10377

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 200/2014

IN THE MATTER OF

M.C. MEHTA **APPLICANT**

VS

UNION OF INDIA&ORS. **RESPONDENTS**

Compliance Statement on behalf of Central Pollution Control Board

In compliance to the judgement dated13th July, 2017, of the Hon'ble National Green Tribunal with regard to Segment B, Phase-I of River Ganga, CPCB submits the compliance statement on the following;

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DELHI
September 18, 2017

(A. Sudhakar)
Member Secretary
Central Pollution Control Board

Through **AlpanaPoddar**
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Joint Inspection of Drains, Industries and STPs

CPCB has participated in the Joint inspections of Industries, STPs in the catchment area of the following drains along with the other stake holders as per the judgment dated 13.07.2017 during 3rd August to 29th August, 2017:

S. NO.	NAME OF DRAINS, STPs & CETPs
1.	STP (130) MLD AND STP (05) MLD JAJMAU, KANPUR
2.	CETP (4.5 MLD) BANTHAR (DISTT- UNNAO) AND CETP (2.15 MLD) SITE -2, UNNAO (UP)
3.	NOHRA DRAIN (NOSIA DRAIN)
4.	DEVRANIYA DRAIN, Bareilly
5.	CHAUBARI (CHAWARI) DRAIN, BAREILLY
6.	NAKATIYA DRAIN
7.	GANDA NALLAH
8.	PANKI DRAIN
9.	ICI DRAIN
10.	MAMAN ROAD NALLAH, (BULANDSHAHR-I); AADIL NALLAH; CHANDWARI ROAD (BULANDSHAHR-II); CHEEL GHAT; NAHSAL GHAT; ADIL NAGAR-2; KASAI BADA; FAISALABAD RAOD, BEHIND SHANIDEV MANDIR; DEVIPURA; BRIDGE DHAMEDA ROAD BEHIND CHAMUNDA MANDIR
11.	ABU NALLAH-2 , AND ODEAN DRAIN, MEERUT
12.	CHHOIYA DRAIN (RIVER KALI-EAST)
13.	HAPUR DRAIN
14.	KADRABAD DRAIN, MOIUDDINPUR (MEERUT) AND GHAZIABAD
15.	GULAOTHI DRAIN
16.	NEEM NALLA, BULANDSHAHAR-ALIGARH (UP)
17.	TAMMY DRAIN, ADANGAPUR DRAIN AND PATA NALA

The inspection reports along with the analysis results of the samples collected for the drains are placed in the respective Annexures.

Annexure – A1

Summary Compliance Report for Drain Monitoring, industries and assessment of feasibility of STPs:

In respect of Phase-I, of Segment B of River Ganga, Hon'ble NGT judgement dated 13th July 2017, joint inspection of drains, industries as well as assessment of feasibility of STPs are required to be carried out.

S. NO.	NAME OF DRAIN AND INDUSTRIES	COMPLIANCE REPORT
1.	STP (130) MLD AND STP (05) MLD JAJMAU, KANPUR	Joint Inspection team comprising the officer from IIT Roorkee NMCG (MoWR), MoEF&CC, CPCB, UPCPB and UP Jal Nigam carried out the inspection 08.08.2017. The detail inspection report is annexed at **Annexure-A2**. **Finding / Conclusion**: The joint inspection team recommended the following- The STP should be operate with all equipment and mechanical facility. This will help in assessing the requirement, if any for up gradation and associated infrastructure. There is a 43 MLD STP under construction and as reported, will take another 3-6 months for its commission. Considering the quantity of sewage collected at present, sewage from 5 MLD and part of influent from 130 MLD may be diverted to 43 MLD STP, when it is commissioned. This will extend lowering of organic load to 130 MLD STP and thereby improve its performance. It is necessary that all equipment and mechanical system should be made operational before a detail performance study could be done to suggest any improvement requirements. Present modified system of screen and inadequate sludge handling infrastructure should be supplemented after due analysis of sludge generation quantity. Proper record should be maintained with regard to sludge generation for assessing the sludge handling facility.
2.	CETP (4.5 MLD) BANTHAR (DISTT-UNNAO) AND, CETP (2.15 MLD) SITE -2, UNNAO (UP).	Joint Inspection team comprising the officer from IIT Roorkee NMCG (MoWR), MoEF&CC, CPCB, UPCPB and UP Jal Nigam carried out the inspection 08.08.2017. The detail inspection report is annexed at **Annexure-A3**. **Finding / Conclusion:** The joint inspection team recommended the following- CETP shall be proposed for capacity equivalent to the

		sanction/consented wastewater generation in the Banthar/Unnao Tannery cluster and other members approved by UPPCB. The inlet wastewater quality shall be derived based on the combined mixture of consented wastewater generation and expected quality in the business as usual as scenario. The proposed in-house cleaner technology by the member units shall be delineated and a commitment for upgradation with a timeline for achieving the inlet quality parameter. The proposal for the upgradation with a timeline for achieving the inlet quality parameter. The proposal for the ungradation of CETP should be comprehensive with objective to have ZLD based system divided in three phase as follow: **Phase-I:** PETP at individual units, Chrome recovery systems (with techno-economic comparative evaluation between individual facility vis-a vis combined facility) and CETP upgrade till Biological system, able to comply with all parameter except TDS, as specified by UPPCB. **Phase-II:** Timeline based adoption of cleaner technology in –house process which will result in improvement of inlet water quality (specially for TDS) **Phase-III:** Teriary cum Reject management system to achieve ZLD based CETP **Note: (a)** Phase I and Phase II be initiated in such a way that all proposed activities are implemented simultaneously in order that their completion result in ensuring the designed effluent quality from CETP and is in compliance with all dilution. The dilution provision proposed shall also be functional/in place by the time the CETP components are commissioned. **(b)** Failure in achieving the condition as specified in section **(a)** above, will impose mandatory implementation of ZLD based system for achieving the final object of environmentally sound management of wastewater without having any adverse impact on the receiving environment. Occupier of CETP at Banthar and Unnao shall submit a detail upgradation plan based on the above suggestion to implementation Committee with all supporting documents for their consideration at the earliest.

3.	Nohra Drain (Nosia Drain)	Inspected on 06.08.2017. Nosia drain is located 1.5 km from the distillery unit. The distillery is a ZLD unit. The flow in Nosia drain was measured at 2.78 MLD. The detail inspection report is annexed at **Annexure-A4**.
	A. M/S Avadh Sugar & Energy Ltd. Seohara, Bijnor. **Distillery Unit**	Inspected on 06.08.2017. Found non-operational due to rainy season. No effluent was discharged since the unit was not operational.
	B. M/S Avadh Sugar & Energy Ltd.Seohara, Bijnor- **Sugar Unit**	Inspected on 06.08.2017. Found non-operational due to non-crushing season. No effluent was discharged since the unit was not operational.
4.	Devraniya Drain, Bareilly	Joint Inspection team comprising the officer from NMCG (MoWR), MoEF&CC, CPCB, UPCPB and UP Jal Nigam carried out the inspection 03.08.2017. The detail inspection report is annexed at **Annexure-A5**. **Finding / Conclusion:** The joint inspection team recommended the following- Devraniya drain carries the waste water from 13 small drains. i) Flow of the Devraniya drain was measured as 295.84 MLD. This flow was measured during monsoon season and lean rain in catchment area was observed. It is suggested to monitor the flow in pre-monsoon and post-monsoon to fetch the actual flow. ii) All 10 (ten) small drains feeding to Devraniya drain should be trapped and diverted to appropriate location for suitable/adequate treatment. This may reduce the pollution load of Devraniya river/drain and maintain the natural flow.
	A. M/S Camphore Allied & Chemicals Pvt Ltd., Bareilly	M/s Camphore Allied & Chemicals Pvt. Ltd. was found noncomplying with the stipulated standards in terms of BOD (105 mg/l as against norms of 30 mg/L) and COD (288mg/L as against norms of 250 mg/L). **Conclusion**: Directions under E (P) Act, 1986 may be issued to the

		unit .
	B. M/S B. L. Agro Ltd., Oil Refinery, Joharpur, Bareilly	Treated effluent sample from ETP outlet of M/s B. L. Agro Ltd. was collected, analyzed and found complying. **Finding / Conclusion**: No action recommended.
5.	Chaubari (Chawari) Drain, Bareilly	Joint Inspection team comprising the officer from NMCG (MoWR), MoEF&CC, CPCB, UPCPB and UP Jal Nigam carried out the inspection 03.08.2017. The detail inspection report is annexed at **Annexure - A6**. **Finding / Conclusion:** Flow in the drain measured as 14.26 MLD The joint inspection team recommended for constructing Horizontal Flow-Sub Surface Constructed Wetland (HF-SSCW). The technology of HF-SSCW (Phytorid) has been indigenously evolved by the NEERI, Nagpur.
6.	Nakatiya Drain	Joint Inspection team comprising the officer from NMCG (MoWR), CPCB and UPCPB carried out the inspection 10.08.2017. The detail inspection report is annexed at **Annexure- A7.** Flow measured was 104.46 MLD. **Finding / Conclusion**: • Nakkatiya drain carries the wastewater from as small drains of the catchment area. • All 13 (Thirteen) small drains which are feeding to the Nakkatiya drains requires to be tapped and diverted to appropriate location for suitable treatment. This may reduce the pollution load of Nakkatiya river/drain is maintain its natural flow. As per treated effluent sample analysis result, M/s Mariya Agro Frozen Foods Pvt. Ltd., the unit is complying with stipulated standards.

		M/s Nagar Nigam slaughter House was found non-operational and shall be expected to commence operations soon. Illegal Slaughtering was found near Nagar Panchayat at Mohanpur Theriya village.;Bareilly which should be closed immediately. **Finding / Conclusion:** i) No action required at present on M/s Mariya Agro Frozen Foods Pvt. Ltd. ii) Illegal Slaughter near Nagar Panchayat at Mohanpur Theriya village should be closed immediately
7.	Ganda Nallah	Joint Inspection team comprising the officer from NMCG (MoWR), CPCB and UPCPB carried out the inspection 08.08.2017. The detail inspection report is annexed at **Annexure- A8**. Flow estimated as **117.08** MLD. As informed by the UPPCB officials, only one polluting industry, namely Nagar Nigam Slaughter House, exist in the catchment area of the COD Nala, which is closed from many years. **Finding / Conclusion**: The drain flow was measured during monsoon season, which does not give the correct figure to take decision. It is proposed to monitor the flow in pre-monsoon and post-monsoon to fetch the actual flow.
	A. Ordnance Factory, Kalpi Road, Kanpur	Ordnance Factory, Kalpi Road, Kanpur was found complying as per treated effluent discharge standards. **Finding / Conclusion**: No action recommended.
8.	Panki Drain	Panki drain carries wastewater from domestic and industrial sources in the catchment of Panki Thermal Power Plant, Kanpur city, New Trasport Nagar, Ratanpur, Panki G Block etc. On the inspection date 09 Aug 2017, due to heavy rain fall the flow was not steady & constant the measured two was 14.07 MLD & 97.76

		MLD. Panki Thermal Power Plant was not operational and ETP of Panki Thermal Plant was operational and was treating the wastewater generated from domestic activities within the premises of power plant. The ETP outlet was found complying with the prescribed norms. The detail inspection report is annexed at **Annexure- A9**
9.	ICI Drain	Joint Inspection team comprising the officer from NMCG (MoWR), CPCB and UPCPB carried out the inspection 10.08.2017. The detail inspection report is annexed at **Annexure- A10**. ICI Drain carries mixed wastewater from domestic and industrial sources in the catchment of Panki Industrial Area (site-I, site-II, site-III, site-IV). Drain meets river Pandu on its left in Panki, Kanpur. The drain behind the LML industry, Panki industrial Area was found damaged and the wastewater being spread and found its path through the agriculture land and meeting into river Pandu. The flow measured was **24.69 MLD.** Out of 40 polluting industries only 7 units were found operational in the catchment of this drain, rest of 33 industries were closed in the compliance of CPCB closure direction. Out of 7 operational industrial units three units namely (i) M/s Saraswti Engineering Limited D-12, Site-I, Panki Industrial Area, Kanpur, Uttar Pradesh (ii) M/s Kanpur Fertilizers & Cement Ltd. (Duncan fertilizer) CEE KAY Estate, Panki Industrial Area, Po. Udyog Nagar, Kanpur- 208022 (iii) M/s Anod Plasma Spray Ltd. 103, 104, Uptron Estate, Panki, Kanpur were found non complying with the prescribed norms. The summarized report and compliance status of the 40 highly polluting industries is annexed. The flow of the

<table>
<tr><td></td><td></td><td>drain may significantly increase as and when all the industries will be operational.</td></tr>
<tr><td>10.</td><td>Maman Road Nallah, (Bulandshahr-I); Aadil Nallah; Chandwari Road (Bulandshahr-Ii); Cheel Ghat; Nahsal Ghat; Adil Nagar-2; Kasai Bada; Faisalabad Raod, Behind Shanidev Mandir; Devipura; Bridge Dhameda Road Behind Chamunda Mandir</td><td>Joint Inspection team comprising the officer from NMCG (MoWR), CPCB, UPCPB and UP Jal Nigam carried out the inspection on 04.08.2017. The detail inspection report in Annexure –A11. Since the peak flow was measured during the day time, a peak factor of 2.0 (as per CPHEEO manual) was used to calculate the daily average flow.
<table>
<tr><th>S. No.</th><th>Drain Name</th><th>Flow (MLD)</th><th>BOD (mg/l)</th></tr>
<tr><td>1</td><td>Maman Road Nala</td><td>11.16</td><td>58</td></tr>
<tr><td>2</td><td>Adil Nala</td><td>9.34</td><td>147</td></tr>
<tr><td>3</td><td>Nashal Ghat</td><td>1.63</td><td>191</td></tr>
<tr><td>4</td><td>Cheel Ghat</td><td>1.75</td><td>32</td></tr>
<tr><td>5</td><td>Adil Nala-2</td><td>0.84</td><td>206</td></tr>
<tr><td>6</td><td>Kasai Bada</td><td>1.50</td><td>245</td></tr>
<tr><td>7</td><td>Faisalabad</td><td>2.80</td><td>104</td></tr>
<tr><td>8</td><td>Behind Shani dev Mandir</td><td>0.00</td><td>0.00</td></tr>
<tr><td>9</td><td>Dhameda Road</td><td>0.78</td><td>93</td></tr>
<tr><td>10</td><td>Devipura</td><td>2.65</td><td>127</td></tr>
<tr><td>11</td><td>Chandwari Road</td><td>9.96</td><td>33</td></tr>
<tr><td>12</td><td>*Behind Chamunda Mandir</td><td>0.04</td><td>48</td></tr>
<tr><td colspan="2">Total (MLD)</td><td>42.45</td><td></td></tr>
</table>
Time requirement for Design, Approvals, Tendering, Construction and Commissioning = 3 years from 2017 AD.
Base year 2020 AD and design period for STP 15 years, the estimated wastewater in year 2035 AD= 50.0 MLD
Finding / Conclusion:
The capacity required for proposed STP shall be 50.0 MLD. Mechanical STP with four modules, each of 12.50 MLD capacity may be considered.</td></tr>
</table>

11.	Abu Nallah-2 and Odean Drain, Meerut	Joint Inspection team comprising the officer from NMCG (MoWR), CPCB, UPCPB and UP Jal Nigam carried out the inspection 05.08.2017. The detail inspection report in **Annexure-A12**. Since the peak flow was measured during the day time, a peak factor of 2.25 (as per CPHEEO manual) was used to calculate the daily average flow. Average daily Flow in **Abu Nallah 2**=64.63 MLD Average daily Flow in **Odean drain**=140.19 MLD. **Total** wastewater from both drains = 204.82 MLD. Considering time required for Design, Approvals, Tendering, Construction and Commissioning about 3 years from 2017 AD, base year 2020 AD, design period for STP 15 years, population growth rate 16%, the estimated wastewater in year 2035 AD= **263.8 MLD;** and estimated industrial effluent contribution= 1.0 MLD. Estimated wastewater in year 2035 = **264.8 MLD.** About 40 MLD of sewage will be diverted into, existing 72 MLD STP at Jagriti Vihar Extension, Meerut. **Finding / Conclusion**: Capacity required for new STP shall be 224.80 MLD, **say 225.0 MLD**.
	M/S Sab Miller India Ltd. Near Cantt, Kanker Khera, Meerut	Industry was operating only brewing at 50% capacity. The ETP was found operational. The treated effluent discharged in to Abu Nallah-2. The effluent samples from ETP inlet and final outlet were collected on date 05-08-2017, analysed in CPCB and found complying with treated effluent discharge standards applicable for disposal in to surface water. **Finding / Conclusion**: No action recommended.
	M/S United Spirits Ltd. (Bottling Unit)	The unit is a bottling plant, operates in general shift. The ETP consist of activated sludge process based

	Near Cantt, Kanker Khera, Meerut	biological treatment and filtration. Bio-mass concentration in Aeration tank was negligible. The treated effluent discharged in to Abu Nallah-2. The effluent sample from ETP final outlet was collected on date 05-08-2017, analyzed in CPCB and found complying with treated effluent discharge standards applicable for disposal in to surface water. **Finding / Conclusion**: Although, the treated effluent results indicate that industry is complying with effluent discharge standards, the unit may be directed to stabilize the Activated sludge process based ETP system. The bio-mass (MLSS) concentration in Aeration Tank to be increased from the present (negligible) level to around 3500 mg/l.
12.	Chhoiya Drain (River Kali-East)	Joint Inspection team comprising the officers from NMCG (MoWR), CPCB and UPCPB carried out the inspection on 10.08.2017. The detail inspection report is annexed at **Annexure –A13**. Total 07 unit/industries are present in the catchment area of chhoiya drain out of there 07 industries 04 closed, 03 complying.
13.	Hapur Drain	Joint Inspection team comprising the officers from NMCG (MoWR), CPCB and UPCPB carried out the inspection on 21.08.2017. The detail inspection report is annexed at **Annexure –A14**. Total 07 industries are present in the catchment area of Hapur drain. Out of there 07 industries 02 are permanently closed, (One) 01 is self-closed and (Two) 02 units (Raybon Foods Pvt Ltd and Raybon Organic Pvt Ltd.) found closed as per order of UP government. Two (02) unit found operational and complying.

14.	Kadrabad Drain, Moiuddinpur (Meerut) And Ghaziabad	Joint Inspection team comprising the officers from NMCG (MoWR), CPCB and UPCPB carried out the inspection on 29.08.2017. The detailed inspection report is annexed at **Annexure –A15**. Total 28 industries are present in the catchment area of Kadrabad drain. Out of these 28 industries, 08 are self closed, 08 are complying and CPCB issued had issued closure direction to remaining 12 industries, detail are attached.
15.	Gulaothi Drain	**Finding / Conclusion:** UP Jal Nigam is preparing DPR for the I&D and STP aspects in the town. The STP location is found suitable, need to acquire some more land than the presently proposed 0.5 Hectares. Base year 2018 AD and design period for STP 15 years, the estimated wastewater in year 2033 AD= **9.67 MLD** The capacity proposed for new STP = **10.0 MLD**. The detailed inspection report is annexed at **Annexure –A16.**
	A. M/S V.R.S. Foods Ltd. Unit-3, Gulaothi (Up)	The unit is complying with stipulated effluent standards. **Finding / Conclusion:** No action required at present.
	B. M/S V.R.S. Foods Ltd. Unit-4 Gulaothi (Up)	The unit found closed.
16.	Neem Nalla, Bulandshahar-Aligarh (Up)	Joint Inspection team comprising the officer from NMCG (MoWR), CPCB, UPCPB and UP Jal Nigam carried out the inspection 03.08.2017. The detail inspection report in **Annexure- A17**. **Finding / Conclusion:** No wastewater from Neem nala contributes river Kali East at the confluence point. Only back water from river Kali East is available in Neem Nalla at

		confluence point. There is no need to construct any mechanical STP / oxidation pond / constructed wet land.
	M/S Wave Distilleries And Breweries Ltd., Ahmedpura, Tehsil-Atrauli, Distt-Aligarh	No discharge of treated / untreated effluent was found into the nearby river Kali East or on land, from the **unit-1, i.e., Distillery unit**, since it has implemented Zero Liquid Discharge (ZLD) system comprising of RO, MEE and incineration Boiler. **The unit-2, i.e., Brewery** was operational, has an Effluent Treatment Plant (ETP). The ETP was found operational. The treated effluent discharged in to the river Kali east. The effluent samples from ETP inlet and final outlet were collected on date 03-08-2017, analyzed in CPCB and found complying with treated effluent discharge standards applicable for disposal in to surface water. The detail inspection report is annexed at Annexure- . **Finding / Conclusion**: No action recommended.
17.	Tammy Drain, Adangapur Drain And Pata Nala	The flow of all three drains namely Tammy drain, Adangapur drain and Pata Nallah was estimated as **6.76 MLD, 8.01 MLD and 29.34 MLD** respectively. These flows were measured during monsoon season, which may not give the correct figure to take decision. The flow of Pata Nallah was found 29.34 MLD, which is very high (in comparison to 6.5 MLD), due to rainfall in the region. The Tammy Drain, Adangapur drain and Pata Nallah can be intercepted & divert both drains by construction of pumping stations & rising mains to newly constructed STP of 13.0MLD at the end of Pata Nallah.. Considering the low capacity of is 13 MLD of newly constructed STP at the end of Pata Nala and minor level

		difference among these three drains, one more STP of suitable capacity is suggested near to Chemkali temple (Adangapur drain catchment) for the treatment of Tammy & Adangapur drain wastewater. The detailed inspection report is annexed at **Annexure – A18.**

Annexure – A2 14
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REPORT OF JOINT INSPECTION TEAM IN COMPLIANCE TO HON'BLE NGT DIRECTIONS IN THE JUDGEMENT DATED JULY 13, 2017 ON ORIGINAL APPLICATION NO. 200 OF 2014 IN THE MATTER OF M C MEHTA VS UNION OF INDIA AND OTHERS

With reference Hon'ble NGT directions at Point No 09 of Para No. 182.6 in the judgement dated July 13, 2017 on Original Application No. 200 OF 2014 in the matter of M C Mehta Vs Union of India & others, a joint inspection team was constituted having representation from NMCG, MoEF&CC, CPCB, UPPCB, UP Jal Nigam and expert from IIT- Roorkee.

The scope of work for the above team constituted under the judgement of Hon'ble NGT dated July 13, 2017 in the matter M C Mehta vs. Union of India (OA no 200/2014) was to evaluate the performance of 130 MLD STP at Jajmau and suggesting measures for its up gradation with regard to compliance of stipulated Norms.

As directed by Hon'ble NGT, the joint inspection team has inspected and monitored the 130 MLD & 05 MLD STPs at Jajmau, Kanpur on August 08, 2017. One day before visit, the area was witnessed heavy rainfall, which is causing dilution of sewage. However, considering the 04 weeks' time schedule given by Hon'ble NGT, the inspection and monitoring was conducted.

The details of the visit are as given below

01. STP (130 MLD) JAJMAU, KANPUR:

***Introduction*:** This plant, based on activated sludge process, was constructed and commissioned in January 1999. This plant is designed for treatment of 130 MLD of domestic wastewater.

Wastewater Collection: Sewage from various pumping stations is collected in sump well, from where it is taken in all the three treatment plants (02 STPs & 01 CETP) in desired quantities. Contamination of tannery wastewater in the sewage is one of the issue identified for poor performance since last several years. The tannery wastewater

contains leather flushing, chromium sulphides and other toxic elements for which the STP has not been designed. Consequently, the components of the equipment are also corroded. Consequently, liberation of H_2S in STP vicinity is causing severe corrosion of equipment.

Treatment Technology-ASP: STP is based on activated sludge process (ASP). Large amounts of injected oxygen allow maintaining aerobic conditions and optimally mixing the active biomass with the wastewater to be treated. To maintain a relatively high number of active microorganisms useful in removing organic substances from the wastewater, the sludge is separated from the effluent by settling in a secondary clarifier and kept in the process by recirculation to the aeration tank.

STP Details: The received sewage is taken to collection chamber and after passing through Fine screen & grit chambers it is taken to primary sedimentation tanks (03 Nos) through Parshall flume and distribution chamber. Then the sewage is taken to 03 aerations tanks which have total 18 aerators of 37 KW capacity each. The sewage from aeration tank is taken to final sedimentation tanks (03 Nos) and after desired settling discharged into irrigation channel along with treated effluent of CETP & 05 MLD STP, whereas return sludge is either taken to aeration tank or primary sedimentation tank as per requirement to maintain desired MLVSS concentrations in the aeration tank. The settled sludge from primary sedimentation tank is taken to sludge digesters after passing through sludge thickener. Two gas flaring units are also installed to flare the gases generated from sludge digesters.

The salient features of STP (130) Kanpur are tabulated below

Name of STP	STP at Jajmau (130 MLD)
Operated by	G.P.C.U. U.P. Jal Nigam, Kanpur
Facility owned by	Ganga Pollution Control Unit, U.P.Jal Nigam- Kanpur
Treatment Technology	Activated Sludge Process
Treatment Capacity	130 MLD
Actual treatment on the day of visit	91 MLD
Wastewater Collection	Through sump well and underground trunk sewer system
Aeration tanks	3 Nos each of 52.0 m X 34.5 m X 4.302 m having 18 aerators each of 37 KW capacity

Power (electric) Connection	KESCO through 33 X 11 KV and 11 X 0.4 KV substation
Effluent Disposal	The treated effluent is utilized for irrigation mixed with treated sewage of 05 MLD STP and 36 MLD CETP.
Consents & Authorisation	Neither having consents under Water & Air Acts nor applied to UPPCB.

Findings of the visit:

01. The samples are collected during the visit (August 08, 2017) to evaluate the performance of each treatment unit. The analysis results are tabulated below

Sampling Location	pH	TSS	TDS	Cl	SO_4^{2-}	αS	PO_4-P	BOD	COD	Cr
Inlet	7.18	516	1555	635	182	BDL	1.34	121	360	2.00
PST Outlet	7.02	122	1308	452	---	---	---	60	218	1.32
Final Outlet	7.42	52	1155	299	186	BDL	0.647	21.1	95.9	0.27
% Reductions		89.92	25.72	52.91	-2.20	---	51.72	82.56	73.36	86.50

The analysis results indicate that the 130 MLD STP is meeting the prescribed discharge Norms.

02. The comparison between inlet parameters considered during designing of the STP and found in actual during monitoring is as tabulated:

Parameter	Unit	Inlet Characteristics	
		Designed	Actual
pH		5.5 – 8.5	7.18
BOD	mg/L	300	121
COD	mg/L	450-550	360
TDS	mg/L	900	**1555**
TSS	mg/L	600	516

03. It is evident from the table that the STP is receiving wastewater diluted than the designed quality except for TDS. TDS at inlet is 1.73 times higher than the values considered for designing.

04. The comparison between degree of treatment considered during designing & found in actual is as tabulated

Parameter	Design consideration	Found in actual
Effluent after PST		
BOD reduction	40 %	50%
TSS Reduction	60 %	76 %
Pollution load remained in final treated effluent		
BOD	83.3 %	64.8 %
TSS	58.3 %	57.4 %

The STP is achieving the desired degree of reduction at PST and the removal efficiency after PST is lesser than the designed criteria. However, the STP is meeting the prescribed Norms.

05. The sample for MLSS and MLVSS are also collected from the aeration tank and the values are as given

Parameter	Aeration Tank - I	Aeration Tank - II	Aeration Tank - III	Average
MLSS (mg/L)	525	577	742	615
MLVSS (mg/L)	347	396	529	424
MLVSS/MLSS	0.66	0.69	0.71	0.69

06. The MLVSS in the range of 347-529 mg/L is maintained in the reactor which is very less than the recommended for ideal operations of activated sludge processes.

07. The F/M ratio in the reactor is 0.56/day which is satisfactory to perform the biological activities.

08. The 18 aerators having 37 KW capacity each is installed to cater the oxygen demand of the treatment system. On the day of visit, only 13 were operational which were not sufficient to cater the oxygen demand and to provide adequate mixing in the aeration tank to keep the solids in suspension.

09. The concentrations of dissolved oxygen in mixed liquor was zero which indicates the oxygen supplied by the aerators is not adequate and it is one the factor for the poor performance.

10. Irrespective of poor MLVSS and DO deficiency in the reactor, the STP is achieving the prescribed discharge Norms. This may be due to heavy rainfall day before the visit, that has resulted in dilution of the sewage.

11. The civil structure of the platforms on which aerators installed are weakened, rusted and damaged at many points. It requires proper maintenances.

12. The facility for wasting of excess biological sludge from Secondary sedimentation tank (SST) is not provided. The excess sludge is taken to primary sedimentation tank and removed along with PST sludge.

13. The Secondary sedimentation tank was in submerged condition at the time of visit. It was informed that the pumping provided to lift the treated effluent is not working efficiently and as lower pumping rate of treated effluent adds back pressure on the sedimentation tanks.

14. As reported, sludge generation from clarifies are more than the design capacity due to ingress of tannery wastewater to sewage collection system. This has resulted in higher BOD, resulting in higher sludge generation. This makes the existing sludge handling facilities inadequate and requires upgradation w.r.t. capacity and technology.

15. The STP is receiving the influent contaminated by chromium and having higher TDS for which it was not designed. It is visible from high level of chromium (2 mg/L) at inlet and concentration of chromium (9.55mg/L) in aeration tank which might be affecting the activity of biomass.

16. The infrastructure at screen stage was not adequate, as over flow was observed. After investigation, it was found that the head loss at screen level has changed due to modification in screen and it's supporting measures, to avoid clogging of screens and avoid higher hair concentration in the post treatment processes.

Suggestions: Considering the present infrastructure and O&M of the STP the following is suggested to improve the treatment efficiency

01 The STP operator should operate minimum 15 aerators continuously, as per the designed consideration to cater the required oxygen demand and to ensure the proper mixing of the solids in the aeration tank.

02 The STP operator should ensure to maintain adequate levels of DO in aeration tanks.

03 The STP should install online DO meter in aeration tank for continuous monitoring and based on the data the STP operator should take corrective measure to maintained desired DO level.

04 Civil structures of platforms on which aerators installed are damaged over the period and needs to be strengthened.

05 The facility operators should regularly monitor the operating parameters such as F/M ratio & MLVSS in the reactors and should maintain it as per the operational protocol.

06 The sulphide removal system should be installed at the STP inlet to avoid its interference in the treatment and corrosion of mechanical treatment equipment.

07 New filter press machine of adequate capacity shall be installed to improve the sludge dewatering & handling mechanism.

08 The provision for sludge wasting from secondary sedimentation tank shall be provided.

09 The required maintenances/replacement of treated effluent discharge pump shall be taken up on priority.

10 The existing electromagnetic flow meter installed at STP inlet shall be connected with CPCB server for online data transmission.

11 The online continuous effluent monitoring system should be installed at the outlet of STP and should be connected with CPCB & UPPCB server.

12 UP Jal Nigam/Nagar Nigam/UPPCB shall ensure the avoidance of contamination of their sewerage system with wastewater coming from the cluster of tanneries to get better treatment efficiency of their STPs.

13 The new 43 MLD STP should be commissioned as soon as possible so that it can cater excess BOD load of 130 MLD STP.

14 If the STP is maintained well, by properly operation of aerators, regular sludge wastage and controlled recirculation, the STP can bring out the desired effluent quality. However, due to high sulphide and sulphate concentration in wastewater, the H_2S corrosion of equipment and civil structure is the severe issue. H_2S removal considerations should be taken into account prior to installing any new STP in the complex.

02. STP (05 MLD) Jajmau, Kanpur

Introduction: A pilot Sewage Treatment Plant was designed for treatment of 5mld domestic wastewater and was constructed and commissioned in 1989. The plant functions at full capacity. The dried sludge is sold to farmers and final effluent flows into a irrigation channel and subsequently used for irrigation.

Wastewater Collection: Sewage from various pumping stations is collected in sump well, from where it is being applied in all the three treatment plants (02 STPs & 01 CETP) in desired quantities. As per the information, mixing of tannery effluent in domestic sewage is the issue of concern. As this STP is designed for treatment of domestic sewage, the industrial effluent received in influent along with sewage is affecting the performance of treatment system.

Treatment Technology-UASB: Up-flow Anaerobic Sludge Blanket (UASB) reactors are anaerobic wastewater treatment systems achieving high removal of organic pollutants. Wastewater is pumped from the bottom into the reactor where influent suspended solids and bacterial activity/growth lead to the formation of sludge. The up-flow regime allows for an intense contact of the influent wastewater with the sludge blanket or sludge bed. Anaerobic microorganisms living in the sludge blanket digest the organic pollutants in the incoming sewage. Anaerobic digestion produces biogas (a mixture of methane, CH_4, carbon dioxide CO_2, and trace gases). The up-flow stream and the gas bubbles keep the sludge in suspension and mix the reactor without mechanical assistance. Baffles at the top of the reactor allow gases to escape and prevent an outflow of the sludge blanket. As all aerobic treatments, UASB require a post-treatment to remove pathogens, but due to a low removal of nutrients, the effluent water as well as the stabilised sludge can be used in agriculture. UASB can retain a high concentration of active suspended biomass, leading to a good removal performance of organics (biological oxygen demand, BOD, and chemical oxygen demand, COD) and total suspended solids (TSS) but pathogens and nutrients are being not effectively removed through UASB.

STP Details: The received sewage is taken to UASB reactor through screen and grit chamber. The treated effluent is then passed into the polishing pond and after treatment it is discharged into irrigation channel along with treated effluent of CETP & 130 MLD STP.

The salient features of STP (05 MLD) Kanpur are tabulated below

Name of STP	STP at Jajmau (05 MLD)
Operated by	G.P.C.U. U.P. Jal Nigam, Kanpur
Facility owned by	Ganga Pollution Control Unit, U.P.Jal Nigam-Kanpur
Treatment Technology	Un-Aerobic Sludge Blanket Reactor (UASB)
Treatment Capacity	05 MLD
Actual treatment on the day of visit	4.5 MLD
Wastewater Collection	Through sump well and underground trunk sewer system
Total installed electricity load	18.25 KW
Effluent Disposal	The treated effluent is being utilized for irrigation mixed with treated effluent from 130 MLD STP and 36 MLD CETP.
Consents & Authorisation	Neither having consents under Water & Air Acts nor applied to UPPCB.

Findings of the visit:

01 The analysis Table of the sample collected during the monitoring (August 08, 2017) is as tabulated below

Sampling Location	pH	TSS	TDS	Cl	SO_4^{2-}	S	PO_4-P	BOD	COD
Inlet	7.22	512	1533	513	188	11.1	1.53	127	426
UASB O/L	7.21	16.5	908	257	---	---	---	29.6	108
Final O/L	7.64	17.5	989	307	198	7.37	0.994	33.3	86.7
% Reductions		**96.58**	**35.49**	**40.16**	**-5.32**	**33.60**	**35.03**	**73.78**	**79.65**

02 The treatment unit is achieving 74%, 80% and 97% removal of BOD, COD and TSS respectively.

03 Though the overall reduction in the pollution strength is satisfactorily it is not achieving prescribed discharge Norms.

04 The comparison between inlet parameters considered during designing of the STP and found in actual during monitoring is as tabulated:

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Parameter	Unit	Inlet Characteristics	
		Designed	Actual
BOD	mg/L	200	127
COD	mg/L	500	426
TSS	mg/L	500	512

It is evident from the table that the STP is receiving almost equivalent quality of wastewater for which it was designed.

05 To study the sludge profile of UASB reactor the reactor sludge is collected from upper middle and bottom level of reactor. The analysis results of the sludge collected is as tabulated below:

Bottom Sludge from	Unit	TSS	VSS	VSS/TSS
Upper level	mg/L	201	182	0.91
Middle level	mg/L	48040	21460	0.45
Bottom level	mg/L	75185	35704	0.47

06 The decreasing sludge concentration with height of reactor is generally good indication of working of UASB reactor. The VSS/TSS ratio at upper level is more than 0.91 and having sufficient active microorganism to consume the substrate BOD.

Suggestions: Though the overall performance of the UASB based STP unit is satisfactorily considering the age of the system, it is suggested to keep operate properly the STP till the installation & commissioning of 43 MLD STP in the premises. Once the 43 MLD STP will made operational, the present 05 MLD STP can be considered for closure by diverting its flow in to 43 MLD STP.

Recommended Interim suggestions for STPs

- The STP should be operated with all equipment and mechanical facility. This will help in assessing the requirement, if any, for up gradation and associated infrastructure.
- There is a 43 MLD STP under construction and as reported, will take another 3-6 months for its commission. Considering the quantity of sewage collected at

present, sewage from 5 MLD and part of influent from 130 MLD may be diverted to 43 MLD STP, when it is commissioned. This will extend lowering of organic load to 130 MLD STP and thereby improve its performance.

- It is necessary that all equipment and mechanical system should be made operational before a detail performance study could be done to suggest any improvement requirements.
- Present modified system of screen and inadequate sludge handling infrastructure should be supplemented after due analysis of sludge generation quantity. Proper record should be maintained with regard to sludge generation for assessing the sludge handling facility.

