BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPLE BENCH AT NEW DELHI
Original Application No. 536 of 2024

In the matter of: -

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

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Place: Delhi
Date: 18.08.2025

COMPLIANCE REPORT

(IN COMPLIANCE TO HON'BLE NGT ORDER DATED 16.04.2025 IN THE MATTER OF NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024)

CENTRAL POLLUTION CONTROL BOARD
(*Ministry of Environment, Forest & Climate Change*)
"Parivesh Bhawan", East Arjun Nagar,
Delhi-110032

August 18, 2025

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1.0 BACKGROUND

1.1 Hon’ble NGT order dated 16.4.2025

Hon’ble NGT vide order dated 16.04.2025 in O.A No. 536/2024, News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024, directed in para 3 & para 4, are reproduced below:

Para 3: "*The communication dated 11.04.2025 sent to the Member Secretary, Gujarat PCB mentions about the following gaps and non-compliance: -*

• *The WtE plant is/are operational without valid authorization issued by SPCB/PCC*

• *All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016*

• *Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.*

• *All parameters in Leachate have not been monitored as per Schedule II (b) of SWM Rules, 2016"*

Para 4: "*Similar communications have been sent to the other State Pollution Control Boards also. Ms. Divya Sinha, appearing virtually has submitted that if within a reasonable period the response is not received then the CPCB will take the strict action to ensure that the WtE Plants in these States operate complying with the norms. In the circumstances of the case eight weeks is a reasonable period to wait for the response of the State PCBs. In case, if the response to the communication noted above is not received from different States PCBs then CPCB should take appropriate action to ensure compliance. In such circumstances, we direct the CPCB to file a fresh compliance report at least one week before the next date of hearing*."

A copy of Hon’ble NGT order is attached as **Annexure I.**

2.0. Action taken by CPCB

2.1 Directions issued by CPCB

CPCB issued directions dated 10.07.2025 **(Annexure II)** to nine States (Andhra Pradesh, Haryana, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Telangana, Uttar Pradesh and Uttarakhand) under Section 5 of the Environment (Protection) Act, 1986, directing them to submit complete information and an Action Taken Report (ATR) regarding non-compliance in the matter. The following directions were issued for compliance:

a) To submit reasons for non-submission of complete information as per aforementioned directions issued by CPCB and Directions of Hon'ble NGT.
b) To ensure that all WtE plants operate with valid Consent and Authorization issued by concerned SPCB.
c) To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.

d) To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed of in Secured Landfills.

e) To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules.

f) To ensure that all WtE plants have Online Monitoring systems installed in their Air Pollution Control Systems and are connected with CPCB and SPCB server to ensure round-the-clock surveillance of the WtE plants.

g) To ensure that all the WtE Plants (MSW incineration based) be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format.

Reminder email dated 28.07.2025 was also sent to the respective State Pollution Control Boards (SPCBs) requesting submission of the ATR and the current compliance status with respect to the directions issued.

2.2 Status of Information Provided by SPCBs/PCCs

Seven SPCBs/PCCs namely, Andhra Pradesh, Haryana, Karnataka, Maharashtra, Telangana, Uttarakhand & Uttar Pradesh have provided Action Taken Report (ATR) w.r.t the directions issued by CPCB. ATRs from 02 SPCBs/PCCs namely Gujarat & Madhya Pradesh have not been received so far. The Action Taken Report as received from 07 SPCBs /PCCs is placed Annexure **III.**

Further, the compliance status of WtEs w.r.t provisions of SWM Rules as per the ATRs received from SPCBs/PCCs is given in **Table 1.**

Table 1: Updated Compilation of information provided by SPCBs/PCCs related to operational MSW incineration based WtE plants

SN	State/UT /Name of WtE & Date of receipt (1)	Validity of Consent under Air/ Water Act (2)	Validity of Authorization under SWM Rules (3)	Capacity & Power generation (TPD / MW) (4)	Calorific value (Kcal/kg) /Min Temp in Combustion chamber (℃) (5)	Bottom ash/fly ash & disposal method (6)	WtE monitored in last 5 years (Yes/No) (7)	Parameters monitored as per (Schedule - II of SWM Rules, 2016) (8)	Noncompliance observed as per Column 8 (9)	Actions taken against non-compliances (10)	CPCB Observations
1	Jindal Urban Waste Management Ltd, Vishakhapatnam **(Andhra Pradesh)** (31.7.2025)	Yes (upto 30.11.2028)	Expired, renewal under process	1620 TPD (15 MW)	1500 Temp > 850 ℃ to <1000 ℃	Bottom ash-26%, Fly ash 2.3 % Disposal – Bottom ash is disposed to low-lying area Fly ash – disposed to brick making units	Yes (Latest during June.2025, (Sept-2024 , April .2024, Oct-.2023, Dec-.2022)	Emission: PM & SOx Monitoring through OCEMS: PM SO_2 , NOx Ambient: PM $_{10 \& 2.5}$, SO_2 , NO_2 Leachate: pH, TSS, TDS,COD,BOD	Complaint	Not applicable	• Plant is operational without valid authorization. • Temp to be maintained >950℃ in Secondary Combustion chamber. • Ambient air quality for monitored parameters were found complying. • Monitored parameters for Stack emission were found complying. All parameters stipulated under Schedule II of the SWM Rules for Stack emissions (Dioxin. Furan etc.) not monitored. • The monitored parameters in Bottom ash & Fly ash were found complying with norms

											• The monitored parameters in Treated Leachate were found to be complying with stipulated norms .
2	Jindal Urban waste Management Guntur Ltd,.Palnadu Dist (**Andhra Pradesh) (31.7.2025)**	Yes (up to 28.2.2029)	Expired, Renewal under process	1620 TPD (20 MW)	1500 Temp > 850 ℃ to <1000 ℃	Bottom ash-22% Fly ash -3% Disposal – Bottom ash is disposing to the low-lying area Fly ash – disposing to brick making units & substitute for construction material	Yes (June.2025, Sept-2024, April .2024, Oct-.2023, Dec-.2022)	Emission: PM & SOx Monitoring through OCEMS: PM, SO_2 , NOx, Ambient: PM $_{10 \& 2.5}$, SO_2 , NO_2 Leachate: pH, TSS, TDS, COD, BOD	Complaint	Not applicable	• Plant is operational without valid authorization. • Minimum Temp of 950oC to be maintained in Secondary Combustion chamber. • Ambient air quality for monitored parameters were found complying • Monitored parameters for Stack emission were found complying. All parameters stipulated under Schedule II of the SWM Rules for Stack emissions (Dioxin. Furan etc.) . • The monitored parameters in Bottom ash & Fly ash were found complying. • The monitored parameters in Treated Leachate were found to be complying with stipulated norms.
3	JBM Environment Mgmt Pvt Ltd Integrated Soli d waste treatment and disposal facility, Sonepat **Haryana**	(Yes) Uptp 30.9.2025	(Yes) Uptp 30.9.2025	750 (8MW)	1500-1600 Temp 750 ℃	Bottom ash-Fly ash -15-20% Disposal : Secured Landfill site	Yes 24.3.2025 During 2024, 2023 & 2021	Emission: SO_2, CO, HCL, TOC, HF, NOx, Dioxin Furans, Hg, Heavy	Compliant	Not applicable	• Temp to be maintained >950℃ in Secondary Combustion chamber. • Quantification of bottom ash and fly ash not reported separately • All parameters

	(8.8.2025)							metals Treated Leachate: All Parameters Ambient: All Parameters			monitored in stack emission, and Bottom ash & Fly Ash have been reported to be complying with stipulated norms. Analysis Results of emission parameters have however, not been provided. • The monitored parameters in Treated Leachate were found to be complying with stipulated norms .
4	Bidadi Waste to Energy Plant, Bidadi, Ramnagar, **Karnataka** **(29.07.2025)**	(Yes) upto 30.6.2028	Not obtained	600 TPD, (11.5 MW)	2400 Temp (950-1200 ℃)	Generation: Bottom ash: 30% Fly ash 4% Disposal: Landfilling	No (Operational since 19.12.2024) An accident occurred at the unit on 4.1.2025 and operation resumed from 4.4.2025	Monitored through OCEMS PM, SO_2, NO_x, CO, HCl, $O_{2,\ \&}$ Temp.	Compliant	Not applicable	• The plant is operational without authorization. KSPCB has issued Show Cause Notice, dated 10.6.2025 to the unit • Analysis report of Bottom ash & fly ash not provided • Treated leachate analysis report not provided • The plant has been reported compliant by the KSPCB, however all parameters stipulated under Schedule II of the SWM Rules have not been monitored.
5	Anotny Lara Renewable Energy Private Limited, Waste to Energy, Pimpri Chinchinwad, Maharashtra	(Yes) upto 30.6.2026	(Yes) Upto 31/7/2027	700 TPD (14 MW)	1600-1900^{o}C Addl. fuel used	Average ash generation: 18% Analysis of bottom ash and	Yes 13.6.2025 23.1.2025 6.3.2025 16.12.2024 16.5.2024	Emission TPM, , SO_2, HCL Ambient PM, PM_{10}, PM 2.5, SO_2, Co, O_3, NO,	Not Compliant 2024 & 2025: Emission & Ambient	Show Cause Notice issued on 30.7.2025	• Quantity of bottom ash and fly ash generated have not been reported separately • Analysis results of Bottom ash & Fly ash not provided

	(7.8.2025)				Temp 950 ℃	Fly ash is under process, sample collected on 13.6.2025 Disposal: Bottom ash utilization in C& D plant Fly ash in Sanitary Landfilling	29.7.2024 9.10.2024	NO_2, Benzene, Toluene, Ethyl benzene Treated Leachate & Ash: (pH, TDS, SS, BOD, Cl, Nitrogen, Cu, Pb, NH3, Fl, TKN, As, Cd, Cr, Hg, Ni, Zn, Phenol	(TPM, $PM_{10,}$ PM_2.5, $NO_{2,}$ Benzene) 2024 & 2025 Leachate (SS, BOD, COD, TDS, Cl, Hg		• All parameters in stack emission stipulated under Schedule II of the SWM Rules have not monitored.
6	Bhumi Green Energy Pvt. Ltd., Sangli, Maharashtra **(7.8.2025)**	(Expired) Upto 31.8.2024	(Yes) upto 31.8.2027	300 TPD (10 MW)	2800 Addl fuel used Temp 230 ℃	Average ash generation: 18.60 % Disposal: Bottom ash utilization in brick making Fly ash in brick making	No	Not provided	Not provided	Proposed directions issued on 20.3.2025 & Interim direction issued on 1.7.2025	• Plant is operational without valid CTO • Analysis report of Stack emissions as stipulated under Schedule II of the SWM Rules not provided • Minimum temperature of 950^{o}C as specified in Secondary incinerator chamber not maintained • Analysis report of Bottom ash & fly ash not provided. • Quantity of bottom ash and fly ash generated not reported separately • Treated leachate analysis report not provided

7	Hyderabad MSW Energy Solutions Pvt. Ltd., Jawahar Nagar, Medchal, Telengana **(31.7.2025)**	Yes upto (31.03.2023)	It receives processed MSW from M/s HIMSW Project, a separate entity authorized by TGPCB till 31.07.2028.	2400 TPD (48 MW)	1500-1700 Temp > 950 ℃	Average ash generation: <20 %, as per CTO 30% Disposal Bottom ash: Sanitary Landfill Fly ash: At TSDF, Dundigal	Yes 30.01.2025 & 23.03.2025	Emission Parameters monitored : PM, SO_2, NO_x, CO HCL, TOC, Heavy metals & Dioxin & Furans, Temp Leachate is collected and sent to central LTP of HIMSW Ambient Air : PM, SO_2 , NOx , NH3, Pb & Ni	Compliant	Not applicable	• The unit has not obtained authorization • Leachate is sent to central Leachate treatment plant of HIMSW. Analysis report of treated leachate not provided • Ambient air quality for monitored parameters were found complying
8	Dundigal Waste to Energy Pvt. Ltd., Dundigal, Malkajgiri, Telengana **(31.7.2025)**	Yes Upto 31.03.2028	It receives processed MSW from M/s HIMSW Project, a separate entity authorized by TGPCB till 31.07.2028.	1000 TPD (14.5 MW)	1500-1700 Temp (>950 ℃	Average ash generation: <25 %, Disposal: Bottom ash: Sanitary Landfill Fly ash: At TSDF, Dundigal	Yes 23.03.2025 & 8.11.2024	Emission Parameters monitored: PM, SO_2, NO_x, CO HCL, TOC, Heavy metals & Dioxin & Furans Leachate is sent to central LTP of HIMSW Ambient Air : PM, SO_2 , Nox , NH3,	Compliant	Not applicable	• The unit has not obtained authorization. • Leachate is sent to central LTP of HIMSW.Analysis report of treated leachate not provided • Ambient air quality for monitored parameters were found complying • Quantity of flyash / bottom ash not reported separately

								Pb & Ni			
9	Siddharth Papers Ltd. U.S.Nagar Uttarakhand **(8.08.25)**	Expired (renewal not issued)	Not obtained	185 TPD, RDF Auxiliary fuel used, (6 MW)	4000 Additional fuel used Temp (700-750 ℃)	Not provided	Yes 6.03.2025	Emission Parameters monitored : PM, SO_2, NO_x, CO	PM& CO found non-compliant.	SCN issued	• The plant is operational without valid CTO & authorization • Specific information on analysis & disposal of bottom ash and fly ash not provided. • Min temp. of 950 degrees Celsius is not maintained in combustion chamber. • Treated leachate analysis not provided • All parameters covered in Schedule II of SWM Rules were not monitored • Show Cause issued by UKPCB to the unit on 16.6.2025 for non-compliance of monitored parameters
10	Siddheshwari Paper Udyog Pvt Ltd., Kashipur Uttarakhand **(8.08.2025)**	Expired (renewal not issued)	Not obtained	185 TPD, RDF (6 MW)	4000 Additional fuel used Temp (600-610) ℃	Not provided	Yes 6.03.2025	Emission Parameters monitored : PM, SO_2, NO_x, CO	PM & CO ,found non-compliant.	SCN issued	• The plant is operational without valid CTO & authorization • Min temp of 950 ℃ is not maintained in combustion chamber. • Specific information on analysis & disposal of bottom ash and fly ash not provided • All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016 are not monitored • Show Cause issued by UKPCB to the unit on

											16.6.2025 for non-compliance of monitored parameters
11	Bahl Paper Mills Ltd., Kashipur, Uttarakahnd **(8.08.25)**	Yes (Upto 31.3.2028)	Not provided	(100 TPD RDF) (2.5 MW)	3620 Auxillary fuel used Temp (950-1000) ℃	Not Provided	Yes 6.03.2025	Emission Parameters monitored : PM, SO_2, NO_x, CO Leachate: Not monitored	compliant.	Not Applicable	• Authorization details not provided • Analysis report & details of disposal/utilization of bottom & fly ash not provided • Treated Leachate analysis not provided • All parameters as in Schedule-II of SWM Rules are not monitored
12	Rollz India Waste Management Pvt. Ltd., Deenanathpur, Ghaziabad, Uttar Pradesh **(22.7.2025)**	**UPPCB vide letter dated 22.7.2025 informed that presently , there is no MSW incineration based WtE Plants operational in the State**									
13	Rollz India Waste Management Pvt. Ltd., Bahadarpur, Ghaziabad, Uttar Pradesh (**22.7.2025**)	-Do-									
14	Goodwatts WtE , Jamnagar Pvt **Gujarat**	**ATR for Directions dated July 09. 2025 not provided by Gujarat & Madhya Pradesh SPCB. Hence, status of WtE plants in Gujarat & Maharashtra is same as provided in Report dated 15.4.2025 filed by CPCB in this matter**									
15	Jindal WtE Ahmedabad Pvt Ltd , **Gujarat**	-Do-									
16	Rewa MSW Energy Solution Pvt Ltd, **M.P**	-Do-									

17	Jabalpur MSW Pvt. Ltd Kathonda, Jabalpur, **M.P**	-Do-
18	East Delhi Waste processing Company , Ghazipur , **Delhi**	**Plant jointly inspected by CPCB & DPCC during March-April in the matter of Writ Petition(s)(Civil) No(s). 13029/1985, M.C Mehta Vs. Union of India & Ors. Report submitted before Hon'ble SC. Details given at Section 2.3 of the report**
19	M/S Delhi MSW Solutions Ltd (Delhi), Bawana , **Delhi**	-Do-
20	Timarpur Waste to Electricity Project Ltd , **Delhi**	-Do-
21	Tehkhand Waste to Electricity Project ,Ltd , **Delhi**	-Do-

2.3. Report Filed by CPCB in Hon'ble Supreme Court WP(C) 13029/1985 matter

CPCB, jointly with DPCC, monitored four Waste-to-Energy (WtE) plants in Delhi, located at Okhla, Ghazipur, Bawana and Tehkhand in the matter of Hon'ble Supreme Court, Writ Petition (Civil) No. 13029/1985, M.C. Mehta vs. Union of India & Ors. during March-April, 2025 to assess the ground-level conditions related to the quantum of waste generation and its likely impact on the environment. The report has been submitted before the Hon'ble Supreme Court for consideration. The major observations of the report are given below:

General observations:

- All four WtE plants have installed pre-processing facilities, for improving the calorific value of waste at the boiler feed point. The pre-processed waste at the incinerator feed point has a calorific value exceeding 1500 Kcal/kg, complying with Rule 21(1) of SWM Rules, 2016.
- All four WtE plants are complying with the design specifications/process conditions specified in Schedule II (C) of the SWM Rules, 2016.
- Emissions from all four WtE plants are within stipulated norms, except at Bawana, where Dioxin & Furan and Cd+Th concentrations exceed stack emission standards. However, it was observed that the estimated inhalation incremental cancer risk (7 out of 10 Crore) due to Dioxin emissions from all four WtE plants including the Bawana plant is much less than acceptable risk of one in million as per USEPA.

Ambient air quality

- PM_{10} concentration levels at all eight stations monitored at the Four WtE plants is exceeding the prescribed limits. It is, however, within the range of concentration levels monitored at the 39 CAAQMS stations in Delhi.
- $PM_{2.5}$ levels at one station at Ghazipur WtE, one station at WtE Okhla and at both the stations at WtE Tehkhand is exceeding the prescribed limits. It is, however, within the range of concentration levels monitored at the 39 CAAQMS stations in Delhi.
- Ozone concentration levels in ambient air at five stations (2 at Ghazipur, 2 at Bawana and 1 at Okhla) is exceeding the prescribed limits. Presence of NOx is a precursor for Ozone generation. There are multiple sources for NOx in the environment. It was observed that contribution of WtE plants to increase in Ozone concentration in ambient air is negligible.
- Nickel concentration in ambient air has been reported as > 20 ng/m^3.at one station each in Ghazipur and Bawana during 24 hr monitoring at these stations. The Nickel measurements are one-day (24 hr) measurements and as such are not comparable with annual average for which minimum monitoring of 104 days is required.

- Stack emissions from all four WtE plants are meeting the stipulated norms w.r.t Suspended Particulate Matter and Heavy metal concentration including Nickel.

Bottom & Fly ash

- Bottom ash is meeting the stipulated norms in Okhla, Ghazipur & Tehkhand and is exceeding the norms w.r.t. Loss of Ignition (LoI) in case of Bawana. Flyash is meeting the stipulated norms in Okhla WtE, and is exceeding the stipulated norms w.r.t. Cd, Mn, Pb and Cu in case of Bawana, Cd in case of Ghazipur and Pb in case of Tehkand WtE plant. Improvement in segregation may control such exceedance and also improving combustion in the WtE plants. It is further observed that the concentration of three metals viz Cd, Cu & Pb in Groundwater in and around the WtE plant premises is within the stipulated norms (BDL) at all four WtE plants).

Measures for odor control & green belt:

- Adequate measures for odour control have been taken at the four plants. Three WtE plants, Okhla, Ghazipur & Tehkhand, are located close to residential areas and in case of Ghazipur plant, no green belt has been developed around Ghazipur plant. It was recommended that adequate green belt should be developed around Ghazipur plant as stipulated in the Consent and Environment Clearance issued by DPCC & MoEF&CC respectively.

Treated leachate:

- It is observed that BOD in the treated leachate is exceeding the prescribed norms in case of Bawana plant, Dissolved Solids & Chlorides in case of Ghazipur plant & Chloride is exceeding in case of Tehkhand plant. It is further observed that the leachate generated is reused in Bawana, Okhla and Tehkhand Plant. The same is used for horticulture as per the CTO in case of Ghazipur plant.

Ground water quality:

- With regard to ground water monitoring, it is observed that the metal concentration is within the stipulated norms except for iron at one location each at Bawana & Ghazipur. Further TDS, Hardness and Sulphate is found to be exceeding in case of Bawana, Nitrate in case of Ghazipur, Total Hardness in case of Okhla and Total Hardness, Dissolved Solids & Phenolic Compounds are exceeding in case of Tehkhand Plant. As per CGWB report entitled “Aquifer mapping & ground water management plan of NCT Delhi”, 2016, it is observed that Iron in excess of maximum permissible limit has been reported from Northwest, North, Northeast, West, East, Central, Southwest and South

districts of NCT, Delhi. Also Total hardness, Sulphate and Nitrate have also been reported in excess of maximum permissible limit from parts of Northwest, East, Southwest and South Districts of Delhi. Further, Tehkand WtE is located in close vicinity of the Okhla dumpsite and hence high concentration of Phenolic compounds may be attributed to the leachate generated from the dumpsite. Additionally, the Ghazipur & Okhla WtE plants are located in very close vicinity of the Ghazipur & Okhla dumpsites respectively.

Impact of WtE plants:

- The maximum model computed Ground Level Concentration (GLC), (24 hr and annual concentrations) of PM, SOx, NO_2 and Dioxin & Furan at all 4 WtE plants are extremely low (<than 0.05 µg/m^3) when compared to the corresponding National Ambient Air Quality Standards (NAAQS). Hence, they do not pose significant incremental contribution to the air quality in the area. It has been estimated that inhalation incremental cancer risk due to Dioxin Emissions at all four sites is much less than acceptable risk of one in million as per USEPA.

A copy of the report is Annexed as **Annexure IV**

2.4 Directions issued to SPCBs/PCCs to direct WtE plants for installation of Online Continuous Emission / Effluent Monitoring systems

CPCB has issued following Directions dated August 12, 2025 under Section 5 of the Environment (Protection) Act, 1986 to all SPCBs/PCCs **(Annexure V)**

(i) To submit Action Taken Report with reference to directions dated July 9, 2025 issued by CPCB regarding compliance status with the stipulated norms of Waste to Energy plants

(ii) To ensure that all operational and upcoming MSW incineration based Waste-to-Energy (WTE) plants install and operate Online Continuous Emission Monitoring Systems (OCEMS) for real-time monitoring of the parameters such as Particulate Matter (PM), Sulphur Dioxide (SO_2), Nitrogen Oxides (NO_x), Hydrogen Fluoride (HF), Hydrogen Chloride (HCl) and Carbon Monoxide (CO). The OCEMS are to be installed as per the provision in the guidelines for Continuous Emission Monitoring System prepared by CPCB.

(iii) To ensure that all operational and upcoming MSW incineration based Waste-to-Energy (WTE) plants install and operate Online Continuous Effluent Monitoring Systems for treated leachate for real-time monitoring of the parameters such as pH, Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD),

Chemical Oxygen Demand (COD), Ammoniacal Nitrogen and Fluoride. The OCEMS are to be installed as per the provisions in the guidelines for Online Continuous Effluent Monitoring prepared by CPCB.

(iv) To ensure that all monitoring systems installed are connected in real-time to the respective SPCB/PCC's servers and the Central Pollution Control Board's Online Monitoring server within three months from the date of issuance of the direction

2.5 Guidelines on MSW incineration based WtE Plants

Keeping in view the necessity of WtE plants to address the challenges of MSW management and issues associated with the operation and maintenance of such plants, CPCB has prepared a draft document titled "Guidelines on MSW Incineration-based WtE Plants." This document outlines the sources and characterization of waste streams generated from WtE plants, along with recommended prevention and control measures. The objective of the guidelines is to assist stakeholders in effectively managing and mitigating the environmental and operational challenges linked to WtE facilities.

The draft document **(Annexure VI)** has been uploaded on the CPCB website for public consultation and is also being circulated to State Pollution Control Boards (SPCBs) for their review and comments. The same shall be finalized upon receipt of comments from the various stakeholders



(Divya Sinha)
Scientist 'F'
Central Pollution Control Board

Annexure-I

Item No. 04 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 16.04.2025

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Applicant:
Respondents: Ms. Divya Sinha, Director, CPCB along with Ms. Suman Arora, Adv. for CPCB
Ms. Praveena Gautam, Mr. Pawan Shukla & Ms. Tissy Annie Thomas, Advs. for MoEF & CC
Mr. Malay Swapnil, Adv. for R - 3 (Through VC)

ORDER

1. In this Original Application (OA), registered *suo-Moto,* the Tribunal is considering the issue of efficacy of Waste to Energy (WtE) plants specially in reference to the two issues. Firstly, the quality of waste in India and secondly, health and environmental implication.

2. The CPCB has filed the updated status related to the waste to energy plants. Ms. Divya Sinha, Director, CPCB appearing virtually has informed that the gaps were noticed in the performance of WtE plants and repeated communications have been sent to the States but the response has not been received. The communications sent to the various States have been placed on record along with the latest report. The communication which were sent to Member Secretary, Andhra Pradesh PCB mentions about the following gaps/non-compliance:-

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC.
- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016.

- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.

- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016.

- Details of Action taken against non-complying WtE units has not been provided.

3. The communication dated 11.04.2025 sent to the Member Secretary, Gujarat PCB mentions about the following gaps and non-compliance:-

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC

- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016

- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.

- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016

4. Similar communications have been sent to the other State Pollution Control Boards also. Ms. Divya Sinha, appearing virtually has submitted that if within a reasonable period the response is not received then the CPCB will take the strict action to ensure that the WtE Plants in these States operate complying with the norms. In the circumstances of the case eight weeks is a reasonable period to wait for the response of the State PCBs. In case, if the response to the communication noted above is not received from different States PCBs then CPCB should take appropriate action to ensure compliance. In such circumstances, we direct the CPCB to file a fresh compliance report at least one week before the next date of hearing.

5. List on 18.08.2025.

Prakash Shrivastava, CP

Dr. A. Senthil Vel, EM

April 16, 2025
Original Application No. 536/2024
A..

Annexure-II

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

10

To,

The Chairman
Andhra Pradesh Pollution Control Board
D.No. 33-26-14 D/2, Near Sunrise Hospital,
Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet,
Vijayawada – 520 010.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष /Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Andhra Pradesh SPCB w.r.t WtE located in your State** were as given below:

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC
- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016
- Details of Action taken against non-complying WtE units has not been provided

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Andhra Pradesh SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Andhra Pradesh SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Andhra Pradesh SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Andhra Pradesh SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Chennai	: For information & Follow up with Andhra Pradesh SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

(Bharat Kumar Sharma)
Member Secretary

OIC

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

To,

The Chairman
Gujarat Pollution Control Board
Paryavan Bhavan, Sector 10-A,
Gandhinagar – 382 043.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Contd...

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Gujarat, SPCB w.r.t WtE located in your State** were as given below:

- The WtE plant is/are operational without valid authorization issued by SPCB/PCC
- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Gujarat SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Gujarat SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Gujarat SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Gujarat SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Vadodara	: For information & Follow up with Gujarat SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

To,

The Chairman
Haryana State Pollution Control Board
C-11, Sector-6. Panchkula-134109,
Haryana – 134109.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

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Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Haryana, SPCB w.r.t WtE located in your State** were as given below:

- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- Details of Action taken against non-complying WtE unit has not been provided

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Haryana, SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Haryana, SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Haryana, SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Haryana, SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Chandigarh	: For information & Follow up with Haryana SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

10

To,

The Chairman
Karnataka State Pollution Control Board
Parisara Bhavan, 4th & 5th Floor,
49, Church St., Bangalore - 560 001.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Karnataka, SPCB w.r.t WtE located in your State** were as given below:

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC
- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Karnataka SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Karnataka SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Karnataka SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Karnataka SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Bengaluru	: For information & Follow up with Karnataka SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

CPCB

LiFE Lifestyle for Environment

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO

Date: 09/07/2025
10

To,

The Chairman
Madhya Pradesh Pollution Control Board
Parayavaran Parisar, E-5, Arera Colony
Bhopal – 462 016, Madhya Pradesh.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Madhya pradesh SPCB w.r.t WtE located in your State** were as given below:

- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Madhya Pradesh SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Madhya Pradesh SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Madhya Pradesh SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Madhya Pradesh SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Bhopal	: For information & Follow up with Madhya Pradesh SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

(Bharat Kumar Sharma)
Member Secretary

O/C

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

To,

The Chairman
Maharashtra Pollution Control Board
Kalpataru Point, 2nd – 4th Floor,
Opp. Cine Planet Cinema,
Nr. Sion Circle, Sion (E),
Mumbai – 400 022.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Maharashtra, SPCB w.r.t WtE located in your State** were as given below:

- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016
- Details of Action taken against non-complying WtE units has not been provided

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Maharashtra SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Maharashtra SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Maharashtra SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Maharashtra SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Pune	: For information & Follow up with Maharashtra SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

To,

The Chairman
Telangana State Pollution Control Board
Paryavaran Bhawan, A-3, I.E. Sanath Nagar,
Hyderabad-500 018.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Telengana, SPCB w.r.t WtE located in your State** were as given below:

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC
- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016
- Details of Action taken against non-complying WtE units has not been provided

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Telengana SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Telengana SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Telengana SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Telengana SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Chennai	: For information & Follow up with Telangana SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

(Bharat Kumar Sharma)
Member Secretary

O/C

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

10

To,

The Chairman
Uttarakhand Pollution Control Board
Gaura Devi Paryavaran Bhawan,
46 B IT Park, Sehstradhara Road,
Dehradun -248001.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Contd...

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Uttarakhand SPCB w.r.t WtE located in your State** were as given below:

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC
- All parameters in incinerator stack emission had not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate had not been monitored as per Schedule II (B) of SWM Rules, 2016

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Uttarakhand State Pollution Control Board for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Uttarakhand SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Uttarakhand SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(1) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Uttarakhand SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Lucknow	: For information & Follow up with Uttarakhand SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

To,

The Chairman
Uttar Pradesh Pollution Control Board
Building.No. TC-12V Vibhuti Khand, Gomti Nagar,
Lucknow-226 010.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Uttar Pradesh, SPCB w.r.t WtE located in your State** were as given below:

- The WtE plant is/are operational without valid authorisation issued by SPCB/PCC
- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Uttar Pradesh SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Uttar Pradesh SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Uttar Pradesh SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Uttar Pradesh SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Lucknow	: For information & Follow up with Uttar Pradesh SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

Annexure: I

FORMAT FOR INFORMATION ON WASTE TO ENERGY (WtE) PLANTS (MSW INCINERATION BASED)

(a) General details of MSW incineration based WtE plants

S.No.	State/UT	Name of Wt E Plant with address	Validity of CTE/ CTO under Air & Water Act (Yes/No)	Authorization granted under SWM Rules (Yes/No)	Validity of Authorization	MSW Processing Capacity TPD)	Power generation Capacity(MW)	Calorific value of waste received at WtE facility (Kcal/kg)	Additional fuel used if any in furnace, if any	Minimum Temperature maintained at secondary combustion chamber (degree Celsius)	Loss of Ignition (in Bottom ash) (% of dry weight)	Average bottom ash/fly ash generation (% w.r t MSW feed)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1												

(b) Compliance status of WtE plants

S.No.	Whether WtE plant monitored in last 5 years by SPCBs (Yes/No)	If yes, please provide date of monitoring	List of Parameters monitored as specified in Para B (Parameters for Treated Leachate n of schedule-II of SWM Rules, 2016	Parameters found non complying the norms	List of Parameters monitored as specified in Para C (Parameters for Incineration of schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of analysis, disposal/utilization bottom ash.	Details of analysis disposal/utilization of fly ash.	Details of actions taken against the plants not complying with norms & provisions of SWM Rules, 2016 (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1									

Annexure-III

ANDHRA PRADESH POLLUTION CONTROL BOARD
Dr. Y.S.R. Paryavaran Bhavan, APIIC Colony Road,
Gurunanak Colony, Autonagar, Vijayawada- 520007
Phone. No.0866-2463200, Website: https://pcb.ap.gov.in/

Lr. No. APPCB-11022/525/2024-TEC-CTO-APPCB **Dt. 05/11/2024**

To
The Director & Divisional Head (UPC-II)
Central Pollution Control Board (CPCB),
Parivesh Bhawan,
East Arjun Nagar, Delhi – 110032.

Sub: APPCB- HO- Air- Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated: 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024- Information in prescribed format – Furnished- Reg.,

Ref: F No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024.

***

In the reference cited, the CPCB requested all SPCBs to provide the information related to Waste to Energy (WtE) in the state in prescribed format.

In this regard, it is informed that there are two (2) Waste to Energy (WtE) plants existing in the state of Andhra Pradesh. The data related to Waste to Energy (WtE) plants in the State of Andhra Pradesh in the prescribed format is enclosed for information.

Encl. as above.

Yours faithfully,

S SRI SARAVANAN, MS(SS)., O/o MEMBER SECRETARY-APPCB

Digitally Signed by S Sri Saravanan
Date: 05-11-2024 15:40:15
Reason: Approved

Andhra Pradesh Pollution Control Board

Information related to WtE Plants

S.No.	Name of WtE Plant with address	CTE/CTO / Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/power /heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No). If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District	CTO order dated: 20.11.2023 with a validity period upto 30.11.2028 (copy enclosed).	Capacity: 1372 TPD MSW. Technology: Mass Incineration Product: Electricity - 15 MW	Average through put at 1500 Kcal/ kg	Bottom ash Generation:26% (357 TPD) Fly ash Generation:2.3% (32.05 TPD) Handling & Disposal: Bottom ash is disposing to the low-lying areas and Fly ash to the brick manufacturing units.	Yes 20.09.2024. (analysis reports of stack, ambient & effluent are enclosed). The facility provided Online Continuous Emission Monitoring System (OCEMS) and connected to CPCB & APPCB websites and is regularly monitored. As per the online values, the PM value ranges from Min - 1.9 mg/Nm^3 to Max-15.18 mg/Nm^3. The SO_2 value ranges from Min – 24.02 mg/Nm^3 to Max – 102.19 mg/Nm^3	Manual monitoring parameters are Emission: PM Ambient: PM 2.5, PM 10, SO_2, NO2, NH3 Effluent: pH, TSS, TDS, COD, BOD (3 days @ 27° C)	As per the analysis reports the PM values are within the permissible limits of the standards prescribed in the consent order. Dioxins & Furans will be monitored.	It is observed from the online data that the PM, SO2 & NOx parameters are within the stipulated standards. In case the parameters exceed the standards, the SMS alerts are being sent to the industry, automatically through online, so that they can rectify the defect

						The NOx value ranges from Min - 0 mg/Nm^3 to Max – 92.46 mg/Nm^3 (copy enclosed).			immediately.
2.	M/s Jindal Urban Waste Management Guntur Limited Sy.No.933&938, Naidupeta Dumpyard, Obulanaidupalm(V), Edlapadu (M), Palnadu Dist	CTO order dated:20.03.2024 with a validity period upto 28.02.2029 (copy enclosed).	Capacity: 1620 TPD MSW Technology: Mass Incineration Product: Electricity - 20 MW	Average through put at 1500 Kcal/ kg	Bottom ash Generation:22% (357 TPD) Fly ash Generation: 3% (50 TPD) Handling & Disposal: Research Work is under process. Planning of utilising of Bottom ash and Fly ash as bricks and substitute for construction material	Yes 08.01.2024 (analysis reports are enclosed). The facility provided Online Continuous Emission Monitoring System (OCEMS) and connected to CPCB & APPCB websites and is regularly monitored. As per the online values, the PM value ranges from Min - 0.59 mg/Nm^3 to Max - 2.61 mg/Nm^3. The SO_2 value ranges from Min - 6.11 mg/Nm^3 to Max - 68.67 mg/Nm^3 The NOx value ranges from Min - 13.42 mg/Nm^3 to Max – 100.89 mg/Nm^3 (copy enclosed).	Manual monitoring parameters are Emission: PM Ambient: SO2 Effluent: pH, TSS, TDS, COD, BOD (3 days @ 27^o C)	As per the stack monitoring report dt. 24.02.2024, the particulate matter exceeded slightly. Subsequently, it is observed from the online monitoring data that the values of the PM are within the permissible limits of the standards prescribed in the consent order. Dioxins & Furans will be monitored.	It is observed from the online data that the PM, SO2 & NOx parameters are within the stipulated standards. In case the parameters exceed the standards, the SMS alerts are being sent to the industry, automatically through online, so that they can rectify the defect immediately.

Consolidated Statement of APPCB Analysis Data for the period of 5 years

Name of the industry:

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited,
Sy. No. 410&415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District.

I. Effluent Samples:

S.No	Parameter	MSW Pit Raw Leachate	
		25.04.2024	09.12.2024
1	pH	8.06	7.38
2	Total Suspended Solids in mg/L	2190	>1000
3	Total Dissolved Solids in mg/L	17920	14280
4	Chemical Oxygen Demand in mg/L	4960	4960
5	Bio-chemical Oxygen Demand in mg/L	2250	1950

S.No	Parameter	Leachate Treatment Plant (LTP) Inlet				
		08.12.2022	25.04.2024	06.08.2024	19.09.2024	09.12.2024
1	pH	7.30	8.06	7.78	8.00	7.38
2	Total Suspended Solids in mg/L	2950	2190	5680	2680	>1000
3	Total Dissolved Solids in mg/L	18240	17920	11240	14615	14280
4	Chemical Oxygen Demand in mg/L	11440	4960	4360	4920	4960
5	Bio-chemical Oxygen Demand in mg/L	4500	2250	1500	2200	1950

S.No	Parameter	LTP Outlet		LTP-RO feed
		06.08.2024	19.09.2024	19.09.2024
1	pH	8.11	8.46	8.93
2	Total Suspended Solids in mg/L	28	137	29
3	Total Dissolved Solids in mg/L	76	14384	6356
4	Chemical Oxygen Demand in mg/L	44	376	208
5	Bio-chemical Oxygen Demand in mg/L	14	135	80

S.No	Parameter	RO Stage 1-Rejects				RO Stage 2 -Rejects	
		08.12.2022	25.04.2024	19.09.2024	09.12.2024	25.04.2024	09.12.2024
1	pH	8.51	8.15	8.83	7.76	**8.27**	**8.42**
2	Total Suspended Solids in mg/L	108	62	37	36	**67**	**26**
3	Total Dissolved Solids in mg/L	3524	9104	8116	6840	**10364**	**12660**
4	Chemical Oxygen Demand in mg/L	64	388	272	220	**404**	**564**
5	Bio-chemical Oxygen Demand in mg/L	17	140	95	76	**145**	**280**

S.No.	Parameter	RO-Permeate			
		08.12.2022	25.04.2024	19.09.2024	09.12.2024
1	pH	7.65	9.02	9.62	8.54
2	Total Suspended Solids in mg/L	<10	<10	5	4
3	Total Dissolved Solids in mg/L	662	280	144	80
4	Chemical Oxygen Demand in mg/L	24	12	8	4
5	Bio-chemical Oxygen Demand in mg/L	3.6	3.4	2.4	0.8

II. Ambient Air Quality Monitoring (AAQM) Samples:

S.No	Monitoring Period	20.09.2024 to 21.09.2024 (24 hrs average)				
	Location	Parameter				
		PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	NH3 (µg/m3)
1	AAQM near Main Gate of the industry (Periphery)	71.0	32.0	9.0	19.0	32.0
2	AAQM near Plant Guest House of the industry (Periphery)	47.0	18.0	7.0	12.0	22.0
Monitoring Period		**07.12.2022 to 08.12.2022 (24 hrs average)**				
1	AAQM at Weigh Bridge	136.0	--	18.0	20.0	27.0

III. Flue Gas Emission (Stack Monitoring) Sample:

S.No	Date of Sampling	19.09.2024
	Stack Identity	Parameter
		Particulate Matter (PM) (mg/Nm^3)
1	Stack attached to 2x48 TPH Boilers (Fuel Municipal Solid Waste-600 Tons/day for each boiler)	16.2

IV. Fly ash & Bottom ash sample:

Date of sampling			08.12.2022		
Sl.No	**Parameter**	**Unit**	**Fly ash**	**Bottom ash**	*** Limits**
1.	Physical State	--	Solid	Solid	--
2.	pH	--	12.03	11.84	≤ 2 to ≥ 12.5
3.	LOI (Loss of Ignition) (Dry	%	2.26	1.76	--
4.	LOD (Loss on Drying)	%	1.04	0.09	--
5.	Organic Carbon	%	1.03	0.93	--
6.	TCLP Lead (as Pb)	mg/l	<0.001	<0.001	5.0
7.	TCLP Cadmium (as Cd)	mg/l	<0.001	0.001	1.0
8.	TCLP Copper (as Cu)	mg/l	0.015	0.018	25.0
9.	TCLP Zinc (as Zn)	mg/l	<0.001	0.004	250.0
10.	TCLP Chromium (as Cr)	mg/l	0.232	0.016	5.0
11.	TCLP Nickel (as Ni)	mg/l	<0.001	0.013	20.0
12.	TCLP Arsenic (as As)	mg/l	<0.001	0.037	5.0
13.	TCLP Iron (as Fe)	mg/l	2.568	0.759	--
14.	TCLP Mercury (as Hg)	mg/l	0.062	0.007	0.2 mg/l

Concentration limits specified under schedule-II of Hazardous and other waste (Management and Transboundary movement) Rules, 2016.

Note: - TCLP: Toxicity Characteristics Leaching Procedure

Name of the industry:

M/s. Jindal Urban Waste Management (Guntur) Limited,

Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Guntur District.

I. Effluent Samples:

S.No	Sampling Point/ Parameter	14.09.2021	2.09.2022	6.01.2023	9.01.2024	2.09.2022	6.01.2023	9.01.2024
		Inlet of LTP				ACF Outlet		
1	pH	5.49	8.24	8.76	8.14	8.41	8.71	8.71
2	Total Suspended Solids in mg/L	290	140	132	430	108	110	110
3	Total Dissolved Solids in mg/L	19170	18882	19936	21300	12538	15750	15750
4	Chemical Oxygen Demand in mg/L	45200	8360	7600	4860	1464	1328	1328
5	Bio-chemical Oxygen Demand in mg/L	18080	2675	2452	1846	439	420	420
6	Oil & Grease	12.6	12.8	15.5	----	11.0	11.8	11.8

LTP: Leachate Treatment Plant ACF: Activated Carbon Filter

I.Effluent Samples:

S.No	Sampling Point/ Parameter	2.09.2022	6.01.2023	03.03.2023	09.01.2024	04.10.2024	13.6.2025	06.01.2023	03.03.2023	09.06.2023
		RO-2 Permeate						Ro-Rejects		
1	pH	8.28	8.08	7.72	6.67	7.18	7.15	8.89	7.56	8.59
2	Total Suspended Solids in mg/L	10	12	12	13	14	12	124	350	873
3	Total Dissolved Solids in mg/L	516	664	468	234	310	374	15616	20365	12708
4	Chemical Oxygen Demand in mg/L	24	28	48	14	28	36	264	156	102
5	Bio-chemical Oxygen Demand in mg/L	4.0	5.2	8.6	2.2	3.6	3.8	62	34	34
6	Oil & Grease	1.2	1.1	BDL	----	---	---	2.4	2.4	---

II. Ambient Air monitoring:

S.No	Sampling Point/ Parameter	06.01.2025	13.06.2025
		Particulate Matter (PM10)	
1	Near Security gate-3	120.4 µg/m3	----
2	Top of the house Smt.K. Jyoshna, Jagananna Colony, towards Eastern side of the industry.	66 µg/m3	----
3	Near main gate.	----	86 µg/m3

III.Stack monitoring:

S.No	Parameter /Sampling Point	02.09.2022	06.01.2023	12.06.2023	20.02.2024	16.01.2025
		52 TPH Boiler – 2 No.s.	52 TPH Boiler 2.No.s	52 TPH Boiler –2 No.s.	52 TPH Boiler – 2 No.s.	52 TPH Boiler – 2 No.s.
1	**Suspended Particulate Matter**	35.5 mg/Nm^3	35.6 mg/Nm^3	63.0 mg/Nm^3	58 mg/Nm^3	45.5 mg/Nm^3
2	**Sulphur Dioxide (SO2)**	------	-----	57.0 mg/Nm^3	14 mg/Nm^3	----

Annexure-II-A

ANDHRA PRADESH POLLUTION CONTROL BOARD
Dr. YSR Paryavaran Bhavan, APIIC Colony Road,
Gurunanak Colony, Autonagar, Vijayawada- 520007
Phone. No.0866-2463200, Website :
https://pcb.ap.gov.in/

RED CATEGORY

RENEWAL OF CONSENT TO OPERATE & AUTHORIZATION ORDER

Consent Order No : APPCB/VSP/11022/128/CTO/HO/2021- 20/11/2023

CONSENT is hereby granted to Operate under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (hereinafter referred to as 'the Acts', `the Rules') to:

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited,
Sy. Nos. 410 & 415, Kapuluppada (V),
Bheemunipatnam (M), Visakhapatnam District
E-mail: info@jindalecopils.com ; Sathish.V@jindalecopolis.com

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

i. **Outlets for discharge of effluents:**

Outlet No.	Outlet Description	Max Daily Discharge (KLD)	Point of Disposal
1.	Cooling tower bleed off, SSF rejects	69.71	Shall be utilized for firefighting makeup – 65.10 KLD, Brick plant - 30.0 KLD, washings (floor & road) – 6.975 KLD and Domestic purpose – 3.255 KLD
2.	Boiler blow down	21.12	
3.	DM plant regeneration	14.5	
4.	Washings (Floor & Road Washings)	6.0	Shall be diverted to MSW storage pits
5.	Domestic(Plant)	3.0	Septic tank followed by soak pit.
	Total	114.33	

ii. Emissions from chimneys:

Chimney No.	Description of Chimney
1.	Attached to 2 X 48 TPH boilers Fuel: Municipal solid waste
2.	Attached to 1x750 KVA DG set

iii. **HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 6 (2)]:**

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

- **HAZARDOUS WASTES WITH RECYCLING OPTION:**

Sl. No	Name of Waste	Stream	Quantity	Method of disposal
1.	Used Oil / Waste Lubrication Oil	5.1 of Schedule - I	4.0 KL/Year	Shall be routed through M/s. APEMC so as to send to APPCB authorized re- processors / recyclers (as recyclable waste)

- **NON-HAZARDOUS / OTHER WASTES WITH DISPOSAL OPTION:**

Sl. No	Name of Waste	Quantity	Method of disposal
1.	Boiler Ash	Fly ash: 32.05 TPD (includes scrubber ash)	Shall dispose the fly ash to brick manufacturing units
		Bottom Ash: 357 TPD	Shall dispose the Low lying areas/ used for road and other constructions
2.	Used Lead Acid Batteries	120 nos/Annum	Shall be returned to dealers on buy back system

iv. This consent order is valid for manufacture the following products along with quantities indicated only:

S.No.	Products	Quantity
1.	Electricity (Fuel: MSW)	15 MWH
By-Products		
2.	Chloroinated Hard Plastics	16.20 TPD
3.	Metal	0.32 TPD
4.	Brick & paver blocks	20,000 Nos/day

This order is subject to the provisions of `the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the **30th day of November, 2028.**

B SREEDHAR IAS, MS(BS), O/o MEMBER SECRETARY-APPCB

To
M/s. Jindal Urban Waste Management (Visakhapatnam) Limited,
Sy. Nos. 410 & 415, Kapuluppada (V),
Bheemunipatnam (M), Visakhapatnam District

Copy to :

1. The JCEE, Zonal Office, Visakhapatnam for information and necessary action.
2. The EE, Regional Office, Visakhapatnam for information and necessary action.
3. The JCEE, MSW, Head office, Vijayawada for information and necessary action.

