



क्षेत्रीय कार्यालय

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, मुजफ्फरनगर

U.P. POLLUTION CONTROL BOARD, MUZAFFARNAGAR

6-बी, नई मण्डी, मुजफ्फरनगर-251001 (उ०प्र०)

संदर्भ सं०

Ref. No.

214/OA-16/Vinit Kumar v/s. S M Sugar/2021

दिनांक

Dated 24-6-21.

To,

The Registrar
National Green Tribunal
Principal Bench
New Delhi.
E-mail : judicial-ngt@gov.in

Sub.-Compliance to the direction issued on 28.01.2021 by Hon'ble National Green Tribunal in O.A. No. 16/2021 Vinit Kumar Vs. M/s DSM Sugar Mills Ltd. And Ors.

Sir,

With reference to the subject mentioned above kindly find enclosed herewith the Joint Committee Report of CPCB and UPPCB in compliance of the order issued on 28.01.2021 by Hon'ble National Green Tribunal in O.A. No. 16/2021 Vinit Kumar Vs. M/s DSM Sugar Mills Ltd. And Ors.

Encl. : As above.

Yours faithfully

Ankit Singh
(Ankit Singh)
Regional Officer

Copy to :

1. Member Secretary, U.P. Pollution Control Board, Lucknow for information.
2. Shri Pradeep Mishra, Advocate, Hon'ble Supreme Court/NGT, New Delhi for perusal and necessary action.
3. Chief Law Officer, U.P. Pollution Control Board, Lucknow for information.
4. Chief Environmental Officer (Circle-3), U.P. Pollution Control Board, Lucknow for information.

Ankit Singh
Regional Officer

[Signature]

Joint Inspection Report
(09.03.2021)

of

**M/s DSM Sugar Mansurpur, (A unit of Dhampur Sugar Mills
Ltd.), P.O.- Mansurpur, District-Muzaffarnagar- 251203,
Uttar Pradesh**

In the Matter Of
Vinit Kumar Vs M/s DSM Sugar Mills Ltd. And Ors.
In O.A. No. 16/2021

-Prepared by-
The Joint Committee of CPCB & UPPCB

Constituted by
Hon'ble National Green Tribunal
(Order dated 28th January, 2021)

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JOINT INSPECTION REPORT OF DSM SUGAR MANSURPUR, (A UNIT OF DHAMPUR SUGAR MILLS LTD.), P.O.- MANSURPUR, DISTRICT- MUZAFFARNAGAR- 251203, U.P. ON 09.03.2021 IN COMPLIANCE TO DIRECTION ISSUED BY HON'BLE NATIONAL GREEN TRIBUNAL IN O.A. NO. 16/2021, IN THE MATTER OF VINIT KUMAR VS M/S DSM SUGAR MILLS LTD. AND ORS. - REG.

1.0 Background

Hon'ble NGT vide order dated 23.01.2021 in the matter of Vinit Kumar Vs M/s DSM Sugar Mills Ltd. And Ors. in O.A. No. 16/2021 had directed following:

".. let a joint Committee of the CPCB and the State PCB ascertain facts and take such as may be called for in exercise of their statutory powers., following due process and furnish a factual and action taken report in the matter within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR support PDF. The state PCB will be the nodal agency for coordination and compliance".

2.0 Inspection of M/s DSM Sugar, Mansurpur (A unit of Dhampur Sugar Mills Pvt. Ltd.), P.O- Mansurpur, District- Muzaffarnagar U.P. on 09.03.2021 by Joint team of officials from CPCB and Regional Office, UPPCB, Muzaffarnagar.

In compliance to the aforesaid direction, a joint team of officials from Central Pollution Control Board, Delhi and Regional Office, Muzaffarnagar, Uttar Pradesh Pollution Control Board (UPPCB) visited the unit M/s DSM Sugar, Mansurpur (A unit of Dhampur Sugar Mills Pvt. Ltd.), P.O- Mansurpur, District- Muzaffarnagar U.P. ("hereafter referred as the Unit") premise and surveyed the drain along the boundary wall of sugar mill near railway track till the interior locations as well as Gram Sabha Pond and along the NH-58 to trace any bypass, effluent discharge point in the drain on 09.03.2021.

- During inspection, the team found a drain inside the unit near bagasse storage area, which contains black colored waste water. The samples were collected for further physico-chemical analysis (Pic-22). Sample analysis result is at Table- 1.
- The team has surveyed the boundary of the unit up to the interior locations up to a nearby distillery unit. During survey, a drain of waste water was observed behind the unit, near railway track along the boundary of the unit (Pic-2). Few outlets were also found opened towards the drain (Pic-31). The sample were collected by the team for physico-chemical analysis. Sample analysis result is at Table- 1.
- The team followed the drain flowing towards backside of the ETP towards Gram Sabha Pond and samples were collected from the Pond for the analysis (Pic-32). Further this drain meets the Mansurpur drain at NH 58 at downstream location of the unit, where the sewage from Mansurpur area also combines. The samples

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for analysis were collected by the team from Mansurpur drain at NH 58 at downstream location (Pic-1).

- The joint team tried to survey the Mansurpur drain at NH 58 up to the confluence of River Kali west, however due to unapproachability to the confluence point, the sample was also collected 1 km before the point (Pic-33).

2.1 The analysis results of the drain samples collected from various locations are shown in Table1.

Table 1. Analysis results of samples collected from Drain inside unit near bagasse storage, Drain behind unit near railway track, Downstream of Mansurpur drain, Drain near Kali River and Gram Sabha Pond After ETP.

Parameters, mg/l except pH, Color in Hazen and Conductivity in $\mu\text{mho/cm}$							
Sample Analysis	pH	COD	BOD	TSS	TDS	Phosphate	Ammonia
Drain located within unit's premises near bagasse storage	7.0	1357	563	222	3744	5.37	-
Drain behind unit near railway track	7.3	737	307	92	3964	3.65	-
Gram Sabha Pond After ETP	5.4	1110	597	205	1708	1.45	2.3
Downstream of Mansurpur drain at NH-58	6.0	1210	571	382	1376	2.36	14
Drain near Kali River	7.2	704	254	420	1232	2.82	29
<i>Notified standards for land disposal</i>	5.5 to 8.5	250	100	100	2100	-	-

The above analysis results of the drain samples collected from various locations depict the following:

- The analysis results of the *Gram Sabha pond* show pH= 5.4, COD= 1110 mg/l, BOD= 597 mg/l, TSS= 205 mg/l, TDS= 1708 mg/l and Ammonia= 2.3 mg/l which indicates the characteristics of untreated/partially treated effluent and the presence of ammonia indicates presence of domestic sewage.