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Annexure - A3 25 10402

REPORT OF JOINT INSPECTION TEAM IN COMPLIANCE TO HON'BLE NGT DIRECTIONS IN THE JUDGEMENT DATED JULY 13, 2017 ON ORIGINAL APPLICATION NO. 200 OF 2014 IN THE MATTER OF M C MEHTA VS UNION OF INDIA AND OTHERS

With reference Hon'ble NGT directions at Point No 11 of Para No. 182.6 in the judgement dated July 13, 2017 on Original Application No. 200 OF 2014 in the matter of M C Mehta Vs Union of India & others, a joint inspection team was constituted having representation from NMCG, MoEF&CC, CPCB, UPPCB and expert from IIT-Roorkee.

The scope of work for the above team constituted under the judgement of Hon'ble NGT dated July 13, 2017 in the matter M C Mehta vs. Union of India (OA no 200/2014) was to evaluate the performance of CETPs at Unnao and Banthar and to make suggestion for qualitative and quantitative up gradation for compliance to the stipulated discharge standards.

As directed by Hon'ble NGT, the joint inspection team has inspected and monitored the CETPs at Banthar and Unnao on August 08, 2017. One day before visit, the area was witnessed heavy rainfall. However, considering the 04 weeks' time schedule given by Hon'ble NGT, the inspection and monitoring was conducted.

The details of the visit are as given below

01. CETP Banthar, Unnao

Introduction: U.P. State Industrial Development Corporation (UPSIDC) has developed a new leather complex near Banthar village in Unnao District and also provided Common effluent treatment plant (CETP).

The CETP Unnao was commissioned in October 2004 with capacity of 4.5 MLD to treat wastewater generated from 42 tannery and allied units located in UPSIDC Industrial Area, Banthar, Unnao.

The primary treated effluent from the member units are being collected through underground network of conveyance system.

CETP Details: The received tannery effluent is taken to equalisation tank through screen & grit chambers. Subsequently, it is charged in to clariflocculator and then passed through two aeration tanks & two clarifiers kept in series. The effluent is finally treated through tertiary clarifier before discharging in the drain.

The salient features of CETP Unnao are tabulated below

Name of CETP	CETP at UPSIDC Leather Technology Park Banthar, Unnao
Operated by	Banthar Industrial Pollution Control Company(BIPCC)
Facility owned by	All the member tanneries who are shareholders and promoters of BIPCC
Treatment Technology	Extended aeration followed by a tertiary clarification
Treatment Capacity	4.5 MLD
Member units	Total 42 members and 26 are currently operational
Wastewater Collection	Through underground conveyance system
Pre-treatment by member units	Yes, All the member units have PETP for solid removal and CRU for chrome recovery
Capital Cost	About Rs. 6.0 crores
Power (electric) consumption	550 KVA + Diesel DG Back-up, Total power cost is approx. Rs. 12 lakh per month
Effluent Disposal	Into Pucca Drain of UPSIDC which finally joins City Jail Drain after about 2 km drain travel
Sludge generation	Around 5-7 Tons/day
Sludge Disposal	Sent to TSDF Banthar for disposal

Findings of the visit:

01 The 4.5 MLD CETP is attached with 42 tannery units. As per the information submitted, these units generate 4.44 MLD tannery effluent if they operated at their optimum capacities.

02 Out of these 42 tannery units 26 units (3.013 MLD) are operational, 09 units (0.797 MLD) are non-operational and remaining 07 units (0.632 MLD) are identified as defaulter member units for not making the payment of minimum charges.

03 The UPPCB has given conditional permission to operate all these tannery units only at their 50% consented capacity.

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03 The UPPCB has given conditional permission to operate all these tannery units only at their 50% consented capacity.

04 Considering b & c, the total effluent reaching to the CETP should not be more than 1.5 MLD. Whereas at time of visit, the effluent was discharged in the range of 141 m^3/hr to 228 m^3/hr, which is equivalent to 3.3 – 5.5 MLD, which is even more than the designed capacity.

05 The samples are collected from CETP Inlet & outlet to verify the status of compliance. The results are tabulated below

Parameters	CETP Inlet		CETP Outlet	
	Conc	EPA Standards	Conc	EPA Standards
pH	7.71	5.5 -9.0	7.86	5.5 -9.0
Suspended Solids	1605	---	63.2	100.0
Total Dissolved Solids	**11,531**	---	**13,072**	2,100.0
Calcium as Ca^{2+}	219.2	---	132.3	
Chloride as Cl^-	7,704	---	**6,004**	1,000.0
Sulphate as SO_4^{2-}	1,236	---	**2,767**	1,000.0
Sulphide as S	102	---	1.2	2.8
Phosphate as P	0.241	---	2.56	---
Am. Nitrogen	**307**	50.0	**505**	50.0
Alkalinity	2,636	---	1,575	---
Oil & Grease	5.60	20	BDL	10.0
BOD	1,110	---	**88.0**	30.0
COD	2,483	---	**351.0**	250.0
Total Chromium	**56.8**	2.0	0.24	2.0
Cobalt (Co)	BDL	---	BDL	---
Iron (Fe)	3.74	---	0.45	3.0
Lead (Pb)	BDL	---	BDL	0.1

06 The CETP is found **non-complying** w.r.t. stipulated discharge standards. The concentration of Am. Nitrogen is 10 times higher, TDS & chlorides are 6 times higher than the prescribed limit, whereas BOD and sulphate concentrations were found 3 times higher.

07 The influent receiving at CETP inlet is also **not meeting** the prescribed norms of CETP inlet. It is receiving **56.8 mg/L chromium** which is 28 times higher than the stipulated Norms. The concentrations of sulphate, dissolved solid, chlorides and Am. Nitrogen is also found in higher side whereas the CETP unit is not designed to handle such high strength of wastewater.

The wastewater quality at CETP inlet indicates that PETPs provided by the member units are not adequate to achieve the prescribed standards of CETP inlet.

08 The observation made at point 'd' & 'g' indicates that the member units are discharging much higher quantity than the consented capacity and also these units are not meeting the prescribed discharge Norms of CETP inlet.

09 The samples were collected during visit (August 08, 2017) from various treatment units of CETP to evaluate their performance. The analysis results are tabulated below

Sampling Location	pH	TSS	TDS	Cl	SO_4^{2-}	S	PO_4-P	BOD	COD	Cr
Eq. O/L	7.71	1605	11531	7704	1236	102	0.241	1110	2483	56.8
Clf. Outlet	7.22	42.8	8846	5432	---	---	---	802	1677	0.39
SST (1) O/L	7.27	179	11485	6576	---	---	---	468	1166	0.64
SST (2) O/L	7.91	134	13292	6576	---	---	---	106	424	1.23
Tertiary ST	7.83	95.4	13227	7672	---	---	---	121	410	BDL
Final Outlet	7.86	63.2	13078	6004	2767	1.2	2.56	88	351	0.24
% Reductions		**96.06**	**-13.42**	**22.07**	**-123.87**	**98.82**	**-962.24**	**92.07**	**85.86**	**99.58**

*All values except pH are in mg/L.

10 Though the CETP unit is achieving reduction of BOD (92%), COD (86%) and TSS (96%), it is not meeting the prescribed discharge Norms.

11 The effluent characteristics of equalisation tank and clarifier outlet indicates that 99.31% chromium, 97.33% TSS, are removed through single clarifier. Removal of 29.49 % chlorides is also found in the clarifier. Dilution is conclusive by concentration of chloride observed across the treatment unit, unless it is added in form chemical. The reduction of chromium concentration from 56.8 mg/L to 0.39 mg/L through single clarifier at pH around 7.22 is not possible and is suspicious. The concentrations of chloride & chromium before and after clarifier indicates about the alteration of the effluent characteristics at clarifier possibly by dilution.

12 The comparison between the characteristics of effluent at inlet, primary clarifier outlet and final outlet found during previous NGT visit (recorded in the Hon'ble NGT judgement dated July 13, 2017) and present visit is as given:

Parameter	Characteristics found during previous NGT inspection (mg/L)			Characteristics found during present NGT inspection (mg/L)		
	Inlet	Clf O/L	Final O/L	Inlet	Clf O/L	Final O/L
BOD	1108	1045	528	1110	802	88
COD	1858	2092	1155	2483	1677	351
TDS	16900	18456	15764	11531	8846	13078
TSS	498	1033	609	1605	42.8	63.2
Total Cr	10.6	11.2	9.0	56.8	0.39	0.24

The comparison of characteristics of effluent after primary clarifier outlet with inlet quality found during previous and present visits clearly indicates that such high % of removal of pollution load (found during present visit) through single clarifier is not possible and it further confirms the case of alteration of effluent characteristics possibly by dilution.

13 At the time of visit, the flow at CETP outlet was observed highly fluctuating in the range of 141 m^3/hr to 228 m^3/hr within the time span of half hour, which also confirms about the dilution and alteration in the effluent quality received and treated.

14 The samples of mixed liquor and returned sludge is also collected and analysed for MLSS & MLVSS. The values are given below

Parameter	Aeration Tank - I	Aeration Tank - II	Return Sludge
MLSS (mg/L)	289	9169	34459
MLVSS (mg/L)	255	6879	25108
MLVSS/MLSS	0.88	0.75	0.73

15 The MLSS & MLVSS at Aeration Tank – I indicates about the poor biological activities in the reactor. The optimum performance of the treatment system cannot be achieved with such lower concentration of biomass in a reactor.

16 The dissolved oxygen in both the aeration tank was found nil which indicated that least biological activities in the reactor. In such circumstances, the % of BOD and COD removal to the extent of 92.07& 85.86 respectively is suspected.

17 The CETP has identified defaulter units only with the criteria of payment to the CETP, whereas it has not identified any defaulter unit for not meeting the desired CETP inlet quality.

18 Online electromagnetic flow meters are installed at CETP outlet to measure the quantity of treated wastewater discharged. The flow data recorded at every 15 minutes on August 07 & 08, 2017 is provided by the CETP unit. The data

indicates the flow at CETP outlet is varying from 0.06 KL/hr to 234.73 KL/hr. Inspite of having equalisation tank at CETP inlet, the uniform pumping is not maintained and such a large variation in the hydraulic profile is one of the major reason affecting the performance of the CETP unit.

19 The equalization tank is filled with sludge and needs proper maintenance.

20 The sludge drying beds were filled and dried sludge were found lying adjacent to the slug drying bed. It was informed that the deposited sludge is being transferred to the secured landfill site.

21 The aerobic system was provided with additional air supply system, even though foaming and anaerobic condition in the second stage biological unit was observed.

22 There is no sulphide removal system and therefore the odour was prominent. High sulphide also leads to higher TDS in effluent.

23 Colour was also observed in the outflow of CETP. Record maintenance were found poor and therefore in absence of historical data, it is difficult to infer any modification or upgradation.

24 There is as such no alternate arrangement available for dilution from treated sewage. The CETP representatives were also not having any clear roadmap on availability of dilution water, however, it was informed that they are exploring the possibility with proposed STP with UPJN.

Suggestions:

As the CETP is exceeding the prescribed discharge standards by more than 10 times and receiving 56.8 mg/L chromium at the CETP Inlet, the following is further suggested

1. UPPCB should keep strict vigilance over the activity of CETP considering the case of alteration in characteristics of effluent detected at clarifier during the visit.

2. UPPCB should initiate further strict action against the CETP member units discharging higher effluent than permitted.

3. The member units shall be directed to upgrade the PETPs installed by them in order to achieve the prescribed standards of CETP Inlet. And these units should not be allowed to operate by discharging the effluent with such a high Chromium (56.8 mg/L) contaminated wastewater into the CETP.

4. The SPV should immediately identify the list of defaulter units w.r.t. PETP discharge quality and should initiate further action through UPPCB.

5. The SPV & UPPCB should keep strict vigil on the CETP inlet quality and should take strict action against the defaulter units.

6. The present treatment system is not designed to handle the amount TDS it receives. Hence, till the upgradation of the CETP, the charging of high TDS effluent should be avoided.

7. The O & M of the CETP should be improved to maintain controlling parameters like MLSS and DO level in aeration tank at desired level. The CETP should install online DO meter in aeration tank for its continuous monitoring.

8. The performance of CETP can only be optimised by charging effluent of desired quality & quantity. During the inspection, the quality & quantity of wastewater received by the CETP was not as per the design parameters. Hence, the management of CETP requires to regulate the operation of CETP as per their design to get their optimum efficiency utilised.

9. UPPCB & CPCB should remain vigilant over the compliance of CETP w.r.t. discharge Norms.

10. The CETP require upgradation on priority basis and industries should adopt cleaner technologies to avoid high TDS, Chromium and TSS in the CETP influent.

02. CETP at Unnao

Introduction:

Common effluent treatment plant (CETP)- Unnao is located at Plot No 7, Site-2, UPSIDC Industrial Area, Unnao in 20,000 m^2 area, which is being operated by Unnao Tanneries Pollution Control Company. The CETP Unnao was commissioned in October 1995 with capacity of 2.15 MLD to treat wastewater generated from 20 tannery units located in UPSIDC Industrial Area, Unnao. In October 2013, the treatment facilities were upgraded to achieve better performance and treatment capacity of 2.15 MLD.

The primary treated effluent from the 16 operational member units are being collected through underground network of conveyance system.

CETP Details: The received tannery effluent is taken to equalisation tank through screen & grit chambers. Subsequently it is charged in to clariflocculator and then passed through 02 aeration tanks & 02 clarifiers kept in series. The effluent is finally treated through tertiary clarifier before discharging in the drain.

The salient features of CETP Unnao are tabulated below

Name of CETP	CETP at UPSIDC Ind. Area Unnao Site-II
Operated by	Unnao Tanneries Pollution Control Company
Facility owned by	User Industries of CETP who formed the CETP Company as per scheme of GOI, MoEF, GOI under world bank assistance.
Treatment Technology	Extended aeration followed by a tertiary treatment
Treatment Capacity	2.15 MLD
Member units	20 nos. out of which at present 16 are in operation and other are not in operation due to their own reasons.
Wastewater Collection	Through underground conveyance system
Pre-treatment by member units	Yes, All the member units have PETP for solid removal and CRU for chrome recovery
Cost	Capital Cost: About 2.0 crores Operational Cost: About Rs 22/KL
Power (electric) consumption	About 350 HP and our power + Diesel cost comes about Rs 8.0 Lakh/month
Effluent Disposal	The treated effluent is discharged into the Loni Drain.
Sludge generation	Approx 1 to 2 T/day
Sludge Disposal	Sent to TSDF Banthar for disposal

Findings of the visit:

01 The CETP is attached with 20 tannery units. As per UPPCB, the treatment capacity of CETP is 2.15 MLD, whereas as per the information submitted by CETP, member units generate 2.252 MLD tannery effluent if they operated at their optimum capacities. The effluent generation by member units is higher than the treatment capacity of CETP.

02 Out of these 20 tannery units 16 units (2.033 MLD) are operational and remaining 04 units (0.219 MLD) are either non-operational or identified as defaulter member units for not making the payment of minimum charges.

03 The UPPCB has given conditional permission to operate all these tannery units only at their 50% consented capacity.

04 Considering b & c, the total effluent reaching to the CETP should not be more than 1.016 MLD, whereas at time of visit, the effluent from CETP was discharged in the range of 48 m^3/hr to 67 m^3/hr, which is equivalent to 1.15 – 1.6 MLD.

05 The samples were collected from CETP Inlet & outlet to verify the status of compliance. The results are tabulated below

Parameters	CETP Inlet		CETP Outlet	
	Conc	EPA Standards	Conc	EPA Standards
pH	7.68	5.5 -9.0	7.16	5.5 -9.0
Suspended Solids	372	---	173	100.0
Total Dissolved Solids	**9875**	---	**9560**	2,100.0
Calcium as Ca^{2+}	299	---	209.8	
Chloride as Cl^-	3359	---	**3316**	1,000.0
Sulphate as SO_4^{2-}	2296	---	**2661**	1,000.0
Sulphide as S	103	---	BDL	2.8
Phosphate as P	0.89	---	0.21	---
Am. Nitrogen	**168**	50.0	**181**	50.0
Alkalinity	1601	---	358	---
Oil & Grease	9.27	20	8.14	10.0
BOD	912	---	**80.0**	30.0
COD	1439	---	**429**	250.0
Total Chromium	**19.0**	2.0	1.27	2.0
Cobalt (Co)	BDL	---	BDL	---
Iron (Fe)	1.25	---	0.49	3.0
Lead (Pb)	BDL	---	BDL	0.1

06 The CETP is found **non-complying** w.r.t. stipulated discharge standards. The concentration of Am. Nitrogen & TDS were found 4.5 times higher than the prescribed discharge limit, whereas concentrations of BOD, Chlorides & sulphate were found approx. 3 times higher than the prescribed limit. Concentration of COD in the treated effluent was found 1.7 times higher the stipulated Norms.

07 The influent receiving at CETP inlet is also **not meeting** the prescribed norms of CETP inlet. It is receiving **19 mg/L chromium** which is 9.5 times higher than the stipulated Norms. The concentration of sulphate, dissolved solid, chlorides and Am. Nitrogen is also found in higher side whereas CETP is not designed to handle such high strength wastewater it receives.

08 The wastewater quality at CETP inlet indicates that PETPs installed by the member units are not adequate enough to achieve the prescribed standards of CETP inlet.

09 The samples were collected during visit (August 08, 2017) from various treatment units of CETP to evaluate the performance. The analysis results are tabulated below

Sampling Location	pH	TSS	TDS	Cl	SO_4^{2-}	S	PO_4-P	BOD	COD	Cr
Eq O/L	7.68	372	9875	3359	2296	103	0.89	912	1439	19.0
Clf. Outlet	7.62	521	12624	8910	---	---	---	640	1218	---
SST (1) O/L	7.26	84.2	12754	5478	---	---	---	662	1139	0.79
SST (2) O/L	8.07	173	11376	4670	---	---	---	98	313	0.67
Tertiary ST	6.65	220	10069	3574	---	---	---	131	576	3.04
Final Outlet	7.16	173	9560	3316	2661	BDL	0.21	80	429	1.27
% Reductions		**53.49**	**3.19**	**1.28**	**-15.90**	**---**	**76.40**	**91.23**	**70.19**	**93.32**

*All values except pH are in mg/L.

10 Though the CETP is achieving reduction only for BOD (91%) but it is not meeting the prescribed Norms. The reduction of all other parameters including COD, TDS & TSS is very poor.

11 Tertiary filter and coagulation wasn't found in working condition. It should be operated properly for the removal of residual TSS and BOD.

12 The extend of removal observed in chromium concentration between equalisation outlet and SST-1 outlet is not possible to achieve through only settlement process.

13 The samples of mixed liquor and returned sludge were also collected and analysed for MLSS & MLVSS. The values are given below

Parameter	Aeration Tank - II	Return Sludge - I	Return Sludge - II
MLSS (mg/L)	1639	34053	8158
MLVSS (mg/L)	1020	17408	4208
MLVSS/MLSS	0.62	0.51	0.52

14 The dissolved oxygen in both the aeration tank was found nil which indicated that least biological activities in the reactor. In such circumstances, the % of BOD and COD removal to the extent of 91.23 & 70.19 respectively is suspected.

15 Online monitoring system is installed at CETP outlet to measure the quality & quantity of treated wastewater being discharge. The flow data recorded at every 15 minutes. the CETP has provided data to the inspecting team for August 07 & 08, 2017. The data indicates the flow at CETP outlet is varying from 0.0 KL/hr to 198.7 KL/hr. Inspite of having equalisation tank at CETP inlet, the uniform pumping is no maintained and such a large variation in the hydraulic profile is one of the major reason affecting the performance of the CETP unit.

16 The equalization tank is filled with sludge and needs proper maintenance.

17 The sludge drying beds were filled and dried sludge were found lying adjacent to the slug drying bed. It was informed that the deposited sludge is being transferred to the secured landfill site.

18 The aerobic system was provided with additional air supply system, even though foaming and anaerobic condition in the second stage biological unit was observed.

19 There is no sulphide removal system and therefore the odour was prominent. High sulphide also leads to higher TDS in effluent.

20 Colour was also observed in the outflow of CETP. Record maintenance were found poor and therefore in absence of historical data, it is difficult to infer any modification or upgradation.

21 There is as such no alternate arrangement available for dilution from treated sewage. The CETP representatives were also not having any clear roadmap on availability of dilution water, however, it was informed that they are exploring the possibility with proposed STP with UPJN.

Suggestions:

Considering the CETP exceeding the prescribed standards by 9.5 times and receiving influent having 19 mg/L chromium at the CETP Inlet, the following is suggested:

1. Clarification may be sought from SPV of CETP for allotting membership beyond the treatment capacity of CETP and UPPCB should restrict the production of the member units considering treatment capacity of CETP.

2. UPPCB, should initiate further strict action against the CETP member units discharging higher quantum of effluent than permitted.

3. The member units shall be directed to upgrade the PETPs installed by them in order to achieve the prescribed standards of CETP Inlet. And these units should not be allowed to operate by discharging the effluent with such a high Chromium (19 mg/L) contaminated effluent.

4. The SPV should immediately identify the list of defaulter units w.r.t. PETP discharge quality and should initiate further action through UPPCB.

5. The SPV & UPPCB should keep strict vigil on the CETP inlet quality and should take strict action against the defaulter units.

6. The present treatment system is not designed to handle the amount TDS it receives. Hence, till the upgradation of the CETP, the discharging of high TDS effluent should be avoided.

11. The O & M of the CETP should be improved to maintain controlling parameters like MLSS and DO level in aeration tank at desired level. The CETP should install online DO meter in aeration tank for its continuous monitoring.

7. The performance of CETP can only be optimised by charging effluent of desired quality & quantity. During the inspection, the quality & quantity of wastewater received by the CETP was not as per the design parameters. Hence, the

management of CETP requires to regulate the operation of CETP as per their design to get their optimum efficiency utilised.

8. UPPCB & CPCB should remain vigilant over the compliance of CETP w.r.t. discharge Norms.

9. The CETP require upgradation on priority basis and industries should adopt cleaner technologies to avoid high TDS, Chromium and TSS in the CETP influent.

Recommended Interim suggestion(s) for CETP at Banthar and Unnao

Notwithstanding any outcome from the sample collected and inferences derived out of the result, the committee proposes the followings:

- CETP shall be proposed for a capacity equivalent to the sanction/consented wastewater generation in the Banthar/Unnao Tannery cluster and other members approved by UPPCB.
- The inlet wastewater quality shall be derived based on the combined mixture of consented wastewater generation and expected quality in the business as usual as scenario.
- The proposed in-house cleaner technology by the member units shall be delineated and a commitment for upgradation with a timeline for achieving the inlet quality parameter.
- The proposal for the upgradation of CETP should be comprehensive with objective to have ZLD based system divided in three Phase as follow:

Phase – I : PETP at individual units, Chrome recovery systems (with techno-economic comparative evaluation between individual facility vis-à-vis combined facility) and CETP upgrade till Biological system, able to comply with all parameter except TDS, as specified by UPPCB.

Phase – II: Timeline based adoption of cleaner technology in in-house process which will result in improvement of inlet water quality (specially for TDS)

Phase – III: Tertiary cum Reject management system to achieve ZLD based CETP

Note: (a) Phase I and Phase II shall be initiated in such a way that all proposed activities are implemented simultaneously in order that their completion result in ensuring the designed effluent quality from CETP and is in compliance with all stipulated parameter, including TDS after any proposed dilution. The dilution provision proposed shall also be functional / in place by the time the CETP components are commissioned.

(b) Failure in achieving the condition as specified in section (a) above, will impose mandatory implementation of ZLD based system for achieving the final object of environmentally sound management of wastewater without having any adverse impact on the receiving environment.

- Occupier of CETP at Banthar and Unnao shall submit a detail upgradation plan based on the above suggestion to Implementation Committee with all supporting documents for their consideration at the earliest.

—sd —

Dr. A. A. Kazmi
Professor, IIT Roorkee

—sd —

Sundeep
Director (Tech), NMCG, Delhi

—sd —

Dr. S. K. Lal
Sci-C MoEF&CC, Lucknow

Dr. Akhlaq Hussain
CEO, UPPCB, Lucknow

Dr. D. K. Soni
Sci-D, CPCB, Lucknow

Rajendra D. Patil
Sci-C, CPCB, Lucknow

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Rajendra D. Patil
Sci-C, CPCB, Lucknow

Annexure - A4 41

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CENTRAL POLLUTION CONTROL BOARD

NGRBA Cell

Joint inspection Report: Distillery

Date of Inspection: 06.08.2017

A: General Information				
1.	Name of the unit and address		M/s Avadh Sugar & Energy Ltd, Distillery Unit-Seohara,PO:Seohara,Bijnor-246746	
2.	Name of the Proprietor/ Contact person – Designation Contact No.		Shri R. P. Joshi, Distillery Head 8057905386	
3.	Year of Commissioning.		1959	
4.	Sector		Private	
5.	Production details. • Products • Installed Prod. Cap. • Consented Prod. Cap • Restricted Prod. Cap.		Ethanol/RS-100 KLD	
6.	Raw materials & their requirement		Molassess-	
7.	Operational status	1.	2. Non operational due rainy season	
B: Water Pollution and its Control:				
1.	Water Supply Source		Borewell-2nos(one stand by)	
	Water Consumption (KLD)	Industrial		1550 KLD
		Domestic		16 KLD
2.	Water Meter to show consumption		Available	
3.	Flow measuring device installed at outlet of ETP(MEE outlet)		Available at MEE outlet .The unit has not provided mass flow meter at the inlet of MEE.	
4.	Waste Water generation (KLD) (before treatment) ➢ Industrial ➢ Domestic		860 KLD-Spent wash	
5.	Waste Water treatment capacity (KLD) ➢ Industrial ➢ Domestic		MEE-1000KLD(5 stage)/42 kl/hr Soak pit	

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6.	Details of ETP ➢ ETP Description with flow diagram ➢ Details of Reverse Osmosis plant, if any ➢ Details of Multi Effect Evaporator, if any		NO
7.	Waste water discharged (after treatment)(KLD) ➢ Industrial Domestic		860 KLD(MEE conc-315 KLD,MEE condensate-545 KLD).MEE condensate is used as cooling tower make up.
8.	Mode of disposal of treated effluent (Details)		On land- Bio Composting yard(2 nos)-Total 26 acre(Yard no 1-16 acre and yard no 2-10 acre)
9.	Sample distributed into no. of parts (2/3)		
10.	Sludge disposal mode		
11.	Effluent collection locations & analysis results (if collected).	**Locations** / **Parameters**: **pH**, **BOD (mg/l)**, **COD (mg/l)**, **TDS mg/l**, **TSS (mg/l)**	Plant was not in operation .So no sample was collected except bio composting yard
(I) Information regarding Bio-composting			
1.	Active area for bio compost preparation **(m^2)**		1 ha = 10,000m^2 1 acre = 4046.825 m^2
2.	Area for press mud storage **(m^2)**		5 acre
3.	Area for bio compost storage **(m^2)**		21.6 acre. The unit has not provided garland drain around the composting yard and also collection pit for the effluent.
4.	Spent wash storage capacity		The unit has provided storage capacity for 30 days i.e 860 KLDX30= 25800 KL. The unit has provided 4 lagoon of 29,000 KL capacity.(10000kl-2nos,6000KL-one,3000KL-one)
5.	Availability of pressmud		

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6.	Quantity of compost prepared (Monthly statement of last year)		
7.	Quantity of pressmen procured (Monthly statement)		86000 Ton/Annual
8.	Details of wind roses (Number, length, height, width of stacking, space between two wind rose)		52 nos,L-120 m, H-1.5 m,W-3 m
9.	Quantity of Effluent being used for composting (m^3/day) :		315 KLD
10.	Quantity of press mud being used for one cycle		17000 Tone for one cycle
11.	Maturity time in days for one cycle		60 days
12.	Arrangement for rainy season		Not in operation. No garland drain provided around the composting yard and no piezometers are provided in the composting yard
13.	Quality of ground water in the area and depth of ground water table		Sample collected at hand pump(2 nos) at depth of 10 m near the composting yard Hand Pump-1:pH-7.3, BOD-BDL,COD-9 mg/l,Cl-10 mg/l ,TDS-364 mg/l,TSS-8 mg/l, Nitrate as N-0.4 Hand Pump- 2:pH-7.2, BOD-BDL,COD-6 mg/l,Cl-6 mg/l ,TDS-280 mg/l,TSS-2 mg/l, Nitrate as N-0.9
	(II) Information regarding Ferti-irrigation NA		
	C: Air Pollution and its Control		
1.	Sources of Air Pollution		
2.	➢ Type of Fuel used with consumption		Bolier-25 T/hour(Bagess fired)

3.	➢ Stack details		42 m
4.	➢ APCS details		1. wet scrubber
5.	Samples collections points (if collected)		**PM** (mg/Nm^3): Not operated during visit

E. Route of effluent to reach river Ganga/Yamuna
(Please indicate starting from the outlet drain of the unit)

The Nasia drain is located1.5 km from the unit. The distillery is a ZLD unit. The effluent of sugar unit is discharged during production time in to the drain. It is ultimately mixed in Ganga river. During inspection no effluent was discharged as both the unit was not in operation .The sample of Nasia drain was collected. The flow was 3 m/sec. The domestic effluent of Seohara is also mixed in the Nasia drain after 3 km in the sugar paddy field. The flow was 2.78 MLD.(V notch 21 cm). The sample of domestic sewage was also collected. Another sample was collected after confluence point of industrial drain and domestic drain.

Nasia Drain	ph	TSS	COD	BOD	NH3 -N	TDS	CL	Fe	Mn	NO3 -	TC (MPN/100 ml)	FC MPN /100 ml)
(Industrial drain)	7.8	17	16	03	08	224	17	0.8	0.26	1.15	24X 10^2	13X 10^2
(Domestic drain)	7.13	274	167	96	09	508	117	3.17	0.28	3.28	12X 10^8	63X 10^7
Nasia drain(After confluence)	7.09	15	26	07	06	315	33	2.11	0.33	1.90	92X 10^3	54X 10^3

All units are mg/l except p H

1	Name of officials inspecting	Name & Designations	Signature
		Dinabandhu Gouda, ScE ,CPCB	
		Tarun Dabrai,S c C ,CPCB	
		K.B. Jain, Executive Engg, UPJN	
		G.C. Verma,RO,Bijnor	
		Dr Hema Patel,NMCG	
2	Date of report Submission	21.08.2017	

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CENTRAL POLLUTION CONTROL BOARD
NGRBA Cell

Joint inspection Report: Sugar

Date of Inspection: 06.08.22017

A: General Information			
1.	Name of the unit and address	M/s Avadh Sugar & Energy Ltd, Sugar Unit-Seohara,PO:Seohara,Bijnor-246746	
2.	Name of the Proprietor/ Contact person – Designation Contact No.	Shri V. K. sharma, Head Sugar 8057905382	
3.	Year of Commissioning.	1932	
4.	Sector	Private	
5.	Production details. • Products • Installed Prod. Cap • Operating capacity	Sugar White Crystal- 197478.8 Ton(216-17)	
6.	Cane crushing capacity	10000 Ton Crushing per day	
7.	Cane crushed last year	1686997.177 Ton(2016-17)	
8.	Molasses generation	76622.7 Ton(2016-17)	
9.	Press Mud generation	4.78%of cane	
10.	Operational status	1. Non-operational due to off seasons	
B: Water Pollution and its Control:			
1.	Water Supply Source(s)	1. Bore well 250 Kl/hr	
	Water Consumption (KLD)	Industrial	1500 KLD
		Domestic	500 KLD
2.	Water Meter to show consumption	Available	
3.	Flow measuring device installed at outlet of ETP	Available OCMS for PH,BOD,COD,TSS,FLOW	
4.	Waste Water generation (KLD) (before treatment) ➢ Industrial ➢ Domestic	No effluent was generated during visit as the unit was not in operation.	
5.	Waste Water treatment capacity (KLD) ➢ Industrial ➢ Domestic	2000 KLD	

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6.	Details of ETP ➢ ETP Description with flow diagram ➢ Details of Reverse Osmosis plant, if any ➢ Details of Multi Effect Evaporator, if any	
7.	Waste water discharged (after treatment)(KLD) ➢ Industrial Domestic	70 KLD effluent is generated and 60KLD is reused in cooling tower.10 KLD is discharged to drain as per the information provided by the unit.
8.	Mode of disposal of treated effluent (Details)	Nosia Drain
9.	Sample distributed into no. of parts (2/3)	
10.	Sludge disposal mode	Sludge drying bed(250 sq meter)
11.	Effluent collection locations & analysis results (if collected) **No sample was collected**	

Locations	**Parameters**			
	pH	**BOD (mg/l)**	**COD (mg/l)**	**TSS (mg/l)**
Outlet				
Others				

(I) Information regarding Ferti-irrigation		
1.	Details of treatment effluent before Ferti-irrigation	Primary, Secondary treatment followed by tertiary treatment
2.	Command area for irrigation (available land area)	376.3 Acre
3.	System for dilution of treated effluent required for ferti-irrigation	
4.	System of transportation of treated effluent upto field.	Drain
5.	Formal agreements with farmers for using treated effluent	124.26 Acre
6.	Storage facility available for treated effluent during low demand period	Lagoon-12700 KL
7.	Quality of effluent being used for ferti-irrigation	Not operation during visit
8.	Ground water monitoring network	(Available /Not available)

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C: Air Pollution and its Control		
1.	Sources of Air Pollution	
2.	➢ Type of Fuel used with consumption	Bagasse fired boiler of 120 Ton/Hr
3.	➢ Stack details	74 m
4.	➢ APCS details	ESP
5.	Samples collections points (if collected)	**PM** (mg/Nm^3):

E. Route of effluent to reach river Ganga/Yamuna
(Please indicate starting from the outlet drain of the unit)

1	Name of officials inspecting	Name & Designations	Signature
		Dinabandhu Gouda, ScE ,CPCB	
		Tarun Dabrai,S c C ,CPCB	
		K.B. Jain, Executive Engg, UPJN	
		G.C. Verma,RO,Bijnor	
		Dr Hema Patel,NMCG	
2	Date of report Submission	22.08.2017	

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Form I

See rule 7 of Environment (Protection) Rules, 1986

NOTICE OF INTENTION TO HAVE SAMPLE ANALYSED

To

M/S Avadh Sugar and Energy Ltd
Formerly M/S UPPW Ganges Sugar and Industry Ltd
Distilly Division
Bijnor-246 746 (UP)

Take this notice that it is intended to have analysed the same of Ground water (2018)
Which has been taken today, the 6th day of August 2017 from Hand Pump
Located near Brio Carporting yard (16 Acr)

Name & Designation of the person who takes the sample
Shri Dinabandhu Gouda, SEE, UPCB
Shri Tarun Jarhan, SEE, UPCB
Shri G.C. Varma, RO, UPPCB
Shri Anuj Sharma, UPPCB
Dr Hema Patel, PO, NMCG

*Specify the place where the sample is taken

(1) Hand Pumps located near Carporting Yard

02 Samples collected
100 mm Presence
6.08.17
Rajendra Jain

Seal

Date: 6/8/2017

Attendance – sheet

Joint Monitoring of ~~06~~/08/2015 Drain date

S.No	Name of officers	Organization	Designation	Email ID	Mobile No
1	K.B. jain	U.P.J.N	Executive Engg.	Kbjain 50@Yahoo.com	9473942624.
2	gaurav chaudhary	U.P.J.N	A.E	gauravchaudhary343@gmail.com	~~9457271584~~ 9457251594
3	G. C Verma	UPPCB	RO	ro bijnaur@UPPCB.com	7839891628
4	A. K. Sharma	UPPCB	~~AEE~~	—do—	7839891748
5					
6					
7					
8					
9					
10					
11					

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उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड,

टी0सी0–12 वी, विभूति खण्ड, गोमती नगर,
लखनऊ।

सहमति आदेश पत्र

संदर्भ संख्या 23/सहमति (वायु) आदेश/2016 लखनऊ, दिनॉक– 25/2/16

विषयः **मैसर्स अपर गंगेज शुगर एण्ड इण्डस्ट्रीज लि0 (को–जेनरेशन पावर प्लाण्ट), स्योहारा, जनपद–बिजनौर** को वायु (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1981 (यथासंशोधित) की धारा–21/22 के अन्तर्गत।

संदर्भ : आवेदन संख्या–शून्य। प्राप्ति दिनॉकः 12.10.2015

1. वायु अधिनियम, 1981 के अन्तर्गत वायु प्रदूषणकारी अवयवों के उत्सर्जन हेतु उपरोक्त संदर्भित सहमति आवेदन प्रपत्र **मैसर्स अपर गंगेज शुगर एण्ड इण्डस्ट्रीज लि0 (को–जेनरेशन पावर प्लाण्ट), स्योहारा, जनपद–बिजनौर** को अपने संयंत्रों से संलग्नक में वर्णित शर्तो के अनुरूप वायुमण्डल में उत्सर्जन हेतु बोर्ड द्वारा अधिकृत किया जाता है।