SCHEDULE-A

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.
2. The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
4. The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.
5. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
6. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board.
7. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without

obtaining prior permission of the State Pollution Control Board.

8. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.
9. The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other competent authority as per the Rules in vogue.
10. The industry may explore the possibility of tapping the solar energy for their energy requirements.
11. The industry should educate the workers and nearby public of possible accidents and remedial measures

SCHEDULE-B

The issue of CTO & HWA (Renewal) to the industry was placed in the CONSENT MANAGEMENT (CTO) committee meeting held on 03.11.2023. The industry shall comply with the following:

1. The industry shall establish Brick & Paver Blocks manufacturing unit;
2. The industry shall comply with the standards stipulated by the Board;
3. The industry is permitted to use the Municipal Solid Waste generated from the local bodies in Andhra Pradesh State only
4. The industry shall obtain renewal of Authorization under Solid Waste Management Rules, 2016 for storage, handling and management of Municipal Solid Waste.

WATER POLLUTION:

5. The source of water is the treated wastewater from STP being operated by GVMC at Marikivalasa (V), Visakhapatnam. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

Sl. No.	Purpose	Quantity in KLD
1.	Cooling tower make-up	332.14.
2.	Boiler make-up	37.86
3.	Domestic (Plant)	3.255 (Recycled)
4.	Bricks Plant mixing	30.0 (Recycled)
5.	Washings (Floor & Road washings)	6.975 (Recycled)
6.	Fire fighting makeup	65.10 (Recycled)
7.	Sludge Thickener	34.00
8.	Bottom ash cooling	75.00
9.	Green belt development	21.00

	Total (Fresh +Recycled)	**605.33**

6. The industry shall regularly monitor the ground water quality for mercury and other heavy metals (Hg, Cr, As, Pb, etc) around the Municipal Solid Waste Landfill including surface water bodies in the vicinity. The monitoring data shall be compared with baseline data and requisite measures shall be implemented to prevent any kind of direct/ indirect contamination of water resources in the project surroundings.
7. The industry shall maintain Electro Magnetic flow meters with totalisers for water consumption, effluent generation mentioned in the Order.
8. Effluents shall not be discharged onland or any water bodies or aquifers under any circumstances. Floor washings shall be admitted into effluent collection system only and shall not be allowed to find their way into storm water drains or open areas.
9. Rain water shall not be allowed to mix with either trade or domestic effluents. Industry shall maintain storm water drains, properly.

AIR POLLUTION:

10. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	**Parameter**	**Emission Standards (**mg/Nm3**)**
1	Particulate Matter	50
	HCl	50
	SO2	200
	CO	100 (half hourly average) 50 (daily average)
	TOC	20
	HF	4
	NOx	400
	Total dioxins and furans	0.1 ng TEQ/Nm3
	Cd + Th + their compounds	0.05
	Hg and its compounds	0.05
	Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.50

Note: All values corrected to 11% oxygen on a dry basis.

11. The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10 micro grams) - 100 micro gram/ m3; PM2.5 (Particulate Matter size less than 2.5 micro grams) - 60 mg/ m3; SO2 - 80 micro gram/ m3; NOx - 80 micro gram/m3, outside the factory premises at the periphery of the industry. Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)

Night time (10 PM to 6 AM) - 70 dB (A)

12. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R. 804(E), dated 03.11.2022 under the Environment (Protection) Act Rules. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.
13. The industry shall provide a sampling port with removable dummy of not less than 15 cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.
14. The industry shall maintain Continuous emission monitoring system for the stacks attached to Boiler for SOx, NOx, SPM etc. Data thus generated shall be connected to CPCB and APPCB websites for display as per CPCB directions dt.05.02.2014.
15. Regular monitoring of ground level concentration of SO2, NOx, PM10 & PM2.5 shall be carried out in the impact and buffer zone and records shall be maintained. If at any stage these levels are found to exceed the prescribed limits, requisite restorative measures shall be implemented immediately. The location of the monitoring stations shall be fixed in consultation with the Regional Officer of the Board. Consolidated reports shall be submitted to the concerned Regional Officer on monthly basis.
16. All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950ºC in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.
17. The industry shall maintain black top / concrete roads and Water Sprinkling system to control fugitive emissions from all vulnerable sources.
18. The industry shall store the all the dusty raw materials and solid waste with required safety ventilation. There shall not by any open piling.
19. The waste received from GVMC shall be stored in a closed area with a negative pressure with the air flow routed through the boiler to prevent odour.
20. The industry shall not cause any odour nuisance in the surroundings.

GENERAL:

21. The industry shall not segregate the solid waste in the plant premises under any circumstances.
22. The industry shall comply with the Solid Waste Management Rules, 2016 and amendments thereof.
23. The industry shall possess valid Fire NOC and PLI policy before starting the operations.
24. The industry shall maintain 33% green belt along the periphery.
25. The industry shall maintain temporary MSW Storage Pit - 10,000 tons that is approximately 7-10 days generation, in case of non-operation of waste

processing and during emergency or natural calamities.

26. Adequate safety measures shall be provided in the plant area to check / minimize spontaneous fires in MSW storage yard, especially during summer season.
27. The industry shall install silo of capacity (200 tons) with breather bags to collect and store ash and its disposal.
28. The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:
    a. Daily MSW receipt and processed details.
    b. Quantity of Effluents generated, treated, recycled/reused.
    c. Log Books for pollution control systems.
    d. Characteristics of effluents and emissions.
    e. Hazardous/non hazardous solid waste generated and disposed.
    f. Inspection book.
29. The industry shall comply with SoPs issued by CPCB time to time for handling of all the wastes.
30. The industry shall install digital display boards at publicly visible places at the main gate indicating the products manufactured Vs permitted quantities, Treated effluent concentrations Vs discharge standards, Stack emission & AAQ concentrations Vs standards, hazardous waste generation, disposed, stock Vs permitted quantities and validity of CTO; and exhibit the CTO order at a prominent place in the factory premises, as per Hon'ble Supreme Court order.
31. The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent to Establishment (CTE) and Consent to Operation (CTO) through website i.e., https://pcb.ap.gov.in by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through MoEF&CC recognized and National Accreditation Board for Laboratory Testing (NABL) accredited third party.
32. The industry shall maintain valid PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Visakhapatnam on yearly basis.
33. The industry shall upload the six monthly compliance reports in APPCB website regularly.
34. The industry shall submit half-yearly compliance report for the schedule A,B& C conditions stipulated in CFO & HWA order audited through NABL / MoEF accredited laboratories, at RO, Visakhapatnam.
35. Any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.

Special conditions:

36. The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB.

37. The industry shall extend training to the working personnel for the prevention of accidents and necessary antidotes to ensure safety, as per the MSIHC Rules, 1989.
38. The industry shall install fluorescent Wind Vane at the highest point in the industry premises.
39. The industry shall submit Risk analysis and risk assessment covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.
40. The industry shall submit the copy of the safety audit report and On-Site / Off Site Emergency Plans as applicable after being certified by the Factories Department to the APPCB, Regional Office from time to time, if the storage quantity of hazardous chemicals is equal to or, in excess of the threshold quantities specified in schedule 2 & 3 of MSIHC Rules, 1989.

SCHEDULE – C

[See rule 6(2)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorisation.
4. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.
5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on “Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty”.
7. It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.
8. An application for the renewal of an authorisation shall be made as laid down under Hazardous and Other Wastes, Rules.
9. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.
10. The industry shall not store hazardous waste for more than 90 days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
11. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a

secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.

12. The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
13. The industry shall maintain proper records for Hazardous and Other Wastes stated in Authorisation in Form-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form-4 as per Rule 20 (2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

B SREEDHAR IAS, MS(BS), O/o MEMBER SECRETARY-APPCB

To
M/s. Jindal Urban Waste Management (Visakhapatnam) Limited,
Sy. Nos. 410 & 415, Kapuluppada (V),
Bheemunipatnam (M), Visakhapatnam District

Annexure-II-B

ANDHRA PRADESH POLLUTION CONTROL BOARD
Dr. YSR Paryavaran Bhavan, APIIC Colony Road, Gurunanak Colony, Autonagar, Vijayawada- 520007
Phone. No.0866-2463200, Website :https://pcb.ap.gov.in/

RED CATEGORY
RENEWAL OF CONSENT TO OPERATE & AUTHORIZATION ORDER

Order No: APPCB-11022/31/2024-TEC-CTO-APPCB **Dt: 28/03/2024**

CONSENT is hereby granted to Operate under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorization under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (herein after referred to as 'the Acts', `the Rules') to:

M/s Jindal Urban Waste Management (Guntur) Limited,
Sy. No. 933 & 938, Kondaveedu(V),
Edlapadu (M), Palnadu distrtict (Erstwhile Guntur District),
Email: k.senthil@jindalecopolis.com / **info@jindalecopils.com**

(Here in after referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the Chimneys as detailed below:

i) **Outlets for discharge of effluents:**

Outlet No.	**Outlet Description**	**Max Daily Discharge (KLD)**	**Point of Disposal**
1	Cooling tower bleed off, SSF rejects	69.71	After neutralization, the treated waste water shall be used for firefighting system makeup and Brick plant (Total recycled-105.3 KLD)
2	Boiler blow down	21.12	
3	DM plant regeneration	14.5	
4	Washings (Floor & Road Washings)	6.0	Shall be mixed with the MSW pits
5	Leachate	48.6	To Leachate Treatment Plant RO permeate shall be reused. RO rejects to ash quenching.
6	Domestic (plant)	3.0	Septic tank followed by soak pit.
	Total	**162.93**	

ii) Emissions from chimneys:

Chimney No.	**Description of Chimney**	**Quantity of Emissions at peak flow (m^3/hr)**
1	Attached to Boilers 2 X 52 TPH	--

2	Attached to DG set 1x750 KVA	--

iii) Hazardous Waste Authorization (Form–II) [SeeRule6(2)]:

M/s. Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu(V) Edlapadu (M), Palnadu district (Erstwhile Guntur District) is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

S.No	Name of the Hazardous Waste	Stream	Quantity	Method of disposal
1.	Used Oil / Waste Lubrication Oil	5.1 of Schedule -I	4 KLPA	Shall be sold to authorized recyclers/re-processors through APEMCL
2.	Used Lead Acid Batteries	17 of Schedule -IV	120 Nos/Annum	Shall be returned to dealers on buyback system

This consent order is valid for the following activity along with capacity only:

S.No	Products / Line of Activity	Applied quantity
1.	Electricity(Fuel:MSW)	20 MW
By-Products		
2.	Brick & paver blocks	20,000 Nos/day
3.	Burnt scrap (Iron & Steel)	0.75 TPD

This order is subject to the provisions of 'the Acts' and 'the Rules' and orders made there under and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the **28th day of February, 2029.**

B SREEDHAR
IAS, MS(BS), O/o
MEMBER
SECRETARY-
APPCB

To
M/s Jindal Urban Waste Management (Guntur) Limited,
Sy. No. 933 & 938, Kondaveedu(V),
Edlapadu (M), Palnadu district
(Erstwhile Guntur District)
Email: k.senthil@jindalecopolis.com / **info@jindalecopils.com**

Copy to:

1. The JCEE, ZO: Vijayawada for information and necessary action.
2. The EE, RO: Guntur for information and necessary action.

SCHEDULE- A

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge/ emission below the limits.
2. The industry shall carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act,1991shouldbefollowedasapplicable.
4. Not with standing any thing contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed hereinabove and to make such variations as deemed fit for the purpose of the Acts by the Board.
5. The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.
6. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
7. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board.
8. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises /lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
9. Any person aggrieved by an order made by the State Board under Section 25, Section26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within 30 days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appell at e authority constituted under Section 28 of the Water (Prevention and Control of Pollution) Act,1974and Section31ofthe Air(Prevention and Control of Pollution) Act, 1981.
10. The conditions stipulated are without prejudice to the rights and contentions of this Board in any Hon ’ble court of law.
11. The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other competent authority as per the Rules in vogue.
12. The industry may explore the possibility of tapping the solar energy for their energy requirements.
13. The industry should educate the workers and nearby public of possible accidents and remedial measures.

SCHEDULE–B

The issue of CTO&HWA (Renewal) order to the industry was placed in the Consent Management Committee meeting held on 20.03.2024. The industry shall comply the following conditions:

The industry shall comply with the following within 1 month:

1. The facility shall provide HDPE liner for storing of fly ash & Bottom ash to avoid contamination of ground water.
2. The facility shall develop balance greenbelt of 2 acres inside the premises.
3. The facility shall connect online CEMS data to APPCB website within 15 days.
4. The facility shall provide piezo metric wells to monitor ground water.
5. The facility shall dispose the fly ash to own brick manufacturing units/ outside facility through M/s. APEMC.
6. The facility shall operate the APCE regularly to meet the emission standards.
7. The facility shall maintain buffer zone as per MSW authorization dated 20.08.2019.
8. As per clause 2.2 of the power purchase agreement dt: 06.02.2016 between M/s Jindal urban waste Management (Guntur) Ltd., and CGM, APSPDCL, Tirupati, the DISCOM should pay an amount of tariff Rs.0.220/- INR/kWh for Scientific Land filling activities. But, the industry has not constructed land fill site. The ash is being dumped open to the sky in the land allotted by the government. This amounts to violation of Environmental acts & above mentioned Power Purchase agreement.
9. The Board issued amendment to CTE order dt 10.07.2023, duly stipulating conditions that “the facility shall not use chlorinated plastics and if fly ash & bottom ash stored within the premises the facility has to obtain EC from the competent authority”.
10. The facility shall obtain Environmental Clearance for the scientific land filling activities as per provisions of EIA notification, 2006 issued by MoEF& CC.
11. As per the Tool kit on Plastic Waste Management Rules, 2016, published by CPCB, only non-recyclable plastics can be utilized in waste to energy plants and also as per “Selection Criteria for Waste Processing Technologies” notified by CPCB, incineration of chlorinated plastic should be avoided. The committee recommended that the Board shall delete the chlorinated hard plastics-6.5 TPD mentioned in CTO order & Plastic waste-15 TPD mentioned in CTE amendment order dt. 10.07.2023

Water Pollution:

11. The source of water is natural resource, Vengayapalem till completion of Guntur Municipal Corporation Sewage treatment plant and the maximum permitted water consumption is as following:

S.no	Purpose	Quantity
1.	Cooling tower make-up	332.14. KLD
2.	Boiler make-up	37.86 KLD
3.	Domestic (Plant)	3.255 KLD (Recycled)
4.	Process (Bricks Plant)	30.0 KLD (Recycled)

5.	Washings (Floor & Road washings)	6.975 KLD (Recycled)
6.	Firefighting makeup	65.10 KLD (Recycled)
7.	Sludge Thickener	34.00 KLD
8.	Bottom ash cooling	75.00 KLD (Recycled)
9.	Green belt development	21.00 KLD
	Total (Fresh +Recycled)	605.33 KLD

Separate meters with necessary pipe line shall be provided for assessing the total quantity of water used for all purposes mentioned as above.

12. The RO rejects shall comply with the following standards as prescribed in G.S.R No. 422 (E) dated 19.05.1993 and its amendment thereof.

S.No.	**Parameter**	**Permissible limit**
1.	pH	5.5-9.0
2.	Suspended solids	200 mg/l
3.	Oil & Grease	10 mg/l
4.	Biochemical Oxygen Demand 1 (3 days at 27°C)	100 mg/l
5.	Bio-assay test	90% survival of fish after 96 hours in 100 % effluent
6.	Arsenic	0.2 mg/l
7.	Cyanide	0.2 mg/l

13. The industry shall regularly monitor the ground water quality for mercury and other heavy metals (Hg, Cr, As, Pb, etc) around the Municipal Solid Waste Landfill including surface water bodies in the vicinity. The monitoring data shall be compared with baseline data and requisite measures shall be implemented to prevent any kind of direct/ indirect contamination of water resources in the project surroundings.
14. The industry shall maintain Electro Magnetic flow meters with totalizers for water consumption, effluent generation mentioned in the consent order.
15. Floor washings shall be admitted into effluent collection system only and shall not be allowed to find their way into water bodies or storm water drains or open areas.
16. Rain water shall not be allowed to mix with either trade or domestic effluents. Industry shall maintain storm water drains, properly.

Air pollution:

17. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	**Parameter**	**Emission Standards (mg/Nm^3)**
	Particulate Matter	50
	HCl	50

1	SO2	200
	CO	100 (half hourly average) 50 (daily average)
	TOC	20
	HF	4
	NOx	400
	Total dioxins and furans	0.2 ng TEQ/Nm3
	Cd + Th + their compounds	0.05
	Hg and its compounds	0.05
	Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5

18. The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10 micro grams) - 100 micro gram/ m3; PM2.5 (Particulate Matter size less than 2.5 micro grams) - 60 mg/ m3; SO2 - 80 micro gram/ m3; NOx - 80 micro gram/m3, outside the factory premises at the periphery of the industry. Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A)

19. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Act Rules. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.
20. The industry shall provide a sampling port with removable dummy of not less than 15 cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform
21. The industry shall store the all the dusty raw materials and solid waste with required safety ventilation. There shall not by any open piling
22. The industry shall maintain air cool condenser
23. The waste received from ULBs; Panchayats shall be stored in a closed area with a negative pressure with the air flow routed through the boiler to prevent odour.
24. The industry shall not cause any odour nuisance in the surrounding.
25. The industry shall not dispose any solid waste outside the industry premises. The industry shall dispose other solid wastes as per the method of disposal specified below:

S.no	**Name of the waste**	**Quantity**	**Method of disposal**
1.	Boiler Ash	Fly ash: 50 TPD	Shall be sent to brick manufacturing units (or) utilized in own brick manufacturing units (or) used for roads and other construction activities after conformation of TCLP test
		Bottom Ash:	

		357 TPD	

General:

26. **The solid waste generated from other states shall not be used in the industry. The industry shall use the Municipal solid waste generated within the state of Andhra Pradesh.**
27. As per the MoEF & CC notification S.O.3194 (E) dated 14.07.2022, thermal power plants upto 25 MW based on Biomass or non- hazardous municipal solid waste using auxiliary fuel such as coal, lignite or petroleum products up to 15% are exempted from the requirement of Environmental Clearance and in view of the activity of using the aforesaid fuel mix being eco-friendly, and in order to encourage such activities.
28. The industry shall not segregate the solid waste in the plant premises under any circumstances
29. The industry shall comply with the Solid Waste Management Rules, 2016 and amendments thereof.
30. Adequate safety measures shall be provided in the plant area to check / minimize spontaneous fires in MSW storage yard, especially during summer season.
31. The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:

a. Daily MSW receipt and processed details.
b. Quantity of Effluents generated, treated, recycled / reused.
c. Logbooks for pollution control systems.
d. Characteristics of effluents and emissions.
e. Hazardous/non-hazardous solid waste generated and disposed.
f. Inspection book

32. The industry shall comply with SoPs issued by CPCB time to time for handling of all the wastes.
33. The industry shall obtain renewal of Authorization under Solid Waste Management Rules, 2016 for storage, handling and management of Municipal Solid Waste.
34. The industry shall maintain valid PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Visakhapatnam on yearly basis.
35. The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent to Establishment (CTE) and Consent to Operation (CTO) through website i.e., https://pcb.ap.gov.in by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through MoEF&CC recognized and National Accreditation Board for Laboratory Testing (NABL) accredited third party.
36. The industry shall comply with the CTE Order dated 16.11.2022 and any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.
37. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.
38. The conditions stipulated are without prejudice to the rights and contentions of this Board in any Hon'ble Court of Law.

Special Conditions

39. The industry shall possess valid NOC issued by the Andhra Pradesh State Disaster Response and Fire Service Dept., (APSDRFSD) and submit a copy at concerned Regional Office, APPCB.
40. The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB.
41. The industry shall extend training to the working personnel for the prevention of accidents and necessary antidotes to ensure safety, as per the MSIHC Rules, 1989.
42. The industry shall install fluorescent Wind Vane at the highest point in the industry premises.
43. The industry shall submit Risk analysis and risk assessment covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.
44. The industry shall submit the copy of the safety audit report and On-Site / Off Site Emergency Plans as applicable after being certified by the Factories Department to the APPCB, Regional Office from time to time, if the storage quantity of hazardous chemicals is equal to or, in excess of the threshold quantities specified in schedule 2 & 3 of MSIHC Rules, 1989.

SCHEDULE – C
[See rule 6(2)]
[CONDITIONS OF AUTHORIZATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the Hazardous and other wastes except what is permitted through this authorization.
4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.
5. The person authorized shall implement Emergency Response Procedure (ERP) forwhichthisauthorizationisbeinggrantedconsideringallsite-specificpossiblescenarios such as spillages, leakages, fire etc. and their possible impacts and also carryout mock drill in this regard at regular interval of time;
6. The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on “Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty”. It is the duty of the authorized person to take prior permission of the State Pollution Control Board to closed own the facility.
7. An application for the renewal of an authorization shall be made as laid down under these Rules.
8. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

9. The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule18and19 of the HWM Rules, 2016.
10. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.
11. The authorized person shall not store hazardous waste for more than 90 days' as per the Hazardous & Other Wastes (Management and Transboundary Movement) Rules,2016.
12. The authorized person shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in the in premises till its disposal to the manufacturers/dealers on buy back basis.
13. The authorized person shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
14. The authorized person shall maintain proper records for Hazardous & other wastes stated in Authorization in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 6 (5) of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 and amendments thereof by June 30th for the period ensuring 31st March of the year
15. The authorized person shall submit the condition wise compliance report of the conditions stipulated in Schedule A, B &C of this Order on half yearly basis to Board office and concerned Regional Office.

B SREEDHAR IAS, MS(BS), O/o MEMBER SECRETARY-APPCB

To
M/s Jindal Urban Waste Management (Guntur) Limited,
Sy. No. 933 & 938, Kondaveedu(V),
Edlapadu (M), Palnadu district
(Erstwhile Guntur District)

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

Laboratory Accredited by NABL as per ISO/IEC 17025:2017

MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TEST REPORT

TC-10984

Report No: SAS/BA/JUWML/06/2025-841

Annexure-III-A

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Description	: **Bottom Ash**
Sample Quantity	: 01 Kg
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 14.06.2025
Analysis Commenced On	: 16.06.2025
Analysis Completed On	: 19.06.2025
Registration Number	: SAS/BA/JUWML/06/2025-946

TEST RESULTS

1. **Physical Composition of Municipal Solid Waste Incineration Slag.**

Composition	Molten slags	Masonry	Glass	Ceramics	Iron Metal	Nonferrous Metals	Cloth
Content (%)	20.5	22.8	6.5	4.7	5.9	7.8	0

2. **Main Chemical Composition of Municipal Solid Waste Incineration Slag:**

Composition	SiO_2	AI_2O_3	CaO	MgO	Fe_2O3	TiO_2	MnO	SO_3	Cl^-	Alkali	Loss
Ratio (%)	63.8	0.20	2.1	2.5	0.50	0.05	0.02	<0.1	1.5	1.4	8.2

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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TEST REPORT

TC-10984

Report No: SAS/BA/JUWML/06/2025-841

3. Toxicity and Radioactivity of municipal Solid waste Incineration Slag/ Bottom Ash:

S. No	Parameter	Unit	Leaching Concentration/ Exposure Index	Maximum Leaching Concentration Allowable
1	Lead	mg/L	0.50	5.0
2	Cadmium	mg/L	0.02	1.0
3	Chromium	mg/L	0.48	6.0
4	Nickle	mg/L	<0.1	NA
5	Beryllium	mg/L	0.25	NA
6	Silver	mg/L	0.30	5.0
7	Mercury	mg/L	<0.1	0.2
8	Arsenic	mg/L	1.4	5.0
9	Hexavalent Chromium	mg/L	<0.1	NA
10	Alkyl Mercury	mg/L	<0.1	NA
11	Benzopyrene	mg/L	<0.002	0.01
12	Moisture Content	%	8.9	--

Method of Testing: TCLP Analysis, ASTM D 5233.

-- End of the report –

Checked by
Srinivas
Sr.Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

Laboratory Accredited by NABL as per ISO/IEC 17025:2017

MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TEST REPORT

TC-10984

Report No: SAS/BA/JUWML/06/2025-840

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Description	: **Fly Ash**
Sample Quantity	: 01 Kg
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 14.06.2025
Analysis Commenced On	: 16.06.2025
Analysis Completed On	: 19.06.2025
Registration Number	: SAS/BA/JUWML/06/2025-945

TEST RESULTS

Metal	Hg	Zn	Cu	Pb	Ni	Cd	Cr
Identification standard of leaching toxicity of solid waste Mg/L	<0.1	0.25	0.05	0.50	< 0.1	0.14	0.58

Method of Testing: TCLP Analysis, ASTM D5233.

-- End of the report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

18-21/1, 2nd Floor, Vengalayapalem, Guntur, Guntur dist., Andhra Pradesh - 522 005.
Cell : +91 70957 34733, +91 76610 44686, E-mail : info@staranalyticalservices.co.in

ECONIC
TECHNOLOGIES PRIVATE LIMITED
Laboratory Accredited by NABL as per ISO/IEC 17025:2017
Certified by ISO 9001 : 2015, ISO 14001: 2015 & ISO 45001 : 2018

Annexure-III-B

TEST REPORT

Report Reference Number: ECT2506080 Issue Date: 17/06/2025

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd.,Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	13/06/2025
	Analysis Starting Date	13/06/2025
	Analysis Completion Date	16/06/2025
Sample Details: Bottom Ash	Quantity Received	1 KG
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As per mentioned below		

TEST RESULTS

1. Toxicity and Radioactivity of Municipal Solid Waste Incineration Slag/Bottom Ash:

Sl.No	Parameter	UOM	Method of Testing	Leaching Concentration /Exposure Index	Maximum Leaching Concentration Allowable
1	Lead	mg/L	TCLP Analysis , ASTM D5233	1.18	3.9
2	Cadmium	mg/L		0.10	1.0
3	Chromium	mg/L		0.12	6.0
4	Nickel	mg/L		<0.3	NA
5	Beryllium	mg/L		0.02	NA
6	Silver	mg/L		0.06	5.0
7	Mercury	mg/L		<0.2	0.3
8	Arsenic	mg/L		1.18	6.0
9	Hexavalent Chromium	mg/L		<0.2	NA
10	Alkyl Mercury	mg/L		<0.3	NA
11	Benzopyrene	mg/L		<0.001	0.03

UOM: Unit of Measurement

A. Aakanksha
Authorized Signatory

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TEST REPORT

Report Reference Number: ECT2506079 Issue Date: 17/06/2025

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd.,Survey No 933 & 938 National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	13/06/2025
	Analysis Starting Date	13/06/2025
	Analysis Completion Date	16/06/2025
Sample Details: Fly Ash	Quantity Received	1 KG
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested:		

TEST RESULTS

Sl No	Metal	Method of testing	UOM	Identification standard of leaching toxicity of solid waste
1	Hg	TCLP Analysis , ASTM D5233	mg/L	<0.3
2	Zn		mg/L	0.25
3	Cu		mg/L	0.02
4	Pb		mg/L	0.15
5	Ni		mg/L	<0.2
6	Cd		mg/L	0.08
7	Cr		mg/L	0.04

UOM: Units of Measurements

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TEST REPORT

Report Reference Number: ECT2505035 Issue Date:11/05/2025

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd.,Survey No 933 & 938 National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	06/05/2025
	Analysis Starting Date	07/05/2025
	Analysis Completion Date	08/05/2025
Sample Details: Fly Ash	Quantity Received	1 KG
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested:		

TEST RESULTS

Sl No	Metal	Method of testing	UOM	Identification standard of leaching toxicity of solid waste
1	Hg	TCLP Analysis , ASTM D5233	mg/L	<0.3
2	Zn		mg/L	0.37
3	Cu		mg/L	0.06
4	Pb		mg/L	0.19
5	Ni		mg/L	<0.2
6	Cd		mg/L	0.11
7	Cr		mg/L	0.06

UOM: Units of Measurements

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

Authorized Signatory

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Certified by ISO 9001 : 2015, ISO 14001: 2015 & ISO 45001 : 2018

TEST REPORT

Report Reference Number: ECT2505036 **Issue Date: 11/05/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd.,Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	06/05/2025
	Analysis Starting Date	07/05/2025
	Analysis Completion Date	08/05/2025
Sample Details: Bottom Ash	Quantity Received	1 KG
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As per mentioned below		

TEST RESULTS

1. Toxicity and Radioactivity of Municipal Solid Waste Incineration Slag/Bottom Ash:

Sl.No	Parameter	UOM	Method of Testing	Leaching Concentration /Exposure Index	Maximum Leaching Concentration Allowable
1	Lead	mg/L	TCLP Analysis , ASTM D5233	1.22	3.9
2	Cadmium	mg/L		0.13	1.0
3	Chromium	mg/L		0.16	6.0
4	Nickel	mg/L		<0.3	NA
5	Beryllium	mg/L		0.06	NA
6	Silver	mg/L		0.02	5.0
7	Mercury	mg/L		<0.2	0.3
8	Arsenic	mg/L		1.24	6.0
9	Hexavalent Chromium	mg/L		<0.2	NA
10	Alkyl Mercury	mg/L		<0.3	NA
11	Benzopyrene	mg/L		<0.001	0.03

UOM: Unit of Measurement

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

Authorized Signatory

*** End of the Report ***

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Annexure-IV

Site Status List / Real Time Report / Trends

Jindal Urban Waste Management (Visakhapatnam) Limited

Vishakapatnam , Andhra Pradesh THERMAL POWER Refresh

Data Last Received On	Configuration Updated On	Calibration at	CEMS	EQMS	AAQMS	Total Stations
25, July, 2025	23, September, 2022	23, September, 2022	1	0	0	1

Live Readings

Help

Emission Effluent Ambient All

CEMS

26.349 mg/Nm3
CEMS - NOx
15 MinsAvg: 40.636 mg/Nm3
Limit: 0 - 400.0 mg/Nm3
Range: 0 - 1336

5.144 mg/Nm3
CEMS - PM
15 MinsAvg: 2.379 mg/Nm3
Limit: 0 - 50.0 mg/Nm3 Range: 0 - 200

30.418 mg/Nm3
CEMS - SO2
15 MinsAvg: 48.903 mg/Nm3
Limit: 0 - 200.0 mg/Nm3
Range: 0 - 2852

Site Status List / Real Time Report / Trends

Jindal Urban Waste Management (Guntur) Limited

Edlapadu , Andhra Pradesh THERMAL POWER Refresh

Data Last Received On	Configuration Updated On	Calibration at	CEMS	EQMS	AAQMS	Total Stations
25, July, 2025	01, February, 2022	01, January, 2018	1	0	0	1

Live Readings

Help

Emission Effluent Ambient All

Stack_1

34.049 mg/Nm3
Stack_1 - NOx
15 MinsAvg: 0.169 mg/Nm3
Limit: 0 - 400.0 mg/Nm3
Range: 0 - 1000

12.822 mg/Nm3
Stack_1 - PM
15 MinsAvg: 12.857 mg/Nm3
Limit: 0 - 50 mg/Nm3 Range: 0 - 1000

17.749 mg/Nm3
Stack_1 - SO2
15 MinsAvg: 24.449 mg/Nm3
Limit: 0 - 200.0 mg/Nm3
Range: 0 - 1000

APPCB Real Time Monitoring Data

The following facilities installed Continuous Emission Monitoring System (CEMS) to the incinerator stacks and the same were connected to CPCB and APPCB websites. The annual average for the last 5 years is as follows:

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL)

The plant was commissioned in the year December, 2021.

The **Continuous Emission Monitoring System (**CEMS) of stack was connected to CPCB & APPCB website on 23.09.2022. The annual average values of PM, SO_2, NOx are as follows:

S. No	Year	PM	SO_2	NOx
1.	2022-2023	NA	NA	NA
2.	2023-2024	12.88 (mg/NM^3)	59.62 (mg/NM^3)	80.3 (mg/NM^3)
3.	2024-2025	8.1 (mg/NM^3)	62 (mg/NM^3)	59.86 (mg/NM^3)

M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Palnadu district (Erstwhile Guntur District): JUWMGL

The plant was commissioned in the year March, 2021.

The **Continuous Emission Monitoring System (**CEMS) of stack was connected to CPCB & APPCB website on 01.02.2022. The annual average values of PM, SO_2, NOx are as follows:

S. No	Year	PM	SO_2	NOx
1.	2022-2023	14.32 (mg/NM^3)	129.3 (mg/NM^3)	119.72 (mg/NM^3)
2.	2023-2024	10.48 (mg/NM^3)	75.94 (mg/NM^3)	142.69 (mg/NM^3)
3.	2024-2025	3.53 (mg/NM^3)	38.75 (mg/NM^3)	73.64 (mg/NM^3)

Vimta Labs Limited,
Registered office
142, IDA, Phase –II, Cherlapally,
Hyderabad-500051, Telangana, India.
T: + 91-40-2726 4141
F: + 91-40-2726 3657

ISSUED TO:

M/s. ECONIC TECHNOLOGIES
105 – 67/1, Etukuru
Guntur – 522107
Andhra Pradesh

Report Number : VLL/VLS/25/21353/001
Issued Date : 2025.06.23
P.O Number : ET/PO/25-26/06-01
P.O Date : 2025.06.16

Sample Particulars : **Stack Connected to 52 TPH Boiler**
Site Details : **M/s. Jindal Urban Waste Management (Guntur) Ltd.,** MSW Based Power Plant Located at Sy. Nos. 933 & 938, Kondaveedu (V), Edlapadu (M), Guntur (Dist.), A.P.

Sample Registration Date	:	2025.06.17	Sampling Date	:	2025.06.16
Analysis Starting Date	:	2025.06.19	Analysis Completion Date	:	2025.06.23
Test Required	:	Polychlorinated dibenzo-p-dioxins & Plychlorinated dibenzofurans			

Sample collected by Econic Technologies
Sample Analyzed by Vimta Labs Limited as received basis.

TEST REPORT

Sr.No.	Parameters	UoM	Results
Econic Technologies Provided Details.			
1	Diameter of the Stack	m	2.2
2	Flue Gas Temperature	°C	146.0
3	Flue Gas Velocity	m/sec	12.6
4	Volumetric Flow Rate	Nm^3/hr	172322
5	Oxygen	%	11.20
Congeners of Dioxin and Furans			
1	2,3,7,8-Tetrachlorodibenzofuran	ng/Nm^3, TEQ	0.0023
2	1,2,3,7,8-Pentachlorodibenzofuran	ng/Nm^3, TEQ	0.0025
3	2,3,4,7,8- Pentachlorodibenzofuran	ng/Nm^3, TEQ	0.0029
4	1,2,3,4,7,8-Hexachlorodibenzofuran	ng/Nm^3, TEQ	0.0027
5	1,2,3,6,7,8-Hexachlorodibenzofuran	ng/Nm^3, TEQ	0.0024
6	2,3,4,6,7,8-Hexachlorodibenzofuran	ng/Nm^3, TEQ	0.0030
7	1,2,3,7,8,9-Hexachlorodibenzofuran	ng/Nm^3, TEQ	0.0035
8	1,2,3,4,6,7,8-Heptachlorodibenzofuran	ng/Nm^3, TEQ	0.0026
9	1,2,3,4,7,8,9-Heptachlorodibenzofuran	ng/Nm^3, TEQ	0.0022
10	Octachlorodibenzofuran	ng/Nm^3, TEQ	0.0027
11	2,3,7,8-Tetrachlorodibenzodioxin	ng/Nm^3, TEQ	0.0020
12	1,2,3,7,8-Pentachlorodibenzodioxin	ng/Nm^3, TEQ	0.0025
13	1,2,3,4,7,8-Hexachlorodibenzodioxin	ng/Nm^3, TEQ	0.0034
14	1,2,3,6,7,8-Hexachlorodibenzodioxin	ng/Nm^3, TEQ	0.0022
15	1,2,3,7,8,9-Hexachlorodibenzodioxin	ng/Nm^3, TEQ	0.0031
16	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	ng/Nm^3, TEQ	0.0026
17	Octachlorodibenzodioxin	ng/Nm^3, TEQ	0.0024
Total Furans & Dioxins		**ng/Nm^3, TEQ**	**0.0450**
Total Furans & Dioxins		**ng/Nm^3, TEQ Corrected to 11% O_2**	**0.0459**
Limits as per S.O.1357(E) ng TEQ/Nm3			**< 0.1**

Note : The sample has been outsourced.

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampalli
Manager - Environment

Scanned with OKEN Scanner

ECONIC
TECHNOLOGIES PRIVATE LIMITED
Laboratory Accredited by NABL as per ISO/IEC 17025:2017
Certified by ISO 9001 : 2015, ISO 14001: 2015 & ISO 45001 : 2018

TEST REPORT

Report Reference Number: ECT2506075 **Issue Date: 17/06/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	16/06/2025
	Analysis Starting Date	16/06/2025
	Analysis Completion Date	16/06/2025
Sample Details: Stack Emission for 52 TPH Boiler	Quantity Received	NA
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

S. NO	Parameter	Method	UOM	Result	SPCB Limits
1	Ambient Temperature	IS 11255 (Pt 3): 2008 RA 2018	°C	37	----
2	Flue gas Temperature		°C	146	-----
3	Stack Diameter		M	2.2	---
4	Stack Cross Sectional Area		Sq m	3.799	---
5	Exit Velocity		m/sec	12.6	----
6	Flow rate		Cum/hr	172322.64	-----
7	Particulate Matter	IS:11255 part 1:1985 (RA 2019)	Mg/Nm^3	21.9	50
8	Sulphur Dioxide as So_2	IS:11255 part 2:1985 (RA 2019)	Mg/Nm^3	26.5	200
9	Oxides of Nitrogen as No_x	IS:11255 part 7:2005 (RA 2012)	Mg/Nm^3	31.8	400
10	Carbon Monoxide	Instrument Manual Method	Mg/Nm^3	18.6	100(half hourly average)
11	Carbon Dioxide	Instrument Manual Method	Mg/Nm^3	11.2	---
12	Oxygen	Instrument Manual Method	Mg/Nm^3	10.5	---
13	Hydrogen Fluoride (HF)	Method No: 207, Method of Air Sampling and Analysis by James. Lodge, JR	Mg/Nm^3	1.16	4.0
14	Hydrogen Chloride (HCL)	As Per USEPA Method	Mg/Nm^3	9.7	50.0
15	Total Organic Carbon		Mg/Nm^3	5.8	20.0
16	Arsenic (As)& Its Compound		Mg/Nm^3	<0.01	0.50
17	Cadmium (Cd)& Its Compound	As Per USEPA Method	Mg/Nm^3	<0.01	0.05
18	Thorium (Th)& Its Compound		Mg/Nm^3	<0.01	0.05
19	Chromium (Cr)& Its Compound		Mg/Nm^3	<0.01	0.50
20	Cobalt (Co)& Its Compound		Mg/Nm^3	<0.01	0.50
21	Copper (Cu)& Its Compound		Mg/Nm^3	<0.01	0.50
22	Lead (Pb)& Its Compound		Mg/Nm^3	<0.01	0.50
23	Manganese (Mn)& Its Compound		Mg/Nm^3	<0.01	0.50
24	Nickel (Ni)& Its Compound		Mg/Nm^3	<0.01	0.50
25	Vanadium (V)& Its Compound		Mg/Nm^3	<0.01	0.50
26	Antimony (Sb)& Its Compound		Mg/Nm^3	<0.01	0.50
27	Mercury (Hg)& Its Compound		Mg/Nm^3	<0.01	0.50

UOM: Unit of Measurement

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Ashanksha
Authorized signatory

End of the report

ECONIC
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TEST REPORT

Report Reference Number: ECT2506068/069/070 **Issue Date: 17/06/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	13-06-2025
	Analysis Starting Date	14-06-2025
	Analysis Completion Date	16-06-2025
Sample Details: Ambient Air Quality (Inside) 1.NEAR LDO TANK 2.NEAR WTP LAB 3.NEAR SECURITY GATE-1	Quantity Received	-
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

Test Results

S.NO	Parameter	UOM	Test Method	Result			NAAQS Limits
				1	2	3	
01.	Particulate Matter (PM_{10})	$\mu g/m^3$	IS 5182 Pt 23: 2006 RA 2022	41.6	45.9	44.6	100
02.	Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	IS 5182 Pt 24: 2019	16.8	19.7	15.8	60
03.	Sulphur Dioxide (SO_2)	$\mu g/m^3$	IS 5182 Pt 2: 2001 RA 2022	6.5	6.3	6.9	80
04.	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	IS 5182 Pt 6: 2006 RA 2022	19.5	16.8	23.7	80

UOM: Unit of Measurement

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Aakanksha
Authorized signatory

End of the report

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TEST REPORT

Report Reference Number: ECT2506071/072/073 **Issue Date: 17/06/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	13-06-2025
	Analysis Starting Date	14-06-2025
	Analysis Completion Date	16-06-2025
Sample Details: Ambient Air Quality 1.NEAR JAGAN ANNA COLONY 2.NEAR FOREST AREA 3.NEAR VENGALAYA PALEM	Quantity Received	-
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

Test Results

S.NO	Parameter	UOM	Test Method	Result			NAAQS Limits
				1	2	3	
01.	Particulate Matter (PM_{10})	µg/m³	IS 5182 Pt 23: 2006 RA 2022	39.8	25.8	38.2	100
02.	Particulate Matter ($PM_{2.5}$)	µg/m³	IS 5182 Pt 24: 2019	17.5	11.9	14.9	60
03.	Sulphur Dioxide (SO_2)	µg/m³	IS 5182 Pt 2: 2001 RA 2022	6.7	5.9	6.1	80
04.	Oxides of Nitrogen (NO_2)	µg/m³	IS 5182 Pt 6: 2006 RA 2022	18.1	11.3	13.8	80

UOM: Unit of Measurement

A. Aakanksha
Authorized signatory

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

End of the report

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TEST REPORT

Report Reference Number: ECT2506065/066/067 **Issue Date: 17/06/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	13-06-2025
	Analysis Starting Date	14-06-2025
	Analysis Completion Date	16-06-2025
Sample Details: Ambient Air Quality (outside) 1.NEAR OBUL NAIDU PALEM 2.NEAR AMBEDKAR COLONY 3.NEAR KALLAM HOMES	Quantity Received	-
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

Test Results

S.NO	Parameter	UOM	Test Method	Result			NAAQS Limits
				1	2	3	
01.	Particulate Matter (PM_{10})	$\mu g/m^3$	IS 5182 Pt 23: 2006 RA 2022	46.8	32.6	34.5	100
02.	Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	IS 5182 Pt 24: 2019	17.6	11.5	15.3	60
03.	Sulphur Dioxide (SO_2)	$\mu g/m^3$	IS 5182 Pt 2: 2001 RA 2022	6.8	6	6.2	80
04.	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	IS 5182 Pt 6: 2006 RA 2022	21.7	15.2	17.5	80

UOM: Unit of Measurement

A. Aakanksha.
Authorized signatory

ECONIC TECHNOLOGIES (P) LIMITED GUNTUR

End of the report

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TEST REPORT

Report Reference Number: ECT2507104/105/106 **Issue Date: 14/07/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	08-07-2025
	Analysis Starting Date	09-07-2025
	Analysis Completion Date	10-07-2025
Sample Details: Ambient Air Quality (outside) 1.NEAR SECURITY GATE-1 2.NEAR LDO TANK 3.NEAR SECURITY GATE-3	Quantity Received	-
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

Test Results

S.NO	Parameter	UOM	Test Method	Result			NAAQS Limits
				1	2	3	
01.	Particulate Matter (PM_{10})	$\mu g/m^3$	IS 5182 Pt 23: 2006 RA 2022	47.2	44.5	48.4	100
02.	Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	IS 5182 Pt 24: 2019	18.8	13.9	17.9	60
03.	Sulphur Dioxide (SO_2)	$\mu g/m^3$	IS 5182 Pt 2: 2001 RA 2022	6	6.1	6.8	80
04.	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	IS 5182 Pt 6: 2006 RA 2022	24.6	16.2	23.3	80

UOM: Unit of Measurement

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Akanksha
Authorized signatory

End of the report

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TECHNOLOGIES PRIVATE LIMITED
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TEST REPORT

Report Reference Number: ECT2507107/108/109 **Issue Date: 14/07/2025**

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	09-07-2025
	Analysis Starting Date	09-07-2025
	Analysis Completion Date	10-07-2025
Sample Details: Ambient Air Quality (Inside) 1.NEAR FOREST AREA 2.NEAR AMBEDKAR COLONY 3.NEAR JAGAN ANNA COLONY	Quantity Received	-
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

Test Results

S.NO	Parameter	UOM	Test Method	Result			NAAQS Limits
				1	2	3	
01.	Particulate Matter (PM_{10})	µg/m³	IS 5182 Pt 23: 2006 RA 2022	28.7	36.9	42.7	100
02.	Particulate Matter ($PM_{2.5}$)	µg/m³	IS 5182 Pt 24: 2019	14.8	14.8	15.5	60
03.	Sulphur Dioxide (SO_2)	µg/m³	IS 5182 Pt 2: 2001 RA 2022	5.7	6.4	6.3	80
04.	Oxides of Nitrogen (NO_2)	µg/m³	IS 5182 Pt 6: 2006 RA 2022	15.4	22.7	13.8	80

UOM: Unit of Measurement

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Aakanksha
Authorized signatory