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- The analysis results of the *Downstream of Mansurpur drain at NH-58* show pH= 6.0, COD= 1210 mg/l, BOD= 571 mg/l, TSS= 382 mg/l, TDS= 1376 mg/l and Ammonia= 14 mg/l which indicates the characteristics of untreated/partially treated industrial effluent mixed with domestic sewage.
- The analysis results of the *Drain near Kali River* show pH= 7.2, COD= 704 mg/l, BOD= 254 mg/l, TSS= 420 mg/l, TDS= 1232 mg/l and Ammonia= 29 mg/l which indicates the characteristics of domestic sewage.

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3.0 INSPECTION REPORT OF M/S DSM SUGAR MANSURPUR, (A UNIT OF DHAMPUR SUGAR MILLS LTD.), P.O.- MANSURPUR, DISTRICT- MUZAFFARNAGAR- 251203, U.P.

A. GENERAL INFORMATION

1.	Date of Inspection:	09.03.2021
2.	Name of the unit with complete postal address	M/s DSM Sugar, Mansurpur (A unit of Dhampur Sugar Mills Pvt. Ltd.), P.O.- Mansurpur, District- Muzaffarnagar-251203, Uttar Pradesh
3.	Spatial Co-ordinates Latitude and longitude (in Decimal format only)	29.350839 77.718140
4.	Standalone/ integrated (with co-generation) Sugar/ sugar refinery	Sugar Refinery
5.	Year of commissioning	1988
6.	License capacity of sugar Mill (TCD)	7000 TCD
7.	Average actual crush rate (TCD)	7196 TCD (Avg. value as per Form RT7(C) for the month of Oct-20, Nov-20, Dec-20, Jan-21, Feb-21 and Daily Manufacturing Report (DMR) for the month of Mar-21)
8.	Consent status& its Validity with date (Expired/ Applied for renewal/First time applied/Never applied) a. Air Consent b. Water consent c. Hazardous Waste Authorization	Air Consent valid up to 31.12.2024 (Annexure-I) Water consent valid up to 31.12.2024 (Annexure-II) Hazardous Waste Authorization valid up to 19.02.2022 (Annexure-III)
9.	NOC from CGWA & its Validity with date (Expired/ Applied for renewal/First time applied/Never applied)	CGWA NOC Expired on 07.06.2020 Applied for renewal on 16.04.2020 (Annexure-IV)
10.	Start period of crushing season 2020-21	29.10.2020
11.	Operational status during visit (operational/ closed/ temporary closed/ permanent closed)	Operational
12.	Name of contact person	Designation Contact No & E- mail

Handwritten signatures and initials:
 

Sh. Arvind Kumar Dixit	Unit Head	Contact No- 9837894078
Sh. Pawan Kumar Sharma	AGM-Admin	Contact No- 9837894102
Sh. Prabhat Kumar	ETP Incharge	Contact No- 9528028506 Email- prabhatkumar@dhampur.com

B. OPERATIONAL STATUS

S.No.	Particulars																								
1.	Sources of fresh water																								
	a. Bore well	Bore well- 03 (one was operational, 02 was standby) 1. Bore well-I= Flow=0.0 m ³ /hr Σ=192648.9 m ³ 2. Bore well-II= Flow=0.0 m ³ /hr Σ=290223 m ³ 3. Bore well-III= Flow=103.1 m ³ /hr Σ=35989.9 m ³																							
	b. Flow meter Installation at wells	Yes																							
	c. Reading of Flow Meter during visit	Yes																							
	d. Any Logbook maintained	Yes																							
	e. Quantity of water withdrawal(KLD)	<table border="1"> <thead> <tr> <th rowspan="2">Bore-well No.</th> <th colspan="3">Month wise fresh water abstraction (KLD) (As per logbook data from 1st Feb-21 to 9th Mar-21)</th> </tr> <tr> <th>Feb-21</th> <th>Mar-21</th> <th>Total Average (KLD)</th> </tr> </thead> <tbody> <tr> <td>Bore-well- I</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Bore-well- II</td> <td>738</td> <td>559</td> <td>1297</td> </tr> <tr> <td>Bore-well- III</td> <td>236</td> <td>104</td> <td>340</td> </tr> <tr> <td>Total</td> <td>974</td> <td>663</td> <td>1637</td> </tr> </tbody> </table>	Bore-well No.	Month wise fresh water abstraction (KLD) (As per logbook data from 1 st Feb-21 to 9 th Mar-21)			Feb-21	Mar-21	Total Average (KLD)	Bore-well- I	0	0	0	Bore-well- II	738	559	1297	Bore-well- III	236	104	340	Total	974	663	1637
Bore-well No.	Month wise fresh water abstraction (KLD) (As per logbook data from 1 st Feb-21 to 9 th Mar-21)																								
	Feb-21	Mar-21	Total Average (KLD)																						
Bore-well- I	0	0	0																						
Bore-well- II	738	559	1297																						
Bore-well- III	236	104	340																						
Total	974	663	1637																						
2.	Fresh water consumption (KLD)																								
	a. Sugar plant	1637 KLD (As per logbook data from 1 st Feb-21 to 9 th Mar-21)																							
	b. co-generation																								
	c. Residential etc.																								
	d. Total fresh water Consumption (m ³ /hr)	1637 KLD (As per logbook data from 1 st Feb-21 to 9 th Mar-21)																							
	e. Log book maintained (Yes/ No) If any, details to be collected	Yes																							
3.	Details of Hot & Cold water recycling system	Number	Capacity																						