2. यह सहमति दिनॉक– **01.01.2016** से दिनांक–**31.12.2017** की अवधि तक मान्य है।

3. इस सहमति आदेश में अंकित किसी सूचना तथा सहमति शर्तो के होते हुए भी, उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, लखनऊ वायु (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1981 की धारा–21 (6) में तथा इसके संशोधित अधिनियम, 1987 के अन्तर्गत उपरोक्त वर्णित किसी भी/सभी शर्तो में पुनः विचार करने के लिए जो उचित हो परिवर्तन करने का अधिकार व शक्ति बोर्ड के लिए आरक्षित है।

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड हेतु अथवा अधिकृत ।

सक्षम अधिकारी की अनुमति से निर्गत।

(आई0एन0 त्यागी)
प्रभारी (वृत्त–7)

अनुलग्नक : संलग्नक ।

(सहमति शर्तें)

ST
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उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड,

टी0सी0–12 वी, विभूति खण्ड,
गोमती नगर, लखनऊ।

केवल सरिता/भूमि में निस्तारण के लिए
वर्तमान/बदली हुई क्षमता के लिए

फार्म XV

सहमति आदेश पत्र

संदर्भ संख्या 24/सहमति/जल आदेश/2016 लखनऊ, दिनांकः 25/2/16

विषयः **मैसर्स अपर गंगेज़ शुगर एण्ड इण्डस्ट्रीज़ लि0, आसवनी इकाई, स्योहारा, बिजनौर** को जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 की धारा–25/26 के अन्तर्गत उत्प्रवाह निस्तारण हेतु सहमति।

संदर्भः आवेदन पत्र संख्या–शून्य, **दिनांक** 15.10.2015 दिनांकः 19.10.2015

1. जल राशि का सीयन में या भूमि पर बहिःस्राव के निस्तारण के लिए जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 जिससे आगे उक्त अधिनियम कहा गया है, के अधीन सहमति प्राप्त करने के लिए उपर्युक्त आवेदन पत्र के निर्देश में **मैसर्स अपर गंगेज़ शुगर एण्ड इण्डस्ट्रीज़ लि0, आसवनी इकाई, स्योहारा, बिजनौर** को उसके परिसर से निकलने वाले उसके घरेलू नगर पालिका/औद्योगिक बहिःस्राव के स्थानीय सरिता/नदी/कुए में/भूमि पर निस्तारित करने के लिए अनुलग्नक में उल्लिखित समान्य और विशेष शर्तों के अनुसार बोर्ड द्वारा प्राधिकार दिया जाता है।

2. यह सहमति दिनांक **01.01.2016 से 31.12.17** की अवधि के लिए विधि मान्य होगी।

3. इस सहमति आदेश में अंकित प्राविधानों तथा सहमति शर्तों के होते हुए भी, उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, लखनऊ जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 और इसके संशोधित अधिनियम, 1978 की धारा–27(2) के अन्तर्गत वर्णित किसी भी/सभी शर्तों में पुनः विचार करने या संशोधन के लिए अधिनियम के अनुसार जो उचित हो, का अधिकार व शक्ति बोर्ड आरक्षित रखती है। उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड के लिए और उसकी ओर से।

सक्षम अधिकारी की अनुमति से निर्गत।

(डी0एन0 त्यागी)
प्रभारी (वृत्त–7)

अनुलग्नक : संलग्नक ।

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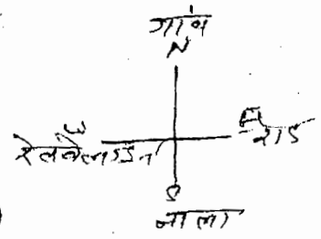

प्रारूप "च"
(खण्ड–15 (2) और 18 (2) देखिये)

बही सं. 27 29 प्रमाण सं. 2880 2330
जारी किये जाने की तारीख 27-4-2016
विधिमान्यता की तारीख 26.4.2019

उर्वरकों के ~~भौतिक / दानेदार मिश्रण~~ के संबंध में विनिर्माण प्रमाण पत्र।

मै० सुपर शेगजुगर एण्ड केमि० लि०, अमरोहा को नीचे विनिर्दिष्ट उर्वरक के ~~भौतिक / दानेदार मिश्रण~~ के विनिर्माण के लिए प्रमाण पत्र के निबंधकों और शर्तों के तथा उर्वरक (नियंत्रण) आदेश, 1985 के उपबन्धों के अधीन रहते हुये, दिया जाता है।

~~उर्वरकों के मिश्रण~~ की पूर्ण विशिष्टियां

उस परिसर का, जहां उर्वरकों का मिश्रण तैयार किया जायेगा, पूरा पता ग्राम-इस्माइलपुर, पुराना-इस्पारा, जि० बिजनौर

तारीख
मुद्रा
Joint Director of Agriculture (Fertilizer)
Registering Authority,
U.P., Lucknow

रजिस्ट्रीकरण प्राधिकारी
.....
.....राज्य

तारीख :
मुद्रा :

तक नवीकृत
रजिस्ट्रीकरण प्राधिकारी
.....
.....राज्य

इस प्रमाण पत्र के निबंधन और शर्तें

1. इस प्रमाण पत्र का धारक प्रमाण पत्र के मूल का प्रदर्शन ऐसे सहज दृश्य स्थान में करेगा जो उस मुख्य परिसर के भाग में, जिसमें ~~उर्वरकों के भौतिक / दानेदार मिश्रण~~ बनाने का कारबार होता है, जनता के लिए खुला है और ऐसे प्रमाण पत्र की प्रति का प्रदर्शन भी उसी रीति से प्रत्येक अन्य परिसर में करेगा जिसमे उक्त कारबार किया जाता है। प्रमाण–पत्र की जितनी प्रतियां अपेक्षित है उनके लिए फीस देने पर वे अभिप्राप्त की जायेगी।
2. इस प्रमाण पत्र का धारक उस परिसर में, जिसमें वह ~~उर्वरकों के भौतिक / दानेदार मिश्रण~~ बनाने का कारबार करता है, उर्वरकों का ऐसा कोई मिश्रण नहीं रखेगा जिसके संबंध में उर्वरक (नियंत्रण) आदेश 1985 के अधीन रजिस्ट्रीकरण प्रमाण पत्र अभिप्राप्त नहीं किया गया है।
3. इस प्रमाण पत्र का धारक उर्वरक (नियंत्रण) आदेश 1985 और उसके अधीन जारी की गई तत्समय / प्रवृत्त अधिसूचना, आदेश और निर्देशों के उपबन्धों का अनुपालन करेगा।
4. इस प्रमाण पत्र का धारक प्रमाण पत्र में विर्निदिष्ट परिसर में या किसी नये परिसर में, जिसमें वह ~~भौतिक / दानेदार मिश्रण~~ बनाने का कारबार करता है, किये गये किसी परिवर्तन की रिपोर्ट रजिस्ट्रीकरण प्राधिकारी को तत्काल करेगा और उक्त प्राधिकारी के समक्ष पुराना प्रमाण पत्र और उसकी प्रतिया पेश करेगा जिससे की उनमें उक्त प्राधिकारी द्वारा आवश्यक शुद्धियां की जा सके।
5. इस प्रमाण पत्र का धारक यह सुनिश्चित करेगा कि जिस ~~भौतिक / दानेदार मिश्रण~~ की बाबत रजिस्ट्रीकरण प्रमाण पत्र अभिप्राप्त किया गया है वह उसी के द्वारा या ऐसी अर्हतायें रखने वाले व्यक्ति द्वारा जोकि राज्य सरकार द्वारा समय–समय पर विहित की जाए या धारक के या उक्त अर्हतायें रखने वाले व्यक्ति के निर्देशी, पर्यवेक्षण और नियंत्रण के अधीन किसी अन्य व्यक्ति द्वारा तैयार किया जाता है।
6. प्रमाण पत्र पर और यदि उसकी कोई प्रतियां हो, तो उन पर संख्या यंत्र द्वारा डाली जायेगी और उसके धारक या उसके अभिकर्ता के हस्ताक्षर प्रमाण पत्र की कार्बन प्रति पर लेकर परिदत्त की जायेगी। कार्बन प्रति को प्रत्येक रजिस्ट्रीकरण प्राधिकारी द्वारा प्रमाण पत्र बही में आबद्ध रखा जायेगा।

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CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

INSTRUMENTATION LABORATORY
Trace Metals Analysis Report

1.	Report no. & issue date	:	IL/HM/ICPMS-385/22-08-2017
2.	Name of the Project	:	NGT Monitoring
3.	Sample matrix	:	Water
4.	Date & time of sample collection	:	06-08-2017, 12.32 PM, 2.15 PM & 5.30 PM
5.	Samples collected by	:	Sh. Dinabandhu Gauda and Team
6.	Date & time of sample receipt	:	07-08-2017, 1:05 PM
7.	Date of sample analysis	:	August-2017
8.	Sample registration no. & date	:	14724/Inst-03/2K17, 07-08-2017
9.	Sampling plan reference	:	-
10.	Test method reference	:	APHA, 3125-B, 22nd Ed. 2012
11.	Report sent to (Name & Address)	:	I/c – IPC – I Division

S. No	Sample Code	As (mg/l)	Cd (mg/l)	Cr (mg/l)	Cu (mg/l)	Fe (mg/l)	Mn (mg/l)	Ni (mg/l)	Pb (mg/l)	Zn (mg/l)	Co (mg/l)	Se (mg/l)	V (mg/l)	Sb (mg/l)
1.	ND 3	BDL	BDL	BDL	BDL	0.80	0.26	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2.	ND 11	BDL	BDL	BDL	BDL	3.17	0.28	BDL	BDL	0.09	BDL	BDL	BDL	BDL
3.	ND 15	BDL	BDL	BDL	0.01	2.11	0.33	BDL	0.06	0.06	BDL	BDL	BDL	0.13

BDL: Below Detection Limit

Detection Limit (µg/l): As-0.49, Cd-0.42, Cr-0.56, Cu-0.35, Fe-0.67, Mn-0.43, Ni-0.54, Pb-0.31, Zn-0.59, Co-0.35, Se-1.13, V-0.52 and Sb-0.35.

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. Sample will be retained for 30 days from the date of issue of Test Report.

22.08.2017

(B.K. JENA)
Analyst

24/8/17

(NAMITA MISHRA)
Supervisor

24/8/17

(B.K. JAKHMOLA)
I/C Instrumentation Lab.

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CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110032
BIO-SCIENCE LABORATORY

Microbiological Analysis Report

NABL Accreditation –ISO/IEC/17025: 2005, Certificate no. T0644 (Valid till 14.09.2018).

1. Report no. & issue date : Bio/Micro/646/17.08.2017
2. Name of the project : Nohra drain, Industrial, domestic confluence
3. Sample matrix : Water
4. Date & time of sample collection : 06/08/2017 ,12:37 PM, 2:15 PM & 5: 30 PM
5. Samples collected by : Sh. Dinabandhu Gauda & Team
6. Date & time of sample receipt : 07/08/2017 , 12:50 PM
7. Date of sample analysis : 07/08/2017 ,
8. Sample registration no. & date : 14723/Bio-3/2K_{17}, 7.08.2017
9. Environmental conditions during sampling : -
10. Test method reference : APHA 22nd Edition
11. Report sent to (Name & Address : ✓ I/C IPC-I & I/C Sample Receiving Section

S. No	Sampling location	Analysis Results					
		Total Coliform MPN/100ml	Fecal Coliform MPN/100ml	Fecal Streptococci MPN/100ml	Enterococcus MPN/100ml	*E. coli* * MPN/100ml	Total plate count CFU/ml
1	ND-5	$24X10^2$	$13X10^2$	--	--	--	--
2	ND-12	$12X10^8$	$63X10^7$	--	--	--	--
3	ND-17	$92X10^3$	$54X10^3$	--	--	--	--

Statement:
1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. <1.8 MPN/100 ml indicates that the probability of presence of Coliform in the sample is zero.
4. The sample will be retained for one week from the date of issue of this test report.
5. (*) Parameter not under NABL Scope.

Analyst
(M. Y. Ansari)

Authorized Signatory
(Dr. Yogita Kharayat)

I/c Bio-lab 21/08/2017
(Dr.Sanjeev Agrarwal)

Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

WASTEWATER LABORATORY
ANALYSIS REPORT

Source of sample : Drains.
Samples collected by : Mr. D.B.Gauda & Team.
Date & time of sample receipt : Refer Column Given below.
Date of sample analysis : 07th to 17th August'17.
Sample registration no. & date : Refer Column Given Below.
Environmental conditions during sampling : -
Test method reference : APHA/BIS
Report sent to (Name & Address) : Sh.D.B.Gauda

Report No.: WWL/Aug/69/17.
Issue Date:

S. No.	Sampling Point	Date & time of collection	Date & time of receipt	Reg. No. & Date	WWL Sample No.	pH	TSS	COD	BOD	$NH_3 - N$	TDS	Cl^-	NO_3-N	Colour
1.	ND - 2	06/08/17	07/08/17	14727/WW-06/17	613	7.89	17	16	03	-	224	17	1.15	16
2.	ND - 9	-do-	-do-	-do-	614	7.13	274	167	96	-	508	117	3.28	63
3.	ND - 13	-do-	-do-	-do-	615	7.09	15	26	07	-	315	33	1.90	46
4.	ND - 4	-do-	-do-	-do-	616	-	-	-	-	08	-	-	-	-
5.	ND - 10	-do-	-do-	-do-	617	-	-	-	-	69	-	-	-	-
6.	ND - 14	-do-	-do-	-do-	618	-	-	-	-	06	-	-	-	-

Note: All the concentrations are expressed in mg/l except of pH and Conductivity (µmho/cm).

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. The parameters in the report are under NABL Accreditation.
4. * Not under NABL scope parameter.
5. BDL & Test methods are mentioned on back side of this report.

Analyst
(B.Sasi Devi)

Supervisor

Dr.P.K.Behera
(I/C Water Lab &
Authorized Signatory)

13431

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55(A)

S.No.	Product/Material of test	Specific Test performed	Test Method / Standard against which tests are performed	Range of Testing/ Limit of Detection
1.	Waste Water	Conductivity	APHA (22nd Edition) 2510 – B, 2-54 to 2-55. 2012	1 µmhos/cm -30000 µmhos/cm
		Total Suspended Solids	APHA 2540 D, 2-66 to 2-67 22nd Ed. 2012	10 mg/l to 15000 mg/l
		Total Solids	APHA (22nd Edition) 2540 B, 2-64:2012	10 mg/l to 20000 mg/l
		Total Dissolved Solids	APHA (22nd Editio0n) 2540 C, 2-65:2012	
		Chemical Oxygen Demand	APHA 5220 B, 5-17 to 5-18, 22nd Ed. 2012	10-90000 mg/L
		Bio – chemical Oxygen Demand 5 days at 20°c 3 days at 27°c	APHA 5210 B, 5-5 to 5-10, 22nd Ed. 2012, 4500 OC, 4-139 to 4-140,22nd Ed.2012. IS-3025 part 44:1993 Bio – Chemical Oxygen Demand	5- 60000 mg/L
		Chloride	APHA 4500 – Cl B , 4-72 to 4-73, 22nd Ed.2012.	5 - 2000 mg/l
		Phosphate – P	APHA 4500 – PD , 4-154 to 4-155,22nd Ed.2012.	0.05 -10 mg/l
		Oil & Grease	APHA (22nd Edition) 5520 B, 5-40:2012	05mg/l to 200 mg/l
		pH	APHA 4500 H^+ - B, 4-92 to 4-96, 22nd Ed,2012	2 – 14
		NH_3 - N	APHA 4500 NH_3 – B & C, 4-110 to 4-112, 22nd Ed,2012	1 – 100 mg/l
		Cr^{6+}	APHA 4500 Cr - B, 3-69 to 3-70, 22nd Ed,2012	0.1 – 10 mg/l

CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110 032
FRESH WATER LABORATORY
ANALYSIS REPORT
NABL Accreditation : ISO/IEC : 17025 : 2005, Certificate No: T0643.

Report No.: FWL/54
Issue Date: 11.08.17

Source of sample : Ground Water (Hand Pump)
Samples collected by : Sh. D. B. Gouda, Sc 'E' & Team
Date & time of sample receipt : Giver in Table
Date of sample analysis : 07.08.17 – 11.08.17
Sample registration no. & date : Given in Table
Environmental conditions during sampling :
Test method reference : APHA / BIS
Report sent to (Name & Address) : Sh. D. B. Gouda, Sc 'E'

Copy to Sh. D.B. Gouda

S. No	Sampling Point	Date & time of collection	Date & time of receipt	Reg. No. & Date	FWL Sample No.	pH	*TSS	*TDS	COD	BOD	Chloride	*Nitrate as Nitrate	*Color (hazene unit)
1	ND 6	06.08.17	07.08.17	14726/FW-2/17	280	7.3	08	364	09	BDL	10	0.4	< 10
2	ND 7	-do-	-do-	-do-	281	7.2	02	280	06	BDL	06	0.9	< 10

Note: All the concentrations are expressed in mg/l except of pH and Conductivity (µmho/cm)

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. The parameters in the report are under NABL accreditation.
4. *Not under NABL scope parameter.
5. BDL and test methods are mentioned on the back side of this report.

(Satyavir Singh)
Analyst

11.8.17
(J. K. Bhatia)
Supervisor

11/8/17
(Dr. P. K. Behera)
I/C Water Lab &
(Authorized Signatory)

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SL No	Product/ Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing/ Limits of Detection
I	**Surface Water/ Ground Water**	Conductivity	APHA (22nd Edition) 2510 B, 2- 54 to 2- 55: 2012	1 µmhos/cm to 30000 µmhos/cm
		Total Dissolved Solids	APHA (22nd Edition) 2540 C, 2- 65: 2012	5 mg/L to 18000 mg/L
		Chemical Oxygen Demand	APHA (22nd Edition) 5220 B, 5- 17 to 5- 18: 2012	5 mg/L to 200 mg/L
		Biochemical Oxygen Demand 5 Days at 20°C 3 Days at 27°C	APHA (22nd Edition) 5210 B, 5 - 5 to 5 - 10: 2012, 4500 OC, 4- 139 to 4- 140 : 2012 IS 3025 (Part 44): 1993	1mg/L to 100 mg/L
		Chloride	APHA (22nd Edition) 4500 CI B, 4- 72 to 4- 73: 2012	5 mg/L to 600 mg/L
		Phosphate - P	APHA (22nd Edition) 4500 P D, 4- 154 to 4- 155: 2012	0.05 mg/L to 10 mg/L
		Total Hardness (as $CaCo_3$)	APHA (22nd Edition) 2340 C, 2- 44 to 2- 47: 2012	10 mg/L to 900 mg/L
		Calcium	APHA (22nd Edition) 3500 Ca B, 3- 67 to 3- 68: 2012	2.0 mg/L to 200 mg/L
		Magnesium	APHA (22nd Edition) 3500 mg B, 3-84: 2012	2.0 mg/L to 200 mg/L
		Fluoride	APHA (22nd Edition) 4500 F D, 4- 87 to 4- 88: 2012 (SPADNS Method)	0.02 mg/L to 10 mg/L
		*pH	APHA 4500 H^+ - B, 4 – 92 to 4 – 96, 22nd. Ed. 2012	2 – 14
		* Nitrite – N	APHA 4500 – NO_2^-, 4 – 120 to 4 – 121, 22nd. Ed. 2012	0.01 mg/L to 2 mg/L
		* Ammonia - N	IS : 3025 (Part 34) – 1998, (First reprint April, 1992)	0.2 mg/L to 20 mg/L
*** Additional Scope Parameters**				

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Annexure – A5 57
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CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow
Report

JOINT INSPECTION REPORT ON DEVRANIYA DRAIN JOINING TO RIVER RAMGANGA IN BAREILLY REGION, UTTAR PRADESH

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 in the case of OA no. 200/2014, M C Mehta vs Union of India and others and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of Devraniya drain was carried out on Aug 03, 2017 with representative of NMCG, MoEF&CC, UPJN and UPPCB. As per the objectives of the joint inspection the following activities were carried out.

a) Determination of the flow of drain and collection of the sample.
b) Inspection of Industries namely M/s Camphor & Allied Products Ltd. & M/s B. L. Agro Pvt. Ltd.
c) Suitable technology to be proposed for the STP.

The salient observations regarding the monitoring of Devraniya drain are as under:

1.	Name of the Drain	:	Devraniya drain, Bareilly		
2.	Meeting River Ramganga	:	Left bank		
3.	Name of the Regional Office of SPCB	:	Regional Office,UPPCB, Bareilly		
4.	Source of pollution load:	:	Domestics and Industrial		
5.	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB	:	Sl. No.	Name of Industry	Sector
			1.	M/s Camphor & Allied Products Ltd.	Chemical with others
			2.	M/s B. L. Agro Pvt. Ltd.	Agro based (Edible Oil)
6.	Traceable length (in Km) before meeting Ganga (through google earth/map)	:	130 Km		
7.	Catchment area		Durga Nagar, City railway Colony, Katghar, Beharipur, Gulab Nagar, Alamgiriganj, Gangapur, Shrinath Puram, Shiv Vihar Colony, Asha Vihar Colony, Shastri Nagar, Gandhi Puram, Karmchary Nagar, Greater Akash Colony, BDA Colony, Ram Nagar, Raza Nagar, Anand Vihar, Shikarpur, Chowki Ashraf, Maula Nagar, Civil Lines, Englishganj, Chheepi Tola, Bakarganj		
8.	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28°19'45.7"	
		Longitude		79°22'13.6"	
	Distance from confluence point (may the find out over google earth/map), KM			5 KM (By Road 12 KM)	
9.	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28°23'26.4"	
		Longitude		79°22'50.8"	
10.	Landmarks / Address of the Location			Sarai Talfi Village, Bareily	

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11.	Flow (if in MLD) if zero indicate whether dry or stagnant	:	**295.84 MLD** (with correction factors 0.65)

12. **Observations:**

1. Devraniya drain is one of the major drains of the Bareilly city that meets to River Ramganga which ultimately joins to river Ganga.
2. As per information collected during inspection, Devraniya drain carries the wastewater from 10 small drains of the catchment area which are the main source of wastewater of this drain.
3. The flow of the Devraniya drain was measured and calculated as **295.84 MLD** (with correction factor 0.65).
4. The period of inspection does not reflect the representativeness as the monitoring was carried out during monsoon period and heavy rain in the catchment area was observed.
5. The drain where flow measured was not well defined in terms of width, depth & length (i.e. Kachha Drain).
6. The BOD & COD load was calculated in order of 144.07 and 446.12 TPD respectively.
7. Two industries namely M/s Camphore Allied & Chemicals Pvt. Ltd. and M/s B.L. Agro Pvt. Ltd were found in the catchment area of the Devraniya drain which may significantly impact the quality & quantity of wastewater in drain.
8. Abundant growth of **Eichornia-crassipes** (water hyacinth) was observed before confluence with river Ramganga (see the enclosed photograph) was witnessed encompassing considerable stretch of the drain. Eichornia itself possesses tremendous potential for arresting heavy metals and lowering BOD and increasing DO (Dissolved Oxygen). This way the waste stream is getting purified by the natural processes enhanced by the presence of water hyacinth and other aquatic weeds.
9. A composite water samples were collected from the Devraniya drain and analyze by the CPCB laboratory. The analysis results of the sample are tabulated below in Table1, 2 and 3.

Table1: (General parameters)

Sl. No.	Parameters	:	Devrniya Drain at Sarai Talfi Village (Sampling point)	BOD/COD Load
1.	Colour	:	100	
2.	pH	:	6.63	
3.	BOD (mg/l)	:	**487**	144.07 TPD
4.	COD (mg/l)	:	**1508**	446.12 TPD
5.	TSS (mg/l)	:	1941	
6.	TDS (mg/l)	:	276	
7.	Cl^- (mg/l)	:	31.0	
8.	NH_3-N (mg/l)	:	15.3	
9.	NO_3^-(mg/l)	:	0.942	
10.	TC (MPN/ 100 ml)	:	$4.9x10^6$	
11.	FC (MPN/ 100 ml)	:	$3.3x10^6$	

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Table2: (Trace Metals)

Sl. No.	Parameters		Devrniya Drain at Sarai Talfi Village (Sampling point)
1.	Arsenic (As) mg/l	:	BDL
2.	Cadmium (Cd) mg/l	:	BDL
3.	Total Cr (Cr) mg/l	:	BDL
4.	Copper (Cu) mg/l	:	BDL
5.	Iron (Fe) mg/l	:	2.28
6.	Lead (Pb) mg/l	:	BDL
7.	Manganese (Mn) mg/l	:	0.57
8.	Nickel (Ni) mg/l	:	BDL
9.	Zinc (Zn) mg/l	:	BDL
10.	Antimony (Sb) mg/l	:	BDL
11.	Cobalt (Co) mg/l	:	BDL
12.	Selenium (Se) mg/l		BDL
13.	Vanadium (V) mg/l		BDL

Table3: (Pesticide)

Sl. No.	**Parameters**		Devrniya Drain at Sarai Talfi Village (Sampling point 1)
	Pesticide Analysis Report (OPPs)	:	
1.	Dimethoate (µg/l)	:	BDL
2.	Methyl Parathion (µg/l)	:	BDL
3.	Malathion (µg/l)	:	BDL
4.	Chloropyriphos (µg/l)	:	BDL
5.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
6.	α-BHC (HCH)	:	BDL
7.	β-BHC (HCH)	:	BDL
8.	γ-BHC (HCH)	:	BDL
9.	Aldrin (ng/l)	:	BDL
10.	Diedrin (ng/l)	:	BDL
11.	α-Endosulfan	:	BDL
12.	β-Endosulfan	:	BDL
13.	OP'DDT	:	BDL
14.	PP'DDT	:	BDL
15.	PP'DDE	:	BDL

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Photo Gallery:

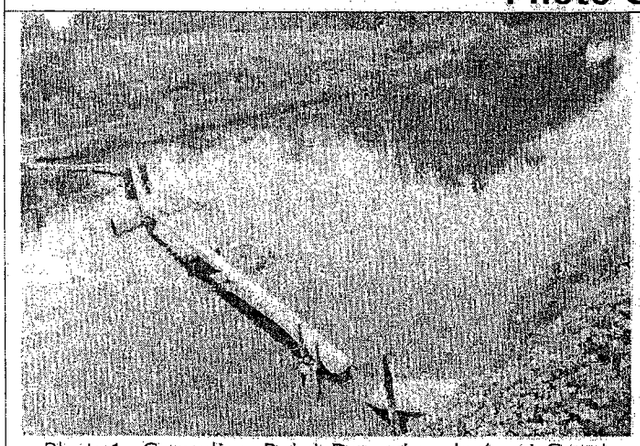

Photo1: Sampling Point Devrniya drain at Sarai Talfi

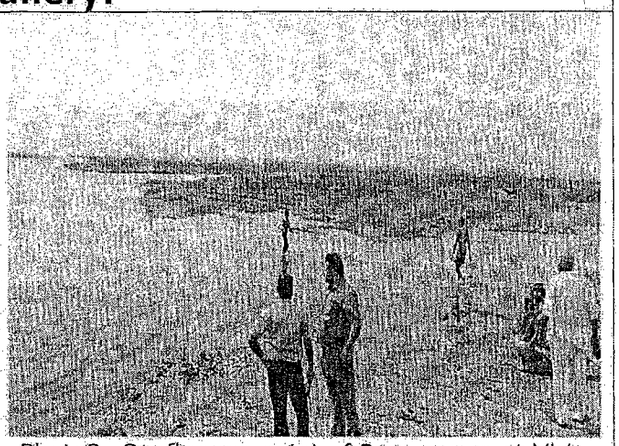

Photo2: Confluence point of Ram ganga at Viria Narayanpur

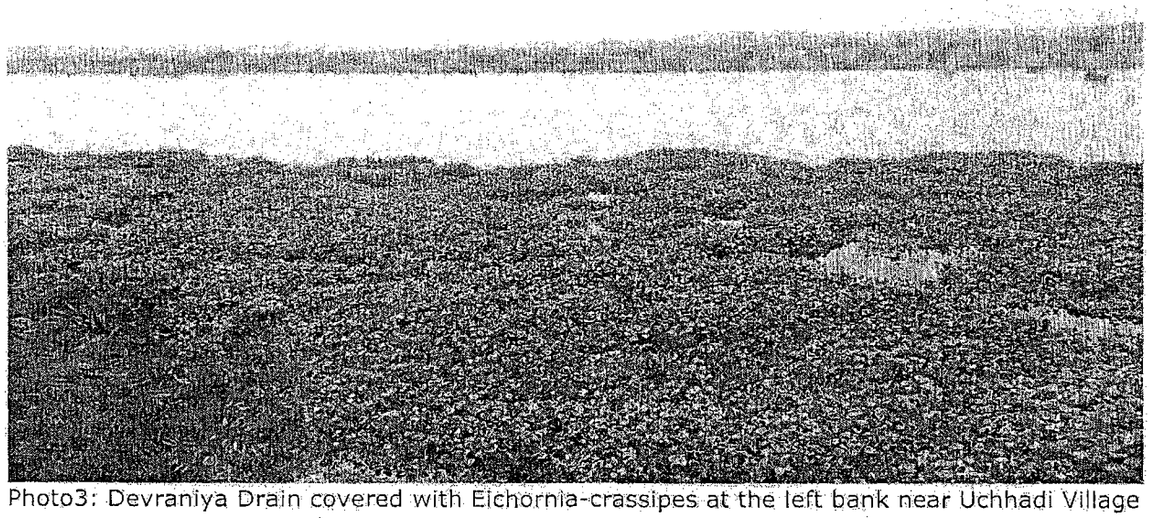

Photo3: Devraniya Drain covered with Eichornia-crassipes at the left bank near Uchhadi Village

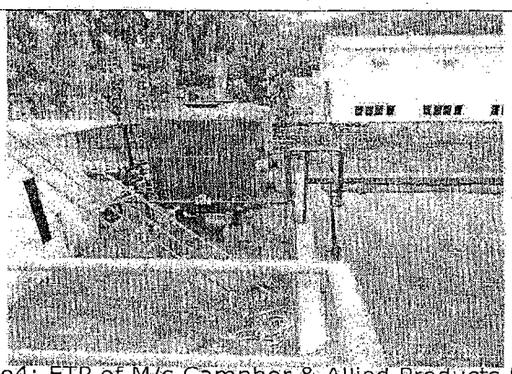

Photo4: ETP of M/s Camphor & Allied Products Ltd.

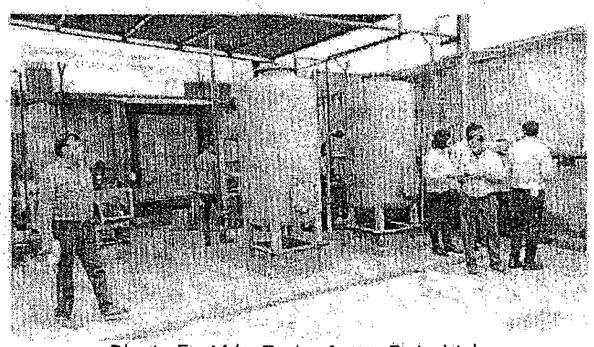

Photo5: M/s B. L. Agro Pvt. Ltd.

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a) Inspection of Industries in the catchment area of Devraniya drain, Bareilly

Name and address of the industries Coordinates (Longitude & Latitude)	**1)**M/s Camphore Allied & Chemicals Pvt. Ltd. ClutterBuck Ganj, Bareilly, Uttar Pradesh 243 502 **Lat. 28°23' 36.4"** **Long. 79°22' 50.8"** **Contact Person:** Mr. Satish Kr. Ray, DGM **Contact No.** 0581-2561115 ➢ This unit is engaged in manufacturing of various camphor products. ➢ The unit has a functional ETP of 600 m3/day capacity. ➢ Treated effluent was collected and analyzed. Results are tabulated below.
	2)M/s B.L. Agro Pvt. Ltd Refinery Unit - 2 Opp. Girls GTI, Joharpur, C.B. Ganj Bareilly, U.P. **Lat. 28°24' 8.9"** **Long. 79°22' 9.0"** **Contact Person:** Mr. Neeraj Khandelwal, CFO **Contact No.** 0581-2518366 ➢ This unit is engaged in manufacturing various vegetable refined oils with production capacity 100 MT/day. ➢ The unit has an ETP of 150 m3/day capacity. ➢ Treated effluent was collected and analyzed. Results are tabulated below.

Characteristics of treated water at the outlet of ETP:

SL. No.	AnalyzedParameters	M/s Camphor Allied & Chemical Plant Pvt. Ltd. Results	M/s B.L.AgroPvt.Ltd. Results
1	pH	6.92	7.45
2	SS	90.1	38.7
3	O & G	BDL	BDL
4	BOD	105	25.6
5	COD	288	53.9
6	Cd	BDL	BDL
7	Cr	0.22	BDL
9	Cu	BDL	BDL
10	Fe	0.42	0.55
11	Mn	0.38	0.44
12	Ni	BDL	BDL
13	Pb	BDL	BDL
14	Zn	0.378	0.204

*All parameters value in mg/l except pH.

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Observations of the Units:
➢ During inspection, both unitswerefound operational. ➢ The unitshave installed ETPs in their premises which were found operational during joint inspection. ➢ OCEMS was not installed at the outlet of ETP of M/s B.L. Agro Pvt. Ltd. ➢ As per treated effluent sample analysis result of M/s Camphore Allied & Chemicals Pvt. Ltd., the unit is **not complying** with stipulated standards w.r.t BOD (105 mg/l > 30 mg/l) and COD (288 mg/l > 250 mg/l). ➢ As per treated effluent water sample analysis result of M/s B.L. Agro Pvt. Ltd, the unit is complying with stipulated standards.

b) Suitable technology proposed for the STP
Observations:
➢ Based on the present monitoring, it can be concluded that all 10 (ten) small drains which are feeding to the Devraniya drains requires to be tapped and diverted to appropriate location for suitable/adequate treatment. This may reduce the pollution load of Devraniya river/drain and maintain its natural flow. ➢ A detail study required to be carried out by the UPJN & UPPCB or any other relevant organization to assess the totalpollution load from these 10(ten)small drains and accordingly strategies to be decided for suitable techno-economic technology for treatment of the waste water generated in the catchment area of this river/drain.

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Conclusion/Recommendations

- The flow of the Devraniya drain was measured and calculated as **295.84 MLD** (with correction factor 0.65). This flow was measured during monsoon season however it is required to monitor in pre-andpost-monsoon to fetch actual flow.
- M/s Camphore Allied & Chemicals Pvt. Ltd. is **not complying** with stipulated standards in terms of BOD (105 mg/l > 30 mg/l) and COD (288 mg/l > 250 mg/l).In view of non-compliance of stipulated norms of effluent discharge, issuance of suitable directions under E (P) Act, 1986 may be considered.
- OCEMS was not installed at the outlet of ETP of M/s B. L. Agro Pvt. Ltd.
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- High value of BOD & COD concentration recorded in Devraniya drain/river may be due to the untreated/partially treated effluent discharge from the industries located in the catchment area. The UPPCB may be directed to identify the possible sources.

Name of the officials involved in this Joint Inspection:

S. No.	Name of Officers	Organization	Designation	Signature
1.	Er. Ram Balak Singh	CPCB	Scientist 'C'	
2.	Dr. S. K. Lal	MoEF& CC, RO, Lucknow	Scientist 'C'	
3.	Er. Avijit Sarkar	NMCG (TCE)	Env. Expert	—Sd/-
4.	Sh. A.K. Tripathi	CPCB	Scientist 'B'	
5.	Er.Sanjay Kumar	UPJN Bareilly	E.E.	—Sd/-
6.	Sri P.C. Kanaujia	UPPCB, RO, Bareilly	S.A.	—Sd/-
7.	Er. Ajay Kumar	UPJN Bareilly	A.E.	
8.	Sh. A.K. Chaudhari	UPPCB RO. Bareilly	R.O.	