End of the report

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TEST REPORT

Report Reference Number: ECT2507110/111/112 — Issue Date: 14/07/2025

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	09-07-2025
	Analysis Starting Date	09-07-2025
	Analysis Completion Date	10-07-2025
Sample Details: Ambient Air Quality 1.NEAR KALLAM HOMES 2.NEAR OBUL NAIDU PALEM 3.NEAR VENGALAYA PALEM	Quantity Received	-
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

Test Results

S.NO	Parameter	UOM	Test Method	Result			NAAQS Limits
				1	2	3	
01.	Particulate Matter (PM_{10})	µg/m³	IS 5182 Pt 23: 2006 RA 2022	38.8	49.7	34.9	100
02.	Particulate Matter ($PM_{2.5}$)	µg/m³	IS 5182 Pt 24: 2019	18.2	19.4	16.6	60
03.	Sulphur Dioxide (SO_2)	µg/m³	IS 5182 Pt 2: 2001 RA 2022	6.6	6.2	6.5	80
04.	Oxides of Nitrogen (NO_2)	µg/m³	IS 5182 Pt 6: 2006 RA 2022	20.5	26.9	17.7	80

UOM: Unit of Measurement

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Aakanksha
Authorized signatory

End of the report

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TEST REPORT

Report Reference Number: ECT2507113 **Issue Date: 14/07/2025**

Issued To: **M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938,National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.**	Lr. Reference No. & Date	--
	Sample Receipt Date	09/07/2025
	Analysis Starting Date	09/07/2025
	Analysis Completion Date	12/07/2025
Sample Details: R.O Reject Water	Quantity Received	2 L x 1 No. in plastic
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

S.NO	Parameter	Method	Unit	Result
1.	pH@25.^{0}C	APHA 24th Edition 4500 H$^+$B	--	8.32
2.	Total Dissolved Solids(inorganic)	APHA 24th Edition 2540 C	mg/L	25962
3.	Total Suspended Solids	APHA 24thEdition 2540 D	mg/L	76
4.	Chemical Oxygen Demand	APHA 24th Edition 5220 B	mg/L	94
5.	BOD	IS: 3025(Part-44):2023	mg/L	23.5
6.	Oil & Grease	APHA 24th Edition ;5520 B	mg/L	BDL

UOM: Unit of Measurements

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Aakanksha.
Authorized signatory

End of the report

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TEST REPORT

Report Reference Number: ECT2507114 Issue Date: 14/07/2025

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	09/07/2025
	Analysis Starting Date	10/07/2025
	Analysis Completion Date	12/07/2025
Sample Details: Leachate out let (R.O Product)	Quantity Received	2 L x 1 No. in plastic can
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

S.NO	Parameter	Method	Unit	Result	SPCB Limits
1.	pH@25.^{0}C	APHA 24th Edition 4500 H+B	--	7.22	5.5- 9.0
2.	Color	APHA 24th Edition 2120 B	Hazen	<1.0	---
3.	Total Dissolved Solids(inorganic)	APHA 24th Edition 2540 C	mg/L	396	2100
4.	Total Suspended Solids	APHA 24th Edition 2540 D	mg/L	< 1	200
5.	Total Alkalinity (as $Caco_3$)	APHA 24th Edition 2320 B	mg/L	26	---
6.	Total Hardness (as $Caco_3$)	APHA 24th Edition 2340 C	mg/L	28	---
7.	Calcium (as Ca)	APHA 24th Edition 3500 Ca B	mg/L	12.48	---
8.	Magnesium (as Mg)	APHA 24th Edition 3500-Mg B	mg/L	4.99	---
9.	Sulphate (as So_4)	APHA 24th Edition 4500 So_4E	mg/L	14	---
10.	Chloride (as Cl)	APHA 24th Edition 4500 Cl^-B	mg/L	21.96	---
11.	Sodium (as Na)	APHA 24th Edition 3500 Na B	mg/L	18	---
12.	Potassium (as K)	APHA 24th Edition 3500 K B	mg/L	1.06	---
13.	Nitrate Nitrogen	APHA 24th Edition 4500 No_3B	mg/L	0.44	---
14.	Iron (as Fe)	APHA 24th Edition 3500 Fe B	mg/L	1.12	---
15.	Lead (as Pb)	APHA 24th Edition 3111 B	mg/L	<0.1	---
16.	Copper (as Cu)	APHA 24th Edition 3111 B	mg/L	<1.0	---
17.	Zinc (as Zn)	APHA 24th Edition 3111 B	mg/L	<5.0	---
18.	Chemical Oxygen Demand	APHA 24th Edition 5220 B	mg/L	22	---
19.	BOD	IS: 3025(Part-44):2009	mg/L	5.4	100
20.	Nickel as Ni	APHA 24th Edition 3111 B	mg/L	<0.5	---
21.	Cadmium as Cd	APHA 24th Edition 3111 B	mg/L	<0.3	---
22.	Chromium as Cr	APHA 24th Edition 3111 B	mg/L	<0.5	---
23.	Mercury as Hg	APHA 24thEdition 3111 B	mg/L	<0.01	---
24.	Arsenic as As	APHA 24th Edition 3111 B	mg/L	<0.2	0.2
25.	Ammonia as Nitrogen (NH_3-N)	APHA 24th Edition 4500 NH_3 B,C	mg/L	<10	---
26.	Phosphate as PO_4	APHA 24th Edition 4500 P C	mg/L	<5.0	---
27.	Silica as Sio_2	APHA 24th Edition 2012;4500 Sio_2 C	mg/L	1.36	---
28.	Oil & Grease	APHA 24th Edition 2012;5520 B	mg/L	BDL	---
29.	Phenol	APHA 24thEdition 5530 D	mg/L	<0.5	10

UOM: Unit of Measurements

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Akankshe
Authorized signatory

End of the report

ECONIC
TECHNOLOGIES PRIVATE LIMITED
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TEST REPORT

Report Reference Number: ECT2507115 Issue Date: 14/07/2025

Issued To: M/S. Jindal Urban Waste Management (Guntur)Ltd., Survey No 933 & 938, National Highway, Kondaveedu (V), Edlapadu (M), Guntur-522529.	Lr. Reference No. & Date	--
	Sample Receipt Date	09/07/2025
	Analysis Starting Date	09/07/2025
	Analysis Completion Date	12/07/2025
Sample Details: Raw Leachate Water	Quantity Received	2 L x 1 No. in plastic can
	Sample condition on Receipt	Good
	Source / Location	--
Tests Requested: As mentioned below		

S.NO	Parameter	Method	Unit	Result
1.	pH@25.^{0}C	APHA 24th Edition 4500 H+B	--	6.35
2.	Color	APHA 24th Edition 2120 B	Hazen	3.1
3.	Total Dissolved Solids(inorganic)	APHA 24th Edition 2540 C	mg/L	30464
4.	Total Suspended Solids	APHA 24th Edition 2540 D	mg/L	5272
5.	Total Alkalinity (as Caco3)	APHA 24thEdition 2320 B	mg/L	3258
6.	Total Hardness (as Caco3)	APHA 24th Edition 2340 C	mg/L	6236
7.	Calcium (as Ca)	APHA 24th Edition 3500 Ca B	mg/L	1496.64
8.	Magnesium (as Mg)	APHA 24th Edition 3500-Mg B	mg/L	596.7
9.	Sulphate (as So4)	APHA 24th Edition 4500 So4E	mg/L	844
10.	Chloride (as Cl)	APHA 24th Edition 4500 Cl-B	mg/L	1866
11.	Sodium (as Na)	APHA 24th Edition 3500 Na B	mg/L	316
12.	Potassium (as K)	APHA 24th Edition 3500 K B	mg/L	42.9
13.	Nitrate Nitrogen	APHA24th Edition 4500 No3B	mg/L	124
14.	Iron (as Fe)	APHA 24th Edition 3500 Fe B	mg/L	108
15.	Lead (as Pb)	APHA 24th Edition 3111 B	mg/L	<0.1
16.	Copper (as Cu)	APHA 24th Edition 3111 B	mg/L	<1.0
17.	Zinc (as Zn)	APHA 24th Edition 3111 B	mg/L	<5.0
18.	Chemical Oxygen Demand	APHA 24th Edition 5220 B	mg/L	38686
19.	BOD	IS: 3025(Part-44):2009	mg/L	12632
20.	Nickel as Ni	APHA 24th Edition 3111 B	mg/L	<0.5
21.	Cadmium as Cd	APHA 24th Edition 3111 B	mg/L	<0.3
22.	Chromium as Cr	APHA 24th Edition 3111 B	mg/L	<0.5
23.	Mercury as Hg	APHA 24th Edition 3111 B	mg/L	<0.1
24.	Arsenic as As	APHA 24th Edition 3111 B	mg/L	<0.5
25.	Ammonia as Nitrogen (NH3-N)	APHA 24th Edition 4500 NH3 B, C	mg/L	<10
26.	Phosphate as PO4	APHA 24th Edition 4500 P C	mg/L	<5
27.	Silica as Sio2	APHA 24th Edition 2012;4500 Sio2 C	mg/L	228
28.	Oil & Grease	APHA 24th Edition 2012;5520 B	mg/L	94
29.	Phenol	APHA 24th Edition 5530 D	mg/L	1.18

UOM: Unit of Measurements

ECONIC TECHNOLOGIES PRIVATE LIMITED GUNTUR

A. Aakanksha
Authorized signatory

End of the report

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TC-10984

TEST REPORT

Report No: SAS/AAQ/JUWML/06/2025/231

Annexure-VI-A

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report : 19.06.2025
Sample Collected By : Star Analytical Services
Sample Registration Date : 16.06.2025
Sample Collection Date : 13.06.2025-14.06.2025
Sample Location : **Weigh Bridge Area**
Sample Received In : Polythene covers and Sample Bottles
Sampling Procedure : CPCB Guidelines (NAAQMS/Volume – I/2013-14)
Sample Description/Code : **Ambient Air Quality Monitoring**
Sub Contract Test : NA
Registration Number : SAS/AAQ/JUWML/06/25/246
Environmental Condition : Weather Condition: **Sunny**
: Temperature/Humidity:**34°C/58%**

S. No	Name of the Parameter	Test Result	NAAQS Limits	Test Method
01	Particulate Matter (<10µm) or PM10 (µg/m³)	64.8	100	IS 5182: Part-23 (2012)
02	Particulate Matter (<2.5µm) or PM2.5(µg/m³)	26.3	60	CPCB Manual (NAAQMS/36/2012-13) Gravimetric Method (Cyclonic Flow technique)
03	Sulphur dioxide as SO_2 in µg/m³	17.4	80	IS 5182: Part-2 (2012)
04	Nitrogen dioxide as NOx in µg/m³	22.1	80	IS 5182: Part-6 (2012)

Opinion and interpretation: Nil NA: Not Applicable

Test reports shall not be reproduced except in full, without written approval of the laboratory

Method: Based on CPCBs Guidelines for the measurement of Ambient Air Pollutants, Volume - 1, 2012-13

Date of Calibration: 24.06.2024 ($PM_{2.5}$) &24.06.2024 (PM_{10}) Due Date: 23.06.2025 ($PM_{2.5}$) &23.06.2025(PM_{10})

-- End of the Report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

18-21/1, 2nd Floor, Vengalayapalem, Guntur, Guntur dist., Andhra Pradesh - 522 005.
Cell : +91 70957 34733, +91 76610 44686, E-mail : info@staranalyticalservices.co.in

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TEST REPORT

TC-10984

Report No: SAS/AAQ/JUWML/06/2025/232

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 13.06.2025-14.06.2025
Sample Location	: **Technical Office Area**
Sample Received In	: Polythene covers and Sample Bottles
Sampling Procedure	: CPCB Guidelines (NAAQMS/Volume – I/2013-14)
Sample Description/Code	: **Ambient Air Quality Monitoring**
Sub Contract Test	: NA
Registration Number	: SAS/AAQ/JUWML/06/25/247
Environmental Condition	: Weather Condition: **Sunny**
	: Temperature/Humidity:**34°C/58%**

S. No	Name of the Parameter	Test Result	NAAQS Limits	Test Method
01	Particulate Matter (<10µm) or PM10 (µg/m^3)	63.8	100	IS 5182: Part-23 (2012)
02	Particulate Matter (<2.5µm) or PM2.5(µg/m^3)	22.5	60	CPCB Manual (NAAQMS/36/2012-13) Gravimetric Method (Cyclonic Flow technique)
03	Sulphur dioxide as SO_2 in µg/m^3	18.5	80	IS 5182: Part-2 (2012)
04	Nitrogen dioxide as NOx in µg/m^3	23.4	80	IS 5182: Part-6 (2012)

Opinion and interpretation: Nil NA: Not Applicable

Test reports shall not be reproduced except in full, without written approval of the laboratory

Method: Based on CPCBs Guidelines for the measurement of Ambient Air Pollutants, Volume - 1, 2012-13

Date of Calibration: 24.06.2024 ($PM_{2.5}$) &24.06.2024 (PM_{10}) Due Date: 23.06.2025 ($PM_{2.5}$) &23.06.2025(PM_{10})

-- End of the Report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TEST REPORT

TC-10984

Report No: SAS/AAQ/JUWML/06/2025/233

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 13.06.2025-14.06.2025
Sample Location	: **Plant Guest House Area**
Sample Received In	: Polythene covers and Sample Bottles
Sampling Procedure	: CPCB Guidelines (NAAQMS/Volume – I/2013-14)
Sample Description/Code	: **Ambient Air Quality Monitoring**
Sub Contract Test	: NA
Registration Number	: SAS/AAQ/JUWML/06/25/248
Environmental Condition	: Weather Condition: **Sunny**
	: Temperature/Humidity:**34°C/58%**

S. No	Name of the Parameter	Test Result	NAAQS Limits	Test Method
01	Particulate Matter (<10µm) or PM10 (µg/m^3)	66.5	100	IS 5182: Part-23 (2012)
02	Particulate Matter (<2.5µm) or PM2.5(µg/m^3)	23.4	60	CPCB Manual (NAAQMS/36/2012-13) Gravimetric Method (Cyclonic Flow technique)
03	Sulphur dioxide as SO_2 in µg/m^3	13.8	80	IS 5182: Part-2 (2012)
04	Nitrogen dioxide as NOx in µg/m^3	21.7	80	IS 5182: Part-6 (2012)

Opinion and interpretation: Nil NA: Not Applicable

Test reports shall not be reproduced except in full, without written approval of the laboratory

Method: Based on CPCBs Guidelines for the measurement of Ambient Air Pollutants, Volume - 1, 2012-13

Date of Calibration: 24.06.2024 ($PM_{2.5}$) &24.06.2024 (PM_{10}) Due Date: 23.06.2025 ($PM_{2.5}$) &23.06.2025(PM_{10})

-- End of the Report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

Star Analytical Services

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(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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TEST REPORT

TC-10984

Report No: SAS/AAQ/JUWML/06/2025/234

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 13.06.2025-14.06.2025
Sample Location	: **Old Para desi Palem**
Sample Received In	: Polythene covers and Sample Bottles
Sampling Procedure	: CPCB Guidelines (NAAQMS/Volume – I/2013-14)
Sample Description/Code	: **Ambient Air Quality Monitoring**
Sub Contract Test	: NA
Registration Number	: SAS/AAQ/JUWML/06/25/249
Environmental Condition	: Weather Condition: **Sunny**
	: Temperature/Humidity:**34°C/58%**

S. No	Name of the Parameter	Test Result	NAAQS Limits	Test Method
01	Particulate Matter (<10µm) or PM10 (µg/m^3)	61.4	100	IS 5182: Part-23 (2012)
02	Particulate Matter (<2.5µm) or PM2.5(µg/m^3)	25.8	60	CPCB Manual (NAAQMS/36/2012-13) Gravimetric Method (Cyclonic Flow technique)
03	Sulphur dioxide as SO_2 in µg/m^3	15.4	80	IS 5182: Part-2 (2012)
04	Nitrogen dioxide as NOx in µg/m^3	22.9	80	IS 5182: Part-6 (2012)

Opinion and interpretation: Nil NA: Not Applicable

Test reports shall not be reproduced except in full, without written approval of the laboratory

Method: Based on CPCBs Guidelines for the measurement of Ambient Air Pollutants, Volume - 1, 2012-13

Date of Calibration: 24.06.2024 ($PM_{2.5}$) &24.06.2024 (PM_{10}) Due Date: 23.06.2025 ($PM_{2.5}$) &23.06.2025(PM_{10})

-- End of the Report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

Star Analytical Services

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(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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TC-10984

TEST REPORT

Report No: SAS/NOISE/JUWML/06/2025/327

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report : 19.06.2025
Sample Collection Date : 14.06.2025
Sample Description/Code : **Noise Monitoring**
Sub Contract Test : NA
Registration Number : SAS/NOISE/06/2025/440-443

S. No	Sampling Location	Day Time In Leq dB (A)	Night Time In Leq dB(A)	CPCB NORMS (Day time)	CPCB NORMS (Night time)
1	Weigh Bridge	67.6	54.5	75 dB (A)	70dB (A)
2	Technical Office Area	64.5	51.4		
3	Near Compressor Room	63.2	52.6		
4	Old Paradesi Palem	53.7	40.4	55 dB (A)	45 dB (A)

Instrument Details:

S. No	Instrument	Sound Level Meter
1	Make	Lutron
2	Model/S. No	SL – 4010/GE:2408982
3	Calibrated On	24.06.2024
4	Calibration Due Date	23.06.2025

Opinion and interpretation: Nil NA: Not Applicable

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-- End of the report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah V
Manager- Laboratory

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TC - 10984

TEST REPORT

Report No: SAS/STACK/JUWML/04/25/375

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415, Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report : 21.04.2025
Sample Registration Date : 16.04.2025
Sample Collection Date : 15.04.2025
Sample Description : Stack Emission Monitoring
Sample particulars : **Stack Attached to BOILER**
Sub Contract Test : NA
Registration Number : SAS/STACK/JUWML/04/25/481

S. No	Parameter	Method	Unit	Results	SPCB Limits
1	Stack Diameter	--	Meter (m)	2.8	--
2	Flue Gas Temperature	IS 11255 (P-3)	°C	124.8	--
3	Flue Gases Velocity	IS 11255 (P-3)	m/sec	12.5	--
4	Flow Rate	IS 11255 (P-3)	Nm^3/ hr.	40598	--
5	Suspended Particulate Matter	IS 11255 (P-1)	mg/Nm^3	33.4	50
6	Sulphur Dioxide	IS 11255 (P-2)	mg/Nm^3	28.7	50
7	Oxides of Nitrogen as	IS 11255 (P-7)	mg/Nm^3	93.4	400
8	Carbon Monoxide	Instrument Manual Method	mg/Nm^3	37.8	100 (half hourly average)
9	Hydrogen fluoride (HF)	Method No: 207, Method of Air Sampling and Analysis by JAMES.P LODGE, JR	mg/Nm3	3.2	4.0
10	Hydrogen chloride (HCL)	As per USEPA Method	mg/Nm3	23.2	50.0
11	Total Organic carbon (TOC)		mg/Nm3	14.5	20.0
12	Arsenic(As) & its Compounds		mg/Nm3	<0.01	0.05
13	Cadmium(Cd) &its Compounds		mg/Nm^3	<0.01	0.05
14	Thorium(Th) &its Compounds		mg/Nm^3	<0.01	0.05
15	Chromium(Cr) &its Compounds		mg/Nm^3	<0.01	0.05
16	Oxygen	Instrument Manual Method	%	8.5	--

18-21/1, 2nd Floor, Vengalayapalem, Guntur, Guntur dist., Andhra Pradesh - 522 005.
Cell : +91 70957 34733, +91 76610 44686, E-mail : info@staranalyticalservices.co.in

STAR ANALYTICAL SERVICES
(ENVIRONMENTAL MONITORING, TESTING & SERVICES)
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MoEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TC - 10984

TEST REPORT

Report No: SAS/STACK/JUWML/04/25/375

S. No	Parameter	Method	Unit	Results	SPCB Limits
17	Cobalt(Co) &its Compounds	As per USEPA Method	mg/Nm^3	<0.01	0.05
18	Copper(Cu) &its Compounds		mg/Nm^3	<0.01	0.05
19	Lead(Pb) &its Compounds		mg/Nm^3	<0.01	0.05
20	Manganese(Mn) &its Compounds		mg/Nm^3	<0.01	0.05
21	Nickel(Ni) &its Compounds		mg/Nm^3	<0.01	0.05
22	Vanadium(V) &its Compounds		mg/Nm^3	<0.01	0.05
23	Antimony(Sb) &its Compounds		mg/Nm^3	<0.01	0.05
24	Mercury (Hg) &its Compounds		mg/Nm^3	<0.01	0.05

Instrument Details:

S. No	Instrument	Stack Sampler
1	Make	Complete Environmental Solutions
2	Model/S. No	SS – 104/32- F – 2016
3	Calibrated On	24.06.2024
4	Calibration Due Date	23.06.2025

Opinion and interpretation: Nil

NA: Not Applicable

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-- End of the report –

Checked by
Srinivas
Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

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TC - 10984

TEST REPORT

Report No: SAS/STACK/JUWML/04/25/376

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415, Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report : 21.04.2025
Sample Registration Date : 16.04.2025
Sample Collection Date : 15.04.2025
Sample Description : **Stack Emission Monitoring**
Sample particulars : Stack Attached to 750 kVA DG
Sub Contract Test : NA
Registration Number : SAS/STACK/JUWML/04/25/481

S. No	Parameter	Method	Unit	Results	SPCB Limits
1	Stack Diameter	--	Meter (m)	0.25	--
2	Flue Gas Temperature	IS 11255 (P-3)	°C	154.5	--
3	Flue Gases Velocity	IS 11255 (P-3)	m/sec	13.2	--
4	Flow Rate	IS 11255 (P-3)	Nm^3/ hr.	2189	--
5	Suspended Particulate Matter	IS 11255 (P-1)	mg/Nm^3	32.4	115
6	Sulphur Dioxide as SO_2	IS 11255 (P-2)	mg/Nm^3	42.5	--
7	Oxides of Nitrogen as NOx	IS 11255 (P-7)	mg/Nm^3	70.2	--

Instrument Details:

S. No	Instrument	Stack Sampler
1	Make	Complete Environmental Solutions
2	Model/S. No	SS – 104/32- F - 2016
3	Calibrated On	24.06.2024
4	Calibration Due Date	23.06.2025

Opinion and interpretation: Nil

NA: Not Applicable

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-- End of the report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluaraiah.V
Manager-Laboratory

18-21/1, 2nd Floor, Vengalayapalem, Guntur, Guntur dist., Andhra Pradesh - 522 005.
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Driven by Quality. Inspired by Science.

ISSUED TO:

M/s. STAR ANALYTICAL SERVICES
2ND Floor, 18-21/1, Vengalayapalem,
Guntur, Guntur District,
Andhra Pradesh-522005.

Report Number : **VLL/VLS/25/01357/001**
Issued Date : **2025-05-10**

Sample Particulars : **Stack connected to 40 TPH Boiler**
Site Details : **M/S. Jindal urban Waste management (VSKP), Ltd., Survey No: 410 & 415, Kapuluppada Dump Yard, Kapuluppada (V), Bheemunipatnam (M) Vishakapatnam-531163**

Sample Received On	:	2025-04-18	Sample Registration Date	:	2025-04-25
Analysis Starting Date	:	2025-05-08	Analysis Completion Date	:	2025-05-10
Test Required	:	PCDD& PCDF			

Sample collected by Star Analytical Services
Sample Analysis by Vimta Labs Limited as received basis.

TEST REPORT

Sr. No.	Parameters	UoM	Results
Physical Parametersof stack			
1	Diameter of stack	m	2.8
2	Flue gas temperature	°C	124.8
3	Velocity	m/Sec	12.5
4	Volumetric flow rate	Nm^3/hr	40598
5	Oxygen as O_2	%	8.5

Congeners of Dioxin & Furans		Concentration		
		Concentration(ng)	TEF by WHO	TEQ (ng)
6	2,3,7,8-TCDD	0.00006	1	0.0001
7	1,2,3,7,8-PeCDD	0.00031	0.5	0.0002
8	1,2,3,4,7,8-HxCDD	0.00003	0.1	0.0000
9	1,2,3,6,7,8-HxCDD	0.00003	0.1	0.0000
10	1,2,3,7,8,9-HxCDD	0.00003	0.1	0.0000
11	1,2,3,4,6,7,8-HpCDD	0.00000	0.01	0.0000
12	OCDD	0.00000	0.001	0.0000
13	2,3,7,8-TCDF	0.00001	0.1	0.0000
14	1,2,3,7,8-PeCDF	0.00001	0.05	0.0000
15	2,3,4,7,8-PeCDF	0.00009	0.5	0.0000
16	1,2,3,4,7,8-HxCDF	0.00003	0.1	0.0000
17	1,2,3,6,7,8-HxCDF	0.00003	0.1	0.0000
18	1,2,3,7,8,9-HxCDF	0.00003	0.1	0.0000
19	2,3,4,6,7,8-HxCDF	0.00003	0.1	0.0000
20	1,2,3,4,6,7,8-HpCDF	0.00000	0.01	0.0000
21	1,2,3,4,7,8,9-HpCDF	0.00000	0.01	0.0000
22	OCDF	0.00000	0.001	0.0000
			Total ng TEQ	0.00006
			Total ng/Nm^3 TEQ	0.00217
			Vstd. (Nm^3)	5.1
			Total Furans & Dioxins (ng TEQ/Nm3 at 11 % O_2 Correction)	**0.00004**
			Limits as per S.O. 1357(E) ng TEQ/Nm^3	**< 0.1**

Method of Testing: As per USEPA 23 A
Sr No. 1 to 5 details provided by Star Analytical Services

P. Srinivas

Dr. Srinivas Pavuluri
Manager

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

Laboratory Accredited by NABL as per ISO/IEC 17025:2017

MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TC-10984

TEST REPORT

Date: 19.06.2025

Name of the Customer

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Test Report No	: **SAS/W-DW/06/2025/312**
Sample particulars	: **Drinking Water**
Sample quantity	: 2 Liters
Collected by / date	: SAS /14.06.2025
Sample Registration Date	: 16.06.2025
Analysis Commenced on	: 16.06.2025
Analysis Completed on	: 19.06.2025
Sub Contract Testing	: NA

S.No	Parameter	Unit	Method	Result	IS 10500 Limits	
					Acceptable	Permissible
1	pH	--	APHA 24th Edition; 4500 H^+ B	6.82	6.5-8.5	No Relaxation
2	Total Dissolved Solids	mg/L	APHA 24th Edition; 2540 C	82.5	500	2000
3	Conductivity	µmho/Cm	APHA 24th Edition; 2510 B	130.6	--	--
4	Turbidity	NTU	APHA 24th Edition; 2130 B	<1.0	1	5
5	Color	Hazen	APHA 24th Edition; 2120 B	< 5.0	5	15
6	Total Hardness as $CaCO_3$	mg/L	APHA 24th Edition; 2340 C	30	200	600
7	Non-Carbonate Hardness as $CaCO_3$	mg/L	APHA 24th Edition; 2340 C	Nil	--	--
8	Calcium as Ca	mg/L	APHA 24th Edition; 3500 Ca B	4.08	75	200
9	Magnesium as Mg	mg/L	APHA 24th Edition; 3500 Mg B	2.43	30	100
10	P-Alkalinity as $CaCO_3$	mg/L	APHA 24th Edition; 2320 B	Nil	--	--
11	M-Alkalinity as $CaCO_3$	mg/L	APHA 24th Edition; 2320 B	20	200	600
12	Chlorides as Cl^-	mg/L	APHA 24th Edition; 4500 Cl^- B	16	250	1000
13	Sodium as Na	mg/L	APHA 24th Edition; 3500 Na B	11.0	--	--
14	Potassium as K	mg/L	APHA 24th Edition; 3500 K B	<0.5	--	--
15	Sulphates as SO_4^{-2}	mg/L	APHA 24th Edition; 4500 SO_4^{-2} E	10.4	200	400

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STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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TEST REPORT

TC-10984

Report No : **SAS/W-DW/06/2025/312**

S.No	Parameter	Unit	Method	Result	IS 10500 Limits	
					Acceptable	Permissible
16	Nitrate as NO_3	mg/L	APHA 24th Edition; 4500 NO_3^- B	<0.5	45	No Relaxation
17	Iron as Fe	mg/L	APHA 24th Edition; 3500 Fe B	<0.01	0.3	No Relaxation
18	Fluorides as F^-	mg/L	APHA 24th Edition; 4500 F^- D	<0.05	1	1.5
19	Zinc as Zn, mg/L	mg/L	APHA 24th Edition,2017, 3111 B	< 0.1	5	15
20	Cadmium as Cd	mg/L	APHA 24th Edition,2017, 3111B	<0.003	0.003	No relaxation
21	Cyanide as CN	mg/L	APHA 24th Edition,2017, 4500 CN- C,	<0.05	0.05	No relaxation
22	Lead as Pb	mg/L	APHA 24th Edition,2017, 23111B	<0.01	0.01	No relaxation
23	Mercury as Hg	mg/L	APHA 24th Edition,2017, 3112 B	<0.001	0.001	No relaxation
24	Total Arsenic as As,	mg/L	APHA 24th Edition,2017, 3500 As B	<0.01	0.01	0.05
25	Selenium as Se	mg/L	APHA 24thEdition,2017, 3111 B	<0.01	0.01	No Relaxation
26	Silver as Ag	mg/L	APHA 24thEdition,2017, 3500-Ag	<0.01	0.1	No Relaxation
27	Aluminium as Al	mg/L	APHA 24thEdition,2017, 3500 Al B	<0.0001	0.03	0.2
28	Silica as SiO_2	mg/L	APHA 24th Edition, 4500 SiO_2 C	<1.0	--	--
29	*Total Coliform	MPN/100 ml	APHA 24th Edition 9221B	Absent	Not Specified	Shall not be detectable in any 100 ml sample
30	*E-Coli	MPN/100 ml	APHA 24th Edition 9221 B	Absent		
31	*Bacterial Count	MPN/100 ml	APHA 24th Edition 9221 B	Absent		

Opinion and interpretation: Nil

NA: Not Applicable

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2. Test reports shall not be reproduced except in full, without written approval of the laboratory

Note: The parameter marked with a star(*) are not under NABL scope.

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Checked by
Srinivas
Sr. Chemist

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Manager-Laboratory

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TC-10984

TEST REPORT

Date: 19.06.2025

Name of the Customer
M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Test Report No : **SAS/W-GW/06/2025/313**
Sample particulars : **Ground Water**
Sample quantity : 2 Liters
Collected by / date : SAS /14.06.2025
Sample Registration Date : 16.06.2025
Analysis Commenced on : 16.06.2025
Analysis Completed on : 19.06.2025
Sub Contract Testing : NA

S.No	Parameter	Unit	Method	Result	IS 10500 Limits	
					Acceptable	Permissible
1	pH	--	APHA 24th Edition; 4500 H^+ B	7.52	6.5-8.5	No Relaxation
2	Total Dissolved Solids	mg/L	APHA 24th Edition; 2540 C	1448	500	2000
3	Conductivity	µmho/Cm	APHA 24th Edition; 2510 B	2280	--	--
4	Turbidity	NTU	APHA 24th Edition; 2130 B	<1.0	1	5
5	Color	Hazen	APHA 24th Edition; 2120 B	< 5.0	5	15
6	Total Hardness as $CaCO_3$	mg/L	APHA 24th Edition; 2340 C	660	200	600
7	Non-Carbonate Hardness as $CaCO_3$	mg/L	APHA 24th Edition; 2340 C	190	--	--
8	Calcium as Ca	mg/L	APHA 24th Edition; 3500 Ca B	132.2	75	200
9	Magnesium as Mg	mg/L	APHA 24th Edition; 3500 Mg B	80.2	30	100
10	P-Alkalinity as $CaCO_3$	mg/L	APHA 24th Edition; 2320 B	<10.0	--	--
11	M-Alkalinity as $CaCO_3$	mg/L	APHA 24th Edition; 2320 B	470	200	600
12	Chlorides as Cl^-	mg/L	APHA 24th Edition; 4500 Cl^- B	254	250	1000
13	Sodium as Na	mg/L	APHA 24th Edition; 3500 Na B	156	--	--
14	Potassium as K	mg/L	APHA 24th Edition; 3500 K B	5.42	--	--
15	Sulphates as SO_4^{-2}	mg/L	APHA 24th Edition; 4500 SO_4^{-2} E	175	200	400

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TEST REPORT

Report No : SAS/W-GW/06/2025/313

S.No	Parameter	Unit	Method	Result	IS 10500 Limits	
					Acceptable	Permissible
16	Nitrate as NO_3	mg/L	APHA 24th Edition; 4500 NO_3^- B	4.53	45	No Relaxation
17	Iron as Fe	mg/L	APHA 24th Edition; 3500 Fe B	<0.12	0.3	No Relaxation
18	Fluorides as F^-	mg/L	APHA 24th Edition; 4500 F^- D	<0.5	1	1.5
19	Zinc as Zn	mg/L	APHA 24th Edition,2017, 3111 B	< 0.5	5	15
20	Cadmium as Cd	mg/L	APHA 24th Edition,2017, 3111B	<0.003	0.003	No relaxation
21	Cyanide as CN	mg/L	APHA 24th Edition,2017, 4500 CN- C,	<0.05	0.05	No relaxation
22	Lead as Pb	mg/L	APHA 24th Edition,2017, 23111B	<0.01	0.01	No relaxation
23	Mercury as Hg	mg/L	APHA 24th Edition,2017, 3112 B	<0.001	0.001	No relaxation
24	Total Arsenic as As,	mg/L	APHA 24th Edition,2017, 3500 As B	<0.01	0.01	0.05
25	Selenium as Se	mg/L	APHA 24th Edition,2017, 3111 B	<0.01	0.01	No Relaxation
26	Silver as Ag	mg/L	APHA 24th Edition,2017, 3500-Ag	<0.01	0.1	No Relaxation
27	Aluminium as Al	mg/L	APHA 24th Edition,2017, 3500 Al B	<0.0001	0.03	0.2
28	Silica as SiO_2	mg/L	APHA 24th Edition, 4500 SiO_2 C	<5.0	--	--
29	*Total Coliform	MPN/100 ml	APHA 24th Edition 9221B	Absent	Not Specified Shall not be detectable in any 100 ml sample	
30	*E-Coli	MPN/100 ml	APHA 24th Edition 9221 B	Absent		
31	*Bacterial Count	MPN/100 ml	APHA 24th Edition 9221 B	Absent		

Opinion and interpretation: Nil

NA: Not Applicable

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Checked by
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Sr. Chemist

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TEST REPORT

Date: 19.06.2025

Name of the Customer

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Test Report No : **SAS/W-WW/06/2025/311**
Sample particulars : **Leachate Treated Water (Production)**
Sample quantity : 2 Liters
Collected by / date : SAS /14.06.2025
Sample Registration Date : 16.06.2025
Analysis Commenced on : 16.06.2025
Analysis Completed on : 19.06.2025
Sub Contract Testing : NA

S. No	Parameter	Method	Unit	Result
1	pH@26.9°C	APHA 24th Edition 4500 H^+ B	--	6.92
2	Color	APHA 24th Edition 2120 B	CU	< 5.0
3	Dissolved Solids(inorganic)	APHA 24th Edition 2540 C	mg/L	289.5
4	Total Suspended Solids	APHA 24th Edition, 2540 D	mg/L	<5.0
5	Total Alkalinity (as $CaCO_3$)	APHA 24th Edition 2320 B	mg/L	20
6	Total Hardness (as $CaCO_3$)	APHA 24th Edition 2340 C	mg/L	20
7	Calcium (as Ca)	APHA 24th Edition 3500 Ca B	mg/L	4.08
8	Magnesium (as Mg)	APHA 24th Edition 3500-Mg B	mg/L	2.43
9	Sulphate (as SO_4)	APHA 24th Edition 4500 SO_4 E	mg/L	6.61
10	Chloride (as Cl)	APHA 24th Edition 4500 Cl^- B	mg/L	25.6
11	Sodium as Na	APHA 24th Edition 3500 Na B	mg/L	10.3
12	Potassium as K	APHA 24th Edition 3500 K B	mg/L	<0.5
13	Nitrate Nitrogen	APHA 24th Edition 4500 NO_3 B	mg/L	<0.5
14	Iron as Fe	APHA 24th Edition 3500 Fe B	mg/L	< 0.1
15	Lead as Pb	APHA 24th Edition 3111B	mg/L	<0.5
16	Copper as Cu	APHA 24th Edition; 3111 B	mg/L	<0.1
17	Zinc as Zn	APHA 24th Edition; 3111 B	mg/L	<0.5

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TC-10984

TEST REPORT

Report No : SAS/W-WW/06/2025/311

S. No	Parameter	Method	Unit	Result
18	Chemical Oxygen Demand	APHA 24th Edition, 5220 B	mg/L	16
19	BOD	IS: 3025(Part-44) :2009	mg/L	2.6
20	Nickel as Ni	APHA 24th Edition 3111B	mg/L	<0.5
21	Cadmium Cd	APHA 24th Edition; 3111 B	mg/L	<0.5
22	Chromium as Cr	APHA 24th Edition; 3111 B	mg/L	<0.5
23	Mercury as Hg	APHA 24th Edition; 3111 B	mg/L	<0.01
24	Arsenic as As	APHA 24th Edition; 3111 B	mg/L	< 0.2
25	Total Ammonia as N	I.S :3025 (Part 34)	mg/L	<5.0
26	Phosphate as PO_4	APHA 24th Edition; 4500 P C	mg/L	<1.0
27	Silica as SiO2	APHA 24th Edition, 2012; 4500 SiO2 C	mg/L	<0.05
28	Oil & Grease	APHA 24th Edition2012: 5520 B	mg/L	BDL
29	Phenol	APHA 24th Edition 5530 D	mg/L	< 0.1

Opinion and interpretation: Nil NA: Not Applicable

BDL: Below Detectable Limit.

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Checked by
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TC-10984

TEST REPORT

Date: 19.06.2025

Name of the Customer

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Test Report No	**: SAS/W-WW/06/2025/310**
Sample particulars	**: Raw Leachate Water Sample**
Sample quantity	: 2 Liters
Collected by / date	: SAS /14.06.2025
Sample Registration Date	: 16.06.2025
Analysis Commenced on	: 16.06.2025
Analysis Completed on	: 19.06.2025
Sub Contract Testing	: NA

S. No	Parameter	Method	Unit	Result
1	pH@25.7°C	APHA 24th Edition 4500 H^+ B	--	7.64
2	Color	APHA 24th Edition 2120 B	Hazen	78.5
3	Dissolved Solids(inorganic)	APHA 24th Edition 2540 C	mg/L	14412
4	Total Suspended Solids	APHA 24th Edition, 2540 D	mg/L	1095
5	Total Alkalinity (as $CaCO_3$)	APHA 24th Edition 2320 B	mg/L	4940
6	Total Hardness (as $CaCO_3$)	APHA 24th Edition 2340 C	mg/L	1850
7	Calcium (as Ca)	APHA 24th Edition 3500 Ca B	mg/L	372
8	Magnesium (as Mg)	APHA 24th Edition 3500-Mg B	mg/L	223
9	Sulphate (as SO_4)	APHA 24th Edition 4500 SO_4 E	mg/L	1012
10	Chloride (as Cl)	APHA 24th Edition 4500 Cl^- B	mg/L	4350
11	Sodium as Na	APHA 24th Edition 3500 Na B	mg/L	4824
12	Potassium as K	APHA 24th Edition 3500 K B	mg/L	14.6
13	Nitrate Nitrogen	APHA 24th Edition 4500 NO_3 B	mg/L	25.3
14	Iron as Fe	APHA 24th Edition 3500 Fe B	mg/L	6.41
15	Lead as Pb	APHA 24th Edition 3111B	mg/L	<0.5
16	Copper as Cu	APHA 24th Edition; 3111 B	mg/L	<5.0
17	Zinc as Zn	APHA 24th Edition; 3111 B	mg/L	<10

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TC-10984

TEST REPORT

Report No : SAS/W-WW/06/2025/310

S. No	Parameter	Method	Unit	Result
18	Chemical Oxygen Demand	APHA 24th Edition, 5220 B	mg/L	18532
19	BOD	IS: 3025(Part-44) :2009	mg/L	4418
20	Nickel as Ni	APHA 24th Edition 3111B	mg/L	<0.5
21	Cadmium Cd	APHA 24th Edition; 3111 B	mg/L	<0.3
22	Chromium as Cr	APHA 24th Edition; 3111 B	mg/L	<0.5
23	Mercury as Hg	APHA 24th Edition; 3111 B	mg/L	<0.1
24	Arsenic as As	APHA 24th Edition; 3111 B	mg/L	<0.5
25	Ammonia as Nitrogen (NH_3-N)	APHA 24th Edition; 4500 NH_3 B, C	mg/L	440
26	Phosphate as PO_4	APHA 24th Edition; 4500 P C	mg/L	42.5
27	Silica as SiO2	APHA 24th Edition, 2012; 4500 SiO2 C	mg/L	364
28	Oil & Grease	APHA 24th Edition2012: 5520 B	mg/L	182
29	Phenol	APHA 24th Edition 5530 D	mg/L	<5.0
30	Cyanide as CN	APHA 24th Edition,2017,4500 CN C, E	mg/L	<0.5
31	Fluorides as F^-	APHA 24th Edition; 4500 F^- D	mg/L	<0.1

Opinion and interpretation: Nil

NA: Not Applicable

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Checked by
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Sr. Chemist

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TC-10984

TEST REPORT

Date: 19.06.2025

Name of the Customer
M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Test Report No	**: SAS/W-WW/06/2025/314**
Sample particulars	**: Reject Product Water**
Sample quantity	: 2 Liters
Collected by / date	: SAS /14.06.2025
Sample Registration Date	: 16.06.2025
Analysis Commenced on	: 16.06.2025
Analysis Completed on	: 19.06.2025
Sub Contract Testing	: NA

S. No	Parameter	Method	Unit	Result
1	pH@26.9°C	APHA 24th Edition 4500 H^+ B	--	7.37
2	Color	APHA 24th Edition 2120 B	Hazen	< 5.0
3	Dissolved Solids(inorganic)	APHA 24th Edition 2540 C	mg/L	14873
4	Total Suspended Solids	APHA 24th Edition, 2540 D	mg/L	<1.0
5	Total Alkalinity (as $CaCO_3$)	APHA 24th Edition 2320 B	mg/L	1042
6	Total Hardness (as $CaCO_3$)	APHA 24th Edition 2340 C	mg/L	1300
7	Calcium (as Ca)	APHA 24th Edition 3500 Ca B	mg/L	260
8	Magnesium (as Mg)	APHA 24th Edition 3500-Mg B	mg/L	158
9	Sulphate (as SO_4)	APHA 24th Edition 4500 SO_4 E	mg/L	2374
10	Chloride (as Cl)	APHA 24th Edition 4500 Cl^- B	mg/L	8536
11	Sodium as Na	APHA 24th Edition 3500 Na B	mg/L	4504
12	Potassium as K	APHA 24th Edition 3500 K B	mg/L	5.52
13	Nitrate Nitrogen	APHA 24th Edition 4500 NO_3 B	mg/L	12.4
14	Iron as Fe	APHA 24th Edition 3500 Fe B	mg/L	< 0.05
15	Lead as Pb	APHA 24th Edition 3111B	mg/L	<0.1
16	Copper as Cu	APHA 24th Edition; 3111 B	mg/L	<1.0
17	Zinc as Zn	APHA 24th Edition; 3111 B	mg/L	<5.0

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TC-10984

TEST REPORT

Report No : SAS/W-WW/06/2025/314

S. No	Parameter	Method	Unit	Result
18	Chemical Oxygen Demand	APHA 24th Edition, 5220 B	mg/L	14672
19	BOD	IS: 3025(Part-44) :2009	mg/L	3485
20	Nickel as Ni	APHA 24th Edition 3111B	mg/L	<0.5
21	Cadmium Cd	APHA 24th Edition; 3111 B	mg/L	<0.3
22	Chromium as Cr	APHA 24th Edition; 3111 B	mg/L	<0.5
23	Mercury as Hg	APHA 24th Edition; 3111 B	mg/L	<0.01
24	Arsenic as As	APHA 24th Edition; 3111 B	mg/L	< 0.2
25	Ammonia as Nitrogen (NH_3-N)	APHA 24th Edition; 4500 NH_3 B, C	mg/L	<5.0
26	Phosphate as PO_4	APHA 24th Edition; 4500 P C	mg/L	<5.0
27	Silica as SiO2	APHA 24th Edition, 2012; 4500 SiO2 C	mg/L	<0.05
28	Oil & Grease	APHA 24th Edition2012: 5520 B	mg/L	<5.0
29	Phenol	APHA 24th Edition 5530 D	mg/L	< 0.5
30	Cyanide as CN	APHA 24th Edition,2017,4500 CN C, E	mg/L	<0.01
31	Fluorides as F^-	APHA 24th Edition; 4500 F^- D	mg/L	<1.0
32	*Bacterial Count	APHA 24th Edition 9221 B	MPN/100ml	Absent
33	*Sulfur Resistant Bacteria	APHA 24th Edition 9221B	MPN/100ml	Absent

Opinion and interpretation: Nil NA: Not Applicable

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TC-10984

TEST REPORT

Date: 19.06.2025

Name of the Customer

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Test Report No	: **SAS/W-WW/06/2025/315**
Sample particulars	: **SLF Land Bore Water**
Sample quantity	: 2 Liters
Collected by / date	: SAS /14.06.2025
Sample Registration Date	: 16.06.2025
Analysis Commenced on	: 16.06.2025
Analysis Completed on	: 19.06.2025
Sub Contract Testing	: NA

S.No	Parameter	Unit	Method	Result	IS 10,500 Limits	
					Acceptable	Permissible
1	pH	--	APHA 24th Edition; 4500 H^+ B	6.69	6.5-8.5	No Relaxation
2	Total Dissolved Solids	mg/L	APHA 24th Edition; 2540 C	772	500	2000
3	Conductivity	µmho/ Cm	APHA 24th Edition; 2510 B	1236	--	--
4	Turbidity	NTU	APHA 24th Edition; 2130 B	<1.0	1	5
5	Color	Hazen	APHA 24th Edition; 2120 B	< 5.0	5	15
6	Total Hardness as $CaCO_3$	mg/L	APHA 24th Edition; 2340 C	450	200	600
7	Calcium as Ca	mg/L	APHA 24th Edition; 3500 Ca B	92.18	75	200
8	Magnesium as Mg	mg/L	APHA 24th Edition; 3500 Mg B	53.5	30	100
9	P-Alkalinity as $CaCO_3$	mg/L	APHA 24th Edition; 2320 B	Nil	--	--
10	M-Alkalinity as $CaCO_3$	mg/L	APHA 24th Edition; 2320 B	300	200	600
11	Chlorides as Cl^-	mg/L	APHA 24th Edition; 4500 Cl^- B	145	250	1000
12	Chemical Oxygen Demand	mg/L	APHA 24th Edition, 5220 B	52	--	--
13	Sodium as Na	mg/L	APHA 24th Edition; 3500 Na B	51.5	--	--
14	Potassium as K	mg/L	APHA 24th Edition; 3500 K B	4.73	--	--
15	Sulphates as SO_4^{-2}	mg/L	APHA 24th Edition; 4500 SO_4^{-2} E	60.2	200	400

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STAR ANALYTICAL SERVICES

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Laboratory Accredited by NABL as per ISO/IEC 17025:2017

MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TC-10984

TEST REPORT

Report No : SAS/W-WW/06/2025/315

S.No	Parameter	Unit	Method	Result	IS 10500 Limits	
					Acceptable	Permissible
16	Nitrate as NO_3	mg/L	APHA 24th Edition; 4500 NO_3^- B	2.48	45	No Relaxation
17	Iron as Fe	mg/L	APHA 24th Edition; 3500 Fe B	<0.1	0.3	No Relaxation
18	Fluorides as F^-	mg/L	APHA 24th Edition; 4500 F^- D	<0.5	1	1.5
19	Zinc as Zn, mg/L	mg/L	APHA 24th Edition,2017, 3111 B	< 0.5	5	15
20	Cadmium as Cd	mg/L	APHA 24th Edition,2017, 3111B	<0.003	0.003	No relaxation
21	Cyanide as CN	mg/L	APHA 24th Edition,2017, 4500 CN- C,	<0.05	0.05	No relaxation
22	Lead as Pb	mg/L	APHA 24th Edition,2017, 23111B	<0.01	0.01	No relaxation
23	Mercury as Hg	mg/L	APHA 24th Edition,2017, 3112 B	<0.001	0.001	No relaxation
24	Total Arsenic as As,	mg/L	APHA 24th Edition,2017, 3500 As B	<0.01	0.01	0.05
25	Selenium as Se	mg/L	APHA 24th Edition,2017, 3111 B	<0.01	0.01	No Relaxation
26	Silver as Ag	mg/L	APHA 24th Edition,2017, 3500-Ag	<0.01	0.1	No Relaxation
27	Aluminium as Al	mg/L	APHA 24th Edition,2017, 3500 Al B	<0.01	0.03	0.2
28	Silica as SiO_2	mg/L	APHA 24th Edition, 4500 SiO_2 C	36.3	--	--
29	*Total Coliform	MPN/100ml	APHA 24th Edition 9221B	Absent	Not Specified Shall not be detectable in any 100 ml sample	
30	*E-Coli	MPN/100ml	APHA 24th Edition 9221 B	Absent		
31	*Bacterial Count	MPN/100ml	APHA 24th Edition 9221 B	Absent		

Opinion and interpretation: Nil

NA: Not Applicable

1. Reports pertained only to the submitted sample.
2. Test reports shall not be reproduced except in full, without written approval of the laboratory

Note: The parameter marked with a star(*) are not under NABL scope.