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(Yes/No.)		
a. Details of Hot water UGR.	01	225 m ³
b. Cold water UGR and cooling towers	01	150 m ³
c. Hot water- Location of flow meter & its Installation (Yes/No)	Flow meter (Yes/No)	Flow meter reading
1. Imbibition water at mills	Yes	Flow=156.70 m ³ /hr Σ=2420853.09 m ³
2. Filter cake wash water at rotary vacuum filter	Yes	Flow=12.17 m ³ /hr Σ=81781.2 m ³
3. Wash water at Centrifugal	Yes	Flow=8.211 m ³ /hr Σ=41851.0 m ³
d. Cold water -Location of flow meter & its Installation.		
1. Power turbine cooling	Yes	Flow=2.07 m ³ /hr Σ=27878.16 m ³
2. Mills, fibrizer bearing, pumps cooling	Recycle	
3. Cooling tower of co-generation	Yes	Σ=27930.0 m ³
4. B and C massecuite cooling	Recycle	Flow=11.91 m ³ /hr Σ=38220.0 m ³
5. Final molasses cooling	Recycle	
6. Make water for shortfall at any point operation including spray pond/process cooling tower.	Flow meter purchased & under installation	
7. Cleaning and human requirements including lab requirements	Yes	
4. Waste water (effluent generation (KLD))		
a. Cooling tower over flow	Effluent generation as per log book from 1 st Feb-2021 to 9 th Mar-2021): Cooling tower over flow= 263.32 KLD Mills house= 43.51 KLD, Boiling house (Refinery effluent generation-580.95+EVP body cleaning)- 124.68 KLD= 705.62 KLD	
b. Mills, boiling house, D.M./ R.O. Plant boilers etc.		
c. Co-generation		

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		Co-gen Cooling Tower= 38.22 KLD	
	d. IER wash water generation.	Flow=8.6 m ³ /hr= 206.88 KLD Σ=265921.2 m ³	
	e. Brine solution reject after regeneration (for refine sugar)	Brine solution reject transferred to Brine Recovery System, which is 90% recovered and 10% Brine solution reject is being used to spray on Bagasse.	
	f. Brine reject from brine recovery system		
	h. Common / total effluent generation	1257.55 KLD	
5.	Waste water effluent generation, Liter/ton of cane	174.75 Liter/ton	
6.	Details of Flow meters	Flow meter (Yes/No)	Quantity of water (KLD)
	a. Outlet of mill house and boiling house.	Yes Mills house: Flow=2.1 m ³ /hr= Σ=1153797 m ³ Boiling house Flow=1.2 m ³ /hr= Σ=71211.1 m ³	Mills house= 43.51 KLD, Boiling house = 705.62 KLD (As per log book from 1 st Feb-2021 to 9 th Mar-2021)
	b. Outlet of cooling tower over flow	Yes, Flow=11.5 m ³ /hr Σ=18616.5 m ³	Cooling tower over flow= 263.32 KLD (As per log book from 1 st Feb-2021 to 9 th Mar-2021)
	c. At ETP outlet	Yes, Flow=40.8 m ³ /hr Σ=0.0 m ³	1208.38 KLD (As per log book from 17 th Feb-2021 to 9 th Mar-2021)
	d. At ETP Inlet	Yes, Flow=29.97 m ³ /hr Σ=547719 m ³	1257.55 KLD (As per log book from 1 st Feb-2021 to 9 th Mar-2021)
	e. Other places of effluent generation	No	
7.	Details of tube cleaning method adopted (chemical/ hydrojet/ any other appropriate method if any), provide details	Yes Chemical- Caustic Soda	

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8.	Availability of Hazardous tank to collect wash water generated during chemical/Mechanical cleaning of evaporator tubes. (Yes/No), if Yes give Details.	Yes, 02 nos. hazardous tank of capacity 37m ³ each	
9.	Total waste water (effluent) generation, (Liters/ton of cane)	174.75 Liter/ton	
10.	Condensate polishing system adopted by the factory (for boilers >45 kg/cm ² steam pressure)	Under construction	
	If yes, then provide the details of condensate polishing system	Capacity-22 m ³ /hrs	
11.	Construction of small pits with smooth inner surface with ceramic tiles near to boiler feed pumps, condensate pumps, Injection pumps and RVF vacuum to collect gland cooling water	No leakage from pumps, Recycled to cooling tower mechanically.	
12.	Aeration in equalization tank	Yes, (Dimension of AT)- 49m x 12m x 4.5m No. of diffuser- 440	
13.	Type of aeration in aeration tank Diffused/ surface/ any other	Diffused aeration	
14.	Tertiary treatment, give details	Yes, Activated Carbon Filter (ACF) & Dual Media Filter (DMF) - 9.81 m ³ each	
15.	Schematic diagram of ETP	Oil skimmer & Bar screen chamber → Receiving tank → Oil & Grease trap → Chemical mixing tank → Equalization tank → Primary Clarifier → Aeration tank → Secondary Clarifier → Dual media filter → Activated Carbon Filter → Polishing tank → Lagoon	
16.	Treatment capacity of ETP (KLD)	840 KLD	
17.	Retention time (Min/hr)	Retention Time/Contact Time (Mentioned in CPCB charter)	As per Industry
	1. Bar screen Chamber	30 minutes	36 minutes
	2. Oil & grease tank	45 minutes	37 minutes
	3. Equalization tank with aeration	6 hrs	12 hrs 30 minutes
	4. Primary Clarifier	5-6 hrs	7 hrs 18 minutes
	5. Aeration tank	24-28 hrs	30 hrs 18

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			minutes
	6. Secondary Clarifier	7-8 hrs	7 hrs 18 minutes
	7. Multi grade filter	20-25 minutes	1 hr 10 minutes
	8. Activated carbon filter	20-25 minutes	1 hr 10 minutes
	9. Sludge drying bed	Not <0.03 m ³ per ton of cane	170 m ³
	10. Centrifuge	-	
18.	Any further treatment after ETP	No	
19.	Brief processing details (flow chart)	Yes, attached as Annexure-V	
20.	Number of Piezometric wells available in the unit premises: 2 (latitude - 29.030003, Longitude - 78.990248, water level reading - 9.95 m at 24.58°C)		
21.	Storage of treated Effluent		
	a. No. & size of lagoons	No. of lagoon= 01, Size= 10000 m ³	
	b. Retention time	15 days as per sugar charter	
	c. Lagoon type- permeable/impermeable	Impermeable	
22.	Sludge Handling Process: Yes		
	a. Sludge Drying Process	Four sludge drying bed available for drying process	
	b. Final Disposal of Sludge	Sludge after drying mixed with fly ash & press mud to form bio-manure & distributed free of cost to sugar cane growers	
	d. Whether mechanical sludge handling system installed	Filter press installed	
23.	Any Hazardous Substances (Yes/No), if yes, give details. (Quantity & way of Disposal)	Yes, Way of Disposal- used/ spent oil or wastes/ residues containing oil mixed with bagasse & burnt in boiler Quantity- 1.04 kg/day (Avg. quantity from 1 st Nov-20 to 9 th Mar-21)	
24.	Manpower employed for ETP operation & maintenance.	10 (01 Manager, 01 Sr. Officer, 01 Chemist, 03 Operator, 04 Helper)	