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Executive Engineer
VI Division
U.P. Jal Nigam
Bareilly

Attendance – sheet

Joint Monitoring of - Devraniya & Nakkasiya Drain Date: 3&4-08-2017

S. No.	Name of officers	Organization	Designation	Email ID	Mobile No	Signature
1	Sh. R.B. Singh	CPCB (NGRBA)	Sc. 'C'	rbscpcb@gmail.com	9455020745	
2	Sh. A.K. Tripathi		Sc. 'B'	tripathi-cpcb@rediffmail.com	9793407711	4/8/17
3	Dr. S.K. Lal	MOEF&CC RO, Lucknow	Sc. 'C'	mro-env@rediffmail.com	9425166081	4/8/17
4	Sh. Abhijeet Sarkar	NMCG	Env. Exp.	arijitsarkar@tce.co.in	9433149379	4/8
5	Sh. A.K. Chaudhary	RO, UPPCB Bareilly	R.O.	robareily@uppcb.com	8765925520	
6	Sh. P.K. Verma	UPJN Bareilly	J.E.	designcentre@rediffmail.com	9473942257	3.8.17
7	Sh. Ajay Kumar	UPJN Bareilly	A.E.	ak1960galnigam@gmail.com	9412140541	
8	Sh. Sanjay Kumar	UPJN Bareilly	EE	ee_6cd_bareli@yahoo.com	9473942569	
9	Sh. P.C. Kanaujia	UPPCB	SA	robareily@uppcb.com	7839891715	
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Conclusion/Recommendations

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Attendance – sheet

Joint Monitoring of - Devraniya & Nakkatiya Drain Date: 3&4-08-2017

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3	Dr. S.K. Lal	MOEF&CC RO, Lucknow	Sc. 'C'	mro-env@rediffmail.com	9425166081	4/8/17
4	Sh. Abhijeet Sarkar	NMCG	Env. Exp.	avijitsarkar@tce.co.in	9433149379	4/8
5	Sh. A.K. Chaudhary	RO, UPPCB Bareilly	R.O.	robareily@uppcb.com	8765925520	
6	Sh. P.K. Verma	UPJN Bareilly	J.E.	designcentre@rediffmail.com	9473942257	3.8.17
7	Sh. Ajay Kumar	UPJN Bareilly	A.E.	ak1960jalnigam@gmail.com	9412140541	
8	Sh. Sanjay Kumar	UPJN Bareilly	E.E.	ee_6cd_bareli@yahoo.com	9473942569	
9	Sh. P.C. Kanaujia	UPPCB	S.A.	robareily@uppcb.com	7839891715	
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Annexure – A6 74 10449

CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow

JOINT INSPECTION REPORT ON CHAUBARI (CHAWARI) DRAIN JOINING TO RIVER RAMGANGA IN BAREILLY REGION, UTTAR PRADESH

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 in the case of OA no. 200/2014, M C Mehta vs Union of India and others and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of Chaubari drain was carried out on Aug 03, 2017 with representative of NMCG, MoEF&CC, UPJN and UPPCB. The salient observations regarding the monitoring of Chaubari drain are as under:

1.	Name of Drain		:	Chaubari (Chawari) Drain
3.	Confluence with R. Ramganga		:	Left bank
4.	Name of the Regional Office of SPCB		:	Regional Office, UPPCB, Bareilly
5.	Source of Pollution Load		:	Domestic
6.	If Industrial/ Mixed (Name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	N.A
7.	Traceable length (in Km) before meeting Ganga (through Google earth/ map)		:	Approx. 20 KM
8.	Catchment area		:	Subhash Nagar, Kargaina, Kareilly, Veer Bhatti
9.	Co-ordinate of the confluence point (if not reachable indirect though Google earth/ map) (Decimal units)	Latitude	:	28°12.310'
		Longitude		79°25.851'
	Distance from confluence point (may the find out over Google earth/map), KM		:	Approx. 15 KM
10.	Co-ordinate of the sampling point (decimal units)	Latitude	:	28°17.690'
		Longitude		79°23.562'
11.	Landmarks/ Address of the location		:	Near Chaubari Village, on Bareily-Budaun Road
12.	Flow (if in MLD) if Zero indicate whether dry or stagnant		:	14.26 MLD (factor taken 0.80)
13.	Characteristics	Colour	:	80 Hazen
		pH	:	7.25
		BOD	:	19.80 mg/L (BOD load ≈ 0.28 TPD)
		COD	:	91.90 mg/L (COD load≈ 1.31 TPD)
		TSS	:	15.70 mg/L
		TDS	:	482.00 mg/L
		PO_4-P	:	1.12 mg/L

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		Cl^-	:	71.60 mg/L
		NH_3-N	:	5.01 mg/L
		NO_3-N	:	6.07 mg/L
		Sulphides	:	BDL
	For sewage, mixed Drains & River	T-Coliforms (MPN/100ml)	:	7.90×10^5
		F-Coliforms (MPN/100ml)		3.30×10^5

14. (Trace Metal)

Sl. No.	Parameters	Results	
1.	Arsenic (As) mg/l	:	BDL
2.	Cadmium (Cd) mg/l	:	BDL
3.	Total Chromium (Cr) mg/l	:	0.43
4.	Copper (Cu) mg/l	:	BDL
5.	Iron (Fe) mg/l	:	0.44
6.	Lead (Pb) mg/l	:	BDL
7.	Manganese (Mn) mg/l	:	0.64
8.	Nickel (Ni) mg/l	:	BDL
9.	Zinc (Zn) mg/l	:	BDL
10.	Antimony (Sb) mg/l	:	BDL
11.	Cobalt (Co) mg/l	:	BDL
12.	Selenium (Se) mg/l	:	BDL
13.	Vanadium (V) mg/l	:	BDL

15. **(Pesticide)**

Sl. No.	Parameters		Results
	Pesticide Analysis Report (OPPs)	:	
1.	Dimethoate (µg/l)	:	BDL
2.	Methyl Parathion (µg/l)	:	BDL
3.	Malathion (µg/l)	:	BDL
4.	Chloropyriphos (µg/l)	:	BDL
5.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
1.	α-HCH (µg/l)	:	BDL
2.	β- HCH (µg/l)	:	BDL
3.	γ- HCH (µg/l)	:	BDL
4.	Aldrin (µg/l)	:	BDL
5.	Diedrin (µg/l)	:	BDL
6.	α-Endosulfan (µg/l)	:	BDL
7.	β-Endosulfan (µg/l)	:	BDL
8.	*op*'DDT (µg/l)	:	BDL
9.	*pp*'DDT (µg/l)	:	BDL
10.	*pp*'DDE (µg/l)	:	BDL

16	Photo Gallery:

Photo 1: Sampling location of Chaubari (Chawari) drain at Chaubari Village.

Photo 2: Natural wetland near sampling point of drain

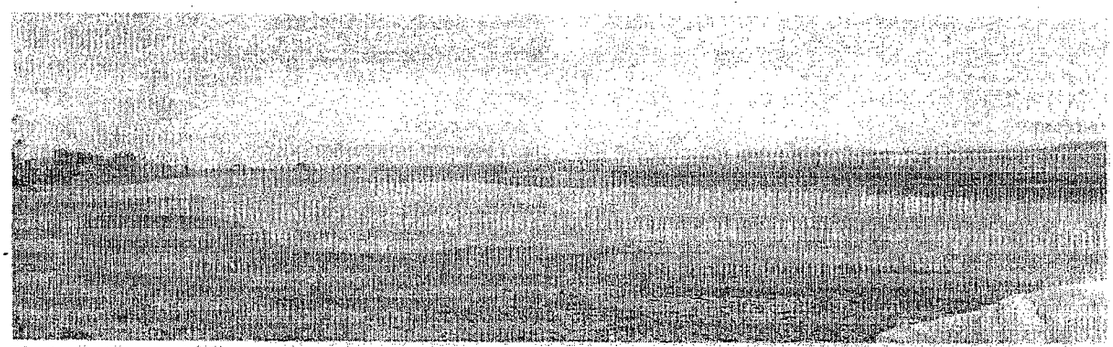

Photo 3: Chawari (Chaubari) drain meeting R. Ramganga on its left bank at Gomidpur Village.

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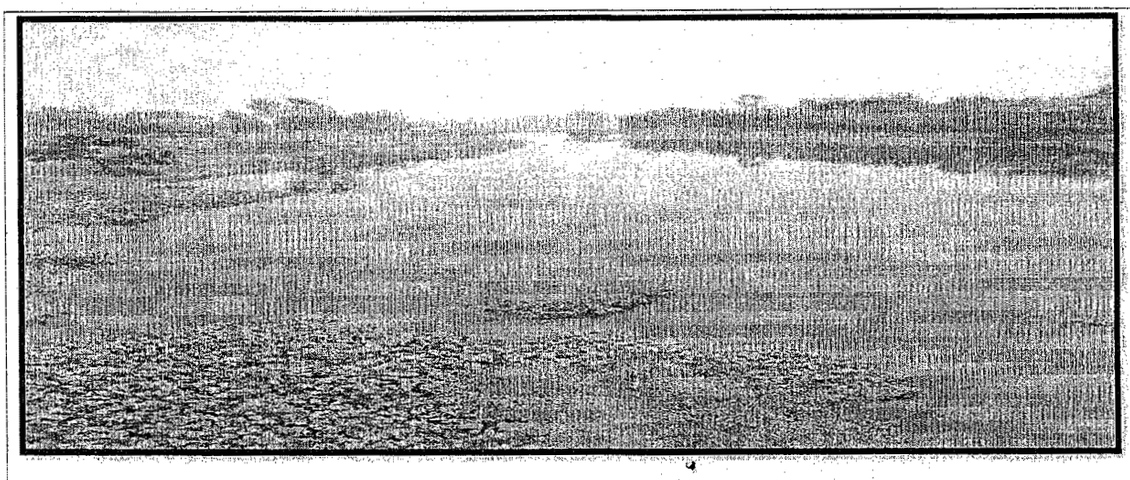

Photo 4: Chawari drain bearing Eichornia-crassipes in the middle and sides

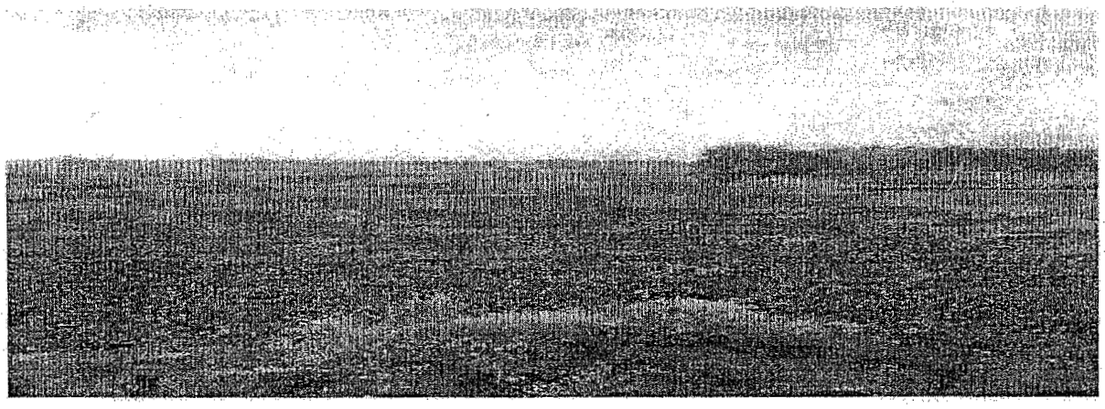

Photo 5: Abundant growth of Eichornia-crassipes

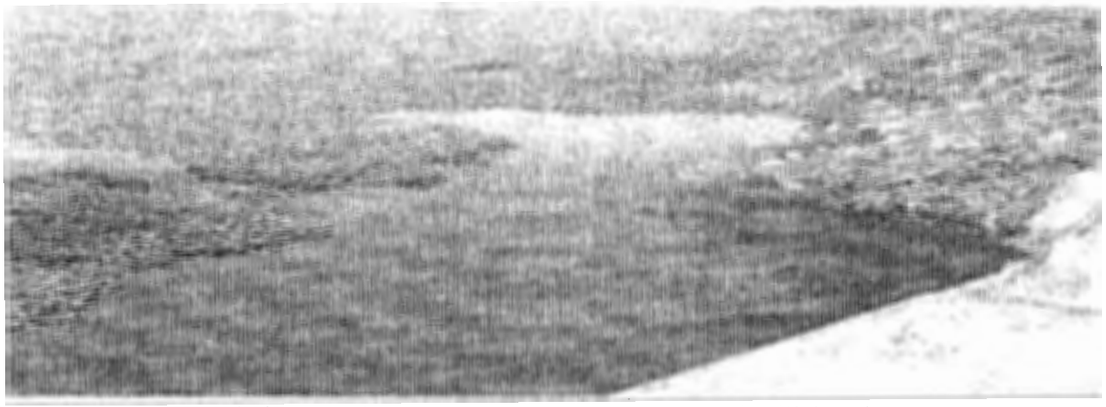

Photo 6 : Wastewater being purified by natural processes catalyzed by Eichornia-crassipes

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Comments & Suggestions

Chawari Drain originates from the southern part of Bareilly city and traverses a distance of approx. 15 km and finally joins river Ramganga at village Gomidpur. The drain is being monitored by the UPPCB and CPCB since March 2012. The drain chiefly receives domestic waste from its catchment area.

A monitoring team constituted following the Hon'ble NGT verdict dated July 13, 2017, visited the said drain on Aug 3, 2017. Considering the previous study and current scenario of the drain, the team has come out with the following comments and suggestions.

[1]. A closer look at the historical data of August 2014 and onwards reflects BOD variation from 3.66 to 26.6 mg/L, whereas the TSS concentration has fluctuated from 17.3 to 133 mg/L.

[2]. Discharge from Aug 2014 and onwards has been quite precarious hovering between 0 to 19.7 MLD. Moreover, the discharge has not been steady and consistent. Much of the discharge percolate below ground and measurable discharge is encountered during the monsoon season, largely contributed by potential infiltration & runoff contributed by the rainfall.

[3]. The inherent desire of Hon'ble NGT reflected in the verdict of July 13, 2017 is to establish a non-mechanical STP or Oxidation Pond to purify the drain. Both the BOD levels & inconsistent discharge tends to discourage the construction of any STP away from the site of flow.

[4]. Profuse growth of Eichornia-crassipes (water hyacinth) was observed (enclosed as photo 5) is witnessing the encircled considerable stretch of the drain. Eichornia itself possesses tremendous potential for arresting heavy metals, reducing BOD and increasing DO (Dissolved Oxygen). This way the waste stream is getting purified by the natural processes enhanced by the presence of water hyacinth and other aquatic weeds.

[5]. Given the most favourable conditions (adequate depth, long traverse length and slope), the team is of unanimous view of giving on-line treatment to the said drain by way of constructing a HF-SSCW (Horizontal Flow–Sub Surface Constructed Wetland). Any of the vegetations/plants locally available and grown could be advantageously utilized out of Forage Kochia (Kochia spp), Poplar Trees (Populusspp), Willow Trees (Salix spp), Alfalfa (Medicagosativa), Cattail (Typhalatifolia), Coontail (Ceratophyl lumdemersvm L), Bullrush (Scirpusspp), Reed (Phragmites spp.), American pondweed (Potamogetonnodosus), Common Arrowhead (Sagittarialatifolia) etc. Intervention of HF-SSCW would eliminate pumping and lifting, conveyance pipes and skilled manpower.

[6]. The concentration of BOD is already recorded on considerably lower side and further introduction of HF-SSCW in conjunction with thriving existing Eichornia, negligible BOD shall be left at the

confluence point with river Ramganga. The technology of HF-SSCW (Phytorid) has been evolved by the indigenous institute NEERI, Nagpur. Several plants have already been commissioned in India based upon phytorid technology. It can, therefore very well be replicated at this site too.

[7]. The suggested technology not only support the growth of Eichornia, it will also reduce significant extent of different parameters such as; TSS (85-95%), BOD (80-90%), COD (80-95%), Nitrogen (60-80%), Phosphorous(60-80%), Fecal coliforms (>99%).

Recapitulation:

The drain carries fluctuating & precarious discharge with relatively lower BOD load. The quantum of discharge is highly unstable that goes down to even zero during the lean period as corroborated by the past observations and records. Site conditions promote the growth of Eichornia which is thriving well in considerable stretch. On-site introduction of HF-SSCW in conjunction with indigenous vegetation would be the most prudent intervention fetching desired results that too at lower capex & opex cost inter-alia better efficiency.

Name of all monitoring officers along with designation	:	1. Sh. Bane Singh, Dy. TL-PMC, NMCG 2. Sh. A. K. Chaudhary, RO Bareilly, UPPCB 3. Dr. Raj Kishore Singh, Scientist D, CPCB, RD(N) 4. Dr. S. K. Lal, Sc 'C', MoEF 5. Sh. Ajay Kumar, AE, UPJN 6. Dr. Sanjay Kumar Singh, RA-I, CPCB, RD(N) 7. Sh. S. S. Chauhan, SA, UPPCB, Bareilly

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Recapitulation:

The drain carries fluctuating & precarious discharge with relatively lower BOD load. The quantum of discharge is highly unstable that goes down to even zero during the lean period as corroborated by the past observations and records. Site conditions promote the growth of Eichornia which is thriving well in considerable stretch. On-site introduction of HF-SSCW in conjunction with indigenous vegetation would be the most prudent intervention fetching desired results that too at lower capex & opex cost inter-alia better efficiency.

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Executive Engineer
VI Division
U.P. Jal Nigam
Bareilly

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10457

Gmail

R K Singh <rksingh.evs@gmail.com>

Draft joint inspection report of 9 drains in compliance of Hon'ble NGT judgement dated July 13,2017

Dr Devendra. Kumar Soni <soni_d_k@rediffmail.com> Sat, Sep 2, 2017 at 12:34 PM
To: rksinghevs <rksingh.evs@gmail.com>

From: Bane Singh <bsdauphin@gmail.com>
Sent: Fri, 01 Sep 2017 12:24:35
To: "Dr Devendra. Kumar Soni" <soni_d_k@rediffmail.com>
Subject: Re: Draft joint inspection report of 9 drains in compliance of Hon'ble NGT judgement dated July 13,2017

Dear Sir,

Went through the draft inspection report of Chaubari drain .
I do agree.
Please go ahead.

Warm Regards

Bane Singh
Dy team Leader
PMC-NMCG

Civil Engineer Ecology & Environmental Expert
Water Resources Mgmt. Specialist
& Environmental Planner
National Grand Winner- CII (The Times of India)
International Green Author
Global Environmental Awareness Campaigner
+91 8619045080/9413427900

[Quoted text hidden]

Attendance – sheet

Joint Monitoring of - Chaubari Drain Date: 03-08-2017

S. No.	Name of officers	Organization	Designation	Email ID	Mobile No
1	Bane Singh	NMCG	DyTL-PMC	bsdauphin@gmail.com	9413427900 8619045080
2	AK. Chaudhary	UPPCB Bly	AEE incharge	ro@uppcb.com	7839891468
3	Dr. Raj K. Singh	CPCB RD(N)	Sc 'D'	rksingh.evs@gmail.com	8586931575
4	AJAY KUMAR	U.P.J.N.	A.E.	ak1960jalmigam@gmail.com	9412140541
5	Dr. Sanjay K. Singh	CPCB, RD(N)	R.A.I	ssanjay84@gmail.com	9451205977
6	S.S. Chauhan	U.PPCB	SA	Chauhan.uppcb@gmail.com	7839891714
7	DR. S.K. LAL	MOEFCC	Sc 'C'	lalsk42@yahoo.co.in	9425166061
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Annexure – A7 &T
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CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow

JOINT INSPECTION REPORT ON NAKKATIYA DRAIN JOINING TO RIVER RAMGANGA IN BAREILLY REGION, UTTAR PRADESH

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 in the case of OA no. 200/2014, M C Mehta vs Union of India and others and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of Nakkatiya drain was carried out on Aug 04, 2017 with representative of NMCG, MoEF&CC, UPJN and UPPCB. As per the objectives of the joint inspection the following activities were carried out.

a) Monitoring of drain.
b) Examine and decide on the appropriate STP Technology to get treated 170 MLD of effluent so that the discharge is used by nearby irrigation land.
c) Inspect the M/s Mariya Agro Frozen Foods Pvt. Ltd. dealing with the slaughter of animals and if found non-complaint issue the direction to industry.

The observations and recommendations of inspecting team members are as under:

a) Monitoring of Nakktiya Drain at Bareilly

1.	Name of the Drain		:	Nakkatiya, Bareilly		
2.	Meeting River Ramganga		:	Left bank		
3.	Name of the Regional Office of SPCB		:	Regional Office,UPPCB, Bareilly		
4.	Source of pollution load:		:	Domestic& Industry		
5.	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	M/s MariyaAgro Frozen Foods Pvt. Ltd.	Slaughter House
				2.	M/s Nagar Nigam Slaughter House	Slaughter House
				3.	Nagar Panchayat Slaugther House **(Illegal)**	Slaughter House.
6.	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	100 KM		
7.	Catchment area			Mahanagar, Haru Nagla, Rohilkhand University, DhaureraMaffi, Air Force Campus, Sun Rise Colony, Super City Colony, Ashish Royal Park, Sindhu Nagar, Sadar Colony, Tulsi Nagar, Bhartaul, Haziya Nagar		
8.	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28°08'11.4"		
		Longitude		79°29'04.4"		
	Distance from confluence point (may the find out over google earth/map), KM			13.72 KM (Arial distance)		

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9.	Co-ordinate of the sampling point (Decimal units)	Latitude Longitude	:	28°15'01.5" 79°26'11.0"
10.	Landmarks / Address of the Location			Manpur, Chikatia, Bareily
11.	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**104.46 MLD** (with correction factor 0.65)

12. **Observations:**

1. Nakkatiya drain is one of the major drains of the Bareilly city that meets to River Ramganga which ultimately joins to river Ganga.
2. As per information collected during inspection, Nakkatiiya drain carries the wastewater from 13 small drains of the catchment area which are the main source of wastewater of this drain.
3. The flow of the Nakkatiya drain was measured and calculated as **104.46 MLD** (with correction factor 0.65). This flow was measured during monsoon season, which may not give the correct figure to take decision.
4. The period of inspection does not reflect the representativeness as the monitoring was carried out during monsoon period and heavy rain in the catchment area was observed.
5. The BOD & COD load was calculated in order of 1.91 and 6.80 TPD respectively.
6. The drain where flow measured was not well defined in terms of width, depth & length (i.e. Kachha Drain).
7. Three industries namely M/s Mariya Agro Frozen Foods Pvt. Ltd.,M/s Nagar Nigam Slaughter House (shall be started soon on leased basis byM/s Mariya Agro Frozen Foods Pvt. Ltd) and **Nagar Panchayat Slaughter House (illegal)**were found in the catchment area of the Nakkatiya drain which may significantly impact the quality & quantity of wastewater in drain.
8. A Composite water sample was collected from the Nakkatiya drain and analyze by the CPCB laboratory. The analysis results of the sample are tabulated below in Table1, 2 and 3.

Table1: (General parameters)

Sl. No.	Parameters	:	**Results:** Nakatiya Drain at Manpur Chikatia, Bareilly (Sampling point1)	**BOD/COD Load**
1.	Colour	:	100	
2.	pH	:	7.33	
3.	BOD (mg/l)	:	**18.3**	1.91 TPD
4.	COD (mg/l)	:	**65.1**	6.80 TPD
5.	TSS (mg/l)	:	26.4	
6.	TDS (mg/l)	:	438	
7.	Cl^- (mg/l)	:	47.3	
8.	NH_3-N (mg/l)	:	17.9	
9.	NO_3^-(mg/l)	:	0.961	
10.	TC (MPN/ 100 ml)	:	$7.0x10^5$	
11.	FC (MPN/ 100 ml)	:	$7.0x10^5$	

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Table2: (Trace Metals)

Sl. No.	Parameters		Results: Nakatiya Drain at Manpur Chikatia, Bareilly (Sampling point1)
1.	Arsenic (As) mg/l	:	BDL
2.	Cadmium (Cd) mg/l	:	Result Awaited
3.	Total Cr (Cr) mg/l	:	BDL
4.	Copper (Cu) mg/l	:	BDL
5.	Iron (Fe) mg/l	:	1.09
6.	Lead (Pb) mg/l	:	BDL
7.	Manganese (Mn) mg/l	:	0.60
8.	Nickel (Ni) mg/l	:	Result Awaited
9.	Zinc (Zn) mg/l	:	BDL
10.	Antimony (Sb) mg/l	:	BDL
11.	Cobalt (Co) mg/l	:	BDL
12.	Selenium (Se) mg/l		BDL
13.	Vanadium (V) mg/l		BDL

Table3: (Pesticide)

I. No.	**Parameters**		**Results:** Nakatiya Drain at Manpur Chikatia, Bareilly (Sampling point1)
	Pesticide Analysis Report (OPPs)	:	
1.	Dimethoate (µg/l)	:	BDL
2.	Methyl Parathion (µg/l)	:	BDL
3.	Malathion (µg/l)	:	BDL
4.	Chloropyriphos (µg/l)	:	BDL
5.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
6.	α-BHC (HCH)	:	BDL
7.	β-BHC (HCH)	:	BDL
8.	γ-BHC (HCH)	:	BDL
9.	Aldrin (ng/l)	:	BDL
10.	Diedrin (ng/l)	:	BDL
11.	α-Endosulfan	:	BDL
12.	β-Endosulfan	:	BDL
13.	OP'DDT	:	BDL
14.	PP'DDT	:	BDL
15.	PP'DDE	:	BDL

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Photo Gallery:

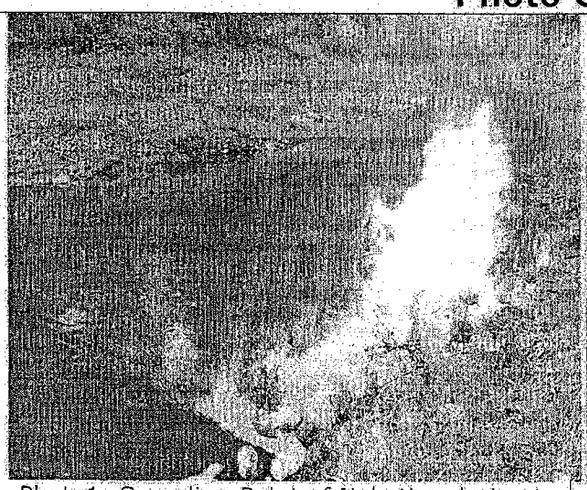

Photo1: Sampling Point of Nakatiya drain at Manpur Chikatia, Bareily

Photo2: Confluence Point with river Ramganga at Khallpur (AhirGautia) Village.

Photo3: Final treated wastewater storage Lagoon, M/s Mariya Agro Frozen Pvt. Ltd.

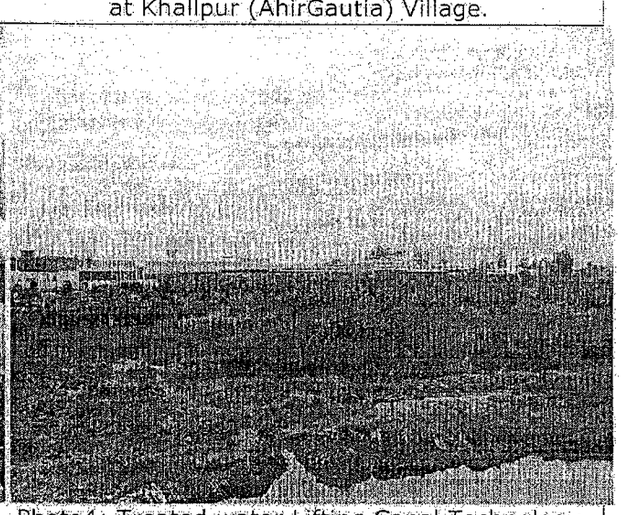

Photo4: Treated water Lifting Canal Technology in Premises (Fishing pond & horticulture), M/s Mariya Agro Frozen Pvt. Ltd. and M/s Nagar Nigam slaughter House

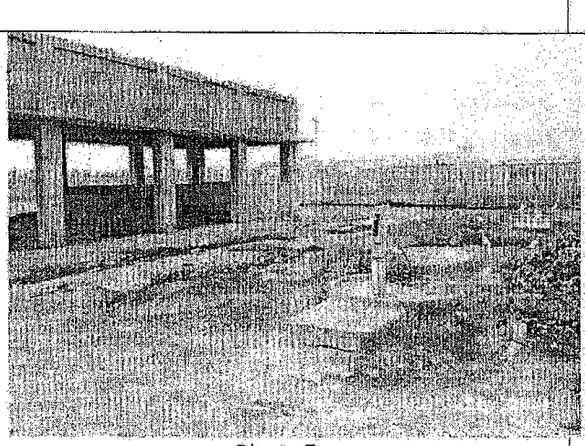

Photo5:

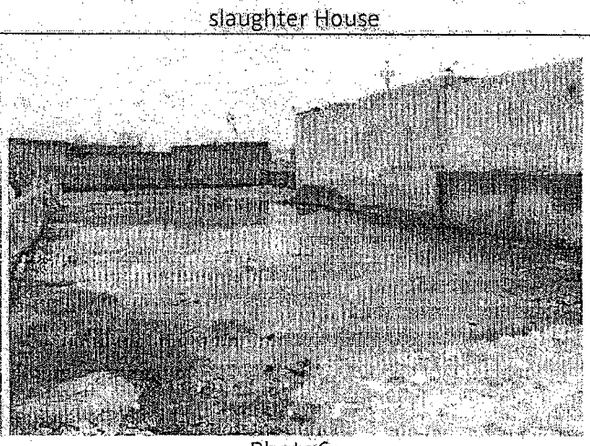

Photo6:

Photo7:

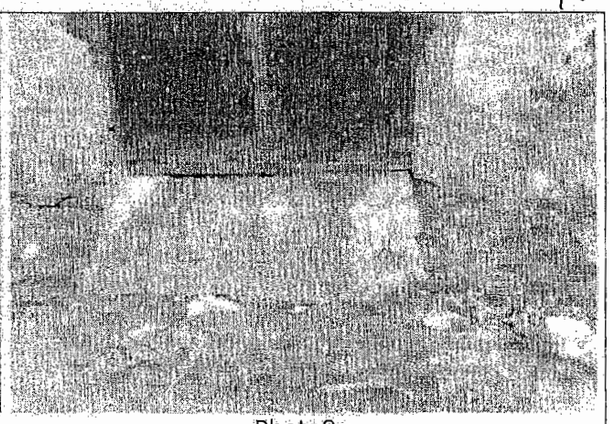

Photo8:

Photo5, 6,7 & 8: Illegal Slaughtering place near Nagar Panchay at MohanpurTheriya Village, Bareilly

b) Inspection of Industries in the catchment area of Nakkatiya drain, Bareilly	
Name and address of the industries **Coordinates (Longitude & Latitude)**	**1)** M/s Mariya Agro Frozen Foods Pvt. Ltd. NH-24, Village- Mohanpur, Near RTO Office Shahjahanpur Road, Bareilly, UP. **Contact Person:** Mr. Satish Kr. Ray, DGM **Contact No.** 0581-2561115 ➢ This unit is engaged in slaughtering of buffalos and frozen of meet with capacity of 1000 buffalo/day. ➢ The unit has an ETP of 1000 m^3/day capacity. ➢ OCEMS was found installed at the outlet of ETP & treated wastewater was used for gardening etc through Karnal technology. ➢ Treated effluent was collected and analyzed. Results are tabulated in subsequent page.
	2) M/s Nagar Nigam slaughter House NH-24, Village- Mohanpur, Near RTO Office Shahjahanpur Road, Bareilly, UP **Contact Person:** Mr. Sarfaraj Ahmed Ansari (Director) **Contact No.**9219610002 ➢ This unit is engaged in slaughtering of buffalos and goat/ sheep with frozen having capacity of 300 buffalo's /day & 550 Goat/Sheep per day. ➢ The unit was found **non operational** on the day of inspection. ➢ The unit has newly constructed an ETP of 500 m^3/day

	capacity. ➢ OCEMS was found installed at the outlet of ETP & treated wastewater was used for gardening etc through Karnal technology.
	3) Illegal Slaughtering near Nagar Panchayat at Mohanpur Theriya Village, Bareilly ➢ This illegal slaughtering place should be closed immediately.

Characteristics of treated water at the outlet of ETP:

SL. No.	AnalyzedParameters	M/s Mariya Agro Frozen Foods Pvt. Ltd.Uttar Pradesh
1	pH	7.39
2	SS	8.5
3	O & G	BDL
4	BOD	27.3
5	COD	60.2

*All parameters value in mg/l except pH.

Observations of the Units:

- During inspection, out of three units only one was found operational i.e. M/s Mariya Agro Frozen Foods Pvt. Ltd.
- M/s Nagar Nigam slaughter House was found **non operational** on the day of inspection.
- The units namely M/s Mariya Agro Frozen Foods Pvt. Ltd. and M/s Nagar Nigam slaughter House has installed ETPs in their premises.
- As per treated effluent sample analysis result of M/s Mariya Agro Frozen Foods Pvt. Ltd., the unit is **complying** with stipulated standard of effluent discharge.
- A place of **Illegal Slaughtering** was found near Nagar Panchayat at Mohanpur Theriya village, Bareilly. (Please refer to photographs enclosed)

c) Suitable Technology proposed for the STP

Observations:

- Based on the present monitoring, it can be concluded that all 13 (Thirteen) small drains which are feeding to the Nakkatiya drains requires to be suitable tapped and diverted to appropriate location for suitable/adequate treatment. This may reduce the pollution load of Nakkatiya river/drain and maintain its natural flow.

- A detail study required to be carried out by the UPJN & UPPCB or any other relevant organization to assess the total pollution load from these 13(Thirteen) small drains and accordingly strategies to be decided for suitable techno-economic technology for treatment of the wastewater generated in the catchment area of this river/drain.

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Conclusion/Recommendations

- The flow of the Nakkatiya drain was measured and calculated as **104.46 MLD** (with correction factor 0.65). This flow was measured during monsoon season, which may not give the correct figure to take decision.
- The BOD & COD load was calculated in order of 1.91 and 6.80 TPD respectively.
- As per treated effluent sample analysis result of M/s Mariya Agro Frozen Foods Pvt. Ltd., the unit is **complying** with stipulated standards.
- M/s Nagar Nigam slaughter House was found non-operational and shall be started soon.
- A place of **Illegal Slaughtering** was found near Nagar Panchayat at Mohanpur Theriya village during inspection, should be stopped & dismantled immediately.
- Based on the present monitoring, it can be concluded that all 13 (Thirteen) small drains which are feeding to the Nakkatiya drains requires to be tapped and diverted to appropriate location for suitable/adequate treatment. This may reduce the pollution load of Nakkatiya river/drain and maintain its natural flow.
- A detail study required to be carried out by the UPJN & UPPCB or any other relevant organization to assess the total pollution load from these 13(Thirteen) small drains and accordingly strategies to be decided for suitable techno-economic technology for treatment of the waste water generated in the catchment area of this river/drain.

Name of the officials involved in this Joint Inspection:

S. No.	Name of Officers	Organization	Designation	Signature
1.	Er. Ram Balak Singh	CPCB	Scientist 'C'	
2.	Dr. S. K. Lal	MoEF& CC, RO, Lucknow	Scientist 'C'	
3.	Er. Avijit Sarkar	NMCG (TCE)	Env. Expert	—Sd—
4.	Sh. A.K. Tripathi	CPCB	Scientist 'B'	
5.	Er. Sanjay Kumar	UPJN Bareilly	E.E.	—Sd—
6.	Sri P. C. Kanaujia	UPPCB, RO, Bareilly	S.A.	—Sd—
7.	Sh. P. K. Verma	UPJN Bareilly	J.E.	
8.	Sh. A.K. Chaudhary	RO, UPPCB, Bareilly	RO	

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Conclusion/Recommendations

- The flow of the Nakkatiya drain was measured and calculated as **104.06 MLD** (with correction factor 0.65). This flow was measured during minimum season, which may not give the correct figure to take decision.
- The BOD & COD load was calculated in order of 1.91 and 6.80 TPD respectively.
- As per treated effluent sample analysis result of M/s Motiva Agro Frozen Foods Pvt. Ltd., the unit is complying with stipulated standards.
- M/s Nagar N gam slaughter House was found non operational and shall be started soon.
- A case of **Illegal Slaughtering** was found near Nagar Panchayat at Mohanpur Therwa village during inspection, should be stopped & dismantled immediately.
- Based on the present monitoring, it can be concluded that all 13 (Thirteen) small drains which are feeding to the Nakkatiya drains requires to be tapped and diverted to appropriate location for suitable **Adequate** treatment. This may reduce the pollution load of Nakkatiya drain and also maintain its natural flow.
- A detail study required to be carried out by the UPIN & UPPCB or any other relevant organization to assess the total pollution load from these 13(Thirteen) small drains and accordingly strategies to be decided for suitable techno-economic technology for treatment of the waste water generated in the catchment area of this river/drain.

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2.	Dr. S. K. Lal	MoEF&CC, RO, Lucknow	Scientist 'C'	
3.	Sh. Avijit Sarkar	NRCD (PCL)	Env. Expert	
4.	Sh. A.K. Tripathi	CPCB	Scientist 'B'	
5.	Sh. Sanjay Kumar	UPIN Bareilly	E.E.	
6.	Sh. P. C. Kamaniya	UPPCB, RO, Bareilly	S.A.	
7.	Sh. P. K. Verma	UPIN Bareilly	J.E.	

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Conclusion/Recommendations

- The flow of the Nakkatiya drain was measured and calculated as **104.46 MLD** (with correction factor 0.65). This flow was measured during monsoon season, which may not give the correct figure to take decision.
- The BOD & COD load was calculated in order of 1.91 and 6.80 TPD respectively.
- As per treated effluent sample analysis result of M/s Mariya Agro Frozen Foods Pvt. Ltd., the unit is **complying** with stipulated standards.
- M/s Nagar Nigam slaughter House was found non-operational and shall be started soon.
- A place of **Illegal Slaughtering** was found near Nagar Panchayat at Mohanpur Theriya village during inspection, should be stopped & dismantled immediately.
- Based on the present monitoring, it can be concluded that all 13 (Thirteen) small drains which are feeding to the Nakkatiya drains requires to be tapped and diverted to appropriate location for suitable/adequate treatment. This may reduce the pollution load of Nakkatiya river/drain and maintain its natural flow.
- A detail study required to be carried out by the UPJN & UPPCB or any other relevant organization to assess the total pollution load from these 13(Thirteen) small drains and accordingly strategies to be decided for suitable techno-economic technology for treatment of the waste water generated in the catchment area of this river/drain.