-- End of the report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

18-21/1, 2nd Floor, Vengalayapalem, Guntur, Guntur dist., Andhra Pradesh - 522 005.
Cell : +91 70957 34733, +91 76610 44686, E-mail : info@staranalyticalservices.co.in

Star Analytical Services

STAR ANALYTICAL SERVICES

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TEST REPORT

TC-10984

Report No: SAS/BA/JUWML/06/2025-841

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Description	: **Bottom Ash**
Sample Quantity	: 01 Kg
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 14.06.2025
Analysis Commenced On	: 16.06.2025
Analysis Completed On	: 19.06.2025
Registration Number	: SAS/BA/JUWML/06/2025-946

TEST RESULTS

1. **Physical Composition of Municipal Solid Waste Incineration Slag.**

Composition	Molten slags	Masonry	Glass	Ceramics	Iron Metal	Nonferrous Metals	Cloth
Content (%)	20.5	22.8	6.5	4.7	5.9	7.8	0

2. **Main Chemical Composition of Municipal Solid Waste Incineration Slag:**

Composition	SiO_2	Al_2O_3	CaO	MgO	Fe_2O_3	TiO_2	MnO	SO_3	Cl^-	Alkali	Loss
Ratio (%)	63.8	0.20	2.1	2.5	0.50	0.05	0.02	<0.1	1.5	1.4	8.2

Star Analytical Services

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

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MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TEST REPORT

TC-10984

Report No: SAS/BA/JUWML/06/2025-841

3. Toxicity and Radioactivity of municipal Solid waste Incineration Slag/ Bottom Ash:

S. No	Parameter	Unit	Leaching Concentration/ Exposure Index	Maximum Leaching Concentration Allowable
1	Lead	mg/L	0.50	5.0
2	Cadmium	mg/L	0.02	1.0
3	Chromium	mg/L	0.48	6.0
4	Nickle	mg/L	<0.1	NA
5	Beryllium	mg/L	0.25	NA
6	Silver	mg/L	0.30	5.0
7	Mercury	mg/L	<0.1	0.2
8	Arsenic	mg/L	1.4	5.0
9	Hexavalent Chromium	mg/L	<0.1	NA
10	Alkyl Mercury	mg/L	<0.1	NA
11	Benzopyrene	mg/L	<0.002	0.01
12	Moisture Content	%	8.9	--

Method of Testing: TCLP Analysis, ASTM D 5233.

-- End of the report –

Checked by
Srinivas
Sr.Chemist

Alluraiah.V

Authorized Signatory
Alluraiah.V
Manager-Laboratory

18-21/1, 2nd Floor, Vengalayapalem, Guntur, Guntur dist., Andhra Pradesh - 522 005.
Cell : +91 70957 34733, +91 76610 44686, E-mail : info@staranalyticalservices.co.in

STAR ANALYTICAL SERVICES

(ENVIRONMENTAL MONITORING, TESTING & SERVICES)

Laboratory Accredited by NABL as per ISO/IEC 17025:2017

MOEF & CC Recognized Laboratory Under Environment (Protection) Act - 1986

TC-10984

TEST REPORT

Report No: SAS/BA/JUWML/06/2025-840

Name and Address of the Client:

M/s. Jindal Urban Waste Management (Vishakhapatnam) Ltd.,
Survey No 410 & 415,
Kapuluppada Dump Yard, Kapuluppada (V),
Bheemunipatnam (M), Vishakapatnam-531163.

Date of Report	: 19.06.2025
Sample Collected By	: Star Analytical Services
Sample Description	: **Fly Ash**
Sample Quantity	: 01 Kg
Sample Registration Date	: 16.06.2025
Sample Collection Date	: 14.06.2025
Analysis Commenced On	: 16.06.2025
Analysis Completed On	: 19.06.2025
Registration Number	: SAS/BA/JUWML/06/2025-945

TEST RESULTS

Metal	Hg	Zn	Cu	Pb	Ni	Cd	Cr
Identification standard of leaching toxicity of solid waste Mg/L	<0.1	0.25	0.05	0.50	< 0.1	0.14	0.58

Method of Testing: TCLP Analysis, ASTM D5233.

-- End of the report –

Checked by
Srinivas
Sr. Chemist

Authorized Signatory
Alluraiah.V
Manager-Laboratory

Annexure: VII

FORMAT FOR INFORMATION ON WASTE TO ENERGY (WtE) PLANTS (MSW INCINERATION BASED)

(a) General details of MSW incineration based WtE plants

S.No	State/UT	Name of WtE Plant with address	Validity of CTE/ CTO under Air & Water Act (Yes/No)	Authorization granted under SWM Rules (Yes/No)	Validity of Authorization	MSW Processing Capacity (TPD)	Power generation Capacity (MW)	Calorific value of waste received at WtE facility (Kcal/kg)	Additional fuel used if any in furnace, if any	Minimum Temperature maintained at secondary combustion chamber (degree Celsius)	Loss of Ignition (in Bottom ash) (% of dry weight)	Average bottom ash/fly ash generation (% w.r t MSW feed)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Andhra Pradesh	M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District	CTO order dated: 20.11.2023 with a validity period upto 30.11.2028	Yes	The SWM authorization obtained by the facility was expired on 31.12.2024 & applied for renewal which is under process.	1620	15	1500	No	**> 850 – <1000^{oC}**	**<5%**	Bottom ash Generation:26% (357 TPD) Fly ash Generation:2.3% (32.05 TPD)
2	Andhra Pradesh	M/s Jindal Urban Waste Management Guntur Limited, Sy.No.933&938, Naidupeta Dumpyard, Obulanaidupalm(V), Edlapadu (M), Palnadu Dist	CTO order dated:20.03.2024 with a validity period upto 28.02.2029	Yes	The SWM authorization obtained by the facility was expired on 31.05.2025 & applied for renewal which is under process.	1620	20	1500	No	**> 850 – <1000^{oC}**	**<5%**	Bottom ash Generation:22% (357 TPD) Fly ash Generation: 3% (50 TPD)

(b) Compliance status of WtE plants

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District

S.No.	Whether WtE plant monitored in last 5 years by SPCBs (Yes/No)	If yes, please provide date of monitoring	List of Parameters monitored as specified in Para B (Parameters for Treated Leachate n of schedule- II of SWM Rules, 2016	Parameters found non complying the norms	List of Parameters monitored as specified in Para C (Parameters for Incineration of schedule- II of SWM Rules, 2016	Parameters found non complying the norms	Details of analysis, disposal/utilization bottom ash.	Details of analysis disposal/utilization of fly ash.	Details of actions taken against the plants not complying with norms & provisions of SWM Rules, 2016 (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non- compliance)
1.	Yes. APPCB monitoring the facility for limited parameters (PM, & SOx) as per the available facilities in the lab.	a. The consolidated data of APPCB manual monitoring results for 5 years is enclosed. b. The facility is carrying out 3rd party monitoring. The dates of the monitoring by the facility are 16.06.2025, 20.09.2024, 25.04.2024, 17.10.2023 & 08.12.2022. The	APPCB is monitoring the following parameters for Effluent: pH, TSS, TDS, COD, BOD (3 days @ 27o C) a. The consolidated data of APPCB manual monitoring results for 5 years is enclosed. b. The industry has submitted 3rd party analysis reports which carried out list of Parameters specified in Para B for	As per the analysis reports the values are within the permissible limits of the standards.	APPCB is monitoring the following parameters for Emission: PM & SOx a. The consolidated data of APPCB manual monitoring results for 5 years is enclosed. b. The facility has installed CEMS for parameters PM, SOx & NOx and are being verified on daily basis. The	As per the analysis reports the values are within the permissible limits of the standards.	Analysis: The facility is carrying out 3rd party analysis. Latest report is enclosed. Disposal/utilization: Bottom ash is disposing to the low-lying areas.	Analysis: The facility is carrying out 3rd party analysis. Latest report is enclosed. Disposal/utilization: Fly ash disposing to the brick manufacturing units.	The facilities are ensuring compliance with stipulated norms and conditions. The Board is regularly verifying the compliance of the conditions stipulated. Further, the Board is verifying the CEMS data on daily basis. In case the parameters exceed the standards, the SMS alerts are being sent to the industry, automatically through online, so that they can rectify the defect immediately.

		latest report enclosed.	Treated Leachate of schedule- II of SWM Rules, 2016. Copy of the latest analysis reports are enclosed.		annual average of CEMS for 2022-2025 is enclosed. **c.** The industry has submitted 3rd party analysis reports which carried out list of Parameters specified in Para C for Incenerator of schedule- II of SWM Rules, 2016. Copy of the latest analysis reports are enclosed.				

M/s Jindal Urban Waste Management Guntur Limited, Sy.No.933&938, Naidupeta Dumpyard, Obulanaidupalm(V), Edlapadu (M), Palnadu Dist

S.No.	Whether WtE plant monitored in last 5 years by SPCBs (Yes/No)	If yes, please provide date of monitoring	List of Parameters monitored as specified in Para B (Parameters for Treated Leachate n of schedule- II of SWM Rules, 2016	Parameters found non complying the norms	List of Parameters monitored as specified in Para C (Parameters for Incineration of schedule- II of SWM Rules, 2016	Parameters found non complying the norms	Details of analysis, disposal/utilization bottom ash.	Details of analysis disposal/utilization of fly ash.	Details of actions taken against the plants not complying with norms & provisions of SWM Rules, 2016 (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non- compliance)
1.	Yes. APPCB monitoring the facility for limited parameters (PM, & SOx) as per the available facilities in the lab.	a. The consolidated data of APPCB manual monitoring results for 5 years is enclosed. b. The facility is carrying out 3rd party monitoring. The dates of the monitoring by the facility are 16.06.2025, 20.09.2024, 25.04.2024, 17.10.2023 & 08.12.2022. The	APPCB is monitoring the following parameters for Effluent: pH, TSS, TDS, COD, BOD (3 days @ 27o C) a. The consolidated data of APPCB manual monitoring results for 5 years is enclosed. b. The industry has submitted 3rd party analysis reports which carried out list of Parameters specified in Para B	As per the analysis reports the PM values are within the permissible limits of the standards prescribed in the consent order.	APPCB is monitoring the following parameters for Emission: PM & SOx a. The consolidated data of APPCB manual monitoring results for 5 years is enclosed. b. The facility has installed CEMS for parameters PM, SOx & NOx and are being verified on daily basis. The annual average of	As per the analysis reports the values are within the permissible limits of the standards.	Analysis: The facility is carrying out 3rd party analysis. Latest report is enclosed. Disposal/utilization: Bottom ash is disposing to the low-lying areas. Research Work is under process. Planning of utilising of Bottom ash and Fly ash as bricks and substitute for construction material	Analysis: The facility is carrying out 3rd party analysis. Latest report is enclosed. Disposal/utilization: Fly ash disposing to the brick manufacturing units and substitute for construction material.	The facilities are ensuring compliance with stipulated norms and conditions. The Board is regularly verifying the compliance of the conditions stipulated. Further, the Board is verifying the CEMS data on daily basis. In case the parameters exceed the standards, the SMS alerts are being sent to the industry, automatically through online, so that they can rectify the defect immediately.

		latest report enclosed.	for Treated Leachate of schedule- II of SWM Rules, 2016. Copy of the latest analysis reports are enclosed.		CEMS for 2022-2025 is enclosed. **c.** The industry has submitted 3rd party analysis reports which carried out list of Parameters specified in Para C for Incinerator of schedule- II of SWM Rules, 2016. Copy of the latest analysis reports are enclosed.				

ANDHRA PRADESH POLLUTION CONTROL BOARD
Paryavaran Bhavan, APIIC Colony Road,
Gurunanak Colony, Autonagar, Vijayawada- 520007
Website: https://pcb.ap.gov.in

Lr No: APPCB-11022/525/2024-TEC-CTO-APPCB Dt. 31-07-2025

To
The Chairman,
Central Pollution Control Board (CPCB),
Parivesh Bhavan,
East Arjun Nagar, Delhi – 110032

Sir,

Sub: APPCB – Direction under Section 5 of the Environmental (Protection) Act, 1986 to submit action report & compliance status of the Waste to Energy (WtE) plants in compliance of Hon'ble Directions dated 16.04.2025 in O.A. No.536 of 2024 related to Waste to Energy Plants – Reply submitted -reg.

Ref: CPCB letter No. CM-13011/125/2024-LAW-HO-CPCB-HO, dated 09/10.07.2025.

***

It is to submit that, the CPCB has issued direction under Section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in compliance of Hon'ble Directions dated 16.04.2025 in O.A. No.536 of 2024 related to Waste to Energy Plants.

In this regard, the following are submitted:

Sl.No.	Direction	Reply
1.	To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and directions of Hon'ble NGT dated 11.04.2025	The Board addressed a letter to the Director & Divisional Head (UPC-II), CPCB on 05.11.2024 communicated the data related to Waste to Energy (WtE) plants in the State of Andhra Pradesh**. (Annexure-I)**
2.	To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorisation issued by Andhra Pradesh SPCB	**M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL)** The Consent to Operate of the facility is valid upto 30.11.2028 **(Annexure-II-A)**. The MSW authorization issued under SWM Rules, 2016 was expired on 31.12.2024.

		M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Palnadu district (Erstwhile Guntur District): JUWMGL The Consent to Operate of the facility is valid upto 28.02.2029 **(Annexure-II-B)**. The MSW authorization issued under SWM Rules, 2016 was expired on 31.05.2025. The above facilities have applied for renewal of authorizations. The applications of both the facilities were placed in CTO Committee meeting held on 26.06.2025. After review, the Committee sought certain clarifications from the facilities. The facilities submitted the clarifications. The issue of MSW authorizations for the above said Waste to Energy plants will be placed in the ensuing CTO committee meeting to take a suitable decision regarding issue of authorizations under SWM Rules, 2016.
3.	To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under Clause 21 of SMW Rules, 2016	**M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL) & M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Palnadu district (Erstwhile Guntur District): JUWMGL** The above facilities receives Municipal Solid Waste (MSW) from Urban Local Bodies (ULBs) with a calorific value of above 1500 Kcal/Kg. The MSW is stored in a pit for 6-7 days, which allows removal of moisture and makes self-drying, potentially increasing the calorific value further.
4.	To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash / fly ash is utilised for beneficial purposes and that found hazardous is disposed off in Secured Landfills.	**M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL):** The facility carried out Toxicity Characteristic Leaching Procedure (TCLP) test for bottom ash & fly ash by 3rd party on 16.06.2025 and the reports are enclosed **(Annexure-III-A)**. JUWMVL supplies ash for road and other construction projects after conducting TCLP analysis. **M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V),**

		Edlapadu (M), Palnadu district (Erstwhile Guntur District): JUWMGL The facility carried out Toxicity Characteristic Leaching Procedure (TCLP) test for bottom ash & fly ash by 3rd party on 13.06.2025 and the reports are enclosed **(Annexure-III-B)**. JUWMGL supplies ash for road and other construction projects after conducting TCLP analysis. Further, JUWMGL associated with PSG college of Applied research and technology and completed research for utilization of Bottom and Fly ash for Brick manufacturing. Also JUWMGL is collaborating with other vendors to establish a brick manufacturing plant for residue utilization.
5.	To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-complaint with the provisions of the SWM Rules.	**M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL) & M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Palnadu district (Erstwhile Guntur District): JUWMGL** The above facilities are ensuring compliance with stipulated norms and conditions. The Board is regularly verifying the compliance of the conditions stipulated. Further, the Board is verifying the CEMS data on daily basis. In case the parameters exceed the standards, the SMS alerts are being sent to the industry, automatically through online, so that they can rectify the defect immediately. And also with the upcoming establishment of the brick manufacturing plant at JUWMGL, it will achieve total residue management, effectively addressing all aspects of waste utilization.
6.	To ensure that all WtE plants have Online Monitoring systems installed in their Air Pollution Control Systems and are connected with CPCB and Andhra Pradesh SPCB server to ensure round-the-clock surveillance of the WtE plants	**M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL):** JUWMVL installed Continuous Emission Monitoring System (CEMS) to the incinerator stack and the same connected to CPCB and APPCB websites on 23.09.2022. **M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Palnadu district (Erstwhile**

		Guntur District): JUWMGL JUWMGL installed Continuous Emission Monitoring System (CEMS) to the incinerator stack and the same connected to CPCB and APPCB websites on 01.02.2022. The above facilities have installed CEMS for parameters PM, SOx & NOx and are being verified on daily basis. The annual average of CEMS from 2022-2025 is enclosed **(Annexure-IV)**.
7.	To ensure that all the WtE plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for non-compliance be submitted to CPCB in the prescribed format.	**M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District (JUWMVL) & M/s Jindal Urban Waste Management (Guntur) Limited, Sy. No. 933 & 938, Kondaveedu (V), Edlapadu (M), Palnadu district (Erstwhile Guntur District): JUWMGL** APPCB conducted monitoring & analysis of samples of ambient air, stack & effluents of the above facilities. The Parameters monitored by the Board are as follows: **Ambient air:** PM_{10} **Stack Emissions:** SO_2 & Suspended Particulate Matter **Effluents:** pH, Total Suspended Solids, Total Dissolved Solids, Chemical Oxygen Demand & Bio-chemical Oxygen Demand. The consolidated Statement of analysis data of monitoring conducted by APPCB during 2021 to 2025 at the above Waste to Energy Plants are herewith enclosed **(Annexure-V)**. **Monitoring of Dioxins & Furans**: • APPCB approached CSIR-NIIST, Thiruvananthapuram towards undertaking monitoring of Dioxins & Furans. • M/s. JUWMVL & M/s. JUWMGL are carrying out 3rd party monitoring for all the parameters prescribed by the Board including Dioxins & Furans. The copies of latest 3rd party analysis reports of M/s.

		JUWMVL & M/s. JUWMGL respectively are herewith are enclosed **(Annexure-VI–A & VI-B)**.

Further, the information as stipulated under Rule 16(4) including complete action taken report in the prescribed report is herewith enclosed for kind perusal **(Annexure-VII).**

Yours faithfully

S SRI SARAVANAN
MEMBER SECRETARY

Encl: As above

Copy submitted to the Member Secretary, Central Pollution Control Board, Parivesh Bhavan, East Arjun Nagar, Delhi – 110032 for information.

Copy to the PS to Chairman, APPCB for information.

Digitally signed by
SHANMUGAM SRISARAVANAN
Date: 31-07-2025 02:29:48

1253

HARYANA STATE POLLUTION CONTROL BOARD
C-11, SECTOR-6, PANCHKULA
Website – www.hspcb.org.in
E-Mail:hspcbsolidwaste@gmail.com
Ph:0172-2577870-873

To

The Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032.

Subject: **Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & Compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in O.A No. 536 of 2024 related to Waste to Energy Plants.**

Reference: Your office letter No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 09.07.2025 on the subject noted above.

In this regard, the point-wise reply to the aforementioned letter are as below:

Sr. No.	Information as desired by the CPCB vide letter dated 10.07.2025	Reply
a.	To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.2025	Compliance report already sent to CPCB vide letter No. HSPCB/SWM/2025/5042 dated 15.04.2025.
b.	To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Haryana, SPCB	• CTO Valid upto 30/09/2025 • Authorization valid upto 30/09/2025
c.	To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016	**Calorific value (Kcal /kg) :** 1500-1600 Kcal/Kg (feeding waste calorific value)
	To ensure that Bottom ash and fly ash is analysed for relevant	Unit has provided secured land fill site with leachate proof HDPE liners with Geo

d.	parameters and nonhazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills	membrane within its own premises for proper scientific disposal of Bottom ash/ fly ash. TCLP test of ash is confirms that the Ash produced in the plant is non-hazardous nature.
e	To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non- compliant with the provisions of the SWM Rules Rules	Date of monitoring: 28.12.2021, 10.01.2023, 30.09.2023, 15.03.2024, 10.6.2024, 24.3.2025
f	To ensure that all WtE plants have Online Monitoring systems installed in their Air Pollution Control Systems and are connected with CPCB and Haryana, SPCB server to ensure round-the-clock surveillance of the WE plants	WtE plant has installed Online Monitoring systems in the Air Pollution Control Systems and is connected with CPCB and HSPCB server.
g.	To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format (Annexure I).	Desired information in prescribed Format is attached as Annexure-I

Submitted for you kind information, please.

Digitally signed by MONIKA
Date: 08-08-2025 12:02:35

Scientist-C (SWM)
For Member Secretary

FORMAT FOR INFORMATION ON WASTE TO ENERGY (WtE) PLANTS (MSW INCINERATION BASED)

(a) General details of MSW incineration based WtE plants

S.N	State /UT	Name of WtE Plant with address	Validity of CTE/ CTO under Air & Water Act (Yes/No)	Authorization granted under SWM Rules (Yes/No)	Validity of Authorization	MSW Processing Capacity TPD	Power generation Capacity (MW)	Calorific value of waste received at WtE facility (Kcal/kg)	Additional fuel used if any in furnace, if any	Minimum Temperature maintained at secondary combustion chamber (degree Celsius)	Loss of Ignition (in Bottom ash) (% of dry weight)	Average bottom ash/fly ash generation (% w.r.t MSW feed)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Sonipat (Haryana)	Integrated Solid Waste treatment and disposal facility at village Tajpur, Sonipat (M/S JBM Environment Management Private Limited)	CTO Valid upto 30/09/2025	Yes	Valid upto 30/09/2025	750 TPD	8 MW	1500-1600 Kcal/Kg (feeding waste calorific value)	Nil	**750**	**3% - 5%**	15% - 20%

(b) Compliance status of WtE plants

S.No.	Whether WtE plant monitored in last 5 years by SPCBs (Yes/ No)	If yes, please provide date of monitoring	List of Parameters monitored as specified in Para B (Parameters for Treated Leachate of schedule- II of SWM Rules, 2016	Parameters found non complying the norms	List of Parameters monitored as specified in Para C (Parameters for Incineration of schedule- II of SWM Rules, 2016	Parameters found non complying the norms	Details of analysis, disposal/ utilization bottom ash.	Details of analysis disposal/utilization of fly ash.	Details of actions taken against the plants not complying with norms & provisions of SWM Rules, 2016 (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Yes	28.12.2021, 10.01.2023, 30.09.2023, 15.03.2024, 10.6.2024, 24.3.2025	Yes, All the required Emissions& treated leachate parameters are being monitored regularly by the unit through CPCB & NABL accreted laboratory and HSPCB. The emission parameters being monitored are: Particulate, HCL, SO2, CO, TOC, HF, Nox, Dioxins & Furans, Cd+Th+their compounds, Hg an its compounds, Sb+As+Pb+Cr+Co+ Co+Mn+Ni+V+their compounds. Treated leachate parameters being monitored are: Suspended Solids Dissolved Solids, pH, Ammonical Nitrogen,Total Kjeldahl nitrogen, Biochemical oxygen demand, Chemical oxygen demand, Arsenic, Mercury, Lead, Cadmium, Total Chromium, Copper, Zinc, Nickel, Cyanide, Chloride, Fluoride, Phenolic compounds.	Unit is complying as on today	All the required parameters of Emission & treated leachate are meeting with stipulated standards.	Nil	Unit has provided secured land fill site with leachate proof HDPE liners with Geo membrane within its own premises for proper scientific disposal of Bottom ash/ fly ash.	Unit has provided secured land fill site with leachate proof HDPE liners with Geo membrane within its own premises for proper scientific disposal of Bottom ash/ fly ash.	Unit is complying as on today.

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TEST REPORT

Issued To:

Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250325034**
ULR No.	:	**TC781125100012597F**
Party's Ref No.	:	Nil
Booking Date	:	25/03/2025
Period of Testing	:	25/03/2025To 01/04/2025
Reporting Date	:	01/04/2025

Sample Description : Ambient Air Quality Monitoring

Type of Industry	:	MSW Treatment Plant
Date & time of sampling	:	24/03/2025 (09:30 Hrs) to 25/03/2025 (09:30 Hrs)
Sample Location	:	**Near Main Gate**
Instrument used	:	RDS Model APM- 460 (Sr. No. 764 A 24)
Instrument Calibration Status	:	Calibrated (upto 15.12.2025)
Purpose of analysis	:	Monitoring
Sampling Method	:	HTH/AP/SAP-01
Sample collected/ supplied by	:	By our Lab. Representative

A. Observations:

1. Sampling flow rate (Avg.)	:	1.20 m3/min
2. Total volume of air sampled	:	1728.00 m3
3. Period of sampling	:	24 Hrs

S.N.	Test Parameters	Units	Result	Standard Limits (NAAQS)	Test Method
Discipline - Chemical, Group - Atmospheric Pollution					
1	Particulate Matter (PM10)	µg/ m3	85.65	100 max	IS 5182 (Part-23) : 2006
2	Particulate Matter (PM 2.5)	µg/ m3	43.90	60 max	IS 5182 (Part-24) : 2019
3	Sulphur Dioxide (SO2)	µg/ m3	22.69	80 max	IS 5182 (Part-2) : 2001
4	Nitrogen Dioxide (NO2)	µg/ m3	38.78	80 max	IS 5182 (Part-6) : 2006
5	Ammonia (NH3)	µg/ m3	26.93	400 max	IS 5182 (Part-25) : 2018
6	Ozone (O3)	µg/ m3	20.44	100 max	IS 5182 (Part-9) : 1974
7	Carbon Monoxide (CO)	mg/ m3	0.802	4 max	IS 5182 (Part-10) : 1999
8	Benzene (C6H6)	µg/ m3	BLQ (LOQ-0.52)	5 max	IS 5182 (Part-11) : 2006
9	Benzo - Pyrene (BaP)	ng/ m3	BLQ (LOQ-0.1)	1 max	IS 5182 (Part-12) : 2004
10	Lead (Pb)	µg/ m3	BLQ (LOQ-0.02)	1 max	IS 5182 (Part-22) : 2004
11	Nickel (Ni)	ng/ m3	BLQ (LOQ:2)	20 max	IS 5182 (Part-26): 2020
12	Arsenic (As)	ng/ m3	BLQ (LOQ:1)	6 max	HTH/INS-03/STP-33

End of Report

Remarks : Standard limits are as per CPCB notification Nov. 2009
BLQ : Below limit of Quantification / LOQ : Limit of Quantification
In the Presence of Ravinder Yadav AEE (HSPCB RO Sonipat)

31.04.2025
Review by

Shobhit Sengar
Sr. Analyst (Chemical)

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5. Samples will be destroyed after one month from the date of issue of test report unless otherwise specified. 6. Sample not drawn by HTH unless otherwise specified.
7. This declaration is not covered under the scope of accreditation. 8. Any corrections invalidate this report.

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TEST REPORT

Issued To:

Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324028**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

Sample Description	:	Fly Ash Sample (TCLP)
Type of Industry	:	MSW Treatment Plant
Sample type	:	**Fly Ash Sample (TCLP)**
Date of sampling	:	24/03/2025
Date of receipt of sample	:	24/03/2025
Sample quantity	:	500 gm
Purpose of analysis	:	Monitoring
Sample collected/ supplied by	:	By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Units	Results	Standard Limit as per Schedule II	Test Method
Discipline : Chemical, Group : Pollution & Environment (Solid Waste)					
1	Arsenic (as As)	mg/l	BLQ(LOQ:0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
2	Barium (as Ba)	mg/l	BLQ(LOQ:0.1)	100 Max	EPA 1311: 1992, HTH/INS-03/STP-30
3	Cadmium (as Cd)	mg/l	BLQ(LOQ:0.1)	1 Max	EPA 1311: 1992, HTH/INS-03/STP-30
4	Chromium (as Cr)	mg/l	BLQ(LOQ:0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
5	Lead (as Pb)	mg/l	BLQ(LOQ:0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
6	Manganese (as Mn)	mg/l	BLQ(LOQ:0.1)	10 Max	EPA 1311: 1992, HTH/INS-03/STP-30
7	Mercury (as Hg)	mg/l	BLQ(LOQ:0.001)	0.2 Max	EPA 1311: 1992, HTH/INS-03/STP-30
8	Selenium (as se)	mg/l	BLQ(LOQ:0.1)	1 Max	EPA 1311: 1992, HTH/INS-03/STP-30
9	Silver (as Ag)	mg/l	BLQ(LOQ:0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
10	Antimony (as Sb)	mg/l	BLQ(LOQ:0.1)	15 Max	EPA 1311: 1992, HTH/INS-03/STP-30
11	Cobalt (as Co)	mg/l	BLQ(LOQ:0.1)	80 Max	EPA 1311: 1992, HTH/INS-03/STP-30
12	Copper (as Cu)	mg/l	BLQ(LOQ:0.1)	25 Max	EPA 1311: 1992, HTH/INS-03/STP-30
13	Molybdenum (as Mo)	mg/l	BLQ(LOQ:0.1)	350 Max	EPA 1311: 1992, HTH/INS-03/STP-30
14	Nickel (as Ni)	mg/l	BLQ(LOQ:0.1)	20 Max	EPA 1311: 1992, HTH/INS-03/STP-30
15	Vanadium (as V)	mg/l	BLQ(LOQ:0.1)	24 Max	EPA 1311: 1992, HTH/INS-03/STP-30
16	Zinc (as Zn)	mg/l	BLQ(LOQ:0.1)	250 Max -	EPA 1311: 1992, HTH/INS-03/STP-30
17	Organic Carbon	%wt/wt	0.55	-	IS:2720 (Part-22) : 1972
18	Loss On Ignition	%wt/wt	7.43	-	EPA 1311: 1992, HTH/EP/STP-08

End of Report

Remarks : Standard Limit as per CPCB Hazardous Waste Schedule II

BLQ : Below limit of Quantification / LOQ : Limit of Quantification

HTH LABORATORIES PVT. LTD. PANIPAT

Md. Asfak Ansari
Sr. Manager (Env.)

Review by 31-03-25

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TEST REPORT

Issued To:

Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324028**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

Sample Description	:	Fly Ash Sample (TCLP)
Type of Industry	:	MSW Treatment Plant
Sample type	:	**Fly Ash Sample (TCLP)**
Date of sampling	:	24/03/2025
Date of receipt of sample	:	24/03/2025
Sample quantity	:	500 gm
Purpose of analysis	:	Monitoring
Sample collected/ supplied by	:	By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Units	Results	Standard Limit as per Schedule II	Test Method
Discipline : Chemical, Group : Pollution & Environment (Solid Waste)					
1	Benzene	mg/l	BLQ(LOQ:0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
2	Carbon tetrachloride	mg/l	BLQ(LOQ:0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
3	Chlordane	mg/l	BLQ(LOQ:0.01)	0.03 Max	EPA 1311: 1992, HTH/INS-02/STP-32
4	Chlorobenzene	mg/l	BLQ(LOQ:0.01)	100 Max	EPA 1311: 1992, HTH/INS-02/STP-32
5	Chloroform	mg/l	BLQ(LOQ:0.01)	6 Max	EPA 1311: 1992, HTH/INS-02/STP-32
6	Cresol (o,m,p)	mg/l	BLQ(LOQ:0.01)	4200 Max	EPA 1311: 1992, HTH/INS-02/STP-32
7	2,4-D	mg/l	BLQ(LOQ:0.01)	10 Max	EPA 1311: 1992, HTH/INS-01/STP-13
8	1,4-Dichlorobenzene	mg/l	BLQ(LOQ:0.01)	7.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
9	1,2-Dichloroethane	mg/l	BLQ(LOQ:0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
10	1,1-Dichloroethylene	mg/l	BLQ(LOQ:0.01)	0.7 Max	EPA 1311: 1992,HTH/INS-02/STP-32
11	2,4-Dinitrotoluene	mg/l	BLQ(LOQ:0.01)	30 Max	EPA 1311: 1992, HTH/INS-02/STP-32
12	Endrin	mg/l	BLQ(LOQ:0.01)	0.02 Max	EPA 1311: 1992, HTH/INS-02/STP-33
13	Heptachlor	mg/l	BLQ(LOQ:0.01)	0.008 Max	EPA 1311: 1992, HTH/INS-02/STP-33
14	Hexachlorobenzene	mg/l	BLQ(LOQ:0.01)	30 Max	EPA 1311: 1992, HTH/INS-02/STP-33
15	Hexachlorobutadiene	mg/l	BLQ(LOQ:0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-33
16	Hexachloroethane	mg/l	BLQ(LOQ:0.01)	3 Max	EPA 1311: 1992, HTH/INS-02/STP-33
17	Lindane	mg/l	BLQ(LOQ:0.01)	0.4 Max	EPA 1311: 1992, HTH/INS-02/STP-33
18	Methoxychlor	mg/l	BLQ(LOQ:0.01)	10 Max	EPA 1311: 1992, HTH/INS-02/STP-33
19	Methyl ethyl ketone	mg/l	BLQ(LOQ:0.01)	200 Max	EPA 1311: 1992, HTH/INS-02/STP-33
20	Nitrobenzene	mg/l	BLQ(LOQ:0.01)	2 Max	EPA 1311: 1992, HTH/INS-02/STP-32
21	Pentachlorophenol	mg/l	BLQ(LOQ:0.01)	100 Max	EPA 1311: 1992, HTH/INS-02/STP-32
22	Phenol	mg/l	BLQ(LOQ 0.05)	5 Max	EPA 1311: 1992, IS 3025(P-43/Sec-1): 2022
23	Polychlorinated biphenyls (PCBs)	mg/l	BLQ(LOQ:0.01)	50 Max	EPA 1311: 1992, HTH/INS-02/STP-33

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Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324028**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

TEST RESULTS

S.N.	Test Parameters	Units	Results	Standard Limit as per Schedule II	Test Method
24	Pyridine	mg/l	BLQ(LOQ:0.01)	35 Max	EPA 1311: 1992, HTH/INS-02/STP-32
25	Tetrachloroethylene	mg/l	BLQ(LOQ:0.01)	0.7 Max	EPA 1311: 1992, HTH/INS-02/STP-32
26	Toxaphene	mg/l	BLQ(LOQ:0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
27	Trichloroethylene	mg/l	BLQ(LOQ:0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
28	Trichlorophenol	mg/l	BLQ(LOQ:0.01)	400 Max	EPA 1311: 1992, HTH/INS-02/STP-32
29	2,4,6-Trichlorophenol	mg/l	BLQ(LOQ:0.01)	2 Max	EPA 1311: 1992, HTH/INS-02/STP-32

End of Report

Remarks : Standard Limit as per CPCB Hazardous Waste Schedule II

BLQ : Below limit of Quantification / LOQ : Limit of Quantification

HTH LABORATORIES PVT. LTD. Auth. Sign. PANIPAT

Md. Asfak Ansari
Sr. Manager (Env.)

Review by 31-03-25

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TEST REPORT

Issued To:

Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324026**
ULR No.	:	**TC781125100012562F**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

Sample Description	:	Treated Leachate Water Sample
Type of Industry	:	MSW Treatment Plant
Sample type	:	**Treated Leachate Water Sample**
Date of sampling	:	24/03/2025
Date of receipt of sample	:	24/03/2025
Sample Location	:	NS
Sample quantity	:	2 Ltr.
Purpose of analysis	:	Monitoring
Sampling Method	:	HTH/EP/SAP-01
Sample collected/ supplied by	:	By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Unit	Result	Test Method
Discipline: Chemical, Group: Pollution & Environment				
1	pH	--	7.81	IS 3025 (Part 11): 2022
2	Total Suspended Solids	mg/l	57.0	IS 3025 (Part 17): 2022
3	Total Dissolved Solids	mg/l	3035.0	IS 3025 (Part 16): 2023
4	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/l	49.0	IS 3025 (Part 44): 2023
5	Chemical Oxygen Demand(COD)	mg/l	198.0	IS 3025 (Part 58): 2023
6	Oil & Grease	mg/l	12.6	IS 3025 (Part 39): 2021
7	Ammonical Nitrogen (as N)	mg/l	113.9	IS 3025 (Part 34/Sec-1): 2023
8	Total Kjeldahl Nitrogen (as N)	mg/l	252.0	IS 3025 (Part 34/Sec-1): 2023
9	Cyanide (as CN)	mg/l	BLQ(LOQ 0.02)	IS 3025 (Part 27/Sec-1): 2021
10	Fluoride (as F)	mg/l	2.4	APHA (24th Edition) 4500F-2023
11	Hexavalent Chromium (as Cr+6)	mg/l	BLQ(LOQ 0.05)	IS 3025 (Part 52): 2003
12	Phenolic Compound (C6H5OH)	mg/l	BLQ(LOQ 0.05)	IS 3025 (Part 43/Sec-1): 2022
13	Chloride (as Cl)	mg/l	939.7	IS 3025 (Part 32): 1988
14	Arsenic (as As)	mg/l	BLQ(LOQ: 0.1)	HTH/INS-03/STP-29
15	Cadmium (as Cd)	mg/l	BLQ(LOQ: 0.1)	HTH/INS-03/STP-29
16	Copper (as Cu)	mg/l	BLQ(LOQ: 0.1)	HTH/INS-03/STP-29
17	Lead (as Pb)	mg/l	BLQ(LOQ: 0.01)	HTH/INS-03/STP-29
18	Mercury (as Hg)	mg/l	BLQ(LOQ: 0.001)	HTH/INS-03/STP-29
19	Nickel (as Ni)	mg/l	BLQ(LOQ: 0.1)	HTH/INS-03/STP-29
20	Zinc (Zn)	mg/l	BLQ(LOQ: 0.1)	HTH/INS-03/STP-29

End of Report

Remarks : BLQ : Below limit of Quantification / LOQ : Limit of Quantification

Review by 31-03-25

HTH LABORATORIES PVT. LTD. Auth. Sign 31/03/25

Md. Asfak Ansari
Sr. Manager (Env.)

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Plot No. 50-C, Sector-25 Part-II, HUDA, PANIPAT-132 103 (HR.)

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Web Site : www.hthlabs.com, e-mail : haryanatesthousecs@gmail.com, testing@hthlabs.com

TC-7811

An ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Certified Laboratory

TEST REPORT

Issued To:

Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324029**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

Sample Description	:	Botton Ash Sample (TCLP)
Type of Industry	:	MSW Treatment Plant
Sample type	:	**Botton Ash Sample (TCLP)**
Date of sampling	:	24/03/2025
Date of receipt of sample	:	24/03/2025
Sample quantity	:	500 gm
Purpose of analysis	:	Monitoring
Sample collected/ supplied by	:	By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Units	Results	Standard Limit as per Schedule II	Test Method
Discipline : Chemical, Group : Pollution & Environment (Solid Waste)					
1	Arsenic (as As)	mg/l	BLQ (LOQ : 0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
2	Barium (as Ba)	mg/l	BLQ (LOQ : 0.1)	100 Max	EPA 1311: 1992, HTH/INS-03/STP-30
3	Cadmium (as Cd)	mg/l	BLQ (LOQ : 0.1)	1 Max	EPA 1311: 1992, HTH/INS-03/STP-30
4	Chromium (as Cr)	mg/l	BLQ (LOQ : 0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
5	Lead (as Pb)	mg/l	BLQ (LOQ : 0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
6	Manganese (as Mn)	mg/l	BLQ (LOQ : 0.1)	10 Max	EPA 1311: 1992, HTH/INS-03/STP-30
7	Mercury (as Hg)	mg/l	BLQ (LOQ : 0.001)	0.2 Max	EPA 1311: 1992, HTH/INS-03/STP-30
8	Selenium (as se)	mg/l	BLQ (LOQ : 0.01)	1 Max	EPA 1311: 1992, HTH/INS-03/STP-30
9	Silver (as Ag)	mg/l	BLQ (LOQ : 0.1)	5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
10	Antimony (as Sb)	mg/l	BLQ (LOQ : 0.1)	15 Max	EPA 1311: 1992, HTH/INS-03/STP-30
11	Cobalt (as Co)	mg/l	BLQ (LOQ : 0.1)	80 Max	EPA 1311: 1992, HTH/INS-03/STP-30
12	Copper (as Cu)	mg/l	BLQ (LOQ : 0.1)	25 Max	EPA 1311: 1992, HTH/INS-03/STP-30
13	Molybdenum (as Mo)	mg/l	BLQ (LOQ : 0.1)	350 Max	EPA 1311: 1992, HTH/INS-03/STP-30
14	Nickel (as Ni)	mg/l	BLQ (LOQ : 0.1)	20 Max	EPA 1311: 1992, HTH/INS-03/STP-30
15	Vanadium (as V)	mg/l	BLQ (LOQ : 0.1)	24 Max	EPA 1311: 1992, HTH/INS-03/STP-30
16	Zinc (as Zn)	mg/l	BLQ (LOQ : 0.1)	250 Max	EPA 1311: 1992, HTH/INS-03/STP-30
17	Organic Carbon	%wt/wt	0.19	-	IS:2720 (Part-22) : 1972
18	Loss On Ignition	%wt/wt	2.87	-	EPA 1311: 1992, HTH/EP/STP-08

End of Report

Remarks : Standard Limit as per CPCB Hazardous Waste Schedule II

BLQ : Below limit of Quantification / LOQ : Limit of Quantification

Review by 31-03-25

HTH LABORATORIES PVT. LTD. PANIPAT

Md. Asfak Ansari

Sr. Manager (Env.)

Note : 1. Test report shall not be reproduce in whole or in part and cannot be used as an evidence in the court of Law. 2. The results contained in this test report pertains only to the sample tested not for the whole lot.
3. This report is only for your guidance, and not for legal purposes, commercial decision, and for advertisement. 4. Total liability of HTH Laboratories Pvt. Ltd. is limited to the invoiced amount only.
5. Samples will be destroyed after one month from the date of issue of test report unless otherwise specified. 6. Sample not drawn by HTH unless otherwise specified.
7. The details received from customer on its own responsibility. Lab does not confirm about it and hence does not takes any responsibility whatsoever.

DOC No. HTH/QF/7.8

HTH Laboratories Pvt. Ltd.

(Formerly Known as Haryana Test House & Consultancy Services)

Plot No. 50-C, Sector-25 Part-II, HUDA, PANIPAT-132 103 (HR.)

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TEST REPORT

Issued To:

Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324029**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

Sample Description	:	Botton Ash Sample (TCLP)
Type of Industry	:	MSW Treatment Plant
Sample type	:	**Botton Ash Sample (TCLP)**
Date of sampling	:	24/03/2025
Date of receipt of sample	:	24/03/2025
Sample quantity	:	500 gm
Purpose of analysis	:	Monitoring
Sample collected/ supplied by	:	By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Units	Results	Standard Limit as per Schedule II	Test Method
Discipline : Chemical, Group : Pollution & Environment (Solid Waste)					
1	Benzene	mg/l	BLQ (LOQ : 0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-03/STP-30
2	Carbon tetrachloride	mg/l	BLQ (LOQ : 0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
3	Chlordane	mg/l	BLQ (LOQ : 0.01)	0.03 Max	EPA 1311: 1992, HTH/INS-02/STP-32
4	Chlorobenzene	mg/l	BLQ (LOQ : 0.01)	100 Max	EPA 1311: 1992, HTH/INS-02/STP-32
5	Chloroform	mg/l	BLQ (LOQ : 0.01)	6 Max	EPA 1311: 1992, HTH/INS-02/STP-32
6	Cresol (o,m,p)	mg/l	BLQ (LOQ : 0.01)	4200 Max	EPA 1311: 1992, HTH/INS-02/STP-32
7	2,4-D	mg/l	BLQ (LOQ : 0.01)	10 Max	EPA 1311: 1992, HTH/INS-01/STP-13
8	1,4-Dichlorobenzene	mg/l	BLQ (LOQ : 0.01)	7.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
9	1,2-Dichloroethane	mg/l	BLQ (LOQ : 0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
10	1,1-Dichloroethylene	mg/l	BLQ (LOQ : 0.01)	0.7 Max	EPA 1311: 1992,HTH/INS-02/STP-32
11	2,4-Dinitrotoluene	mg/l	BLQ (LOQ : 0.01)	30 Max	EPA 1311: 1992, HTH/INS-02/STP-32
12	Endrin	mg/l	BLQ (LOQ : 0.01)	0.02 Max	EPA 1311: 1992, HTH/INS-02/STP-33
13	Heptachlor	mg/l	BLQ (LOQ : 0.01)	0.008 Max	EPA 1311: 1992, HTH/INS-02/STP-33
14	Hexachlorobenzene	mg/l	BLQ (LOQ : 0.01)	30 Max	EPA 1311: 1992, HTH/INS-02/STP-33
15	Hexachlorobutadiene	mg/l	BLQ (LOQ : 0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-33
16	Hexachloroethane	mg/l	BLQ (LOQ : 0.01)	3 Max	EPA 1311: 1992, HTH/INS-02/STP-33
17	Lindane	mg/l	BLQ (LOQ : 0.01)	0.4 Max	EPA 1311: 1992, HTH/INS-02/STP-33
18	Methoxychlor	mg/l	BLQ (LOQ : 0.01)	10 Max	EPA 1311: 1992, HTH/INS-02/STP-33
19	Methyl ethyl ketone	mg/l	BLQ (LOQ : 0.01)	200 Max	EPA 1311: 1992, HTH/INS-02/STP-33
20	Nitrobenzene	mg/l	BLQ (LOQ : 0.01)	2 Max	EPA 1311: 1992, HTH/INS-02/STP-32
21	Pentachlorophenol	mg/l	BLQ (LOQ : 0.01)	100 Max	EPA 1311: 1992, HTH/INS-02/STP-32
22	Phenol	mg/l	BLQ(LOQ 0.05)	5 Max	EPA 1311: 1992, IS 3025(P-43/Sec-1): 2022
23	Polychlorinated biphenyls (PCBs)	mg/l	BLQ (LOQ : 0.01)	50 Max	EPA 1311: 1992, HTH/INS-02/STP-33

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3. This report is only for your guidance, and not for legal purposes, commercial decision, and for advertisement. 4. Total liability of HTH Laboratories Pvt. Ltd. is limited to the invoiced amount only.
5. Samples will be cleared/returned within 7 days from the date of issue of test report unless otherwise specified. 6. Sample not drawn by HTH unless otherwise specified.
7. The details received from customer on its own responsibility. Lab does not confirm about it and hence does not taken any responsibility whatsoever.