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25.	Details of irrigation system & treated effluent used quantity	The unit facilitated pipeline around the boundary wall of ETP for irrigation to nearby farmers' fields.
	1. Own land area for irrigation (Yes/No),	Yes, 36 acre
	2. Farmer land area and their agreement. (Yes/No),	Yes, Farmer's agreement provided
	3. Net effluent generation left for Irrigation (KLD)	Treated water storage lagoon (10000 m ³) having 15 days water holding capacity
	4. Flow meter to measure amount of water used for irrigation.	Not installed
	5. Distance of land Area from the Unit (Km)	01 Km
	6. Total Available Area (Hectare)	190 hectare
	7. Soil Texture of land (Sandy, Sandy loam, Loam, Clay loam, Clay)	Sandy loam
	8. Crop area under effluent application	190 hectare (30 hectare-Rabi crop and 160 hectare- Sugarcane)
26.	Color coding of pipelines for water distribution network	Yes Wastewater Tank - Yellow Treated Water Tank - Green MGF & ACF - Blue Freshwater/Recycled/ Cooling Tower - Blue
27.	Mode of disposal (route to reach Ganga)	Land disposal for irrigation to nearby farmers' fields through pipeline

4.0 OBSERVATIONS

1. The unit M/s Dhampur Sugar Mills Limited, Mansurpur, Muzzafarnagar, U.P. situated on N.H. - 58 in between Meerut & Muzaffarnagar, which was engaged in producing refined sugar by Defco Remelt Phospho Flotation process.
2. The unit is a refinery sugar unit and SO₂ gas cooling is not required, hence provision of separate Sulfur Recovery System (SRS) is not required.
3. The unit has installed Ion Exchange technology for decoloring sugar syrups. The Ion Exchange resin gets saturated/ exhausted after some usage and has to be regenerated. After the resin gets exhausted, the unit has re-generated resin using caustic brine solutions. As per the unit representative, 90% of Brine solution reject is recovered and rest 10% is being used to spray on Bagasse, however the same is not observed by the team on the day of inspection. The unit prepare fresh brine solution for every cycle in Ion Exchange Column (IER).

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The team also observed a drain near bagasse storage area carrying dark colored effluent. Analysis result of sample collected from the drain shows pH= 7.0. COD= 1357 mg/l, BOD= 563 mg/l, TSS= 222 mg/l, TDS= 3744 mg/l. (Sample analysis result is at Table-1).

4. The unit was found operational with capacity of 7000 TCD and the ETP was also operational at the time of inspection.
5. The unit has 33 MW cogeneration power plant. The unit is having 02 Boilers of capacity 100 TPH & 90 TPH.
6. The unit has started its crushing season 2020-21 on 22nd October, 2020.
7. As per Daily Manufacturing Reports (DMRs) provided by the unit, it was observed that on the average actual crush rate (TCD) is 7196 TCD (Avg. value as per Form RT7(C) for the month of Oct-20, Nov-20, Dec-20, Jan-21, Feb-21 and Daily Manufacturing Report (DMR) for the month of Mar-21).
8. Unit is having valid Consent to Operate under section 21/22 of the Air (Prevention & Control of Pollution) Act, 1981 (as amended) and Water under section 25/26 (Prevention & Control of Pollution) Act, 1974 (as amended) for discharge, both valid up to **31/12/2024**.
9. The unit is also having valid Authorization under the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 for storage and disposal of hazardous wastes valid up to **19.02.2022**.
10. The unit has provided log book for the generation of used oil, which is being mixed with bagasse and bunt in boiler. The average generated quantity of used oil is 1.04 kg/day, which comply the authorized quantity i.e. 5.0 kg/day. Following is the details of the hazardous waste generation by the unit:

Table 2. Details of the hazardous waste generation (used oil) by the unit (Avg. quantity from 1st Nov-20 to 9th Mar-21):

S.No.	Category of Hazardous Waste as per the Schedules I, II & III of these rules	Authorized mode of disposal or recycling or utilization or co-processing etc.	Quantity as per Authorization	Quantity generated
1	5.1 (used or spent oil)	Mixed with bagasse & burnt in boiler	5.0 kg/day	1.04 kg/day
2	5.2 (wastes or residues containing oil)			

11. The unit has not provided isolated area/spot for storage of scraps, empty drums of hazardous waste chemicals in the premises which was uncovered and not fenced, which is violation of the Authorization, however the location for storage of hazardous waste chemicals was made near to the bagasse storage area. As informed the unit is giving scraps and Hazardous wastes to third party (Bharat Oil & Waste Management Ltd.) for its disposal on

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quarterly basis. The unit has also provided membership certificate with Bharat Oil & Waste Management Ltd (Membership No BOWML/K/3637/19) having expiry date of 10th December, 2021.

12. The unit is having ETP with treatment capacity of 840 KLD for treatment of effluent generated from various sections of sugar mill.
13. The ETP comprises of Oil skimmer & Bar screen chamber → Receiving tank → Oil & Grease trap → Chemical mixing tank → Equalization tank → Primary Clarifier → Aeration tank → Secondary Clarifier → Dual media filter → Activated Carbon Filter → Polishing tank → Lagoon.
14. The unit has installed flow-meter at main inlet channel (Flow- 29.97m³/hr, Totalizer 547719 m³) and outlet of ETP (Flow- 40.8 m³/hr, Totalizer 0.0 m³).
15. The unit is complying w.r.t. final treated effluent discharge volume norms as the treated effluent generation i.e. 174.752 Liter/ton of cane crushed as against norms of 200 Liter/ton of cane crushed.
16. The team has collected effluent samples from ETP inlet, outlet & various units of ETP and treated effluent storage lagoon including outlet of irrigation pipeline as well as Gram Sabha pond. The analysis result is placed in Table 3 below.

