



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT FOREST & CLIMATE CHANGE GOVT OF INDIA

Speed post/Email

F. No. PJ-14014(99)/3/2024-WQM-II-HO-CPCB-HO 6/6

Dated: 22.04.2024

To

The Member Secretary
Uttar Pradesh Pollution Control Board,
Building No. TC-12 V, Vibhuti Khand,
Gomti Nagar, Lucknow,
Uttar Pradesh - 226010

Directions issued under Section 18 (1)(b) of the Water (Prevention and Control of Pollution) Act, 1974 regarding discharge of untreated industrial effluents into Begrajpur drain, Muzaffarnagar, Uttar Pradesh.

WHEREAS, amongst others, under Section 17 of the Water (Prevention and Control of Pollution) Act, 1974, one of the functions of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs), constituted under the Water (Prevention & Control of Pollution) Act, 1974 is to plan a comprehensive programme for prevention, control or abatement of pollution of streams and wells in the State and secure the execution thereof; and

WHEREAS, amongst others, under Section 16 of the Water (Prevention and Control of Pollution) Act, 1974, one of the functions of the Central Pollution Control Board (CPCB) constituted under the Water (Prevention & Control of Pollution) Act, 1974, is to coordinate activities of the SPCBs/PCCs and to provide technical assistance and guidance to SPCBs/PCCs and to promote cleanliness of streams and wells in different areas of the states; and

WHEREAS, the Central Board, has delegated powers vested under Section 18 (1)(b) of the Water (Prevention & Control of Pollution) Act 1974 to the Member Secretary, Central Pollution Control Board, vide its resolution made on 196th Board meeting held on dated 29th March, 2022 to issue direction under Section 18 (1) (b) of the Water & Prevention & Control of Pollution) Act, 1974 to State Board; and

WHEREAS, the Hon'ble Supreme Court of India in WP (375 of 2012) passed a judgement dated 22.02.2017 that

"the concerned SPCBs are mandated to carry out inspections, to verify, whether or not, each industrial unit regarding "consent to operate", has a functional primary effluent treatment plant. Such of the industrial units, which have not

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been able to make their primary effluent treatment plant fully operational, within the notice period, shall be restrained from any further industrial activity. This direction may be implemented by requiring the concerned electricity supply and distribution agency, to disconnect the electricity connection of the defaulting industry. We therefore hereby further direct, that in case the concerned SPCBs make a recommendation to the concerned electrical supply and distribution agency/company, to disconnect electrical supply to an industry, for the reason that its primary effluent treatment plant is not functional, it shall honor such recommendation, and shall disconnect the electricity supply to such defaulting industrial concern, forthwith,"

AND WHEREAS, water quality of river Ganga and its tributaries has been threatened due to disposal of untreated sewage & sullage and discharge of untreated/partially treated effluents from industries, which are mixed with the wastewater of drains and reaching to Ganga directly or through its tributaries; and

WHEREAS, Begrajpur industrial area (29.37246, 77.70547) was established by Uttar Pradesh State Industrial Development Authority (UPSIDA) in Khatauli block of Muzaffarnagar district of Uttar Pradesh on NH 334 near to Ghasipura village and Begrajpur village. The Begrajpur drain receives industrial wastewater from Begrajpur industrial area through subsidiary channels and discharges finally into Dhandera drain which ultimately joins river Kali-West, a major tributary of river Hindon; and

WHEREAS, CPCB along with Uttar Pradesh Pollution Control Board (UPPCB) carried out monitoring of river Hindon and its tributaries along with adjoining drains in the state of Uttar Pradesh during Nov, 2022. Samples of Begrajpur drain was collected on 11/11/2022 before confluence with Dhandera drain. The analysis results of wastewater samples were examined and following observations were made:

1. pH was found in acidic range (2.3)
2. High values of BOD (936 mg/l), COD (3444 mg/l) & TDS (7884 mg/l) were observed.

