla to the civil structure is pending.	Tapping of all I&Ds was completed except for Trivenipuram Nalla before flood. Currently, after receding of water level in river, sewage from all I&Ds is sent to Shastri Bridge SPS. The trunk sewer in between Savitri Nalla and Dham Nalla is choked, however Concessionaire is replacing this trunk sewer as the problem cannot be rectified. Currently, temporary pumping arrangement is provided for transferring sewage, but this arrangement is not sufficient because sewage is overflowing from Savitri Nalla & Bholi Mandir Nalla during peak hours. Therefore, Concessionaire is required to rectify the problem at the earliest for ensuring 100% availability of the facility.	Alternate pipeline work of 500mm Dia. is under progress and meanwhile the pumping through alternate method is under progress.
4	At all 13 Interception and diversion points, repairing work of civil structure which is damaged due to flood is pending.	Repairing work of civil structure was completed before flood however during inspection of I&D structures after receding of water level in river, it was found that minor repairing is required which is caused due to flood. Also, strengthening of retaining walls is required for ensuring 100% availability which is still pending.	Completed
5	At Shastri Bridge SPS, landscaping and site development work is pending.	Work is pending.	Landscaping work will be completed post completion of pathway work.

Sr. No.	Work description	Status	Concessionaire action taken as on 09 <sup>th</sup> December 2023
6	At Shastri Bridge SPS, installation of permanent type display/sign boards is pending.	Work is pending.	Will be completed along with painting work
7	At Jhunsi STP, laying of effluent pipeline is pending.	Work is pending for last stretch near river. It is required to provide permanent arrangement near last point of effluent discharge as per Schedule-1 in CA to avoid cutting of nearby land.	Work is under progress

**A2. Works related to or dependent on proposed Variation:**

S. No.	Work Description	Status	Concessionaire action taken as on 09 <sup>th</sup> December 2023
1	At Jhunsi MPS, landscaping and site development work is pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is dependent on land filling which is part of variation.	Will be done post COS approval.
2	At Jhunsi MPS, land filling work is pending	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is part of variation.	Will be done post COS approval.
3	At Jhunsi MPS, construction of loading and unloading bay is pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is dependent on land filling which is part of variation.	Will be done post COS approval.
4	At Jhunsi STP, construction of boundary wall is pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is part of variation.	Will be done post COS approval.
5	At Jhunsi STP, land filling work is pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is part of variation.	Will be done post COS approval.
6	At Jhunsi STP, construction works for Road & Drain are pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility	Will be done post COS approval, however bare minimum pathway work for approach will be done.

		is approved as this item is dependent on land filling which is part of variation.	
7	At Jhunsi STP, landscaping and development work for complete site is pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is dependent on land filling which is part of variation.	Will be done post COS approval.
8	At Jhunsi STP, arrangements for rainwater harvesting are pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is dependent on land filling which is part of variation.	Work is under progress.
9	Arrangements for treatment of sewage generated from Trivenipuram Nalla as per point-B in clause no. 3.2.1 of Schedule-1 of Concession Agreement.	Work is pending.	Will be done post COS approval.

B. E&M Works:

B1 Works as per Scope of Works given in Schedule-1 of Concession Agreement:

Sr. No.	Work description	Status	Concessionaire action taken as on 09 <sup>th</sup> December 2023
1	At Shastri Bridge SPS, mechanical works are pending.	<ul style="list-style-type: none"> <li>Alignment &amp; fixing of screw conveyor is pending</li> </ul>	<ul style="list-style-type: none"> <li>Completed</li> </ul>
2	At Shastri Bridge SPS, electrical works are pending.	<ul style="list-style-type: none"> <li>Outdoor lighting is pending.</li> </ul>	<ul style="list-style-type: none"> <li>Work is under progress.</li> </ul>
3	At Shastri Bridge SPS, instrumentation works are pending.	<ul style="list-style-type: none"> <li>Testing &amp; commissioning work of differential level transmitter is pending.</li> <li>Commissioning work of level transmitter is pending.</li> <li>Transmission of signal from SCADA system of Shastri Bridge SPS to Jhunsi STP is pending.</li> </ul>	<ul style="list-style-type: none"> <li>Completed</li> <li>Completed</li> <li>Work is under progress</li> </ul>
4	At all 13 Interception and diversion points, provide the gate at the inlet of I&D after manual screen for the avoiding of silt collection in manhole and rising main at the time of flood.	As informed by Concessionaire, order of desired gates is placed, and purchase order is released. Gates will be received at site by the end of Dec-23 as per PO. However, this work is not part of scope of works given in Schedule-1 of Concession Agreement but must be done as per site requirement at no extra cost to UPJN.	Gate procurement is under progress.



Sr. No.	Work description	Status	Concessionaire action taken as on 09 <sup>th</sup> December 2023
5	At Jhunsi MPS, installation of differential level transmitter for mechanical screen is pending.	Commissioning is completed. However, testing for the same is pending as mechanical screen is under maintenance.	Installation and commissioning are completed
6	At Jhunsi MPS, installation of outlet flowmeter is completed but it is not working.	Commissioning is completed. Calibration for the same is pending.	Calibration is Pending
7	At Jhunsi STP, installation of plants for FCR tanks are pending.	Work is in Progress.	Completed
8	At Jhunsi STP, installation of differential level transmitter for mechanical screen is pending.	Commissioning is completed. However, testing for the same is pending.	Completed
9	At Jhunsi STP, installation of inlet and outlet analysers is pending.	Commissioning is completed. However, calibration and validation for the same is pending. Currently, both analyzers are showing incorrect values as compared to lab records.	Completed but it is under observation.
10	At Jhunsi STP, installation of DO analysers for FCR tanks is pending.	Commissioning is completed. Currently one out of two DO analyzer is working, Also, testing for the same is pending.	Completed
11	At Jhunsi STP, installation of chlorine analyser at the outlet of STP is pending	Commissioning is completed. However, testing for the same is pending.	Completed
12	At Jhunsi STP, installation of outlet flowmeter is pending.	Commissioning is completed. Calibration for the same is pending.	Completed
13	At Jhunsi STP, erection & commissioning works of SCADA system are pending.	<ul style="list-style-type: none"> <li>All works are completed however, report generation in SCADA related to KPIs, flow and run hour of equipment is not accurate and fine tuning of online monitoring system is required.</li> <li>Data transfer from SCADA system of associated infrastructure to SCADA system of STP is not started yet.</li> </ul>	Almost 90% of the work is completed and balance work is under progress.
14	At Jhunsi STP, installation of asset management system is not started yet.	Work is pending.	Work is under progress
15	At Jhunsi STP, sluice valve of 400 mm is installed in place of approved size of 600mm in bypass line of STP which is not as per valve schedule.	Currently the arrangement is working fine but if any requirement arises in future, Concessionaire is required to do the needful for the same at no extra cost to UPJN.	If any requirement arises same will be taken care during O&M tenure.

## B2 Works related to or dependent on proposed Variation:



S. No.	Work Description	Status	Concessionaire action taken as on 09 <sup>th</sup> December 2023
1	At Jhunsi STP, construction of earthing pits is pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is dependent on land filling which is part of variation.	Will be executed post COS approval.
2	At Jhunsi STP, installation of permanent lights inside and outside the units for complete site are pending.	Work is pending. However as informed by Concessionaire, same will be completed once the variation related to Jhunsi facility is approved as this item is dependent on land filling which is part of variation.	Will be executed post COS approval.

Note: Reply given by Concessionaire is under observation and exact status of the same will be provided through the inspection report submitted by Project Engineer for the month of Dec-2023.

- Status of various units & records at site related to O&M phase:

1. Data transfer from online analyzer at the outlet of STP to CPCB servers is pending.
2. Flowmeter at inlet of STP is working. Calibration is pending.
3. Flowmeter at outlet of STP is working. Calibration is pending.
4. All Grit Removal Units are working.
5. Both Mechanical Screens are working. Currently screens are running in auto mode through timer.
6. All FCR units are working. Shade on top of FCRs is not installed yet for better maintenance of plants during summer season.
7. Minor Seepages from FCR & some other units can be seen, this must be rectified.
8. There is water logging in area between FCR and Tube settler tank for which a temporary submersible pump is installed for dewatering purpose however Concessionaires is required to provide permanent solution for the same.
9. DO analyzers for all FCR units are working.
10. All aeration blowers are working.
11. All tube settler units are working. Rectification of problem related to operating drain vales must be completed at the earliest. Also, problem of filling of water in pits for drain valves must be rectified for ease in operation and maintenance of drain valves.
12. Quality of effluent is Satisfactory.
13. Sludge dewatering unit was in operation. Poly preparation unit was in operation.
14. Both dewatering feed pumps are working.
15. Both chlorinators are working. Both booster pumps are working.
16. Chlorine analyzer at outlet is working but not showing correct values. Calibration is pending.
17. Both transformers are working.
18. Leak absorption system is working and must always be kept in auto mode.
19. Both DGs are working.
20. In SCADA system of STP, signals from associated infrastructure are not coming hence report is not generated. Concessionaire is required to rectify this problem for better monitoring.
21. For Jhunsi MPS, following observations were made during visit:
  - a) All submersible pumps are working.
  - b) Mechanical screen is under maintenance.

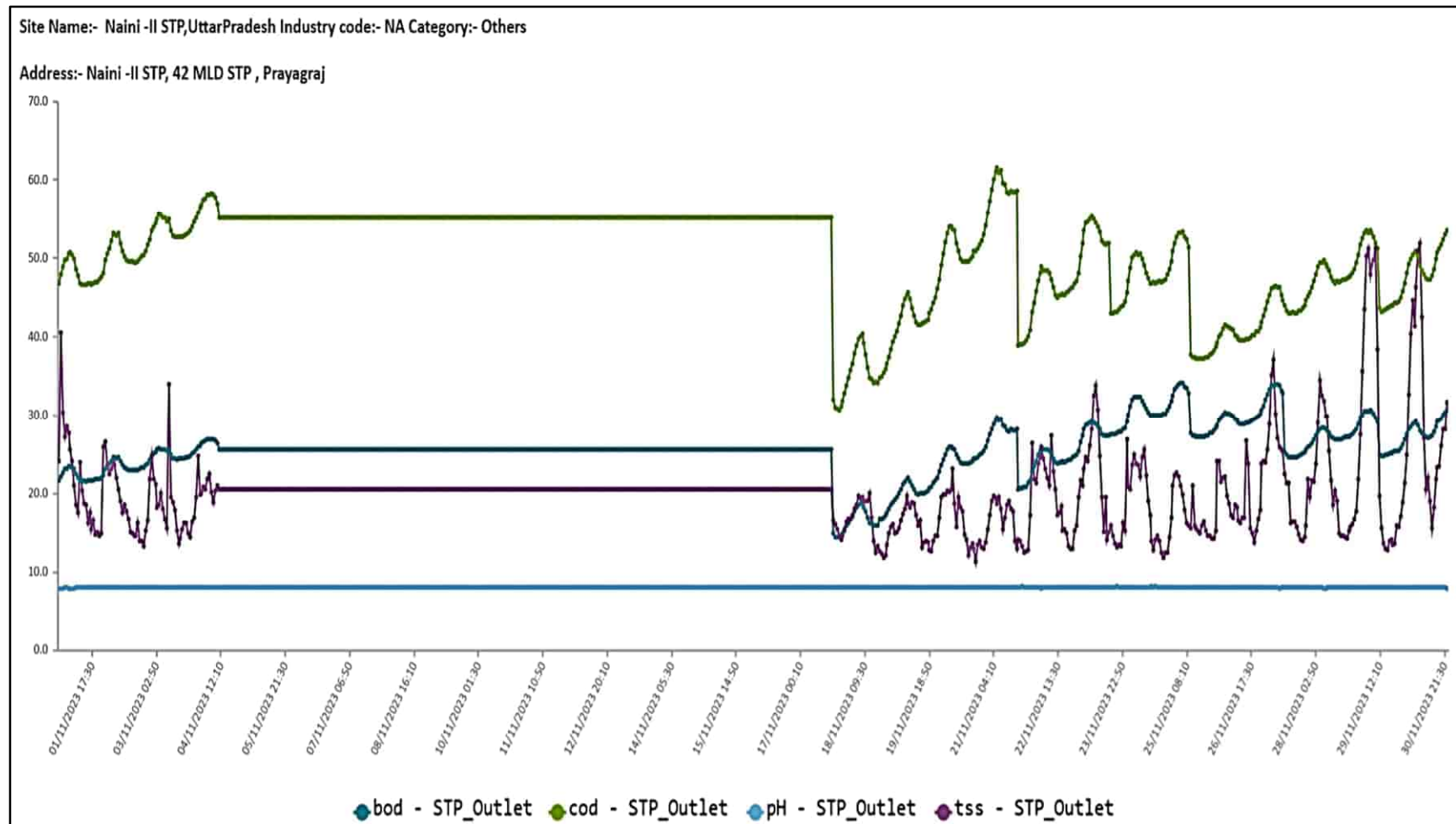
22. For Shastri Bridge SPS, following observations were made during visit:
  - a) Four submersible pumps are working, and one pump is under maintenance.
  - b) Mechanical screen was working but not taken into operation due to pending work of screw conveyor. Currently sewage is being passed through manual screen.
  - c) Fixing of discharge chute for screw conveyor is pending.
  - d) DG set is OK for operation.
  
23. Since COD is announced for all Package – I facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:
  - a) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
  - b) Testing of TN, NH<sub>4</sub>-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
  - c) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
  - d) Quarterly report as per Part-G in Schedule-10 of CA.
  - e) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
  - f) Procedure for recording & disposal of complaints.
  - g) Safety & Health Records. Incident reports must also be submitted along with action plan.
  - h) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website

### 1.3 Recommendations

- 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 FCRs also for checking the efficiency of FCRs.
- 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 material remaining from construction works must be removed from the site.
- 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.
- Awareness trainings for workers must be given for encouraging them to use PPEs.

## 2. NAINI-II STP AND ASSOCIATE INFRASTRUCTURE

### 2.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

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



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



Date	Daily Feed Quantity MLD (Design-42 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design-<20 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design-<50 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design-<30 mg/l)	Inlet (Design-NA)	Final (Design-<1000 MPN/100 ml)	Final (Design-0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	38540	38.54	7.72	7.86	160	21	310	42	260	24	NA	600	0.2	24.84	1200000	
2-Nov-23	36010	36.01	7.74	7.89	155	20	322	41	275	21	NA	500	0.2	25.11	1700000	
3-Nov-23	37140	37.14	7.70	7.91	165	21	330	44	282	20	NA	400	0.3	24.68	1200000	
4-Nov-23	37400	37.40	7.68	7.87	160	23	320	48	273	22	NA	600	0.2	25.20	1400000	
5-Nov-23	39280	39.28	7.77	7.89	155	22	325	46	278	21	NA	700	0.3	23.87	1100000	
6-Nov-23	36850	36.85	7.78	7.87	160	24	340	45	284	23	NA	600	0.2	24.21	1300000	
7-Nov-23	37500	37.50	7.72	7.88	165	22	334	46	280	20	NA	400	0.3	24.40	1400000	
8-Nov-23	38890	38.89	7.74	7.86	155	21	320	44	267	23	NA	500	0.2	25.14	1200000	
9-Nov-23	39160	39.16	7.82	7.92	160	20	344	40	282	21	NA	400	0.3	24.37	1700000	
10-Nov-23	39170	39.17	7.74	7.89	165	22	332	42	276	20	NA	600	0.2	23.86	1300000	
11-Nov-23	40220	40.22	7.71	7.86	170	21	340	44	283	24	NA	700	0.2	24.06	1100000	
12-Nov-23	40540	40.54	7.69	7.88	175	22	368	43	288	23	NA	500	0.2	24.14	1400000	
13-Nov-23	39550	39.55	7.67	7.85	175	20	350	46	291	25	NA	700	0.3	23.91	1200000	
14-Nov-23	38080	38.08	7.68	7.87	160	18	328	44	293	24	NA	600	0.2	24.35	1700000	
15-Nov-23	37200	37.20	7.66	7.84	165	19	318	45	275	26	NA	700	0.2	23.81	1400000	
16-Nov-23	37630	37.63	7.64	7.85	155	20	322	44	278	25	NA	500	0.3	24.30	1300000	
17-Nov-23	38420	38.42	7.62	7.84	160	19	344	40	283	20	NA	600	0.3	25.07	1200000	
18-Nov-23	37660	37.66	7.70	7.90	175	18	350	38	288	17	NA	400	0.2	24.61	1300000	
19-Nov-23	39340	39.34	7.79	7.89	170	19	352	44	280	16	NA	700	0.3	24.10	1400000	
20-Nov-23	39300	39.30	7.80	7.91	175	23	364	48	271	16	NA	500	0.2	23.90	1100000	
21-Nov-23	40170	40.17	7.86	7.95	175	24	360	49	281	17	NA	600	0.3	23.89	1200000	
22-Nov-23	39030	39.03	7.81	7.88	170	25	356	46	269	20	NA	400	0.2	24.37	1100000	
23-Nov-23	38880	38.88	7.76	7.86	185	26	368	47	279	21	NA	700	0.2	23.99	1300000	
24-Nov-23	39120	39.12	7.88	7.92	185	28	370	48	268	18	NA	500	0.3	24.06	1100000	
25-Nov-23	39590	39.59	7.9	7.95	180	28	360	45	265	16	NA	600	0.3	25.07	1700000	
26-Nov-23	38840	38.84	7.85	7.89	180	29	355	41	285	20	NA	700	0.2	24.40	1200000	
27-Nov-23	39300	39.30	7.5	7.7	185	27	360	43	273	21	NA	600	0.2	23.86	1400000	
28-Nov-23	39780	39.78	7.8	7.89	195	26	365	45	270	22	NA	400	0.3	25.14	1700000	
29-Nov-23	39870	39.87	7.55	7.9	190	27	370	44	260	25	NA	400	0.3	24.05	1400000	
30-Nov-23	45310	45.31	7.86	7.91	185	28	368	48	273	29	NA	500	0.2	23.70	1400000	
<b>Average</b>	<b>38925.67</b>	<b>38.93</b>	<b>7.74</b>	<b>7.88</b>	<b>170.33</b>	<b>22.77</b>	<b>344.83</b>	<b>44.33</b>	<b>277.00</b>	<b>21.33</b>	<b>NA</b>	<b>553.33</b>	<b>0.24</b>	<b>24.35</b>	<b>1336666.67</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 2.2 Action taken Report:

Month of Site Inspection	November 2023
Site Inspectors	<ol style="list-style-type: none"> <li>1. Mr. Syed Mohd Shabaz, EE-E&amp;M, UPJN(R), Prayagraj</li> <li>2. Mr. Karunakar Singh, AE, UPJN(R), Prayagraj</li> <li>3. Mr. Sudheer, APE, GPCU, UPJN(R), Prayagraj</li> <li>4. Mr. Jitender Yadav, JE, UPJN(R), Prayagraj</li> <li>5. Mr. Gaurav Gupta, AECOM</li> <li>6. Mr. Sudhir Tomar, AECOM</li> <li>7. Mr. Teekam Singh, PWPL</li> <li>8. Mr. Rahul Kumar Azaad, PWPL</li> <li>9. Mr. Rahul Chaudhary, PWPL</li> </ol>
Place(s) of Inspection	<ul style="list-style-type: none"> <li>• 42 MLD STP at Naini-II, Prayagraj</li> <li>• 43.54 MLD MPS at Naini-II, Prayagraj</li> <li>• 35.85 MLD SPS at Mawaiya, Prayagraj</li> <li>• 2.15 MLD SPS at Mahewaghat, Prayagraj</li> </ul>

Visit was done on 6<sup>th</sup> November 2023, 16<sup>th</sup> November 2023 & 29<sup>th</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Naini-II STP	36.01 to 40.54
2	Naini-II MPS	36.01 to 40.54
3	Mawaiya SPS	31.97 to 37.33
4	Mahewagaht SPS	0.71 to 1.19

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

- Status of KPIs:

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 30 mg/l	18 to 24 mg/l
2	TSS – Effluent	< 50 mg/l	20 to 26 mg/l
3	pH – Effluent	6.5 – 9.0	7.84 to 7.95
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.81 to 25.20 %
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)
1	Naini II Facility	4427 to 5538

Note: 1) Source for above data is site record for power consumption of STP/MPS/SPS.