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3.	Er. Avijit Sarkar	NMCG (TCE)	Env. Expert	
4.	Sh. A.K. Tripathi	CPCB	Scientist 'B'	
5.	Er. Sanjay Kumar	UPJN Bareilly	E.E.	
6.	Sri P. C. Kanaujia	UPPCB, RO, Bareilly	S.A.	
7.	Sh. P. K. Verma	UPJN Bareilly	J.E.	

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Conclusion/Recommendations

- The flow of the Nakkatiya drain was measured and calculated as **104.46 MLD** (with correction factor 0.65). This flow was measured during monsoon season, which may not give the correct figure to take decision.
- The BOD & COD load was calculated in order of 1.91 and 6.80 TPD respectively.
- As per treated effluent sample analysis result of M/s Mariya Agro Frozen Foods Pvt. Ltd., the unit is **complying** with stipulated standards.
- M/s Nagar Nigam slaughter House was found non-operational and shall be started soon.
- A place of **Illegal Slaughtering** was found near Nagar Panchayat at Mohanpur Theriya village during inspection, should be stopped & dismantled immediately.
- Based on the present monitoring, it can be concluded that all 13 (Thirteen) small drains which are feeding to the Nakkatiya drains requires to be tapped and diverted to appropriate location for suitable/adequate treatment. This may reduce the pollution load of Nakkatiya river/drain and maintain its natural flow.
- A detail study required to be carried out by the UPJN & UPPCB or any other relevant organization to assess the total pollution load from these 13(Thirteen) small drains and accordingly strategies to be decided for suitable techno-economic technology for treatment of the waste water generated in the catchment area of this river/drain.

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4.	Sh. A.K. Tripathi	CPCB	Scientist 'B'	
5.	Er. Sanjay Kumar	UPJN Bareilly	E.E.	
6.	Sri P. C. Kanaujia	UPPCB, RO, Bareilly	S.A.	
7.	Sh. P. K. Verma	UPJN Bareilly	J.E.	

Executive Engineer
VI Division
U.P. Jal Nigam
Bareilly

Attendance – sheet

Joint Monitoring of - Devraniya & Nakkaniya Drain Date: 3&4-08-2017

S. No.	Name of officers	Organization	Designation	Email ID	Mobile No	Signature
1	Sh. R.B. Singh	CPCB (NGRBA)	Sc. 'C'	rbsepcb@gmail.com	9455020745	
2	Sh. A.K. Tripathi		Sc. 'B'	tripathi-cpcb@rediffmail.com	9793407711	
3	Dr. S.K. Lal	MOEF&CC RO, Lucknow	Sc. 'C'	mm-env@rediffmail.com	9425166061	
4	Sh. Abhijeet Sarkar	NMCG	Env. Exp.	avijitsarkar@tce.co.in	9433149379	
5	Sh. A.K. Chaudhary	RO, UPPCB Bareilly	R.O.	robareily@uppcb.com	8765925520	
6	Sh. P.K. Verma	UPJN Bareilly	J.E.	designcentre@rediffmail.com	9473942257	
7	Sh. Ajay Kumar	UPJN Bareilly	A.E.	ak1960jalnigam@gmail.com	9412140541	
8	Sh. Sanjay Kumar	UPJN Bareilly	EE	ee_gcd_bareli@yahoo.com	9473942569	
9	Sh. P.C. Kamaujaa	UPPCB	SA	robareily@uppcb.com	7839891715	
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Annexure – Ag 8I
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CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 in the case of OA no. 200/2014, M C Mehta vs Union of India and others and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of Ganda Naala was carried out on Aug 08, 2017 with representative of NMCG and UPPCB. As per the objectives of the joint inspection the following activities were carried out.

a) Monitoring of Ganda Naala at Kanpur.
b) Inspection of Ordinance Factory situated at Kalpi Road, Kanpur.
c) Inspection of industries, if any in the catchment area of the COD naala.

The observations and recommendations are as under:

a) Monitoring of Ganda Naala at Kanpur

1.	Name of the Drain		:	Ganda Nala, Kanpur		
2.	Meeting River Pandu		:	Left bank		
3.	Name of the Regional Office of SPCB		:	Kanpur UPPCB		
4.	Source of pollution:		:	Domestic& Industry		
5.	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	M/s Ordinance Factory, Kalpi Road, Kanpur	Others
				2.		
6.	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	13.50 Km		
7.	Catchment area			Industrial area Panki, Gujani village, etc		
8.	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	26° 25' 43"		
		Longitude		80° 16' 60"		
	Distance from confluence point (may find out over google earth/map), KM			0.5 km		
9.	Co-ordinate of the sampling point (Decimal units)	Latitude	:	26 °26'46"		
		Longitude		80°17'38"		
10.	Landmarks / Address of the Location			Vijay Nagar, Barra -4		
11.	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**117.08MLD** (with correction factor 0.8)		

12. **Observations:**

1. Ganda naala is a major drain of the Kanpur city that meets to River Pandu which ultimately joins to river Ganga.
2. The flow of the Ganda naala was measured and calculated as 117.08 MLD. This flow was measured during monsoon season, which may not give the correct figure to take decision.
3. The drain where flow measured was well defined in terms of width, depth & length (i.e.

RCC Constructed).

4. The BOD & COD load was calculated in order of 3.38 and 14.28TPD respectively.
5. A composite water sample was collected from the Ganda naala and analyze by the CPCB laboratory. The analysis results of the sample are tabulated below in Table1, 2 and 3.

Table1: (General parameters)

Sl. No.	Parameters		Results	BOD/COD Load
1.	Colour (Hz)	:	45	
2.	pH	:	7.06	
3.	BOD (mg/l)	:	28.9	3.38 TPD
4.	COD (mg/l)	:	122	14.28 TPD
5.	TSS (mg/l)	:	17.3	
6.	TDS (mg/l)	:	437	
7.	Cl^- (mg/l)	:	66.4	
8.	NH_3-N (mg/l)	:	13.6	
9.	NO_3^-(mg/l)	:	1.25	
10.	TC (MPN/ 100 ml)	:	1.6×10^8	
11.	FC (MPN/ 100 ml)	:	2.8×10^7	

Table2: (Trace Metal)

Sl. No.	Parameters		Results
1.	Arsenic (As) mg/l	:	BDL
2.	Cadmium (Cd) mg/l	:	BDL
3.	Total Cr (Cr) mg/l	:	BDL
4.	Copper (Cu) mg/l	:	BDL
5.	Iron (Fe) mg/l	:	1.61
6.	Lead (Pb) mg/l	:	BDL
7.	Manganese (Mn) mg/l	:	0.13
8.	Nickel (Ni) mg/l	:	BDL
9.	Zinc (Zn) mg/l	:	0.178
10.	Antimony (Sb) mg/l	:	BDL
11.	Cobalt (Co) mg/l	:	BDL
12.	Selenium (Se) mg/l		BDL
13.	Vanadium (V) mg/l		BDL

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Table3: (Pesticide)

Sl. No.	Parameters		Results
	Pesticide Analysis Report (OPPs)	:	
1.	Dimethoate (µg/l)	:	BDL
2.	Methyl Parathion (µg/l)	:	BDL
3.	Malathion (µg/l)	:	BDL
4.	Chloropyriphos (µg/l)	:	BDL
5.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
6.	α-BHC (HCH)	:	BDL
7.	β-BHC (HCH)	:	BDL
8.	γ-BHC (HCH)	:	BDL
9.	Aldrin (ng/l)	:	BDL
10.	Diedrin (ng/l)	:	BDL
11.	α-Endosulfan	:	BDL
12.	β-Endosulfan	:	BDL
13.	OP'DDT	:	BDL
14.	PP'DDT	:	BDL
15.	PP'DDE	:	BDL

Photo Gallery: Ganda Naala Inspection

Photo1: Sampling point of Ganda Naala

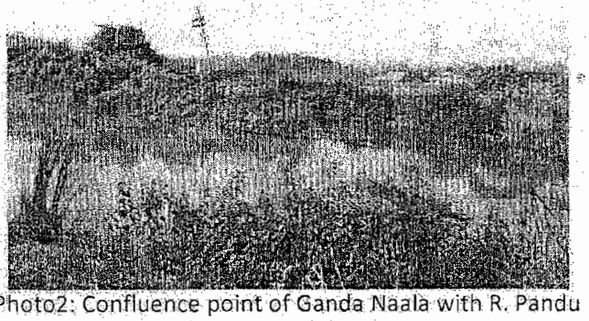

Photo2: Confluence point of Ganda Naala with R. Pandu

b) Inspection of Ordinance Factory situated at Kalpi Road, Kanpur

General Information & Production Details			
1.	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Ordnance Factory (Metal finishing unit) Kalpi Road, Kanpur Uttar Pradesh- 208009 Lat. $26^0 27'39''$ Long. $80^0 17'24''$	
2,	Name of the occupier/contact person with Telephone Fax e-mail	Sh. Rajeev Kumar IOFS Addl. General Manager Ph: 0512-2295022 Email: Rajeevkumar1963@gmail.com	
3.	Date of inspection and monitoring	08-08-2017	
4.	Date/Year of commissioning	1942	
5.	Installed production capacity (TPD) for each product	500 Crore piece/year (T-72, T-90 Gun, Bofors, Dhanush, IFG-105, Pinka, Ammunitions hardware etc)	
5.a	By products (at full capacity)	NA	
6.	Present production status	Full Capacity: 500 Crore piece/year (T-72, T-90 Gun, Bofors, Dhanush, IFG-105, Pinka, Ammunitions hardware etc) NA	
6.a	By products (Actual Production)		
7	Manufacturing process details & flow diagram for each product	Phosphatization, black anodizing, pickling and painting as per the requirement raised by the armed forces	
8	Raw material consumed (Tons per Ton of product)	Metal Acid – HNO_3, H_2SO_4, HCl Alkali – NaOH	Granodine- 908.0 liters/month (Approx). Rustodine- 1005.0 liters/month (Approx). ADA 63-44- 470 Liters/month (Approx)
9	Total water requirement (M3/day)	Process Washing Domestic Others(specify)	1267 M^3/day
		Total	1267 M^3/day
10	Sources of water	Bore well, Canal, City supply	

Waste Water – Generation & Treatment			
11	Wastewater generation, (M3/day)	As per consent	Present status
	Process effluent Domestic wastewater	140 KL	140 KL
	Total	140 KL	140 KL
12	Description of effluent treatment facilities with design details	ETP comprises of Oil separator, Collection Tank, Aeration tank (without any media), clarifier, Filter bed,	

		clear water tank.

13 Quality of discharged effluent (Sample was collected from outlet of ETP of M/s Ordinance Factory) (for all parameters as notified under Environment (Protection) Rules, 1986

	pH	SS	O & G	Sulphide	Sulphate	Phosphate	Ammonical Nitrogen	Chromium -VI	BOD
Outlet of ETP	7.16	27.2	BDL	BDL	19.6	0.43	15.4	BDL	11.3
Standards	6.0-9.0	100	10	2.0	400	5.0	50	0.1	30

*All parameter are in mg/L except pH

Air Pollution – Emission Sources & Control

14	Sources of air pollution	Chimney Details	APC Equipment's		Emission Quality	
			Stipulated	Provided		
	Boiler-2 No. 2.5 TPH & 1.0 TPH	30 meters	data not provided	data not provided	data not provided	
	Details of D.G Set		Capacity		Exhaust pipe-	Emission Std.
			500 KVA		data not provided	data not provided
15	Fuel Consumption				Consumption	Used in
			data not provided		data not provided	data not provided

16	Details on hazardous wastes and other solid waste generation		
	Type of Wastes	Quantity generated	Storage & Disposal
	Chemical Sludge ETP Sludge Others(specify) Total	Sludge & others – 08-10 tone / annum	No dedicated storage facility provided
17	OCEMS status	Installed and connected to UPPCB/CPCB server URL: trialcpcb.glensserver.com User ID: Ordnance Password: Ordnance@321	

Status of validity & compliance of consents and authorization

	Consent/Authorization	Validity	Compliance of conditions
I	Under Water Act	31-12-2017	-----
II	Under Air Act	31-12-2017	-----
III	Hazardous Waste authorization	Expired on 12-07-2017 (applied for renewal)	ETP sludge- 100 kg/month to TSDF site

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Observations of the Unit:

- During inspection, the unit was operational.
- The ETP comprises of Oil separator, Collection Tank, Aeration tank (without any media), clarifier, Filter bed, clear water tank.
- There are 3 surface aerators equipped in aeration tank.
- OCEMS was found installed at the outlet of ETP.
- During inspection, it was found that the unit is not discharging any treated/untreated effluent directly into the Ganda Naala however treated effluent from ETP was pumped to a large lagoon within the premises of the unit for reuse.
- As per the analysis results of the water sample collected from the unit, the unit is found complying as per effluent discharge standards.

Photo Gallery: Ordinance Factory, Kanpur

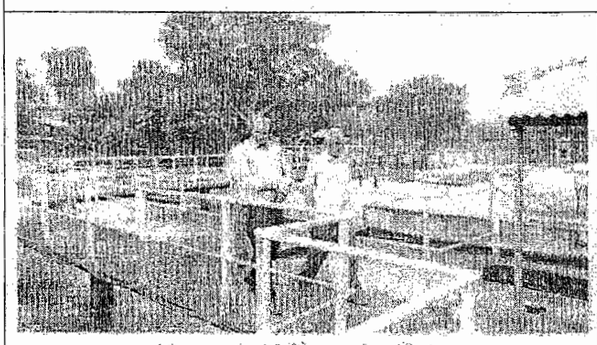

Photo1: ETP at the Unit

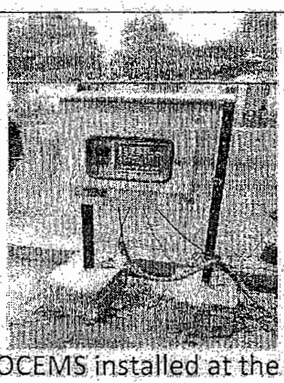

Photo2: OCEMS installed at the outlet of ETP

c) Inspection of industries, if any in the catchment area of the COD naala

Observations:

- As per information provided by the UPPCB officials, only one polluting industry is existing in the catchment area of the COD naala namely Nagar Nigam Slaughter House which is closed from many years.

Conclusion/Recommendation

- The flow of the Ganda Naala was measured and calculated as **117.08 MLD**. This flow was measured during monsoon season, which may not give the correct figure to take decision.
- The BOD & COD load was calculated in order of 3.38 and 14.28 TPD respectively.
- Ordinance Factory was found complying as per treated effluent discharge standards.
- As per information provided by the UPPCB officials, only one polluting industry is existing in the catchment area of the COD Naala namely Nagar Nigam Slaughter House which is closed from many years.

Name of the officials involved in this Joint Inspection:

S. No.	Name of Officers	Organization	Designation	Signature
1.	Er. Ram Balak Singh	CPCB	Scientist 'C'	
2.	Er. Sanjay Kumar	CPCB	Scientist 'C'	
3.	Er. Vivek Raj	NMCG	Scientist 'C'	—Sd—
4.	Sri Amit Kumar	NMCG	Research Officer	—Sd—
5.	Sri Sanjeev Kr. Mishra	UPPCB, RO, Kanpur	M.A.	—Sd—
6.	Sri Ashish Shukla	UPPCB, RO, Kanpur	L. A.	—Sd—

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Conclusion/Recommendation

- The flow of the Ganda Naala was measured and calculated as **117.08 MLD**. This flow was measured during monsoon season, which may not give the correct figure to take decision.
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3.	Er. Vivek Raj	NMCG	Scientist 'C'	
4.	Sri Amit Kumar	NMCG	Research Officer	Amrit Kumar
5.	Sri Sanjeev Kr. Mishra	UPPCB, RO, Kanpur	M.A.	
6.	Sri Ashish Shukla	UPPCB, RO, Kanpur	L. A.	

Conclusion/Recommendation

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4.	Sri Amit Kumar	NMCG	Research Officer	
5.	Sri Sanjeev Kr. Mishra	UPPCB, RO, Kanpur	M.A.	
6.	Sri Ashish Shukla	UPPCB, RO, Kanpur	L. A.	

Attendance – sheet

Joint Monitoring of --Chanda Drain, Kanpur date 08/08/2017

S.No	Name of officers	Organization	Designation	Email ID	Mobile No	
1	Sr. Sanjay Kumar	CPCB	Scientist 'C'	skgrkh1207@gmail.com	7017699093	
2	Sh. Sanjeev Kr Mishra	UPPCB	M.A		7839891901	
3	Ashish Phulekr	UPPCB	L.A.		7839891905	
4	Vivek Raj	NMCG	Scientist-C	vivekraj458@gmail.com	8447552294	
5	AMIT KUMAR	NMCG	RO	amit.kr64@gmail.com	8742939191	
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CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow

JOINT INSPECTION REPORT ON PANKI DRAIN JOINING TO RIVER PANDU IN KANPUR REGION, UTTAR PRADESH

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 in the case of OA no. 200/2014, M C Mehta vs Union of India and others and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of Panki drain was carried out on Aug 09, 2017 with representative of NMCG and UPPCB. The salient observations regarding the monitoring of Panki drain are as under:

1.	Name of Drain		:	Panki Drain
2.	Confluence with R. Pandu		:	Left bank
3.	Name of the Regional Office of SPCB		:	Regional Office, UPPCB, Kanpur
4.	Source of Pollution Load		:	Mixed (Domestic & Industrial)
5.	If Industrial/ Mixed (Name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Panki Thermal Power Plant
6.	Traceable length (in Km) before meeting Ganga (through Google earth/ map)		:	Approx. 1.60 KM
7.	Catchment area		:	Panki Thermal Power Plant, Kanpur city, New Transport Nagar, Ratanpur, Panki G Block etc.
8.	Co-ordinate of the confluence point (if not reachable indirect though Google earth/ map) (Decimal units)	Latitude	:	26°26'1.25''
		Longitude		80°15'9.59''
	Distance from confluence point (may the find out over Google earth/map), KM		:	Approx. 100 KM
9.	Co-ordinate of the sampling point (decimal units)	Latitude	:	26°27'60''
		Longitude		80°13'59.8''
10.	Landmarks/ Address of the location		:	New Transport Nagar, Panki Jhansi Bypass
11.	Flow (if in MLD) if Zero indicate whether dry or stagnant		:	14.07MLD (factor taken 0.90)
12.	Characteristics	Colour	:	50 Hazen
		pH	:	7.42
		BOD (mg/l)	:	34.10 mg/L (BOD load≈0.48 TPD)
		COD (mg/l)	:	90.3 mg/L (COD load≈ 1.27 TPD)
		TSS	:	153 mg/L

		TDS	:	448 mg/L
		Cl	:	62.9 mg/L
		NH_3-N	:	35.3 mg/L
		NO_3-N	:	27.4 mg/L
	For sewage, mixed Drains & River	TC (MPN/100ml)	:	1.6×10^8
		FC (MPN/100ml)		1.6×10^8

13.

(Trace Metal)

Sl. No.	Parameters	Results	
1.	Arsenic (As) mg/l	:	BDL
2.	Cadmium (Cd) mg/l	:	BDL
3.	Total Chromium (Cr) mg/l	:	BDL
4.	Copper (Cu) mg/l	:	BDL
5.	Iron (Fe) mg/l	:	0.62
6.	Lead (Pb) mg/l	:	BDL
7.	Manganese (Mn) mg/l	:	0.22
8.	Nickel (Ni) mg/l	:	BDL
9.	Zinc (Zn) mg/l	:	0.482
10.	Antimony (Sb) mg/l	:	BDL
11.	Cobalt (Co) mg/l	:	BDL
12.	Selenium (Se) mg/l	:	BDL
13.	Vanadium (V) mg/l	:	BDL

14.

(Pesticide)

Sl. No.	Parameters		Results
	Pesticide Analysis Report (OPPs)	:	
1.	Dimethoate (µg/l)	:	BDL
2.	Methyl Parathion (µg/l)	:	BDL
3.	Malathion (µg/l)	:	BDL
4.	Chloropyriphos (µg/l)	:	BDL
5.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
1.	α-HCH (µg/l)	:	BDL
2.	β- HCH (µg/l)	:	0.17
3.	γ- HCH (µg/l)	:	BDL
4.	Aldrin (µg/l)	:	BDL
5.	Diedrin (µg/l)	:	BDL
6.	α-Endosulfan (µg/l)	:	BDL
7.	β-Endosulfan (µg/l)	:	BDL
8.	*op*'DDT (µg/l)	:	BDL
9.	*pp*'DDT (µg/l)	:	BDL
10.	*pp*'DDE (µg/l)	:	BDL

15.	Photo Gallery

Photo- 1: Sampling location of Panki drain at New transport nagar.

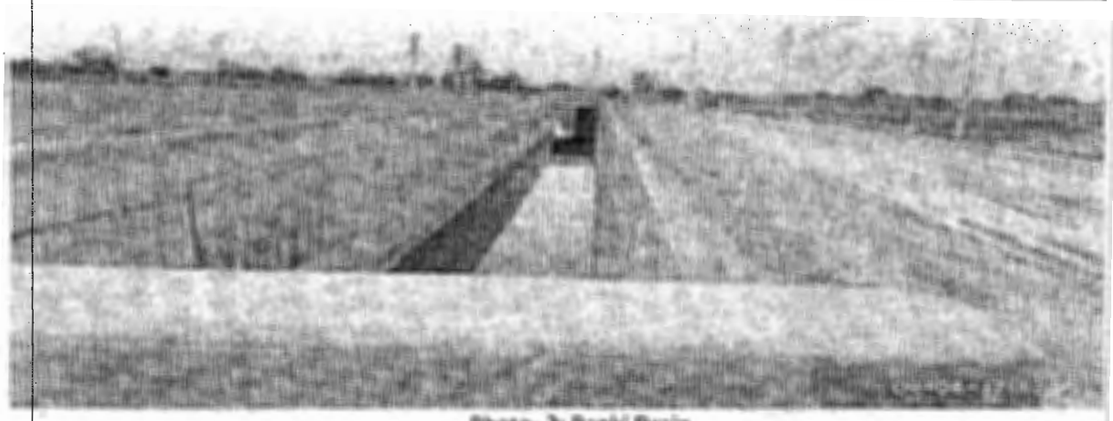

Photo- 2: Panki Drain

Photo- 3: Panki drain meeting R. Pandu on its left bank at New Transport nagar, Panki.

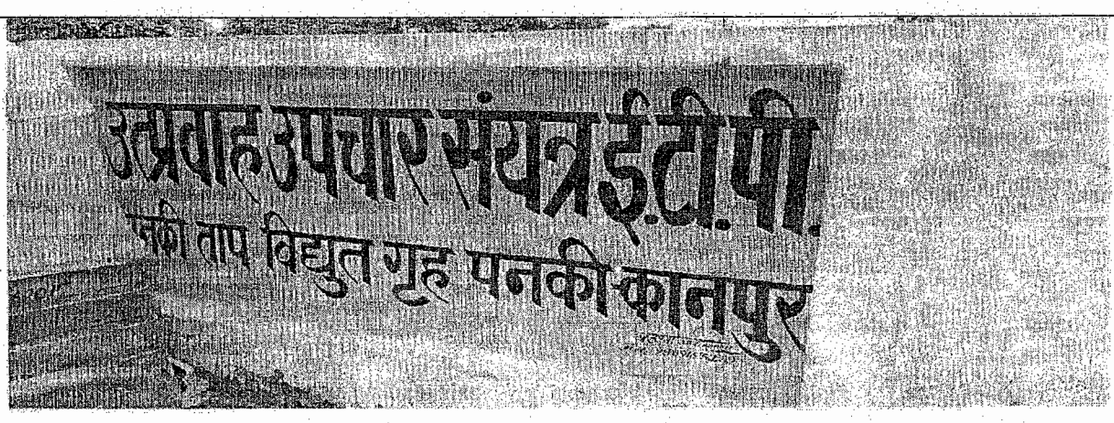

Photo- 4: ETP at Panki Thermal Power Plant

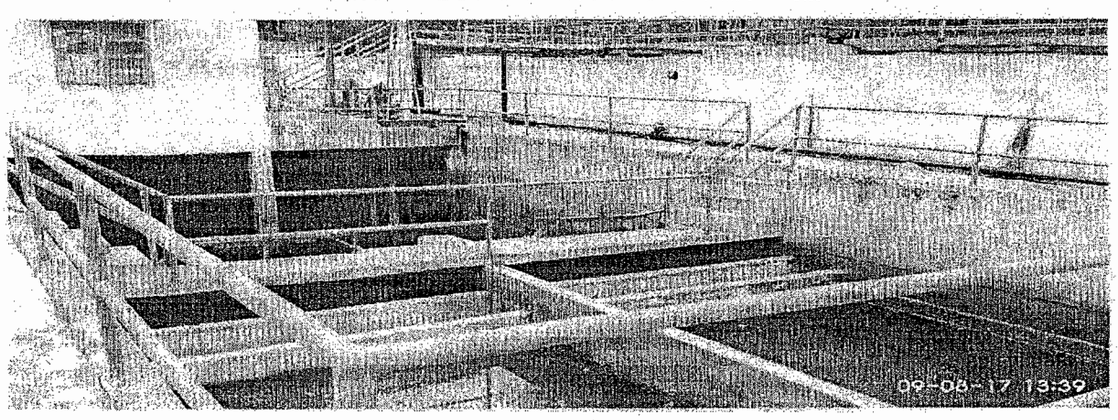

Photo- 5: ETP at Panki Thermal Power Plant

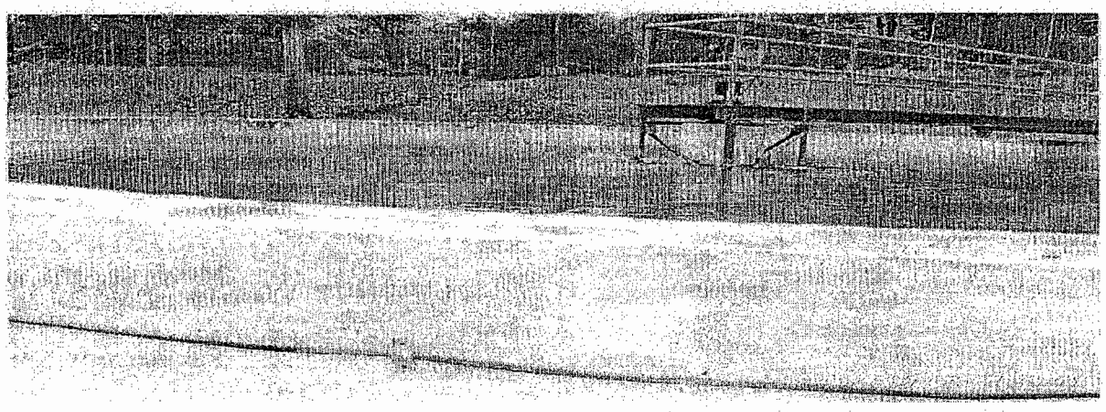

Photo- 6: Secondary clarifier of ETP at Panki Thermal Power Plant

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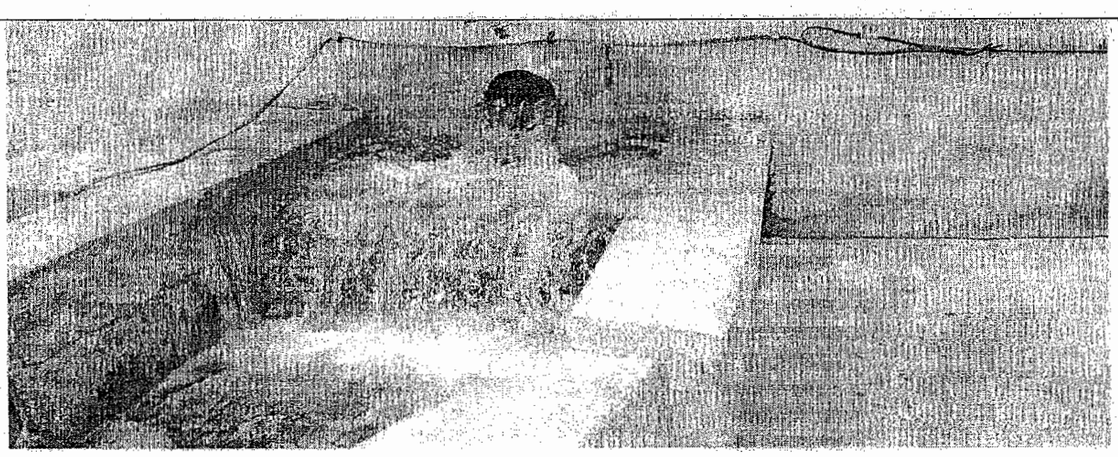

Photo- 7: Final Discharge point of ETP at Panki Thermal Power Plant

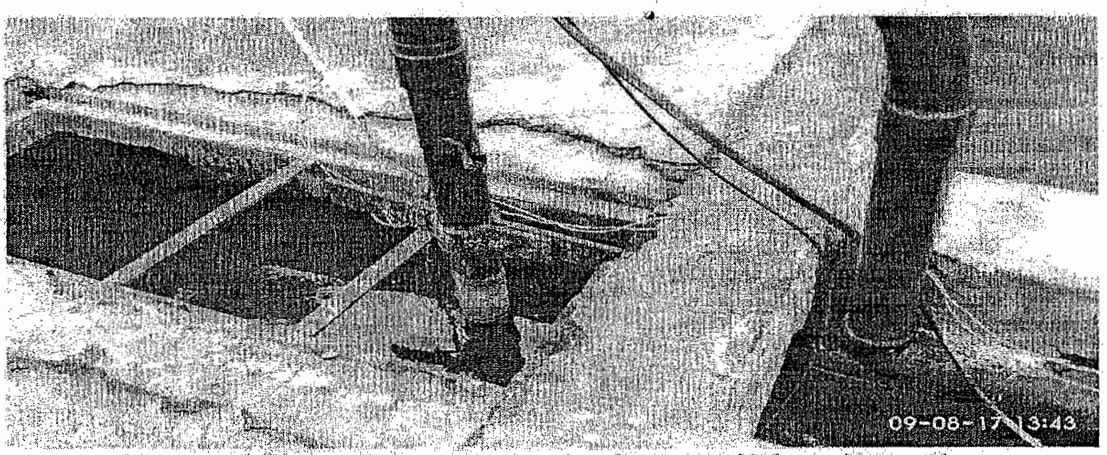

Photo- 8: OCEMS installed at Discharge point of ETP at Panki Thermal Power Plant

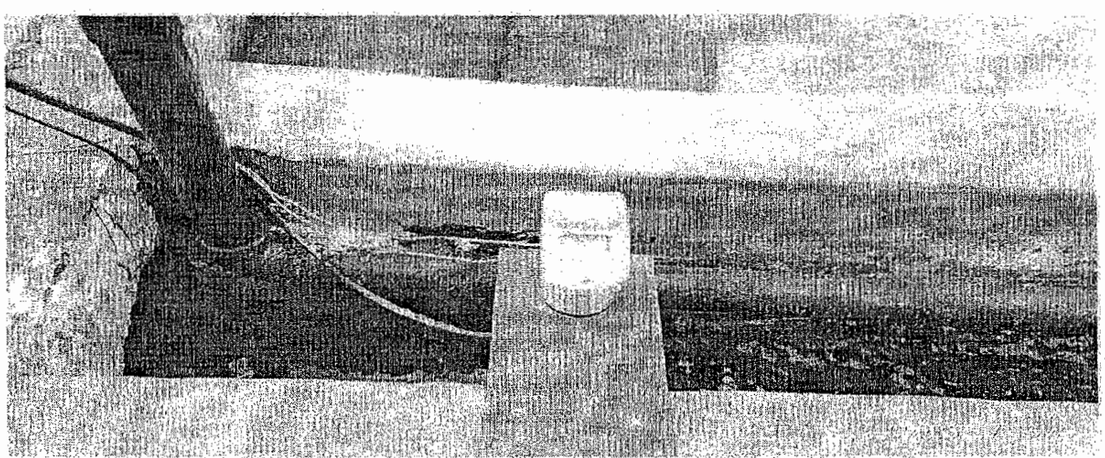

Photo- 9: Flow meter installed at outlet of ETP at Panki Thermal Power Plant

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Comments & Suggestions

[1]. Panki Drain carries mixed wastewater from domestic and industrial sources in the catchment of Panki Thermal Power Plant, Kanpur city, New Transport Nagar, Ratanpur, Panki G Block etc. The Panki drain meets river Pandu on its left bank at new transport nagar in Panki, Kanpur.

[2]. A monitoring team constituted following the Hon'ble NGT verdict dated July 13, 2017 visited the said drain on Aug 9, 2017.

[3]. During monitoring, it was found that the discharge has not been steady and consistent. Heavy rainfall was noticed during monitoring of the drain. Before rainfall on Aug. 9, the flow measured was 14.07 MLD. After 01 hour of rainfall the flow was found 140.53 MLD and after 3 hour of rainfall the flow was found 97.76 MLD.

[4]. The period of inspection does not reflect the representativeness as the monitoring was carried out during monsoon period and heavy rain in the catchment area was observed.

[5]. During visit the Panki Thermal Power Plant was found non-operational and the ETP of Panki Thermal Power Plant was functional and the treated effluent was being discharged into Panki drain.

[6]. The quality of treated effluent of Thermal Power Plant is summarised below:

Location	Parameters												
	pH	Colour (Hz)	SS (mg/l)	PO_4-P (mg/l)	NO_3-N (mg/l)	NH_3-N (mg/l)	BOD (mg/l)	COD (mg/l)	Fe (mg/l)	Pb (mg/l)	Ni (mg/l)	Cu (mg/l)	T. cr (mg/l)
Outlet of ETP	8.13	15	12	0.532	155	BDL	6.90	22.60	0.37	BDL	BDL	BDL	BDL

[7]. As informed by the unit representative of Panki Thermal Power Plant, in ETP they are currently treating the wastewater generated from domestic activity within the premises of power plant.

[8]. The presence of β-HCH is observed, this may be due to the previous sources in the catchment of the drain as it is most stable isomer and relatively resistant to microbial degradation due to its low water solubility and vapour pressure

Name of all monitoring officers along with designation	:	1. Dr. Raj Kishore Singh, Scientist 'D', CPCB, RD(N) 2. Sh. Vivek Raj, Scientist 'C', NMCG 3. Sh. Amit Kumar, Research Officer, NMCG 4. Dr. Ravi Prakash Mishra, RA-I, CPCB, RD(N) 5. Sh. Sudhir Kumar Awasthi, Monitoring Assistant, UPPCB, Kanpur

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Comments & Suggestions

[1]. Panki Drain carries mixed wastewater from domestic and industrial sources in the catchment of Panki Thermal Power Plant, Kanpur city, New Transport Nagar, Rathanpur, Panki G Block etc. The Panki drain meets river Pandu on its left bank at new transport nagar in Panki, Kanpur.

[2]. A monitoring team constituted following the Hon'ble NGT verdict dated July 13, 2017 visited the said drain on Aug 9, 2012.

[3]. During monitoring, it was found that the discharge has not been steady and consistent. Heavy rainfall was noticed during monitoring of the drain. Before rainfall on Aug. 9, the flow measured was 14.07 MLD. After 01 hour of rainfall the flow was found 140.53 MLD and after 3 hour of rainfall the flow was found 97.76 MLD.

[4]. The period of inspection does not reflect the representativeness as the monitoring was carried out during monsoon period and heavy rain in the catchment area was observed.

[5]. During visit the Panki Thermal Power Plant was found non operational and the ETP of Panki Thermal Power Plant was functional and the treated effluent was being discharged into Panki drain.

[6]. The quality of treated effluent of Thermal Power Plant is summarised below;

Location	Parameters								
	pH	Colour	SS	PO_4-P	NO_3-N	NH_4-N	BOD	COD	Heavy metal
Outlet of ETP	8.13	15	12	0.632	158	BDL	6.56	23.00	Result awaited

[7]. As informed by the unit representative of Panki Thermal Power Plant, in ETP they are currently treating the wastewater generated from domestic activity within the premises of power plant.

[8]. The presence of β-HCH is observed, this may be due to the previous sources in the catchment of the drain as it is most stable isomer and relatively resistant to microbial degradation due to its low water solubility and vapour pressure.