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Integrated Solid Waste Management (Facility at Murthal)

C/o. JBM Environment Management Pvt Ltd Nr. 132 KV HVPNL, Tajpur Sub Station, Tajpur Murthal Road, Murthal Vill. Sonipat (Hr.) - 131027

Report No.	:	**HTH/EP/250324029**
Party's Ref No.	:	Nil
Booking Date	:	24/03/2025
Period of Testing	:	24/03/2025To 31/03/2025
Reporting Date	:	31/03/2025

TEST RESULTS

S.N.	Test Parameters	Units	Results	Standard Limit as per Schedule II	Test Method
24	Pyridine	mg/l	BLQ (LOQ : 0.01)	35 Max	EPA 1311: 1992, HTH/INS-02/STP-32
25	Tetrachloroethylene	mg/l	BLQ (LOQ : 0.01)	0.7 Max	EPA 1311: 1992, HTH/INS-02/STP-32
26	Toxaphene	mg/l	BLQ (LOQ : 0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
27	Trichloroethylene	mg/l	BLQ (LOQ : 0.01)	0.5 Max	EPA 1311: 1992, HTH/INS-02/STP-32
28	Trichlorophenol	mg/l	BLQ (LOQ : 0.01)	400 Max	EPA 1311: 1992, HTH/INS-02/STP-32
29	2,4,6-Trichlorophenol	mg/l	BLQ (LOQ : 0.01)	2 Max	EPA 1311: 1992, HTH/INS-02/STP-32

End of Report

Remarks : Standard Limit as per CPCB Hazardous Waste Schedule II
BLQ : Below limit of Quantification / LOQ : Limit of Quantification

Review by 31-03-25

HTH LABORATORIES PVT. LTD. Auth. Sign. PANIPAT

Md. Asfak Ansari
Sr. Manager (Hdw.)

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ಈಮೇಲ್ / Email : contact@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : kspcb.karnataka.gov.in

080-25581383, 25589112
080-25589113, 25589114

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ ರಾಜ್ಯ, ಭಾರತ
"Parisara Bhavan", 1st to 5th Floor, # 49, Church Street, Bangalore - 560 001, Karnataka State, India

PCB/WMC-1/CPCB/1/(2023)/2025-26/ 1771 Dt: 29 JUL 2025

To,
Chairman
Central Pollution Control Board
Parivesh Bhavan,
East Arjun Nagar, Delhi-110032

Sub: Compliance to the Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report and compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA 536 of 2024 related to Waste to Energy plants-reg

Ref : 1 CPCB letter no. F. No. CM-13011/125/2024-LAW-HO-CPCB-HO dt: 09.07.2025

2. E-mail from RO- Ramanagara dt:21.07.2025

*****

With respect to above, as per letter cited under ref(1) Please find herewith enclosed the reply submitted by RO, Ramanagara vide ref(2) with respect to Compliance to the Direction under section 5 of the Environmental (Protection) Act, 1986 of MSW waste to Energy Plant Le., KPCL, Bidadi, Ramanagara District in the prescribed format.

This is for your kind information.

Enclosed as above

Yours Faithfully

MEMBER SECRETARY

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

KARNATAKA STATE POLLUTION CONTROL BOARD

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ – ರಾಮನಗರ
ಪರಿಸರ ಭವನ, ಜಿಲ್ಲಾಧಿಕಾರಿಗಳ ಕಛೇರಿ ಹತ್ತಿರ,
ಬೆಂಗಳೂರು–ಮೈಸೂರು ರಸ್ತೆ, ರಾಮನಗರ–562159
ದೂರವಾಣಿ : 080–27275678

REGIONAL OFFICE - RAMANAGARA
Parisara Bhavana, Near DC Office,
Bangalore-Mysore Road, Ramanagara - 562159
Email : ramnagar@kspcb.gov.in

No. KSPCB/RO-RMN/2025-26/ 273

Date: 21-07-2025

To

The Member Secretary
Karnataka State Pollution Control Board
Parisara Bhanva, No.49, Church Street
Bengaluru-560001.

Kind attention: WMC-1 Cell

Sir,

WMC-1

Sub: Submission of Reply to the Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the waste to Energy (WtE) plants in compliance of Hon'ble Directions dated 16.04.2025 in OA No.536 of 2024 related to Waste to Energy Plants.

24/7

SEO-WMEC-1

Ref: CPCB letter No.CM-13011/125/2024-LAW-HO-CPCB-HO dated 09.07.2025 through mail.

****

14496
25/07/25

With reference to the above, please find herewith enclosed the reply to the said letter along with Annexure for your kind reference and further needful.

RECEIVED
22 JUL 2025
KSPCB, Bangalore

Yours faithfully

Environmental Officer
Bangalore South District
Ramanagara

Encl: As above

Reply to the Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the waste to Energy (WtE) plants in compliance of Hon'ble Directions dated 16.04.2025 in OA No.536 of 2024 related to Waste to Energy Plants.

A	To submit reasons for non submission of complete information as per aforementioned communication issued by CPCB and directions of Hon'ble NGT dated 11.04.2025	The said WtE plant has been commissioned on 19.12.2024 (commercial operation declared, COD) and further the major accident occurred on 04.01.2025 and 5 people were killed and the plant was not under operation up to 04.04.2025 and resumed /re started its operation on 04.04.2025. From then onwards the unit is operating and all the information will be submitted within 2 weeks time as per the directions of Hon'ble NGT.
B	To ensure that all WtE plants operational in your jurisdiction operate with valid consent and authorization issued by Karnataka SPCB.	The unit has obtained CTE on 27.10.2025 vide order No. CFE order vide No.CTE-321742 dated 20.11.2020. CFO order No. AW-344509 PCB ID:99035 dated 20.07.2024 and the CFO is valid up to 30.06.2028. This office has issued SCN to the authorities to apply for and to obtain authorization under SWM Rules, 2016 on 10.06.2025 and have submitted a reply that within 7 days time they will apply for authorization under SWM Rules vide their Email letter dated 21.07.2025.
C	To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016	The unit authorities have informed that the calorific value will be more than 1500 Kcal/kg and have submitted a document in this regard which is enclosed herewith for kind reference.
D	To ensure that bottom ash and fly ash is analyzed for relevant parameters and non hazardous bottom ash/fly ash is utilized for beneficial purposes and that found hazardous is disposed off in secured landfills.	Unit authorities have informed that they are in the process of conducting the analysis with Central Road Research Institute (CRRI) in this regard and presently they are utilizing the bottom ash and fly ash for land filling purpose at Gollahalli.
E	To regular monitor the waste to energy plants to ensure their compliance with stipulated environmental norms as per solid waste management Rules, 2016 and	Regular monitoring will be conducted since the plant started its operation in 4th of April 2025 and if it is not with the stipulated environmental norms, action deemed fit will be

	take actions against those found non compliant with the provisions of the SWM Rules.	initiated against the unit through proper channel.
F	To ensure that all WtE plants have online monitoring systems installed in, their air pollution control systems and are connected with CPCB and Karnataka SPCB server to ensure round the clock surveillance of the WtE plants.	Unit authorities have installed and commissioned OCEMS in the plant and have informed that all the necessary arrangements will be made to transfered the data to the CPCB and KSPCB portal.
G	To ensure that all the WtE plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for non compliance be submitted to CPCB in the prescribed format (Annexure-I).	The said WtE plant has been commissioned on 19.12.2024 (commercial operation declared, COD) and further the major accident occurred on 04.01.2025 and 5 people were killed and the plant was not under operation up to 04.04.2025 and resumed /re started its operation on 04.04.2025. From then onwards the unit is operating the regular monitoring will be carried out as per SWM Rules and if unit is not confirming to the standards necessary action will be initiated against the unit through proper channel.

Environmental Officer
Bangalore South District
Ramanagara

Format for information on waste to energy (Wte) plants (MSW Incineration based)

General details of MSW incineration based WtE plants

Sl No	State/UT	Name of WtE plant with address	Validity of CTE/CTO under Air & Water Act (Yes/No)	Authorization generated SWM Rules (Yes/No)	Validity of Authorization	MSW processing capacity (TPD)	Power generation capacity (MW)	Calorific value of waste received at WtE facility (Kcal/kg)	Additional fuel used if any in furnace, if any	Minimum temperature maintained at secondary combustion chamber (degree celsius)	Less of Ignition (in bottom ash % of dry weight)	Average bottom ash/fly ash generation (% w.r.t MSW feed)
	1	2	3	4	5	6	7	8	9	10	11	12
1	Karnataka State	M/s. KARNATAKA POWER, CORPORATION LIMITED SY.NO.25, 26 of Bilekempanahalli Village Bidadi, RamanagaraTaluk and District	Yes valid up to 30.06.2028	No	No	600 TPD	11.5 MW	2400 Kcl/kg	Refused Derived Fuel (RDF) only	1201 (degree celsius	5%	Bottom ash 30%, Fly ash 4% Disposal method: Landfilling

Environmental Officer
Bengaluru South
Ramanagara

1270

. Compliance status of WtE Plants

Sl No	Whether WtE plant monitored in last 5 years by SPCBs (Yes/No)	If yes, please provide date of monitoring	List of parameters monitored as specified in para B (parameters for treated leachate of schedule II of SWM Rules, 2016	Parameters found non complying the norms	List of parameters monitored as specified in para C (parameters for incineration of schedule II Of SWM Rules, 2016	Parameters found non compying the norms	Details of analysis disposal/utilizati on bottom ash	details of analysis disposal /utilization of fly ash	details of actions taken against the plants not compying with norms & provis.ons of SWM Rules, 2016 (EC imposed, showcause/closure order issued, non renewal of authorization or any other action taken for non compliance
1	No Commercial opeation declared /commissioned (COD) on 19.12.2024	NA	--	--	The following parameters are being monitored by CEMS system	Nil	bottom ash is utilized for landfilling and analysis for disposal is under progess has informed by WtE plant	Presently fly ash is utilized for landfilling and analysis for disposal is under progess has informed by WtE plant authorities	This office issued a show cause notice to apply for and to obtain authorization under SWM Rules, 2016 on 10.06.2025
					1. Fjow				
					2. Dust				
					3. SoX				
					4. NoX				
					5.HCL				
					6.PM				
					7.CO				
					8.H2O				
					9.O2				
					10. Temp				

Environmental Officer
Bengaluru South
Ramanagara

ರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
KARNATAKA STATE POLLUTION CONTROL BOARD
ೀಯ ಕಛೇರಿ -- ರಾಮನಗರ
ಸರ ಭವನ, ಜಿಲ್ಲಾಧಿಕಾರಿಗಳ ಕಛೇರಿ ಹತ್ತಿರ,
ಬೆಂಗಳೂರು–ಮೈಸೂರು ರಸ್ತೆ, ರಾಮನಗರ–562159
ದೂರವಾಣಿ : 080–27275678

REGIONAL OFFICE - RAMANAGARA
Parisara Bhavana, Near DC Office,
Bangalore-Mysore Road, Ramanagara - 562159
Email : ramnagar@kspcb.gov.in

SHOW CAUSE NOTICE

No.KSPCB/RO-RMN/2025-26/ 154 Date: 10-06-2025

To

The Occupier
Karnataka Power Corporation Ltd
Sy No.25, 26 of Bilekempanahalli Village
Bidadi, Ramanagara Taluk and District.

Sir,

Sub: Non compliances under the provisions of the Solid Waste Management Rules, 2016.
Ref: 1. CFE order vide No.CTE-321742 dated 20.11.2020
2.CFO order No. AW-344509 PCB ID:99035 dated 20.07.2024

******

With reference to the above cited under subject and reference, your unit which is operating in the said location in the name and style of M/s Karnataka Power Corporation Ltd, Sy No.25, 26 of Bilekempanahalli Village, Bidadi, Ramanagara Taluk and District and has obtained CFE order vide No.CTE-321742 dated 20.11.2020 and CFO order No. AW-344509 PCB ID:99035 dated 20.07.2024 and the CFO is valid up to 30.06.2028. You are engaged in the processing of Municipal Solid Waste (dry waste) of capacity 600 TPD to generate 11.5 MW of power supply.

It is a statutory obligation on your part to apply for and to obtain authorization under the provisions of the Solid Waste Management Rules, 2016 and as per Hon'ble NGT order dated 11.04.2025 you are required to comply with the following immediately.

1. To apply for and to obtain authorization under SWM Rules, 2016 immediately with all necessary documents.

2. To ensure the waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21of SWM Rules, 2016.
3. To ensure bottom/fly ash is analyzed for relevant parameters and non hazardous bottom ash /fly ash is utilized for beneficial purposes and that found hazardous is disposed off in secured landfills.

4. To conduct regular monitoring of waste to energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016.

5. To ensure your plant should have online monitoring system installed in. Their air pollution control system and are connected with CPCB and KSPCB server to ensure round the clock surveillance of the WtE plants.

In view of the above non compliances you are hereby called upon to SHOW CAUSE within 7 days from the date of issue of this notice, as to why this office shall not recommend the Board to initiate following actions against your unit for operating the plant without authorization and above said compliances. Please note that operating any source of air pollution/emitting air emissions to the environment attracts penal and legal action against your unit as per the relevant provisions of the Acts and Rules.

Please acknowledge the receipt of this show cause notice.

Environmental Officer
Ramanagara

ಕೆಪಿಸಿ ಅನಿಲ ವಿದ್ಯುತ್ ನಿಗಮ ನಿಯಮಿತ
KPC GAS POWER CORPORATION LIMITED
(SUBSIDIARY OF KPCL)
Regd. Office : YCCP Plant, Doddaballapura Road, Yelahanka, Bengaluru - 560 064
CIN : U40102KA1996SGC020337

No. SE(Bidadi)/WtE/KSPCB/ Date 21.07.2025

To,
The Environmental Officer,
Karnataka State Pollution Control Board,
Bangalore-Mysore Road,
Near DC office,
Ramanagara - 562159.

Sir,

Sub: Reply for the Showcause notice dated: 10.06.2025 regarding non-compliance under the provisions of the Solid waste Management Rules, 2016-reg.,

Ref.: KSPCB/RO-RMN/2025-26/154, Dated:10.06.2025

With reference to the above subject and the letter/show cause notice cited under reference, wherein it was informed to apply for and obtain authorization under the provisions of the Solid Waste Management Rules, 2016, and in compliance with the Hon'ble NGT order dated 11.04.2025, the compliance status is as follows:

Sl. No.	KSPCB Show Cause Notice Queries	KPC-GPCL Reply
1	To apply for and to obtain authorization under SWM Rules, 2016 immediately with all necessary documents	*We will apply for authorization as per SWM Rules, 2016 within **02 or 03** days with all necessary documents.*
2	To ensure the waste having calorific value of 1500 kcal/kg or more is processed for generating energy as stipulated under the clause 21 of SWM Rules, 2016.	*We are receiving RDF/MSW solid waste with an average calorific value ranging from **1800 to 2400 Kcal/kg**, as tested by an NABL-accredited laboratory. **The test report is enclosed as Annexure-1.***
3	To ensure bottom/fly ash is analyzed for relevant parameters and nonhazardous bottom ash/fly ash is utilized for beneficial purposes and that found hazardous is disposed of in secured landfills.	*KPC-GPCL has requested CRRI (Central Road Research Institute) Delhi for detail analysis of Bottom ash and Fly ash. **CRRI Letter as Annexure-2***
4	To conduct regular monitoring of waste to energy plant to ensure their compliance with stipulated environmental norms as per Solid waste management Rules,2016.	We will start monitoring the WtE plant to ensure that compliance will be within the environmental norms as per SWM Rules 2016 and in this regard utmost care will be taken from our end to ensure the compliance at all the given point of time.

Sl. No.	KSPCB Show Cause Notice Queries	KPC-GPCL Reply
5	To ensure your plant should have online monitoring system installed in. Their air pollution control system and are connected with CPCB and KSPCB server to ensure round the clock surveillance of the WtE plants.	Yes, installed online Continuous Monitoring system (CEMS) in our plant and we are maintaining the Emissions parameters within the limits by using proper unit Operations. ***Annexure-3*** The Hookup connectivity for CPCB & KSPCB is in progress & will be **within 15 days positively.**

This is for your information and needful.

Thanking you,

Yours faithfully,

Superintending Engineer (Bidadi)
Karnataka Gas Power Corporation Limited

Encl: A/a

Annexure 1

SLN TESTING LABORATORY PRIVATE LIMITED

Recognized by MOEF & CC , ISO 9001:2015 , ISO14001:2015 ,
ISO 45001:2018 & GLP Certified Laboratory
NO.23, JDN Layout,10th Cross , Raghavendra Industrial Area ,Thigalarapalya Main Road,
Peenya 2nd Stage , Bengaluru - 560058, Karnataka, India.
Mob : 9538888098 , 9538888097, E - mail:info@slnlabs.com , Web : www.slnlabs.com

TEST REPORT

Report No : SLNTL2400600386 F	**Report Date** : 17/06/2024
Issued To: M/s. Executive Engineer Bidadi Wast to Energy Plant, KPC Gas Power Corporation Limited, Bidadi Site, Bilekempanahalli Village, Bidadi Industrial Area, Bangalore – 562109.	**Customer Reference** : Verbal
	Date of Receipt : 13/06/2024
	Date of test start : 13/06/2024
	Date of Completion of test : 17/06/2024
	Sample Particulars: RDF Waste

Sl. No	Parameters	Units	Results
01	Moisture	%	42.11
02	Volatile Matter	%	36.21
03	Fixed Carbon	%	5.16
04	Ash	%	16.52
05	Gross Calorific Value	Kcal/Kg	2500.0

Authorised Signatory

Scanned with OKEN Scanner

SLN TESTING LABORATORY PRIVATE LIMITED

Recognized by MOEF & CC , ISO 9001:2015 , ISO14001:2015 ,
ISO 45001:2018 & GLP Certified Laboratory
NO.23, JDN Layout,10th Cross , Raghavendra Industrial Area ,Thigalarapalya Main Road,
Peenya 2nd Stage , Bengaluru - 560058, Karnataka, India.
Mob : 9538888098 , 9538888097, E - mail:info@slnlabs.com , Web : www.slnlabs.com

TEST REPORT

Report No : SLNTL240012000027B	**Report Date** : 05/12/2024
Issued To: M/s. Executive Engineer **Bidadi** Wast to Energy Plant, KPC Gas Power Corporation **Limited,** Bidadi Site, Bilekempanahalli Village, **Bidadi** Industrial Area, Bangalore – 562109.	**Customer Reference** : Verbal
	Date of Receipt : 03/12/2024
	Date of test start : 03/12/2024
	Date of Completion of test : 05/12/2024
Sample Submitted By : Customer	**Sample Particulars:** RDF Sample

Sl. No	Parameters	Units	Results
01	Moisture	%	45.10
02	Volatile Matter	%	33.40
03	Fixed Carbon	%	3.20
04	Ash	%	18.30
05	Gross Calorific Value	Kcal/Kg	2284.0

****End of the Report****

SLN TESTING LABORATORY PRIVATE LIMITED

Authorised Signatory

Note : 1. The results listed pertain only to the tested samples and applicable parameters.
2. Samples will be destroyed after 15 days from the date of issue of test certificates unless & otherwise specified and all perishable samples will be destroyed immediately after tests conducted.
3. This report is not be reproduced either wholly or in part and can not be used an evidence in the count of law and should not be used in any advertising media without prior written

Scanned with OKEN Scanner

सी.एस.आई.आर.-केंद्रीय सड़क अनुसंधान संस्थान
(वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद)
दिल्ली-मथुरा रोड़, पी.ओ. सीआरआरआई, नई दिल्ली-110 025 (भारत)
Phones : +91-26832173, 26831760
(EPBX) : +91-26832325, 26832327
+91-26313007, 26918934
Fax +91-11-26845943
+91-11-26830480
Website : www.crridom.gov.in

CSIR-CENTRAL ROAD RESEARCH INSTITUTE
(COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH)
Delhi-Mathura Road, P.O. CRRI, New Delhi-110 025 (INDIA)

No. CRRI/GTE/Bidadi/ RDF ash/01 01.07.2025

To,

Superintending Engineer (Bidadi),
Waste to Energy Plant,
Bidadi Industrial Area,
Bidadi – 562109.,
Karnataka.
Mobile: +91-7795663949, email: sewte.kpcl@gmail.com

Sub: *Technical proposal for evaluation of incinerated RDF ash from WTE Plant, Bidadi, for geotechnical and road applications - Reg.*

Sir,

With reference to the email dated 20.06.2025 from the Superintending Engineer, Waste-to-Energy (WTE) Plant, Bidadi, it was conveyed that the disposal of bottom ash and fly ash, which are generated through the incineration of dry waste (Refuse Derived Fuel: RDF), has emerged as a significant challenge. In response, CSIR–CRRI has been requested to evaluate the properties of these ashes and assess their suitability for geotechnical and road construction applications.

In this regard, CSIR–CRRI is pleased to undertake the assignment. The present proposal outlines a laboratory-based investigation aimed at evaluating the engineering potential of RDF ash. The scope of work, material requirements, and financial details are provided below for your kind consideration and necessary action.

Scope of work:

1. Characterization of the physical, chemical, and geotechnical properties of bottom ash and fly ash generated from the WTE plant.

2. Evaluation of the engineering behavior of RDF ash and its suitability for use in road construction.
3. Feasibility study for the use of RDF ash in embankments, subgrade, and granular sub-base (GSB) layers.
4. Investigation of the potential use of RDF ash in concrete pavement construction.

To undertake the proposed work, approximately 3 tons of fly ash and 3 tons of bottom ash will be required initially. Hence, it is requested to provide these materials for testing. If additional quantities are needed during the investigation, the same shall be arranged accordingly. We also request you to kindly share the process adopted for the incineration of RDF for electricity generation, including details on the collection of the resulting ash. Additionally, please provide the chemical composition of both ashes, if such data is already available from previous testing.

CSIR–CRRI's consultancy charge for the laboratory assignment is Rs. 38,00,000 (Rupees Thirty Eight Lakhs only). In addition, GST at 18 percent, amounting to Rs. 6,84,000, will be applicable. Accordingly, the ***total project cost will be Rs. 44,84,000*** *(Rupees Forty-Four Lakhs Eighty-Four Thousand only)*. The duration of the assignment is 24 months, with an interim report to be submitted after 8 months. The project timeline shall commence upon receipt of either the consultancy charges or the ash samples for testing, whichever is later.

Further, it is requested that air travel arrangements and accommodation for CRRI team be made separately, for Bidadi plant visits, as these are not included in the aforementioned consultancy charges of CSIR-CRRI.

The total consultancy charges shall be deposited 100% in advance via RTGS/NEFT to the CSIR-CRRI account before commencement of work, along with a reference of your GSTIN number. Kindly note CSIR-CRRI's GST Number: 07AAATC2716R1ZH for your future reference. Below are the bank account details of CSIR-CRRI for the RTGS/NEFT payment:

- **Account Holder Name**: The Director, CRRI
- **Bank Account Number**: 30268867237
- **IFSC Code**: SBIN0010442
- **Bank Name**: State Bank of India, CRRI Branch, New Delhi - 110025

CSIR CRRI is an ISO certified institution, and all project work will be conducted in accordance with a rigorously developed quality plan to comply with ISO 9001 standards. Additionally, CSIR-

CRRI is exempt from Income Tax under Section 35(I)(ii) of the Income Tax Act, 1961, effective from the assessment year 2010-11. Therefore, it is requested not to deduct any TDS while releasing Institute's consultancy charge, as stated above. In case you have further clarifications, please feel free to contact.

Note: Based on the outcomes of this laboratory investigation phase, a second phase may be considered at a later stage for the construction of a pilot road section using RDF ash near the Bidadi plant, with technical support from CSIR–CRRI. A detailed proposal for the same will be submitted upon completion of this phase, as per your request.

------xxxx-----

With regards,



Dr. Ravi Shankar. S

Sr. Scientist & Asst.Prof. – AcSIR,
Geotechnical Engineering Division,
CSIR-Central Road Research Institute,
(Ministry of Science & Technology, Govt. Of India)
Mathura Road, New Delhi-110025

Mobile: +91- 7904937962; Office: 011-26310734 Ext:495
Email: ravishankar.crri@csir.res.in; sravishankariitm@gmail.com

Annexure 3

Part A : Industrial Unit Details		
General Details of Unit	**Type Of Request [New Unit Connectivity/Station or Parameter Addition to Existing Unit/Limit Updation/Migration to another TPDS]** *For Parameter Removal/Unit Removal, kindly contact relevant IPC Division as per SOP available on CPCB Website (https://cpcb.nic.in/online-monitoring-of-industrial-emission/)	New Unit Connectivity
	Industry Category (Mention one of 17 categories or others, specifying it)	Power Plant
	Industry Code (Provide the code allocated to Industry by CPCB; Fill N/A if code is not allocated by CPCB)	1171
	Full Name of the Industry (Exactly as per CTO)	KPC Gas Power corporation Limited (KPC-GPCL)
	Address (Exactly as per CTO)	KPCL Bidadi, KIADB Indstrial Area, Byramangala Road,Bidadi I.A Phase 1, Bilekempanahalli, Bidadi, Ramnagaram Tq. & dist.
	Latitude (Should be in Decimal Format)	12°58'N
	Longitude (Should be in Decimal Format)	77°35'E, 717m AMSL
	City/Town [As per CTO]	Bidadi
	District [As per CTO]	Ramnagaram
	State [As per CTO]	Karnataka
	Whether the unit is falling in Ganga Basin? [Yes/No]	NO
	SPCB/PCC Regional Office Details	Karnataka State Pollution Control Board, 62/5, Vaderahalli, Bangalore-Mysore Road, Near DC Office, Ramangara -562159
	Type of Discharge at the Station (Emission/Effluent)	Emission

Station Details	Industrial Process to which Station is attached (Eg. Boiler, ETP etc.)	Boiler
	Station Name [Eg. Stack_1_Boiler_20TPH; ETP_1_Outlet etc.]	Stack_1_Boiler_56.4TPH
	Fuel used in the Industrial Process	RDF (Residual Derived Fuel)
	Date of Commissioning of the unit to which OCEMS is connected	Sep-24
Parameter-wise OCEMS Instrument Details	Name of the Parameter Monitored (Use consecutive columns for separate parameter)	Sox, Nox, SPM, CO
	Manufacturer of the Device	SICK India
	Name of the Device Model	MCS200HW-Gas Analyser, DH-SB30M-Dust Analyser
	Measurement Principle/Technique used in the Device	NDIR Technology - Gas Analyser Scattered light backward - Dust Analyser
	Whether the measurement principe/technique as per CPCB OCEMS Guidelines? [Yes/No] (Guidelines available at https://cpcb.nic.in/ocems1/)	Yes
	Please quote the reference page number in CPCB OCEMS Guidelines where the suitability of this measurement principle/technique is mentioned for the industrial process and parameter to be monitored	Non Dispersive Infrared (NDIR) - Page No.31 Scattered light backward - Page No. 21
	Device Serial Number (Actual) [As mentioned/printed on the Device] *This device number shall be submitted on Registration Portal, while doing the industry registration	MCS200HW-Gas Analyser-22260287 DH-SB30M-Dust Analyser-22378534
	Device Vendor (For Data Transmission)	SICK India
	Whether the Device is Certified (Yes/No)	Yes
	Certifying Agency (NPL/TUV/USEPA/MCERTS/Other)	TUV
		Sox : 200 mg/Nm3 Nox : 400 mg/Nm3 PM : 50 mg/Nm3 CO : 100 mg/Nm3
		mg/Nm^3

MAHARASHTRA POLLUTION CONTROL BOARD

Phone No.: 022-2410437, 24020781
Email: rohq@mpcb.gov.in
Website: www.mpcb.gov.in

Kalpataru Point, Third Floor,
Sion Matunga Scheme Road No. 8,
Sion Circle, Sion (E),
Mumbai – 400022

No. MPCB/ RO-HQ/ CPCB (W to E)/250807-FTS-0057 Date: 07.08.2025

To,
The Chairman,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
New Delhi – 110 032

Sub: Submission of information regarding the observations made by CPCB w.r.t W to E plants located in Maharashtra.

Ref: 1. CPCB's directions under Section 5 of the EPA, 1986 vide letter dated 09.07.2025.

Sir,

With reference to the above subject, the reply to the observations made by CPCB w.r.t the information regarding W to E plants in the state of Maharashtra is as follows:

Sr. No.	Observations	Submission
1.	All parameters in incinerator stack emissions have not been monitored as per Schedule II (C) of SWM Rules,2016	Board's laboratories are equipped with the analysis of following parameters – Particulates, CO, HCL, Total organic carbon & SO_2, NOX (NO & NO2 expressed as NO2). However, at present, facility for analysis of remaining other parameters mentioned in Schedule-II (C) (HF, Cd + Th + Their Compounds, Hg and its compounds, Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds & Total Dioxins and Furans) is not available at the Board's laboratories. Board has initiated the process of outsourcing this work through a MoEF & CC approved laboratory.
2.	Analysis report of Bottom ash/ fly ash for parameters specified in Schedule II of SWM Rules,2016.	The sample of bottom ash and fly ash for the Waste to Energy plant located at Pimpri Chinchwad is collected on 13-06-2025. The results are awaited.

3.	All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016	The sample of treated leachate for the waste to energy plant located at Pimpri Chinchwad is collected on 13-6-2025 and analysed for all parameters as per Schedule II (B) of SWM Rules, 2016. As per the report - BOD, COD, TDS, Chloride & Mercury were found exceeding the standards. Show Cause Notice was issued to the project proponent on 30-7-2025 for this non-compliance.
4.	Details of Action taken against non-complying W to E units has not been provided	Board has issued Show Cause notice on 30-07-2025 to the Waste to Energy Plant of Pimpri Chinchwad Municipal Corporation for non-complying the standards w.r.t treated leachate. Board has issued Interim Direction on 01-07-2025 to the Waste to Energy Plant of M/s. Bhumi Green Energy, Sangli for non-compliance of the consent conditions.

This is issued with the approval of the competent authority of the Board.

D. A. – Annexure-I

Yours Sincerely

07/08/2025

(Sneha Kamble)
Regional Officer, HQ

Copy to:

1. PS to Member Secretary, MPC Board – for information.
2. Technical Advisor, Chairman, MPC Board – for information.

******

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

File No. CM-13011/125/2024-LAW-HO-CPCB-HO Date: 09/07/2025

To,

The Chairman
Maharashtra Pollution Control Board
Kalpataru Point, 2nd – 4th Floor,
Opp. Cine Planet Cinema,
Nr. Sion Circle, Sion (E),
Mumbai – 400 022.

Sub: Direction under section 5 of the Environmental (Protection) Act, 1986 to submit action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which *inter alia* prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for incineration (Schedule II-C of the Rules); and

WHEREAS, as per Rule 16 (1)(e) of SWM Rules, 2016, SPCB/PCC shall issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

WHEREAS, as per Rule 16 (1)(g) of SWM Rules, 2016, SPCB/PCC shall suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated; and

WHEREAS, as per Rule Section 16(4) of the Solid Waste Management Rules,2016, the SPCBs/PCCs shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year; and

WHEREAS, as per Rule 21(1) of the Solid Waste Management Rules,2016, - Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of in landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.; and

WHEREAS, as per SWM Rules, the emissions from incinerators in Solid Waste treatment/disposal facility shall meet the Standards prescribed in Schedule II C of the Rules.

Cont...

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

WHEREAS, Hon'ble NGT registered O.A NO. 536/ 2024 suo-moto on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.and vide Order dated May 15, 2024 included CPCB as one of the respondents on the matter; and

WHEREAS, CPCB issued a letter dated 07.08.2024 to all SPCBs/PCCs requesting information regarding compliance status of WtE plants with respect to provisions of SWM Rules including Authorisation status, waste processing capacity of plant, calorific value of waste received at the plant, bottom ash & fly ash analysis & disposal methods, last date of monitoring of plants, emission & leachate monitoring results. The SPCBs/PCCs were further requested to provide details of action taken reports against non-complying WtE plants; and

WHEREAS, information as provided by the SPCBs/PCCs was compiled by CPCB and included in its first report filed before Hon'ble NGT, which in its Order dated November 12, 2024 observed that full details of waste-to-energy plants that are not complying with the norms had not been provided. CPCB was directed to produce all the materials and details relating to waste to energy plants that were found to be not complying with the norms; and

WHEREAS, in compliance of the Hon'ble NGT Order dated November 11, 2024, CPCB issued letter dated 11.12.2024 to all SPCB/PCCs, wherein it was reiterated that complete information related to Waste to Energy (WtE) plants as desired by the Hon'ble NGT should be provided by the concerned SPCBs/PCCs; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its second report which was filed before Hon'ble NGT January 10, 2025 in compliance of Hon'ble NGT Order; and

WHEREAS, Hon'ble NGT vide order dated 13.01.2025, observed that CPCB report did not include details of actions taken against non-compliant Waste to Energy Plants and directed CPCB to provide complete details on the matter; and

WHEREAS, CPCB convened a meeting on February 07, 2025 through video conferencing with SPCBs/PCCs and informed the respective SPCBs/PCCs of the gaps in the information submitted by them on the matter. CPCB also issued a letter dated 13.03.2025 to SPCBs/PCCs to provide complete information on the matter; and

WHEREAS, the information submitted on WtE plants was examined by CPCB and letter dated 11.04.2025 was issued communicating the non-compliances observed in the WtE plants located in their respective jurisdiction. The SPCBs/PCCs were requested to take immediate action on the matter and submit action taken report to CPCB; and

WHEREAS, Information as provided by the SPCBs/PCCs was compiled by CPCB and included in its third report which was filed before Hon'ble NGT on April 15, 2025; and

Contd...

WHEREAS, the major observations w.r.t. information provided by **Maharashtra, SPCB w.r.t WtE located in your State** were as given below:

- All parameters in incinerator stack emission have not been monitored as per Schedule II (C) of SWM Rules, 2016
- Analysis report of Bottom ash/Fly ash for parameters specified in Schedule II of SWM Rules, 2016 not provided. Further, the details of disposal method in accordance with provision of SWM Rules not provided.
- All parameters in Leachate have not been monitored as per Schedule II (B) of SWM Rules, 2016
- Details of Action taken against non-complying WtE units has not been provided

WHEREAS, Hon'ble NGT issued order dated 16.4.2025 has observed that eight weeks was a reasonable time for the SPCBs/PCCS to provide the requisite information on the matter; and

WHEREAS, complete information on WtE plants as per the communications issued by CPCB has not been received, even eight weeks after issuance of the Hon'ble NGT Order.

NOW THEREFORE, in view of above observations and in exercise of powers delegated to Chairman, CPCB under Section 5 of Environment (Protection) Act, 1986, the following Directions are issued to Chairman, Maharashtra SPCB for compliance:

a. To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.
b. To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Maharashtra SPCB.
c. To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.
d. To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills.
e. To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.
f. To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Maharashtra SPCB server to ensure round-the-clock surveillance of the WtE plants.
g. To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format **(Annexure I)**.

Contd..

Maharashtra SPCB are hereby directed to submit action taken report (ATR) by 21/07/2025 positively as above.

(Vir Vikram Yadav)
Chairman

Copy to:

1	Regional Director Regional Directorate -Pune	: For information & Follow up with Maharashtra SPCB , Please
2	DH, Law	: For information , Please
3	DH, IT	: For uploading on CPCB website, please

O/C

(Bharat Kumar Sharma)
Member Secretary

Annexure: I

FORMAT FOR INFORMATION ON WASTE TO ENERGY (WtE) PLANTS (MSW INCINERATION BASED)

(a) General details of MSW incineration based WtE plants

S.No.	State/UT (1)	Name of WtE Plant with address (2)	Validity of CTE/ CTO under Air & Water Act (Yes/No) (3)	Authorization granted under SWM Rules (Yes/No) (4)	Validity of Authorization (5)	MSW Processing Capacity (TPD) (6)	Power generation Capacity (MW) (7)	Calorific value of waste received at WtE facility (Kcal/kg) (8)	Additional fuel used if any in furnace (9)	Minimum Temperature maintained at secondary combustion chamber (° C) (10)	Loss of Ignition (in Bottom ash) (% of dry weight) (11)	Average bottom ash/fly ash generation (% w.r t MSW feed) (12)
1	Maharashtra	Pimpri Chinchwad Municipal Corporation (Owner of the Project) M/s. Anotny Lara Renewable Energy Private Limited (Operator of the Prpject), Waste to Energy Project, Gut No. 462, 463, 464, 465, Moshi Kachara Depot, Moshi, Tal. Haveli, Dist. Pune	Consent to Operate valid up to 30/06/2026	Yes	Authorization is valid up to 31/07/2027	700 TPD	Power Generation 14MW / Hr	Designed Calorific Value : 1650 kcal/Kg Actual Calorific Value ranges between 1600 to 1900 Kcal/kg	Light Diesel Oil used for Plant Light up only	950 °C	3.77%	18%
2	Maharashtra	Bhumi Green Energy Pvt. Ltd. (Formerly known as M/s. Sinewave Biomass Power Pvt.Ltd.) Plot No. 351, 375, Near sangli akashwani kendra, Village - Tung, Tal. Miraj, Dist. Sangli.	Consent to operate is valid up to 31-08-2024	YES	31/08/2027	300 TPD	10 MW	2800 kcal/Kg	Rice Husk , Baggasse	230 °C	6.00%	18.60%

(b) Compliance Status of WtE Plants

S.No.	Name of WtE Plant with address	Whether WtE plant monitored in last 5 years by SPCBs (Yes/No) (1)	If yes, please provide date of monitoring (2)	List of Parameters monitored as specified in Para B (Parameters for Treated Leachate of schedule- II of SWM Rules, 2016 (3)	Parameters found non complying the norms (4)	List of Parameters monitored as specified in Para C (Parameters for Incineration of schedule- II of SWM Rules, 2016 (5)	Parameters found non complying the norms (6)	Details of analysis, disposal/utilization bottom ash. (7)	Details of analysis disposal/utilization of fly ash. (8)	Details of actions taken against the plants not complying with norms & provisions of SWM Rules, 2016 (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non- compliance) (9)
1	Pimpri Chinchwad Municipal Corporation (Owner of the Project) (2)M/s. Anotny Lara Renewable Energy Private Limited, Waste to Energy Project, Gut No. 462, 463, 464, 465, Moshi Kachara Depot, Moshi, Tal. Haveli, Dist. Pune	Yes	16.05.2024 (stack & AAQM)	..	..	TPM, SO2, HCL	TPM & PM10	Sample is collected on 13.06.2025, analysis report is awaited. Bottom ash utilization in C & D plant	Sample is collected on 13.06.2025, analysis report is awaited. Fly ash disposed to sanitary landfill site located within premises.	As per the non compliances and exceedance of JVS reports Regional Office Pune has issued SCN dated 30.07.2025.
			29.07.2024 (stack & AAQM)	..	..	TPM, SO2	TPM			
			09.10.2024 (treated leachate sample)	Ph, SS, BOD, COD, O & G	SS, BOD, COD	..				
			16.12.2024 (AAQM)	..	..	**AAQM**- PM10, PM2.5, SO2, CO, OZONE, NO, NO2, NOX, Benzene, Toulene, Ethylbenzene,M+P Xylene, Oxylene	PM10, PM2.5, NO2, benzene			
			23.01.2025 (AAQM)	..	..					
			06.03.2025 (AAQM)	..	..					
			13.06.2025 (treated effluent, ash sample)	pH, TDS, SS, BOD, Chloride, COD, Copper, Lead, Amonical Nitrogen, Fluoride, TKN, Arsenic, Cadmium, Chomium Total, Mercury, Nickel, Zinc, Phenol	BOD, COD, TDS, Chloride, mercury					
2	Bhumi Green Energy Pvt. Ltd. (Formerly known as M/s. Sinewave Biomass Power Pvt.Ltd.) Plot No. 351, 375, Near sangli akashwani kendra, Village - Tung, Tal. Miraj, Dist. Sangli.	No	NA	NA	NA	NA	NA	For Brick Manufacturing	For Brick Manufacturing	As pe rthe non-compliances noted , Proposed Directions issued on 20.03.2025 & Interim Directions issued on 01.07.2025.

TELANGANA POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-III, Industrial Estate, Sanathnagar,
Hyderabad-500 018 .Phone : 040-23887500

Lr.No.91/TGPCB/MSW/2025 **Dt.31.07.2025**

To
The Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan,C.B.D.Cum-Office Complex,
East Arjun Nagar, Shahdara,
Delhi-110032.

Sir,

Sub : TGPCB — OA No. 536 of 2024 Registered suo-motu basis by Hon'ble NGT on the news item titled "Waste to Energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2025 and included CPCB as one of the respondents – Status of Waste to Energy Plants in Telangana – Compliance submitted— Reg.

Ref :
1. CPCB letter Dated 7.8.2024,11.11.2024 addressed to all SPCB's
2. TGPCB letters dt 16.08.2024, 08.01.2025.
3. Hon'ble National Green Tribunal (NGT) in OA No. 536 of 2024 order dated 13.01.2025.
4. Hon NGT Order Dated 16.04.2025.
5. CPCB directions dated 09.07.2025.

* * *

With reference to the directions issued by the Central Pollution Control Board (CPCB) and Hon'ble NGT regarding compliance by Waste-to-Energy (WtE) facilities, the status of compliance and actions taken by the Telangana State Pollution Control Board (TGPCB) is hereby furnished as follows:

Sl. No	Direction from CPCB	Compliance Status / Action Taken by TGPCB
1.	Submit reasons for non-submission of complete information as per CPCB and NGT directions	Comprehensive data collection involved coordination across multiple departments and verification processes. Some delay occurred due to pending submissions from respective WtE units and analytical laboratories. All required data has now been compiled and is enclosed herewith.
2.	Ensure all WtE plants operate with valid Consent and Authorization issued by TGPCB	There are 2 No. of WtE plants operating in the state 1. M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal District which has obtained CFO & HWA order dated 05.05.2025 valid upto 31.03.2030. **(Annexure-I)** 2. M/s Dundigal Waste 2 Energy Private Ltd., Sy. No. 684/1, Dundigal (V), Quthubullapur (M), Medchal-Malkajgiri District which has obtained CFO &HWA

		order dt:16.06.2023 which is valid upto 31.03.2028. **(Annexure-II)** ➢ Both the WtE plants are not involved in processing of Municipal Solid waste. Whereas they receive processed MSW i.e., Refuse Derived Fuel (RDF) from M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District which is a separate entity and has obtained Consent Authorisation of the Board under SWM Rules, 2016 which is valid upto 31.07.2028. **(Annexure-III)**
3.	Ensure waste with calorific value ≥1,500Kcal/kg is processed for energy generation as per SWM Rule 21	During regular inspections of the Board, it was observed that the WtE plants are regularly analyzing the Calorific value of the RDF received and maintaining records of the same. As per records, the analysis results indicate the RDF received is having Calorific Value in the range of 1688 KCal/Kg to 1920 KCal/Kg which is ≥1,500 Kcal/kg
4.	Ensure analysis & appropriate disposal of bottom ash & fly ash (safe use or disposal in secured landfill)	The Board is being submitted monitoring reports of bottom ash and fly ash analysis carried out by respective WTE plants through NABL-accredited third-party laboratory in accordance with the Solid Waste Management (SWM) Rules, as the Board laboratory equipment is not functioning and repairs are being carried out, The analysis results are enclosed **(Annexure-IV).** The TCLP (Toxicity Characteristic Leaching Procedure) test results confirm that both fly ash and bottom ash are non-hazardous. However, the Waste-to-Energy (WTE) plants are currently disposing of the bottom ash to the sanitary landfill at M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District and the facility is utilizing the bottom ash as a top layer for covering the Sanitary Landfill. The WTE plants are disposing the fly ash to the TSDF, Dundigal for Secured Land fill.
5.	Regular monitoring and action on non-compliance	The Board is undertaking regular monitoring of Waste-to-Energy (WTE) facilities as per the prescribed schedule under the SWM Rules. Sampling and analysis are carried out through NABL-accredited third-party laboratories to ensure credibility and transparency. Instances of non-compliance, if any, are addressed promptly through issuance of notices, directions under relevant provisions (including Environmental Protection Act, 1986), and follow-up inspections. **(Annexure-V)**

		Further, periodic review meetings are conducted with facility operators to ensure time-bound corrective actions. The Board also integrated real-time data monitoring systems with the TGPCB website to strengthen enforcement and ensure continuous compliance.
6.	Ensure online monitoring of Air Pollution Control Systems, linked with TGPCB & CPCB	The WtE plants have installed required air pollution control systems and have installed Online Continuous Emission Monitoring Systems (CEMS), with real-time data linked to TGPCB and CPCB servers. As per OCEMS data of last 6months, all the parameters are within stipulated standards as per SWM Rules, 2016. **(Annexure-VI)**
7.	Ensure annual monitoring as per Rule 16(4) and submit complete action taken/compliance reports in prescribed format	In compliance with this provision, TGPCB is ensuring that annual monitoring of all WtE facilities is carried out with respect to waste processing efficiency, emissions, ash management, and other environmental parameters. Till date no exceedence in parameters is noticed hence, action is not taken on the WtE plants. The compiled compliance report, in the prescribed format, to be submitted to CPCB is enclosed herewith for kind information.