- Status of tasks related to Construction phase:

A. Civil Works:

Sr. No.	Work description	Status
1.	At Naini-II STP, rectification for problem of water logging in area between FCR and Tube settler tank is in progress.	Completed but permanent solution for the same must be provided i.e., land filling in the area must be done as suggested.
2.	At Naini-II STP, rectification of effluent pipeline near outfall area as per site condition.	Work is pending. Currently, temporary arrangement is provided by means of boulder pitching and concrete. However, this work was completed once but pipes broke down in the month of June-23 due to soil erosion.

B. E&M Works:

Sr. No.	Work description	Status
1.	At all Interception and diversion points, provide the gate at the inlet of I&D after manual screen for avoiding of silt collection in manhole and rising main at the time of flood.	As informed by Concessionaire, order of desired gates is placed, and purchase order is released. Gates will be received at site by the end of Dec-23 as per PO. However, this work is not part of scope of works given in Schedule-1 of Concession Agreement but must be done as per site requirement at no extra cost to UPJN.
2.	At Naini-II STP, rectifications of observations regarding SCADA system are required which were given during visit. Concessionaire is required to provide report generation regarding KPIs, flow and running hours as per the method discussed at site.	Latest reports are checked and found that they are almost stabilized apart from minor variations. Also, run hour report from for equipment in SCADA system is not complete. Therefore, Concessionaire is suggested to keep doing fine tuning of SCADA system during O&M phase also and do the changes as per observations given for getting better performance as per CPCB norms and Concession Agreement.
3.	At Naini-II STP, installation of asset management system is pending.	Asset Management System is almost ready hence Concessionaire is required to use the same in daily maintenance activities. Reports generated from Asset Management System must be filed regularly and submitted along with Monthly Progress Reports which is not started yet. Also, changes must be made as per observations given for better performance.

- Status of various units & records at site related to O&M phase:

1. Latest SCADA reports regarding KPIs for the STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
2. Latest SCADA reports regarding KPIs for the STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized



apart from some minor variations.

3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that data from 04<sup>th</sup> Nov 2023 to 17<sup>th</sup> Nov 2023 was not transferred to online portal. Also, sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. Flowmeter at inlet of STP is working.
5. Flowmeter at outlet of STP is working.
6. All Grit Removal Units are working.
7. Both Mechanical Screens are working. Currently screens are running in auto mode through timer.
8. All FCR units are working. Shade on top of FCRs is not installed yet for better maintenance of plants during summer season.
9. Minor Seepages from FCR & some other units can be seen, this must be rectified.
10. There is water logging in area between FCR and Tube settler tank for which a temporary submersible pump is installed for dewatering purpose however Concessionaires is required to provide permanent solution for the same.
11. DO analyzers for all FCR units are working.
12. All aeration blowers are working.
13. All tube settler units are working. Rectification of problem related to operating drain vales must be completed at the earliest. Also, problem of filling of water in pits for drain valves must be rectified for ease in operation and maintenance of drain valves.
14. Quality of effluent is Good.
15. Sludge dewatering unit was in operation. Poly preparation unit was in operation.
16. All dewatering feed pumps are under maintenance. Currently, submersible pump is being used for transferring sludge from digesters to dewatering building. Concessionaire is required to provide permanent solution for the same.
17. Both chlorinators are working. Both booster pumps are working.
18. Chlorine analyzer at outlet is working but not showing correct values.
19. Installation of Safety shower and eyewash near chlorination unit is pending.
20. One out of two transformers is in maintenance hence there is currently no standby for the STP.
21. Leak absorption system is working. It must always be kept in auto mode.
22. Both DGs are working.
23. In SCADA system of STP, signals from associated infrastructure are not coming properly hence report is not generated accurately. Concessionaire is required to rectify this problem for better monitoring.
24. In all I&D, cleaning of garbage must be done regularly.
25. For Naini-II MPS, following observations were made during visit:
  - c) All submersible pumps are working.
  - d) Both mechanical screens are working. Currently screens are running in auto mode through timer.
26. For Mawaiya SPS, following observations were made during visit:
  - e) All submersible pumps are working.
  - f) Both mechanical screens are working. Currently screens are running in auto mode through timer.
  - g) One out of two transformers is in maintenance hence there is currently no standby for the SPS.
  - h) DG sets are OK for operation.
27. For Mahewaghat SPS, following observations were made during visit:

- a) Two out of three submersible pumps are working, one pump is in maintenance.
- b) Mechanical screens are working. Currently screens are running in auto mode through timer.
- c) DG set is OK for operation.

28. Since COD is announced for all Package – I 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:

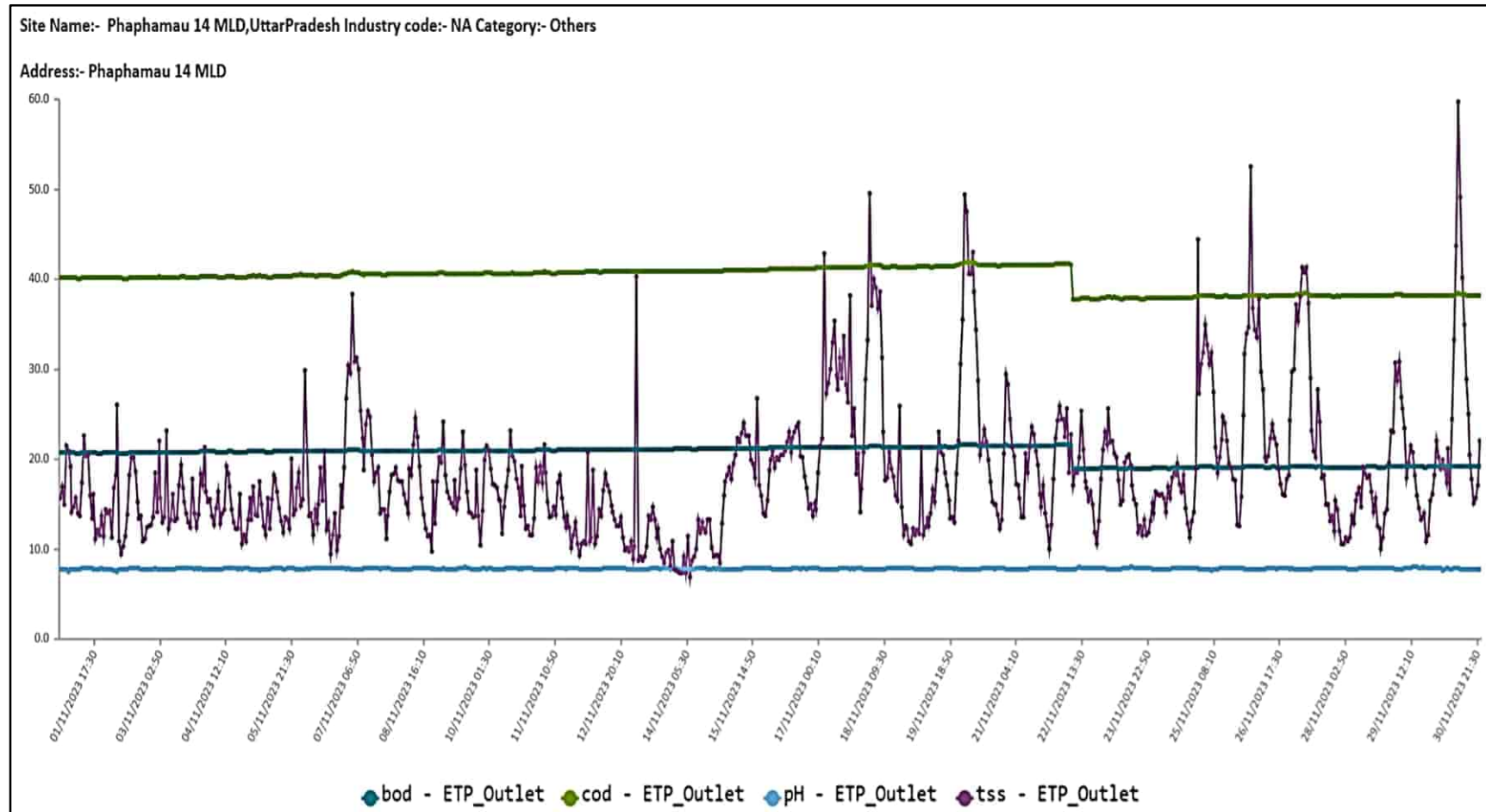
- i) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
- j) Testing of TN, NH<sub>4</sub>-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
- k) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
- l) Quarterly report as per Part-G in Schedule-10 of CA.
- m) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
- n) Procedure for recording & disposal of complaints.
- o) Safety & Health Records. Incident reports must also be submitted along with action plan.
- p) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.

### 2.3 Recommendations:

- 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 FCRs also for checking the efficiency of FCRs.
- 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 material remaining from construction works must be removed from the site.
- 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.
- Awareness trainings for workers must be given for encouraging them to use PPEs.

### 3. PHAPHAMAU STP AND ASSOCIATE INFRASTRUCTURE

#### 3.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

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



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



Date	Daily Feed Quantity MLD (Design- 14 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	15850	15.85	7.82	7.83	150	18	300	36	276	17	NA	600	0.2	23.41	1700000	
2-Nov-23	15520	15.52	7.75	7.82	160	20	312	44	274	16	NA	400	0.3	23.48	1400000	
3-Nov-23	14620	14.62	7.65	7.85	155	21	316	36	278	16	NA	500	0.2	23.24	1300000	
4-Nov-23	15150	15.15	7.59	7.82	160	20	312	44	265	17	NA	600	0.3	23.4	1700000	
5-Nov-23	16080	16.08	7.56	7.84	155	21	316	36	273	16	NA	400	0.2	23.32	1400000	
6-Nov-23	15390	15.39	7.60	7.88	160	20	308	44	275	15	NA	500	0.3	23.59	1300000	
7-Nov-23	15650	15.65	7.55	7.87	165	21	300	40	279	23	NA	600	0.2	23.58	1700000	
8-Nov-23	15760	15.76	7.65	7.82	160	20	308	44	290	17	NA	400	0.2	24.27	1400000	
9-Nov-23	14810	14.81	7.58	7.84	165	20	304	40	280	18	NA	500	0.3	22.08	1300000	
10-Nov-23	16800	16.8	7.62	7.86	155	21	292	44	300	16	NA	600	0.3	24.53	1400000	
11-Nov-23	16100	16.1	7.76	7.84	160	20	300	40	295	15	NA	400	0.2	23.83	1700000	
12-Nov-23	15670	15.67	7.75	7.84	155	21	287	44	285	14	NA	500	0.3	24.27	1300000	
13-Nov-23	14280	14.28	7.71	7.84	155	22	276	40	270	11	NA	400	0.2	23.9	1400000	
14-Nov-23	14220	14.22	7.72	7.83	160	22	292	44	290	10	NA	600	0.3	23.98	1700000	
15-Nov-23	14400	14.4	7.71	7.85	155	20	300	40	262	20	NA	500	0.2	23.52	1300000	
16-Nov-23	13990	13.99	7.72	7.85	160	22	304	44	248	21	NA	400	0.2	24.29	1700000	
17-Nov-23	13470	13.47	7.64	7.82	160	21	300	40	245	24	NA	500	0.3	22.73	1300000	
18-Nov-23	14540	14.54	7.64	7.84	155	22	304	44	240	23	NA	400	0.3	23.74	1400000	
19-Nov-23	14760	14.76	7.56	7.81	160	20	308	40	260	16	NA	600	0.2	23.31	1700000	
20-Nov-23	16100	16.1	7.52	7.84	160	22	316	44	248	25	NA	400	0.3	22.5	1300000	
21-Nov-23	15640	15.64	7.53	7.83	155	21	308	40	230	18	NA	600	0.2	24.53	1700000	
22-Nov-23	14540	14.54	7.52	7.85	160	20	300	36	250	19	NA	400	0.3	22.73	1300000	
23-Nov-23	14760	14.76	7.43	7.88	155	21	308	40	240	17	NA	600	0.3	22.73	1700000	
24-Nov-23	13950	13.95	7.40	7.84	165	20	304	36	245	16	NA	400	0.2	24.11	1400000	
25-Nov-23	14330	14.33	7.34	7.86	160	20	296	40	240	24	NA	500	0.3	24.29	1300000	
26-Nov-23	13750	13.75	7.35	7.85	165	20	304	36	260	25	NA	400	0.2	23.4	1700000	
27-Nov-23	14050	14.05	7.30	7.86	155	19	308	40	250	24	NA	500	0.2	24.53	1400000	
28-Nov-23	13050	13.05	7.28	7.88	160	19	304	40	260	15	NA	600	0.3	24.12	1300000	
29-Nov-23	14690	14.69	7.18	7.90	155	20	292	36	240	20	NA	400	0.2	23.79	1700000	
30-Nov-23	16780	16.78	7.07	7.85	160	18	304	40	290	26	NA	600	0.3	23.63	1300000	
<b>Average</b>	<b>14956.67</b>	<b>14.96</b>	<b>7.55</b>	<b>7.85</b>	<b>158.50</b>	<b>20.40</b>	<b>302.77</b>	<b>40.40</b>	<b>264.60</b>	<b>18.47</b>	<b>NA</b>	<b>493.33</b>	<b>0.25</b>	<b>23.63</b>	<b>1473333.33</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant.

### 3.2 Action taken Report:

Month of Site Inspection	November 2023
Site Inspectors	10. Mr. Syed Mohd Shabaz, EE-E&M, UPJN(R), Prayagraj 11. Mr. Karunakar Singh, AE, UPJN(R), Prayagraj 12. Mr. Nirender, APE, GPCU, UPJN(R), Prayagraj 13. Mr. Jitender Yadav, JE, UPJN(R), Prayagraj 14. Mr. Gaurav Gupta, AECOM 15. Mr. Sudhir Tomar, AECOM 16. Mr. Teekam Singh, PWPL 17. Mr. Rahul Kumar Azaad, PWPL 18. Mr. Rahul Chaudhary, PWPL
Place(s) of Inspection	<ul style="list-style-type: none"> <li>14 MLD STP at Phaphamau, Prayagraj</li> <li>14 MLD MPS at Phaphamu, Prayagraj</li> <li>5.53 MLD SPS at Basna Nalla, Prayagraj</li> </ul>

Visit was done on 10<sup>th</sup> November 2023, 18<sup>th</sup> November 2023 & 29<sup>th</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped/Received at Facility (MLD)
1	Phaphamu STP	13.47 to 16.80
2	Shantipuram MPS	13.47 to 16.80
3	Basna nalla SPS	3.54 to 4.72

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

- Status of KPIs:

S. No.	Parameter Name	Design Value	Parameter Value
1	BOD – Effluent	< 30 mg/l	18 to 22 mg/l
2	TSS – Effluent	< 50 mg/l	10 to 25 mg/l
3	pH – Effluent	6.5 – 9.0	7.81 to 7.88
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 600 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.05 to 24.98 %
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1300000 to 1700000 MPN/gTS

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

- Status of Energy Consumption:

S. No.	Facility Name	Actual Energy Consumption (KWH)
1	Phaphamu Facility	2785 to 3410

Note: 1) Source for above data is site record for power consumption of STP/MPS/SPS.