Table 3. Samples were collected from inlet, outlet & various units of ETP and treated effluent storage lagoon including outlet of irrigation pipeline as well as Gram Sabha pond.

Parameters, mg/l except pH, Color in Hazen and Conductivity in μ mho/cm										
Sample Analysis	Effluent flow rate (m ³ /hr)	pH	COD	BOD	TSS	TDS	Phosphate	Ammonia	Oil & Grease	MLSS/MLVSS
ETP Inlet	29.97	6.7	3798	1432	386	4776	2.96	10	BDL	-
Primary clarifier	-	10.9	1741	985	163	2444	0.05	-	-	-
ETP Aeration tank	-	-	-	-	-	-	-	-	-	MLSS=1208 MLVSS=1236
Secondary clarifier	-	7.3	392	106	251	760	0.06	-	-	-
ETP Outlet (After tertiary treatment)	40.8	7.4	105	36	62	268	0.05	1.1	BDL	-
Lagoon	-	8.0	35	7.6	22	812	0.33	-	-	-

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Irrigation Pipeline	-	7.6	54	14	32	748	0.09	-	-	-
Cooling tower overflow	-	7.0	879	418	336	976	0.09	0.6	-	-
Values of OCEMS at 11:00 AM on 09.03.2021	-	7.0	102.2	15.77	13.95	-	-	-	-	-
Notified standards for land disposal	-	5.5 to 8.5	250	100	100	2100	-	-	10	-

17. The analysis results of sample collected from the ETP outlet (pH- 7.4, COD- 105 mg/l, BOD- 36 mg/l, TSS- 62 mg/l, TDS- 268 mg/l), indicates that the treated effluent from the ETP, is complying w.r.t. the notified standards for irrigation purpose i.e. pH- 5.5-8.5, COD- 250 mg/l, BOD- 100 mg/l, TSS- 100 mg/l, TDS- 2100 mg/l).
18. The unit has impervious lagoon having capacity of 10,000 m³ to store treated effluent. The treated water is pumped for irrigation to nearby farmer's field as per the demand through pipeline. The network of irrigation pipeline was observed around the boundary of ETP unit. The analysis results of sample collected from Lagoon (pH- 8.0, COD- 35 mg/l, BOD-7.6 mg/l, TSS- 22 mg/l, TDS- 812 mg/l) and Irrigation pipeline (pH- 7.0, COD- 54 mg/l, BOD-14 mg/l, TSS- 32 mg/l, TDS- 748 mg/l) indicates that the treated effluent from Lagoon and Irrigation pipeline are complying w.r.t. the notified standards for irrigation purpose i.e. pH- 5.5-8.5, COD- 250 mg/l, BOD- 100 mg/l, TSS- 100 mg/l, TDS- 2100 mg/l).
19. As per the Irrigation Management Plan, the Unit provided affidavit copy of 09 farmer's regarding use of treated effluent for irrigation in fields.
20. The unit has setup environmental laboratory and sufficient chemicals were found available for analysis of daily parameters. The unit has maintained the ETP log book for daily analysis of effluent parameter.
21. The unit has generated 224.9 quintal of ETP sludge as per record provided from 15.12.2020 to 28.02.2021. The unit has 08 nos. of sludge drying bed. The sludge is being used in agriculture field as organic manure after drying.
22. Boiler ash and press mud were observed to be collected separately in open area located 2.0 km far from the unit. Sludge after drying mixed with fly ash & press mud to form bio-manure & distributed free of cost to sugar cane growers.

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23. The unit has installed Online Continuous Effluent Monitoring System (OCEMS). OCEMS reading w.r.t. pH- 7.56, COD- 10.22 mg/l, BOD- 15.77 mg/l and TSS- 13.62 mg/l were recorded during inspection. OCEMS is connected with CPCB/SPCB server.
24. The unit has two underground reservoirs (UGR) for hot water and cold water recirculation having capacities 225 m³ and 150 m³.
25. The team has observed noise emitted by pump operating in the mill during the inspection.
26. The unit has three bore-wells to meet the requirement of its fresh water consumption, which was located at different places within the premises for sugar unit as below:

Table 4: Co-ordinates of bore-wells installed at M/s DSM Sugar, Mansurpur, P.O.-Mansurpur, District- Muzaffarnagar

Bore-well Details			
Sr. No.	Bore-well No.	Coordinates	
		Latitude	Latitude
1	Bore-well No. 1	29.350920	77.716861
2	Bore-well No. 2	29.354486	77.715439
3	Bore-well No. 3	29.350471	77.71716807

27. The unit is having permission to abstract 2000 m³/day of groundwater from three existing bore-wells as per No Objection Certificate (NOC) from Central Ground Water Authority (CGWA) for ground water abstraction, which has expired on 07.06.2020. However, the unit has provided application for renewal of NOC from Ground Water Department, Uttar Pradesh and it is observed that the unit has abstracted 1637 m³/day fresh water from existing bore-well, which is under permitted value. The month wise details of fresh water abstraction from 1st February, 2021 to 9th March, 2021 is given in Table- 5.

Table- 5. Month wise details of fresh water abstraction (from 1st Feb-2021 to 9th Mar-2021).

S. No.	Bore-well No.	Month wise fresh water abstraction (KLD)		
		(As per logbook data from 1 st Feb-21 to 9 th Mar-21)		
		Feb-21	Mar-21	Total Average (KLD)
1	Bore-well No. I	0	0	0
2	Bore-well No. II	738	559	1297
3	Bore-well No. III	236	104	340
Total		974	663	1637

28. The unit has two piezometers well in the unit premises (Pic no – 17 and 18).

Handwritten signatures and initials:
 

Table 6: Piezometers locations

S. No.	Piezometer	Location	Water Level (meter)	Latitude	Longitude
1	Piezometer No. 1	Inside the unit premises near molasses tank	9.95	29.352207	77.719309
2	Piezometer No. 2	Near administrative cane department	8.19	29.354742	77.716606

29. Ground water sample were collected from bore-well-03, installed in the unit premises and Hand-pump located outside the unit. The analysis results of the sample are placed in Table-7 below:

Table-7. Groundwater Analysis Report- Quality of Groundwater is compared with Bureau of Indian Standard (BIS) DRINKING WATER – SPECIFICATION (Second Revision) IS 10500: 2012.