Name of all monitoring officers along with designation	1. Dr. Raj Kishore Singh, Scientist 'D', CPCB, RO(N) 2. Sh. Vivek Rai, Scientist 'C', NMCG 3. Sh. Amit Kumar, Research Officer, NMCG 4. Dr. Ravi Prakash Mishra, RA-I, CPCB, RO(N) 5. Sh. Sudhir Kumar Awasthi, Monitoring Assistant, UPPCB, Kanpur

Attendance – sheet

Joint Monitoring of - **Panki Drain** Date: 09-08-2017

S. No.	Name of officers	Organization	Designation	Email ID	Mobile No
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3	AMIT KUMAR	NMCG	Research officer	amit.kr64@gmail.com	8742939191
4	Dr. Ravi P. Mishra	CPCB	Research Analyst	mavithb@gmail.com	9936130273
5	Sudhir Kr. Awasthi	UPPCB	Monitoring Asstt.	no.uppcb@gmail	7839891900
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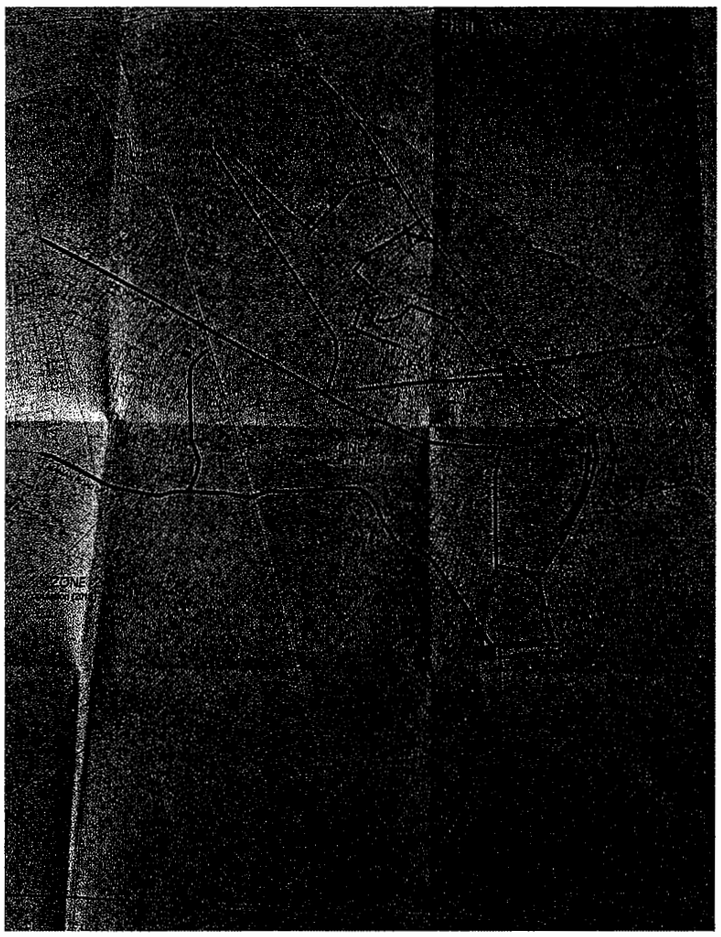
JOINT INSPECTION ON 12 DRAINS JOINING TO RIVER KALI-EAST IN BULANDSHAHR, UTTAR PRADESH

1. In pursuance of the CPCB letter no. B-190153/NGRBA/CPCB/2013-14 dated 02.08.2017, Hon'ble NGT judgment dated July 13, 2017 in case of OA no. 200/2014, M. C. Mehta Vs Union of India and others, joint inspection of 12 drains was carried out on 04-08-2017 with representative of NMCG, MoEF & CC, UPJN and UPPCB. The findings ad the recommendations are discussed I the following paras.

2. Out of these 12 drains 02 drains, namely Cheel Ghat Drain and Faislabad Drain, join the left bank of River Kali-East. While the remaining 10 drains joining the right bank of River Kali. The schematic arrangement of the drains is as under:



3. The flow measurements were undertaken through surface velocity measurement using float method and applying necessary correction factors to arrive at average flow. Simultaneously, waste water samples were collected to ascertain the characteristics required for deciding the treatment technology. The average flow as measured during the joint inspection carried out on 4th August 2017 stands at 42 mld. The summary of the flow measurements and characterization is presented at table 1, table 2 and table 3.

Table 1

S.No	Drain Name	Avg. Flow (MLD)	Waste Water Characteristics - General Parameters									
			pH	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	TDS (mg/l)	Cl^- (mg/l)	NH_3-N (mg/l)	NO_3^- N (mg/l)	TC (MPN/ 100 ml) $*10^6$	FC(MPN/ 100 ml) $*10^6$
1	Maman Road Nala	11.16	7.34	58	151	46	620	74	24	2.96	54	22
2	Adil Nala	9.34	7.1	147	292	226	596	105	13	3.34	92	92
3	Narshal Ghat	1.63	7.03	191	403	307	840	152	25	4.36	920	220
4	Cheel Ghat	1.75	7.35	32	92	78	688	100	32	1.8	220	46
5	Adil Nala-2	0.84	7.46	206	763	571	1024	161	24	5.07	920	20
6	Kasai Bada	1.5	7.15	245	413	252	864	131	19	3.21	35000	3800
7	Faisalabad	2.8	7.21	104	198	80	916	161	39	2.86	35	22
8	Behind Shani dev Mandir	Drain found Dry										
9	Dhameda Road	0.78	7.17	93	171	65	664	93	13	2.53	9.4	4.6
10	Devipura	2.65	6.86	127	233	110	664	83	22	2.67	1700	320
11	Chandwari Road	9.96	7.12	33	102	37	668	93	26	2.32	2200	1100
12	Behind Chamunda Mandir	0.04	7.42	48	127	66	628	65	18	2.31	350	49
Average Total (weighted composite)		**42.45**	**7.18**	**93.26**	**207.70**	**119.11**	**676.94**	**99.72**	**22.90**	**2.92**	**1958.91**	**450.69**

Detailed flow estimation worksheet is placed at Annexure 1.

Legends:
MLD- Million litres per day; BOD- Biochemical oxygen demand; COD- Chemical oxygen demand; TSS- Total suspended solids; TDS- Total dissolved solids; Cl^- Chlorides; NH_3-N – Ammonical nitrogen; NO_3^- -Nitrates; TC- Total Coliform; FC- Faecal Coliform

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Table 2

S No	Drain Name	Avg. Flow (MLD)	Waste Water Characteristics - Metals (mg/l)													
			As	Cd	Cr (T)	Cu	Fe	Pb	Mn	Ni	Hg	Zn	Sb	Co	Se	V
1	Maman Road Nala	11.16	BDL	BDL	BDL	0.01	0.99	BDL	0.11	BDL	BDL	0.07	BDL	BDL	BDL	BDL
2	Adil Nala	9.34	BDL	BDL	0.05	0.04	2.83	0.03	0.13	0.02	BDL	0.17	BDL	BDL	BDL	BDL
3	Narshal Ghat	1.63	BDL	BDL	BDL	0.07	5.76	0.02	0.2	BDL	BDL	0.17	BDL	BDL	BDL	0.01
4	Cheel Ghat	1.75	BDL	BDL	BDL	BDL	2.72	0.02	0.14	BDL	BDL	0.05	BDL	BDL	BDL	BDL
5	Adil Nala-2	0.84	BDL	BDL	0.01	0.04	5.77	0.02	0.3	BDL	BDL	0.19	BDL	BDL	BDL	0.01
6	Kasai Bada	1.5	BDL	BDL	BDL	0.19	2.62	0.03	0.18	0.01	BDL	0.16	BDL	BDL	BDL	BDL
7	Faisalabad	2.8	BDL	BDL	BDL	0.04	1.4	0.02	0.15	0.1	BDL	0.1	BDL	BDL	BDL	BDL
8	Behind Shani Dev Mandir	Drain Found Dry														
9	Dhameda Road	0.78	BDL	BDL	0.03	0.03	2.54	0.22	0.17	0.01	BDL	0.18	BDL	BDL	BDL	BDL
10	Devipura	2.65	BDL	BDL	BDL	0.03	1.52	0.02	0.11	BDL	BDL	0.12	BDL	BDL	BDL	BDL
11	Chandwari Road	9.96	BDL	BDL	BDL	BDL	0.51	BDL	0.09	BDL	BDL	0.06	BDL	BDL	BDL	BDL
12	Behind Chamunda Mandir	0.04	BDL	BDL	BDL	BDL	1.94	BDL	0.1	BDL	BDL	0.16	BDL	BDL	BDL	BDL
Total (weighted composite)		42.45	BDL	BDL	0.01	0.03	1.78	0.02	0.12	0.01	BDL	0.11	BDL	BDL	BDL	BDL

Legends

As – Arsenic; Cd - Cadmium; Cr (T) - Total Chromium; Cu – Copper; Fe – Iron; Pb – Lead; Mn – Manganese; Ni – Nickle; Hg – Mercury; Zn – Zinc; Sb – Antimony; Co – Cobolt; Se – Selenium; V - Vanadium

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Table 3

S No	Drain Name	Avg. Flow (MLD)	Waste Water Characteristics - Pesticides															
			Organo-Phosphate Pesticides (OPPs) (µg/l)					Organochlorine Pesticides (OCPs) (µg/l)										
			Dimethoate	Methyl Parathion	Malathion	Chloropyriphos	Ethion	α-HCH	β-HCH	γ-HCH	Aldrin	Diedrin	α-Endosulfan	β-Endosulfan	OP'DDT	PP'DDT	PP'DDE
1	Maman Road Nala	11.16	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2	Adil Nala	9.34	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	Narshal Ghat	1.63	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4	Cheel Ghat	1.75	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
5	Adil Nala-2	0.84	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
6	Kasai Bada	1.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Faisalabad	2.80	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	Behind Shani dev Mandir	Drain Found Dry															
9	Dhameda Road	0.78	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10	Devipura	2.65	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11	Chandwari Road	9.96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12	Behind Chamunda Mandir	0.04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Individual drain monitoring data sheets for the 11 drains (1 dry) are placed at Annexure 2.

4. The flow measured by the joint inspection team is 42 mld. As the measurements were undertake during monsoon period, there is a possibility that measured flow is on higher side due to dilution from rain / storm water. The possibility of dilution is also evident from the wastewater characteristic (Table 1) which shows composite weighted values of BOD and COD as 93 and 207 mg/l respectively as against normal sewage characteristics (BOD : 150-200 mg/l, COD : 300 to 450 mg/l).

5. The 2011 census population of the Bulandshahr town, contributing to the sewage generation is 222519. The population is expected to have grown to 257000 considering the last recorded decadal growth rate of 26%. The sewage generation, based on population and 135 lpcd water supply, is estimated to be 28 mld as against actual flow of 42 mld as measured by JIT (para 4 above) also indicating towards dilution from other sources and may include rain water.

6. The JIT measured flow of 42 mld would correspond to 26 mld, if the JIT measured BOD (93 mg/l) is corrected to 150 mg /l (lower rage of normal sewage characteristics) which corresponds well to population based sewage generation estimates at para 5 above.

7. The waste water characteristics as indicated at table 1, table 2 and table 3 shows waste water to be primarily bio-degradable in nature with no pesticides ad minor contribution of heavy metals indicative of some industrial discharges into Adil nala -1, Adil nala -2 and Dhameda road nala.

8. STP Design

   a) The STP needs to be designed for 15 years horizon from the base year (2020). Therefore, the STP needs to be designed to cater to the flow requirements of year 2035. In consideration of the JIT measured actual flow to be on higher side due to possible monsoon impact, the flow requirements for designing the STP needs to be estimated based on population projections for the year 2035. In addition, 15% margin is proposed to be kept towards unforeseen discharges.

   b) The population growth trends and Bulandshahr being small town with scope for vast expansion, the geometrical growth method has been considered to arrive at the flow requirements for the year 2035. Accordingly, the population of the Bulandshahr town for the year 2035, considering average 2% annual growth and applying geometrical growth pattern over 2017 population (2,57,000), is estimated at 3,67,059. The corresponding sewage flow based on 135 lpcd water supply, 0.8 interception factor (sewage generation factor) and including 15% margin works out at 46 mld. The JIT recommends STP of 50 mld for 2035 requirements to be developed in 4 modules each of 12.5 mld for flexibility of operations.

   c) Considering the waste water characteristics to be primarily bio-degradable I nature with insignificant heavy metal contamination, the STP is proposed to be build using biological process (any of its variations such as activated sludge process, SBR, MBR etc).

d) The sewage collected from the two drains on left bank of river Kali i.e. Cheel Ghat Drain and Faislabad Drain is proposed to be conveyed to Gravity interceptor network o the right bank through a sewage lift station.

e) The STP is proposed to be built near Maman Road and Shikarpur bypass road, the location already identified by UP Jal Nigam. The land has adequate area of 1.8 hectare and permits gravity flow of the sewage on the right bank of river Kali. The location is indicated at Annexure-III

(Dr. Pankaj Kumar) Scientist 'D' CPCB, Delhi	(Rajat K. Gupta) Sr. Specialist NMCG, Delhi	(S. K. Sharma) Executive Engineer UPJN, Bulandshahr	(Mahedra Singh) Assistant Engineer UPJN, Bulandshahr
(Mahendra Kumar) Junior Engineer, UPJN	(Rajkumar Sharma) Junior Engineer, UPJN	(Anil K. Vishwakarma) Scientific Assistant UPPCB	(J. K. Sharma) Lab Assistant UPPCB

Details calculations of flow rate:

S No	Time of Flow rate Measurement	Flow Depth	Flow Width at Water Surface	Flow Area	Distance between points	Travel time taken by Float (ball)	Surface velocity	Average Velocity	Instantaneous Measured Flow Rate (MLD)	Peakflow factor adopted	Avg Flow Rate (MLD)
		D av	**W**	**A= D*av.* W**	**L**	**T**	**Vs= L / T**	**V*av* =0.8x Vs**	**Q_{ins} = A*Vav*3.6*24**	**PF**	**Qav = Q_{ins} /PF**
		Metres (M)	**M**	**sq.M**	**M**	**Sec**	**m/sec**	**m/sec**	**MLD**		
1	Maman Road Nala	0.25	1.80	0.45	9.20	11.39	0.81	0.65	25.12	2.25	11.16
2	Adil Nala	0.18	2.20	0.40	9.50	12.37	0.77	0.61	21.02	2.25	9.34
3	Narshal Ghat	0.13	0.60	0.08	14.00	19.80	0.71	0.57	3.67	2.25	1.63
4	Cheel Ghat	0.28	0.60	0.17	6.00	17.74	0.34	0.27	3.93	2.25	1.75
5	Adil Nala-2	0.11	0.70	0.08	17.60	49.55	0.36	0.28	1.89	2.25	0.84
6	Kasai Bada	0.12	0.90	0.11	7.50	16.63	0.45	0.36	3.37	2.25	1.50
7	Faisalabad	0.20	1.80	0.36	6.00	23.75	0.25	0.20	6.29	2.25	2.80
8	Behind Shani dev Mandir	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
9	Dhameda Road	0.04	0.70	0.03	5.00	5.50	0.91	0.73	1.76	2.25	0.78
10	Devipura	0.21	1.40	0.29	5.80	19.75	0.29	0.23	5.97	2.25	2.65
11	Chandwari Road	0.40	2.30	0.92	6.50	18.45	0.35	0.28	22.40	2.25	9.96
12	*Behind Chamunda Mandir								0.09	2.25	0.04
						Total Instantaneous Flow rate (KLD)			95.42		**42.00**

Note - *Drain flow was measured by bucket method due to less flow (MLD)

Peak Flow factor adopted (for Instantaneous flow measurements made during early hours i.e. 9:00 am to 14:00 pm represetig peak flow)	2.25
Average flow (Total Instantaneous Flow rate / Peak Factor) in MLD	**42**

Individual Drain Monitoring Data Sheets

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DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (9.00 am-09:30 am)

1.	Name of the Drain		:	**Maman Road Nala**		
2.	Meeting Ganga/Ramganga/**Kali-east** at -		:	**Right bank**		
3.	Name of the Regional Office of SPCB		:	Bulandshahr		
4.	Source of pollution load:		:	**Domestic**		
5.	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.		
				2.		
6.	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	4 km Aerial distance		
7.	Catchment area			Bulandshahr		
8.	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.393042		
		Longitude		77.860702		
	Distance from confluence point (may the find out over google earth/map), KM			300 meter		
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.393042		
		Longitude		77.860702		
9.	Landmarks / Address of the Location			Mohankutir		
10.	Flow (if in MLD) if zero indicate whether dry or stagnant (flow measurement follow the float method as Annexed)		:	**11.16 MLD**		
11.	Observations		:	1. 2/3 part of the drain made of concrete part. 2. Drain at left bank of Kali-East.		
12.	Urgent action required, if any		:	----------		
13.	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1.	Colour	:	-
2.	pH	:	7.34
3.	BOD (mg/l)	:	58
4.	COD (mg/l)	:	151
5.	TSS (mg/l)	:	46
6.	TDS (mg/l)	:	620
7.	Cl^- (mg/l)	:	74
8.	NH_3-N (mg/l)	:	24
9.	NO_3^-(mg/l)	:	2.96
10.	DO (mg/l)*	:	-
11.	TC (MPN/ 100 ml)#	:	54×10^6
12.	FC (MPN/ 100 ml)#	:	22×10^6

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1.	Arsenic (As) mg/l	:	BDL
2.	Cadmium (Cd) mg/l	:	BDL
3.	Total Chromium (Cr) mg/l	:	BDL
4.	Copper (Cu) mg/l	:	0.01
5.	Iron (Fe) mg/l	:	0.99
6.	Lead (Pb) mg/l	:	BDL
7.	Manganese (Mn) mg/l	:	0.11
8.	Nickel (Ni) mg/l	:	BDL
9.	Mercury (Hg) mg/l	:	-
10.	Zinc (Zn) mg/l	:	0.07
11.	Antimony (Sb) mg/l	:	BDL
12.	Cobalt (Co) mg/l	:	BDL
13.	Selenium (Se) mg/l	:	BDL
14.	Vanadium (V) mg/l	:	BDL

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DRAIN MONITORING FORMAT
(Pesticide)

S. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1.	Monochrotophos	:	-
2.	Dimethoate (µg/l)	:	BDL
3.	Methyl Parathion (µg/l)	:	BDL
4.	Malathion (µg/l)	:	BDL
5.	Chloropyriphos (µg/l)	:	BDL
6.	Methyl Parathion	:	BDL
7.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8.	α-BHC	:	BDL
9.	β-BHC	:	BDL
10.	γ-BHC	:	BDL
11.	δ-BHC	:	-
12.	Total BHC (ng/l)	:	-
13.	Aldrin (ng/l)	:	BDL
14.	Diedrin (ng/l)	:	BDL
15.	α-Endosulfan	:	BDL
16.	Total Endosulfan (ng/l)	:	-
17.	β-Endosulfan	:	BDL
18.	OP'DDT	:	BDL
19.	PP'DDT	:	BDL
20.	PP'DDE	:	BDL
21.	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain

Confluence point in east kali

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DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (09:35- 09:50 AM)

1	Name of the Drain		:	**Aadil Nalla**		
2	Meeting **Kali-east** at -			**Right bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	4 km Aerial distance		
7	Catchment area			Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.393941		
		Longitude		77.8602274		
	Distance from confluence point (may the find out over google earth/map), KM			50 meter		
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.393941		
		Longitude		77.8602274		
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**9.34 MLD**		
11	Observations		:	1. The drain made of concrete material. 2. Water depth in the drain is 0.18 m		
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1.	Colour	:	-
2.	pH	:	7.10
3.	BOD (mg/l)	:	147
4.	COD (mg/l)	:	292
5.	TSS (mg/l)	:	226
6.	TDS (mg/l)	:	596
7.	Cl^- (mg/l)	:	105
8.	NH_3-N (mg/l)	:	13
9.	NO_3^-(mg/l)	:	3.34
10.	DO (mg/l)*	:	-
11.	TC (MPN/ 100 ml)#	:	92×10^6
12.	FC (MPN/ 100 ml)#	:	92×10^6

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	0.05
4	Copper (Cu) mg/l	:	0.04
5	Iron (Fe) mg/l	:	2.83
6	Lead (Pb) mg/l	:	0.03
7	Manganese (Mn) mg/l	:	0.13
8	Nickel (Ni) mg/l	:	0.02
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.17
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	BDL

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DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1.	Monochrotophos	:	-
2.	Dimethoate (µg/l)	:	BDL
3.	Methyl Parathion (µg/l)	:	BDL
4.	Malathion (µg/l)	:	BDL
5.	Chloropyriphos (µg/l)	:	BDL
6.	Methyl Parathion	:	BDL
7.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8.	α-BHC	:	BDL
9.	β-BHC	:	BDL
10.	γ-BHC	:	BDL
11.	δ-BHC	:	-
12.	Total BHC (ng/l)	:	-
13.	Aldrin (ng/l)	:	BDL
14.	Diedrin (ng/l)	:	BDL
15.	α-Endosulfan	:	BDL
16.	Total Endosulfan (ng/l)	:	-
17.	β-Endosulfan	:	BDL
18.	OP'DDT	:	BDL
19.	PP'DDT	:	BDL
20.	PP'DDE	:	BDL
21.	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain

Confluence point in east kali

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DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (09:35- 09:50 AM)

1	Name of the Drain		:	**Narshal Ghat**		
2	Meeting **Kali-east** at -			**Right bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	5 km Aerial distance		
7	Catchment area			Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.404482		
		Longitude		77.862991		
	Distance from confluence point (may the find out over google earth/map), KM			51 meter		
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.404482		
		Longitude		77.862991		
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**1.63 MLD**		
11	Observations		:	3.		
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
13.	Colour	:	-
14.	pH	:	7.03
15.	BOD (mg/l)	:	191
16.	COD (mg/l)	:	403
17.	TSS (mg/l)	:	307
18.	TDS (mg/l)	:	840
19.	Cl^- (mg/l)	:	152
20.	NH_3-N (mg/l)	:	25
21.	NO_3^-(mg/l)	:	4.36
22.	DO (mg/l)*	:	-
23.	TC (MPN/ 100 ml)#	:	92×10^7
24.	FC (MPN/ 100 ml)#	:	22×10^7

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	BDL
4	Copper (Cu) mg/l	:	0.07
5	Iron (Fe) mg/l	:	5.76
6	Lead (Pb) mg/l	:	0.02
7	Manganese (Mn) mg/l	:	0.20
8	Nickel (Ni) mg/l	:	BDL
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.17
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	0.01

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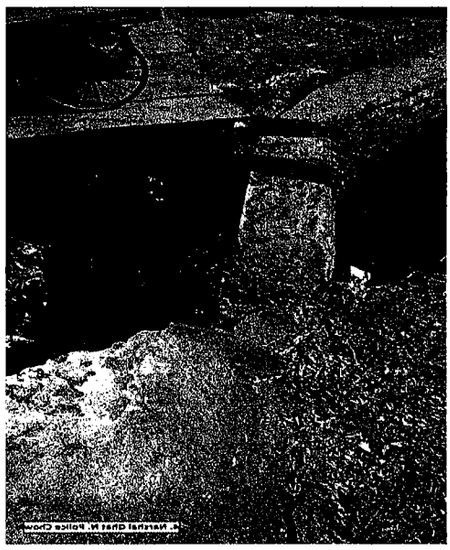
10504

DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
22.	Monochrotophos	:	-
23.	Dimethoate (µg/l)	:	BDL
24.	Methyl Parathion (µg/l)	:	BDL
25.	Malathion (µg/l)	:	BDL
26.	Chloropyriphos (µg/l)	:	BDL
27.	Methyl Parathion	:	BDL
28.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
29.	α-BHC	:	BDL
30.	β-BHC	:	BDL
31.	γ-BHC	:	BDL
32.	δ-BHC	:	-
33.	Total BHC (ng/l)	:	-
34.	Aldrin (ng/l)	:	BDL
35.	Diedrin (ng/l)	:	BDL
36.	α-Endosulfan	:	BDL
37.	Total Endosulfan (ng/l)	:	-
38.	β-Endosulfan	:	BDL
39.	OP'DDT	:	BDL
40.	PP'DDT	:	BDL
41.	PP'DDE	:	BDL
42.	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)



Sample collecting point in drain

DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (10:00-10:20 AM)

1	Name of the Drain		:	**Cheel Ghat**		
2	Meeting **Kali-east** at -			**Left bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	Approx. 2 km		
7	Catchment area			Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.3999115		
		Longitude		77.867279		
	Distance from confluence point (may the find out over google earth/map), KM			50 meter		
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.3999115		
		Longitude		77.867279		
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**1.75 MLD**		
11	Observations		:	1. Oil and grease comes from Automobile shops. 2. Domestic waste also mixed with automobile waste water.		
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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105D6

DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1	Colour	:	-
2	pH	:	7.35
3	BOD (mg/l)	:	32
4	COD (mg/l)	:	92
5	TSS (mg/l)	:	78
6	TDS (mg/l)	:	688
7	Cl^- (mg/l)	:	100
8	NH_3-N (mg/l)	:	32
9	NO_3^-(mg/l)	:	1.80
10	DO (mg/l)*	:	
11	TC (MPN/ 100 ml)#	:	22×10^7
12	FC (MPN/ 100 ml)#	:	46×10^6

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	BDL
4	Copper (Cu) mg/l	:	BDL
5	Iron (Fe) mg/l	:	2.72
6	Lead (Pb) mg/l	:	0.02
7	Manganese (Mn) mg/l	:	0.14
8	Nickel (Ni) mg/l	:	BDL
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.05
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	BDL

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DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	BDL
9	β-BHC	:	BDL
10	γ-BHC	:	BDL
11	δ-BHC	:	-
12	Total BHC (ng/l)	:	-
13	Aldrin (ng/l)	:	BDL
14	Diedrin (ng/l)	:	BDL
15	α-Endosulfan	:	BDL
16	Total Endosulfan (ng/l)	:	-
17	β-Endosulfan	:	BDL
18	OP'DDT	:	BDL
19	PP'DDT	:	BDL
20	PP'DDE	:	BDL
21	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain

Confluence point in east kali

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10508

DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (10:25-10:45 AM)

1	Name of the Drain		:	**Adil Nagar -II**		
2	Meeting **Kali-east** at -			**Right Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	Approx. 2 km		
7	Catchment area			Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.404482		
		Longitude		77.862991		
	Distance from confluence point (may the find out over google earth/map), KM			25 meter		
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.404482		
		Longitude		77.862991		
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**0.84**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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10599

DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1	Colour	:	-
2	pH	:	7.46
3	BOD (mg/l)	:	206
4	COD (mg/l)	:	763
5	TSS (mg/l)	:	571
6	TDS (mg/l)	:	1024
7	Cl^- (mg/l)	:	161
8	NH_3-N (mg/l)	:	24
9	NO_3^-(mg/l)	:	5.07
10	DO (mg/l)*	:	-
11	TC (MPN/ 100 ml)#	:	92×17^7
12	FC (MPN/ 100 ml)#	:	20×10^6

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	0.01
4	Copper (Cu) mg/l	:	0.04
5	Iron (Fe) mg/l	:	5.77
6	Lead (Pb) mg/l	:	0.02
7	Manganese (Mn) mg/l	:	0.30
8	Nickel (Ni) mg/l	:	BDL
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.19
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	0.01

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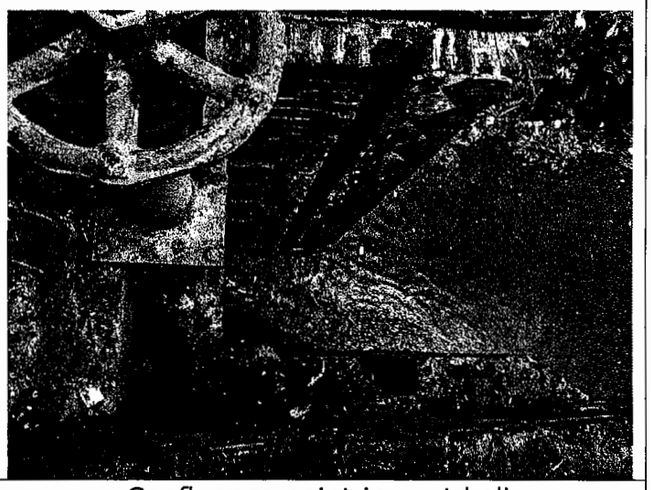
10570

DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	BDL
9	β-BHC	:	BDL
10	γ-BHC	:	BDL
11	δ-BHC	:	-
12	Total BHC (ng/l)	:	-
13	Aldrin (ng/l)	:	BDL
14	Diedrin (ng/l)	:	BDL
15	α-Endosulfan	:	BDL
16	Total Endosulfan (ng/l)	:	-
17	β-Endosulfan	:	BDL
18	OP'DDT	:	BDL
19	PP'DDT	:	BDL
20	PP'DDE	:	BDL
21	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain



Confluence point in east kali

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10511

DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (10:50 -11:10 AM)

1	Name of the Drain		:	**Kasai Bada**		
2	Meeting **Kali-east** at -			**Right Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	Approx. 1.5 km		
7	Catchment area			Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.408051		
		Longitude		77.858704		
	Distance from confluence point (may the find out over google earth/map), KM					
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.408051		
		Longitude		77.858704		
9	Landmarks / Address of the Location			Near Hazi Ali, MLA house		
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**1.5 MLD**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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10572

DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1.	Colour	:	-
2.	pH	:	7.15
3.	BOD (mg/l)	:	245
4.	COD (mg/l)	:	413
5.	TSS (mg/l)	:	252
6.	TDS (mg/l)	:	864
7.	Cl^- (mg/l)	:	131
8.	NH_3-N (mg/l)	:	19
9.	NO_3^-(mg/l)	:	3.21
10.	DO (mg/l)*	:	-
11.	TC (MPN/ 100 ml)#	:	35×10^9
12.	FC (MPN/ 100 ml)#	:	38×10^8

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	BDL
4	Copper (Cu) mg/l	:	0.19
5	Iron (Fe) mg/l	:	2.62
6	Lead (Pb) mg/l	:	0.03
7	Manganese (Mn) mg/l	:	0.18
8	Nickel (Ni) mg/l	:	0.01
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.16
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	BDL

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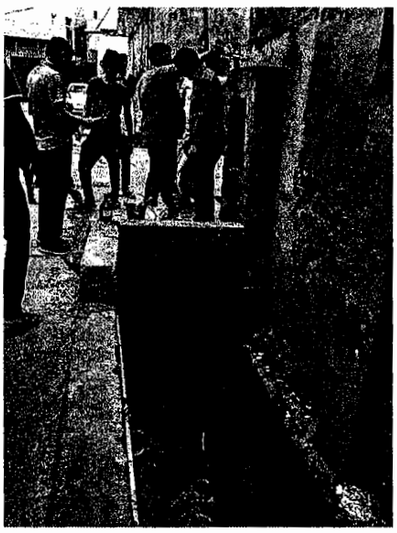
10573

DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
1	α-BHC	:	BDL
2	β-BHC	:	BDL
3	γ-BHC	:	BDL
4	δ-BHC	:	-
5	Total BHC (ng/l)	:	-
6	Aldrin (ng/l)	:	BDL
7	Diedrin (ng/l)	:	BDL
8	α-Endosulfan	:	BDL
9	Total Endosulfan (ng/l)	:	-
10	β-Endosulfan	:	BDL
11	OP'DDT	:	BDL
12	PP'DDT	:	BDL
13	PP'DDE	:	BDL
14	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)



Sample collecting point in drain

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10514

DRAIN MONITORING FORMAT
(All Fields are Compulsory)

Date & Time of sampling: 04.08.2017 (11:20- 11:45 AM)

1	Name of the Drain		:	**Faisalabad**		
2	Meeting **Kali-east** at -			**Left Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:			
7	Catchment area			Left bank of Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.404778		
		Longitude		77.862274		
	Distance from confluence point (may the find out over google earth/map), KM					
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.404778		
		Longitude		77.862274		
9	Landmarks / Address of the Location			Near Sabji Mandi		
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**2.8 MLD**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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10575

DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1.	Colour	:	-
2.	pH	:	7.21
3.	BOD (mg/l)	:	104
4.	COD (mg/l)	:	198
5.	TSS (mg/l)	:	80
6.	TDS (mg/l)	:	916
7.	Cl^- (mg/l)	:	161
8.	NH_3-N (mg/l)	:	39
9.	NO_3^-(mg/l)	:	2.86
10.	DO (mg/l)*	:	-
11.	TC (MPN/ 100 ml)#	:	35×10^6
12.	FC (MPN/ 100 ml)#	:	22×10^6

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	BDL
4	Copper (Cu) mg/l	:	0.04
5	Iron (Fe) mg/l	:	1.40
6	Lead (Pb) mg/l	:	0.02
7	Manganese (Mn) mg/l	:	0.15
8	Nickel (Ni) mg/l	:	0.10
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.10
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	BDL

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10876

DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	BDL
9	β-BHC	:	BDL
10	γ-BHC	:	BDL
11	δ-BHC	:	-
12	Total BHC (ng/l)	:	-
13	Aldrin (ng/l)	:	BDL
14	Diedrin (ng/l)	:	BDL
15	α-Endosulfan	:	BDL
16	Total Endosulfan (ng/l)	:	-
17	β-Endosulfan	:	BDL
18	OP'DDT	:	BDL
19	PP'DDT	:	BDL
20	PP'DDE	:	BDL
21	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain

Confluence point in east kali

DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (11:55 AM -12:25 PM)

1	Name of the Drain		:	**Behind Shani Dev Mandir**		
2	Meeting **Kali-east** at -			**Right Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:			
7	Catchment area					
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	**DRY**		
		Longitude		**DRY**		
	Distance from confluence point (may the find out over google earth/map), KM					
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	**DRY**		
		Longitude				
9	Landmarks / Address of the Location			**DRY**		
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**DRY**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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10518

DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1	Colour	:	DRY
2	pH	:	
3	BOD (mg/l)	:	
4	COD (mg/l)	:	
5	TSS (mg/l)	:	
6	TDS (mg/l)	:	
7	Cl^- (mg/l)	:	
8	NH_3-N (mg/l)	:	
9	NO_3^-(mg/l)	:	
10	DO (mg/l)*	:	
11	TC (MPN/ 100 ml)#	:	
12	FC (MPN/ 100 ml)#	:	

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	**DRY**
2	Cadmium (Cd) mg/l	:	
3	Total Chromium (Cr) mg/l	:	
4	Copper (Cu) mg/l	:	
5	Iron (Fe) mg/l	:	
6	Lead (Pb) mg/l	:	
7	Manganese (Mn) mg/l	:	
8	Nickel (Ni) mg/l	:	
9	Mercury (Hg) mg/l	:	
10	Zinc (Zn) mg/l	:	
11	Antimony (Sb) mg/l	:	
12	Cobalt (Co) mg/l	:	
13	Selenium (Se) mg/l	:	
14	Vanadium (V) mg/l	:	

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DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	**DRY**
2	Dimethoate (µg/l)	:	
3	Methyl Parathion (µg/l)	:	
4	Malathion (µg/l)	:	
5	Chloropyriphos (µg/l)	:	
6	Methyl Parathion	:	
7	Ethion (µg/l)	:	
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	**DRY**
9	β-BHC	:	
10	γ-BHC	:	
11	δ-BHC	:	
12	Total BHC (ng/l)	:	
13	Aldrin (ng/l)	:	
14	Diedrin (ng/l)	:	
15	α-Endosulfan	:	
16	Total Endosulfan (ng/l)	:	
17	β-Endosulfan	:	
18	OP'DDT	:	
19	PP'DDT	:	
20	PP'DDE	:	
21	Total DDT (ng/l)	:	

Photographs with captions – Dry drain
(Add date & Time stamping in camera)

DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (12:35-01:00 PM)

1	Name of the Drain		:	**Bridge Dhameda Road**		
2	Meeting **Kali-east** at -			**Right Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	App. 500m		
7	Catchment area			Right bank of Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.409494		
		Longitude		77.860802		
	Distance from confluence point (may the find out over google earth/map), KM					
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.409494		
		Longitude		77.860802		
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**0.78 MLD**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1	Colour	:	-
2	pH	:	7.17
3	BOD (mg/l)	:	93
4	COD (mg/l)	:	171
5	TSS (mg/l)	:	65
6	TDS (mg/l)	:	664
7	Cl^- (mg/l)	:	93
8	NH_3-N (mg/l)	:	13
9	NO_3^-(mg/l)	:	2.53
10	DO (mg/l)*	:	-
11	TC (MPN/ 100 ml)#	:	94×10^5
12	FC (MPN/ 100 ml)#	:	46×10^5

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

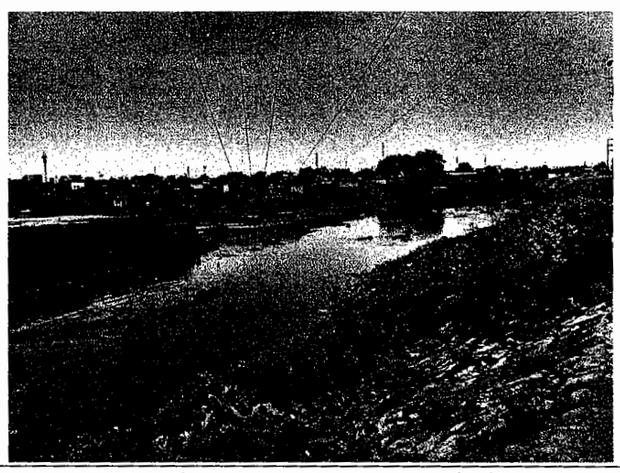
Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	0.01
4	Copper (Cu) mg/l	:	0.03
5	Iron (Fe) mg/l	:	2.54
6	Lead (Pb) mg/l	:	0.22
7	Manganese (Mn) mg/l	:	0.17
8	Nickel (Ni) mg/l	:	0.01
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.18
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	BDL

DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	BDL
9	β-BHC	:	BDL
10	γ-BHC	:	BDL
11	δ-BHC	:	-
12	Total BHC (ng/l)	:	-
13	Aldrin (ng/l)	:	BDL
14	Diedrin (ng/l)	:	BDL
15	α-Endosulfan	:	BDL
16	Total Endosulfan (ng/l)	:	-
17	β-Endosulfan	:	BDL
18	OP'DDT	:	BDL
19	PP'DDT	:	BDL
20	PP'DDE	:	BDL
21	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain



Confluence point in east kali

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10523

DRAIN MONITORING FORMAT
(All Fields are Compulsory)

Date & Time of sampling: 04.08.2017 (01:05-01:25 PM)

1	Name of the Drain		:	**Devipura**		
2	Meeting **Kali-east** at -			**Right Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	App. 150m		
7	Catchment area			Right bank of Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.412138		
		Longitude		77.856201		
	Distance from confluence point (may the find out over google earth/map), KM					
	Co-ordinate of the sampling point (Decimal units)	Latitude	:	28.412138		
		Longitude		77.856201		
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**2.65 MLD**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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DRAIN MONITORING FORMAT
(General parameters)

Sl. No.	Parameters		Results
1	Colour	:	-
2	pH	:	6.86
3	BOD (mg/l)	:	127
4	COD (mg/l)	:	233
5	TSS (mg/l)	:	110
6	TDS (mg/l)	:	664
7	Cl^- (mg/l)	:	83
8	NH_3-N (mg/l)	:	22
9	NO_3^-(mg/l)	:	2.67
10	DO (mg/l)*	:	-
11	TC (MPN/ 100 ml)#	:	17×10^8
12	FC (MPN/ 100 ml)#	:	32×10^7

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT
(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	BDL
4	Copper (Cu) mg/l	:	0.03
5	Iron (Fe) mg/l	:	1.52
6	Lead (Pb) mg/l	:	0.02
7	Manganese (Mn) mg/l	:	0.11
8	Nickel (Ni) mg/l	:	BDL
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.12
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
14	Vanadium (V) mg/l	:	BDL

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DRAIN MONITORING FORMAT
(Pesticide)

Sl. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	BDL
9	β-BHC	:	BDL
10	γ-BHC	:	BDL
11	δ-BHC	:	-
12	Total BHC (ng/l)	:	-
13	Aldrin (ng/l)	:	BDL
14	Diedrin (ng/l)	:	BDL
15	α-Endosulfan	:	BDL
16	Total Endosulfan (ng/l)	:	-
17	β-Endosulfan	:	BDL
18	OP'DDT	:	BDL
19	PP'DDT	:	BDL
20	PP'DDE	:	BDL
21	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain

Confluence point in east kali

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DRAIN MONITORING FORMAT

Date & Time of sampling: 04.08.2017 (01:30 PM-2.00 PM)

1	Name of the Drain		:	**Behind Chamunda Mandir**		
2	Meeting **Kali-east** at -			**Right Bank**		
3	Name of the Regional Office of SPCB		:	Bulandshahr		
4	Source of pollution load:		:	**Domestic**		
5	If Industrial /Mixed (name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Sl. No.	Name of Industry	Sector
				1.	-	-
				2.	-	-
				3.	-	-
6	Traceable length (in Km) before meeting Ganga (through google earth/map)		:	App. 1 km		
7	Catchment area			Right bank of Bulandshahr		
8	Co-ordinate of the confluence point (if not reachable indirect though google earth/map) (Decimal units)	Latitude	:	28.418764		
		Longitude		77.851616		
	Distance from confluence point (may the find out over google earth/map), KM					
	Co-ordinate of the sampling point (Decimal units)	Latitude	:			
		Longitude				
9	Landmarks / Address of the Location					
10	Flow (if in MLD) if zero indicate whether dry or stagnant		:	**0.04 MLD**		
11	Observations		:			
12	Urgent action required, if any		:			
13	Name of all monitoring officers along with Designation			1.Dr Pankaj Kumar Sci. "D", CPCB 2. Sh. Rajat K. Gupta, Sr. Specialist, NMCG 3. Sh. S.K. Sharma, Executive Engineer, UPJN 4. Sh. Maninder Singh, AE, UPJN 5. Mahendra Kumar, JE, UPJN 6. Rajkumar Sharma, JE, UPJN 7. Sh. Anil Kumar Vishwakarma, UPPCB 8. Sh. J.K. Sharma, LA, UPPCB 9. Sh. Ajay Sharma, MTS, CPCB		

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DRAIN MONITORING FORMAT

(General parameters)

Sl. No.	Parameters		Results
1	Colour	:	-
2	pH	:	7.42
3	BOD (mg/l)	:	48
4	COD (mg/l)	:	127
5	TSS (mg/l)	:	66
6	TDS (mg/l)	:	628
7	Cl^- (mg/l)	:	65
8	NH_3-N (mg/l)	:	18
9	NO_3^-(mg/l)	:	2.31
10	DO (mg/l)*	:	-
11	TC (MPN/ 100 ml)#	:	35×10^7
12	FC (MPN/ 100 ml)#	:	49×10^6

*For Fresh water carrying drains/ rivers
#For sewage, mixed Drains & River

DRAIN MONITORING FORMAT

(Trace Metal/ Heavy Metal)

Sl. No.	Parameters		Results
1	Arsenic (As) mg/l	:	BDL
2	Cadmium (Cd) mg/l	:	BDL
3	Total Chromium (Cr) mg/l	:	BDL
4	Copper (Cu) mg/l	:	BDL
5	Iron (Fe) mg/l	:	1.94
6	Lead (Pb) mg/l	:	BDL
7	Manganese (Mn) mg/l	:	0.10
8	Nickel (Ni) mg/l	:	BDL
9	Mercury (Hg) mg/l	:	-
10	Zinc (Zn) mg/l	:	0.16
11	Antimony (Sb) mg/l	:	BDL
12	Cobalt (Co) mg/l	:	BDL
13	Selenium (Se) mg/l	:	BDL
15	Vanadium (V) mg/l	:	BDL

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DRAIN MONITORING FORMAT
(Pesticide)

S. No.	Parameters		Results
	Water temperature (°C)	:	-
	Pesticide Analysis Report (OPPs)	:	
1	Monochrotophos	:	-
2	Dimethoate (µg/l)	:	BDL
3	Methyl Parathion (µg/l)	:	BDL
4	Malathion (µg/l)	:	BDL
5	Chloropyriphos (µg/l)	:	BDL
6	Methyl Parathion	:	BDL
7	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
8	α-BHC	:	BDL
9	β-BHC	:	BDL
10	γ-BHC	:	BDL
11	δ-BHC	:	-
12	Total BHC (ng/l)	:	-
13	Aldrin (ng/l)	:	BDL
14	Diedrin (ng/l)	:	BDL
15	α-Endosulfan	:	BDL
16	Total Endosulfan (ng/l)	:	-
17	β-Endosulfan	:	BDL
18	OP'DDT	:	BDL
19	PP'DDT	:	BDL
20	PP'DDE	:	BDL
21	Total DDT (ng/l)	:	-

Photographs with captions – Sampling & Confluence point
(Add date & Time stamping in camera)

Sample collecting point in drain

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Annexure-III

Proposed STP Location

Attendance – sheet

Joint Monitoring of 12 Bulandshahr Drain date 04-08-2017

S.No	Name of officers	Organization	Designation	Email ID	Mobile No	Signature
1	Dr. Pankaj Kumar	CPCB	Scientist - D	pankajmewarg[illegible]@gmail.com	7834940482	[illegible]
2	Rajat K. Gupta	NMCG	Sr. Specialist	rkgupta@nmcg.nic.in	8744094101	[illegible]
3	S.K. Sharma	U.P. J.N.	E.E.	cdupjngreaternoida@gmail.com	7599201511	[illegible]
4	Mahendra Kumar	U.P.JN	J.E		9411232154	[illegible]
5	Mahendra Singh	UPJN	AE	"	9911048717	[illegible]
6	Raj Kumar Sharma	UPJN	J.E	CDUPJnGRNoida	9410039225	[illegible]
7	Ajay Kr. Sharma	CPCB	MTS	ajaysharma78032@gmail.com	7042559934	[illegible]
8	J.K. Sharma	UPPCB	L.A.	ROBulandshahar@gmail	7839891770	[illegible]
9	Anil Kumar Vishwakarma	UPPCB	S.A	"	7839891770	[illegible]
10						
11						

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Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

WASTEWATER LABORATORY
ANALYSIS REPORT

Report No.: WWL/Aug/67/17.
Issue Date:

Source of sample : Drains.
Samples collected by : Dr.Pankaj & Team.
Date & time of sample receipt : Refer Column Given Below.
Date of sample analysis : 07th to 17th August'2017.
Sample registration no. & date : Refer Column Given Below.
Environmental conditions during sampling : -
Test method reference : APHA/BIS.
Report sent to (Name & Address) : Dr.Pankaj.

S. No.	Sample Code/Detail	Date & Time of Collection	Date & Time of Receipt	Reg. No. & Date	WWL Sample No.	pH	TSS	COD	BOD	NH_3 - N	TDS	Cl^-	NO_3-N	-
1.	AB1	04/08/17	07/08/17	14715/WW-22/17	593	7.34	46	151	58	24	620	74	2.96	-
2.	AB2	-do-	-do-	-do-	594	7.10	226	292	147	13	596	105	3.34	-
3.	AB3	-do-	-do-	-do-	595	7.03	307	403	191	25	840	152	4.36	-
4.	AB4	-do-	-do-	-do-	596	7.35	78	92	32	32	688	100	1.80	-
5.	AB5	-do-	-do-	-do-	597	7.46	571	763	206	24	1024	161	5.07	-
6.	AB6	-do-	-do-	-do-	598	7.15	252	413	245	19	864	131	3.21	-
7.	AB7	-do-	-do-	-do-	599	7.21	80	198	104	39	916	161	2.86	-

Note: All the concentrations are expressed in mg/l except of pH and Conductivity (µmho/cm).

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. The parameters in the report are under NABL Accreditation.
4. * Not under NABL scope parameter.
5. BDL & Test methods are mentioned on back side of this report.

Analyst
(B.Sasi Devi)

Supervisor

Dr.P.K.Behera
(I/C Water Lab &
Authorized Signatory)

copy to Dr. Pankaj.

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Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

WASTEWATER LABORATORY
ANALYSIS REPORT

S. No.	Sample Code/Detail	Date & Time of Collection	Date & Time of Receipt	Reg. No. & Date	WWL Sample No.	pH	TSS	COD	BOD	NH_3 - N	TDS	Cl^-	NO_3-N	-
8.	AB 9	-do-	-do-	-do-	600	7.17	65	171	93	13	664	93	2.53	-
9.	AB 10	-do-	-do-	-do-	601	6.86	110	233	127	22	664	83	2.67	-
10.	AB 11	-do-	-do-	-do-	602	7.12	37	102	33	26	668	93	2.32	-
11.	AB12	-do-	-do-	-do-	603	7.42	66	127	48	18	628	65	2.31	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: All the concentrations are expressed in mg/l except of pH and Conductivity (µmho/cm).

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. The parameters in the report are under NABL Accreditation.
4. * Not under NABL scope parameter.
5. BDL & Test methods are mentioned on back side of this report.

Analyst
(B.Sasi Devi)

Supervisor

Dr.P.K.Behera
(I/C Water Lab &
Authorized Signatory)

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+55

CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110032
BIO-SCIENCE LABORATORY

Microbiological Analysis Report

NABL Accreditation –ISO/IEC/17025: 2005, Certificate no. T0644 (Valid till 14.09.2018).

1. Report no. & issue date : Bio/Micro/644/17.08.2017
2. Name of the project : PIAS
3. Sample matrix : Water
4. Date & time of sample collection : 04/08/2017, 9:00 AM – 2:30 PM
5. Samples collected by : Dr. Pankaj Kumar
6. Date & time of sample receipt : 05/08/2017 , 1:11 PM
7. Date of sample analysis : 05/08/2017
8. Sample registration no. & date : 14716/Bio-11/2K_{17}; 07/08/2017
9. Environmental conditions during sampling : -
10. Test method reference : APHA 22nd Edition
11. Report sent to (Name & Address : Dr. Pankaj kumar & I/C Sample Receiving Section

S. No	Sampling location	Analysis Results					
		Total Coliform MPN/100ml	Fecal Coliform MPN/100ml	Fecal Streptococci MPN/100ml	Enterococcus MPN/100ml	*E. coli* * MPN/100ml	Total plate count CFU/ml
1	AB-1	$54X10^6$	$22X10^6$	--	--	--	--
2	AB-2	$92X10^6$	$92X10^6$	--	--	--	--
3	AB-3	$92X10^7$	$22X10^7$	--	--	--	--
4	AB-4	$22X10^7$	$46X10^6$	--	--	--	--
5	AB-5	$92X17^7$	$20X10^6$	--	--	--	--
6	AB-6	$35X10^9$	$38X10^8$	--	--	--	--
7	AB-7	$35X10^6$	$22X10^6$	--	--	--	--
9	AB-9	$94X10^5$	$46X10^5$	--	--	--	--
10	AB-10	$17X10^8$	$32X10^7$	--	--	--	--
11	AB-11	$22X10^8$	$11X10^8$	--	--	--	--
12	AB-12	$35X10^7$	$49X10^6$				

Statement:
1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. <1.8 MPN/100 ml indicates that the probability of presence of Coliform in the sample is zero.
4. The sample will be retained for one week from the date of issue of this test report.
5. (*) Parameter not under NABL Scope.

Analyst
(M. Y. Ansari)

Authorized Signatory
(Dr. Yogita Kharayat)

21/08/2017
I/c Bio-lab
(Dr.SanjeevAgarwal)

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CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

National Reference Trace Organics Laboratory
Analysis Report
Organo-Phosphate Pesticides (OPPs)
(NABL Accreditation Certificate No. T0643 Dt. 15.09.2016 valid upto 14.09.2018)

1.	Report no. & issue date	:	NRTOL(Pest)/ OPPs/126 Dt.28 AUG 2017
2.	Sample registration no. & date	:	14720/NRTOL-11 Dt. 04/08/17
3.	Sample matrix	:	Water
4.	Date of sample collection	:	4.08.2017
5.	Date & time of sample receipt	:	7.08.2017
6.	Date of sample analysis	:	24/08/17
7.	Test method Reference	:	USEPA Method No. 8141B, 2007
8.	Unit of Results	:	µg/L
9.	Report sent to (Name & Address)	:	I/C WQM-II PIAS

ANALYSIS RESULTS

S. No.	OPPs Compounds	Detection Limit	Sample code						
			AB-9	AB-10	AB-11	AB-12			
1	Malathion	0.50	BDL	BDL	BDL	BDL			
2	Dimethoate	0.50	BDL	BDL	BDL	BDL			
3	Methyl Parathion	0.50	BDL	BDL	BDL	BDL			
4	Chloropyriphos	0.50	BDL	BDL	BDL	BDL			
5	Ethion	0.50	BDL	BDL	BDL	BDL			

*BDL=Below Detection Limit

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.

Remarks: The parameters in the report are under NABL Accreditation (ISO 17025) Scope.

(S. K. Singh)	(B. Kumar)	(Dr. C. S. Sharma)
Analyst	**Supervisor**	**Authorized Signatory & I/c NRTOL**

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CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

National Reference Trace Organics Laboratory
Analysis Report
Organo-Phosphate Pesticides (OPPs)
(NABL Accreditation Certificate No. T0643 Dt. 15.09.2016 valid upto 14.09.2018)

1.	Report no. & issue date	:	NRTOL(Pest)/ OPPs/126 Dt.28 AUG 2017
2.	Sample registration no. & date	:	14720/NRTOL-11 Dt. 04/08/17
3.	Sample matrix	:	Water
4.	Date of sample collection	:	4.08.2017
5.	Date & time of sample receipt	:	7.08.2017
6.	Date of sample analysis	:	24/08/17
7.	Test method Reference	:	USEPA Method No. 8141B, 2007
8.	Unit of Results	:	µg/L
9.	Report sent to (Name & Address)	:	I/C WQM-II PIAS

ANALYSIS RESULTS

S. No.	OPPs Compounds	Detection Limit	Sample code						
			AB-1	AB-2	AB-3	AB-4	AB-5	AB-6	AB-7
1	Malathion	0.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2	Dimethoate	0.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	Methyl Parathion	0.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4	Chloropyriphos	0.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL
5	Ethion	0.50	BDL	BDL	BDL	BDL	BDL	BDL	BDL

*BDL=Below Detection Limit

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.

Remarks: The parameters in the report are under NABL Accreditation (ISO 17025) Scope.

(S. K. Singh)
Analyst

on leave
(B. Kumar)
Supervisor

5/8/17
(Dr. C. S. Sharma)
Authorized Signatory & I/c NRTOL

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CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

INSTRUMENTATION LABORATORY
Trace Metals Analysis Report

1.	Report no. & issue date	:	IL/HM/ICPMS-395/24-08-2017
2.	Name of the Project	:	PIAS
3.	Sample matrix	:	Water
4.	Date & time of sample collection	:	04-08-2017
5.	Samples collected by	:	Dr. Pankaj Kumar and Mr. Ajay Sharma
6.	Date & time of sample receipt	:	07-08-2017, 11:50 AM
7.	Date of sample analysis	:	August-2017
8.	Sample registration no. & date	:	14714/Inst-11/2K17, 07-08-2017
9.	Sampling plan reference	:	-
10.	Test method reference	:	APHA, 3125-B, 22nd Ed. 2012
11.	Report sent to (Name & Address)	:	I/c – WQM-II Division

S. No.	Sample Code	As (mg/l)	Cd (mg/l)	Cr (mg/l)	Cu (mg/l)	Fe (mg/l)	Mn (mg/l)	Ni (mg/l)	Pb (mg/l)	Zn (mg/l)	Co (mg/l)	Se (mg/l)	V (mg/l)	Sb (mg/l)
1.	AB-1	BDL	BDL	BDL	0.01	0.99	0.11	BDL	BDL	0.07	BDL	BDL	BDL	BDL
2.	AB-2	BDL	BDL	0.05	0.04	2.83	0.13	0.02	0.03	0.17	BDL	BDL	BDL	BDL
3.	AB-3	BDL	BDL	BDL	0.07	5.76	0.20	BDL	0.02	0.17	BDL	BDL	0.01	BDL
4.	AB-4	BDL	BDL	BDL	BDL	2.72	0.14	BDL	0.02	0.05	BDL	BDL	BDL	BDL
5.	AB-5	BDL	BDL	0.01	0.04	5.77	0.30	BDL	0.02	0.19	BDL	BDL	0.01	BDL
6.	AB-6	BDL	BDL	BDL	0.19	2.62	0.18	0.01	0.03	0.16	BDL	BDL	BDL	BDL
7.	AB-7	BDL	BDL	BDL	0.04	1.40	0.15	0.10	0.02	0.10	BDL	BDL	BDL	BDL
8.	AB-9	BDL	BDL	0.01	0.03	2.54	0.17	0.01	0.22	0.18	BDL	BDL	BDL	BDL
9.	AB-10	BDL	BDL	BDL	0.03	1.52	0.11	BDL	0.02	0.12	BDL	BDL	BDL	BDL
10.	AB-11	BDL	BDL	BDL	BDL	0.51	0.09	BDL	BDL	0.06	BDL	BDL	BDL	BDL
11.	AB-12	BDL	BDL	BDL	BDL	1.94	0.10	BDL	BDL	0.16	BDL	BDL	BDL	BDL

BDL: Below Detection Limit

Detection Limit (µg/l): As-0.49, Cd-0.42, Cr-0.56, Cu-0.35, Fe-0.67, Mn-0.43, Ni- 0.54, Pb-0.31, Zn-0.59, Co-0.35, Se-1.13, V-0.52 and Sb-0.35.

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.
3. Sample will be retained for 30 days from the date of issue of Test Report.

24.08.2017

(B.K. JENA)
Analyst

24/8/17

(NAMITA MISHRA)
Supervisor

24/8/17

(B.K. JAKHMOLA)
I/C Instrumentation Lab.

10537/159

CENTRAL POLLUTION CONTROL BOARD
Parivesh Bhawan, East Arjun Nagar, Delhi-110 032

National Reference Trace Organics Laboratory
Analysis Report
Organochlorine Pesticides (OCPs)
(NABL Accreditation Certificate No. T0643 Dt. 15.09.2016 Valid upto 14.09.2018)

1.	Report no. & issue date	:	Pest/NRTOL-87 Dt. 28/08/2017
2.	Sample registration no. & date	:	14721/NRTOL-11 Dt.07/08/2017
3.	Sample matrix	:	Water
4.	Date of sample collection	:	04/08/2017
5.	Date & time of sample receipt	:	07/08/ 2017
6.	Date of sample analysis	:	August 2017
7.	Test method Reference	:	USEPA Method No 8081 B, 2007
8.	Unit of Results	:	µg/L
9.	Report sent to (Name & Address)	:	Incharge, WQM-2

ANALYSIS RESULTS

Sl No	OCPs Compounds	Detection Limit	Sample code							
			AB-1	AB-2	AB-3	AB-4	AB-5	AB-6	AB-7	AB-9
1	α-HCH	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2	β-HCH	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	γ-HCH	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4	Aldrin	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
5	Dieldrin	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
6	α-Endosulfan	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	β-Endosulfan	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	*o,p'*-DDT	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	*p,p'*-DDT	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10	*p,p'*-DDE	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

*BDL=Below Detection Limit

Statement:

1. The results relate only to the samples tested.
2. The report shall not be reproduced except in full, without the written approval of the laboratory.

Remarks: The parameters in the report are under NABL Accreditation (ISO 17025) Scope.

Meenu

(Meenu Mishra)
Analyst

on leave

(B. Kumar)
Supervisor

28/8/17

(Dr. C. S. Sharma)
Authorized Signatory & I/c NRTOL

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ANALYSIS RESULTS

Sl No	OCPs Compounds	Detection Limit	Sample code							
			AB-10	AB-11						
1	α-HCH	0.05	BDL	BDL						
2	β-HCH	0.05	BDL	BDL						
3	γ-HCH	0.05	BDL	BDL						
4	Aldrin	0.05	BDL	BDL						
5	Dieldrin	0.05	BDL	BDL						
6	α-Endosulfan	0.05	BDL	BDL						
7	β-Endosulfan	0.05	BDL	BDL						
8	*o,p'*-DDT	0.05	BDL	BDL						
9	*p,p'*-DDT	0.05	BDL	BDL						
10	*p,p'*-DDE	0.05	BDL	BDL						

*BDL=Below Detection Limit

Statement:

3. The results relate only to the samples tested.
4. The report shall not be reproduced except in full, without the written approval of the laboratory.

Remarks: The parameters in the report are under NABL Accreditation (ISO 17025) Scope.

Meenu
(Meenu Mishra)
Analyst

on leave
(B. Kumar)
Supervisor

28/3/17
(Dr. C. S. Sharma)
Authorized Signatory & I/c NRTOL

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Dr.Puran Joshi
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Dr. Prachi Sharma
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Pramod Bhatt
You: http://www.uk.gov

Devesh kotiyal
You: ??? kya honu

Ashish Anthwal
You: yu t ch

Drain monitoring report for concurrence and signature- reg.

Inbox x

Dr. Pankaj Kumar Mewerguru Mewerguru
Dear Sir, Drain monitoring report has been finalized and send to you for your...

Mr.Rajat Kumar Gupta Sr.S.W.M.Specialist
to me

Minor spelling mistakes in the report. Report concurred.

regards

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d) The sewage collected from the two drains on left bank of river Kali i.e. Cheel Ghat Drain and Falslabad Drain is proposed to be conveyed to Gravity interceptor network to the right bank through a sewage lift station.

e) The STP is proposed to be built near Maman Road and Shikarpur bypass road, the location already identified by UP Jal Nigam. The land has adequate area of 1.8 hectare and permits gravity flow of the sewage on the right bank of river Kali. The location is indicated at Annexure-III

(Dr. Pankaj Kumar) Scientist 'D' CPCB, Delhi	(Rajat K. Gupta) Sr. Specialist NMCG, Delhi	(S. K. Sharma) Executive Engineer UPJN, Bulandshahr	(Mahendra Singh) Assistant Engineer UPJN, Bulandshahr
(Mahendra Kumar) Junior Engineer, UPJN	(Rajkumar Sharma) Junior Engineer, UPJN	(Anil K. Vishwakarma) Scientific Assistant UPPCB	(L.K. Sharma) Lab Assistant UPPCB

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d) The sewage collected from the two drains on left bank of river Kali i.e. Chord Gate Drain and Faridabad Drain is proposed to be conveyed to Gravity interceptor network on the right bank through a sewage lift station.

e) The STP is proposed to be built near Mathura Road and Shershah bypass road. the location already identified by U.P Jal Nigam. The land has adequate area of 18 hectare and permits gravity flow of the sewage on the right bank of river Kali. The location is indicated at Annexure-III

(Dr. Pankaj Kumar) Scientist 'D' CPCB, Delhi	(Rajesh Gupta) Sr. Specialist NRCG, Delhi	(S. K. Sharma) Executive Engineer UPJN, Saharanpur	(Mahadev Singh) Assistant Engineer UPJN, Saharanpur
(Mahendra Kumar) Junior Engineer-I UPJN	(Rajkumari Sharma) Junior Engineer, UPJN	(Anil K. Vidyarthi) Scientific Assistant UPPCB	(J. K. Sharma) Lab Assistant UPPCB

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Annexure – A10

CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow

JOINT INSPECTION REPORT ON ICI DRAIN JOINING TO RIVER PANDU IN PANKI, KANPUR REGION, UTTAR PRADESH

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 in the case of OA no. 200/2014, M C Mehta vs Union of India and others and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of ICI drain was carried out on Aug 10, 2017 with representative of NMCG and UPPCB. The salient observations regarding the monitoring of ICI drain are as under:

1.	Name of Drain		:	ICI Drain, Kanpur
2.	Confluence with R. Pandu		:	Left bank
3.	Name of the Regional Office of SPCB		:	Regional Office, UPPCB, Kanpur
4.	Source of Pollution Load		:	Mixed (Domestic & Industrial)
5.	If Industrial/ Mixed (Name of the units & sector) and details may be obtained confirmed from the regional officers of SPCB		:	Textile, Food & Beverages, Electroplating etc.
6.	Traceable length (in Km) before meeting Ganga (through Google earth/ map)		:	Approx. 1.30 KM
7.	Catchment area		:	Site-I, Site-II, Site-III and Site-IV of Panki Industrial Area, Kanpur
8.	Co-ordinate of the confluence point (if not reachable indirect though Google earth/ map) (Decimal units)	Latitude	:	26°26'1.25"
		Longitude		80°15'9.59"
	Distance from confluence point (may the find out over Google earth/map), KM		:	Approx. 100 KM
9.	Co-ordinate of the sampling point (decimal units)	Latitude	:	26°25'52"
		Longitude		80°15'27"
10.	Landmarks/ Address of the location		:	Behind the LML Industry, Panki Industrial Area
11.	Flow (if in MLD) if Zero indicate whether dry or stagnant		:	24.69MLD (factor taken 0.80)
12.	Characteristics	Colour	:	25 Hazen
		pH	:	8.71
		BOD (mg/l)	:	30.6 mg/L (BOD load≈ 0.76 TPD)
		COD (mg/l)	:	98.6 mg/L (COD load≈ 2.43 TPD)
		TSS	:	41.7 mg/L
		TDS	:	840 mg/L

		PO_4-P	:	mg/L
		Cl^-	:	182 mg/L
		NH_3-N	:	237 mg/L
		NO_3-N	:	23.3 mg/L
		Sulphide	:	BDL
	For sewage, mixed Drains & River	T.Coliforms (MPN/100ml)	:	1.6×10^8
		F.Coliforms (MPN/100ml)		1.6×10^8

13. (Trace Metal)

Sl. No.	Parameters	Results
1.	Arsenic (As) mg/l	BDL
2.	Cadmium (Cd) mg/l	BDL
3.	Total Chromium (Cr) mg/l	BDL
4.	Copper (Cu) mg/l	BDL
5.	Iron (Fe) mg/l	0.69
6.	Lead (Pb) mg/l	BDL
7.	Manganese (Mn) mg/l	0.21
8.	Nickel (Ni) mg/l	BDL
9.	Zinc (Zn) mg/l	0.358
10.	Antimony (Sb) mg/l	BDL
11.	Cobalt (Co) mg/l	BDL
12.	Selenium (Se) mg/l	BDL
13.	Vanadium (V) mg/l	0.04

14. **(Pesticide)**

Sl. No.	Parameters		Results
	Pesticide Analysis Report (OPPs)	:	
1.	Dimethoate (µg/l)	:	BDL
2.	Methyl Parathion (µg/l)	:	BDL
3.	Malathion (µg/l)	:	BDL
4.	Chloropyriphos (µg/l)	:	BDL
5.	Ethion (µg/l)	:	BDL
	Pesticide Analysis Report (OCPs)	:	
1.	α-HCH (µg/l)	:	BDL
2.	β- HCH (µg/l)	:	BDL
3.	γ- HCH (µg/l)	:	BDL
4.	Aldrin (µg/l)	:	BDL
5.	Diedrin (µg/l)	:	BDL
6.	α-Endosulfan (µg/l)	:	BDL
7.	β-Endosulfan (µg/l)	:	BDL
8.	*op*'DDT (µg/l)	:	BDL
9.	*pp*'DDT (µg/l)	:	BDL
10.	*pp*'DDE (µg/l)	:	BDL

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15.	Photo Gallery

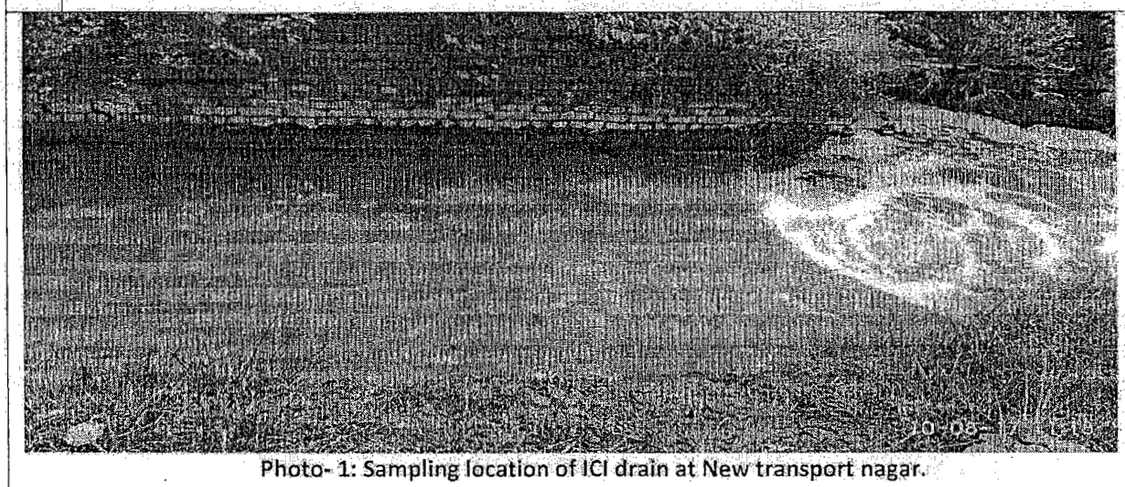

Photo- 1: Sampling location of ICI drain at New transport nagar.

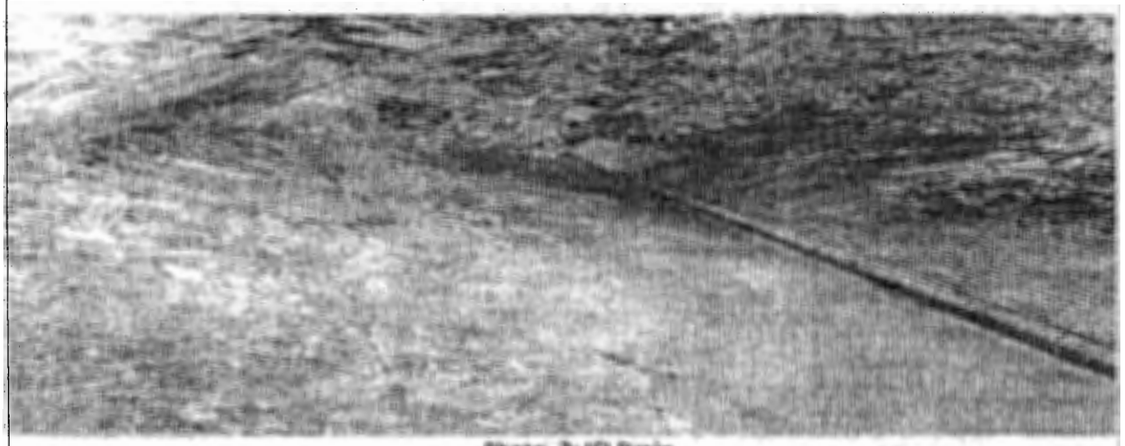

Photo- 2: ICI Drain

Photo-3: Damaged structure of ICI drain behind the LML Industry.

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Comments & Suggestions

[1]. ICI Drain carries mixed wastewater from domestic and industrial sources in the catchment of Panki Industrial Area (site-I, site-II, site-III and site-IV) and the residential/commercial area of this locality. The ICI drain meets river Pandu on its left bank in Panki, Kanpur.

[2]. A monitoring team constituted following the Hon'ble NGT verdict dated July 13, 2017, visited the said drain on Aug 10, 2017.

[3]. The drain behind the LML industry, Panki industrial Area was found damaged and the wastewater being spreaded in the nearby area and found its path through the nearby agricultural land and meeting to river Pandu.

[4]. The average flow measured was 24.69 MLD.

[5]. The period of inspection does not reflect the representativeness as the monitoring was carried out during monsoon period and heavy rain in the catchment area was observed.

[6]. Vanadium was detected as 0.04 mg/L in ICI drain. This may be due to deposition of atmospheric vanadium from industrial plants burning residual fuel (oils) rich in vanadium. Other anthropogenic sources include leachates from mining tailings, vanadium-enriched slag heaps, municipal sewage sludge, and certain fertilizers may be the source of Vanadium.

[7]. It was also found that out of 40 highly polluting industries only 7 units were found operational in the catchment of this drain, rest of 33 industries were closed in the compliance of CPCB closure direction.

[8]. The summarized report and compliance status of the 40 highly polluting industries is attached as annexure-I.

[9]. The flow of the drain may significantly increase as and when all the industries will be made operational.

Name of all monitoring officers along with designation	:	1. Dr. Raj Kishore Singh, Scientist 'D', CPCB, RD(N) RKSingh 2. Sh. Vivek Raj, Scientist 'C', NMCG — Sd — 3. Sh. Amit Kumar, Research Officer, NMCG 4. Dr. Ravi Prakash Mishra, RA-I, CPCB, RD(N) RPMishra 5. Sh. Prakhar Kumar, AEE, UPPCB, Kanpur — Sd — 6. Sh. Ankit Kumar Mishra, JE, UPPCB, Kanpur — Sd —

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Comments & Suggestions

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Name of all monitoring officers along with designation	1. Dr. Raj Kishore Singh, Scientist 'D', CPCB, HQ(M) 2. Sh. Vivek Raj, Scientist 'C', NMCG 3. Sh. Amit Kumar, Research Officer, NMCG 4. Dr. Ravi Prakash Mishra, EA-I, CPCB, RD-II 5. Sh. Pradeep Kumar, AEE, UPPCB, Etawah 6. Sh. Amit Kumar Mishra, JE, UPPCB, Kanpur

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Comments & Suggestions

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Attendance – sheet

Joint Monitoring of - **ICI Drain** Date:10-08-2017

S. No.	Name of officers	Organization	Designation	Email ID	Mobile No
1	Dr. Raj K. Singh	CPCB RD(N)	Scientist 'D'	rksingh.evs@gmail.com	8586931575
2	AMIT KUMAR	NMCG	Research Officer	amit.kr64@gmail.com	8742939191
3	Vivek Raj	NMCG	Scientist - 'C'	vivek.raj458@gmail.com	8447558294
4	Dr. Ravi. P. Mishra	CPCB RD(N)	Research associate	ravihh@gmail.com	9839388126
5	Prakhar Kumar	UPPCB Kanpur	AEE	rekanpur@uppcb.com	9452919844
6	Ankit Ramishra	UPPCB Knp	JE	-do-	7839891668
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ANNEXURE - I

CENTRAL POLLUTION CONTROL BOARD
Regional Directorate (North), Lucknow

In pursuance of the H.O. letter No. B-190153/NGRBA/CPCB/2013 dated July 28, 2017, Hon'ble NGT judgement dated July 13, 2017 and our office order no. ZOL/Tech/WQM-II/2014-16/328/535 dated Aug. 01, 2017, joint inspection of 40 highly polluting industries in this segment of ICI drain, Kanpur were carried out with NMCG UPPCB. The observations regarding the monitoring of drains are as below:

S.No.	Name and address of the unit	Contact details of unit	Category/Sector	Date of inspection	Discharge as per consent (KLD)	Operational Status	Compliance Status	Remarks
1.	M/s Dinesh Oil Ltd. D-12, Site-III, Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Dinesh Arora (Managing Director) M: 9839034200	Food product (Refined oil)	10-08-2017	115 KLD	Closed	---	As per the unit representative, the unit is self-closed due to paucity of fund
2.	M/s Hindustan Aqua Limited E-7, Site-I Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Ajay Sharma (General Manager) M: 9839211026	Food Product (Soft drinks)	10-08-2017	300 KLD	Operational	---	At the time of inspection, the unit was found in operation but the discharge through ETP was not noticed however the aeration tank was found functional. The representative of the unit informed that the unit is running on bi-weekly basis due to low demand of soft drinks in market.
3.	M/s M. K. Dyeing G-82, Site-III Panki Industrial Area Kanpur, Uttar Pradesh	---	Dyeing	10-08-2017	9 KLD	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.
4.	M/s Shivam Textile J-49, Site-2, Panki Industrial Area, Kanpur, Uttar Pradesh-208022 9695946086, Email: shivamtextilesknp@gmail.com	Mr. Dhirendra Gupta Mob. 9336108772	Dyeing	10-08-2017	11 KLD	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.
5.	M/s Standard Niwar 23/24 D, Site-I Panki Industrial Area Kanpur, Uttap Pradesh	---	Dyeing & Bleaching	10-08-2017	22.5 KLD	Closed	---	Unit was closed for the last one year.