This is submitted for favor of kind information.

Encl:As above

Yours faithfully,

MEMBER SECRETARY

FORMAT - I

S. NO. (1)	State / UT (1)	Name of WTE Plant with address (2)	Validity of CTE/ CTO Under Air & Water Act (Yes / No) (3)	Authorization granted under SWM Rules (Yes/ NO) (4)	Validity of Authorization (5)	MSW Processing Capacity (6)	Power generation in capacity (MSW) (7)	Calorific value of waste received at WtE facility (kcal/Kg) (8)	Additional fuel used if any in furnance, if any (9)	Minimum Temperatue maintained at secondary combustion Chamber (degree celcius) (10)	Loss of Ignition (in Bottom ash) (% of dry weight) (11)	Average Bottom ash/fly ash generation (% w.r.t MSW feed) (12)
1		M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal District	CFO order dated 05.05.2025 valid upto 31.03.2030.	31st Macrh 2030	The facility is not involved in processing of Municipal Solid waste. Whereas it recieves processed MSW from M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District which is a separate entity and has obtained Authorisation of the Board which is valid upto 31.07.2028	2400 TPD	Phase-I-24 MW Phase II-24 MW All together 48 MW	1500-1700kcal/kg	No	above 950°C	below 5%	Avg Ash <20 %)as per Consent it is 30 %)
2		M/s Dundigal Waste 2 Energy Private Ltd., Sy. No. 684/1, Dundigal (V), Quthubullapur (M), Medchal-Malkajgiri District	CFO order dt:16.06.2023 which is valid upto 31.03.2028	31st Macrh 2028	The facility is not involved in processing of Municipal Solid waste. Whereas it recieves processed MSW from M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District which is a separate entity and has obtained Authorisation of the Board which is valid upto 31.07.2028	1000 TPD	14.5 MW	1500-1700kcal/kg	No	above 950°C	below 5%	below 25% as per

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FORMAT - II

Sl. No	Whelther WtE plants monitored in last 5 years by SPCBs (Yes/ No) (1)	If yes please provide date of monitorning (2)	List of parameters monitored as specified in Para B (Parameters for treated Lechate n of schedule - II of SWM Rules, 2016 (3)	Parameters found non complying the norms (4)	List of Parameters monitored as speceified in Para C (Parameters for incineration of Schedule - II of SWM Rules, 2016) (5)	Parameters found non complying the norms (6)	Details of analysis, disposal /utilization of fly ash (7)	Details of analysis, disposal /utilization of bottom ash (8)	Details of actions taken against the plants not complying with norms and provisions of SWM rules, 2016 (EC imposed, Showcause /Closure issued , non-renewal of authorization or any other action taken for non-compliance) (9)
1	Yes	30.1.2025& 25.03.2025	**Jawaharnagar WTE**- Generated leachate from RDF is being sent to central LTP of HIMSW. No leachate is discharged from the WTE	*nil*	SPM-25Mg/Nm3 SO2-26Mg/Nm3 NOX-91Mg/Nm3 Cu-0.017Mg/Nm3 Pb-0.024 Ni-0.014Mg/Nm3 Fe-0.025Mg/Nm3 Cd-<0.0028Mg/Nm3 HCL-14.1 CO-40.1 TOC- 0.19 Heavy Metals -0.062 (Hg, Cd, Tl, As , Pb, Cr, Co, Cu, Mn, Ni, Sb, V, Sn) Dioxins and Furans-0.0001 Temperature of combustion chamber (should be ≥ 850°C) Residence time in secondary chamber (minimum 2 seconds) **AAQM (µg/m3)** **At Main gate** PM10 -94 TSPM-425 PB<0.001 Ni-<0.55 SO2-23 NOX-43 NH3-368 **AAQM (µg/m3)** **At store room** PM10 -89 TSPM-391 PB<0.080 Ni-5.4 SO2-22, NOX-42, NH3-366	nil	Total Organic Carbon-0.19% **Ash Analysis** Loss on Ignition-2.76% Silica as SiO2-12.94% Alumina as A1203-4.51% Iran as Fe203-2.39% Calcium as Cao-21.14% Magnesium as MgO-2.88% Sodium as Na20-10.36% Potassium as K20-12.47% Titanium as TiO2-0.88% Phosphorous as P205-1.78% Sulphur as SO3-9.05% Chloride as Cl-17.91% **Calorific Value Analysis** Gross Calorific Value<200KCal/kg Net Calorific Value<200KCal/kg **Metals** Arsenic as As-14.29mg/kg Cadmium as Cd-865.65mg/kg Hexavalent Chromium-4.77mg/kg Chromium as Cr-230.31mg/kg Mercury as Hg-<0.10mg/kg Nickel as Ni-131.89mg/kg Selenium as Se-3.45mg/kg Zinc as Zn-0.53% Copper as Cu-0.23% Lead as Pb-0.20% **Proximate Analysis** Moisture-0.77% Ash-94.00%, Volatile Matter-3.25% Fixed Carbon-1.98% **Ultimate analysis** ash-94.72%, carbon-0.47%, hydrogen-0.54%, sulphur-<0.10%, nitrogen-3.62%, oxygen as O-0.55%, Disposal to Jawaharnagar Dumpsite	Total Organic Carbon-0.21% **Ash Analysis** Loss on Ignition-3.49 % Silica as SiO2-55.83 % Alumina as A1203-10.03 % Iran as Fe203-5.47 % Calcium as Cao-12.51 % Magnesium as MgO-1.93 % Sodium as Na20-3.35 % Potassium as K20-3.12 % Titanium as TiO2-0.65 % Phosphorous as P205-1.11 % Sulphur as SO3-1.33% Chloride as Cl-0.35 % **Calorific Value Analysis** Gross Calorific Value<200KCal/kg Net Calorific Value<200KCal/kg **Metals** Arsenic as As-70.90 mg/kg Cadmium as Cd-28.29 mg/kg Hexavalent Chromium-0.40 mg/kg, Chromium as Cr-158.40 mg/kg, Mercury as Hg-<0.10 mg/kg, Nickel as Ni-78.76 mg/kg Selenium as Se-2.30 mg/kg Zinc as Zn-0.16 % Copper as Cu-717.58 % Lead as Pb-0.29 % **Proximate Analysis** Moisture-11.80 %, Ash-85.12 % Volatile Matter-2.83 % Fixed Carbon-0.25 % **Ultimate analysis** ash-96.50 %, carbon-0.66 % hydrogen-0.48 %, sulphur-0.53 %, nitrogen-0.22 %, oxygen as O-1.61 %. **Disposal:** HiMSW sanitary Landfill	Nil

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2	Yes	8.11.2024& 25.03.2025	**Dundigal WTE**: Generated leachate from RDF is being sent treated in the MVRE Based LTP. The condensate from LTP is being used in ash quenching and Flue Gas Cleaning System of the WTE. No leachate is bening discharged	nil	SPM-47Mg/Nm3 SO2-51 Mg/Nm3 NOX-270Mg/Nm3 Cu-0.012Mg/Nm3 Pb-ND Ni-0.034Mg/Nm3 Fe-0.042Mg/Nm3 Cd-0.032Mg/Nm3 HCL- 13.6 CO-35.8 TOC- 7.2 Heavy Metals - (Hg, Cd, Tl, As , Pb, Cr, Co, Cu, Mn, Ni, Sb, V, Sn) Dioxins and Furans-0.0000 Temperature of combustion chamber (should be ≥ 850°C) **AAQM(µg/m3)** PM10 -61 TSPM-169 PB<0.0022 Ni-1.9 SO2-17 NOX-23 NH3-63		Total Organic Carbon-0.10 % **Ash Analysis** Loss on Ignition-2.61% Silica as SiO2-10.54% Alumina as A1203-4.77% Iran as Fe203-2.55% Calcium as Cao-20.31% Magnesium as MgO-3.11% Sodium as Na20-10.61% Potassium as K20-12.75% Titanium as TiO2-0.95% Phosphorous as P205-1.87% Sulphur as SO3-9.10% Chloride as Cl-19.75% **Calorific Value Analysis** Gross Calorific Value<200KCal/kg Net Calorific Value<200KCal/kg **Metals** Arsenic as As-23.34mg/kg Cadmium as Cd-956.69mg/kg Hexavalent Chromium-4.58mg/kg Chromium as Cr-230.81mg/kg Mercury as Hg-<0.10mg/kg Nickel as Ni- 93.50mg/kg Selenium as Se-10.05mg/kg Zinc as Zn-0.58%,Copper as Cu-0.23% Lead as Pb-0.21% **Proximate Analysis** Moisture-0.76%,Ash-94.02%, Volatile Matter-3.34%,Fixed Carbon-1.88% **Ultimate analysis** ash-94.74%,carbon-0.44% hydrogen-0.51%, sulphur-3.64% nitrogen-0.20%, oxygen as O-0.47% , Disposal to TSDF Landill. Disposal to Jawaharnagar Dumpsite	Total Organic Carbon-0.55% **Ash Analysis** Loss on Ignition-2.77 % Silica as SiO2-55.10 % Alumina as A1203-11.54 % Iran as Fe203-2.22 % Calcium as Cao-11.34 % Magnesium as MgO-1.47 % Sodium as Na20-2.62 % Potassium as K20-2.71 % Titanium as TiO2-0.54 % Phosphorous as P205-1.83 % Sulphur as SO3-1.47% Chloride as Cl-0.92 % **Calorific Value Analysis** Gross Calorific Value<200KCal/kg Net Calorific Value<200KCal/kg **Metals** Arsenic as As-16.99 mg/kg Cadmium as Cd-41.15 mg/kg Hexavalent Chromium-0.49 mg/kg Chromium as Cr-127.28 mg/kg Copper as Cu-845.14 % Lead as Pb-134.92 % Mercury as Hg-<0.10 mg/kg Nickel as Ni-69.16 mg/kg Selenium as Se-5.81 mg/kg Zinc as Zn-0.15 % **Proximate Analysis** Moisture-13.86 % Ash-82.96 % Volatile Matter-2.91 % Fixed Carbon-0.27 % **Ultimate analysis** ash-96.30 %, carbon-1.39 % hydrogen-0.51 %, sulphur-0.59 %, nitrogen-0.22 %, oxygen as O - 0.99 % **Disposal:** HiMSW sanitary Landfill	Nil

TELANGANA POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-III, Industrial Estate,
Sanathnagar, Hyderabad-500 018
Phones : 040-23887500 Fax: 040 – 23887519

CONSENT FOR OPERATION& HWA (RENEWAL & EXPANSION)

Consent Order No.21/TSPCB/CFO/ MSW/HO/2025 **Date:05.05.2025**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation / Renewal of Authorisation under Rule 6 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 & Amendments thereof

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof, and Authorisation under the provisions of HOW (M & TM) Rules, 2016 (hereinafter referred to as 'the Acts', `the Rules') and amendments thereof and the rules and orders made there under to **M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy No: 173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District** (hereinafter referred to as 'the Applicant /Industry') and the industry is authorized to operate the industrial plant to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys, by operating pollution control equipment, as detailed below,

i) Out lets for discharge of effluents: (Existing& Expansion):

Sl. No	Effluents	:	Total Quantity in KLD(After Epansion)	Mode of Disposal
1.	Boiler blow down, DM regeneration /Ro rejects	:	170 KLD	After neutralization, shall be utilized for Ash quenching after conforming to the standards for on land for Irrigation.
	Cooling bleed off	:	40 KLD	
2.	Domestic	:	20 KLD	Shall be disposed by septic tank followed by soak pit
3.	Leachate from RDF storage Bunker	:	300 KLD	Pre-treatment followed by Mechanical Vapour Recompression Technology in the LTP of integrated facility. After treatment, the permeate / condensate shall be used for flue gas cleaning & lime, dust suppression conforming to the standards for on land for Irrigation.
	Total:	:	**530 KLD**	

ii) Emissions from chimneys(Total after Expansion):

S.No	Description of Chimney	Control equipment provided	Flow rate in m3/hr	Stack height in Mts – above GL
1	Attached to Boiler of capacity 2 x 65 TPH (existing)	Bag Filter followed by lime dosing and activated carbon	--	60 Mtrs
2&3	Attached to DG sets of capacity 1 x 600 KVA(existing)	Acoustic enclosures	--	8.5Mtrs
4	Attached to Boiler of capacity 2 x 65 TPH (Expansion)	Bag Filter followed by lime dosing and activated carbon	--	60 Mtrs
5 & 6	Attached to DG sets of capacity 2 x 600 KVA (Expansion)	Acoustic enclosures	--	8.5Mtrs

iii) HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 6 (2)] of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 & Amendments thereof): (Total after Expansion)

M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar(V), Shameerpet (M), Medchal-Malkajgiri District is hereby granted an authorization to operate a industry for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

- **OTHER wastes with DISPOSABLE option:**

Sl. No.	Name and Hazardous waste	Stream	Existing as per As per CFO amendment dt:10.03.2022	Quantity after expansion	Disposal Option
1	Sludge (Concentrate from Mechanical Vapour Recompression (MVR) Plant)	35.3-Schedule-I	--	15 TPD	Shall be disposed to Waste Energy Plant along with RDF / shall be disposed to cement units for co-processing.

- **Hazardous wastes with Re-cycle option:**

S.No	Name of the Hazardous Waste	Stream	Quantity of Hazardous Waste As per CFO amendment dt:10.03.2022	Quantity of Hazardous Waste after expansion	Disposal option
1	Ash	37.2-Schedule-I	370 TPD	740 TPD	Shall be Recycled through C&D processing plant.
2	Waste Oils	20.-Schedule- IV	100 LPA	200 LPA	Shall be Disposed to authorized re-processors / re-cyclers.

This Consent order is valid for manufacture of the products along with quantity as mentioned below only.

Sl. No.	Products / Line of Activity	As per CFO amendment dt:10.03.2022 Existing (Phase-I)	Proposed as per application in Phase-II	Total capacity after CFO Expansion application
1	Municipal Solid Waste (RDF) based power plant	24 MW	24 MW	48 MW

This order is subject to the provisions of `the Acts' and the Rules' and amendments made there under and further subject to the terms and conditions incorporated in the schedule A, B and C enclosed to this order.

This combined order of Consents and Authorization is valid for a period ending with the **31st day of March, 2030.**

Sd/-
MEMBER SECRETARY

To
M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC),
Sy.No.173, Jawaharnagar(V), Shameerpet (M),
Medchal-Malkajgiri District.

// T.C.F.B.O //

Senior Environmental Engineer

SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorisation under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorisation of the Board.
2. This order is issued in line with Board's CFE order dated 23.09.2017. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts. The industry shall comply with all other conditions of CFE order dated 23.09.2017 still applicable.
3. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
4. The industry may explore the possibility of tapping the solar energy for their energy requirements.
5. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE - B

1. **As per GHMC letter dated 29.04.2025, the surplus quantity of RDF unutilized and stored at Jawaharnagar is 57,96,758 TPD (restricting the RDF quantity generation to 2400 TPD) is sufficient for 14.64 years @1200 TPD for the operation of Phase-II 24 MW. Hence, the industry shall utilize this existing unutilized RDF only for the Phase-II 24MW power plant.**
2. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities prescribed below:

S.No	Purpose	Quantity (Total after Expansion)
1.	Boiler feed (DM plant /Ro plant feed permeates)	360 KLD
2	Cooling tower make up	120 KLD
3	Domestic	40 KLD
4	Gardening Purpose	80 KLD
	Total:	**600 KLD**

3. The effluent discharged should not contain constituents in excess of the tolerance limits prescribed below:

Outlet	Parameter	Limiting Standards
1 & 3	pH	5.5-9.0
	Total Suspended Solids (at 103-105^{0}C)	200 mg/L
	Total Dissolved Solids(TDS)	2100 mg/L
	Oil & Grease	10 mg/L
	Chemical Oxygen Demand (COD)	250 mg/L
	Bio-chemical Oxygen Demand (BOD_3 at 27^{0}C)	100 mg/L
	Ammonical Nitrogen	<50 mg/ L
	Phenolic compounds	<1 mg/ L

4. The emissions shall not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Parameter and Emission Standards
1&4	Particulate matter – 50mg/Nm3, HCl-50mg/Nm3, SO2-200mg/Nm3, CO-100mg/Nm3, Total organic carbon-20mg/Nm3, HF-4mg/Nm3, NOx-400 mg/Nm3, Total dioxins and furans-0.1ngTEQ/Nm3, Cd + Th + their compounds-0.05mg/Nm3, Hg and its compounds-0.05mg/Nm3 and Sb + As – Pb + Cr + Co + Cu + Mn + Ni + V + their compounds-0.05mg/Nm3 as prescribed in Schedule-II (C) of the Solid Waste Management Rules, 2016
2,3,5&6	Particulate Matter 115 mg/Nm^3

5. The industry shall comply with ambient air quality standards of PM_{10}(Particulate Matter size less than 10μm) - 100 μg/ m^3; $PM_{2.5}$(Particulate Matter size less than 2.5 μm) - 60 μg/ m^3; SO_2 - 80 μg/ m^3; NO_x - 80 μg/m^3, outside the industry premises at the periphery of the industry.

   Standards for Ambient Air quality at the MSW landfill site and at the vicinity shall be complied. SO2 – 80 μg/m^3; SPM 100 μg/ m^3; Methane not to exceed 25% of explosive limit (650 mg/m3), Ammonia - 0.4 mg/m3, CO - 2 mg/m3 (1 hour average) & CO - 1 mg/m3 (8 hours average) .

   Noise Levels: Day time - (6 AM to 10 PM) - 75 dB (A)
   Night time - (10 PM to 6 AM) - 70 dB (A).

6. The industry shall provide and maintain water flow meters for recording water consumption for various purposes and maintain the records for daily consumption.
7. The industry shall provide and operate ETP consisting of collection tank and neutralization tank for treatment of RO rejects, boiler blow down, cooling bleed off and after neutralization, the treated water shall be used for ash quenching.
8. The industry shall ensure that combustion process is carried out at 950°C and the flue gas shall have a residence time of 2 seconds minimum to destruct the dioxins and furans.
9. The industry shall use hydrated lime, activated carbon to remove dioxins and furans and heavy metals and finally by bag filter system for the treatment of flue gases.
10. The industry shall provide Online Continuous Emissions Monitoring System (OCEMS) for stack attached to Boilers for parameters SPM, SO2, NOx, HCl and CO.
11. The industry shall provide two AAQM stations within 6 months, as committed vide letter dated 26.04.2025.
12. The RDF shall be stored in closed tanker/pit. The bunker/pit shall be operated under negative pressure so as to control odourous gases and drawn into boiler.
13. The industry shall explore the possibility of burning the gases generated from the integrated Municipal solid waste legacy dumpsite in the boilers to control odour in the area.
14. The industry shall develop & maintain thick green belt all along the boundary of the industry and in all the vacant places within the industry with tall growing trees with wide leaf area.
15. The industry shall collect and store the ash generated in a closed shed and shall dispose into the secured landfill. The industry shall install bottom ash processing facility within 6 months, as committed vide letter dated 26.04.2025.
16. The industry shall maintain good housekeeping.
17. The industry shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board
18. The vehicle transporting municipal solid waste shall be covered with tarpaulin covers.
19. The industry shall ensure to operate dust suppression system consisting of water sprinkling system, suction hoods followed by odour extraction system at material , raw material handling areas and RDF storage bunkers to mitigate odour.

20. The industry shall comply with Task Force directions issued by the Board from time to time.
21. The industry shall comply with SWM Rules, 2016 for operation of the plant.
22. The applicant shall submit Environment statement in Form V to the Regional office before 30th September of every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
23. The conditions stipulated in this order are without any prejudice to rights and contentions of this Board in any Hon'ble court of Law.

SCHEDULE - C
[see rule 6(2)]
[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The industry shall give top priority for waste minimization and cleaner production practices.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management. Handling and Transboundary Movement) Rules, 2008 and amendments thereof. The industry shall maintain 6 copy manifest system for transportation of waste generated and copies of receipt of Consignee shall be submitted to the Concerned Regional office. The industry shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and amendments thereof.
3. The industry shall dispose /sell the Hazardous Waste to only industries/agencies authorized by the State Pollution Control Boards. The industry shall verify the authorization of the Board given to the Party before disposing its waste to the External Party.
4. The industry shall maintain proper records for Hazardous Wastes disposal and its concurrence with authorization. In case of variation in generation, industry shall submit explanation and obtain amendment CFE/CFO in this regard.
5. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal. Waste oils shall be disposed to the authorized Reprocessors/ Recyclers and Used Lead Acid Batteries shall be disposed to the manufacturers / dealers on buyback basis. The industry shall take necessary practical steps for prevention of oil spillages and carry over of oil from the premises. The industry shall check the Certificate/ Authorisation/order of MoEF issued to the Re-user/Recycle units while disposing the waste oil.
6. The industry shall dispose of e-waste to the authorised recyclers only.
7. The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-
MEMBER SECRETARY

To
M/s. Hyderabad MSW Energy Solution Private Ltd.,
(by GHMC), Sy No: 173, Jawaharnagar (V),
Shameerpet (M), Medchal-Malkajgiri District

// T.C.F.B.O //

Sanjay Sey

Senior Environmental Engineer

EBM

తెలంగాణ రాష్ట్రం
Telangana State

TELANGANA STATE POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A - 3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018

Phone: 23887500
Fax: 040 – 23815631
Website: tspcb.cgg.gov.in

CONSENT & HWA ORDER (FRESH)
RED CATEGORY

Consent Order No. 230524508889 **Date:16.06.2023**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation / Renewal of Authorisation under Rule 6 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 & Amendments thereof

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof, and Authorisation under the provisions of HOW (M & TM) Rules, 2016 (hereinafter referred to as 'the Acts', `the Rules') and amendments thereof and the rules and orders made there under to **M/s Dundigal Waste 2 Energy Private Ltd., Sy. No. 684/1, Dundigal (V), Quthubullapur (M), Medchal-Malkajgiri District** (hereinafter referred to as 'the Applicant /Facility') and the facility is authorized to operate the industrial plant to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys, by operating pollution control equipment, as detailed below,

i) Out lets for discharge of Effluents:

Outlet No.	Description of outlet	Max daily discharge in KLD	Point of Disposal
1.	Boiler blow down	40.0	After pre-treatment, collected in neutralization pit. After neutralization, used for ash quenching.
2.	Cooling tower rejects	110.0	
3.	Domestic	9.2	Shall be treated in Bio-digester till commencement of STP. After installation of STP of capacity – 10 KLD the treated water shall be used for on-land for gardening within the premises
4.	Leachate (from RDF storage area	100	Shall be disposed to M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District for treatment till commencement of in house MVRE facility for treatment of leachate by 30.09.2023

ii) Emissions from chimneys:

Chimney No.	Description of Chimney
1.	Attached to MSW RDF fired boiler of capacity 1 X 80 TPH
2.	Attached to DG set of capacity 1 x 600 KVA

iii) HW Authorisation No. 230524508889 **Date :16.06.2023**

HAZARDOUS WASTE AUTHORISATION
(FORM – II)
[See Rule 6 (2)]

M/s Dundigal Waste 2 Energy Private Ltd., Sy. No. 684/1, Dundigal (V), Quthubullapur (M), Medchal-Malkajgiri District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

- **Hazardous Wastes With Recycling Option:**

Sl. No.	Name of the Hazardous waste	Stream	Quantity	Disposal Option
1	Waste oil	5.1 of Schedule -I	100 LPA	Authorized re-processors / recyclers
Other Waste				
2.	Ash	-	250 TPD	Shall be disposed to M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar(V), Shameerpet (M), Medchal-Malkajgiri District

This Consent order is valid for manufacture of the products along with quantity as mentioned below only.

Sl. No.	Description of the facility	Capacity
1	Electricity generation through RDF*	14.5 MW

*The RDF shall be obtained from M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar(V), Shameerpet (M), Medchal-Malkajgiri District.

This order is subject to the provisions of `the Acts' and the Rules' and amendments made there under and further subject to the terms and conditions incorporated in the schedule A, B and C enclosed to this order.

This combined order of Consents and Authorization is valid for a period ending with the **31st day of March, 2028.**

Sd/-
MEMBER SECRETARY

To
M/s Dundigal Waste 2 Energy Private Ltd.,
Sy. No. 684/1, Dundigal (V), Quthubullapur (M),
Medchal-Malkajgiri District.

Copy to:

1. The Commissioner, GHMC, Hyderabad for information.
2. The JCEE, Zonal Office, Hyderabad for information and necessary action.
3. **The E.E., Regional Office, Medchal for information and necessary action. He is directed to inspect and monitor the facility regularly and submit status report on the conditions stipulated for taking further necessary action.**

///T.C.F.B.O///

M.Prame 16/6/2023

SENIOR ENVIRONMENTAL ENGINEER
(CFO – UNIT-III)

SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorisation under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorisation of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: http://tspcb.cgg.gov.in/Pages/Circulars.aspx).

2. This order is issued in line with CFE order dt. 01.07.2020 Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts. The industry shall comply with CFE order dt. 01.07.2020 is still applicable.

3. The industry occupier should immediately submit the revised application for consent to this Board in the event of any change in the building and site specifications, quantity of trade effluents & quantity of emissions etc.

4. The applicant should not change or alter either the quality or the quantity or the rate of the discharge or the route of discharge and should not change or alter either the prescribed quality or the rate of emission without the previous written permission of the Board.

5. The applicant should, not later than 30 days from the date of issue of this consent order, certify in writing to the Board that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent. In absence of alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent, production should be stopped.

6. Any up-set condition in the industry, which results in increased effluent discharge and/ or violation of standards stipulated in this order **or** the emission of any Air Pollutant into the environment in excess of the standards laid down by the Board occurs or is apprehended to occur due to accident, or other unforeseen act or event, the person-in-charge of the premises, from where such discharge / emission occurs or is apprehended to occur should forthwith intimate the fact of such occurrence or the apprehension of such occurrence to this Board, by fax / email under intimation to the Collector and District Magistrate.

7. In case of such episodal discharges / emissions mentioned in item 5 above, the industry should take immediate action to bring down the discharge / emission below the limits prescribed in this order.

8. A good housekeeping should be maintained in the premises. All hoods, pipes, valves, sewers and drains should be leak proof. Floor washings should be admitted into the effluent collection system only and should not be allowed to find their way into storm drains or open areas.

9. a) The industry should carryout analysis of waste water discharges or emissions through chimneys, for the parameters mentioned in Schedule – B of this Order at regular intervals.

   b) The industry should maintain following records for access to the Board, whenever required.
      1. Analysis reports of waste water/ emissions.
      2. Log book for operation of pollution control systems.
      3. Inspection book

10. Separate power connection with energy meter should be provided for the Pollution Control Equipments and record of power consumption and chemicals consumption for the operation of pollution control equipment should be maintained separately.

11. The applicant should comply with the directives/orders issued by the Board in this order and at all subsequent times without any negligence on his part. The applicant should be liable for such legal action against him as per provisions of the Law/Act in case of non-compliance of any order/directive issued at any time and/or violation of the terms and conditions of this consent order.

12. The industry is liable to pay compensation for any environmental damage caused by it, as fixed by the Collector and District Magistrate as Civil liability.

13. All the rules & regulations notified by Ministry of Environment and Forests, Government of India in respect of management, handling, transportation and storage of hazardous chemicals and wastes should be followed.

14. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed.

15. The occupier should educate the workers and nearby public of possible accidents and remedial measures.

16. For any accident or spillage of hazardous wastes causing damage to the Environment, the occupier or the transporter as the case should be held responsible.

17. The occupier should prepare/update Emergency preparedness plan for safe handling of hazardous waste from time to time and submit the same to TSPCB. Emergency preparedness plan must be implemented immediately whenever there is fire, explosion or release of hazardous waste or hazardous waste constituents, which could endanger to human health or environment.

18. Packaging, labeling and transportation of Hazardous Wastes should be in accordance with the provisions of the rules issued by the Central Govt. under the Motor Vehicles Act, 1988 and other guidelines issued from time to time. The packaging and labeling should be based on the composition and hazardous constituent of the waste, however all Hazardous Waste containers should be provided with a general label.

19. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card (as given in the guidelines for management and handling of hazardous wastes) duly filled by the Hazardous Waste generator.

20. No Hazardous Wastes should be mixed with any other wastes or should be discharged to a common, other internal, external sewerage or other drainage system without prior approval of TSPCB.

21. If MS/HDPE bags or drums are used for storing Hazardous Wastes, these drums / bags should be ensured that they are perfectly sealed.

22. The industry should comply with the provisions of Batteries (Management & Handling) Rules, 2001.

23. The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate. The first sign board should provide information on specific conditions of CFO and Hazardous Waste Authorisation. The second sign board should display waste water, air emissions and solid waste generated within the factory premises.

24. The applicant should exhibit the Consent & HW Authorisation order of the Board in the factory premises at a prominent place for the information of the inspecting officers of the different departments.

25. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and its amendments thereof and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and its amendments thereof to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.

26. The authorisation issued under Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016 and its amendments thereof, should comply with the provision of the Environment (Protection) Act, 1986.

SCHEDULE-B

1. The facility shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities prescribed below:

Sl.No.	Purpose	Quantity in KLD
a)	Boiler Feed make up	68.00
b)	Cooling water make up	146.4
c)	Green belt	48.00
d)	Domestic	24.00
e)	For Flue Gas Cleaning System	50.00
f)	Ash quenching	150.00
	Total	**735.00**

2. The effluent discharged should not contain constituents in excess of the tolerance limits prescribed below:

Outlet	Parameter	Limiting Standards
3.	pH	5.5-9.0
	Total Suspended Solids (at 103-105^{0}C)	200 mg/L
	Total Dissolved Solids(TDS)	2100 mg/L
	Oil & Grease	10 mg/L
	Chemical Oxygen Demand (COD)	250 mg/L
	Bio-chemical Oxygen Demand (BOD_3 at 27^{0}C)	100 mg/L

3. The emissions shall not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Description of Chimney	Parameter	Emission standards
1.	Attached to MSW RDF fired boiler of capacity 1 X 80 TPH	PM	50 mg/Nm^3
2.	Attached to DG set of capacity 1 x 600 KVA	SPM	115 mg/Nm^3

4. The industry shall meet the emission standards as prescribed in Schedule-II (C) of the Solid Waste Management Rules, 2016 i.e. Particulate matter – 50mg/Nm3, HCl-50mg/Nm3, SO2-200mg/Nm3, CO-100mg/Nm3, Total organic carbon-20mg/Nm3, HF-4mg/Nm3, NOx-400 mg/Nm3, Total dioxins and furans-0.1ngTEQ/Nm3, Cd + Th + their compounds-0.05mg/Nm3, Hg and its compounds-0.05mg/Nm3 and Sb + As – Pb + Cr + Co + Cu + Mn + Ni + V + their compounds-0.05mg/Nm3.

5. The industry shall not manufacture any un-consented products and exceeding capacities without obtaining prior Consent for Establishment (CFE) and Consent for Operation (CFO) of the Board.

6. The industry shall comply with emission limits for DG sets upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets more than 800 KW should comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

7. The industry shall comply with ambient air quality standards of PM_{10}(Particulate Matter size less than 10μm) - 100 μg/ m^3; $PM_{2.5}$(Particulate Matter size less than 2.5 μm) - 60 μg/ m^3; SO_2 - 80 μg/ m^3; NO_x - 80 μg/m^3, outside the factory premises at the periphery of the industry.

   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

   Noise Levels: Day time - (6 AM to 10 PM) - 75 dB (A)
   Night time - (10 PM to 6 AM) - 70 dB (A).

8. The facility has to pay total CFO fee of Rs. 40,23,000/- up to 31.03.2028, However the industry has paid CFO fee Rs.32,49,000. The industry has to pay balance Consent fee of Rs. 7,73,000/- at RO Medchal.

9. The facility either paying annual fee or total fee for Consented period, shall pay the balance fee as per the revised rates as applicable from time to time.

10. The facility shall provide and maintain water flow meters for recoding water consumption for various purposes and maintain the records for daily consumption.

11. The industry shall operate regularly air pollution control equipments i.e. flue gas cleaning system with bag filters to the 80 TPH RDF fired boiler.

12. The facility shall provide and operate ETP consisting of collection tank and neutralization tank for treatment of RO rejects, boiler blow down, cooling bleed off and after neutralization, the treated water shall be used for ash quenching.

13. **The facility shall install and operate STP of 10 KLD capacity for treatment of domestic effluents by 31.07.2023. In the meanwhile the facility is permitted for disposing the effluents through Bio-digester of 25 KLD capacity and the treated wastewater shall be used for gardening duly meeting the standards, as committed by the industry vide letter dt.12.06.2023.**

14. **The transportation of RDF from M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar(V), Shameerpet (M), Medchal-Malkajgiri District shall be carried in closed trucks without leading to any litter, spillages and odour nuisance. The facility shall maintain records of the same and shall submit to RO on quarterly basis.**

15. **The leachate generated from the RDF storage area shall be disposed to M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar (V), Shameerpet (M), Medchal-Malkajgiri District till commencement of in house MVRE facility for treatment of leachate by 30.09.2023 as committed by the industry vide letter dt.12.06.2023.**

16. **The transportation of leachate shall be carried in closed and leak proof trucks without leading to any litter, spillages and odour nuisance. The facility shall maintain records of the same and shall submit to RO on quarterly basis.**

17. The facility shall provide elevated platform with leachate/spillages collection pit to the RDF storage area to control spillages / discharges of leachate on the ground.

18. The facility shall provide dust suppression system consisting of water sprinkling, suction hoods, fans, bag filters etc., at material transfer point, and other raw material handling areas.

19. The facility shall ensure that combustion process is carried out at 950°C and the flue gas shall have a residence time of 2 seconds minimum to destruct the dioxins and furans.

20. The facility shall use hydrated lime, activated carbon to remove dioxins and furans and heavy metals and finally by bag filter system for the treatment of flue gases.

21. The facility shall provide Online Continuous Emissions Monitoring System (OCEMS) for stack attached to Boiler of capacity 80 TPH for parameters PM, SO2, NOx, HCl and CO.

22. The industry shall provide and maintain Stack Monitoring facility as per Emission Regulation part-3 (ERP-3) norms for all the major stacks of the industry.

23. The industry shall ensure that the Port hole and ladder facility for the Stacks is safe to carry out Stack monitoring. In place of monkey ladder, spiral type/scaffold ladder shall be provided to ensure safety of monitoring personnel.

24. The RDF shall be stored in closed tanker/pit. The bunker/pit shall be operated under negative pressure so as to control odourous gases and drawn into boiler.

25. The facility shall develop & maintain thick green belt all along the boundary of the facility and in all the vacant places within the facility with tall growing trees with wide leaf area.

26. **The industry shall collect and store the ash generated in a closed shed and shall dispose into the secured landfill i.e. M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy.No.173, Jawaharnagar(V), Shameerpet (M), Medchal-Malkajgiri District in closed trucks without leading to any litter, spillages and odour nuisance. The facility shall maintain records of the same and shall submit to RO on quarterly basis.**

27. The facility shall maintain good housekeeping.

28. The facility shall take odour control measures like mist spraying of PIION solutions at the smell generating points to mitigate the smell nuisance.

29. The facility shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board

30. The industry shall implement the odour control measures at source of generation and from ETP and shall ensure to maintain the same effectively to control odour problems.

31. The industry shall ensure that there shall not be any change in process technology and scope of working without prior approval from the Board.

32. (a) The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection.

    i) Daily production details.
    ii) Quantity of Effluents generated and reused.
    iii) Log Books for pollution control systems.
    iv) Daily solid waste generated and disposed

    (b) The industry shall submit consolidated statement of the above on monthly basis to the Concerned Regional Office.

33. As per G.O.Rt.No.286, the industry shall transport the industrial effluents and plying on the roads is allowed between 6 A.M. to 6 P.M. only.

34. The facility shall comply with Task Force directions issued by the Board from time to time.

35. The facility shall comply with SWM Rules, 2016 for operation of the plant.

36. The applicant shall submit Environment statement in Form V to the Regional office before 30th September of every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.

37. The conditions stipulated in this order are without any prejudice to rights and contentions of this Board in any Hon'ble court of Law.

SCHEDULE - C
[see rule 6(2)]
[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The facility shall give top priority for waste minimization and cleaner production practices.

2. The facility shall not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management. Handling and Transboundary Movement) Rules, 2008 and amendments thereof. The facility shall maintain 6 copy manifest system for transportation of waste generated and copies of receipt of Consignee shall be submitted to the Concerned Regional office. The facility shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and amendments thereof.

3. The facility shall dispose /sell the Hazardous Waste to only industries/agencies authorized by the State Pollution Control Boards. The facility shall verify the authorization of the Board given to the Party before disposing its waste to the External Party.

4. The facility shall maintain proper records for Hazardous Wastes disposal and its concurrence with authorization. In case of variation in generation, facility shall submit explanation and obtain amendment CFE/CFO in this regard.

5. The facility shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal. Waste oils shall be disposed to the authorized Reprocessors/ Recyclers and Used Lead Acid Batteries shall be disposed to the manufacturers / dealers on buyback basis. The facility shall take necessary practical steps for prevention of oil spillages and carry over of oil from the premises. The facility shall check the Certificate/ Authorisation/order of MoEF issued to the Re-user/Recycle units while disposing the waste oil.

6. The facility shall dispose of e-waste to the authorised recyclers only.

7. The facility shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-
MEMBER SECRETARY

To
M/s Dundigal Waste 2 Energy Private Ltd.,
Sy. No. 684/1, Dundigal (V), Quthubullapur (M),
Medchal-Malkajgiri District.

///T.C.F.B.O///

M. Praveen 16/6/2023

SENIOR ENVIRONMENTAL ENGINEER
(CFO – UNIT-III)

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Vimta
Driven by Quality. Inspired by Science.

ISSUED TO:

M/s. Hyderabad MSW Energy Solution Pvt. Ltd.
Survey No. 173, Jawaharnagar,
CRPF Road, Near Army Collage of Dental Sciences,
Kapra Mandal, Medchal Dist
Telangana State-500087

Report Number	:	VLL/VLS/25/07537/003
Issued Date	:	2025-07-18
P. O. No.	:	0400124970
P.O. Date	:	2025-05-06

SAMPLE NAME	:	Fly Ash Sample			
Sample Received Date	:	2025-07-07	Sample Registration Date	:	2025-07-09
Analysis Starting Date	:	2025-07-11	Analysis Completion Date	:	2025-07-17
Test Required	:	Proximate, Ultimate, Ash analysis, Metals, Calorific Value			
Received Quantity:	:	1 Kg packet X 1 no.			
Method of Testing	:	As Per ASTM D3173,ASTM D3174,ASTM D3175,ASTM E711,ASTM D6349,ASTM D6357,ASTM E 776,ASTM D7348,SOP.NO.26/22 and instrument used vario ELcube CHNS analyser,UV visible spectrophotometer, ICP-OES&ICP-MS			
Other Details if Any:	:	NA			

TEST REPORT

S. No.	Test Parameters	Unit of Measurement	Results
1	Total Organic Carbon	%	<0.10
	Ash Analysis		
2	Loss on Ignition	%	1.89
3	Silica as SiO2	%	14.68
4	Alumina as Al2O3	%	4.45
5	Iron as Fe2O3	%	2.91
6	Calcium as CaO	%	22.02
7	Magnesium as MgO	%	3.11
8	Sodium as Na2O	%	5.49
9	Potassium as K2O	%	7.33
10	Titanium as TiO2	%	1.00
11	Phosphorous as P2O5	%	6.49
12	Sulphur as SO3	%	12.50
13	Chloride as Cl	%	17.17
	Calorific Value Analysis		
14	Gross Calorific Value	KCal/Kg	<200
15	Net Calorific Value	KCal/Kg	<200
	Metals		
16	Arsenic as As	mg/kg	109.67
17	Cadmium as Cd	mg/kg	932.29
18	Hexavalent Chromium	mg/kg	0.56
19	Chromium as Cr	mg/kg	237.22
20	Mercury as Hg	mg/kg	0.50
21	Nickel as Ni	mg/kg	533.49
22	Selenium as Se	mg/kg	9.65
23	Zinc as Zn	%	0.56
24	Copper as Cu	%	0.15
25	Lead as Pb	%	0.18
	Proximate Analysis		
26	Moisture	%	0.20
27	Ash	%	94.19
28	Volatile Matter	%	2.55
29	Fixed Carbon	%	3.06

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampati
Manager - Environment

Vimta Labs Limited
Registered Office
142, IDA Phase II, Cherlapally
Hyderabad-500 051, Telangana, India
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Vimta
Driven by Quality. Inspired by Science.

ISSUED TO:
M/s. Hyderabad MSW Energy Solution Pvt. Ltd.
Survey No. 173, Jawaharnagar,
CRPF Road, Near Army Collage of Dental Sciences,
Kapra Mandal, Medchal Dist
Telangana State-500087

Report Number	:	VLL/VLS/25/07537/003
Issued Date	:	2025-07-18
P. O. No.	:	0400124970
P.O. Date	:	2025-05-06

SAMPLE NAME	:	Fly Ash Sample			
Sample Received Date	:	2025-07-07	Sample Registration Date	:	2025-07-09
Analysis Starting Date	:	2025-07-11	Analysis Completion Date	:	2025-07-17
Test Required	:	Proximate, Ultimate, Ash analysis, Metals, Calorific Value			
Received Quantity:	:	1 Kg packet X 1 no.			
Method of Testing	:	As Per ASTM D3173,ASTM D3174,ASTM D3175,ASTM E711,ASTM D6349,ASTM D6357,ASTM E 776,ASTM D7348,SOP.NO.26/22 and instrument used vario ELcube CHNS analyser,UV visible spectrophotometer, ICP-OES&ICP-MS			
Other Details if Any:	:	NA			

TEST REPORT

S. No.	Parameters Test	Unit of Measurement	Results
	Ultimate Analysis		
30	Ash	%	94.37
31	Carbon	%	0.31
32	Hydrogen	%	<0.10
33	Sulphur	%	4.99
34	Nitrogen	%	0.10
35	Oxygen as O (as Remainder)	%	0.13

Results relate only to the sample tested
Remark:-Proximate tested as received, Ultimate, Calorific value, Ash analysis, Metals tested on dry basis

Name and Designation of Authorized Signatory

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Manager - Environment

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Other Details if Any:	:	NA			

TEST REPORT

S. No.	Parameters Test	MOU	Results	Haz waste 2016-Schedule-II
1	pH	---	*9.73	8-12
2	Copper as Cu	mg/l	0.21	--
3	Cadmium as Cd	mg/l	0.03	1.0
4	Chromium as Cr	mg/l	4.31	5
5	Manganese	mg/l	7.82	10
6	Zinc as Zn	Mg/l	41.9	250
7	Lead as Pb	mg/l	0.13	5
8	Nickel as Ni	mg/l	3.65	20
9	Mercury as Hg	mg/l	<0.01	0.2
10	Arsenic as As	mg/l	<0.01	5
11	Selenium as Se	mg/l	<0.01	1
12	Thallium as Tl	mg/l	1.07	7
13	Vanadium	mg/l	3.88	24
14	Barium	mg/l	9.54	100
15	Nitrate	mg/l	26.5	1000.

Results relate only to the sample tested
Remark:-Proximate tested as received, Ultimate, Calorific value, Ash analysis, Metals tested on dry basis

Name and Designation of Authorized Signatory

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Telangana State-500087

Report Number	:	VLL/VLS/25/07537/002
Issued Date	:	2025-07-18
P. O. No.	:	0400124970
P.O. Date	:	2025-05-06

SAMPLE NAME	:	Bottom Ash Sample			
Sample Received Date	:	2025-07-07	Sample Registration Date	:	2025-07-09
Analysis Starting Date	:	2025-07-11	Analysis Completion Date	:	2025-07-17
Test Required	:	Proximate, Ultimate, Ash analysis, Metals, Calorific Value			
Received Quantity:	:	1 Kg packet X 1 no.			
Method of Testing	:	As Per ASTM D3173,ASTM D3174,ASTM D3175,ASTM E711,ASTM D6349,ASTM D6357,ASTM F 776,ASTM D7348,SOP.NO.26/22 and instrument used vario ELcube CHNS analyser,UV visible spectrophotometer, ICP-OES&ICP-MS			
Other Details if Any:	:	NA			

TEST REPORT

S. No.	Test Parameters	Unit of Measurement	Results
1	Organic Carbon	%	<0.10
	Ash Analysis		
2	Loss on Ignition	%	3.79
3	Silica as SiO2	%	59.24
4	Alumina as Al2O3	%	7.53
5	Iron as Fe2O3	%	2.75
6	Calcium as CaO	%	9.67
7	Magnesium as MgO	%	1.43
8	Sodium as Na2O	%	2.07
9	Potassium as K2O	%	2.73
10	Titanium as TiO2	%	0.39
11	Phosphorous as P2O5	%	8.05
12	Sulphur as SO3	%	0.85
13	Chloride as Cl	%	0.45
	Calorific Value Analysis		
14	Gross Calorific Value	KCal/Kg	<200
15	Net Calorific Value	KCal/Kg	<200
	Metals		
16	Arsenic as As	mg/kg	91.15
17	Cadmium as Cd	mg/kg	15.11
18	Hexavalent Chromium	mg/kg	0.22
19	Chromium as Cr	mg/kg	385.45
20	Copper as Cu	mg/kg	317.24
21	Mercury as Hg	mg/kg	0.25
22	Nickel as Ni	mg/kg	170.30
23	Selenium as Se	mg/kg	3.23
24	Zinc as Zn	%	0.04
25	Lead as Pb	%	0.06
	Proximate Analysis		
26	Moisture	%	14.87
27	Ash	%	80.26
28	Volatile Matter	%	4.10
29	Fixed Carbon	%	0.77

Name and Designation of Authorized Signatory

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Manager - Environment

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Sample Received Date	:	2025-07-07	Sample Registration Date	:	2025-07-09
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Received Quantity:	:	1 Kg packet X 1 no.			
Method of Testing	:	As Per ASTM D3173,ASTM D3174,ASTM D3175,ASTM E711,ASTM D6349,ASTM D6357,ASTM E 776,ASTM D7348,SOP.NO.26/22 and instrument used vario ELcube CHNS analyser,UV visible spectrophotometer, ICP-OES&ICP-MS			
Other Details if Any:	:	NA			

TEST REPORT

S. No.	Test Parameters	Unit of Measurement	Results
	Ultimate Analysis		
30	Ash	%	94.29
31	Carbon	%	1.14
32	Hydrogen	%	<0.10
33	Sulphur	%	0.34
34	Nitrogen	%	0.21
35	Oxygen as O (as Remainder)	%	3.92

Results relate only to the sample tested
Remark:-Proximate tested as received. Ultimate, Calorific value, Ash analysis, Metals tested on dry basis

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampati
Manager - Environment

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Other Details if Any:	:	NA			

TEST REPORT

S. No.	Parameters Test	MOU	Results	Haz waste 2016-Schedule-II
1	pH	---	9.11	6-12
2	Copper as Cu	mg/l	0.17	--
3	Cadmium as Cd	mg/l	0.05	1.0
4	Chromium as Cr	mg/l	2.98	5
5	Manganese	mg/l	6.76	10
6	Zinc as Zn	Mg/l	53.4	250
7	Lead as Pb	mg/l	0.03	5
8	Nickel as Ni	mg/l	3.75	20
9	Mercury as Hg	mg/l	<0.01	0.2
10	Arsenic as As	mg/l	<0.01	5
11	Selenium as Se	mg/l	<0.01	1
12	Thallium as Tl	mg/l	1.35	7
13	Vanadium	mg/l	2.55	24
14	Barium	mg/l	9.43	100
15	Nitrate	mg/l	14.8	1000.