- Status of tasks related to Construction phase:



C. Civil Works:

Sr. No.	Work description	Status
1.	At Basna Nalla SPS, epoxy coating in wet well is pending.	Work is pending.
2.	At Basna Nalla SPS, it is required to provide strength to temporary bund required for diverting sewage to tapping point. Breakage of this bund is very frequent due to which raw water goes to the river without any treatment.	Work for strengthening of retaining wall is pending and will be completed in dry weather season as per information given by Concessionaire. It must be done to ensure 100% availability of Basna Nalla SPS.
3.	At Phaphamau STP, landscaping and development work for complete site is pending.	Completed apart from material stacked at the gate which must be shifted to appropriate place.

D. E&M Works:

Sr. No.	Work description	Status
1.	At Shantipuram and Basna Nalla Interception and diversion points, provide the gate at the inlet of I&D after manual screen for the avoiding of silt collection in manhole and rising main at the time of flood.	As informed by Concessionaire, order of desired gates is placed, and purchase order is released. Gates will be received at site by the end of Dec-23 as per PO. However, this work is not part of scope of works given in Schedule-1 of Concession Agreement but must be done as per site requirement at no extra cost to UPJN.
2.	At Phaphamau STP, installation of solar plant of 77.1 KW capacity but solar plant of 110 KW is to be installed at STP as per CA.	Work is pending. However, Concessionaire vide letter no. PWPL/UPJN/PRAYAGRAJ/SITE/929 dated 28 <sup>th</sup> Oct 2023, have agreed to install solar power plant of remaining capacity i.e., 33 KW.
3.	At Phaphamau STP, it is required to use more colors and animation in SCADA system for making it more distinguished and user-friendly. Also, report generation regarding KPIs, running hours of equipment and flow is pending in SCADA system as per requirement.	Latest reports of Oct-23 are checked and found that they are almost stabilized apart from minor variations. Also, run hour report from for equipment in SCADA system is not complete. Therefore, Concessionaire is suggested to keep doing fine tuning of SCADA system during O&M phase also and do the changes as per observations given for getting better performance as per CPCB norms and Concession Agreement.
4.	At Phaphamau STP, installation of asset management system is not started yet.	Asset Management System is almost ready hence Concessionaire is required to use the same in daily maintenance activities. Reports generated from Asset Management System must be filed regularly and submitted along with Monthly Progress Reports. Also, changes must be made as per observations given for better performance.

- Status of various units & records at site related to O&M phase:

1. Latest SCADA reports regarding KPIs for the STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
2. Latest SCADA reports regarding KPIs for the STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that for TSS, sudden spikes/drops can be seen in the graphs while for pH, BOD, COD, the graphs are showing same values for complete month which is fundamentally not correct.
4. Flowmeter at inlet of STP is working.
5. Flowmeter at outlet of STP is working.
6. All Grit Removal Units are working. Bridge for one Grit Removal unit is rubbing the RCC column, due to which it is not moving properly. Concessionaires is required to provide permanent solution for the same.
7. There are some leakages in chamber of screw conveyor and organic return pump for Grit Removal Units. Concessionaires is required to rectify the same.
8. Both Mechanical Screens are working. Currently screens are running in auto mode through timer.
9. All FCR units are working. Shade on top of FCRs is not installed yet for better maintenance of plants during summer season.
10. There is water logging in area between FCR and Tube settler tank for which a temporary submersible pump is installed for dewatering purpose however Concessionaires is required to provide permanent solution for the same.
11. DO analyzers for all FCR unit are working.
12. All aeration blowers are working.
13. All tube settler units are working. Rectification of problem related to operating drain vales must be completed at the earliest. Also, problem of filling of water in pits for drain valves must be rectified for ease in operation and maintenance of drain valves.
14. Quality of effluent is Good.
15. Sludge dewatering unit was in operation. Poly preparation unit was in operation.
16. Both dewatering feed pumps are working.
17. Both chlorinators are working. Both booster pumps are working.
18. Chlorine analyzer at outlet is working but not showing correct values.
19. Both transformers are working.
20. Leak absorption system is working and must always be kept in auto mode.
21. Both DGs are working.
22. In SCADA system of STP, signals from associated infrastructure are not coming properly hence report is not generated accurately. Concessionaire is required to rectify this problem for better monitoring.
23. For Shantipuram MPS, following observations were made during visit:
  - a) All submersible pumps are working.
  - b) Mechanical screen is working. Currently screens are running in auto mode through timer.
  - c) Provide proper cover for discharge chute of screw conveyor for mechanical screen.
  - d) Housekeeping must be improved.
24. For Basna Nalla SPS, following observations were made during visit:
  - i) All submersible pumps are working.
  - j) Mechanical screen is working. Currently screens are running in auto mode through timer.
  - k) DG set is OK for operation.
25. Since COD is announced for all Package – I 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:

- q) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
- r) Testing of TN, NH<sub>4</sub>-N, TP for composite samples of influent must be performed each day as per Part-G in Schedule-10 of CA.
- s) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
- t) Quarterly report as per Part-G in Schedule-10 of CA.
- u) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
- v) Procedure for recording & disposal of complaints.
- w) Safety & Health Records. Incident reports must also be submitted along with action plan.
- x) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
- y) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

### 3.3 Recommendations

- 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 FCRs also for checking the efficiency of FCRs.
- 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 material remaining from construction works must be removed from the site.
- 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.
- Awareness trainings for workers must be given for encouraging them to use PPEs.

ANNEXURE-II

*KPI REPORTS OF PACKAGE -II, ACTION TAKEN  
REPORT AND RECOMMENDATION*

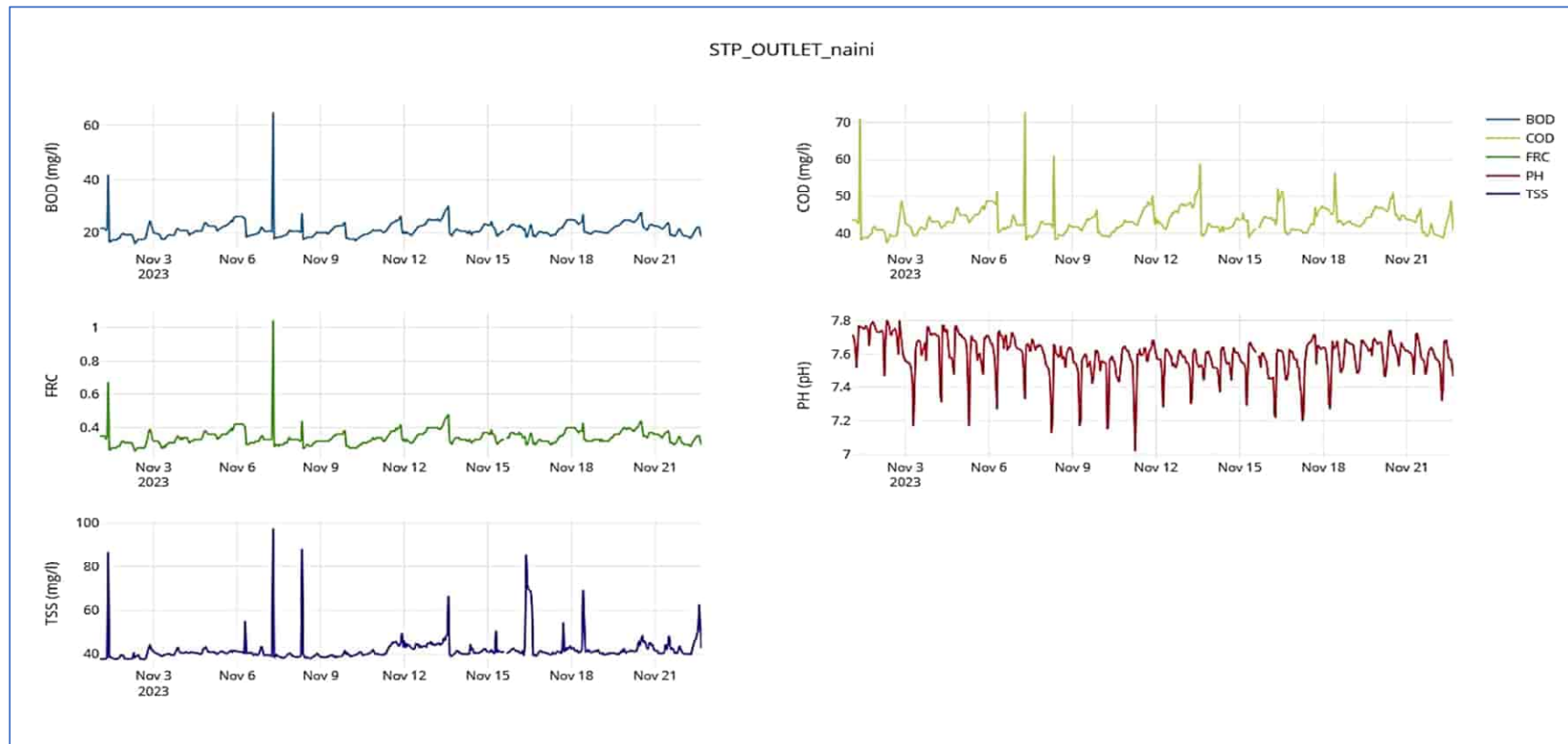
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## 1. NAINI-I STP AND ASSOCIATE INFRASTRUCTURE

### 1.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

Note:

1. Rectification of problem for variation in data is going on as fine tuning of multi parameter analyzer from OEM is in progress.
2. FRC sensor calibration is completed but it is under observation.



## Naini-I STP, 80 MLD STP at Prayagraj

### INLET FLOW & QUALITY REPORT



Date	Daily Feed Quantity MLD (Design-80 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design-<30 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design-<50 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design-<50 mg/l)	Inlet (Design - NA)	Final (Design -<1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	114200	114.20	7.15	7.69	140	22	316	42	282	36	NA	500	0.2	24.6	1700000	
2-Nov-23	111600	111.60	7.23	7.61	125	20	305	40	275	39	NA	700	0.3	23.75	1400000	
3-Nov-23	101580	101.58	7.28	7.56	135	19	298	44	281	41	NA	400	0.2	24.48	1100000	
4-Nov-23	102010	102.01	7.24	7.62	123	21	304	43	278	40	NA	600	0.3	24.13	1300000	
5-Nov-23	103470	103.47	7.26	7.56	140	23	311	46	271	42	NA	500	0.2	24.49	1200000	
6-Nov-23	107000	107.00	7.21	7.61	130	21	308	44	268	40	NA	700	0.3	24.9	1400000	
7-Nov-23	111700	111.70	7.28	7.56	135	20	312	42	284	40	NA	400	0.3	24.6	1100000	
8-Nov-23	113340	113.34	7.44	7.53	130	19	298	40	279	38	NA	700	0.2	24.45	1200000	
9-Nov-23	112810	112.81	7.62	7.69	135	21	302	44	273	40	NA	500	0.3	24.64	1700000	
10-Nov-23	115540	115.54	7.61	7.64	140	20	316	42	286	41	NA	600	0.3	24.54	1300000	
11-Nov-23	115290	115.29	7.60	7.61	130	19	308	46	280	42	NA	700	0.3	23.87	1200000	
12-Nov-23	119200	119.20	7.61	7.60	135	23	312	45	274	43	NA	600	0.3	24.35	1100000	
13-Nov-23	114190	114.19	7.68	7.62	130	24	302	46	269	42	NA	500	0.3	24.26	1400000	
14-Nov-23	114170	114.17	7.64	7.61	125	21	320	42	278	40	NA	400	0.3	24.16	1300000	
15-Nov-23	115720	115.72	7.56	7.59	135	21	300	44	273	38	NA	700	0.2	24.68	1700000	
16-Nov-23	115540	115.54	7.58	7.63	120	23	292	42	275	46	NA	600	0.3	24.36	1200000	
17-Nov-23	112960	112.96	7.57	7.62	130	22	306	40	268	40	NA	400	0.3	24.3	1100000	
18-Nov-23	112440	112.44	7.55	7.60	135	21	300	44	271	41	NA	500	0.3	23.9	1400000	
19-Nov-23	113010	113.01	7.55	7.65	140	23	308	45	276	39	NA	700	0.2	24.6	1300000	
20-Nov-23	115150	115.15	7.49	7.61	135	24	296	46	271	42	NA	500	0.3	23.9	1200000	
21-Nov-23	113900	113.90	7.43	7.53	125	21	306	43	278	39	NA	700	0.2	24.56	1100000	
22-Nov-23	113580	113.58	7.36	7.52	135	20	304	42	273	42	NA	600	0.3	24.36	1400000	
23-Nov-23	109190	109.19	7.28	7.56	140	21	308	40	275	41	NA	500	0.2	24.06	1400000	
24-Nov-23	112840	112.84	7.26	7.49	125	22	292	45	269	47	NA	400	0.3	24.07	1200000	
25-Nov-23	113100	113.10	7.3	7.48	130	22	296	42	267	42	NA	600	0.2	24.6	1300000	
26-Nov-23	113790	113.79	7.33	7.55	140	20	302	44	266	41	NA	500	0.3	24.2	1700000	
27-Nov-23	113040	113.04	7.27	7.62	135	25	308	46	270	44	NA	800	0.2	24.11	1200000	
28-Nov-23	112720	112.72	7.09	7.49	125	22	312	42	277	40	NA	600	0.3	24.35	1100000	
29-Nov-23	111630	111.63	7.07	7.46	130	19	302	43	275	41	NA	700	0.2	23.92	1300000	
30-Nov-23	110570	110.57	7.33	7.41	140	21	314	45	282	43	NA	600	0.3	24.68	1200000	
<b>Average</b>	<b>112176.00</b>	<b>112.18</b>	<b>7.40</b>	<b>7.58</b>	<b>132.43</b>	<b>21.33</b>	<b>305.27</b>	<b>43.30</b>	<b>274.80</b>	<b>41.00</b>	<b>NA</b>	<b>573.33</b>	<b>0.26</b>	<b>24.33</b>	<b>1306666.67</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 1.2 Action taken report:

Month of Site Inspection	November 2023
Site Inspectors	<ol style="list-style-type: none"> <li>1. Mr. Syed Mohd Shabaz, EE-E&amp;M, UPJN(R).</li> <li>2. Mr. Karunakar Singh AE, UPJN(R).</li> <li>3. Mr. Satwant, JE, UPJN(R).</li> <li>4. Mr. Jitender, JE, UPJN(R).</li> <li>5. Mr. Gaurav Gupta, AECOM.</li> <li>6. Mr. Sudhir Kumar Tomar, AECOM.</li> <li>7. Mr. Rahul Azaad, PWPL.</li> <li>8. Mr. Deepak, PWPL.</li> </ol>
Place(s) of Inspection	<ul style="list-style-type: none"> <li>• 80 MLD STP at Naini-i, Prayagraj</li> <li>• 80 MLD MPS at Gaughat, Prayagraj</li> <li>• 35 MLD SPS at Chacharnalla, Prayagraj</li> </ul>

Visit was done on 27<sup>th</sup> October 2023, 2<sup>nd</sup> Nov 2023, 6<sup>th</sup> November 2023, 18<sup>th</sup> November 2023 & 25<sup>th</sup> Nov 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Naini-I STP	101.58 to 119.20
2	Gaughat MPS	100.78 to 118.89
3	Chacharnalla SPS	36.44 to 41.06

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	19 to 24 mg/l
2	TSS – Effluent	< 50 mg/l	36 to 46 mg/l
3	pH – Effluent	6.5 – 9.0	7.53 to 7.69
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.75 to 24.90 %
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)
1	Naini I Facility	12907 to 17107

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

- Status of various units & records at site:

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
2. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. For associated infrastructure of Naini-I STP, reports are being generated for both Chacharnalla SPS and Gaughat MPS.  
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 for Chacharnalla SPS.  
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 for both Chacharnalla SPS and Gaughat MPS, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement.
5. Flowmeters at inlet of STP is working.
6. Outlet flowmeter is not working. This is a long-term pending issue hence Concessionaire to please rectify the problem at the earliest. Also, RCC chamber for the flowmeter is not constructed.
7. SCADA reports regarding flow for Naini-I facilities were checked and it was found that flow records generated from SCADA for both inlet flowmeters of Naini-I STP are matching with manual site records but not matching for outlet flowmeter of Naini-I STP.
8. In Naini-I STP, main MCC panel doesn't have provision for taking power from secondary sources like DG, Solar power generation system and Biogas power generation system simultaneously. Concessionaire is required to the needful for running biogas engine even without power from grid.
9. Gas engine is working. Currently, Biogas engine is operated for 16 hours from 3 PM to 7 AM as per availability of Biogas and for remaining time i.e., 7 AM to 3 PM, the STP is being operated on Solar energy as per availability.
10. All three mechanical screens of 60 MLD part are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
11. All two mechanical screens of 20 MLD part are working. Cleaning brush is not working properly replacement of brush is required. Currently screens are running in auto mode through timer however differential level sensors are not working.
12. For 60 MLD, all grit removal units are working.
13. For 20 MLD, all grit removal units are working.
14. 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 is required for the same so that scum collection and removal can be done automatically.
15. Telescopic valves of Primary Settling Tanks are not working.