AND WHEREAS, interim report on river Hindon pollution was forwarded to UPPCB on 09/01/2023 to address the high pollution observed in drains of river Hindon and its tributaries; and

WHEREAS, CPCB along with UPPCB carried out pollution source mapping of highly polluted drains of river Hindon and its tributaries during Feb-March, 2023 and samples of Begrajpur drain before confluence with Dhandera drain was collected on 07/02/2023. The analysis results of wastewater samples showed pH in acidic range (<02); and

WHEREAS, CPCB vide DO letter dated 11/08/2023 forwarded a report "Pollution Source Mapping of River Hindon & its Tributaries and Restoration Plan" comprising status of river & drain water quality, performance of STPs, ground water quality, potential polluting sources, lists of hotspots and a suggestive action plan incorporating measure for industrial pollution control, sewage management as well as river rejuvenation; and

WHEREAS, so far, no action taken report has been received from UPPCB regarding the control of pollution in drains of river Hindon and its tributaries, and

WHEREAS, Begraipur drain was monitored by officials from CPCB and UPPCB jointly on 30/12/2023 in compliance to Hon'ble NGT orders dated 12/09/2023 in OA No. 540/2023 in the matter of Niramaya Jan Utthan Sansthan Vs. State of Uttar Pradesh & Ors. and two samples were collected. The analysis results of wastewater samples collected from drain were examined and following observations were made:

1. pH was found in acidic range (2.2-4.2)
2. Other parameters ranged BOD (140-191 mg/l), COD (420-650 mg/l), TSS (54-132 mg/l) and TDS (1528-1544 mg/l)
3. Acidic fumes were felt in the ambient air of industrial area.

AND WHEREAS, the joint team of officials from CPCB and UPPCB carried out preliminary survey of Begraipur industrial area and sampling of Begraipur drain & its subsidiary channels on 29/01/2023 - 30/01/2024 and following observations were made:

1. Intermittent discharge of acidic as well as alkaline effluent was observed in main drain and its subsidiary channels.
2. Mostly industries are of small scale (fall in MSME category) and are doing batch process. Therefore, intermittent flow of various coloured effluent was observed in subsidiary channels.
3. Apart from the 32 industries whose information was provided by UPPCB, additional 19 industries were also reported to be operating in the industrial area. Majorly battery recycling, engineering fabrication, metal surface finishing/processing, chemical and other waste recycling such as E-waste, plastic moulding, tyre pyrolysis and bone processing are operating in the industrial area (34 units). Others are pharmaceutical (1), pesticide (1), fertilizer manufacturing/formulation units (1), Textile (4), distillery (1). These industries are not included in the information of Grossly Polluting Industries (GPIs) provided by UPPCB to CPCB for annual inspection.
4. Acidic fumes and volatile organics were felt in the ambient air of industrial area. Fugitive emissions with obnoxious odour were observed during evening hours.
5. Waste sludge and ash were found dumped in un-scientific manner on open land at various locations in industrial area, along Dhandera drain and also being used for landfilling in vacant plots.
6. Based on analysis results of samples collected following observations are made:

A. Characteristics of waste water of Begrajpur drain

- i. 15 samples were collected from various subsidiary channels of industrial area and main channel (channel 1).
- ii. Values of parameters in sample of main drain channel outside of industrial area (upstream of industrial area) were observed as pH: 7.7, BOD: 29 mg/l, COD: 114 mg/l, TSS:17 mg/l. Trace metals were observed either BDL or in traces.
- iii. High fluctuation in pH was observed at different times, in wastewater of Begrajpur drain before confluence to Dhandera drain and onsite nature of pH was observed acidic and alkaline both. However, in samples collected before confluence to Dhandera drain pH ranged 2.0 - <2 (acidic) and other parameters were ranged as BOD (82-263 mg/l), COD (302-711 mg/l), TSS (172-252 mg/l) and TDS (2988-5460 mg/l).
- iv. pH (2- 9.6), Color (upto 308 Hazen), BOD (upto 687 mg/l), COD (upto 2654 mg/l), TSS (upto 2736 mg/l), TDS (upto 35004 mg/l), Sulphide (upto 55.0 mg/l), Nitrate (upto 21.5 mg/l), Sulphate (upto 456 mg/l), Chloride (upto 1722 mg/l) and metal concentration of Copper (upto 215.1 mg/l), Total Chromium (9.59 mg/l), Iron (upto 3325 mg/l), Manganese (upto 1175 mg/l), Nickel (upto 26.49 mg/l), lead (upto 8.9 mg/l) and Zinc (upto 2403 mg/l) were observed in samples of various channels of industrial area.
- v. High concentration of metals (Zinc, Manganese, Nickel, Iron, Copper, chromium) was observed in samples collected during morning and evening hours.