Results relate only to the sample tested
Remark:-Proximate tested as received, Ultimate, Calorific value, Ash analysis, Metals tested on dry basis

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampati
Manager - Environment

TELANGANA STATE POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A-3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018

Phone: 3887500
Fax: 040 –23815631
Website: tspcb.cgg.gov.in

1315

Authorization No: 1/ TSPCB / MSW-Projects/ 2023 **Date:22.09.2023**

Authorisation Issued Under Rule – 6 of Municipal Solid Wastes (Management & Handling) Rules 2016

Ref: 1) Order No. SEIAA/AP/RRD-III/ 2009,dt.20-06-2012.
2) Authorization No: 1/ PCB / MSW-Projects/ 2023, dt. 11.12.2017.
3) Application for authorisation dt 31.07.2023.
4) R.O inspection report dt. 23.08.2023.
5) Consent Order No : 230824566511, Date:29.09.2023.

@@@

The Telangana State Pollution Control Board after examining the proposal hereby Authorizes **M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal- Malkajgiri District** to set up the following :

Sl. No.	Description of the facility	Capacity
1	RDF Plant (2X 1200 TPD)	2400 TPD
2	Compost Plant (3X 680 TPD)	2040 TPD
3	Bio- Methanization (10 X50 TPD)	500 TPD
4	Recycling Complex (Plastic, Paper, Metal, Rubber, Glass etc.)	600 TPD
5	Land fill with leachate collection and treatment system	735 TPD

I) **The proponent shall obtain necessary approvals from the Defence Airports / Airbase authorities located at Dundigal and Hakimpet prior to the setting up of the landfill site as per Schedule-III of the MSW Rules.**
II) The Validity of this Authorization is till 31.07.2028.
III) The proponent shall apply for renewal of Authorization atleast one month prior to the expiry of the Authorization.
IV) The Telangana State Pollution Control Board may, at any time, revoke / stipulate any of the conditions applicable under the authorization and shall communicate the same in writing.
V) Any violation of the provision of the Municipal Solid Wastes (Management and Handling) Rules, 2016 will attract the penal provision of the Environment (Protection) Act, 1986.
VI) The authorisation issued is subject to the terms and conditions attached to this authorisation order.

Sd/-
MEMBER SECRETARY

To
M/s. Hyderabad Integrated Municipal Solid Waste Management Project,
Sy No: 173, Jawaharnagar(V), Shameerpet(M),
Medchal- Malkajgiri District.

Copy to the Joint Chief Environmental Engineer, Zonal Office, Hyderabad for information and necessary action.
Copy to the Environmental Engineer, Regional Office, Rangareddy-II for information and with a direction to a monitor ground water and ambient air quality at the waste processing and disposal facilities atleast once in six months and submit reports to the Board.

//T.C.F.B.O.//

22/9/2023
Senior Environmental Engineer

TERMS AND CONDITIONS OF THE AUTHORISATION

1. Before establishing landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 metres of the periphery of landfill site shall be periodically monitored in piezometeric wells to ensure that the ground water is not contaminated beyond acceptable limits of TSPCB. Such monitoring shall be carried out to cover different seasons in a year that is, summer, monsoon and post-monsoon period.

2. The ground water usage in and around landfill sites for any purpose (including drinking and irrigation) is to be considered after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose:

S.No.	Parameters	IS 10500: 1991 Desirable limit (mg/l except for pH)
1.	Arsenic	0.05
2.	Cadmium	0.01
3	Chromium	0.05
4.	Copper	0.05
5.	Cyanide	0.05
6.	Lead	0.05
7.	Mercury	0.001
8.	Nickel	-
9.	Nitrate as NO_3	45.0
10.	PH	6.5-8.5
11.	Iron	0.3
12.	Total hardness (as $CaCO_3$)	300.0
13.	Chlorides	250
14.	Dissolved solids	500
15.	Phenolic compounds (as C_6H_5OH)	0.001
16.	Zinc	5.0
17.	Sulphate (as SO_4)	200

3. The proponent shall lay internal cement concrete roads for movements of vehicles within the dump yard.

4. The proponent shall provide G.I. sheets covering for the belt conveyor and also install adequate dust suppression equipment at all around the stockpiles.

5. The proponent shall take adequate measures to control self ignition of municipal solid waste.

6. The facility shall transport the MSW in closed vehicles only and ensure that there is no spillage of MSW during transportation.

7. The incoming wastes at site shall be maintained prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility.

8. The wastes processing facility shall be an integral part of the landfill site and the proponent shall be responsible for disposal of pre & post processing rejects into an engineered landfill facility.

9. **Land filling shall be restricted to non-biodegradable and non recyclable wastes only.**

10. Wastes subjected to land filling shall be compacted in thin layers using landfill compactors to achieve high density of the wastes.

11. Wastes shall be covered immediately or at the end of each working day with minimum 10 cm of soil, inert debris or construction material till such time waste processing facilities for composting or recycling or energy recovery are set up.

12. Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage berms shall be constructed to divert run-off away from the active cell of the landfill.

13. After completion of landfill, a final cover shall be designed to minimize infiltration and erosion. The final cover shall meet the following specifications, namely: --

a. The final cover shall have a barrier soil layer comprising of 60 cms of clay or amended soil with permeability coefficient less that 1 x 10^{-7} cm/sec.

b. On top of the barrier soil layer there shall be a drainage layer of 15 cm.

c. On top of the drainage layer there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.

14. In order to prevent pollution problems from landfill operations, the following provisions shall be made:

a. Diversion of storm water drains to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions;

b. Construction of a non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) minimum liner specifications shall be a composite barrier having 1.5 mm high density polyethylene (HDPE) geomembrane, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1 x 10^{-7} cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer;

c. Provisions for management of leachates collection and treatment shall be made. The treated leachates shall meet the standards specified at point no.8

d. Prevention of run-off from landfill area entering any stream, river, lake or pond.

15. Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.

16. The landfill site shall be well protected to prevent entry of unauthorised persons and stray animals.

17. The landfill site shall have wastes inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.

18. The landfill site shall have wastes inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.

19. Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipments and other facilities as may be required shall be provided.

20. Safety provisions including health inspections of workers at landfill site shall be periodically made.

21. Installation of landfill gas control system including gas collection system shall be made at landfill site to minimize odour generation, prevent off-site migration of gases and to protect vegetation planted on the rehabilitated landfill surface.

22. The concentration of methane gas generated at landfill site shall not exceed 25 per cent of the lower explosive limit (LEL).

23. The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to directly escape to the atmosphere or for illegal tapping. Passive venting shall be allowed if its utilization or flaring is not possible.

24. A vegetative cover shall be provided over the completed site in accordance with the and following specifications, namely: -

a) Selection of locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be allowed to grow;

b) The plants grown be such that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilized;

c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;

d) Plantation to be made in sufficient density to minimize soil erosion.

25. The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely :-

(a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(b) Monitoring leachate collection system in accordance with the requirement;

(c) Monitoring of ground water in accordance with requirements and maintaining ground water quality;

(d) Maintaining and operating the landfill gas collection system to meet the standards.

26. Use of closed landfill sites after fifteen years of post-closure monitoring can be considered for human settlement or otherwise only after ensuring that gaseous and leachate analysis comply with the specified standards.

27. The facility shall provide ETP for treating effluents generated from floor washing & workshop / vehicle maintenance shed, STP for treating the domestic effluents and full pledged treatment system for leachate effluents before commissioning the landfill.

28. The disposal of treated leachates shall follow the following standards:

S.No	Parameter	Standards
1	Suspended solids, mg/l, max	100
2	Dissolved solids (inorganic) mg/l, max.	2100
3	PH value	5.5 to 9.0
4	Ammonical nitrogen (as N), mg/l, max.	50
5	Total Kjeldahl nitrogen (as N), mg/l, max.	100
6	Biochemical oxygen demand (3 days at 27^0 C) max.(mg/l)	30
7	Chemical oxygen demand, mg/l, max.	250
8	Arsenic (as As), mg/l, max	0.2
9	Mercury (as Hg), mg/l, max	0.01
10	Lead (as Pb), mg/l, max	0.1
11	Cadmium (as Cd), mg/l, max	2.0
12	Total Chromium (as Cr), mg/l, max.	2.0
13	Copper (as Cu), mg/l, max.	3.0
14	Zinc (as Zn), mg/l, max.	5.0
15	Nickel (as Ni), mg/l, max	3.0
16	Cyanide (as CN), mg/l, max.	0.2
17	Chloride (as Cl), mg/l, max.	1000
18	Fluoride (as F), mg/l, max	2.0
19	Phenolic compounds (as C_6H_5OH) mg/l, max.	1.0

29. Ambient air quality at the landfill site and at the vicinity shall be monitored to meet the following specified standards, namely :-

S.No.	Parameters	Acceptable levels
(i)	Sulphur dioxide	120µg/m^3 (24 hours)
(ii)	Suspended Particulate Matter	500µg/m^3 (24 hours)
(iii)	Methane	Not to exceed 25 per cent of the lower explosive limit (equivalent to 650 mg /m^3) (24 hours)
(iv)	Ammonia daily average (sample duration 24 hrs)	0.4mg/m^3 (400 µg/m^3)
(v)	Carbon monoxide	1 hour average : 2 mg/m^3 8 hour average : 1 mg/m^3

30. The ambient air quality monitoring shall be carried out six times in a year and reports shall be submitted to the Board.

31. The compost plant and other processing facilities shall follow the conditions as follows :

1319

i. The incoming solid wastes and the wastes storage area at site shall be covered.

ii. The facility shall provide a system for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;

iii. Necessary precautions shall be taken to minimize nuisance of odour, flies, rodents, bird menace and fire hazard;

iv. In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of wastes to the landfill site;

v. Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclables shall be sent for well designed landfill site(s).

vi. In case of compost plant, the windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;

vii. Ambient air quality monitoring shall be regularly carried out particularly for checking odour nuisance at down-wind direction on the boundary of processing plant.

viii. In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:-

Parameters	Concentration not to exceed * (mg/kg dry basis, except pH value and C/N ratio)
Arsenic	10.00
Cadmium	5.00
Chromium	50.00
Copper	300.00
Lead	100.00
Mercury	0.15
Nickel	50.00
Zinc	1000.00
C/N ratio	20-40
PH	5.5-8.5

* Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

32. The proponent shall ensure that there shall not be any open burning of waste to avoid Air Pollution Problems.

33. The proponent shall maintain daily records of quantity of MSW received at landfill site, quantity of RDF and compost generated, quantity of recyclables, quantity of rejects sent to the landfill etc.,

34. The proponent shall manage wastes and facilities in conformity with specifications and standards stipulated in Schedule II, III and IV of the MSW Rules.

Sd/-
MEMBER SECRETARY

To
M/s. Hyderabad Integrated Municipal Solid Waste Management Project,
Sy No: 173, Jawaharnagar(V), Shameerpet(M),
Medchal- Malkajgiri District

//T.C.F.B.O.//

M.Prasad 22/9/2023

Senior Environmental Engineer

Received
P. Spandorfer
6301855115
from HIMSW

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Vimta
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ISSUED TO:

M/S. TELANGANA POLLUTION CONTROL BOARD.
Paryavaran bhavan, A-3, Industrial Estate
Sanathnagar, Hyderabad-500018
Telangana State. India.

Report Number : VLL/VLS/24/25222/001
Issued Date : 2025.05.21
P.O. Number : LOI
P.O. Date : 25.03.2025

Sample Particulars : **Source Emission Monitoring sample.**
Sample Code: SAMPLE-1 (25.03.250)

Sample Received Date	:	2025.03.25	Sample Registration Date	:	2025.03.26
Analysis Starting Date	:	2025.05.05	Analysis Completion Date	:	2025.05.16
Details of Samples received	:	Sample consisting of XAD-2 Resin, Filter Thimble, Acetone Line Wash-FH, Acetone Line Wash-BH, DCM Line wash-FH, DCM Line wash-BH			
Test Required	:	PCDD& PCDF			

TEST REPORT

Congeners of Dioxin & Furans		Concentration		
		Concentration (ng)	Toxicity Equivalence Factor by WHO	TEQ (ng)
1	2,3,7,8-TCDD	0.0001	**1**	0.0001
2	1,2,3,7,8-PeCDD	0.0003	**0.5**	0.0002
3	1,2,3,4,7,8-HxCDD	0.0000	**0.1**	0.0000
4	1,2,3,6,7,8-HxCDD	0.0000	**0.1**	0.0000
5	1,2,3,7,8,9-HxCDD	0.0000	**0.1**	0.0000
6	1,2,3,4,6,7,8-HpCDD	0.0000	**0.01**	0.0000
7	OCDD	0.0000	**0.001**	0.0000
8	2,3,7,8-TCDF	0.0000	**0.1**	0.0000
9	1,2,3,7,8-PeCDF	0.0000	**0.05**	0.0000
10	2,3,4,7,8-PeCDF	0.0001	**0.5**	0.0000
11	1,2,3,4,7,8-HxCDF	0.0000	**0.1**	0.0000
12	1,2,3,6,7,8-HxCDF	0.0000	**0.1**	0.0000
13	1,2,3,7,8,9-HxCDF	0.0000	**0.1**	0.0000
14	2,3,4,6,7,8-HxCDF	0.0000	**0.1**	0.0000
15	1,2,3,4,6,7,8-HpCDF	0.0000	**0.01**	0.0000
16	1,2,3,4,7,8,9-HpCDF	0.0000	**0.01**	0.0000
17	OCDF	0.0000	**0.001**	0.0000
			Total ng TEQ	0.0003
			Total ng/nm³ TEQ	0.0001
			Vstd. (Nm³)	5.74
			Total Furans & Dioxins (ng TEQ/Nm3 at 11 % O_2 Correction)	**0.0001**
			Limits as per S.O. 1357(E) ng TEQ/Nm³	**< 0.1**

Method of Analysis USEPA 23A

Name & Designation of the Authorized Signatory

Dr. Subba Reddy Mallampati
Manager -Environment.

Vimta Labs Limited
Registered Office
142, IDA Phase II, Cherlapally
Hyderabad-500 051,Telangana, India
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Vimta
Driven by Quality. Inspired by Science.

ISSUED TO:

M/S. TELANGANA POLLUTION CONTROL BOARD.
Paryavaran bhavan, A-3, Industrial Estate
Sanathnagar, Hyderabad-500018
Telangana State. India.

Report Number	:	VLL/VLS/24/25222/002
Issued Date	:	2025.05.21
P.O. Number	:	LOI
P.O. Date	:	25.03.2025

Sample Particulars : **Source Emission Monitoring sample.**
Sample Code: SAMPLE-2 (25.03.251)

Sample Received Date	:	2025.03.25	Sample Registration Date	:	2025.03.26
Analysis Starting Date	:	2025.05.05	Analysis Completion Date	:	2025.05.16
Details of Samples received	:	Sample consisting of XAD-2 Resin, Filter Thimble, Acetone Line Wash-FH, Acetone Line Wash-BH, DCM Line wash-FH, DCM Line wash-BH			
Test Required	:	PCDD& PCDF			

TEST REPORT

Congeners of Dioxin & Furans		Concentration		
		Concentration (ng)	Toxicity Equivalence Factor by WHO	TEQ (ng)
1	2,3,7,8-TCDD	0.0001	**1**	0.0001
2	1,2,3,7,8-PeCDD	0.0003	**0.5**	0.0002
3	1,2,3,4,7,8-HxCDD	0.0000	**0.1**	0.0000
4	1,2,3,6,7,8-HxCDD	0.0000	**0.1**	0.0000
5	1,2,3,7,8,9-HxCDD	0.0000	**0.1**	0.0000
6	1,2,3,4,6,7,8-HpCDD	0.0000	**0.01**	0.0000
7	OCDD	0.0000	**0.001**	0.0000
8	2,3,7,8-TCDF	0.0000	**0.1**	0.0000
9	1,2,3,7,8-PeCDF	0.0000	**0.05**	0.0000
10	2,3,4,7,8-PeCDF	0.0001	**0.5**	0.0000
11	1,2,3,4,7,8-HxCDF	0.0000	**0.1**	0.0000
12	1,2,3,6,7,8-HxCDF	0.0000	**0.1**	0.0000
13	1,2,3,7,8,9-HxCDF	0.0000	**0.1**	0.0000
14	2,3,4,6,7,8-HxCDF	0.0000	**0.1**	0.0000
15	1,2,3,4,6,7,8-HpCDF	0.0000	**0.01**	0.0000
16	1,2,3,4,7,8,9-HpCDF	0.0000	**0.01**	0.0000
17	OCDF	0.0000	**0.001**	0.0000
			Total ng TEQ	0.0003
			Total ng/nm³ TEQ	0.0000
			Vstd. (Nm³)	8.39
			Total Furans & Dioxins (ng TEQ/Nm3 at 11 % O_2 Correction)	**0.0000**
			Limits as per S.O. 1357(E) ng TEQ/Nm³	**< 0.1**

Method of Analysis USEPA 23A

Name & Designation of the Authorized Signatory

Dr. Subba Reddy Mallampati
Manager -Environment.

Vimta Labs Limited
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ISSUED TO:

M/S. TELANGANA POLLUTION CONTROL BOARD.
Paryavaran bhavan, A-3, Industrial Estate
Sanathnagar, Hyderabad-500018
Telangana State. India.

Report Number : VLL/VLS/24/25222/003
Issued Date : 2025.05.21
P.O. Number : LOI
P.O. Date : 25.03.2025

Sample Particulars : **Source Emission Monitoring sample.**
Sample Code: SAMPLE-3 (25.03.252)

Sample Received Date	:	2025.03.25	Sample Registration Date	:	2025.03.26
Analysis Starting Date	:	2025.05.05	Analysis Completion Date	:	2025.05.16
Details of Samples received	:	Sample consisting of XAD-2 Resin, Filter Thimble, Acetone Line Wash-FH, Acetone Line Wash-BH, DCM Line wash-FH, DCM Line wash-BH			
Test Required	:	PCDD& PCDF			

TEST REPORT

Congeners of Dioxin & Furans		Concentration		
		Concentration (ng)	Toxicity Equivalence Factor by WHO	TEQ (ng)
1	2,3,7,8-TCDD	0.0001	**1**	0.0001
2	1,2,3,7,8-PeCDD	0.0003	**0.5**	0.0002
3	1,2,3,4,7,8-HxCDD	0.0000	**0.1**	0.0000
4	1,2,3,6,7,8-HxCDD	0.0000	**0.1**	0.0000
5	1,2,3,7,8,9-HxCDD	0.0000	**0.1**	0.0000
6	1,2,3,4,6,7,8-HpCDD	0.0000	**0.01**	0.0000
7	OCDD	0.0000	**0.001**	0.0000
8	2,3,7,8-TCDF	0.0000	**0.1**	0.0000
9	1,2,3,7,8-PeCDF	0.0000	**0.05**	0.0000
10	2,3,4,7,8-PeCDF	0.0001	**0.5**	0.0000
11	1,2,3,4,7,8-HxCDF	0.0000	**0.1**	0.0000
12	1,2,3,6,7,8-HxCDF	0.0000	**0.1**	0.0000
13	1,2,3,7,8,9-HxCDF	0.0000	**0.1**	0.0000
14	2,3,4,6,7,8-HxCDF	0.0000	**0.1**	0.0000
15	1,2,3,4,6,7,8-HpCDF	0.0000	**0.01**	0.0000
16	1,2,3,4,7,8,9-HpCDF	0.0000	**0.01**	0.0000
17	OCDF	0.0000	**0.001**	0.0000
			Total ng TEQ	0.0003
			Total ng/nm³ TEQ	0.0000
			Vstd. (Nm³)	6.04
			Total Furans & Dioxins (ng TEQ/Nm3 at 11 % O_2 Correction)	**0.0000**
			Limits as per S.O. 1357(E) ng TEQ/Nm³	**< 0.1**

Method of Analysis USEPA 230

Name & Designation of the Authorized Signatory

Dr. Subba Reddy Mallampati
Manager -Environment.

मुख्यालय
उत्तराखण्ड प्रदूषण नियंत्रण बोर्ड
"गौरा देवी पर्यावरण भवन"
46वी, आई.टी. पार्क, सहस्त्रधारा रोड़, देहरादून
E-mail : msukpcb@yahoo.com, दूरभाष 0135-2607092

पत्रांक–यूकेपीसीबी/एचओ/सा0–183–863 /2025/ 806

दिनांक :– 08.08.2025

सेवा में,

सदस्य सचिव,
केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
'परिवेश भवन', ईस्ट अर्जुन नगर,
दिल्ली।

विषय :– Waste to Energy Plant की सूचनाओं के सम्बन्ध में।

महोदय,

उपरोक्त विषयक अपने पत्र सं0–CM-13011/125/2024-LAW-HO-CPCB-HO दिनांक 10.07.2025 का सन्दर्भ ग्रहण करना चाहें। जिसके द्वारा वांछित सूचनायें निर्धारित प्रारूप में संलग्न कर सादर प्रेषित् की जा रही है।

संलग्नक :– यथोपरि।

भवदीय

(डॉ0 पराग मधुकर धकाते)
सदस्य सचिव।

Annexur

FORMAT FOR INFORMATION ON WASTE TO ENERGY (WtE) PLANTS (MSW INCINERATION BASED)

a General details of MSW incineration based WtE plants.

S. No.	State/ UT	Name of WtE Plant with address	Validity of CTE/CTO under Air & Water Act (Yes/No)	Authorization granted under WM Rules (Yes/No)	Validity of Authorization	MSW Processing Capacity TPD	Power Generation Capacity (MW)	Calorific Value of waste received at WtE facility (Kcal/kg)	Additional fuel used if any in furnace, if any	Minimum Temperature maintained at secondary combustion chamber (° Celsius)	Loss of Ignition (in Bottom ash) % of dry weight)	Average bottom ash/fly ash generation (% w.r.t. MSW feed)
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
1	Uttrakhand	M/s Bahal Paper Mills Limited, 5th KM Stone,Aliganj Road ,Kashipur	CTE & CTO issued for New RDF/NRSW based Boiler with Validity up to 31.03.2028	EPR Registration obtained under PWMRule 2016)	As per the notification dated 30 /10/2023, under PWMRule2016, Plastic Waste Processer (PWP) apply for one-time registration through CPCB EPR portal. dated One Time Registration	100 TPD : Non Recyclable Solid Waste	2.5 MW	3620 (as per the Data, provided by the Unit)	Rice Husk /Agro Residue	950-1000	To be assessed	To be assessed
2	Uttrakhand	M/s Siddarth Papers Limited(Unit-02),7th KM Stone Moradabad Road,Kashipur	CTE & CTO issued for Modification of Existing Boiler to RDF based Boiler/WtE Plant with Validity up to 31.03.2025 Plant Renewal not issued.	NO	NO	185 TPD RDF	6 MW	4000 (as per the Data, provided by the Unit)	Biomass & Coal	700-750	To be assessed	To be assessed

3.	Uttrakhand	M/s Siddheswari Papers Limited(Unit-02),7th KM Stone Moradabad Road,Kashipur	CTE & CTO issued for Modification of Existing Boiler to RDF based Boiler/WtE Plant with Validity up to 31.03.2025 Plant CTO issued with Validity up to 31.03.2025 Renewal not issued.	NO	NO	185 RDF	6 MW	4000 (as per the Data, provided by the Unit)	Biomass & Coal	600-610	To be assessed	To be assessed
4.	Uttrakhand	M/s Kailashi devi Pulp & paper,,Village: Lalpur ,Jaspur	CTE issued for NEW RDF based Boiler. CTO application was rejected. Recommended for Show Cause Notice with EC, Ref.UKPCB/ROK/Gen-146/25/276 dated 29/07/2025	NO	NO	225 TPD RDF	3 MW	CTO not issued	Biomass & Coal	CTO Not issued	To be assessed	To be assessed
5.	Uttrakhand	M/s PSB Papers Private Limited,Bazpur	CTE issued CTE issued for NEW RDF based Boiler /WTE Plant CTO applied Not Operational	NO	Under Installation	190 TPD RDF	3 MW	Under Installation	Biomass & Coal	Under Installation	To be assessed	To be assessed

6.	Uttrakhand	M/s Devrishi Papers Udhyog Private Limited, Village: Jagatpura Patti ,Jaspur	CTE issued for Modification of Existing Boiler to RDF based Boiler/WtE Plant CTO applied Under Installation/modification	NO	Under Installation	150 TPD RDF	1 MW	Under Installation	Biomass	Under Installation	To be assessed	To be assessed
7.	Uttrakhand	M/s Viswnath Paper ,Vilage: Haldua Sahu,Jaspur	CTE issued for NEW RDF based Boiler /WTE Plant Under Installation	NO	Under Installation	400 TPD RDF	6MW	Under Installation	Agro Residue	Under Installation	To be assessed	To be assessed
8.	Uttrakhand	M/s KM Papers Limited ,Kichha	CTE issued for Modification of Existing Boiler to RDF based Boiler/WtE Plant Under Installation	NO	Under Installation	60 TPD RDF	1 MW	Under Installation	Agro Residue	Under Installation	To be assessed	To be assessed

(b) Compliance status of WtE plants

S.No.	Whether WtE plant monitored in last 5 years by SPCBs (Yes/No)	If yes, please provide date of monitoring	List of Parameters monitored as specified in Para B (Parameters for Treated Leachate n of schedule-II of SWM Rules, 2016	Parameters found non complying the norms	List of Parameters monitored as specified in Para C (Parameters for incineration of Schedule II of SWM Rules, 2016	Parameters found non complying the norms	Details of analysis, disposal/utilization bottom ash.	Details of analysis, disposal/utilization fly ash.	Details of action taken against the plants not complying with norms & provisions of SWM Rules, 2016 (EC imposed, Show cause/ Closure issued, non-renewal of authorization or any other action taken for non-compliance)
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
01.	M/s Bahal Paper Mills Limited, 5th KM Stone,Allganj Road ,Kashipur	06.03.2025	To be assessed	To be assessed	PM,SOx,NOx,CO	All parameter found Complying	To be assessed	To be assessed	Not Applicable
02.	M/s Siddarth Papers Limited(Unit-02),7th KM Stone Moradabad Road,Kashipur	06.03.2025	To be assessed	To be assessed	PM,SOx,NOx,CO	PM,CO	To be assessed	To be assessed	Show Cause Notice issued Ref: UKPCB/HO/C& M-K-153/2025 dated 16.06.2025
03.	M/s Siddheswari Papers Limited(Unit-02),7th KM Stone Moradabad Road,Kashipur	06.03.2025	To be assessed	To be assessed	PM,SOx,NOx,CO	PM,CO	To be assessed	To be assessed	Show Cause Notice issued Show Cause Notice issued Ref: UKPCB/HO/C& M-K-154/2025 dated 16.06.2025

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड
UTTAR PRADESH POLLUTION CONTROL BOARD

Ref. No: H30465 ***/WMD/OA 536/Gen-43/2025*** ***Dated:*** 22-7-25

To,
The Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032

Subject- Direction under section 5 of the Environmental (Protection) Act, 1986 to action taken report & compliance status of the Waste to Energy (WtE) plants in Compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants..

Sir.

Please refer to your letter CM-13011/125/2024-LAW-HO-CPCB-HO dated 10.07.2025, via which Directions were issued under section 5 of the Environmental (Protection) Act, 1986. Furthermore, in compliance of Hon'ble N.G.T. directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants UPPCB was required to submit action taken report & compliance status of the Waste to Energy (WtE) plants.

Therefore, in the view of above, the compliance status of the Waste to Energy (WtE) plants in prescribed format is attached herewith for your kind perusal and necessary action.

Enclosure: 1. Compliance Status of WtE plant

Yours sincerely

(Sanjeev Kumar Singh)
Member Secretary

Copy to: for information and necessary action:-

1. PS to Chairman, U.P. Pollution Control Board, Lucknow
2. Regional Director, RD Central Pollution Control Board, Lucknow
3. Chief Legal Officer (In charge), U.P. Pollution Control Board, Lucknow

Member Secretary

9/c

टी.सी. - 12 वी, विभूति खण्ड, गोमती नगर,
लखनऊ - 226 010
दूरभाष : 0522-2720828, 2720831
ई–मेल : feedback@uppcb.in

T.C.-12 V, Vibhuti Khand, Gomti Nagar,
Lucknow - 226 010
Phone : 0522-2720828, 2720831
Website : www.uppcb.up.gov.in

Compliance status of the Waste to Energy (WtE) plants of the state of uttar pradesh in compliance of Hon'ble Directions dated 16.04.2025 in OA No. 536 of 2024 related to Waste to Energy Plants of Direction under section 5 of the Environmental (Protection) Act, 1986.

S.No.	Directions issued for the compliance	Compliance status
a.	To submit reasons for non-submission of complete information as per aforementioned communications issued by CPCB and Directions of Hon'ble NGT dated 11.04.25.	Information was provided to CPCB via e-mail dated 08.4.2025.
b.	To ensure that all WtE plants operational in your jurisdiction operate with valid Consent and Authorization issued by Uttar Pradesh SPCB.	Not Applicable.
c.	To ensure that waste having calorific value of 1500 Kcal/kg or more is processed for generating energy as stipulated under clause 21 of SWM Rules, 2016.	Not Applicable.
d.	To ensure that Bottom ash and fly ash is analysed for relevant parameters and non-hazardous Bottom ash/ fly ash is utilized for beneficial purposes and that found hazardous is disposed off in Secured Landfills	Not Applicable.
e.	To regular monitor the Waste to Energy plants to ensure their compliance with stipulated environmental norms as per Solid Waste Management Rules, 2016 and take actions against those found non-compliant with the provisions of the SWM Rules Rules.	Not Applicable.
f.	To ensure that all WtE plants have Online Monitoring systems installed in. their Air Pollution Control Systems and are connected with CPCB and Uttar Pradesh SPCB server to ensure round-the-clock surveillance of the WtE plants.	Not Applicable.
g.	To ensure that all the WtE Plants (MSW incineration based) in your jurisdiction be monitored as stipulated under Rule 16(4) of SWM Rules and complete information including action taken report for noncompliance be submitted to CPCB in the prescribed format (Annexure I).	Not Applicable.

Note: At present in Uttar Pradesh there is no operational MSW incineration based waste to energy (WtE) Plant.

Annexure-IV

REPORT OF EXPERT COMMITTEE CONSTITUTED BY CPCB

(IN COMPLIANCE TO HON'BLE SUPREME COURT ORDER DATED 24.02.2025 IN Writ Petition(s)(Civil) No(s). 13029/1985, M.C. MEHTA Vs. UNION OF INDIA & ORS.)

CENTRAL POLLUTION CONTROL BOARD

(*Ministry of Environment, Forest & Climate Change*) "Parivesh Bhawan", East Arjun Nagar, Delhi-110032

……May, 2025

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1.0 Background

1.1 Hon'ble Supreme Court Order

Hon'ble Supreme Court vide order dated 24.02.2025 in the matter of Writ Petition(s)(Civil) No(s). 13029/1985, M.C Mehta Vs. Union of India & Ors., inter alia, directed the following, reproduced herein below:

Para 3: Another important issue flagged by the learned senior counsel appointed as Amicus Curiae is that the percentage of segregation waste is very low in Municipal Corporation of Delhi area, Gurugram and Faridabad. The State of Uttar Pradesh has not furnished any figures. As rightly submitted by the learned Amicus Curiae, the segregation of waste at source is of vital importance for the environment. ***If there is no proper segregation, even waste-to-energy projects will cause more pollution***

Para 6: We direct the ***Central Pollution Control Board to submit a report to this Court on the impact of waste to energy projects on the environment and public health.***

Para 7. The affidavit by the NCR States shall be filed by end of March 2025. No further time shall be granted. ***The Central Pollution Control Board shall also file a report by end of March, 2025****. The affidavits and the report will be considered on 2nd April, 2025 at 3.00 p.m.*

Further, Hon'ble SC vide order dated 24.04.2025 directed the following:

Para 12: As far as the issue of Waste to Energy Plants is concerned, the Central Pollution Control Board by filing an affidavit dated 22nd April, 2025 has sought time of one month to make compliance. We, accordingly, grant time of one month to the Central Pollution Control Board to make compliance from 22nd April, 2025. At this stage, the learned Amicus Curiae has invited our attention to a letter dated 12th February, 2025 addressed by the Member Secretary of the Central Pollution Control Board to the State Pollution Control Boards. She has invited our attention to page 03 of the said letter and has raised concerns about a new category mentioned therein. To enable the learned ASG to seek clarification, this aspect will be considered on 8th May, 2025 at 12:00 noon.

A copy of Hon'ble SC order dated 24.02.2025 and 24.04.2025 are attached as **Annexure I.**

1.2 Overview of Waste to Energy Plants in India

In 2007, the Municipal Corporation of Delhi (MCD) and the New Delhi Municipal Council (NDMC) facilitated the establishment of a 16 MW WtE project on a BOOT (Build-Own-Operate-Transfer) basis, creating an integrated municipal solid waste processing facility at Timarpur-Okhla. The first successful municipal solid waste (MSW) incineration-based Waste-to-Energy (WtE) plant in India, located at Timarpur-Okhla in Delhi, became operational in January 2012.

As per information provided by SPCBs/PCCs in the matter of OA No. 536/2024, NGT, PB, there are presently 21 WtE plants operational in India. The list of WtE plants is attached as **Annexure-II.**

1.3 Brief description of Waste to Energy Plant

Waste-to-Energy (WtE) plants convert municipal solid waste into energy. The process begins with manual and mechanical screening of the waste into inert, recyclable, biodegradable fraction and refuse-derived fuels (RDF). The RDF is fed into the boiler, where it is incinerated to produce heat energy. This heat energy is used to generate steam, which drives a turbine to produce electricity. The biodegradable fraction is converted into compost, recyclables are sent to the recyclers and inerts are disposed of in the landfill. It also may have potential for use as a construction material

The major sources of emissions from the WtE plants are the emissions from the boiler stack, flyash and bottom ash from the boiler, leachate and odour from the waste handling areas.

The process description of a WtE plant is illustrated below **(Figure 1):**

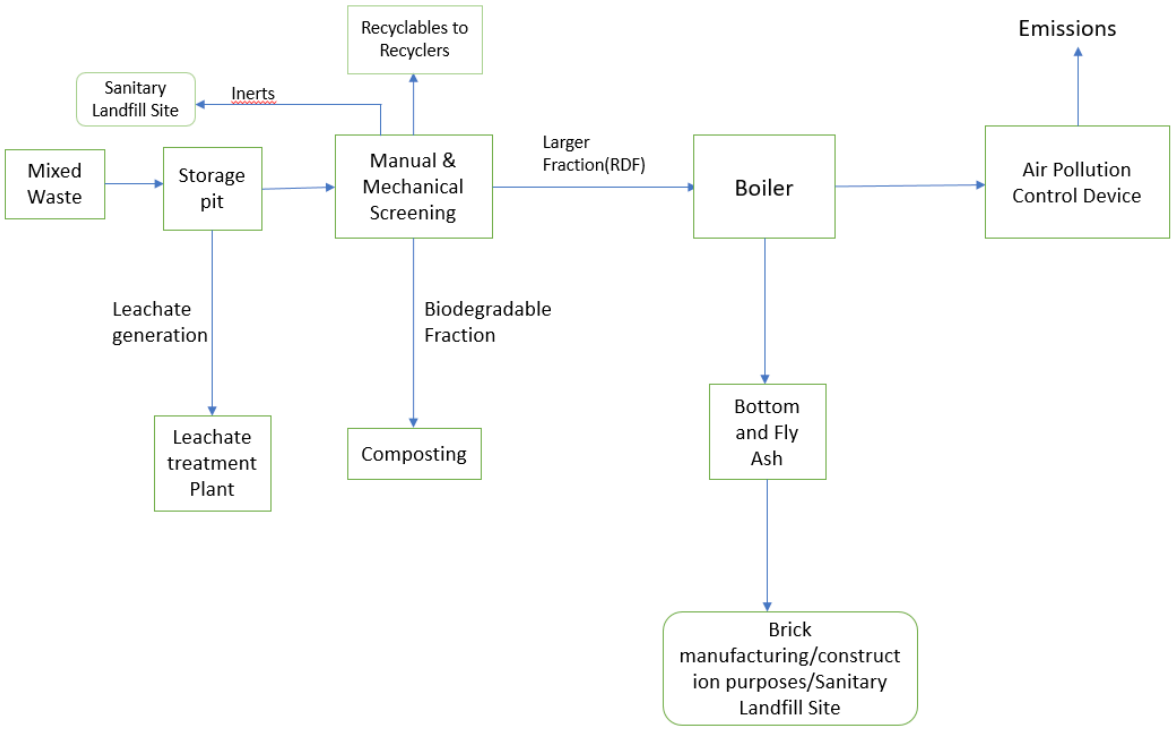


Figure 1: Process description diagram of Waste to Energy Plant

1.4 Classification of Waste to Energy Plants as Blue Category projects

Recently, CPCB revised the system of categorization (Classification of Sectors into Red, Orange, Green, White and Blue Categories) as per which industries are now categorized into Red, Orange, Green, White, and Blue categories, based on a cumulative Pollution Index (PI). The PI score accounts for water pollution, air pollution, and hazardous waste generation. In the revised system of classification, Essential Environmental Services Sectors (EES) have been defined as those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. Essential Environmental Services Sectors have further been subclassified as “EES for industrial waste” and “EES for domestic waste” The sectors falling under “EES for Domestic Waste “have been classified as Blue Category. and Waste to Energy plants which mainly handle municipal solid waste have been classified in blue category as per the revised classification system-.

It is to be noted that the revised classification system has been finalized by the working committee constituted for the purpose based on 160 representations comprising of more than 700 comments received by CPCB. Human settlements whether located in rural/urban/eco-sensitive areas generate sewage, solid waste, and C&D waste, which are required to be managed to prevent adverse impact on environment and human health. Basic environment management facilities are required to be set-up to manage such waste which includes STP, C&D waste processing facility, MSW management facility like sanitary landfill, material recovery facility & waste processing units, bio-methanation, bio-composting, waste to energy, etc. These facilities are basically essential environment services which play a vital role in protecting environment and human health. These facilities may also bring value addition by producing various by-products such as secondary raw material, compost, energy,

etc. and promotes circular economy and sustainable development by converting waste into wealth. Moreover, these categories do not generate hazardous or infectious wastes. The role and importance of these facilities is different in nature as compared to other activities and industries in the sense that they are primarily set-up for prevention, control and abatement of soil, water and air pollution.

CPCB has issued Directions dated 12.02.2025 to all State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) for the adoption and implementation of the the revised classification system. Copy of the said direction is placed at **Annexure III.**

1.5 Legal Framework in India:

The Solid Waste Management (SWM) Rules delineate the provisions for Waste to Energy (WtE) plants. The relevant clauses are mentioned as under:

(a) Clause 21 (1) of SWM Rules, 2016 specifies that non-recyclable waste having a calorific value of 1500 kcal/kg or more shall not be disposed of in landfills and shall only be utilized for generating energy either through refuse derived fuel or by giving away as feedstock for preparing refuse derived fuel.

(b) Schedule II (Part B) specifies the standards for treated leachate prescribing 19 parameters viz. pH, Suspended Solids (SS), Total Dissolved Solids (TDS), Ammoniacal Nitrogen (N), Total Kjeldahl Nitrogen (TKN), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Arsenic (As), Mercury (Hg), Cadmium (Cd) , Lead (Pb), Total Chromium (Cr), Copper (Cu), Zinc (Zn), Nickel (Ni), Cyanide (CN), Chloride (Cl), Fluoride (F) and Phenolic compounds

(c) Schedule II (Part C) specifies the emission standards from incinerators /thermal technologies in Solid Waste treatment/disposal facility for 11 parameters namely Particulate Matter, HCl (Hydrochloric Acid) , SO_2 (Sulphur Dioxides), CO (Carbon Monoxide) , TOC (Total Organic Carbon) , HF (Hydrofluoric Acid), NOx (Nitrogen Oxides) , Dioxins & Furans , Hg (Mercury & Compounds, Cd+Th (Cadmium , Thorium & Compounds), Sb+As, Pb+ Cr, Co, Cu, Mn+ Ni+ V (Antimony , Arsenic, Lead , Chromium , Copper , Manganese , Nickel , Vanadium & Compounds). The same is applicable to WtE plants. Further, the following are the major compliances to be ensured by the WtE plants as per Schedule II, Para C :

i. If the concentration of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal facility (TSDF).

ii. All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950 degrees Celsius in the secondary combustion chamber and with a gas residence time in the secondary combustion chamber not less than 2 (two) seconds.

iii. Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

A copy of the Solid Waste Management Rules, 2016 is placed at **Annexure IV**

1.6 International Scenario Vis-à-vis Indian Scenario

As per the United Nation Environment Program (UNEP), document (https://www.unep.org/ietc/resources/publication/waste-energy-considerations-informed-

decision-making), there are over 1,700 thermal WtE plants worldwide. Over 80 per cent of thermal WtE plants are located in developed countries, led by Japan, France, Germany and the United States. Globally, more than 200 thermal WtE plants are currently under construction. Thermal WtE plants are emerging in developing countries in Asia Pacific, including China, Thailand, the Philippines, Indonesia and Myanmar. The no. of incineration based WtE Plants worldwide are given in **Figure 2.** The top 11 Countries that have maximum no. of incineration based WtE are given in **Figure 3.**

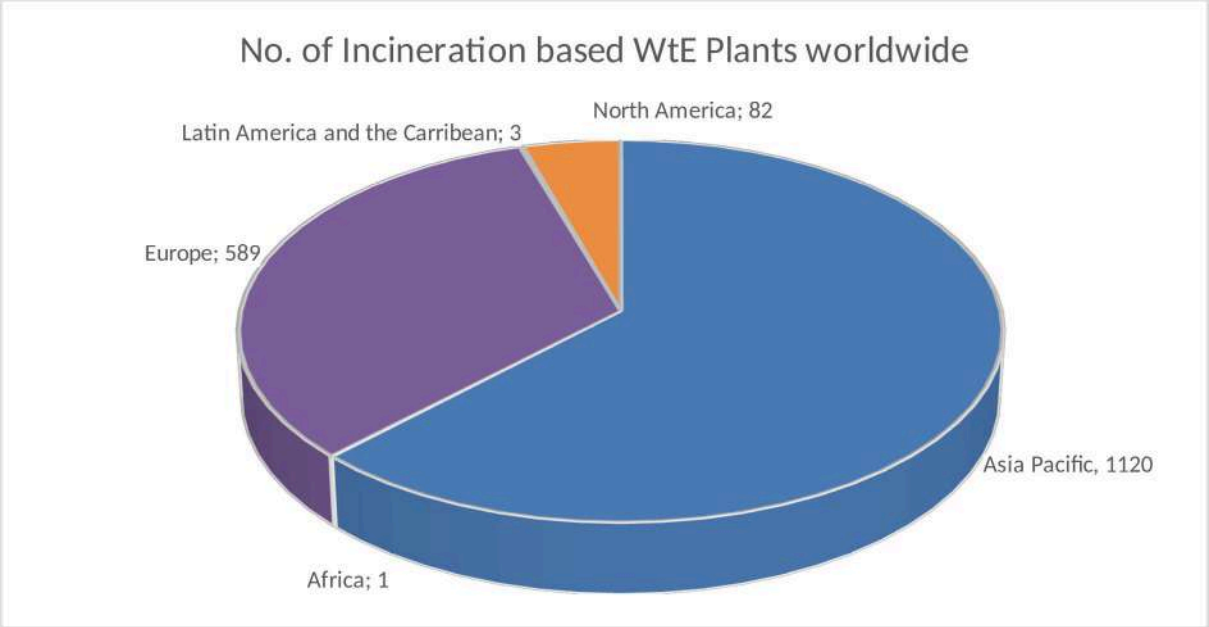


Figure *2: Number of incineration based WtE Plants Worldwide (Source: UNEP)*

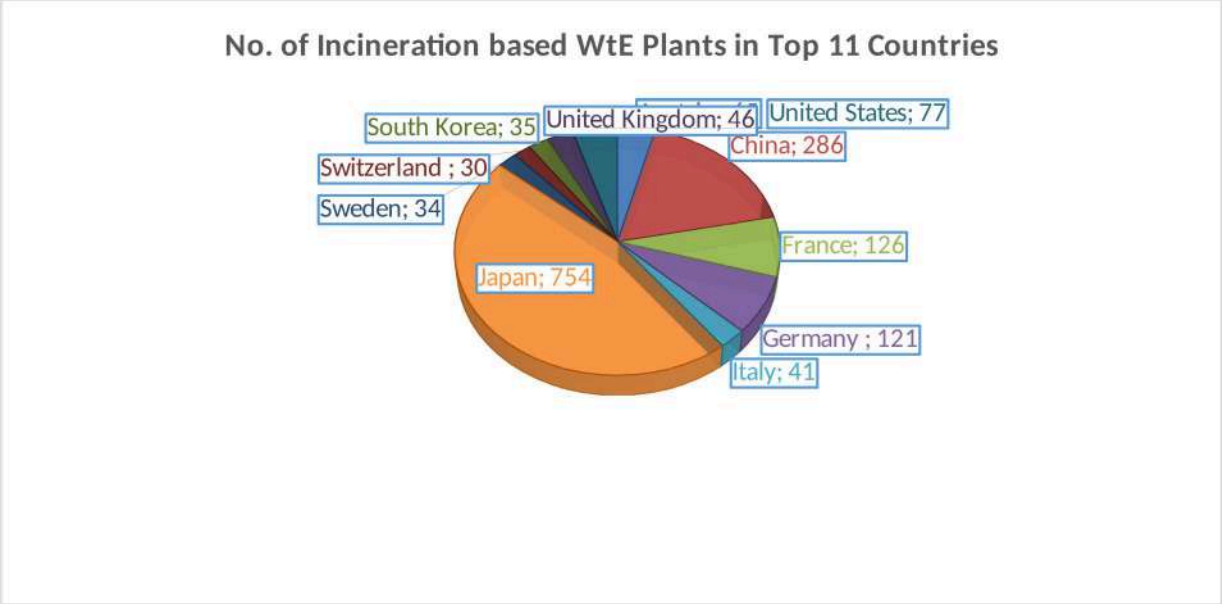


Figure *3: Number of incineration-based WtE Plants in Top 11 Countries (Source: UNEP)*

The Centre Collaborating with UNEP on Environmental Technologies (CCET) guidelines outlines the current processes and mechanisms commonly adopted for Waste-to-Energy (WtE) incinerators worldwide. A comparison of these global practices with the Indian scenario is presented in **Table 1.**

Table 1: Comparison of International Scenario with Indian Conditions

S.No.	Particulars	International Scenario	Indian Scenario
1	Calorific value	The Lower Calorific value must be, on average, at least 1,667 kcal/kg and never fall below 1,428 kcal/ kg for WtE incineration	As per SWM Rules, 2016 non-recyclable waste having calorific value of 1500 kcal/kg or more shall not be disposed of on landfills. Such wastes shall only be utilized for generating energy either through refuse derived fuel or as feed stock for preparing refuse derived fuel.
2	Type of Incinerator	Stoker type incinerator, comprising of set of grates, is mostly used for incineration,	As per the observations made during inspection of WtE plants in Delhi, moving grate system is used for incineration , which is a similar incineration technology
3	Number of incineration chambers	The combustion chamber is divided into three stages: “dry zone”, “combustion zone” and “burn-out zone”	As per SWM Rules, 2016 twin chamber system is mandated for incineration.
4	Temperature of Incinerator	To prevent incomplete combustion of flue gas, a temperature of 850ºC or more and a retention time of two seconds or longer are required in the secondary combustion zone.	As per SWM Rules, 2016 all the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950ºC in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.
5	Air Emissions	Bag filters are used to remove air pollutants from flue gas through filtering. An alkali agent such as lime powder and powdered activated carbon are injected into	As per the WtE Plants in Delhi, which have been inspected by CPCB, Bag filters are used to remove air pollutants from flue gas through filtering. An alkali agent

		flue gas before it passes through the bag filter. Air pollutants can be removed through the following mechanisms. • Dust is removed by filtering. • Acidic gases such as hydrochloric acid (HCl) and sulfur dioxide (SO2) are reacted with an alkali agent and removed. • Dioxins and mercury are adsorbed into powdered activated carbon and removed.	such as lime powder and powdered activated carbon are injected into flue gas before it passes through the bag filter.
6	Bottom Ash	When bottom ash is discharged from an incinerator, "Loss on Ignition (LOI)", which indicates unburned content in bottom ash, should be measured to ensure the quality of combustion. In Japan, LOI of bottom ash is regulated at 5% or less The most common method of treatment of bottom ash is reclamation in a controlled landfill site. Can be used as construction material after checking the heavy metals concentrations	The loss on ignition Should be less than 5% of the dry weight. As per the conditions stipulated by DPCC in the Consent issued to the WtE plants located in Delhi, Bottom Ash is to used by Waste to Energy Plants in making Bricks and other products which can be consumed in construction activities road (Paver Blocks, Kerbs Stones, subgrade preparation etc.) / building construction In case concentration of toxic metals exceeds the limits specified in the Hazardous and Other wastes (Management and Transboundary movement) Rules, 2016, as amended time to time the ash is sent to Hazardous Waste Treatment and disposal Facility.
7	Fly Ash	It is normally collected using bag filters and then discharged. It consists mainly of an injected alkaline agent and salt compound with an acidic gas, such as sulfur dioxide and hydrogen chloride, as well as dust containing harmful components such as heavy metals and dioxins. In order to prevent toxic substances from leaching, Fly ash is generally reclaimed in a controlled disposal site after treatment with cement or chemicals.	As per the conditions stipulated by DPCC in the Consent issued to the WtE plants located in Delhi, in case concentration of toxic metals exceeds the limits specified in the Hazardous and Other wastes (Management and Transboundary movement) Rules, 2016, as amended from time to time, the ash is sent to Hazardous Waste Treatment and disposal Facility.
8	Waste Water	Many plants use closed systems that do not generate wastewater. In such systems, wastewater generated during the treatment process is sprayed as coolant in furnaces, which then evaporates and is treated by flue gas treatment systems.	As per the conditions stipulated by DPCC in the Consent issued to the WtE plants located in Delhi, the leachate generated from MSW is treated in leachate treatment plant and the treated leachate is reused in the plant for different purposes

It is observed that basic operational conditions & pollution control measures as per Solid Waste

Management Rules, 2016 and Consent issued to the WtE plants located in Delhi, are similar to those adopted at international levels as per UNEP's CCET Guidelines.