16. 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.
17. In Aeration Unit of 60 MLD, all surface aerators are in working condition. It is recommended to install DO analyzer in this tank also for better monitoring.
18. Aeration tank of 20 MLD is in operation. DO analyzer is working.
19. All Aeration blowers are working.
20. All Final Settling Tanks are working.
21. It is suggested to install torque switches in all clarifiers for having better protection against excessive load on scrapper.
22. 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.
23. In RSPH unit of 60 MLD, all pumps are working.
24. In RSPH unit of 20 MLD, all pumps are working.
25. Both chlorinators are in working condition. Both booster pumps are working.
26. Leak absorption system is working. Checking of concentration for caustic solution filled in leak absorption system must be done every month.
27. Storage of Empty and filled chlorine tonners are not done properly as per safety norms. Concessionaires is required to do the needful for the same.
28. Since the chlorine tonner storage in Naini-1 STP goes beyond 4 tonners at one time hence concessionaires is required to obtain license regarding chlorine storage as per gas cylinder Rules (2016).
29. Installation of new chlorine analyzer at outlet is completed. It is under observation.
30. Both thickeners are in working condition. Installation of actuators for drain valves is pending.
31. All thickened sludge transfer pumps are working.
32. In TEPH, all pumps are OK for operation for Dandi and Naini Area.
33. For TEPH panel, modification of room is completed but panel erection is not started yet as per the electrical norms.
34. Both DGs are in operation.
35. Sludge dewatering unit was in operation. Poly preparation unit was in operation.
36. All filtrate pumps are working.
37. There is variation in recorded values of flow from inlet flowmeter at Naini-I STP and outlet flowmeters of Gaughat MPS, please rectify the problem.
38. Both Dewatering feed pumps are in operation.
39. For sludge drying beds, it is required to check filter media and gravels as water is not percolating from SDBs. Excavation was done in one SDB and it was found that there is no media in it, pipe beneath the gravel is completely choked, gravel is completely choked with sludge and smaller size of gravel is required to be filled in SDBs. All these problems need to be rectified so that SDB can operate for more number of days as currently SDBs are filled in 3-4 days only. Similarly, other SDBs must also be checked.
40. All Digesters are working.
41. Heat exchangers, sludge recirculation pumps for all digesters are working.
42. In compressor room, all six compressors are working.
43. Both Gas holders are working.
44. Gas flare is working.
45. H<sub>2</sub>S scrubber unit is working. Analyzers fitted at inlet & outlet unit are working.
46. 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.
47. As already decided, repairing/construction of retaining wall is not completed yet. In 2022 also, river water has come inside the STP during flood and various equipment in different units of STP are required to be dismantled and hence when river water has gone down, restarting of STP took 5-6 days which could have been avoided if retaining wall of the STP was repaired/constructed correctly.
  48. Rehabilitation works for tube well unit are pending.
  49. Landscaping work of the plant must be improved.
  50. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, new Computer Maintenance Management system (CMMS) is installed which is under observation. Also, data from the same must be provided in MPR as supporting documents for maintenance activities.
  51. CCTV camera at the outlet point of STP is not working.
  52. 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.
  53. It is found that testing of earthing pits is not done regularly for complete site. Concessionaire is required to perform testing of earthing pits internally at least once in a quarter and externally at least once in a year. This activity must be done on priority basis considering the mishappening of STP in Uttarakhand.
  54. 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) 2 out of 3 submersible pumps are in working condition.
    - d) Both mechanical screens of HNC pumps are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
    - e) Both mechanical screens for submersible pumps are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
    - 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.
  55. For Chacharnalla SPS, following observations were made during visit:
    - a) Currently all VNC pumps are working.
    - b) Both mechanical screens are working.
    - c) Both DG sets are OK for operation.
    - d) Old DG set is working.
    - e) Installation of pressure transmitter on header line of VNC pumps is pending.
    - f) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.
    - g) Power factor maintained in this facility is low and must be maintained around 0.99, rectification of this problem is required.
    - h) Flowmeter in header line big VNC pumps is showing major fluctuations in flow values hence the flow recorded by it cannot be deemed as accurate.
    - i) Housekeeping near VNC pumps must be improved as sludge, sewage is deposited around them which in turn will provide favorable breeding environment for mosquitos.

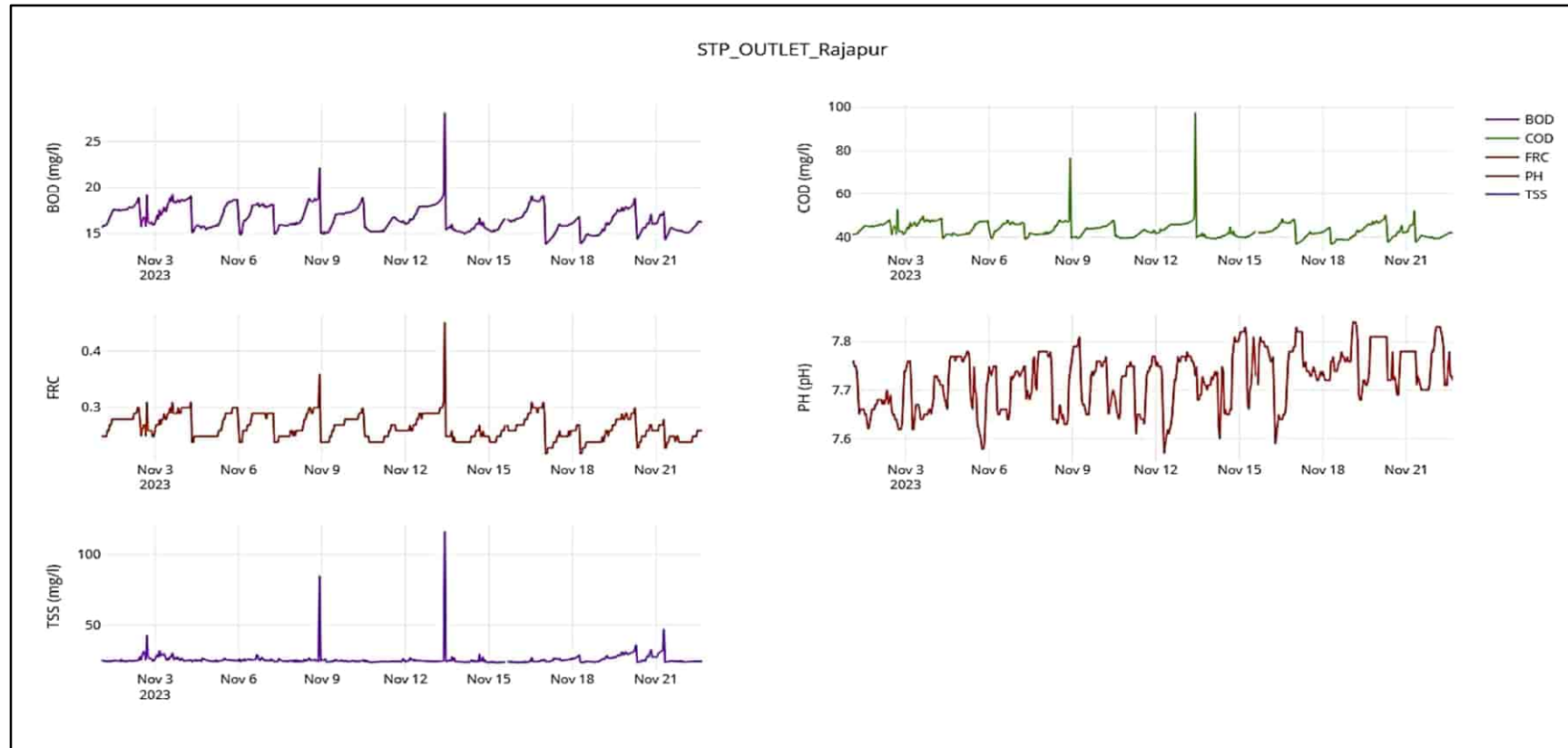
- j) Installation of supports in header lines for both big and small VNC pumps is required for minimizing the vibration which in turn is affecting other equipment fitted in the header line.
56. Since COD is announced for all Package – II facilities hence Concessionaire is required to implement following 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, NH<sub>4</sub>-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 Recommendations

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

## 2. RAJAPUR STP AND ASSOCIATE INFRASTRUCTURE

### 2.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

Note:

1. Rectification of problem for variation in data is going on as fine tuning of multi parameter analyzer from OEM is in progress.
2. FRC sensor calibration is completed but it is under observation.



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



Date	Daily Feed Quantity MLD (Design-60 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design-<30 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design-<60 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design-<60 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	80890	80.89	7.23	7.69	135	18	304	44	273	26	NA	500	0.3	23.24	1200000	
2-Nov-23	80560	80.56	7.24	7.65	125	17	292	40	263	24	NA	600	0.3	23.69	1400000	
3-Nov-23	81380	81.38	7.21	7.67	130	18	288	48	261	25	NA	400	0.2	24.70	1300000	
4-Nov-23	78830	78.83	7.22	7.71	120	16	296	40	265	26	NA	500	0.3	23.51	1700000	
5-Nov-23	77670	77.67	7.23	7.72	130	18	292	44	271	24	NA	700	0.2	23.24	1400000	
6-Nov-23	78940	78.94	7.24	7.72	120	17	300	48	268	26	NA	600	0.2	23.18	1700000	
7-Nov-23	79890	79.89	7.25	7.74	125	16	288	40	267	24	NA	400	0.3	24.89	1300000	
8-Nov-23	80230	80.23	7.27	7.72	135	18	292	44	265	26	NA	500	0.3	23.01	1400000	
9-Nov-23	79220	79.22	7.28	7.74	125	16	296	40	268	23	NA	500	0.2	23.80	1400000	
10-Nov-23	81420	81.42	7.14	7.72	130	17	292	40	290	24	NA	600	0.3	23.15	1300000	
11-Nov-23	80530	80.53	7.23	7.72	125	16	292	44	271	25	NA	700	0.2	23.38	1700000	
12-Nov-23	80980	80.98	7.24	7.71	130	18	296	48	263	26	NA	500	0.3	24.15	1400000	
13-Nov-23	78960	78.96	7.26	7.75	125	17	288	44	267	25	NA	400	0.3	23.35	1300000	
14-Nov-23	76350	76.35	7.27	7.72	120	16	292	40	265	26	NA	600	0.2	23.90	1700000	
15-Nov-23	76820	76.82	7.28	7.76	125	16	288	44	263	23	NA	500	0.3	23.69	1300000	
16-Nov-23	76190	76.19	7.27	7.73	130	18	296	48	271	25	NA	600	0.3	22.95	1400000	
17-Nov-23	77350	77.35	7.28	7.77	125	16	284	40	262	26	NA	400	0.2	23.69	1300000	
18-Nov-23	79150	79.15	7.25	7.74	120	15	292	42	276	25	NA	600	0.3	24.17	1700000	
19-Nov-23	78250	78.25	7.26	7.75	125	16	296	44	265	27	NA	500	0.3	23.35	1400000	
20-Nov-23	77960	77.96	7.23	7.76	130	17	288	40	269	28	NA	600	0.3	24.83	1200000	
21-Nov-23	82640	82.64	7.24	7.75	135	16	296	44	272	25	NA	400	0.2	23.58	1300000	
22-Nov-23	76850	76.85	7.31	7.79	130	17	292	40	265	26	NA	500	0.3	24.68	1700000	
23-Nov-23	76360	76.36	7.25	7.78	135	18	284	44	259	25	NA	700	0.3	23.69	1400000	
24-Nov-23	74130	74.13	7.26	7.73	130	17	328	44	207	17	NA	600	0.3	24.58	1700000	
25-Nov-23	74810	74.81	7.28	7.79	125	16	296	40	268	23	NA	500	0.2	23.50	1400000	
26-Nov-23	74770	74.77	7.27	7.77	145	19	292	44	258	24	NA	400	0.3	22.80	1300000	
27-Nov-23	77830	77.83	7.35	7.68	120	16	276	40	281	25	NA	600	0.3	23.62	1400000	
28-Nov-23	77190	77.19	7.21	7.75	130	17	284	44	268	26	NA	500	0.3	23.69	1700000	
29-Nov-23	79200	79.2	7.22	7.78	125	16	280	40	265	24	NA	400	0.2	22.92	1400000	
30-Nov-23	76420	76.42	7.18	7.76	135	17	292	40	281	25	NA	600	0.3	23.61	1300000	
<b>Average</b>	<b>78392.33</b>	<b>78.39</b>	<b>7.25</b>	<b>7.74</b>	<b>128.00</b>	<b>16.83</b>	<b>292.40</b>	<b>42.73</b>	<b>266.23</b>	<b>24.80</b>	<b>NA</b>	<b>530.00</b>	<b>0.27</b>	<b>23.68</b>	<b>1436666.67</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 2.2 Action taken report:

Month of Site Inspection	November 2023
Site Inspectors	9. Mr. Syed Mohd Shabaz, EE-E&M, UPJN(R). 10. Mr. Karunakar Singh AE, UPJN(R). 11. Mr. Manish Srivastava, JE, UPJN(R). 12. Mr. Jitender, JE, UPJN(R). 13. Mr. Gaurav Gupta, AECOM. 14. Mr. Sudhir Kumar Tomar, AECOM. 15. Mr. Rahul Azaad, PWPL. 16. Mr. Girijesh, PWPL.
Place(s) of Inspection	<ul style="list-style-type: none"> <li>60 MLD STP at Rajapur, Prayagraj</li> <li>25 MLD SPS at Rajapur, Prayagraj</li> <li>55 MLD MPS at Mumfodganj Prayagraj</li> </ul>

Visit was done on 26<sup>th</sup> October 2023, 31<sup>st</sup> October 2023, 7<sup>th</sup> November 2023, 21<sup>st</sup> November 2023 & 24<sup>th</sup> Nov 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Rajapur STP	76.19 to 82.64
2	Rajapur SPS	7.71 to 12.76
3	Mumfodganj MPS	68.21 to 73.56

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	16 to 18 mg/l
2	TSS – Effluent	< 30 mg/l	23 to 28 mg/l
3	pH – Effluent	6.5 – 9.0	7.65 to 7.77
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.95 to 24.89 %
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)
1	Rajapur Facility	5586 to 6360

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



- Status of various units & records at site:
  1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
  2. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
  3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
  4. For associated infrastructure of Rajapur STP, reports are being generated for both Mumforganj SPS and Rajapur MPS.  
Furthermore, there is problem in receiving signals at PLC/SCADA control system from some equipment/instruments and it is also not possible to control some of the equipment (mainly mechanical screens) from PLC/SCADA control system. Also, mechanical screens have provisions in PLC system for being remotely operated and differential level sensors were also installed for the same. Therefore, the system is available, but it is not working due to lack of wiring, etc., hence provision must be made for operating mechanical screens through SCADA which in turn can be operated manually or remotely as per requirement.
  5. Flowmeters at inlet of STP is working.
  6. Flowmeter at outlet of STP is working.
  7. Both Grit removal units are working.
  8. One Mechanical Fine screens at PTU is working. One Mechanical Fine screen is under maintenance. mechanical screens are not lifting waste efficiently. Currently screens are running in auto mode through timer however differential level sensors are not working.
  9. Both UASBs were working. 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.
  10. It is suggested to clean the UASB reactors after regular interval of time may be once in a year for removing dead sludge from the reactors which in turn will increase the efficiency of UASBs. Hence, Concessionaire is suggested to plan for the same.
  11. It is suggested that for minimizing the problem of leakages from HDP inlet pipes, it is required to give proper supports under the pipes. Concessionaire to please do the needful.
  12. All surface aerators were found running. It is recommended to install DO analyzer in this tank also for better monitoring.
  13. It is also suggested to clean the Aeration tank for removing dead sludge which in turn will increase the efficiency of Aeration.
  14. For Quiescent zone, it is suggested to plan for cleaning of the same for removing dead sludge which in turn will increase the efficiency of Quiescent zone. Currently, dead sludge which is deposited in quiescent zone is coming along with effluent which is deteriorating the quality of effluent.
  15. Both DG sets are working. It is suggested to increase the height of chimney of DG sets as per CPCB norms.
  16. All sludge transfer pumps are in working condition.
  17. Sludge dewatering unit is working. Poly dosing unit is working.
  18. 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.
  19. Installation of new chlorine analyzer at outlet is completed. It is under observation.

20. At flood pumping station, all pumps are in working condition.
21. Since the chlorine tonner storage in Rajapur STP goes beyond 4 tonners at one time hence concessionaires is required to obtain license regarding chlorine storage as per gas cylinder Rules (2016).
22. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
23. There is variation in recorded values of flow from inlet flowmeter at Rajapur STP and outlet flowmeter of Mumfordganj SPS, please rectify the problem.
24. There is variation in recorded values of flow from inlet flowmeters at Rajapur STP and outlet flowmeter of Rajapur STP, please rectify the problem.
25. Gas holder and gas flare are not in operation. It is part of STP facility hence must be made operational. Also, amount of Gas generation also indicates the performance level of UASBs. Concessionaire is requested to complete the maintenance works and take both into operation as follow-up for the same is being done since rehab period.
26. As already discussed, all the waste material obtained during Rehabilitation Works must be removed from the site as per point (h) in clause 8.8 of Concession Agreement or it must be properly stacked at one place after taking proper consent from UPJN. Concessionaire have told that this is out of their jurisdiction for which Concessionaire is required to go through the mentioned clause and plan for the same accordingly.
27. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, data from Computer Maintenance Management system (CMMS) must be provided in MPR as supporting documents for maintenance data. Currently, old CMMS system is installed at Rajapur STP installed which is not working as per requirements of day-to-day maintenance activities. Concessionaire is required to do the modifications as discussed.
28. It is found that testing of earthing pits is not done regularly for complete site. Concessionaire is required to perform testing of earthing pits internally at least once in a quarter and externally at least once in a year. This activity must be done on priority basis considering the mishappening of STP in Uttarakhand.
29. At Rajapur SPS following observations were made:
  - a) Temporary Bund at tapping Point is damaged due to the rain. It is not repaired yet. Most of the Raw Sewage from nearby nalla is going directly into the Ganga River. Concessionaire is suggested to rectify on urgent basis. Also, NMCG has instructed to rectify this issue in meeting dated 26<sup>th</sup> April 2023.
  - b) Nalla tapping of Rajapur SPS is closed at 5:16 PM on 07.01.2023 for taking more sewage from household network as per instructions given by UPJN.
  - c) Mechanical coarse Screens at SPS is working. Currently screens are running in auto mode through timer however differential level sensors are not working.
  - d) Operation of mechanical screen at SPS is not possible from SCADA.
  - e) 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.
30. At Mumfodganj MPS following observations were made:
  - a) At tapping point of SPS, manual screen is broken from bottom side, maintenance for the same is required as lot of waste is going inside SPS which can in turn will choke the pumps.
  - b) Civil maintenance is required for the floor below bypass gate at tapping point for stopping the leakage from bypass gate.
  - c) Both Mechanical coarse screens at MPS are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
  - d) At Mumfodganj MPS, 3 pumps are OK for operation. Remaining 3 pump is ok but there is some issue in soft starter due to which it is not possible to operate them. Pressure transmitter is not

installed in common header line of pumps yet. Also, pumps must be kept in auto mode so that pump can start & stop on the basis of level in the sump.