6.	M/s V N Sons (AVR Enterprises) 23/24 D, Site-I Panki Industrial Area Kanpur, Uttap Pradesh	---	Dyeing & Bleaching	10-08-2017		Closed	---	Unit was closed for the last one year.
7.	M/s Praveen textile E-4, site-II Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Praveen Sharma (Partner) M: 9415126711	Textile Processing	17-08-2017	6 KLD	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.
8.	M/s Quality processor H-39, Site-I Panki Industrial Area Kanpur, Uttar Pradesh	---	Dyeing and bleaching	17-08-2017	---	---	---	No unit in the name of Quality Processor exist at the given address.
9.	M/s Shri Radha Enterprises H-42 & 43, Site- I Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Pawan Argawal (Proprietor) M:9305835334	Dyeing and bleaching	17-08-2017	10 KLD	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.
10.	M/s Saroj Textile Pvt Ltd. G-36, Site- I Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Sanjeev Tripathi M: 8172931111	Textile Processing	17-08-2017	---	---	---	As per the information provided by unit representative, they have closed their textile processing work 5-6 years back. At present the unit is doing the dry work for the assembly of E-Rickshaws.
11.	M/s Sarvodaya Bleaching Works G-96, Site- III Panki Industrial Area Kanpur, Uttar Pradesh	Mr. D C Misra M: 9838865272	Bleaching	17-08-2017	6 KL	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.
12.	M/s Shiva Knitwears B-15 &16, Site- IV Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Amit Jain M: 9839106406	Textile Processing	17-08-2017	15 KLD	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.
13.	M/s Shiva Industries C-26, Site- I Panki Industrial Area Kanpur, Uttar Pradesh	Mr. Surendra Sureka M: 9792155551	Textile Processing	17-08-2017	22.5 KLD	Closed	---	Unit is closed for the last one year for the renovation of ETP and installation of Boiler
14.	M/s Stich Wire Site –I, Panki Industrial Area Kanpur, Uttar Pradesh	---	---	17-08-2017	---	---	---	Not traceable
15.	M/s Sudarshan Dyeing G- 102, Site-III Panki Industrial Area	Mr. Rakshit Pandey M: 9648838271	Textile Processing	17-08-2017	11 KLD	Closed	Compliance	Unit is closed in compliance of CPCB closure direction.

	Kanpur, Uttar Pradesh							
16.	M/s Saraswati Engineering Limited D-12, Site-I Panki Industrial Area Kanpur, Uttar Pradesh	Mr. P Chaudhary M: 9839032101	Metal Surface Treatment	17-08-2017	3 KLD	Operational	**Non-Compliance**	By-pass was observed near the boundary wall of the unit through a drain. The by-pass sample collected is not complying w.r.t. pH (3.48), TSS (171 mg/l), Iron (578 mg/l), and Zinc (242 mg/l). **Issuance of appropriate direction under E (P) Act, 1986 may be considered.**
17.	M/s A. K. Bleaching & Dyeing G-50, Site 3, Panki Industrial Area, Kanpur	Mr.Amit Srivastava 9839890033	Textile	17-08-2017	11 KLD	Closed	----	The unit was closed due to CPCB closure direction dated 30/05/2017. All the production activities and intimated CPCB, H.O.
18.	M/s Amber textiles D-16 A/III, Site 2 Panki Industrial Area, Kanpur (U.P.)	Mr. Hemant Kumar 9336364295	Textile	17-08-2017	8.0 KLD	Closed	----	The unit was closed due to CPCB closure direction dated 15/05/2017. All the production activities and intimated CPCB, H.O.
19.	M/s Amitech Industries, B-20, Site 1, Panki, Kanpur	Mr. Amit pandey 9839474747	Textile	17-08-2017	----	Closed & Dismantled	----	The unit has been found closed and dismantled. It is not working at given address since last 2-3 years
20.	M/s Basotia Industries C-16 & 17, Site 4, Panki Industrial Area, Kanpur	Mr. Rahul Basotia 9415128163	Textile	17-08-2017	10 KLD	Closed	----	The unit was closed due to CPCB closure direction dated 15/05/2017.
21.	M/s Deep Knitwear C-19, Site-4, Panki Industrial Area, Kanpur	Mr. Deep Kukureja 9956575757	Textile	17-08-2017	10 KLD	Closed	----	The unit was closed due to CPCB closure direction dated 15/05/2017.
22.	M/s Divine Synthetics B-9 & 10, Site-4, Panki Industrial Area, Kanpur	Mr. Rajeev Srivastava 9336128968	Textile	17-08-2017	1.0KLD	Closed	----	The unit was closed due to CPCB closure direction dated 15/05/2017.
23.	M/s Double AAR Industries D-4, Site-4, Panki Industrial Area, Kanpur	Mr. RajanVajpai 9336215588	Textile	17-08-2017	4.0 KLD	Closed	----	The unit was closed due to CPCB closure direction dated 15/05/2017.
24.	M/s Gayatri textile S-37, Site 4, Panki Industrial Area, Kanpur	Mr Surendra Tiwari +91-9169812611	Textile	17-08-2017	----	Closed & Dismantled	----	The given address has been sold to another unit named "M/s Unipulse textile Pvt. Ltd., which is under construction since last 8-9 months.
25.	M/s Industrial Enterprises C-15, Site 1, Panki, Kanpur	----	Textile	17-08-2017		Closed and dismantled		The unit has been found closed and dismantled. M/s My Car (Maruti Service Centre) is working at the

Page 3 of 5

								given address since last 8-9 years.
26.	M/s J.P. Knitwear S-9, Site -4 Panki Industrial Area, Kanpur (U.P.)	Mr.J.P. Kushwaha 7275912900	Textile	17-08-2017	10 KLD	Closed		The unit was closed due to CPCB closure direction dated 15/05/2017.
27.	M/s Johnson Mathey Plot 2A Site-2B Udyog Nagar Panki Industrial Area Kanpur	Mr. S. Shahoo (Manager EHS) 9919001413	Chemical (Inorganic)	17-08-2017	---	Operational	Compliance	The Unit and its ETP was found operational; sample was collected and analysed. Results are complying with standards.
28.	M/s Kanpur Fertilizers & Cement Ltd. (Duncan Fertilizer) CEE KAY Estate, Panki Industrial Area, Po. Udyog Nagar, Kanpur-208022	Mr. Virendra Kumar-Vice President (Production) 0512-269-3-809	Fertilizer	19-08-2017	6576 KLD	Operational	**Non-Compliance**	The Unit and its ETP was found operational; sample was collected and analysed. Non-Complying w.r.t SS- 327 mg/l > 100 mg/l) and Nitrate (18.2 mg/l > 10 mg/l). **Issuance of appropriate direction under E (P) Act, 1986 may be considered.**
29.	M/s Kay Pee Chemi Colour Co., C-1/8, Panki Industrial Area Site-1, Kanpur	Mr. GorakhSah (Guard) 9044285893	Dyes	18-08-2017	---	Closed	---	The unit was found self-closed from many years (i.e, from 2009).
30.	M/s Lavangana Textile, D-3, UPSIDC, Panki, Site-4, Kanpur	Mr. Anuj Awasthi (Manager) 9616325296	Textile	19-08-2017	---	Operational	---	The unit was found operational and presently engaged in textile stitching (i.e. dry work). The unit was closed all dyeing activities in 2015 & dismantled all the machines used in dyeing work.
31.	M/s LML Limited (East Block), A2-A3, C-10, Panki, Site2, 3, Kanpur	Mr. Santosh Kr. Srivastava 8935001409	Automobile	18-08-2017	---	Closed	---	The unit was found self-closed all its production and planning to restart.
32.	M/s LML Limited (West Block), A2-A3, C-10, Panki, Site2, 3, Kanpur	Mr. Santosh Kr. Srivastava 8935001409	Automobile	18-08-2017	---	Closed	---	The unit was found self-closed all its production and planning to restart.
33.	M/s Lohia Corp. Ltd. (Old Name: LohiaStarlinger Ltd.), D-3/A, Panki, Site-1, Kanpur	Sh. Shyam Tripathi 9936294083	Machine Parts	18-08-2017	64KLD	Operational	Compliance	The Unit and its ETP was found operational; sample was collected and analysed. Results are complying w.r.t standards.
34.	M/s Maharaja Bleaching Works, D-76, Site-4, Panki, Kanpur	Sh. Rohit Sinha 9452525121	Dyeing & Bleaching	19-08-2017	< 10 KLD	Closed	---	The unit was found closed due to issuance of closure directions from CPCB. The unit has upgraded its ETP & installed a flowmeter at the

Vijay Kumar.

								outlet of ETP.
35.	M/s Mahaveer Textile, 444A, Site-1, Panki, Kanpur	Sh. SubodhSah 9839033565	Dyeing, Printing & Stitching	18-08-2017	8.5 KLD	Closed	---	The unit was found closed all its operation, however unit has planning to restart.
36.	M/s MLA Industries (Old Name: Sythetic Silica Prod), D7-8, Site-1, Panki, Kanpur	Mr. Anoop Verma	Chemical	18-08-2017	39.3 KLD	Closed	---	The unit was found closed their all wet production due to issuance of closure directions from CPCB. The OCEMS installed at the unit was not working properly.
37.	M/s Mukund Industry, J-16, Site-3, Panki, Kanpur	Mr. Rajesh Vajpai, 9336118860	Textile Processing	17-08-2017	< 10 KLD	Closed	---	The unit was found closed due to issuance of closure directions from CPCB. A flowmeter & PTZ Camera at the outlet of ETP was found installed.
38.	M/s Paint & Industries Co., 66, Uptron Estate, Kanpur	Mr. P. G. Garg 9839067244	Dyes	17-08-2017	---	Closed	---	The unit was found **permanently closed** since 2005 and a whole premise is presently used by M/s Bhawani Structure which is operational & engaged in fabrication (i.e dry work).
39.	M/s Prakash Textile, Panki, Site-2, Kanpur	Sh. Prakash Yadav 9415538849	Dyeing & Bleaching	18-08-2017	3 KLD	Closed	---	The unit was found closed due to issuance of closure directions from CPCB. The flowmeter & PTZ Camera at the outlet of ETP was **not** found installed.
40.	M/s Anod Plasma Spray Ltd. 103, 104, Uptron Estate, Panki, Kanpur	Mr. H. S. Gupta 9335357187	Electroplating (Metal Surface Treatment)	18-08-2017	8 KLD	Operational	**Non-Compliance**	The Unit and its ETP was found operational; sample was collected and analysed. Non-Complying w.r.t parameters Sulphate (522.8 mg/l > 400 mg/l) and Cr-VI (18.5 mg/l > 0.1 mg/l), Total Cr (88.2 mg/l > 2 mg/l), Fe (8.45 mg/l > 3 mg/l). **Issuance of appropriate direction under E (P) Act, 1986 may be considered.**

Annexure - A12 10554-176

Joint Inspection Report- Abu Nallah-2 and Odean Nalla, Meerut

Inspection/ Monitoring Date: 05-08-2017

In compliance of Hon'ble NGT Judgement 13th July 2017, in respect of OA No. 200 of 2014 for Segment B, Phase- I of River Ganga, a joint inspection team consisting of officers from NMCG, CPCB, UP Jal Nigam and UPPCB official, carried out the joint inspection of the Abu Nallah-2 and Odean drain (joining river Kali East) at Meerut (UP). The team carried out flow measurement and composite sampling on 05-08-2017. The details of flow measurement and calculation of estimated flow for 24 hours are presented in the Annexure-I for Abu Nallah-2 and Annexure-II for Odean Nalla.

Joint inspection team comprising of the following members visited Abu Nala-2 and Odean Nala.

1. Mr. C.B. Chourasia, Scientist E, CPCB Delhi
2. Mr. R.K. Tyagi, Regional officer, UPPCB, Meerut
3. Mr. Vijay, AEE, UPPCB, Meerut.
4. Dr. Yogendra Kumar, ASO, UPPCB, Meerut.
5. Mr. B.K. Garg, Executive Engineer, UPJN Meerut
6. Mr. Ananda Kumar Ngangom, JSA, CPCB Delhi
7. Ms. Nidhi Dwivedi, Project Officer (Technical), NMCG

Observations and findings of the joint inspection team are mentioned below.

I. ABU NALLAH-2, MEERUT:

Monitoring point: about 1Km before confluence with Kali East.
Co-ordinates Latitude 28.938763, Longitude 77.7538,
Weather conditions: Clear sky. No rain before and during flow measurement.

Abu Nallah-2 travels about 18 km within Meerut city and finally merges with river Kali near village Sarai Behleem. Assuming that wastewater generated in morning flown through the city and flow measured during day time (1:00 PM to 5:00 PM) was the peak flow (6058.6 Cu. M per hour). The peak flow has been divided by the peak factor of 2.25 (as per CPHEEO manual on Sewage) to arrive at average flow (2693 Cu. M per hour) and the estimated flow based on the average flow for 24hrs is **64.63 MLD**. The readings and flow calculations are presented in **ANNEXURE-I**.

Table 1: The characteristic of waste water drawn from Abu Nalla-2 On 05-08-2017 are as follows:

Parameters	**pH**	**TSS**	**COD**	**BOD**	**NH_3-N**	**TDS**	**Cl^-**	**Color**	**NO_3-N**				
Physico-Chemical	7.11	257	397	116	27	592	83	79	3.14				
Heavy metals	**As**	**Cd**	**Cr**	**Cu**	**Fe**	**Mn**	**Ni**	**Pb**	**Zn**	**Co**	**Se**	**V**	**Sb**
	BDL	BDL	0.03	0.04	2.16	0.22	0.02	0.03	0.15	BDL	BDL	BDL	BDL
Microbiological	**Total Coliform MPN/100ml**						**Fecal Coliform MPN/100ml**						
	54×10^6						24×10^5						
Note: All units are measured in mg/l, except pH.							***BDL: Below Detection limit***						

From the above results, it is observed that heavy metals presence is negligible and BOD value (116 mg/L) is lower than the normal sewage (150 to 200 mg/L).

II. Odean Nallah:

Monitoring point : about 1Km before confluence with Kali East.
Co-ordinates: Latitude 28.934271, Longitude 77.747592.
Weather conditions: Clear sky. No rain before and during flow measurement.

Odean Nallah originates within Meerut city and have length of about 9 Km and confluence with river Kali at Sarai Behleem. This drain caters to densely populated area of old city. Assuming that flow measured during day time was the peak flow 13142.5 cu. M per hour; a peak flow has been divided by the peak factor of 2.25 (as per CPHEEO manual on Sewage) to arrive at average flow 5841.1 cu.M per hour and the estimated flow for 24 hrs is **140.19 MLD**. The readings and flow calculations are presented in **ANNEXURE-II**.

The characteristic of waste water drawn from Odean Nalla On 05-08-2017 are as follows:

Parameter	**pH**	**TSS**	**COD**	**BOD**	**NH_3-N**	**TDS**	**Cl^-**	**Color**	**NO_3-N**				
Physico-Chemical	7.16	466	417	112	42	776	128	132	2.72				
Heavy Metals	**As**	**Cd**	**Cr**	**Cu**	**Fe**	**Mn**	**Ni**	**Pb**	**Zn**	**Co**	**Se**	**V**	**Sb**
	BDL	0.05	0.05	0.24	6.61	0.24	0.06	0.04	0.58	BDL	BDL	0.01	BDL
Micro-biological	**Total Coliform MPN/100ml**						**Fecal Coliform MPN/100ml**						
	92×10^6						28×10^6						
Note: All units are measured in mg/l except pH. *BDL: Below Detection limit*													

From the above results, it is observed that heavy metals presence is negligible and BOD value (112mg/L) is lower than the normal sewage BOD (200mg/L).

Two drains join river Kali East in village Sarai Behleem, (outside Jagriti Vihar Extension) Meerut.

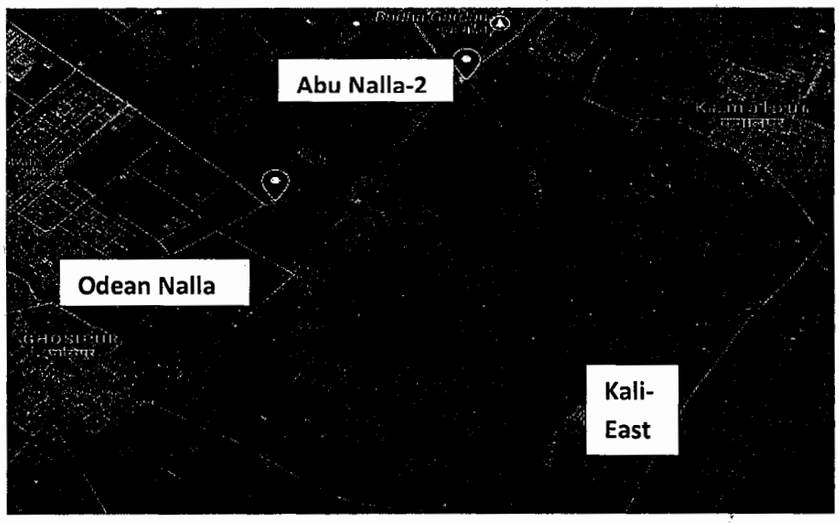

Fig: Google view of Abu nalla-2 and Odean Nalla meeting to river Kali

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Feasibility assessment of proposed 210 MLD STP:

One new STP (72 MLD, capacity informed by UPJN) near Abu nala-2 is under commissioning. Available land for proposed STP is 5.5 hectares (from Awas Vikas Parishad Meerut)

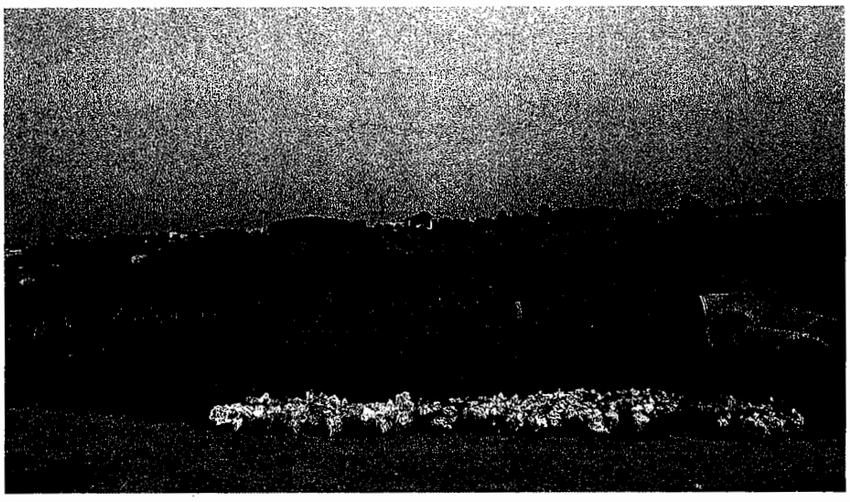

Fig: Available land area 5.5 hectares for proposed STP.

Assumption:

During measurement time (AN), most of the sewage has flown into the drain, hence it is expected that the measured flow rates are during the peak period.

1. **Estimated Flow based on wastewater flow measurement** (dated 05/08/2017):

- Estimated Flow of Odean Nala, Meerut = 140.19 MLD
- Estimated Flow of Abu Nala-2, Meerut= 64.63 MLD
- Total wastewater from both drains = 204.82 MLD (in Aug.2017)
- Population Growth rate of Meerut = 16% during past Decade (2011 census data)
- Estimated Time requirement for Design, Approvals, Tendering, Construction and Commissioning = 3 years
- Design Period for STP = 15 Years (as par CPHEEO manual on Sewage Treatment).
- Total Time form now (i.e. year 2017) = 18 years.
- Estimated wastewater in year 2035 = 204.82 (1 + 1.8 x 0.16) = **263.8 MLD**

- Add for estimated industrial treated effluent contribution= 1.0 MLD (1000 KLD, against 350 KLD from existing two industries at present)
- Estimated wastewater to be treated in year 2035 = **264.8 MLD.**
- Existing new STP (under commissioning) 72 MLD capacity will receive 40 MLD waste water presently contributing to Abu Nall-2.
- As per information given by EE, UPJN Meerut. The newly constructed 72 MLD capacity STP (under commissioning) will receive raw sewage from Zone 5 & Zone 7 through a separate sewer line. About 40 MLD of sewage will be diverted into 72 MLD STP.
- The net / additional Capacity required for new STP based on flow measurement data = 264.8 - 40 MLD = 224.80 MLD, **say, 225.0 MLD**.
- The estimated design capacity of proposed STP, based on flow measurement data, work out to be **225 MLD**.

2. Estimated Flow based on Population Projection of Meerut :

For population growth forecast, the decreasing rate method seems best fit (ANNEXURE-III). The population corresponding to years 2016, **2035** and 2050 AD are 1441300, **1957400** and 2364800 respectively. Based on the projected population and 135.0 lpcd of water supply, the sewage generation work out to be 194.57MLD, **264.25MLD** and 319.25MLD respectively (**Annexure-III**).

- As per information given by the Executive Engineer, UP Jal Nigam Meerut, the new (at present, under commissioning) 72 MLD capacity STP will receive raw sewage from Zone 5 & Zone 7 through a separate sewer line. About 40 MLD of sewage will be diverted into 72 MLD STP.
- The additional Capacity required (year 2035) for proposed STP based on population projection method = 264.25 - 40 MLD **= 224.25 MLD**.
- The estimated design capacity of proposed STP, based on based on population projection method works out to be **224.25 MLD, say, 225.0 MLD.**

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Fig: Abu Nalla-2

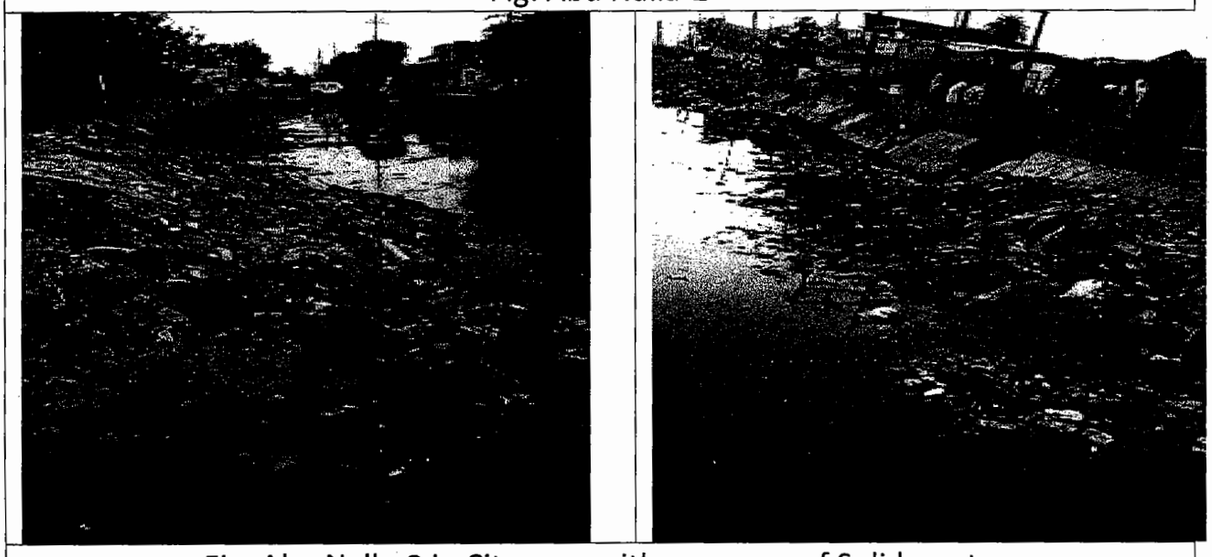

Fig: Abu Nalla-2 in City area with presence of Solid waste

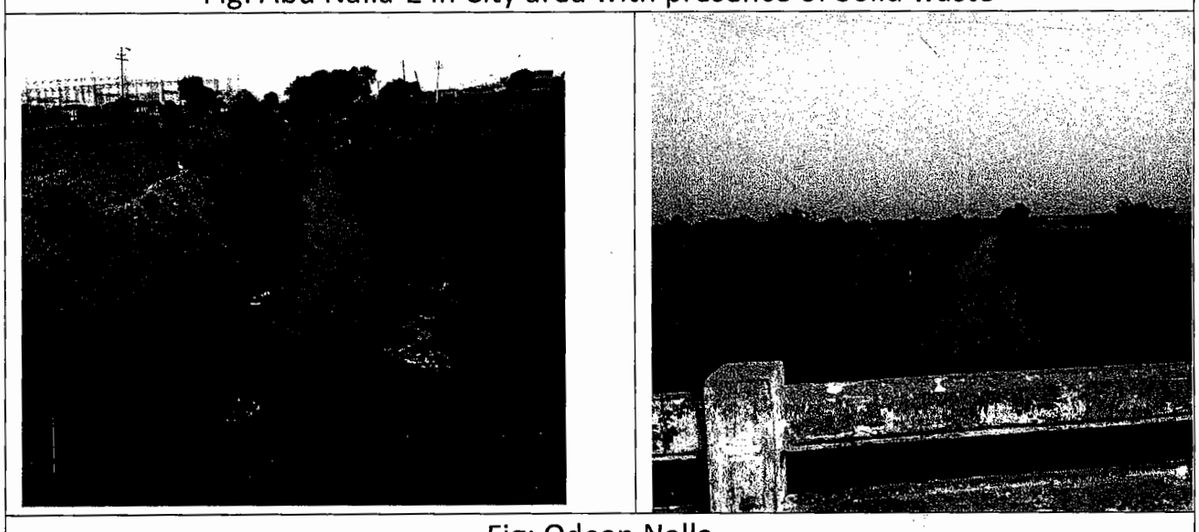

Fig: Odean Nalla

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Assessment of industries located on the bank of drain- Abu nala-2.

Two industrial units namely M/s Sab Miller India Ltd. and M/s United Spirits Ltd. are situated on the left bank of Abu Nala-2. Both units were inspected and salient observations are as below:

I) M/s Sab Miller India Ltd. Near Cantt, Kanker khera, Meerut

Observations:

1) The unit is a brewery, having production capacity of 3000 KL/month of beer. The unit was operating only brewing at 50% capacity, due to non-availability of containers/bottles.
2) The unit has installed water meter at all three (3nos) bore wells, only one bore well operated normally.
3) The complete ETP was found operational. Bio-mass concentration in Aeration tank was satisfactory. The final treated effluent was transparent in appearance.
4) The ETP inlet and final treated effluent samples were collected.
5) ETP comprises of equalisation tank, Gravity separator (AGS), buffer tank for feed to UASB, Anaerobic treatment (UASB) with Gas collection and storage facility, followed by Activated sludge process (aeration tank and secondary clarifier) with a treatment capacity of 940 KLD. It also consists of Sludge drying bed and a filter press with centrifuge to manage yeast-bearing wastewater separately.
6) The bio-mass presence in Aeration tank was observed and found satisfactory.
7) The unit has RO plant of 10KL/hr and RO reject goes to ETP for treatment.
8) The unit has not installed OCEMS.
9) The treated wastewater discharged in to Abu Nalla-2 (across the road); estimated flow during the inspection was 10 KL/ hour.

Date of sampling: 05-08-2017

Name of Industry	Sampling location	pH	TSS	COD	BOD	TDS	Appearance
Sab Miller India Ltd.	ETP Inlet	5.57	3032	6470	4459	3568	Turbid
	ETP Outlet	7.73	03	14	04	1896	Transparent, clear

Note: All the concentrations are expressed in mg/l, except pH.

The inlet COD and BOD are high due to the presence of the yeast particles, which are removed through Accelerated Gravity separator (AGS) installed before the UASB, in the ETP.

Recommendation: The treated effluent results indicate that industry is complying in terms of treated effluent discharge standards.

II) M/s United Spirits Ltd. (Bottling unit) Near Cantt, Kanker khera, Meerut

Observations:

1. The unit is a bottling plant with installed capacity of 2700 KL/month. The Unit and the ETP operates in general shift (9:30AM to 5:30PM).
2. Aeration process was in operation during the inspection. Bio-mass concentration in Aeration tank was negligible, due to no recycling of active bio-mass.
3. ETP comprises of Inlet from bottling lines, holding tank, anaerobic bio-media tank, aeration tank, tube settler, multi-grade sand filter, carbon filter and final outlet with OCEMS. ETP installed capacity reported is 200 KLD.
4. The treated wastewater discharged in to Abu-nalla 2.
5. The consented effluent generation is 100KLD.
6. There was no inflow at ETP inlet, no sample was collected from the inlet. The effluent discharge from the ETP could not be assessed. However, the daily flow (discharge) reported by the industry contact person is 30 KLD.
7. The final treated effluent sample was collected after filteration.

The characteristics of treated effluent are pH-7.76, TSS-03 mg/l, COD- 13 mg/l, BOD-03 mg/l and TDS-204 mg/l, which indicates that industry is complying in terms of treated effluent discharge standards applicable for stand alone bottling units.

Recommendation: Although, the treated effluent results indicate that industry is complying in terms of treated effluent discharge standards, the unit M/s United spirit may be directed to stabilize the Activated sludge process. The bio-mass (MLSS) concentration in Aeration Tank to be increased from the present (negligible) level to around 3500 mg/l.

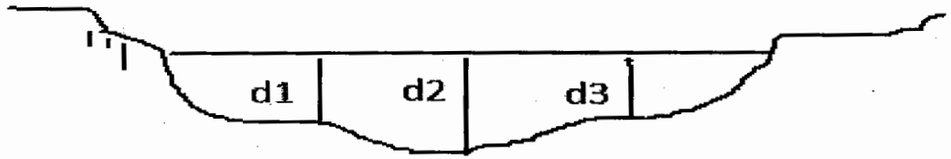
Name of officer	Signature
1. Mr. C.B. Chourasia, Scientist E, CPCB Delhi	
2. Mr. R.K. Tyagi, Regional officer, UPPCB, Meerut	
3. Mr. Vijay, AEE, UPPCB, Meerut.	
4. Dr. Yogendra Kumar, ASO, UPPCB, Meerut.	
5. Mr. B.K. Garg, Executive Engineer, UPJN Meerut	
6. Mr. Ananda Kumar Ngangom, JSA, CPCB Delhi	
7. Ms. Nidhi Dwivedi, Project Officer (Technical), NMCG	

Flow rate Measurement for Abu Nalla 2

ANNEXURE-I

Distance between points =27.3 Metres

Sl. No.	Time of Flow rate Measurement	Measured Depth of Flow			Avg. Flow Depth	Flow Width at Water Surface	Flow Area	Travel time taken by Float (ball)	Surface velocity	Average Velocity	Measured Flow rate (Cu.M/ hour)	Average Flow rate		Estimated Flow for 24 hours
		d1	d2	d3	D av	W	A= D*av*. W	T	Vs= L / T	V*av* = 0.8x Vs	Q*peak*= A.V*av*.3600	Q*av*= Q/2.25		
	Hrs	Metres (M)				M	sq.M	Sec	m/sec	m/sec	Cu.M per hour	Cu.M per hour		MLD
1	13:20	0.55	0.70	0.95	0.73	8.3	6.1	75.5	0.362	0.289	6338.5	2817.12		
2	14:20	0.55	0.70	0.85	0.70	8.3	5.8	70.0	0.390	0.312	6525.8	2900.35		
3	15:20	0.55	0.65	0.80	0.67	8.3	5.5	76.5	0.357	0.285	5687.0	2527.54	2692.73	**64.63**
4	16:20	0.55	0.65	0.80	0.67	8.3	5.5	73.0	0.374	0.299	5959.6	2648.72		
5	17:20	0.55	0.70	0.85	0.70	8.3	5.8	79.0	0.346	0.276	5782.3	2569.93		



Flow rate Measurement for Odean Nalla

ANNEXURE-II

Distance between points =27.3 Metres

Sl. No.	Time of Measure-ment	Measured Depth of Flow			Avg. Flow Depth	Flow Width at Water Surface	Flow Area	Time taken by Float (ball)	Surface velocity	Average Velocity	**Measured Flow rate (Cu.M per hour)**	**Average Flow rate**		**Estimated Flow for 24 hours**
		d1	**d2**	**d3**	**D av**	**W**	**A= D*av*. W**	**T**	**Vs = L/ T**	**V*av* =0.8x Vs**	**Q*peak*= A.V*av*.3600**	**Q*av*= Q/2.25**		
	Hrs	**Metres (M)**				**M**	**sq.M**	**Sec**	**m/sec**	**m/sec**	**Cu.M per hour**	**Cu.M per hour**		**MLD**
1	14:10	0.50	0.75	0.80	0.68	7.5	5.1	30.25	0.902	0.722	13320.595	5920.26	5841.13	**140.19**
2	15:10	0.55	0.70	0.80	0.68	7.5	5.1	30.30	0.901	0.721	13298.614	5910.50		
3	16:10	0.50	0.70	0.80	0.67	7.5	5.0	28.00	0.975	0.780	14040.000	6240.00		
4	17:10	0.48	0.75	0.80	0.68	7.5	5.1	33.50	0.815	0.652	11910.949	5293.75		

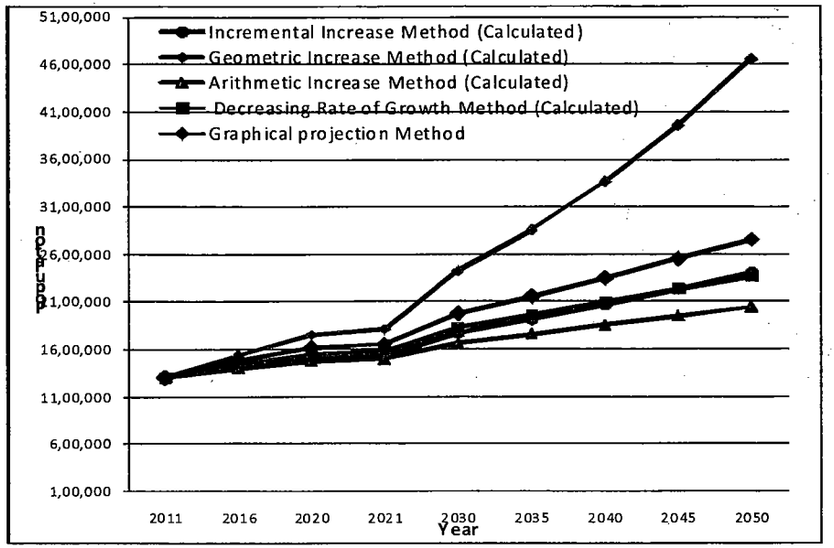
Population Forecast

ANNEXURE-III

Population Projection of Meerut

Year	Population	Increment	Rate of Growth	Incremental Increase	Decrease in Increase
1951	170403				
1961	219519	49,116	28.82%		
1971	297691	78,172	35.61%	29,056	-0.068
1981	448788	151,097	50.76%	72,925	-0.151
1991	753778	304,990	67.96%	153,893	-0.172
2001	1068772	314,994	41.79%	10,004	0.262
2011	1305429	236,657	22.14%	-78,337	0.196
Average		189,171		37,508	0.013

Summary of Population Projection					
Year	Incremental Increase Method	Geometric Increase Method	Arithmetic Increase Method	Decreasing Rate of Growth Method	Graphical projection Method
2011	1,305,429	1,305,429	1,305,429	1,305,429	1,305,429
2016	1,414,081	1,536,520	1,400,015	1,441,300	1,488,741
2020	1,507,753	1,750,516	1,475,683	1,549,900	1,622,104
2021	1,532,109	1,808,519	1,494,600	1,577,100	1,656,092
2030	1,768,189	2,425,134	1,664,854	1,821,600	1,973,625
2035	1,912,473	2,854,438	1,759,440	1,957,400	2,159,088
2040	2,066,134	3,359,739	1,854,025	2,093,200	2,351,020
2045	2,229,172	3,954,489	1,948,611	*2,229,000*	2,549,421
2050	2,401,587	4,654,523	2,043,196	2,384,800	2754290



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