B. Characteristics of sludge disposed in industrial area

- i. Two samples of dumped sludge were collected from industrial area.
- ii. High concentration of metals have been found in sludge samples. Analysis results showed Arsenic (upto 10.1 mg/kg), Cadmium (6.2 mg/kg), Copper (upto 7112 mg/kg), Chromium (584 mg/kg), Iron (upto 311860 mg/kg), Manganese (upto 3173 mg/kg), Nickel (upto 245.4 mg/kg), Lead (upto 12380 mg/kg), Antimony (54.9 mg/kg) and Zinc (upto 7069 mg/kg).

The analysis results of the samples collected from industrial area of waste water & sludge, details of sampling location on map along with details of industrial units are given in **Annexure-I**.

It is evident that industrial units located in Begrajpur industrial area are not implementing pollution control measures properly and violating consent to operate conditions. The units are emitting acidic fumes and volatile organic substances into the ambient air, illegally disposing of hazardous wastes on land, discharging untreated/partially treated acidic/alkaline effluents containing high trace metal concentrations into drains which is ultimately causing the ambient

environmental quality of the Begrajpur industrial area to be severely polluted and also human health hazard.

AND WHEREAS, besides other pollution control measures following suggestive measures are required to be enforced by UPPCB along with district administration on priority basis in a time bound manner:

1. To carry out inspection of all industries located in Begrajpur industrial area for assessment of existing system for effluent treatment, emission control and Hazardous waste management. Various SOPs/guidelines issued by CPCB for waste recycling such as for recycling of lead scrap and lead acid battery, recycling of waste tyre and checklist of minimum requisite facilities for utilization of hazardous waste under rule 9 of Hazardous Waste Management Rules-2016, etc. shall be referred for inspection.
2. to carry out 24-hour monitoring of Begrajpur drain including flow and waste water characteristics (composite sampling) to assess the actual potential of pollution load discharged.
3. To immediately stop the operation & manufacturing process of industrial unit which are:
 - a. operating without adequate infrastructure of effluent treatment & emission control.
 - b. illegally disposing Hazardous waste/chemical sludge.
 - c. discharging acidic/ alkaline and untreated/partially treated effluent.
4. To explore the agency to transfer legacy hazardous waste (sludge) dumped at Begrajpur industrial area to TSDF site for scientific disposal before monsoon so as to eliminate the possibility of wash out into the drain during rainy season.
5. to carry out feasibility study (Effluent characteristics & load, topography of industrial area, land availability etc.) with UPSIDA on requirement of setting up Common Effluent Treatment Plant (CETP) with advance technologies in Begrajpur industrial area in consensus with the operating industries in the area.
6. To also explore the possibility of transferring industrial effluents through tankers to the nearby CETP for proper treatment as an interim measure under controlled supervision.
7. To install ambient air quality monitoring station in the industrial area and real time effluent monitoring system in Begrajpur drain.
8. To conduct facilitation programme for industrial units located in Begrajpur industrial area for adoption of cleaner technology, waste minimization practices and water conservation and also direct to Textile units for implementation of charter for water recycling and pollution prevention.
9. To conduct a health impact assessment study with health department for the workers of Begrajpur industrial area and nearby villagers, especially comprising pulmonary and metal toxicity.