- e) Dismantling joint must be provided along with flowmeter for ease in maintenance.
- f) NRV must be provided in common header to reduce the effect of water hammering.
- g) Site house Keeping & landscaping must be improved. Concessionaire is suggested to keep the old material Properly.
- h) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.

31. 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, NH<sub>4</sub>-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 Recommendations

- 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, ACTION TAKEN  
REPORT AND RECOMMENDATION*

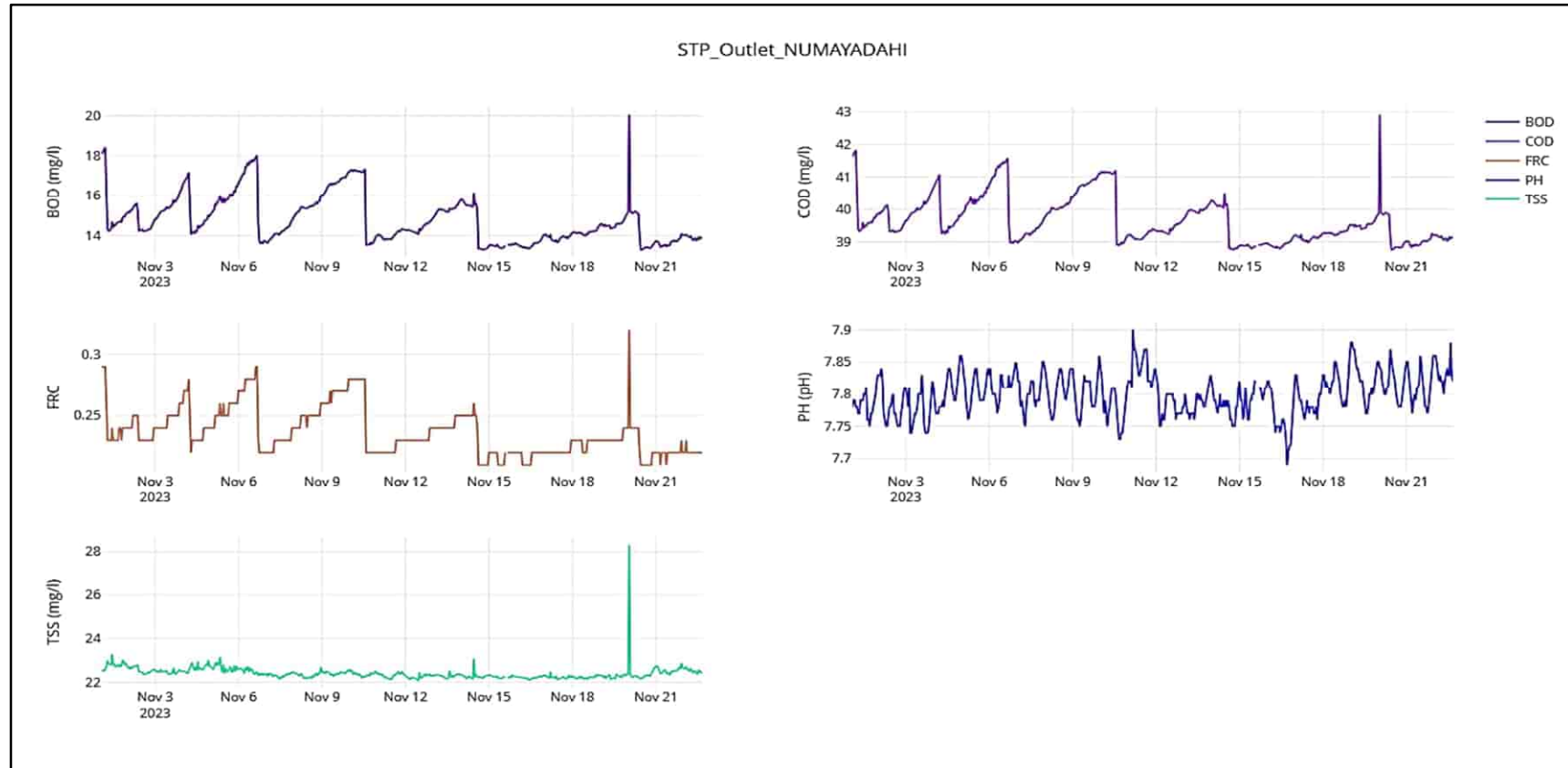
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## 1. NUMAYADAHI STP AND ASSOCIATE INFRASTRUCTURE

### 1.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

Note:

1. Rectification of problem for variation in data is going on as fine tuning of multi parameter analyzer from OEM is in progress.
2. FRC sensor calibration is completed but it is under observation.



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



Date	Daily Feed Quantity MLD (Design- 50 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design - <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design - <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	60900	60.90	7.21	7.69	130	16	304	40	272	24	NA	700	0.3	23.78	1400000	
2-Nov-23	60450	60.45	7.12	7.77	140	15	316	44	284	25	NA	400	0.2	24.16	1100000	
3-Nov-23	60980	60.98	7.06	7.76	145	17	324	44	278	23	NA	600	0.3	23.19	1200000	
4-Nov-23	60100	60.10	7.12	7.80	150	14	308	40	268	22	NA	500	0.3	24.04	1400000	
5-Nov-23	57800	57.80	7.16	7.74	140	15	300	40	276	24	NA	700	0.2	24.37	1300000	
6-Nov-23	60000	60.00	7.14	7.80	145	17	312	44	271	23	NA	500	0.3	23.54	1700000	
7-Nov-23	60450	60.45	7.05	7.78	135	15	304	36	263	24	NA	500	0.3	24.04	1100000	
8-Nov-23	59750	59.75	7.16	7.82	130	16	316	40	258	22	NA	700	0.2	23.55	1400000	
9-Nov-23	55900	55.90	7.06	7.80	140	17	320	44	254	24	NA	500	0.3	23.11	1400000	
10-Nov-23	58610	58.61	7.16	7.77	130	15	308	40	275	22	NA	600	0.2	22.96	1300000	
11-Nov-23	60790	60.79	7.05	7.83	140	15	300	36	280	21	NA	400	0.2	23.84	1400000	
12-Nov-23	61740	61.74	7.05	7.78	135	14	328	40	290	24	NA	500	0.3	24.26	1100000	
13-Nov-23	56350	56.35	7.10	7.80	145	17	304	44	274	23	NA	600	0.3	24.08	1300000	
14-Nov-23	60360	60.36	7.16	7.78	130	15	324	36	284	24	NA	400	0.2	23.55	1300000	
15-Nov-23	61360	61.36	7.10	7.81	140	14	316	40	288	22	NA	700	0.3	24.21	1400000	
16-Nov-23	56400	56.40	7.16	7.74	135	15	320	36	278	23	NA	500	0.3	23.80	1700000	
17-Nov-23	60010	60.01	7.11	7.77	145	15	324	36	282	23	NA	600	0.3	22.99	1400000	
18-Nov-23	57330	57.33	7.14	7.80	130	13	312	40	268	25	NA	400	0.2	23.69	1100000	
19-Nov-23	60240	60.24	7.12	7.82	125	14	324	44	276	24	NA	700	0.3	24.42	1300000	
20-Nov-23	60970	60.97	7.10	7.79	135	14	316	36	262	22	NA	500	0.2	23.08	1200000	
21-Nov-23	55500	55.50	7.06	7.81	140	15	308	36	270	24	NA	400	0.3	24.30	1700000	
22-Nov-23	60250	60.25	7.08	7.80	135	13	320	40	282	23	NA	600	0.2	22.46	1100000	
23-Nov-23	58700	58.70	7.11	7.78	140	15	312	40	286	22	NA	500	0.3	23.24	1400000	
24-Nov-23	59850	59.85	7.14	7.79	140	14	316	44	288	24	NA	400	0.3	24.32	1200000	
25-Nov-23	58450	58.45	7.11	7.81	145	16	308	40	268	23	NA	700	0.3	23.78	1400000	
26-Nov-23	58100	58.10	7.16	7.84	130	14	320	40	276	22	NA	600	0.2	24.17	1300000	
27-Nov-23	59010	59.01	7.12	7.79	140	13	304	36	258	23	NA	400	0.3	23.19	1100000	
28-Nov-23	57730	57.73	7.18	7.81	130	15	312	40	264	23	NA	600	0.3	24.25	1400000	
29-Nov-23	56780	56.78	7.03	7.80	145	16	320	40	272	24	NA	500	0.3	23.75	1700000	
30-Nov-23	53400	53.40	7.18	7.76	130	14	328	40	288	22	NA	700	0.2	23.54	1400000	
<b>Average</b>	<b>58942.00</b>	<b>58.94</b>	<b>7.12</b>	<b>7.79</b>	<b>137.33</b>	<b>14.93</b>	<b>314.27</b>	<b>39.87</b>	<b>274.43</b>	<b>23.13</b>	<b>NA</b>	<b>546.67</b>	<b>0.26</b>	<b>23.72</b>	<b>1340000.00</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 1.2 Action taken report:

Month of Site Inspection	November 2023
Site Inspectors	<ol style="list-style-type: none"> <li>1. Mr. Syed Mohd Shabaz, EE-E&amp;M, UPJN(R).</li> <li>2. Mr. Karunakar Singh AE, UPJN(R).</li> <li>3. Mr. Rahul Paswan, JE, UPJN(R).</li> <li>4. Mr. Jitender, JE, UPJN(R).</li> <li>5. Mr. Gaurav Gupta, AECOM.</li> <li>6. Mr. Sudhir Kumar Tomar, AECOM.</li> <li>7. Mr. Rahul Kumar Azaad, PWPL.</li> <li>8. Mr. Vijay, PWPL.</li> <li>9. Mr. Jitender, PWPL.</li> </ol>
Place(s) of Inspection	<ul style="list-style-type: none"> <li>• 50 MLD STP at Numayadahi, Prayagraj</li> <li>• 50 MLD MPS at Ghagharnalla, Prayagraj</li> <li>• 15 MLD SPS at Sasur Kadheri, Prayagraj</li> <li>• 16.5 MLD SPS at Lukerganj, Prayagraj</li> </ul>

Visit was done on 27<sup>th</sup> October 2023, 3<sup>rd</sup> November 2023, 9<sup>th</sup> November 2023 & 23<sup>rd</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Numayadahi STP	55.50 to 61.74
2	Ghagharnalla MPS	58.03 to 64.05
3	Sasur Kadheri SPS	29.31 to 36.12
4	Lukerganj SPS	4.20 to 5.23

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	14 to 17 mg/l
2	TSS – Effluent	< 30 mg/l	21 to 25 mg/l
3	pH – Effluent	6.5 – 9.0	7.69 to 7.83
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.96 to 24.42 %
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)
1	Numayadahi Facility	13493 to 15020

Note: 1) Source for above data is site record for power consumption of STP/MPS/SPS.

- Status of various units & records at site:
  1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
  2. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
  3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that data from 12:45 PM on 10<sup>th</sup> Nov 2023 to 2:00 PM on 10<sup>th</sup> Nov 2023. Also, sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
  4. Communication of data from PLC system of Ghagharnalla MPS, Sasur Kadheri SPS and Lukarganj SPS is coming to SCADA system of 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.
  5. Flowmeter at inlet of STP is working. There is variation in between inlet flowmeter of STP and outlet flowmeter of Ghagharnalla MPS. Concessionaire is required to resolve this problem.
  6. Flowmeter at outlet of STP is working. There is variation in between inlet and outlet flow which is more than water loss shown for the STP. Concessionaire is required to resolve this problem.
  7. Both grit removal units are in operation.
  8. Both Mechanical Screens are working. Currently screens are running in auto mode through timer however differential level sensors are not working. Repairing of electrical panel for screens is required.
  9. All Biotowers were in operation. Arms of biotower mechanism for all biotowers are completely rusted and must be replaced at the earliest as they can broke at any time and treatment in biotowers will be completely stopped. Replacement of net is also required for all biotowers.
  10. Though overhauling of mechanical screens is completed in rehabilitation period but still considerable amount of plastic waste is reaching the biotowers hence the gap must be checked around mechanical screens or otherwise this plastic waste can choke up the media which will ultimately lower the efficiency of Biotowers.
  11. All Aeration tanks are working.
  12. All aeration blowers are in working condition & two blowers were found running.
  13. DO analyzer at the outlet of all aeration tanks are not working, please check & rectify the problem.
  14. Pressure transmitter & temperature transmitter are not installed yet on header line of Aeration blowers.
  15. All Centrifuges are working. All sludge feed pumps and poly dosing pumps are working.
  16. Housekeeping near dewatering area is very shabby and must be improved.
  17. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
  18. All Sludge Recirculation Pumps are in working condition. Cleaning of sludge in valve chamber is required to avoid generation of mosquitos and in turn disease caused by them.
  19. Both Secondary clarifiers were found in operation. It is suggested to plan for cleaning of both clarifiers before start of Magh Mela – 2023.
  20. Thickener was found in operation.
  21. Both booster pumps & both chlorinators are in working condition. Residual chlorine was checked & found to be around 0.2 – 0.3 mg/l.

22. Leak detection and leak absorption system are working. It must be ensured that the system must remain in auto mode all the time.
23. Installation of new chlorine analyzer at outlet is completed. It is under observation.
24. Since the chlorine tonner storage in Numayadahi STP goes beyond 4 tonners at one time hence concessionaires is required to obtain license regarding chlorine storage as per gas cylinder Rules (2016).
25. Both DGs are working.
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 Part – G in concession agreement, new Computer Maintenance Management system (CMMS) is installed which is under observation. Also, data from the same must be provided in MPR as supporting documents for maintenance activities.
28. Make a proper store for storage for flammable and hazardous materials including spare parts.
29. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
30. Housekeeping and cleaning must be improved for all units.
31. All CCTV cameras installed at site are not working except for the outlet and DG room of STP.
32. It is found that testing of earthing pits is not done regularly for complete site. Concessionaire is required to perform testing of earthing pits internally at least once in a quarter and externally at least once in a year. This activity must be done on priority basis considering the mishappening of STP in Uttarakhand.
33. For Ghagharnalla MPS, following issues are required to be resolved:
  - a) Currently, it was observed that overflow occurs sometimes during peak hours due to deposition of sludge in the catchment area of nalla even after running MPS at full capacity. Hence, UPJN is requested to please look into the matter and do the needful.
  - b) Repairing of wall of pump house towards sump is required so that no sewage can go inside the pump house in any situation.
  - c) Currently, HNC pumps (4 new + 1 old) are in working condition. One pump is under maintenance.
  - d) Currently, there was minor leakage of sewage from the retaining wall at the tapping point of MPS, this must be rectified as raw sewage is going directly into the river.
  - e) Both Mechanical screens are working.
  - f) Both DG sets are working.
  - g) During the shutdown taken in the month of May-21, NRV was taken out from the main header line for maintenance purpose, but it is not reinstalled till date. Concessionaire to please do the needful so that effect of back hammering on the pumps can be reduced.
  - h) Painting of units in the MPS is completed from outside. It is suggested to start the painting work for all units from inside also.
  - i) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.
34. For Sasur Kadheri SPS, following issues are required to be resolved:
  - a) Currently, it was found that raw sewage keeps overflowing from the retaining wall even when the pumping from this SPS is around 30-35 MLD which is around 200-230% of the total capacity of SPS i.e., 15 MLD. Due to the amount of overloading on the SPS, overflow of the sewage from retaining wall cannot be stopped. Hence, UPJN is requested to please look into the matter and do the needful.
  - b) Currently all submersible pumps in the SPS are OK for operation.

- c) Both Mechanical screens are working.
- d) Both DG sets are OK for operation.
- e) Painting of units in the SPS is completed from outside. It is suggested to start the painting work for all units from inside also.
- f) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.

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) One mechanical screen is working, and one is in maintenance.
- c) Both DG sets are working.
- d) Painting of units in the SPS is completed from outside. It is suggested to start the painting work for all units from inside also.
- e) f) In PLC panels, indication for ON/OFF of mechanical screens, belt conveyor is not coming.