Parameters, mg/l except pH, Color in Hazen				
Samplig Point	Borewell-03 in unit premises	Ground Water Sample from Hand-pump	Drinking water standards (BIS) (Second Revision) IS 10500: 2012 (Acceptable limit)	Drinking water standards (BIS) (Second Revision) IS 10500: 2012 (Permissible limit in the absence of alternate source)
Depth			---	----
pH	7.6	7.5	6.5-8.5	6.5-8.5
COD	BDL	BDL	---	----
Total Hardness	243	285	200	600
Total Alkalinity	245	316	200	400
Sulfate (SO ₄ ⁻)	07	16	200	400
Phosphate	0.05	0.05	---	----
As	BDL	BDL	0.01	0.05
Cd	BDL	BDL	0.003	----
Co	BDL	BDL	---	----
Cr	BDL	BDL	0.05	NR*
Cu	BDL	BDL	0.05	1.5
Fe	0.04	1.06	0.3	NR*
Mn	0.02	0.05	0.1	0.3
Ni	BDL	BDL	0.02	NR*

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Pb	BDL	BDL	0.01	NR*
Sb	BDL	BDL	---	---
Se	BDL	BDL	0.01	NR*
V	BDL	BDL	---	---
Zn	0.02	0.09	5	15

NR*=No Relaxation

30. The analysis results of Groundwater samples, collected from bore-well-03, located inside the unit premises shows complying results as per acceptable limit of Drinking Water Standards (BIS) IS 10500:2012 for pH- 7.6, COD- BDL, Total hardness- 243 mg/l, Total alkalinity- 245 mg/l, SO₄⁻ - 7 mg/l and Phosphate - 0.05 mg/l. The analysis for heavy metal are complying w.r.t. the BIS standards,
31. Similarly, analysis results of sample collected from Hand-pump outside the unit premises shows pH- 7.5, COD- BDL, Total Hardness- 285 mg/l, Total alkalinity- 316 mg/l, SO₄⁻ - 16 mg/l and Phosphate- 0.05 mg/l, which are complying as per acceptable limit of Drinking Water Standards (BIS) IS 10500:2012. however, the analysis for heavy metal are complying w.r.t. the BIS standards except Fe is found 1.06 mg/l against the Standard of 0.3 mg/l.
32. The unit has installed Sewage Treatment Plant (STP) having capacity of 120KLPD, which is based on MBBR technology for the treatment of domestic waste water generated from its residential colony having population around 200 to 250 people.
33. The 120 KLPD STP is comprised of Old equalization tank → Bar screen (0.5m x 0.5m) → Oil skimmer power-0.5HP → Equalization tank (5m x 4m x 3m) → CT (2.2m x 1.5m x 3m) → MBBR-1 (2.2m x 2.3m x 3m) → MBBR-2 (2.2m x 2.3m x 3m) → TS (2.2m x 2.2m x 3m) → Chlorine contact tank (2.2m x 1.5m x 3m) → Water break tank (2.5m x 2.5m x 3m) → Dual media filter (0.8m x 1.8m) → ACF (1m x 1.8m).
34. The team has collected sample from inlet and outlet of STP for physico-chemical analysis. The analysis results of STP outlet (pH- 7.8, COD- 34 mg/l, BOD- 5.5 mg/l, TSS- 17 mg/l, TDS- 128 mg/l) are complying w.r.t. the notified effluent discharge norms as per NGT order dated 30.04.2019. The results are shown in Table 8 below:

Table 8. Analysis results of sample collected from STP inlet and outlet.

Parameters, mg/l except pH, Color in Hazen and Conductivity in µmho/cm								
Sample Analysis	pH	COD	BOD	TSS	TDS	Phosphate	Ammonia	O & G
STP Inlet	7.1	218	51	134	388	1.77	10	BDL
STP Outlet	7.8	34	5.5	17	128	1.91	-	BDL
Notified effluent discharge norms as	5.5-9.0	50	10	20	-	1.0	-	-

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per NGT order dated 30.04.2019								
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5.0 CONCLUSION:

1. The unit has installed Ion Exchange technology for decoloring sugar syrups. 90% of Brine solution reject is recovered and rest 10% is being used to spray on Bagasse, however the same is not observed by the team on the day of inspection. The team observed a drain carrying dark colored effluent with high COD and BOD values at the backside of refinery near bagasse storage area.
2. The analysis of samples collected from drain located within premises of the unit near bagasse storage (pH- 7.0, COD- 1357 mg/l, BOD- 563 mg/l, TSS- 222 mg/l, TDS- 3744 mg/l), Gram Sabha Pond (acidic pH- 5.4, COD- 1110 mg/l, BOD- 597 mg/l, TSS- 205 mg/l, Ammonia- 2.3 mg/l) and Downstream of Mansurpur drain at NH-58 (pH- 6.0, COD- 1210 mg/l, BOD- 571 mg/l, TSS- 382 mg/l, TDS- 1376 mg/l, Ammonia- 14) clearly indicate the characteristics of Industrial effluent mixed with domestic sewage. As per Daily Manufacturing Reports (DMRs) provided by the unit, the average actual crush rate (TCD) is 7196 TCD (Avg. value as per Form RT7(C) for the month of Oct-20, Nov-20, Dec-20, Jan-21, Feb-21 and Daily Manufacturing Report (DMR) for the month of Mar-21), which is more than consented capacity of 7000 TCD.
3. The unit has not provided isolated area/spot for storage of scraps, empty drums of hazardous waste chemicals in the premises which was uncovered and not fenced, which is violation of the Authorization under the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 for storage and disposal of hazardous wastes.
4. Rotation speed of Oil and Skimmer seems too high, which fails to remove floating oil and grease from effluent.
5. The analysis results of sample collected from the ETP outlet (pH- 7.4, COD- 105 mg/l, BOD- 36 mg/l, TSS- 62 mg/l, TDS- 268 mg/l), Lagoon (pH- 8.0, COD- 35 mg/l, BOD- 7.6 mg/l, TSS- 22 mg/l, TDS- 812 mg/l) and Irrigation pipeline (pH- 7.0, COD- 54 mg/l, BOD- 14 mg/l, TSS- 32 mg/l, TDS- 748 mg/l) are complying w.r.t. the notified standards for land disposal (pH- 5.5-8.5, COD- 250 mg/l, BOD- 100 mg/l, TSS- 100 mg/l, TDS- 2100 mg/l).
6. The unit has applied for renewal of CGWA permission on 16.04.2020 as previous is expired on 07.06.2020 for ground water abstraction from three existing bore-wells. The unit has provided application for renewal of NOC from Ground Water Department, Uttar Pradesh. The unit has abstracted 1637 m³/day fresh water from existing bore-well, which is under permitted value.
7. The analysis results of Groundwater samples, collected from bore-well-03, located inside the unit premises shows results which are within the acceptable limit of Drinking Water Standards (BIS) IS 10500:2012 for pH- 7.6, COD- BDL, Total hardness- 243 mg/l, Total alkalinity- 245 mg/l, SO₄- 7 mg/l and