AND NOW THEREFORE, in view of the above and in exercise of the powers conferred under section 18(1) (b) of the Water (Prevention and Control of Pollution) Act, 1974, UPPCB is hereby directed to take appropriate action for compliance of following:

1. UPPCB to take coercive action, as deemed fit, including levying of environmental compensation against non-complying industries that do not have adequate emission control and effluent treatment facilities to comply with the norms of CTO.
2. UPPCB to do needful in terms of observations and suggestions made above which may include preparation of action plan for remediation of polluted drains and ambient environment quality, disposal of legacy waste, implementation of the pollution control measures in a time bound manner

UPPCB shall acknowledge receipt of these directions, immediately. The action taken report shall be submitted to CPCB within 30 days from the date of issuance of these directions.



(Bharat Kumar Sharma)

Member Secretary

Copy to:

1. **Director General**
National Mission for Clean Ganga,
(MOWR, RD & GR)
1st floor, Major Dhyan Chand National Stadium,
India Gate, New Delhi-110 002
: For kind information,
please
2. **Chief Executive Officer**
Uttar Pradesh State Industrial Development
Authority (UPSIDA)
UPSIDA Complex, A-1/4 Lakhanpur
Kanpur-208024 (UP)
: For kind information
and necessary action,
please.
3. **Additional Secretary (CP Division)**
Ministry of Environment, Forest & C.C.,
Prithvi Block, Indira Paryavaran Bhawan,
Jorbagh Road, New Delhi- 110 003
: For kind information,
please
4. **District Magistrate-Muzaffarnagar**
District Magistrate Office
Collectorate,(Near Prakash Chowk)
Muzaffarnagar, Uttar Pradesh – 251001
: For necessary action,
please.
5. **Regional Officer- Muzaffarnagr**
Uttar Pradesh Pollution Control Board
H.No-6-B, New Mandi,
Muzaffarnagar-251001 (UP)
: For necessary action,
please.
6. ✓ **The In-charge, IT Division, CPCB**
: For uploading on CPCB
website, please
7. **Master file/Guard file WQM II, CPCB Delhi**
: To keep in file



(Bharat Kumar Sharma)
Member Secretary

UPSIDC Industrial Area Begraipur, Muzaffarnagar, UP

1. Location

Begraipur industrial area (29.37246, 77.70547) was established by UPSIDC in Khatauli block of Muzaffarnagar district of Uttar Pradesh. It is located on NH 334 (previously NH 58) between Muzaffarnagar and Meerut near to Ghasipura village and Begraipur village.

2. Observations of the joint inspection team:

The joint team of officials of CPCB and UPPCB carried out sampling of Begraipur drain on 30.12.2023 and two samples were collected one at d/s of Megma pharmaceutical & one b/c to Dhandera drain and pH in both samples was observed acidic (2.2-4.2). Further, the joint team of officials of CPCB and UPPCB carried out preliminary survey of Begraipur industrial area and sampling of Begraipur drain & its subsidiary channels on 29th and 30th January 2024.

2.1. Ambient air quality:

- Acidic fumes and volatile organics were felt in the ambient air in industrial area.
- Fugitive emissions with obnoxious odour were observed during evening hours.
- No monitoring system exist for ambient air quality, in industrial area.

Status of ambient air quality monitoring conducted by UPCCB on 22/02/2023 at two locations for PM10 & PM2.5 in Begraipur industrial area:

Ambient air quality was also monitored at two locations namely, M/s Magma Industries Ltd. and M/s Chradhar Chemicals Pvt. Ltd. PM10 varied as 124.51-162.72 mg/m³ and PM2.5 varied as 57.44-88.30 mg/m³. The concentration of PM10 and PM2.5 exceeded the National Ambient Air Quality Standards (notification dated 18/11/2009)

2.2 Industrial units

UPPCB provided information of 32 industries. However, during survey addition 19 industries were also found operating in the industrial area. Mostly industries are of small scale (fall in MSME category) and not included in the GPI category so far. Majorly battery recycling, engineering fabrication, metal surface finishing/processing, chemical and other waste recycling such as E-waste, plastic moulding and tyre pyrolysis are operating in the industrial area (35 units). Others are pharmaceutical (1), fertilizer manufacturing/formulation units (1), Textile (3), distillery (1) and bone processing. Certain units were observed not having information board on unit gate, therefore the list provided by UPPCB would not be verified. The list is given in table-1.