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, NH<sub>4</sub>-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 Recommendations

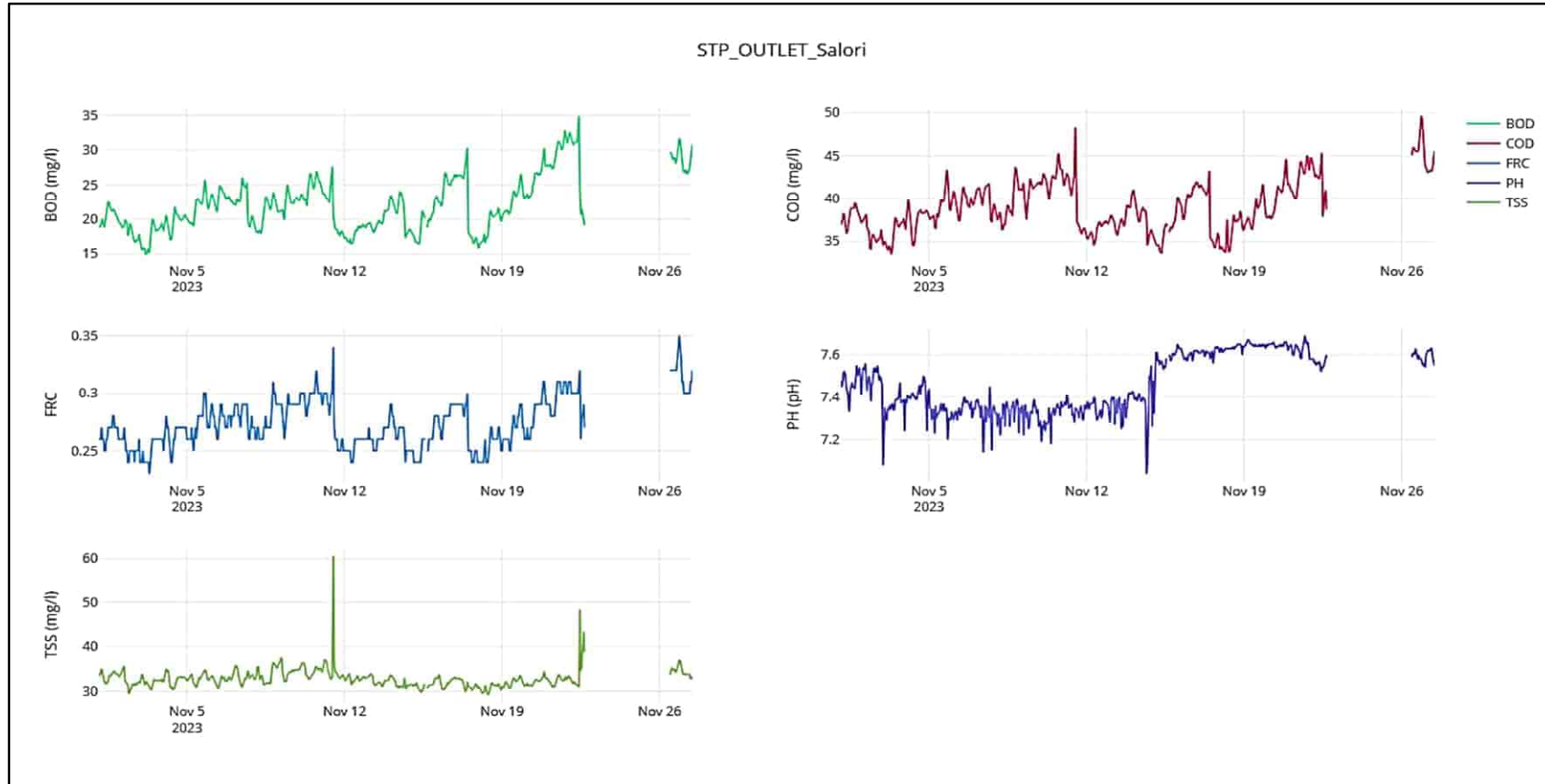
- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.



- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

## 2. SALORI STP AND ASSOCIATE INFRASTRUCTURE

### 2.1 KPI Report



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

Note:

1. Rectification of problem for variation in data is going on as fine tuning of multi parameter analyzer from OEM is in progress.
2. FRC sensor calibration is completed but it is under observation.



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



Date	Daily Feed Quantity MLD (Design-29 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design- <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design- <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design- <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	38400	38.40	7.46	7.51	165	22	360	40	336	35	NA	500	0.3	24.9	1400000	
2-Nov-23	37630	37.63	7.48	7.56	160	19	352	36	322	33	NA	400	0.3	23.8	1100000	
3-Nov-23	37810	37.81	7.39	7.42	155	18	336	36	285	34	NA	600	0.2	23.2	1300000	
4-Nov-23	39170	39.17	7.43	7.48	160	20	348	40	319	32	NA	500	0.3	24.1	1700000	
5-Nov-23	38640	38.64	7.48	7.36	155	22	356	40	335	31	NA	700	0.2	23.5	1400000	
6-Nov-23	38530	38.53	7.44	7.39	160	24	344	36	308	30	NA	400	0.3	24.3	1200000	
7-Nov-23	35590	35.59	7.39	7.42	155	22	340	40	330	33	NA	600	0.3	24.8	1400000	
8-Nov-23	35910	35.91	7.46	7.31	160	20	336	40	326	31	NA	500	0.2	23.7	1100000	
9-Nov-23	38620	38.62	7.44	7.39	155	23	368	44	332	35	NA	400	0.3	24.4	1300000	
10-Nov-23	37250	37.25	7.42	7.32	155	25	360	42	328	33	NA	500	0.3	24.6	1700000	
11-Nov-23	36680	36.68	7.4	7.34	145	20	362	40	332	34	NA	700	0.2	24.5	1400000	
12-Nov-23	36130	36.13	7.41	7.38	150	18	368	38	336	32	NA	600	0.3	23.9	1200000	
13-Nov-23	33810	33.81	7.46	7.44	160	20	364	38	344	32	NA	400	0.2	24.6	1300000	
14-Nov-23	35140	35.14	7.43	7.4	155	21	350	40	334	33	NA	500	0.2	24.1	1400000	
15-Nov-23	34520	34.52	7.52	7.59	155	19	340	36	328	33	NA	500	0.3	24.6	1300000	
16-Nov-23	36030	36.03	7.48	7.63	160	24	328	40	290	30	NA	600	0.2	23.6	1700000	
17-Nov-23	39160	39.16	7.48	7.63	155	22	340	36	350	31	NA	700	0.3	22.7	1400000	
18-Nov-23	44160	44.16	7.51	7.62	160	20	316	36	330	29	NA	600	0.3	24.2	1300000	
19-Nov-23	43050	43.05	7.46	7.65	165	24	352	40	362	34	NA	400	0.3	24.6	1100000	
20-Nov-23	44130	44.13	7.43	7.59	155	27	344	44	338	35	NA	500	0.2	23.9	1700000	
21-Nov-23	43600	43.60	7.49	7.6	165	29	356	44	358	34	NA	700	0.2	24.3	1300000	
22-Nov-23	42830	42.83	7.51	7.58	160	26	352	44	342	36	NA	600	0.3	23.6	1400000	
23-Nov-23	46070	46.07	7.47	7.55	155	22	348	40	338	35	NA	700	0.3	22.7	1700000	
24-Nov-23	44410	44.41	7.45	7.61	-	-	360	40	352	33	NA	500	0.2	21.2	1400000	Samples for BOD testing were not found in incubator during the visit on 30.11.2023. Hence, testing for the inlet & outlet of BOD were discarded.
25-Nov-23	41690	41.69	7.53	7.65	-	-	344	44	310	36	NA	400	0.3	22.1	1300000	
26-Nov-23	43440	43.44	7.62	7.67	160	28	340	48	322	37	NA	700	0.2	22.4	1400000	
27-Nov-23	40540	40.54	7.66	7.7	-	-	348	44	336	35	NA	500	0.3	23.1	1100000	Samples for BOD testing were not found in incubator during the visit on 30.11.2023. Hence, testing for the inlet & outlet of BOD were discarded.
28-Nov-23	41010	41.01	7.6	7.67	160	27	352	44	306	37	NA	400	0.3	23.3	1200000	
29-Nov-23	43480	43.48	7.55	7.62	155	22	344	40	316	35	NA	600	0.2	22.8	1700000	
30-Nov-23	44800	44.80	7.6	7.67	160	23	356	40	332	36	NA	500	0.3	22.9	1400000	
<b>Average</b>	<b>39741.00</b>	<b>39.74</b>	<b>7.48</b>	<b>7.53</b>	<b>157.59</b>	<b>22.48</b>	<b>348.80</b>	<b>40.33</b>	<b>329.23</b>	<b>33.47</b>	<b>NA</b>	<b>540.00</b>	<b>0.26</b>	<b>23.68</b>	<b>1376666.67</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 2.2 Action taken report:

Month of Site Inspection	November 2023
Site Inspectors	10. Mr. Syed Mohd Shabaz, EE-E&M, UPJN(R). 11. Mr. Karunakar Singh AE, UPJN(R). 12. Mr. Rahul Paswan, JE, UPJN(R). 13. Mr. Jitender, JE, UPJN(R). 14. Mr. Gaurav Gupta, AECOM. 15. Mr. Sudhir Kumar Tomar, AECOM. 16. Mr. Rahul Azaad, PWPL. 17. Mr. Vaibhav, PWPL
Place(s) of Inspection	• 29 MLD STP at Salori, Prayagraj. • 29 MLD MPS at Salori, Prayagraj.

Visit was done on 25<sup>th</sup> October 2023, 1<sup>st</sup> October 2023, 8<sup>th</sup> November 2023, 22<sup>nd</sup> November 2023 & 30<sup>th</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Salori STP	33.81 to 44.16
2	Salori MPS	33.81 to 44.16

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	18 to 25 mg/l
2	TSS – Effluent	< 50 mg/l	29 to 35 mg/l
3	pH – Effluent	6.5 – 9.0	7.31 to 7.65
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	22.70 to 24.90 %
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)
1	Salori Facility	5115 to 6870

Note: 1) Source for above data is site record for power consumption of STP/MPS.

- Status of various units & records at site:

- In laboratory, testing of BOD for 24<sup>th</sup>, 25<sup>th</sup> & 27<sup>th</sup> Nov 2023 is discarded as samples for final titration for said dates were not found inside the incubator during the time of visit. Concessionaire is required to ensure that in future, such type of incidents should not happen otherwise strict action

will be taken against them.

2. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
3. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
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, it was found that data from 4:30 PM on 22<sup>nd</sup> Nov 2023 to 11:30 AM on 26<sup>th</sup> Nov 2023. Also, sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
5. Flowmeter at inlet of STP is working.
6. Flowmeter at outlet of STP is working. There is variation in between inlet and outlet flow which is more than water loss shown for the STP. Concessionaire is required to resolve this problem.
7. All Grit Removal Units are working.
8. Both Mechanical Screens are working but both mechanical screens are not lifting screenings efficiently hence it is suggested to replace the screens. Also, life of screens is complete as they have crossed 15 years since both were taken in operation in year 2007. Currently screens are running in auto mode through timer however differential level sensors are not working.
9. Both FAB units are working. DO analyzers for both FAB units are not working, please rectify the problem.
10. All three aeration blowers are working.
11. Both clarisettlers are working. In Clarisettler no. 1, levelling of outlet launders must be checked as supernatant is not coming equally in all outlet launders & this can affect the quality of effluent. Concessionaire to please look into the matter & rectify the problem at the earliest.
12. During recent visit it was observed that accumulation of sludge in both clarisettlers was way beyond normal and due to which outlet quality was not good. This is not acceptable as BOD load & TSS load received inside the STP is within design parameters. Also, these kinds of incidents are observed in past also hence Concessionaire is required to rectify the problem or otherwise strict action will be taken if any kind of negligence is recorded in future.
13. In clarisettlers it is observed that when agitators are operated, sludge starts coming to the top due to which quality deteriorates. Hence, it is suggested to do necessary modifications in agitators so that the problem can be rectified.
14. Quality of effluent was not satisfactory during visit.
15. Sludge dewatering unit is in operation, poly dosing unit is in operation.
16. Housekeeping of the plant must be improved, sludge scattered in plant premises due to transfer must be cleaned regularly.
17. Both Sludge transfer pumps for Clarisettler are working.
18. Both Filtrate pumps are working.
19. Both chlorinators are working. Both booster pumps are working.
20. Vacuum gauges for both chlorinators are not working, replacement for the same is required.
21. Installation of new chlorine analyzer at outlet is completed. It is under observation.
22. Leak detection and leak absorption system are working. It must be ensured that the system must remain in auto mode all the time.
23. Thickener unit is working. Cleaning of scum from top is required.
24. Both DGs are working.
25. 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.
26. At Salori MPS, 5 out of 6 pumps are working. Since the programming for running pumps in auto mode is completed, it is suggested to operate them in auto mode for optimum performance.

27. At Salori MPS, it is suggested to rectify problems in old pumps also so that they can be used in emergency. Currently, all old pumps are not in working condition.
28. 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.
29. 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.
30. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, new Computer Maintenance Management system (CMMS) is installed which is under observation. Also, data from the same must be provided in MPR as supporting documents for maintenance activities.
31. Commissioning of Public Address System is not completed yet.
32. Housekeeping near FeCl<sub>3</sub> dosing system needs to be improved.
33. All CCTV cameras are working.
34. Make a proper store for storage of flammable and hazardous materials including spare parts.
35. It is found that testing of earthing pits is not done regularly for complete site. Concessionaire is required to perform testing of earthing pits internally at least once in a quarter and externally at least once in a year. This activity must be done on priority basis considering the mishappening of STP in Uttarakhand.
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, NH<sub>4</sub>-N, TP for composite samples each day as per Part-G in Schedule-10 of CA.
  - d) Site Diary as per Clause no. 1.7.2 of Part-G in Schedule – 10 of Concession Agreement.
  - e) Quarterly report as per Part-G in Schedule-10 of CA.
  - f) Monthly Environmental Monitoring Report as per Part-G in Schedule-10 of CA.
  - g) Procedure for recording & disposal of complaints.
  - h) Safety & Health Records. Incident reports must also be submitted along with action plan.
  - i) Periodic reports from all facilities must be uploaded on Central Pollution Control Board's Website.
  - j) Scheduled Maintenance Program specifying the impact of Scheduled Maintenance Periods on the Availability of each facility.

## 2.3 Recommendations

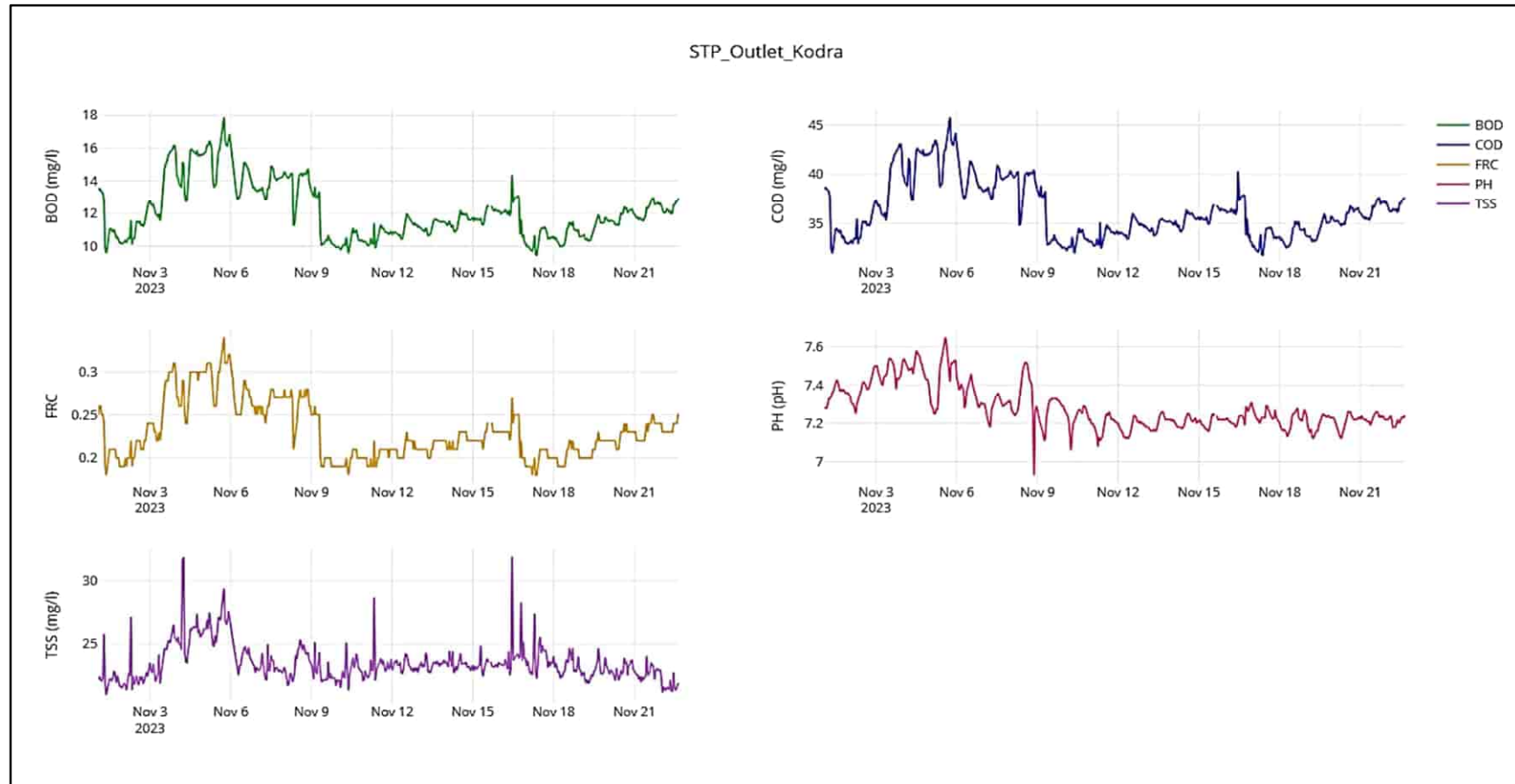
- Some of the issues mentioned above are pending since long time and hence must be rectified at the earliest for enhancing the efficiency of the STP.
- Concessionaire must ensure satisfactory working of Online monitoring system & transmit the data as per requirement.
- All the maintenance jobs required for the observations made above must be done as soon as possible to increase the efficiency of plant.
- Permits must be used for all kind of maintenance jobs whether it is Preventive or Corrective. Concessionaire to please ensure the same.
- All the records must be provided as per the observations made above.
- All logbooks must be filled timely and accurately.
- Testing of samples must be done from outlet of PSTs also for checking the efficiency of PSTs.
- Concessionaire to please ensure that all the testing must be done as per the clause no. 1.7.9 of Part-G in Concession Agreement.