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Phosphate- 0.05 mg/l. The analysis for heavy metal are complying w.r.t. the BIS standards.

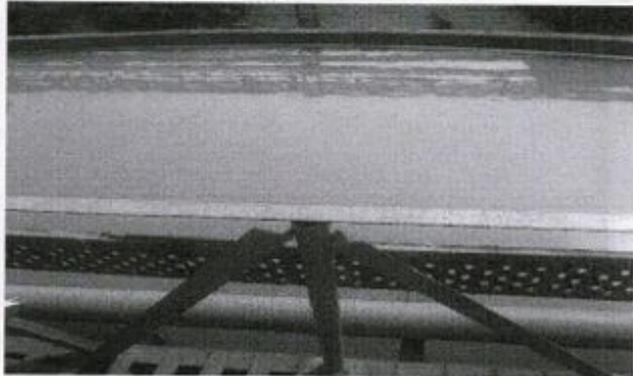
8. The analysis results of sample collected from Hand-pump outside the unit premises shows that Fe is found 1.06 mg/l against the BIS except Standard of 0.3 mg/l.
9. The unit has not installed flow meter to measure amount of treated effluent used for irrigation purpose.
10. The unit has installed Sewage Treatment Plant (STP) having capacity of 120KLPD, which is based on MBBR technology for the treatment of domestic waste water generated from its residential colony having population around 200 to 250 people and the samples collected from inlet and outlet of STP for physico-chemical analysis. The analysis results of STP outlet (pH- 7.8, COD- 34 mg/l, BOD- 5.5 mg/l, TSS- 17 mg/l, TDS- 128 mg/l) are complying w.r.t. the notified standards for land disposal

6.0 RECOMMENDATIONS:

1. The unit shall dismantle all the pipelines/ opening from the boundary wall of the unit towards the outside drain surrounding the mill.
2. The unit shall optimize the rotation speed of Oil and Skimmer for proper removal of floating oil and grease from effluent.
3. The unit shall stop discharge/seepage of untreated/partially treated effluent in the surrounding drain as well as in Gram Sabha Pond.
4. The unit shall maintain and limit its crushing operations as per the consented capacity of 7000 TCD.
5. The unit shall establish an isolated area/spot with well concreted surface, covered ceiling and proper fencing exclusively for the storage of scraps, empty drums of hazardous waste chemicals in the premises.
6. The unit shall maintain the proper documents w.r.t. the scraps and wastes which is being handed over to the third party for the disposal and follow the specific conditions of Authorization under the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 for storage and disposal of hazardous wastes.
7. The unit shall install flow meter to measure amount of treated effluent used for irrigation purpose.
8. The unit shall maintain the MLSS value and MLVSS/MLSS ratio in the aeration tank for proper microbial activity to reduce the organic load in the effluent. The unit shall analyze samples from aeration tank periodically to analyze the MLVSS/MLSS ratio.
9. The unit shall maintain the acoustic enclosures to operate pumps in the unit premises to reduce the noise pollution.

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7.0 PHOTOGRAPHS

	
1. Mansurpur drain at NH-58	2. Drain along the boundary wall
	
3. Effluent Treatment Plant area	4. Oil and Grease Trap
	
5. Chemical Mixing Tank	6. Equalization Tank
	
7. Aeration tank	8. Primary Clarifier

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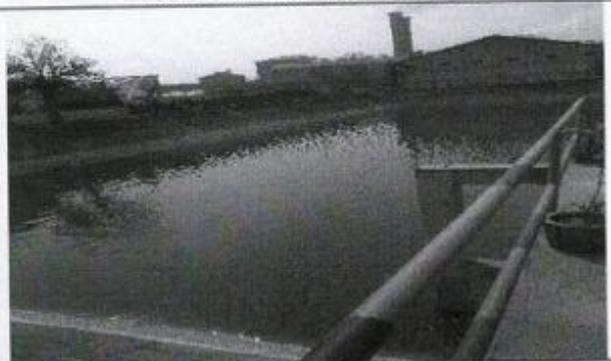
9. Tertiary treatment units (DMF & ACF)