2.3 Un-authorized disposal of Sludge, Hazardous and other wastes

Waste sludge and ash were found dumped in un-scientific manner on open land at various locations in industrial area, along Dhandera drain and also being used for landfilling in vacant plots. Two samples of dumped sludge were collected for analysis.

2.4 Major recipient drain

Main drain of the industrial area is Begrajpur drain (i.e. Channel 1) which starts from (Latitude 29.376107, Longitude 77.703984) near Muzaffarnagar Highway. Subsidiary drains (Channel 2 & 1A, 1B, 1C,.....etc.) receive trade effluent and domestic wastewater from the industries located in industrial area and join to main Begrajpur drain which finally meets to Dhandhera drain ((Lat: 29.373993, Long: 77.692937). Few industries also discharge directly into Dhandhera drain. Intermittent discharge of acidic as well as alkaline effluent was observed in main drain and its subsidiary channels. High metal concentration was observed in drains. Analysis results are given in table-2-4. Location of samples collected from Begrajpur industrial area is shown in Map given below:

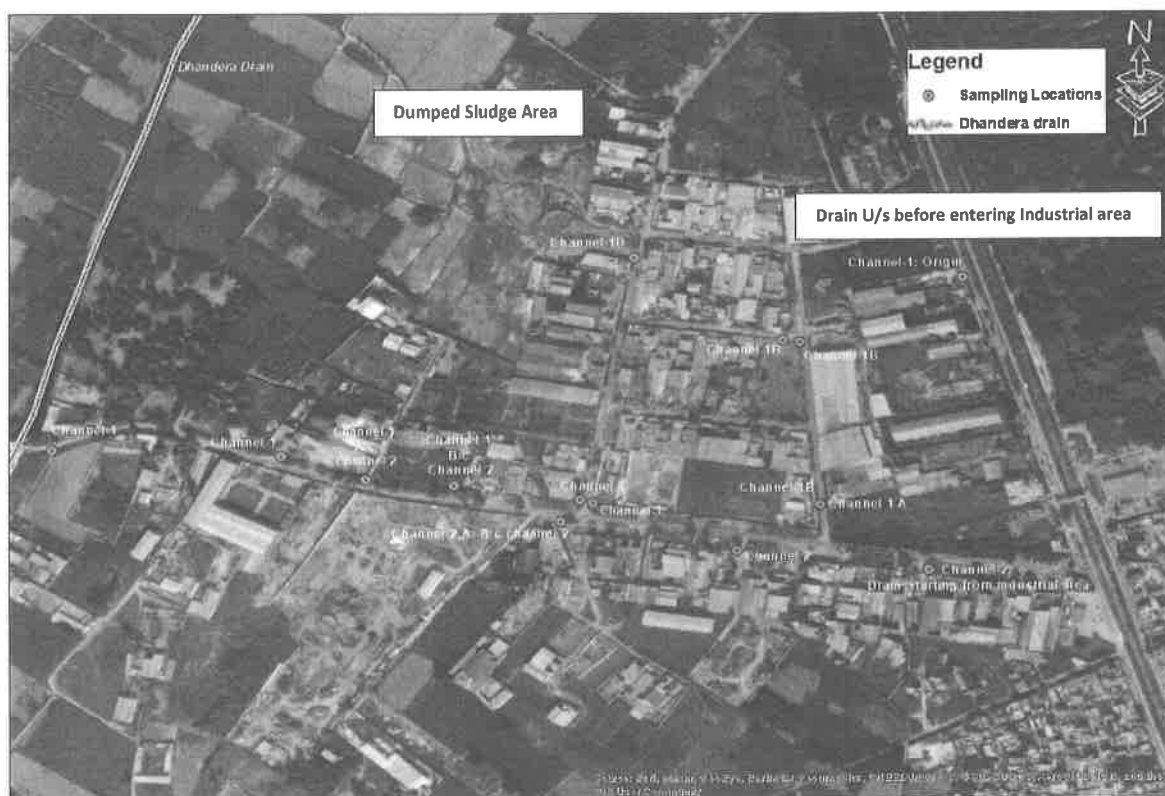


Table-1: List of Industrial Units in Begrajpur Industrial Area

S. No.	Name & Address of Industry
1.	A.R. Metal Works, J-22, Industrial Area, Begrajpur, Muzaffarnagar
2.	Akash Metal, G-24, Begrajpur, Muzaffarnagar
3.	Aman Metal Works, L-11, Industrial Area Begrajpur, Muzaffarnagar
4.	N.R. Metal Works, Vill. Hussainpur Bopara, Muzaffarnagar
5.	R.K. Metal Works, Vill. Hussainpur Bopara, Muzaffarnagar
6.	Prince Metal & Alloys, Vill. Hussainpur Bopara, Near Begrajpur, Muzaffarnagar
7.	Bharat Metal Works, N-1, Industrial Area Begrajpur, Muzaffarnagar
8.	Entire Battery India, H-31, J-15, Industrial Area, Begrajpur, Muzaffarnagar
9.	Hasan Metal Works, Begrajpur, Muzaffarnagar