- All the old material obtained due to rehabilitation works in various units must be stacked properly at the identified part of the site and proper record must be maintained.
- It is recommended to follow proper safety measures during O&M, and it must be ensured that workers must wear proper PPEs while doing work at Site.
- More awareness trainings for workers must be given for encouraging them to use PPEs.

### 3. KODRA STP AND ASSOCIATE INFRASTRUCTURE

#### 3.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

Note:

1. Rectification of problem for variation in data is going on as fine tuning of multi parameter analyzer from OEM is in progress.
2. FRC sensor calibration is completed but it is under observation.



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



Date	Daily Feed Quantity MLD (Design- 25 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design- <9)	Final pH (Design- 6.5 to 9.0)	Inlet BOD (Design- <250 mg/l)	Final BOD (Design - <20 mg/l)	Inlet COD (Design- <500 mg/l)	Final COD (Design - <50 mg/l)	Inlet TSS (Design- <500 mg/l)	Final TSS (Design - <30 mg/l)	Inlet (Design - NA)	Final (Design - <1000 MPN/100 ml)	Final (Design - 0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	29670	29.67	7.26	7.40	120	11	316	32	274	21	NA	500	0.2	23.85	1100000	
2-Nov-23	28190	28.19	7.11	7.32	130	12	284	36	268	22	NA	400	0.2	24.09	1300000	
3-Nov-23	28950	28.95	7.09	7.42	135	14	308	40	277	23	NA	600	0.3	24.35	1700000	
4-Nov-23	28850	28.85	7.17	7.48	130	15	320	44	292	24	NA	700	0.3	23.93	1200000	
5-Nov-23	28560	28.56	7.29	7.47	135	16	336	40	304	26	NA	500	0.3	23.11	1300000	
6-Nov-23	27240	27.24	7.40	7.49	130	14	304	44	282	25	NA	600	0.3	24.36	1400000	
7-Nov-23	30520	30.52	7.36	7.44	120	13	316	40	297	23	NA	400	0.3	24.27	1100000	
8-Nov-23	26860	26.86	7.12	7.39	140	14	312	36	303	24	NA	500	0.3	23.45	1300000	
9-Nov-23	29630	29.63	7.14	7.32	135	11	324	32	298	22	NA	400	0.2	24.73	1700000	
10-Nov-23	29310	29.31	7.19	7.30	130	10	308	36	274	23	NA	600	0.2	23.93	1400000	
11-Nov-23	29550	29.55	7.11	7.31	135	11	328	32	309	22	NA	700	0.2	23.70	1300000	
12-Nov-23	30950	30.95	7.23	7.29	125	12	336	32	309	24	NA	600	0.2	24.09	1700000	
13-Nov-23	29100	29.10	7.16	7.27	140	11	348	36	323	22	NA	500	0.2	23.92	1200000	
14-Nov-23	28840	28.84	7.22	7.30	130	12	332	32	314	23	NA	400	0.3	23.33	1300000	
15-Nov-23	28950	28.95	7.19	7.28	125	11	320	36	297	22	NA	700	0.2	23.85	1400000	
16-Nov-23	29010	29.01	7.26	7.31	130	13	312	40	288	24	NA	400	0.2	24.72	1700000	
17-Nov-23	29460	29.46	7.38	7.33	120	10	308	32	280	23	NA	600	0.2	24.97	1100000	
18-Nov-23	26640	26.64	7.29	7.42	125	11	296	36	273	22	NA	400	0.2	24.27	1300000	
19-Nov-23	28520	28.52	7.35	7.27	135	12	316	32	296	23	NA	600	0.3	24.68	1200000	
20-Nov-23	28410	28.41	7.37	7.39	130	11	324	36	305	21	NA	500	0.2	24.10	1400000	
21-Nov-23	28830	28.83	7.36	7.41	125	13	332	40	314	23	NA	600	0.3	23.55	1100000	
22-Nov-23	29750	29.75	7.29	7.40	130	12	344	36	318	20	NA	700	0.3	23.43	1300000	
23-Nov-23	28980	28.98	7.13	7.37	120	13	328	40	309	22	NA	400	0.2	24.74	1200000	
24-Nov-23	28800	28.80	6.98	7.34	135	10	348	32	314	21	NA	600	0.2	23.11	1700000	
25-Nov-23	27730	27.73	7.11	7.32	130	11	336	36	310	23	NA	400	0.2	23.29	1400000	
26-Nov-23	30110	30.11	7.24	7.29	125	10	344	32	326	24	NA	500	0.3	23.47	1100000	
27-Nov-23	29690	29.69	7.17	7.28	130	12	340	36	318	22	NA	400	0.3	24.56	1300000	
28-Nov-23	30670	30.67	7.10	7.29	140	13	348	40	325	24	NA	700	0.3	24.71	1400000	
29-Nov-23	30140	30.14	7.00	7.36	135	12	444	36	436	23	NA	600	0.3	23.71	1100000	
30-Nov-23	31320	31.32	7.26	7.43	125	14	332	40	307	22	NA	700	0.2	22.84	1700000	
<b>Average</b>	<b>29107.67</b>	<b>29.11</b>	<b>7.21</b>	<b>7.36</b>	<b>129.83</b>	<b>12.13</b>	<b>328.13</b>	<b>36.40</b>	<b>304.67</b>	<b>22.77</b>	<b>NA</b>	<b>540.00</b>	<b>0.25</b>	<b>23.97</b>	<b>1346666.67</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

### 3.2 Action taken report:

Month of Site Inspection	November 2023
Site Inspectors	18. Mr. Syed Mohd Shabaz, EE-E&M, UPJN(R). 19. Mr. Karunakar Singh AE, UPJN(R). 20. Mr. Narendra, JE, UPJN(R). 21. Mr. Jitender, JE, UPJN(R). 22. Mr. Gaurav Gupta, AECOM. 23. Mr. Sudhir Kumar Tomar, AECOM. 24. Mr. Rahul Azaad, PWPL. 25. Mr. Rajan, PWPL.
Place(s) of Inspection	<ul style="list-style-type: none"> <li>25 MLD STP at Kodra, Prayagraj</li> <li>25 MLD MPS at Kodra, Prayagraj</li> </ul>

Visit was done on 30<sup>th</sup> October 2023, 4<sup>th</sup> November 2023, 17<sup>th</sup> November 2023, 20<sup>th</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Kodra STP	26.64 to 30.95
2	Kodra MPS	26.64 to 30.95

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	< 20 mg/l	10 to 16 mg/l
2	TSS – Effluent	< 30 mg/l	21 to 26 mg/l
3	pH – Effluent	6.5 – 9.0	7.27 to 7.49
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100 ml
5	Consistency – Sludge	> 20 %	23.11 to 24.97%
6	Fecal Coliform – Sludge	< 20,00,000 MPN/gTS	1100000 to 1700000 MPN/gTS

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

- Status of Energy Consumption:

S. No.	Facility Name	Actual Energy Consumption (KWH)
1	Kodra Facility	5290 to 5950

Note: 1) Source for above data is site record for power consumption of STP/MPS.

- Status of various units & records at site:

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.

2. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that data from 5:15 PM on 16<sup>th</sup> Nov 2023 to 6:15 PM on 16<sup>th</sup> Nov 2023. Also, sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
4. Flowmeter at inlet of STP is working.
5. Flowmeter at outlet of STP is working. There is variation in between inlet and outlet flow which is more than water loss shown for the STP. Concessionaire is required to resolve this problem.
6. Both grit removal units are working.
7. Both Mechanical Fine Screens at PTU are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
8. All Biotowers are working. Small amount of plastic waste is reaching the biotowers which must be rectified by doing overhauling of mechanical screens at PTU.
9. All Aeration tanks are working.
10. One DO Analyzer out of two is not working at outlet of aeration tank.
11. All Aeration blowers are working.
12. All Centrifuges are in working condition.
13. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
14. All Sludge Recirculation Pumps are working.
15. Both Centrifuge Feed Pumps are working.
16. Both Secondary Clarifiers are working.
17. Thickener unit is working.
18. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be around 0.3 to 0.4mg/l.
19. Installation of new chlorine analyzer at outlet is completed. It is under observation.
20. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
21. One Mechanical coarse Screens at MPS is working. One Mechanical coarse Screens is under maintenance Currently screens are running in auto mode through timer however differential level sensors are not working.
22. At Kodra MPS, all 6 pumps are OK for operation. Pressure transmitter is not installed in common header line of pumps yet. Also, pumps must be kept in auto mode so that they can start & stop on the basis of level in the sump.
23. Landscaping of site must be improved; it needs to be made better.
24. Make a proper store for storage of flammable and hazardous materials including spare parts.
25. 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.
26. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, new Computer Maintenance Management system (CMMS) is installed which is under observation. Also, data from the same must be provided in MPR as supporting documents for maintenance activities.
27. Commissioning of Public Address System is not completed yet.
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. It is found that testing of earthing pits is not done regularly for complete site. Concessionaire is required to perform testing of earthing pits internally at least once in a quarter and externally at least once in a year. This activity must be done on priority basis considering the mishappening of STP in Uttarakhand.

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

- a) Portable samplers must be provided to collect composite samples for monitoring from inlet and outlet of STP as per clause no. 1.3.1 in Part-E of Schedule-10 of CA. Also, all the instruments as mentioned in Table-3 given in clause no. 1.3.1 in Part-E of Schedule-10 of CA must be maintained in the laboratory.
- b) Calibration certificates of all the instruments must be submitted as per clause no. 9.8(a)(viii) of Concession Agreement.
- c) Testing of TN, NH<sub>4</sub>-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.

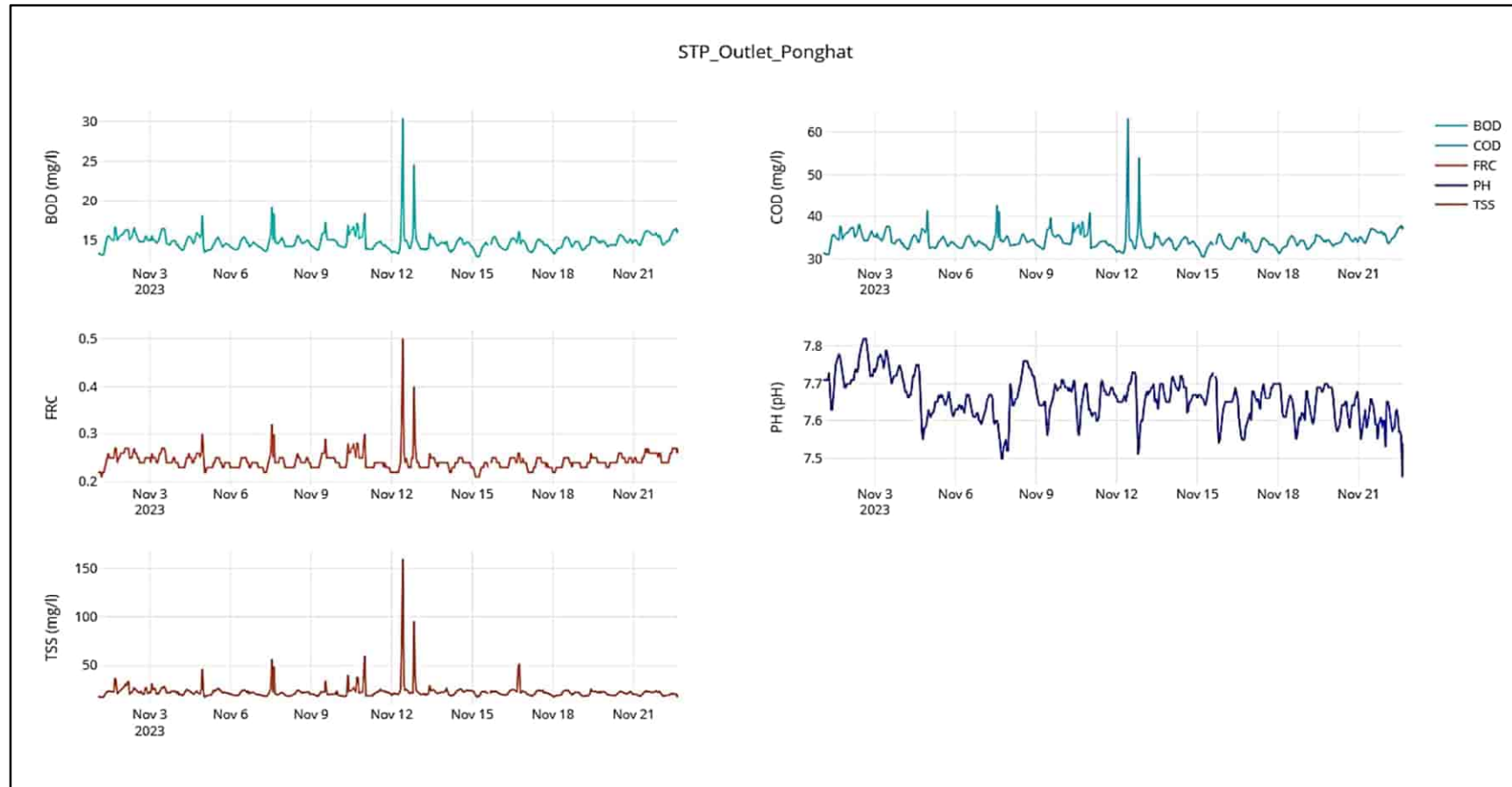
### 3.3 Recommendations:

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



## 4. PONGHAT STP AND ASSOCIATE INFRASTRUCTURE

### 4.1 KPI Report:



Source: Online analyzer,

\* BOD in mg/l, COD in mg/l and TSS in mg/l

Note:

1. Rectification of problem for variation in data is going on as fine tuning of multi parameter analyzer from OEM is in progress.
2. FRC sensor calibration is completed but it is under observation.



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



Date	Daily Feed Quantity MLD (Design-10 MLD)		pH		BOD (mg/l)		COD (mg/l)		TSS (mg/l)		FECAL COLIFORM		FRC	DEWATERED SLUDGE		REMARKS
	M3	MLD	Inlet pH (Design-<9)	Final pH (Design-6.5 to 9.0)	Inlet BOD (Design-<250 mg/l)	Final BOD (Design-<20 mg/l)	Inlet COD (Design-<500 mg/l)	Final COD (Design-<50 mg/l)	Inlet TSS (Design-<500 mg/l)	Final TSS (Design-<30 mg/l)	Inlet (Design-NA)	Final (Design-<1000 MPN/100 ml)	Final (Design-0.2 mg/l)	Outlet Concentration (>20%)	Fecal Coliform (20,00,000 MPN/gTS)	
1-Nov-23	12890	12.89	7.32	7.68	120	16	292	36	230	25	NA	400	0.3	23.90	1300000	
2-Nov-23	12300	12.30	7.27	7.70	135	17	300	36	235	26	NA	600	0.3	24.15	1200000	
3-Nov-23	13040	13.04	7.24	7.66	130	16	296	32	220	25	NA	500	0.2	24.56	1100000	
4-Nov-23	13600	13.60	7.35	7.62	125	15	292	36	230	27	NA	700	0.3	24.68	1700000	
5-Nov-23	13480	13.48	7.32	7.58	135	16	304	32	240	26	NA	500	0.2	24.76	1300000	
6-Nov-23	12470	12.47	7.22	7.54	125	15	296	36	225	24	NA	600	0.3	24.28	1200000	
7-Nov-23	12100	12.10	7.18	7.52	135	16	300	32	215	23	NA	400	0.3	24.56	1100000	
8-Nov-23	11850	11.85	7.22	7.69	125	15	296	36	230	22	NA	500	0.2	24.20	1700000	
9-Nov-23	12610	12.61	7.18	7.62	130	16	292	32	220	23	NA	400	0.3	23.82	1100000	
10-Nov-23	14400	14.40	7.26	7.57	135	17	288	36	215	27	NA	600	0.3	24.36	1200000	
11-Nov-23	12320	12.32	7.34	7.56	125	16	284	32	220	26	NA	500	0.2	24.55	1300000	
12-Nov-23	14200	14.20	7.39	7.52	120	15	300	36	235	28	NA	700	0.3	24.46	1700000	
13-Nov-23	13120	13.12	7.28	7.60	125	16	292	32	220	24	NA	400	0.3	24.74	1400000	
14-Nov-23	14070	14.07	7.26	7.63	125	15	288	36	210	25	NA	600	0.2	24.15	1100000	
15-Nov-23	13360	13.36	7.36	7.58	135	14	312	32	250	24	NA	500	0.2	23.85	1300000	
16-Nov-23	13460	13.46	7.18	7.56	125	16	292	36	220	27	NA	700	0.3	24.36	1200000	
17-Nov-23	12870	12.87	7.28	7.60	130	15	300	32	235	24	NA	400	0.3	24.68	1500000	
18-Nov-23	13140	13.14	7.22	7.55	135	16	284	36	210	23	NA	600	0.2	24.76	1700000	
19-Nov-23	12730	12.73	7.15	7.52	130	15	288	32	220	22	NA	500	0.3	23.72	1400000	
20-Nov-23	11810	11.81	7.23	7.54	135	16	280	36	212	23	NA	400	0.2	23.36	1300000	
21-Nov-23	11430	11.43	7.21	7.67	140	17	296	36	214	24	NA	700	0.3	24.32	1500000	
22-Nov-23	12360	12.36	7.15	7.57	135	16	292	40	228	22	NA	600	0.2	24.05	1200000	
23-Nov-23	12910	12.91	7.19	7.55	125	17	284	36	224	21	NA	400	0.3	23.53	1400000	
24-Nov-23	12160	12.16	7.16	7.67	130	16	288	32	230	24	NA	500	0.2	24.06	1300000	
25-Nov-23	12140	12.14	7.18	7.69	135	15	280	36	220	23	NA	600	0.3	23.92	1700000	
26-Nov-23	13030	13.03	7.08	7.70	125	16	284	32	212	26	NA	400	0.2	23.80	1300000	
27-Nov-23	13260	13.26	7.18	7.64	135	15	304	36	238	24	NA	500	0.3	24.10	1100000	
28-Nov-23	13320	13.32	7.12	7.66	140	16	300	32	224	23	NA	600	0.2	24.28	1400000	
29-Nov-23	13250	13.25	7.22	7.55	130	15	296	36	225	22	NA	700	0.3	24.03	1300000	
30-Nov-23	12530	12.53	7.42	7.67	135	16	304	36	228	25	NA	400	0.2	23.92	1700000	
<b>Average</b>	<b>12873.67</b>	<b>12.87</b>	<b>7.24</b>	<b>7.61</b>	<b>130.33</b>	<b>15.73</b>	<b>293.47</b>	<b>34.53</b>	<b>224.50</b>	<b>24.27</b>	<b>NA</b>	<b>530.00</b>	<b>0.26</b>	<b>24.20</b>	<b>1356666.67</b>	