10. Outlet of treated water



11. Outlet of lagoon



12. Lagoon (10,000 m³)



13. Environmental Laboratory



14. Equipment for analysis inside Laboratory



15. OCEMS Station



16. pH meter

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17. Piezometer No. 1



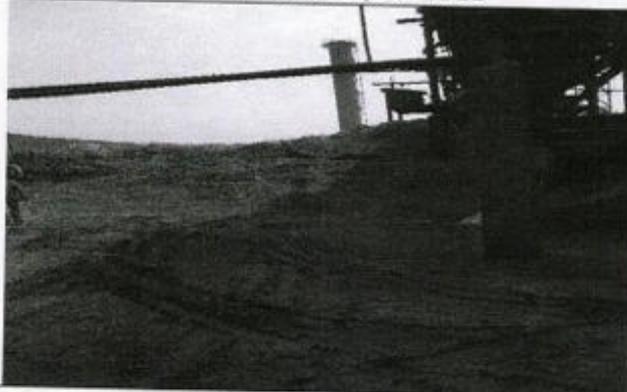
18. Display of Piezometer No. 2



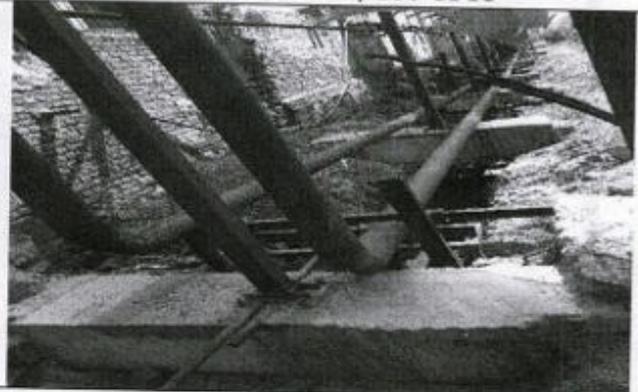
19. Boiler-1, 90 TPH



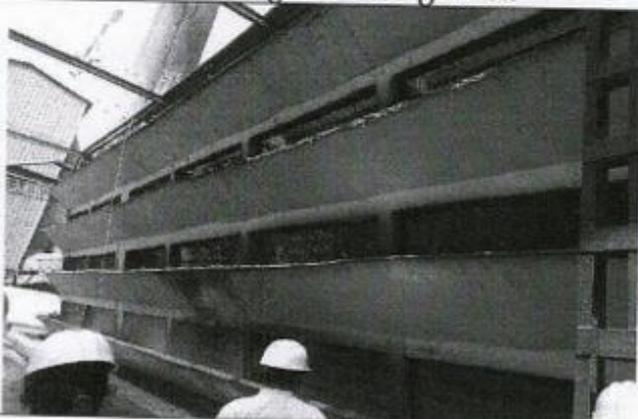
20. Boiler-2, 100 TPH



21. Bagasse storage area



22. Drain near Bagasse storage area

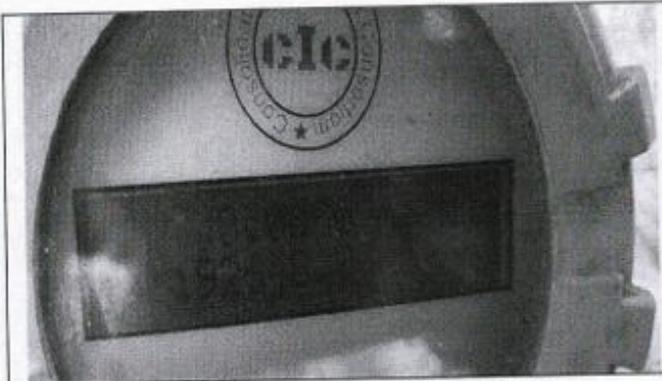


23. Cooling tower

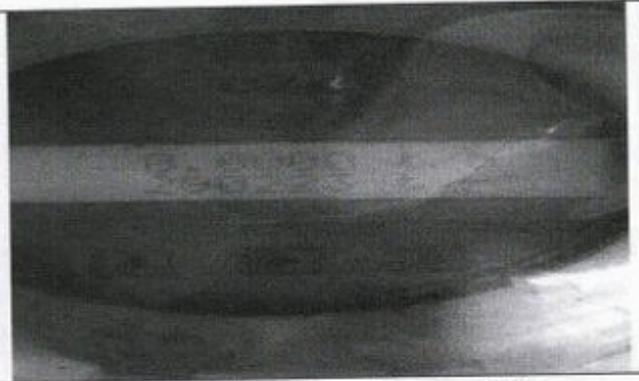


24. Press mud yard

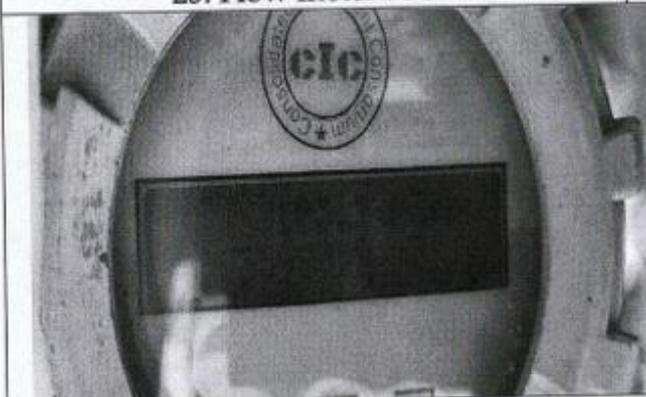
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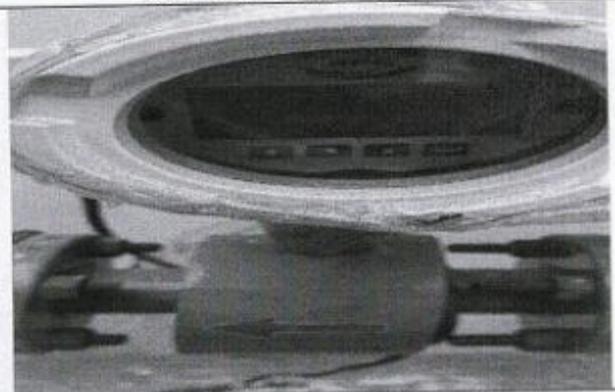
25. Flow meter : Borewell-1



26. Flow meter: Borewell-2



27. Flow meter: Borewell-3



28. Flow meter: STP Outlet



29. Flow meter at ETP inlet



30. Flow meter at ETP outlet

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31. Outlets in drain along the boundary wall near railway track



32. Gram Sabha Pond



33. Drain near Kali River



34. Hand-pump outside the unit

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8.0 INSPECTION TEAM

S. No.	Name of the inspecting officers	Designation	Signature
1	Ms. Reena Satavan	Sc-'D', Central Pollution Control Board, Delhi	
2	Sh. Vipul Kumar	Junior Engineer, Regional Office, Uttar Pradesh Pollution Control Board, Muzaffarnagar	
3	Sh. Ashwani K. Singh	R.A.-II, Central Pollution Control Board, Delhi	
4	Ms. Sonam Lally	SRF, Central Pollution Control Board, Delhi	