10.	J.S. Industries, K-37, Industrial Area, Begrajpur, Muzaffarnagar

11.	Shadab Metal Works, L-10, Industrial Area Begrajpur, Muzaffarnagar
12.	Shree Metals Work, G-5, Industrial Area Begrajpur, Muzaffarnagar
13.	Taj Metal Works, N-2, Industrial Area Begrajpur, Muzaffarnagar
14.	Samyam Industries, C-23, Industrial Area Begrajpur, Muzaffarnagar
15.	PSR Metals Pvt. Ltd., Hussainpur Bopara, Near Begrajpur, Muzaffarnagar
16.	Sai Metal, L-1, L-2, L-3, Industrial Area Begrajpur, Muzaffarnagar
17.	Arya Metal Industries, J-11, Industrial Area Begrajpur, Muzaffarnagar
18.	S.S. Metal and Allied Industries, H-30, Begrajpur Industrial Area, Muzaffarnagar
19.	Suja Metals, G-6, Industrial Area, Begrajpur, Muzaffarnagar
20.	Aadi Enterprises, K-24, Industrial Area Begrajpur, Muzaffarnagar
21.	Magma Industries, C-24 to C-27, Industrial Area Begrajpur, Muzaffarnagar
22.	Royal E-Waste, Vill. Hussainpur Bopara, Near Begrajpur Industrial Area, Muzaffarnagar
23.	A.R. Metal and Allied Industries, D-6, D-7, Industrial Area Begrajpur, Muzaffarnagar
24.	Muzashi Recyclers Pvt. Ltd. Khasra No. 355, Vill. Hussainpur Bopara, Khatauli, Muzaffarnagar
25.	R.K. Chemicals, Industrial Area, Begrajpur, Muzaffarnagar
26.	Sai Globe Packaging, B-1, B-2, Industrial Area, Begrajpur, Muzaffarnagar
27.	J.D. Enterprises, C-37, Industrial Area Begrajpur, Muzaffarnagar
28.	G.S. Rollers, B-3, Industrial Area Begrajpur, Muzaffarnagar
29.	Khatauli Rubber Industries, G-1, UPSIDC, Begrajpur, Muzaffarnagar
30.	B.S. Agriculture Implements Pvt. Ltd., B-4, UPSIDC Industrial Area, Begrajpur, Muzaffarnagar
31.	Suman Engineering & Chemicals Pvt. Ltd., C-19, UPSIDC Industrial Area, Begrajpur, Muzaffarnagar
32.	G.K. Carbon Pvt. Ltd., G-19, Industrial Area Begrajpur, Muzaffarnagar

Additional units found in Begrajpur Industrial area:

1.	Noor Processor-Textile
2.	Metal alloys
3.	Star Agrovat
4.	Venus Industries
5.	Solex Auto Pvt Limited
6.	Chakradhar Chemicals -Fertilizer
7.	Triveni Plast-plastic moulding
8.	Ayanam Collection-textile
9.	Kishan metal works
10.	Firoz Metal
11.	Paras Oxide-chemical
12.	Ravi Organics-chemical
13.	Dayachand Engineering-metal
14.	Tyagi Engineering works
15.	Bright Wash -textile
16.	Himgiri Metal - metal
17.	Balaji Enterprises (Distillery)
18.	Jain Processor-textile
19.	Viable E waste recycler

Table-2: Analysis results of Drain wastewater samples - General Parameters

S. No.	Date	Sampling location	Coordinates		pH	COD (mg/L)	BOD (mg/L)	TSS (mg/L)	TDS (mg/L)	Chloride (mg/L)	Phosphate-P (mg/L)	Nitrate-N (mg/L)	Ammonial-N (mg/L)	Sulphate (mg/L)	Phenolic Compound (mg/L)	Color (Hazen)	Sulphide (mg/L)
1	30.12.2023	Begrampur drain d/s Magma Industries	29.372770	77.701314	4.1	650	191	132	1544	0.3	-	-	-	40	-	BDL	-
2	30.12.2023	Begrampur drain b/c to Dhandera (after confluence of right and left both side channels)	29.373936	77.695945	2.2	420	140	54	1528	0.4	-	-	-	168	-	BDL	-
5	29.01.2024	Channel-1: Drain entering from outside to industrial area near B S Agriculture Implements Pvt. Ltd.	29.376107	77.703984	7.7	114	29	17	412	29	0.4	0.9	-	41	-	BDL	-
3	29.01.2024	Channel-1B D/s of Ravi organics & Paras Oxide	29.375324	77.702064	6.5	449	130	83	3580	891	1.3	2.3	-	176	-	100	6.4
4	29.01.2024	Channel 1B D/s Jain Processor b/c to channel 1	29.373319	77.702303	6.5	1542	493	841	1180	227	0.7	1.5	27	158	0.3	308	3.6
6	29.01.2024	Channel-1D U/s of Chakradhar Chemical & D/s of Noor Fashion	29.376362	77.700114	9.6	2654	687	2736	4900	1722	0.4	21.5	33	181	0.6	300	55
7	29.01.2024	Channel 1 A D/s of Daychand Engineering b/c to Channel 1	29.373319	77.702303	2.1	908	310	626	1724	NA	0.1	4.1	22	316	-	BDL	3.2
8	29.01.2024	Channel-2: Drain Starting from industrial area D/s Suman Engineering	29.372521	77.703585	7.7	498	168	800	616	59	0.3	1.0	-	60	-	BDL	-
9	29.01.2024	Channel-2 D/s Magma	29.372770	77.701314	7.3	108	22	13	460	39	0.2	3.2	11	31	-	BDL	2
10	29.01.2024	Channel-2.A: D/s Metal alloys leading to collection tank	29.373123	77.699234	5	188	49	81	996	148	0.1	2.5	-	218	-	BDL	-
11	29.01.2024	Channel-1 D/s of Ayanam Collection	29.373350	77.699610	3	420	148	134	1420	99	0.5	10	17	227	0.2	40	2.4
12	29.01.2024	Channel-1 A/c of 1C & 1D	29.373391	77.699461	2	416	146	360	19784	NA	3.4	0.5	-	405	-	BDL	-
13	29.01.2024	Channel-1 a/c of channel 2 & 1E	29.373936	77.695945	2	302	82	252	15092	NA	2.3	0.5	-	410	-	5	-
14	29.01.2024	Channel-1 b/c to dhandera drain	29.374012	77.693237	2	424	155	291	5460	NA	2.3	7.2	19	391	-	302	-
15	30.01.2024	Channel-1 b/c to dhandera drain	29.374012	77.693237	<2.0	711	263	172	2988	NA	0.1	9.6	29	321	0.5	BDL	-
16	30.01.2024	Channel-1 B/c with Channel 2	29.373564	77.697977	<2.0	653	181	549	35004	NA	0.1	0.8	27	456	-	5	-
17	30.01.2024	Channel-1B.5 D/s of Paras Oxide	29.375352	77.701858	<2.0	587	131	619	5156	NA	0.1	7.8	24	330	-	BDL	4