Source: Logbook of Laboratory at Sewage Treatment Plant

## 4.2 Inspection Report

Month of Site Inspection	November 2023
Site Inspectors	26. Mr. Syed Mohd Shabaz, EE-E&M, UPJN(R). 27. Mr. Karunakar Singh AE, UPJN(R). 28. Mr. Narendra, JE, UPJN(R). 29. Mr. Jitender, JE, UPJN(R). 30. Mr. Gaurav Gupta, AECOM. 31. Mr. Sudhir Kumar Tomar, AECOM. 32. Mr. Rahul Azaad, PWPL. 33. Mr. Rajan, PWPL.
Place(s) of Inspection	<ul style="list-style-type: none"> <li>10 MLD STP at Ponghat, Prayagraj</li> <li>10 MLD MPS at Ponghat, Prayagraj</li> </ul>

Visit was done on 30<sup>th</sup> October 2023, 4<sup>th</sup> November 2023, 17<sup>th</sup> November 2023, 20<sup>th</sup> November 2023 and following observations were made after action taken by Concessionaire on inspection report provided by Project Engineer for October-23:

- Status of Availability:

S. No.	Facility Name	Actual Flow Pumped /Received at Facility (MLD)
1	Ponghat STP	11.43 to 14.40
2	Ponghat MPS	11.43 to 14.40

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	< 20 mg/l	14 to 17 mg/l
2	TSS – Effluent	< 30 mg/l	22 to 28 mg/l
3	pH – Effluent	6.5 – 9.0	7.52 to 7.70
4	Fecal coliform – Effluent	<= 1000 MPN/100 ml	400 to 700 MPN/100ml
5	Consistency – Sludge	> 20 %	23.36 to 24.76%
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	Ponghat Facility	2250 to 2960

Note: 1) Source for above data is site record for power consumption of STP/MPS.

- Status of various units & records at site:

1. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at outlet and it was found that the said SCADA reports are almost

- stabilized apart from some minor variations.
2. Latest SCADA reports regarding KPIs for all STPs were checked to evaluate the performance of multiparameter analyzer at inlet and it was found that the said SCADA reports are almost stabilized apart from some minor variations.
  3. Data transfer from online analyzer at the outlet of STP to CPCB servers is in progress. By studying the graph available at the online portal, it was found that sudden spikes/drops can be seen in the graphs available at the online portal which is fundamentally not correct. These types of incidents have been observed in past also. Concessionaire is required to rectify these problems.
  4. Flowmeter at inlet of STP is working.
  5. Flowmeter at outlet of STP is working. There is variation in between inlet and outlet flow which is more than water loss shown for the STP. Concessionaire is required to resolve this problem.
  6. Both Mechanical fine screens at PTU are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
  7. Both Grit Removal Units are working.
  8. Both Biotowers are working. Small amount of plastic waste is reaching the biotowers which must be rectified by doing overhauling of mechanical screens at PTU.
  9. All Aeration tanks are working. Air is coming out vigorously from 5-6 points due to problem in diffusers. This must be rectified at the earliest.
  10. Both DO Analyzers at aeration tanks are not working.
  11. All Aeration Blowers are working.
  12. Both Centrifuges are working.
  13. All Sludge Feed pumps, and Poly dosing pumps are working.
  14. Quality of effluent is satisfactory.
  15. Drainage system must be provided near the sludge collection area of dewatering system for avoiding sludge accumulation.
  16. Both Sludge Recirculation Pumps are working.
  17. Both Chlorine Dosing Systems are working. Residual chlorine in effluent was found to be 0.2 to 0.3 mg/l.
  18. It is continuously observed that dewatered sludge is being dumped inside the plant. Concessionaire is required to dump the dewatered sludge in the place given by UPJN.
  19. At Ponghat MPS, all 6 pumps are OK for operation. Presser transmitter is not installed at pump discharge common header.
  20. Both mechanical coarses screen at MPS are working. Currently screens are running in auto mode through timer however differential level sensors are not working.
  21. At Ponghat MPS, it is suggested to rectify problems in old pumps also so that they be used in emergency situation. Currently, all old pumps are not in working condition.
  22. As already discussed, 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.
  23. As per Clause No.1.6 & 1.7.1 of Part – G in concession agreement, new Computer Maintenance Management system (CMMS) is installed which is under observation. Also, data from the same must be provided in MPR as supporting documents for maintenance activities.
  24. Installation of Public Address System is done but its commissioning is not completed yet.
  25. Make a proper store for storage of flammable and hazardous materials including spare parts.
  26. Painting of units in the STP is completed from outside. It is suggested to start the painting work for all units from inside also.
  27. It is found that testing of earthing pits is not done regularly for complete site. Concessionaire is required to perform testing of earthing pits internally at least once in a quarter and externally at least once in a year. This activity must be done on priority basis considering the mishappening of STP in Uttarakhand.
  28. Since COD is announced on 01.11.2020 for all Package – III facilities hence Concessionaire is required to implement following documents as per Clause no. 9 & Part-G in Schedule – 10 of Concession Agreement at the earliest:

- a) 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, NH<sub>4</sub>-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 Recommendations

- 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 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
4.1 (i)	Review, analysis and qualifying assessment of field investigations carried out and reported by the Concessionaire in respect of topographical surveys, hydraulic & hydrologic data verification, sub-surface investigation including laboratory testing and reports of geologists wherever applicable, investigation of construction material including lab testing.	Yes	NA	NA
4,1(ii)	Review, analysis and qualifying assessment of Design Memorandums, specifications and construction drawings prepared and submitted by the concessionaire.	Yes	NA	NA
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	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	f. Environment Health and Safety Plan, material safety data and hazardous chemicals if any.			
4.1(v)	Review of the Drawings and Documents as set forth in Paragraph 4 and 5;	Yes	Yes	Yes
4.1(vi)	Identification of Construction Milestones & Project progress monitoring and issue of Milestone Construction Certificates, Construction Completion Certificate, monitoring Trail run, recommendations for issuance of COD certificate by Jal Nigam etc.	Review and Monitoring of project	Review and Monitoring of project	Review and Monitoring of project
4.1(vii)	To Assist NMCG for getting Statutory permissions	Yes	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 services and/or their reasonableness;	Yes	NA	NA

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	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 16.5 of the Concession Agreement	NA	NA	NA
	Determine deficiencies in the commissioning & trial runs; prepare the final acceptance document for acceptance of commissioning & trial runs. Prepare & Issue Commercial Operation certificate through Uttar Pradesh Jal Nigam	Yes	NA	NA
	Any other matter which is not specified in ((vi),(vii), or (viii) above and which creates an obligation or liability on the Employer /NMCG beyond the provisions of the Concession Agreement.	Yes	Yes	Yes
4.1(x)	Ensuring Interim Availability of the existing Facilities during construction period and certifying Scheduled Outages during Scheduled Maintenance.	Yes	NA	NA
4.1(xi)	The Project Engineer shall submit regular periodic reports, as specified in the Concession Agreement to Uttar Pradesh Jal Nigam and NMCG, in respect of its duties	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	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, Applicable Laws, Applicable	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	<p>Permits and Good Industry Practice; Results in the Facilities achieving the KPIs as detailed in schedule 9 of the Concession Agreement and certify within 7 days the KPI adherence Report as per clause 9.12 of the Concession Agreement;</p> <p>(ii) Ensures that the Allahabad Facilities are capable of treating Sewage up to the Design Capacity on a daily basis;</p> <p>(iii) Ensures efficient treatment of Sewage and handling and disposal of STPs By- Products and the Treated Effluent</p> <p>(iv) STPs are safe and reliable, subject to normal wear and tear of the Facilities and the Associated Infrastructure;</p> <p>(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;</p> <p>(vi) Maintains the safety and security of personnel, material and property at the Site, in accordance with the approved EHS Plan, Applicable Laws and Applicable Permits; and</p>			

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	(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 send its comments/observations to	Yes	NA	NA



Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	the Uttar Pradesh Jal Nigam and the Concessionaire within 10 (ten) days of receipt of such Drawings. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.			
5.2	The Project Engineer shall review and assist the Uttar Pradesh Jal Nigam in approval of the submissions by the concessionaire relating to the "design and, Construction Plan, rehabilitation Plan of existing facilities" so as to confirm to the scope as per Schedule 1 of the Concession Agreement.	Yes	Yes	Yes
5.3	<p>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</p> <p>(a) Conduct Kick off meeting, Scrutiny of contractor's submittals</p> <p>(b) Process description, process calculations and hydraulic calculations;</p> <p>(c) List of design codes and standards;</p>	Yes	NA	NA

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	(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 Concessionaire and furnish its comments within 10 (ten) days of receipt thereof.	Yes	NA	NA

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
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	Yes	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	NA	NA
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	NA
6.3	The Project Engineer shall assist the Uttar Pradesh Jal Nigam submit their comments on effectiveness or otherwise of the Work plan submitted for meeting the specified payment	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	milestones and completion of the work on or before the scheduled construction completion date.			
6.4	The Project Engineer shall review the submissions by the Concessionaire as per Schedule 1 of the Concession Agreement and assist Uttar Pradesh Jal Nigam in assessing the effectiveness them.	Yes	Yes	Yes
6.5	The Project Engineer shall review the monthly progress report furnished by the Concessionaire and send its comments thereon to the / Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of receipt of such report.	Yes	Yes	Yes
6.6	The Project Engineer shall inspect the Construction Works and the Project as and when necessary and submit a report of such inspection (the "Inspection Report"), preferably after receipt of the monthly progress report from the Concessionaire, but before the 20th (twentieth) day of each month in any case. The report shall contain, an overview of the status, progress, quality and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction Works with the	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Project Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project. The Project Engineer shall send a copy of its Inspection Report to the / Uttar Pradesh Jal Nigam and the Concessionaire within 3 (three) days of the inspection.			
6.7	However serious lapses, defects and/or deficiencies shall be reported to the Uttar Pradesh Jal Nigam/NMCG immediately without waiting for the monthly progress submissions as mentioned in the previous paragraph.	Yes	Yes	Yes
6.8	For determining that the Construction Works conform to Specifications and Standards, the Project Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Project Engineer in accordance with approved norms/Good Industry Practice for quality assurance. The Project Engineer shall issue necessary directions to the Concessionaire for ensuring that the tests are conducted in a fair and efficient manner and	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	shall monitor and review the results thereof.			
6.9	The timing of tests referred to in Paragraph 6.8, and the criteria for acceptance/rejection of their results shall be determined by the Project Engineer in accordance with the norms /rules and Good Industry Practice. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Concessionaire for its own quality assurance in accordance with Good Industry Practice.	Yes	Yes	Yes
6.10	In the event that the Concessionaire carries out any remedial works for removal or rectification of any defects or deficiencies, the Project Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests to determine that such remedial works have brought the Construction Works into conformity with the Specifications and Standards, and the provisions of this Paragraph 5 shall apply to such tests.	Yes	Yes	Yes
6.11	In the event that the Concessionaire fails to achieve any of the Project Milestones, the Project Engineer shall undertake a	Yes	Yes	Yes



Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	review of the progress of construction and identify potential delays, if any. If the Project Engineer identifies that completion of the Project is not feasible within the time specified in the Concession Agreement, it shall require the Concessionaire to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which COD shall be achieved. Upon receipt of a report from the Concessionaire, the Project Engineer shall review the same and send its comments to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire forthwith.			
6.12	If at any time during the Construction Period, the Project Engineer determines that the Concessionaire has not made adequate arrangements for the safety of workers and common public in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the common public, it shall make a recommendation to the NMCG/ Uttar Pradesh Jal Nigam forthwith, identifying the whole or part of the Construction Works that should be suspended for	Yes	Yes	Yes

Activities Carried out as per TOR				
Clause as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	ensuring safety in respect thereof.			
6.13	In the event that the Concessionaire carries out any remedial measures to secure the safety of suspended works and common public, it may, by notice in writing, require the Project Engineer to inspect such works, and within 3 (three) days of receiving such notice, the Project Engineer shall inspect the suspended works and make a report to the NMCG/ Uttar Pradesh Jal Nigam forthwith, recommending whether or not such suspension may be revoked by the NMCG/ Uttar Pradesh Jal Nigam.	Yes	Yes	Yes
6.14	If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Project Engineer shall determine the extension of dates set forth in the project completion schedule, to which the Concessionaire is reasonably entitled, and shall notify the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire of the same.	Yes	NA	NA
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,	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	works and services and certify the reasonableness of such costs for payment by the NMCG/ Uttar Pradesh Jal Nigam to the Concessionaire.			
6.16	The Project Engineer shall aid and advise the Concessionaire in preparing the Operation & Maintenance Manual.	Yes	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 necessary recommendation/s to Uttar Pradesh Jal Nigam for issuance of 'Milestone Construction Certificates'.	Yes	Yes	Yes
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	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	and suggest changes as per clause 8.14(a) of the Concession Agreement.			
6.21	Similarly, the Project Engineer may inspect the trial process and may point out the defects and cause changes or retrial of the process as per clause 8.15(d) of the Concession Agreement	Yes	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 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
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	Yes	Yes	Yes

Activities Carried out as per TOR				
Clause as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	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.			
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	<p>The Project Engineer shall review the O&amp;M Manual (Clause 9.2) and the Scheduled Maintenance Programme submitted by the concessionaire and provides its recommendations on the same, including suggestions for change, if any. The O&amp;M Manual shall cover:</p> <ul style="list-style-type: none"> <li>a) O&amp;M Procedures;</li> <li>b) O&amp;M Plan;</li> <li>c) Provision of Spare Parts;</li> <li>d) Sampling and Testing Methodologies;</li> <li>e) Storage and control of Inventory;</li> <li>f) Arrangements for data security and Integrity;</li> <li>g) Procedures for recording and disposal of complaints;</li> <li>h) Operational Contingencies Plans;</li> </ul>	Yes	Yes	Yes

Activities Carried out as per TOR				
Clause as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	i) Human Resources Plans; j) EHS Plans; k) Emergency procedures; l) Management of Assets Plans. And m) Annual Scheduled Maintenance Programme.			
7.3	The Project Engineer shall review the annual Maintenance Program furnished by the Concessionaire and send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 10 (ten) days of receipt of the Maintenance Program.	Yes	Yes	Yes
7.4	The Project Engineer shall review the reports generated from online monitoring systems to assess adherence to KPIs and submit the monthly KPI Adherence Report to Uttar Pradesh Jal Nigam	Yes	Yes	Yes
7.5	The Project Engineer shall verify the daily reports 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



Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
7.7	The Project Engineer shall regularly verify the report submitted by the concessionaire on the tests conducted at the Inlet Point, the Outlet Point or at any other point at the Facilities for the Digested Sludge. Separately, the Project Engineer shall also have the right to take random samples of the incoming Sewage, the Digested Sludge and the Treated Effluent at any time during the O&M Period to test compliance with the Influent Standards and the Discharge Standards.	Yes	Yes	Yes
7.8	The Project Engineer shall review the monthly status report furnished by the Concessionaire (as required under clause 9.8(b)(iii)(E) the Concession Agreement) and send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of receipt of such report	Yes	Yes	Yes
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	Yes	Yes	Yes

Activities Carried out as per TOR				
Clause as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	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.			
7.10	The Project Engineer may inspect the project more than once in a month, if any lapses, defects or deficiencies require such inspections.	Yes	Yes	Yes
7.11	The Project Engineer shall in its O&M Inspection Report specify the tests, if any, that the Concessionaire shall carry out, or cause to be carried out, 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.	Yes	Yes	Yes
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	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	Damages, if any, payable by the Concessionaire to the NMCG/ Uttar Pradesh Jal Nigam for such delay.			
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.	Yes	Yes	Yes
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	Yes	Yes	Yes

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	the STP, as and when required, so as to address the gap in skill sets of the manpower deployed by the Concessionaire.			
7.18	<p>The Project Engineer will provide necessary assistance to NMCG and UP Jal Nigam for the understanding various projects undertaken through other Central Government/State Government schemes /Urban Local Bodies and advice NMCG/UP Jal Nigam accordingly so that the overall objective preventing flow of untreated sewage into the river Yamuna is accomplished. The support by the proposed PE will include, but not limited to the following:</p> <p>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;</p> <p>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.</p>	Yes	NA	NA

Activities Carried out as per TOR				
Clouse as per TOR	Scope	Period from 1 <sup>st</sup> November 2023 to 30 <sup>th</sup> November 2023		
		Undertaken till previous months	Undertaken during this month	Expected for next month
	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