Table-3: Analysis results of Drain samples - Heavy Metals

S. No.	Date	Sampling location	As (mg/L)	Cd (mg/L)	Co (mg/L)	Cr (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	Zn (mg/L)
General Discharge Standard limit prescribed			0.2	2.0	-	2.0	3.0	3.0	2.0	3.0	0.1	5.0
1	29.01.2024	Channel-1: Drain entering from outside to industrial area near B S Agriculture Implements Pvt. Ltd.	BDL	BDL	BDL	0.017	BDL	0.506	0.058	BDL	0.012	0.014
2	29.01.2024	Channel-1B D/s of Ravi organics & Paras Oxide	BDL	BDL	BDL	0.001	BDL	1.226	0.132	BDL	0.024	0.567
5	29.01.2024	Channel 1B D/s Jain Processor b/c to channel 1	0.076	0.004	0.002	0.083	0.172	12.58	20.88	0.022	0.307	0.339
3	29.01.2024	Channel-1D U/s of Chakradhar Chemical & D/s of Noor Fashion	BDL	0.016	0.002	0.205	0.781	23.65	31.28	0.182	1.228	2.604
4	29.01.2024	Channel 1 A D/s of Daychand Engineering b/c to Channel 1	BDL	BDL	0.002	0.072	13.64	41.9	0.404	0.015	0.200	0.188
6	29.01.2024	Channel-2: Drain Starting from industrial area D/s Suman Engineering	BDL	BDL	BDL	0.008	0.018	3.358	0.148	BDL	0.102	0.124
7	29.01.2024	Channel-2 D/s Magma	BDL	BDL	BDL	0.195	BDL	0.226	0.019	BDL	0.048	0.029
8	29.01.2024	Channel-2.A: D/s Metal alloys leading to collection tank	BDL	0.006	BDL	0.437	0.089	2.616	0.107	0.006	20.02	0.117
9	29.01.2024	Channel-1 D/s of Ayanam Collection	BDL	BDL	BDL	0.018	0.331	1.395	6.535	BDL	0.131	0.119
10	29.01.2024	Channel-1 A/c of 1C & 1D	BDL	0.898	0.653	5.996	40.21	1579	597.7	11.63	6.652	1161
11	29.01.2024	Channel-1 a/c of channel 2 & 1E	BDL	1.245	0.476	2.896	13.98	1132	429.7	8.694	2.874	1235
12	29.01.2024	Channel-1 b/c to dhandera drain	BDL	0.222	0.179	1.306	9.967	378.1	148.4	2.468	1.437	276.6
13	30.01.2024	Channel-1 b/c to dhandera drain	BDL	0.098	0.008	0.063	2.592	23.72	5.169	0.466	1.06	200.2
14	30.01.2024	Channel-1 B/c with Channel 2	0.079	1.487	1.082	9.596	215.1	3325	1175	26.49	8.892	2403
15	30.01.2024	Channel-1B.5 D/s of Paras Oxide	0.222	0.32	0.121	0.649	1.512	590.4	19	1.118	2.053	75.97

Table-4: Analysis results of Sludge samples:

Date	Sludge Samples	As (mg/kg)	Cd (mg/kg)	Co (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Mn (mg/kg)	Ni (mg/kg)	Pb (mg/kg)	Sb (mg/kg)	Se (mg/kg)	V (mg/kg)	Zn (mg/kg)	Total organic Carbon (TOC) (%C)
30.1.2024	Sludge Sample-1	6.1	6.2	13.3	374	7112	14690	3173	245.4	12380	54.9	18.5	14.6	7069	1.48
30.1.2024	Sludge Sample-2	10.1	3.5	17.5	584	598	311860	2530	184.8	279	15.5	12.3	20.5	284	3.65