2.0 Actions taken by CPCB

CPCB constituted an Expert Committee comprising of members from the Indian Institute of Technology (IIT) Kanpur, the National Environmental Engineering Research Institute (NEERI), Nagpur, DPCC and CPCB to assess the impact of Waste-to-Energy projects on the environment and public health. The office order for the constitution of the Committee is annexed as **Annexure V.**

CPCB conducted inspection of the Waste to energy (WtE) Plants located in Delhi to assess the ground-level conditions related to the quantum of waste generation and its likely impact on the environment. The inspections were conducted jointly with Delhi Pollution Control Committee (DPCC). Three WtE plants located at Okhla, Ghazipur and Bawana were covered in the inspection conducted during March 21-23, 2025. The monitoring/sampling of stack emissions, ambient air quality, fly ash and bottom ash, treated leachate and groundwater was carried out by M/s Shriram Institute for Industrial Research (SIIR) (engaged by DPCC) in presence of the inspecting team of CPCB and DPCC. The analysis of the same was also carried out by the said laboratory, SIIR.

The fourth WtE plant located at Tehkhand could not be inspected during March 21-23, 2025, as it was shut down for maintenance during this period and it became operational on April 9, 2025. Therefore, the inspection of the plant at Tehkhand was conducted by CPCB on April 23-24, 2025, jointly with DPCC. The monitoring and sampling of stack emissions (except Dioxins & Furans), ambient air quality, fly ash and bottom ash, treated leachate, and groundwater was carried out by CPCB in the presence of the inspecting team from DPCC. The analysis of the same was conducted by the CPCB laboratory. The task of sampling & analysis of the stack emission parameter for Dioxins & Furans was awarded to M/s Fare Lab Pvt. Ltd. by CPCB, and the sampling was conducted by the Lab on April 24, 2025.

Additionally, the monitoring/sampling of solid waste for calorific value was carried out by CPCB at all four WtE plants in Delhi on April 23-24, 2025 and the analysis of the same was conducted in the CPCB Laboratory.

2.1. Identification of focus areas for assessing impact of WtE plants:

The meeting of the Expert Committee was held on 19th March, 2025. Based on deliberations held during the meeting, the following areas were identified as focus areas for assessing impact of the WtE plants on environmental & Public health from the above WTE plants.

(A) Quality of waste incinerated in the WtE plants
(B) Compliance of WtE plants with design considerations in Schedule II (C) of SWM Rules
(C) Air Pollution Control Measures and Compliance with Emission standards specified in Schedule II (C) of SWM Rules
(D) Ambient air quality
(E) Management of fly ash and bottom ash
(F) Groundwater quality
(G) Odour management & green belt development
(H) Leachate management
(I) Impact on ambient air quality

(J) Impact on public health

2.2. Assessment of the Waste to Energy Plants

The findings of the Joint inspection of the four WtE plants in Delhi, were assessed specifically w.r.t to aforementioned focus areas and the same have been briefly described:

2.2.1 Quality of Waste incinerated in the WtE plants

It was observed that the four WtE plants receive unsegregated municipal solid waste (MSW), which is pre-processed using manual and mechanical segregation methods at WtE, prior to incineration in the boiler at the respective WtE facility.

(a) WTE Bawana

The unit has a setup consisting of conveyor belt for manual segregation, 13 trommels with 4 ballistic separators, magnetic separators, and Wind Shifter for segregation of MSW into inert, recyclable, biodegradable and refused-derived fuel (RDF) fraction.

(b) WTE Ghazipur

The unit has a setup consisting of a conveyor belt for manual segregation, 2 trommels with 2 ballistic separators, magnetic separators for segregation of MSW into inert, recyclable, compostable materials and refuse-derived fuel (RDF).

(c) WTE Okhla

The unit has a setup consisting of 1 trommel with 2 ballistic separators, 3 Magnetic separators, 2 Shredders for segregation of MSW into inert, recyclable, compostable materials and refuse-derived fuel (RDF). The process begins with the arrival of closed compactors carrying MSW at the WTE Plant, which pass through a radioactive sensor and weigh bridge before entering an enclosed storage pit. Bio-culture is applied to degrade organic material. The stored MSW is then pre-processed, and segregated into inert, recyclable, compostable materials and refuse-derived fuel (RDF).

(d) WTE Tehkhand

The unit has a setup consisting of 1 trommel with 4 ballistic separators, 3 Magnetic separators, 1 Shredder for segregation of MSW into inert, recyclable, compostable materials and refuse-derived fuel (RDF).

The process flow diagram of all Four WtE Plants are placed in **Annexure VI.**

It is observed that all four WtE plants have installed pre-processing facilities. Waste samples were collected from the inlet point and the boiler feed point for measuring the calorific value, the details of which are given at **Table 2.0.** It is observed that the calorific value of pre-processed waste at the boiler feed point is higher than that of unsegregated waste at inlet point of the WtE plant.

Table2.0: Calorific value of Unsegregated Waste and Pre-processed Waste

Unit	Calorific Value of unsegregated waste* (kcal/Kg)	Calorific value feed of preprocessed waste *(Kcal/Kg)	% increase in calorific value of waste

Bawana WtE	1590.84	2478.02	55.76
Ghazipur WtE	1117.7	2093.15	87.27
Okhla WtE	1593.85	2812.67	76.47
Tehkhand WtE	1482.33	1990.51	34.28

**Values reported on Wet basis*

Based on the above, it is observed that calorific value of pre-processed waste at the incinerator feed point is more than 1500 kcal /kg in all the four WtE plants, which is in compliance of Rule 21(1) of SWM Rules, 2016.

2.2.2 Compliance of WtE plants with Design specifications/ process conditions in Schedule II (C) of SWM Rules

As per Schedule II (C)of SWM Rules, all the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950^{0}C in secondary combustion chamber with a gas residence time not less than 2 (two Seconds). The status of compliance with these **Design specifications/ process conditions** of the WtE plants is given in **Table 3.0**:

Table 3.0: Status of compliance with Design specifications/ process conditions of Schedule II (C) of SWM Rules

S.No.	Operational Parameters (24 hrs)	WTE ,Bawana	WTE, Ghazipur	WTE, Okhla	WTE Tehkhand
1	Twin Chamber incinerator	Yes	Yes	Yes	Yes
2	Temperature (^{o}C)				
	(Min)	959	1022.34	985.82	970.9
	(Max)	1041	1107.15	1100	1039.7
3	Residence time in combustion chamber (Seconds)	>2	>2	>2	>2

It is observed that all the WtE plants are complying with design specifications/ process conditions as specified in Schedule II (C) of SWM Rules, 2016.

2.2.3 Air Pollution Control Measures and Compliance with Emission standards specified in in Schedule II (C) of SWM Rules

All four WtE plants have installed Air Pollution Control Devices (APCD) to control emissions from the Boiler stack. The details of the APCDs to treat the flue gas generated from the boiler in the four WtE plants are given below:

i. WtE plant at Bawana

Two boilers are connected to a single stack of height 60 m. Details of APCD used to treat the flue gas are:

Flue Gas Distributor (Spiral-Cased Flue Duct)

The flue gas is led into the reaction tower (each boiler having one reaction tower) through a spiral-cased flue duct (also called a flue gas distributor), ensuring uniform distribution for effective treatment.

Reaction Tower (De-Acidification Tower)

Each boiler is connected to one reaction tower, which utilizes a semi-dry type rotating atomizer for lime water for the neutralization of acidic gases such as SO_2, HCl, and HF. To prevent blockages and maintain dry fly ash, the tower is equipped with two sets of

electric heating systems at the bottom.

Baghouse Filter

Solid products and excess lime are carried by gases from the reactor into the baghouse filter, with each reaction tower followed by one baghouse filter. The mixture of hydrated lime and activated carbon helps absorb pollutants and also removes dioxins.

ii. WtE plant at Ghazipur

There is one boiler connected to a stack of height 60m. Details of APCD used to treat flue gas is provided below:

Semi Wet Reactor

The flue gas is passed through a Semi wet lime scrubber to neutralize acidic gases like HCl and Sulphur Oxides (SOx) and further sprayed with Activated Carbon to capture any residual toxic gases. Lime dosing system is used for injection of lime slurry in the semi wet reactor.

Bag filter:

It is the filtration unit in which fabric bags are used to separate the dust from the flue gas.

Selective non-catalytic reduction (SNCR)

SNCR unit is used for the injection of urea solution in high temperature zone of boiler to control the NO_x.

iii. WtE plant at Okhla

The Flue Gas Cleaning System (FGCS) is designed to treat flue gas from the boiler. It comprises the following components:

Turbo-Reactor

Flue gas from the boiler passes through a venturi nozzle into the turbo-reactor, where it mixes with hydrated lime and activated carbon to absorb SO_2, HCl, Dioxins. Controlled water is added to optimize temperature, and the remaining dust particles are carried to the baghouse filter for removal.

Sorbent Handling System

Sorbent handling system contains storage silos of hydrated lime and activated carbon; the sorbents are conveyed from the sorbent silos into turbo-reactor through dilute-phase conveying system

Baghouse Filter

The flue gas, which contains dust particles, flows into the baghouse filter through a central duct to chambers. The flue gas passes through filter bags, trapping solids on the outside of the bags which ensures the removal of particulate matter.

iv. WTE Plant at Tehkhand

There is one boiler connected to a stack of height 60m. Details of APCD used to treat flue gas is provided below:

Gas Conditioning Tower

Flue gases from the boilers will enter the Gas Conditioning Tower where the Controlled water is added to optimize the gas temperature.

Reactor Tower

The flue gas from gas conditioning tower enters the reaction tower through a venturi nozzle, where the flue gas comes into turbulent contact with hydrated lime and activated carbon, which absorb SO_2, HCl and other acidic compounds, and Dioxins. The heavy dust particles fall and remaining light particles are carried with the flue gas into the baghouse filter.

Sorbent Handling System

Sorbent handling system contains storage silos of hydrated lime and activated carbon; the sorbents are conveyed from the sorbent silos into reactor tower through lean phase conveying system.

Baghouse Filter

The flue gas contains dust particles, flows into the baghouse filter through a central duct to chambers. The flue gas passes through filter bags, trapping solids on the outside of the bags, forming a filtration-aiding layer (filter cake). This process ensures the removal of particulate matter. Further, a certain amount of the chemical reaction also takes place at filter cake.

End Product Handling System

The particulate matter collected in the baghouse filter is transferred to an intermediate silo, then conveyed by pneumatic conveying system into silos. These silos store the fly ash, which is later transported by closed vehicles to the SLF.

The Flow diagrams of APCD installed at Four WtE Plants are Placed as **Annexure VII.**

2.2.4 Stack Emission Monitoring

Stack emission monitoring was conducted during the joint inspection of the three WtE Plants in Delhi in Bawana , Ghazipur & Okhla on 21.03.2025, 22.03.2025 and 23.03.2025 respectively and in Tehkhand plant, it was conducted on 23.04.2025. The analysis results of the same are given in Table **4.**

Table 4: Stack Emission Monitoring Results at WtE Plants in Delhi

S.No.	Parameters	Solid Waste Management Rules, 2016,	Measured Stack Emission mg/Nm^3(Corrected to 11% O_2 as per SWM Rules)			
			WTE Bawana	WTE Ghazipur	WTE Okhla	WTE Tehkhand
1	SPM	50 mg/Nm^3	28	20	15	25.45
2	Hydrogen Chloride	50 mg/Nm^3	0.72	BQL	1.3	0.74
3	SO_2	200 mg/Nm^3	18	22	27	BDL
4	NO_X (NO and NO_2) expressed as NO_2)	400 mg/Nm^3	179	153	128	146.1
5	CO	100 mg/Nm^3	25	30	34	0.773
6	HF	4 mg/Nm^3	BQL*	BQL	BQL	BDL**
7	Total Organic Compounds	20 mg/ Nm3	2.8	2.8	2.8	4.025
8	Sb + As + Pb +Cr+Co+ Cu+ Mn + Ni+V+ their compounds	0.5 mg/Nm^3	0.266	0.1212	0.1702	0.022

9	Cd + Th +their compounds	0.05 mg/Nm^3	**0.055**	0.086	0.028	Cd- BDL
9	Pb	Not prescribed	0.058	0.018	0.024	BDL
10	Hg	0.05 mg/Nm^3	0.002	0.0008	0.0007	BDL
11	Total Dioxin & Furans	0.1 ng TEQ/Nm^3	**0.598**	0.0721	0.0031	0.053

***BQL- Below Quanitification Limit (Detected but could not be quantified)*
***BDL- Below Detection Limit*

It is observed that the emissions from the three WtE plants (Ghazipur, Okhla & Tehkhand) are complying with the stipulated emission norms. However, in case of Bawana Dioxin & Furan & Cd+Th are exceeding the stipulated emission norms.

2.2.5 Ambient air quality monitoring

Monitoring of ambient air quality was conducted during the joint inspection of four WtE Plants in Delhi viz Bawana , Ghazipur, Okhla & Tehkhand and the results are given in **Table 5.0.**

TABLE 5: Ambient Air Quality at Four WtE plants in Delhi													
		WtE Bawana (21.03.2025)		WtE Ghazipur (22.03.2025)		WtE Okhla (23.03.2025)		WtE Tehkhand (23.04.2025)		**Range of values reported at 39 CAAQMS (Continuous Ambient Air Quality Monitoring Stations) in Delhi during Joint Inspection**			
Parameters	**Prescribed Standard***	**Canteen near main gate (Inside plant)**	**Fire station building (Outside plant)**	**Ghazipur Police station(Outside plant)**	**Delhi Transco Ltd. Ghazipur (Outside plant)**	**Near STP Okhla (Outside plant)**	**NDMC building Opp. Plant (Inside plant)**	**Near ramp inside the premises(Inside plant)**	**Near raw water storage(Inside plant)**	**21.03.2025 to 22.03.2025**	**22.03.2025 to 23.03.2025**	**23.03.2025 to 24.03.2025**	**23.04.2025 to 24.04.2025**
PM_{10}	100 µg/m^3 (avg, 24 hours)	238	141	221	186	169	166	417.67	272	103.58 - 307.58	79.19 - 519	131.21 - 302.42	106.4- 449.42
$PM_{2.5}$	60 µg/m^3(avg, 24 hours)	54	46	84	57	55	75	105	85	31.7 - 133.33	18.97 - 125	53.66 - 151.32	50.75- 158.17
NO_2	80 µg/m^3(avg, 24 hours)	26	25	31	27	30	29	61.83	41	7.05 - 83.91	5.29 - 118.89	5.97 - 121.33	15.01- 118.02
SO_2	80 µg/m^3(avg, 24 hours)	15	16	15	20	8	14	7.33	6.5	6.07 - 64.64	5.93 - 63.43	6.12 - 66.64	6.03- 56.31
O_3,	100 µg/m^3 (avg, 8 hrs)	124	142	140	138	87	129	45.07#		6.82 - 68.38	8.8 - 176.8	7.29 - 109.8	21.54- 91.86
Pb	1 µg/m^3 (avg, 24	0.29	0.17	0.15	0.17	0.13	0.11	0.061	0.058	**	**	**	**

	hours)												
CO	2 mg/m^3 (avg. 8hrs)	1.5	1.2	1.6	1.7	1.2	1.6	1.12#		0.42 - 2.95	0.35 - 2.64	0.45 - 3.31	0.44- 3.82
NH_3	400 µg/m^3(avg, 24 hours)	28	19	30	46	20	29	24.63#		11.81 - 65.56	12.6 - 54.6	11.07 - 68.95	9.03- 63.15
Ni	20 ng/ m^3 (annual average)	25.1*	5.1*	24.2*	19.5*	5.5*	9.6*	20*	10*	**	**	**	**

**24 hours measured value and hence not comparable with the prescribed annual average of 20 ng/m^3*

#CPCB Lab has only one mobile van for sampling of these parameters, hence the sampling was conducted at one location only.

***Data not available at 39 CAAQMS stations*

Following are the observations from ambient air quality measurements:

i. PM_{10} concentration levels at all eight stations monitored at the four WtE plants is exceeding the prescribed limits. It is however, within the range of concentration levels monitored at the 39 monitoring stations in Delhi.

ii. $PM_{2.5}$ levels at one station at Ghazipur WtE, one station at WtE Okhla and both the stations at WtE Tehkhand is exceeding the prescribed limits. It is however, within the range of concentration levels monitored at the 39 monitoring stations in Delhi.

iii. Ozone concentration levels in ambient air at five stations (2 at Ghazipur, 2 at Bawana and 1 at Okhla) is exceeding the prescribed limits. Presence of NOx is a precursor for Ozone generation. There are multiple sources for NOx in the environment. As detailed in Section 2.2.10, GLC level of NOx due to WtE plants is minuscule. Hence, contribution of WtE plants to increase in Ozone concentration in ambient air is negligible.

iv. Nickel concentration in ambient air has been reported as > 20 ng/m^3- at one station each in Ghazipur and Bawana during 24 hr monitoring at these stations. The Nickel measurements are one-day (24 hr) measurements and as such are not comparable with annual average for which minimum monitoring of 104 days is required.

2.2.6 Bottom Ash & Fly Ash

Sampling and analysis of bottom ash & fly ash was carried out during the joint inspection of four WtE Plants in Delhi viz Bawana , Ghazipur, Okhla & Tehkhand ,and the results of the same given in **Table 6.**

The conditions stipulated in the Consent to Operate(CTO) issued by DPCC to the four WtE Plants are as given below:

WTE Bawana:

(i) The Consentee shall transport Fly Ash/Bottom Ash/Inert materials in properly covered vehicles and ensure that no fugitive emission occurs in the air either during loading, unloading and transportation.

(ii) The Consentee shall properly operate and maintain the existing Bottom Ash Processing Facility and utilize the processed products.

(iii) The Consentee shall provide the facility for Fly Ash utilization & the same shall be used in brick manufacturing etc.

(iv) In case concentration of toxic metals exceeds the limits specified in the Hazardous and Other wastes (Management and Transboundary movement) Rules, 2016, as amended time to time the consentee shall send the ash to Hazardous Waste Treatment and Disposal Facility.

WTE Ghazipur:

(i) No Ash shall be disposed of in low-lying areas

(ii) In case concentration of toxic metals exceeds the limits specified in the Hazardous and Other wastes (Management and Transboundary movement) Rules, 2016, as amended time to time the consentee shall send the ash to Hazardous Waste Treatment and disposal Facility.

WTE Okhla:

(i) Phasing out of dumping of ash in low lying areas/dumping sites /Engineered Sanitary Landfill at the earliest (at least within six months) and an Action Plan shall be submitted in this regard.

(ii) Ash (Fly Ash & Bottom Ash) must be used by Waste to Energy Plants in making Bricks and other products which can be consumed in construction activities road (Paver Blocks, Kerbs Stones, subgrade preparation etc.) / building construction (Fly Ash Bricks, etc.), and submit Time Bound Action Plan in this regard for 100% utilization of Ash.

(iii) In case concentration of toxic metals exceeds the limits specified in the Hazardous and Other wastes (Management and Transboundary movement) Rules, 2016, as amended time to time the consentee shall send the ash to Hazardous Waste Treatment and disposal Facility.

WTE Tehkhand:

(i) The Consentee shall collect the Fly Ash and Bottom Ash in dry form and storage facility shall be provided & maintained properly. Fly Ash, Bottom Ash & Inert materials shall be transported in properly covered containers / vehicles within the premises of the Plant and ensure that no fugitive emission occurs in the air, either during loading, unloading and transportations.

(ii) The Consentee shall ensure strict compliance of the Directions u/s 5 of the Environment (Protection) Act, 1986 along with Solid Waste Management Rules, 2016 regarding utilization of Ash generated from Waste to Energy Plants in Delhi. The Waste to Energy Plants shall ensure following:

- Phasing out of dumping of ash in the Low-Lying Areas / Dumping sites / Engineered

Sanitary Landfill at the earliest (at least within six months) and an Action Plan shall be submitted in this regard within 30 days.

- Ash (Fly Ash & Bottom Ash) must be used by Waste to Energy Plants in making Bricks and other products which can be consumed in construction activities - road (Paver Blocks, Kerbs Stones, subgrade preparation etc.) / building construction (Fly Ash Bricks, etc.), and submit Time Bound Action Plan in this regard for 100 % utilization of Ash.

TABLE 6 : TCLP# RESULTS: BOTTOM ASH & FLYASH AT WTE PLANTS IN DELHI									
Parameters	**Standards**	**Bawana(21.03.25)**		**Ghazipur(22.03.25)**		**Okhla (23.03.25)**		**Tehkhand (23.04.2025)**	
		Bottom Ash	**Fly Ash**	**Bottom Ash**	**Fly Ash**	**Bottom Ash**	**Fly Ash**	**Bottom Ash**	**Fly Ash**
*Loss on Ignition (for Bottom ash only)	<5%	6.20%	NA	2.4	NA	3.4	NA	0.983	NA
Arsenic	5 mg/l**	BQL	BQL	BQL	BQL	BQL	BQL	BDL	BDL
Cadmium	1 mg/l**	0.45	**57.4**	0.31	**4**	0.46	0.02	0.147	BDL
Chromium	5 mg/l**	0.69	3.06	0.45	0.28	0.2	0.05	0.036	BDL
Manganese	10 mg/l**	7.28	**11.23**	3.29	0.52	5.46	BQL	1.578	BDL
Lead	5 mg/l**	0.79	**48**	0.4	0.05	0.38	0.38	0.056	**5.968**
Selenium	1 mg/l**	BQL	BQL	BQL	BQL	BQL	BQL	BDL	BDL
Copper	25 mg/l**	2.03	**87.8**	3.5	0.04	1.85	BQL	1.006	0.145
Nickel	20 mg/l**	0.44	1.8	0.3	0.08	0.31	0.01	0.058	BDL
Zinc	250 mg/l**	24.05	211	17.2	0.04	30.8	BQL	8.161	0.722
Cobalt	80 mg/l**	0.14	0.34	0.24	0.01	0.6	BQL	0.102	BDL
Vanadium	24 mg/l**	0.1	BQL	0.04	0.02	0.01	0.21	0.007	BDL
Antimony	15 mg/l**	0.06	0.3	0.31	1.28	0.02	0.82	0.011	BDL

#TCLP :Toxicity Characteristics Leaching Procedure

**As per Schedule II (Part C of SWM Rules 2016)*

***Concentration Limit to categorize as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 notified under Environment (Protection) Act, 1986.*

It is observed that bottom ash is meeting the stipulated norms in Okhla, Ghazipur and Tehkhand and is exceeding the stipulated norms in the Bawana WtE plant. Further, the flyash is meeting the stipulated norms only in case of Okhla plant and is exceeding the stipulated norms in the remaining three WTE plants. Flyash and bottom ash is to be disposed/utilised as per the conditions stipulated in the CTO issued to the Unit by DPCC.

2.2.7 Ground Water Quality Monitoring:

Sampling and analysis of ground water was carried out by DPCC.during the joint inspection near four WtE Plants in Delhi viz Bawana , Ghazipur & Okhla and Tehkhand ,and the results of the same are given in **Table 7:**

Table 7: Analysis of Ground water quality

S.N.	Parameters	SWM Rules, 2016 (Limits as per IS 10500:2012)		Measured Values (mg/L)						
		Desirable Limit (mg/l)	Permissible Limit (mg/L)	WTE Ramp (Bawana)	Near main gate (Bawana)	Temple infront of veterinary hospital (Ghazipur)	Veterinary Hospital (Ghazipur)	Borewell water Near WTE Okhla	Borewell behind WTE Tehkhand	Tent House near WTE Tehkhand
1	Arsenic	0.01	0.05	0.002	0.003	0.001	0.001	0.003	BDL	BDL
2	Cadmium	0.01	0.003	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	Chromium (as Cr6+)	0.05	0.05	BDL	0.03	BDL	BDL	BDL	BDL	BDL
4	Copper	0.05	1.5	BDL	0.02	BDL	BDL	BDL	BDL	BDL
6	Lead	0.05	0.01	BDL	BDL	BDL	BDL	BDL	BDL	BDL
7	Mercury	0.001	0.001	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	Nickel	-	0.02	BDL	0.02	BDL	BDL	BDL	BDL	BDL
9	Nitrate (as NO_3)	45	45	16	5	**83**	33	21.7	9.67	18.33
10	pH	6.5-8.5	6.5-8.5	7.8	7.4	6.8	7	6.9	6.95	7.4
11	Iron	0.3	0.3	0.04	**0.7**	**0.7**	0.07	0.02	0.069	0.05
12	Total hardness (as CaCO3)	300	600	233	**658**	566	511	**793**	**841**	512
13	Chlorides	250	1000	113	405	135	626	379	862	497
14	Dissolved Solids	500	2000	760	**2270**	1001	828	1851	**2246**	1170

15	Phenolic compounds (as C6H5OH)	0.001	0.002	BDL	BDL	BDL	BDL	BDL	**0.007**	**0.005**
16	Zinc	5	15	0.06	0.5	BDL	BDL	BDL	0.048	0.035
17	Sulphate (as SO4)	200	400	105	**1370**	104	BDL	337	123	134

It is observed that the metal concentration is within the stipulated norms except for iron at one location each at Bawana & Ghazipur. Further TDS, Hardness and Sulphate is found to be exceeding in case of Bawana, Nitrate in case of Ghazipur, Total Hardness in case of Okhla and Total Hardness, Dissolved Solids & Phenolic Compounds are exceeding in case of Tehkhand Plant. As per CGWB report entitled “Aquifer mapping & ground water management plan of NCT Delhi”, 2016, it is observed that Iron in excess of maximum permissible limit has been reported from Northwest, North, Northeast, West, East, Central, Southwest and South districts of NCT, Delhi. Also total hardness, sulphate and Nitrate have also been reported in excess of maximum permissible limit from parts of Northwest, East, Southwest and South Districts of Delhi. Further, Tehkand WtE is located in close vicinity of the Okhla dumpsite and hence high concentration of phenolic compounds can be attributed to the leachate generated from the dumpsite. Additionally, the Ghazipur & Okhla WtE plants are located in very close vicinity of the Ghazipur & Okhla dumpsites respectively.

2.2.8 Odour Management & Green Belt development

The status of odour management and green belt development in and around the WtE plants is given in **Table 8.**

Table 8: Odour and Green Belt development in WtE Plants

S.No.	Particulars	WTE, Bawana	WTE, Ghazipur	WTE, Okhla	WTE, Tehkhand
1	**Odour Control measures**	Waste storage pits are maintained under negative pressure to prevent odour from escaping into the surroundings of Okhla Plant. Spray of bioculture in storage area	Waste storage pits are maintained under negative pressure to prevent odour from escaping into the surroundings at Okhla Plant. Spray of herbal inoculum in storage area	Waste storage pits are maintained under negative pressure to prevent odour from escaping into the surroundings at Okhla Plant. Spray of bioculture in storage area	Waste storage pits are maintained under negative pressure to prevent odour from escaping into the surroundings at Okhla Plant. Spray of bioculture in storage area
2	**Observations during the plant visit**	Mild odour was observed at storage pits but no noticeable odour was observed inside or outside the premises.	Odour was observed within the WtE premises. The odour may also be due to Ghazipur dumpsite adjacent to the plant.	Mild odour was observed at storage pits, but no noticeable odour was observed inside or outside the premises.	Mild odour was observed at storage pits, but no noticeable odour was observed inside or outside the premises.
3	**Provision of Buffer zone & Green belt**	There is no residential development around the plant, at distance of approx. 1000m from the plant. Green belt has been developed in and around the unit.	A residential colony is located at approx. 100m from the boundary of the plant. No green belt has been provided in the premises.	A residential colony is located at approx. 200m from the boundary of the WTE Plant. Green belt has been developed in and around the unit.	A residential colony is located at approx. 200m from the boundary of the WTE Plant. Green belt has been developed in and around the unit.

It is observed that measures for odour control have been taken at the four plants. Three plants, Okhla, Ghazipur and Tehkhand are located close to residential areas and no

green belt has been developed around Ghazipur plant as per the conditions stipulated in the Consent & Environment Clearance issued by DPCC & MoEFCC respectively. (In CTO it is mentioned that the Consentee shall ensure the development & maintenance of adequate green belt all around the boundary of the Unit to comply with conditions stipulated in Environmental Clearance (EC) given by MOEF&CC. As per EC, Greenbelt including mangrove plantation in the area should be taken up.)

2.2.9 Leachate generation & management

Leachate in a Waste-to-Energy (WtE) plant is primarily generated from waste storage pits/storage areas, where the moisture content in municipal solid waste (MSW) leads to leachate formation.

The details of the leachate management systems in the Four WtE plants including treatment processes & capacity are provided in **Table 9** below:

Table 9: Leachate management in WtE Plants

WTE Bawana	WTE Ghazipur	WTE Okhla	WTE Tehkhand
• The Leachate is being sent to Mechanical Vapour Recompression and Evaporation (MVRE) plant with capacity of 200 KLD for treatment. The recovered water is recycled and reused in plant. Condensate from the MVRE is being used in the Flue gas cleaning system of WTE. …	• The leachate generated from MSW is treated in leachate treatment plant (LTP) by biological & chemical treatment method. As informed by the plant, the treated leachate is used for horticulture and road washing, which is as per the condition stipulated in the Consent to Operate (CTO) issued by Delhi Pollution Control Committee (DPCC)	• The leachate generated from MSW is treated in leachate treatment plant (LTP). The designed capacity of leachate treatment plant is 332 KLD. Up to 100 KLD, leachate routed to an advanced technology comprising of multi effect evaporators (MEE). In CTO it has been mentioned that treated effluent shall be used/recycled within the premises. and condensate recovered from leachate is reused in the process. In case of over 100 KLD leachate leachate is routed to reverse osmosis system, the reject water is sent to MEE, while permeate is reused in the plant. …	• The leachate generated from MSW is treated in conventional type leachate treatment plant (LTP). The designed capacity of leachate treatment plant is 360 KLD. LTP comprises of Primary Treatment and Secondary Treatment which comprises of Anaerobic & Aerobic biological treatment. In CTO it is mentioned that treated effluents conforming to the prescribed standards only shall be recirculated and reused within the plant.

It is observed that the leachate generated is reused in Bawana and Okhla Plant. However, the same is used for horticulture/road washing purpose in Ghazipur plant.

In Tehkhand, the treated Leachate water is being utilized for the Ash quenching and gas conditioning tower. Further, the biogas generated from the Anaerobic digester in LTP shall be used for the CBG production. However presently, methane generated from the anaerobic digestion is being flared in the environment.

Sampling and analysis of Treated Leachate was carried out during the joint inspection of four WtE Plants in Delhi viz Bawana , Ghazipur, Okhla and Tehkhand ,and the results of the same is given in **Table 10.**

Table 10: Analysis of Treated Leachate

S. No.	Parameter	Land Disposal *(mg/l max) (Schedule II (B) of SWM Rules, 2016)	Measured Values (mg/L)			
			WTE Bawana	WTE Ghazipur	WTE Okhla	WTE Tehkhand
1	Suspended Solids (mg/l max)	200	10	8	22	11
2	Dissolved Solids (Inorganic) (mg/l max)	2100	44	**2406**	17	1948
3	pH Value	5.5-9.0	9.0	8.1	8.3	9.1
4	Ammonical Nitrogen (as N) (mg/l max)	-	1365	1	3.5	3
5	Total Kjeldahl Nitrogen (as N) (mg/l max)	-	1386	1.7	5.5	10
6	Biochemical Oxygen Demand (3 days at 27°C) (mg/l max)	100	**1528**	8	39	18
7	Chemical Oxygen Demand (mg/l max)	-	3260	56	106	131
8	Arsenic (as As) (mg/l max)	0.2	0.004	0.006	BDL	BDL
9	Mercury (as Hg) (mg/l max)	-	0.02	0.005	0.004	BDL
10	Lead (as Pb) (mg/l max)	-	BDL	BDL	BDL	BDL
11	Cadmium (as Cd) (mg/l max)	-	BDL	BDL	BDL	BDL

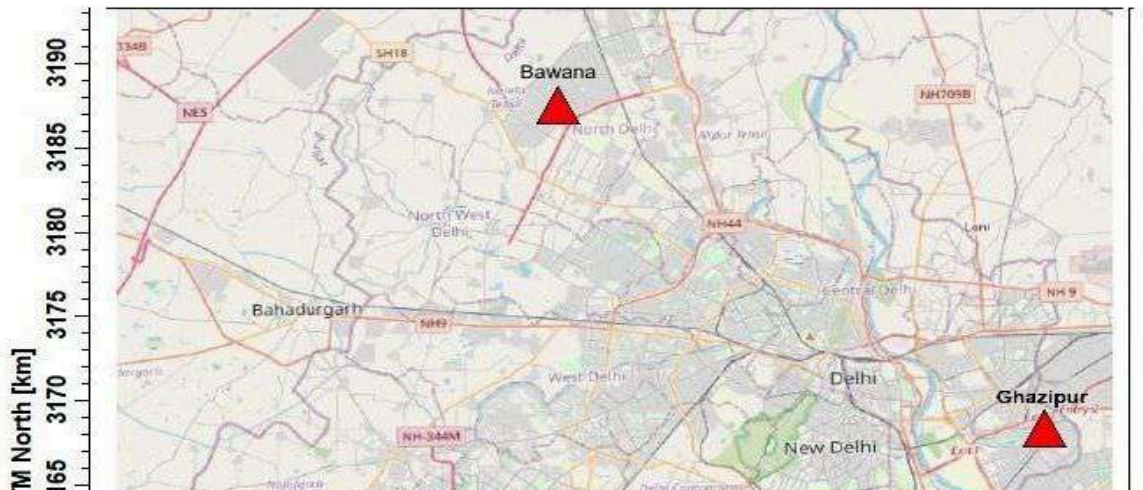
12	Total Chromium (as Cr) (mg/l max)	-	BDL	0.02	BDL	0.008
13	Copper (as Cu) (mg/l max)	-	BDL	0.01	BDL	0.008
14	Zinc (as Zn) (mg/l max)	-	BDL	0.02	BDL	0.067
15	Nickel (as Ni) (mg/l max)	-	BDL	0.04	BDL	0.026
16	Cyanide (as CN) (mg/l max)	0.2	0.09	BDL	BDL	BDL
17	Chloride (as Cl) (mg/l max)	600	26	**760**	2	**780**
18	Fluoride (as F) (mg/l max)	-	0.1	0.2	BDL	0.66
19	Phenolic Compounds (C6H5OH) (mg/l max)	-	2.8	BDL	0.09	BDL

It is observed that BOD is exceeding the prescribed norms in case of Bawana plant, Dissolved Solids & Chlorides in case of Ghazipur plant & Chloride is exceeding in case of Tehkhand plant.

2.2.10 Impact of emission of pollutants from Waste to Energy (WtE) on Ambient Air Quality

Impact of Emission of particulate matter (PM), Oxides of Nitrogen (NOx), Sulphur Dioxide (SO_2) and Dioxin & Furans (TEQ) is simulated using source dispersion model CalPuff (California Puff Model). CalPuff is an air quality modelling system that has been recognized by the United States Environmental Protection Agency (USEPA).

Meteorological domain of 50 km x 50 km at a sub-grid resolution of 4 km x 4 km is used for following the movement of puff. Hourly wind data of one year generated by Weather Research Forecast (WRF) model is used for one year. **Figure 4** shows the study domain with four sources.



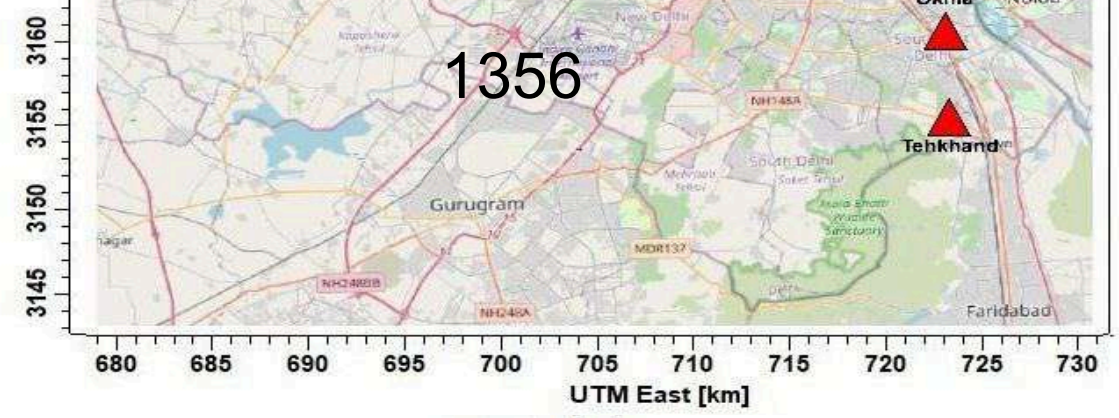


Figure 4 Study area and WtE stacks of Bawana, Ghazipur, Okhla and Tehkhand

UTM: *Universal Transverse Mercator: Coordinate System for locating a point*

Stack characteristics and Stack emission data (as monitored during the emission monitoring during March 21-23, 2025 & April 23, 2025) have been used as shown in **Tables 11 & 12** in the simulation of emission dispersion. A receptor grid around the source is used for estimating the ground level concentration (GLC) of pollutants.

Table 11: Emission characteristics used for dispersion simulation.

No.	WtE Plant	Latitude	Longitude	Base Elevation	Stack Height [m]	Top Dia. [m]
1	Okhla	28.5537	77.2808	213.89	60	3.17
2	Bawana	28.8008	77.0687	216.69	60	3.2
3	Ghazipur	28.6230	77.3239	228.57	60	1.8
4	Tehkhand	28.5079	77.2816	213.89	60	3.04

Table 12: Stack emission data used for simulation

No.	WtE Plant	Exit Velocity	Exit Temp.	PM	NOx	SO_2	Dioxin
		[m/s]	[K]	[g/s]	[g/s]	[g/s]	[g/s]
1	Okhla	16.7	470	1.2529	10.6914	2.2552	2.59E-10
2	Bawana	11.6	447	1.741	1.1127	1.1189	3.72E-08
3	Ghazipur	15.4	444	0.5228	4.0222	0.5783	1.90E-09
4	Tehkhand	9.81	424	1.2736	7.3115	0.1501	2.65E-09

(i) Dispersion of Emission from Okhla WtE Plant

The impact on Ground Level Concentration (GLC) due to emissions from stack of WtE plant at Okhla is given in **Table 13.** The corresponding isopleths of daily average and annual average GLC of PM, NOx, SO_2 and Dioxin & Furan are given in **Figure 5 to Figure 12**.

Table 13: Highest GLC due to emission from stack of WtE plant at Okhla.

	PM (µg/m^3)	**NOx**(µg/m^3)	**SO_2** (µg/m^3)	**Dioxin & Furan** (µg/m^3)
Daily Average	4.2103E-01	3.5928	7.5784E-001	9.5661E-012
Annual Average	8.0230E-002	6.8463E-001	1.4441E-001	1.7019E-012

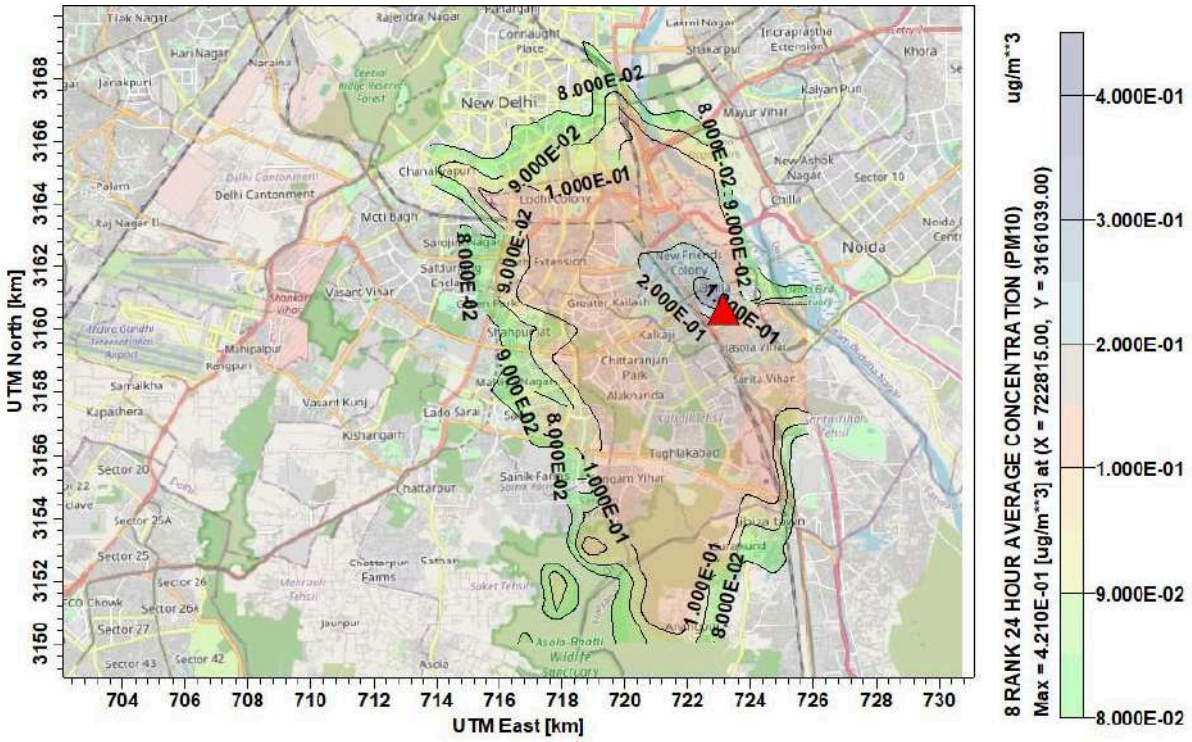


Fig. 5: Isopleth of **daily average** GLC of PM around Okhla WtE plant.

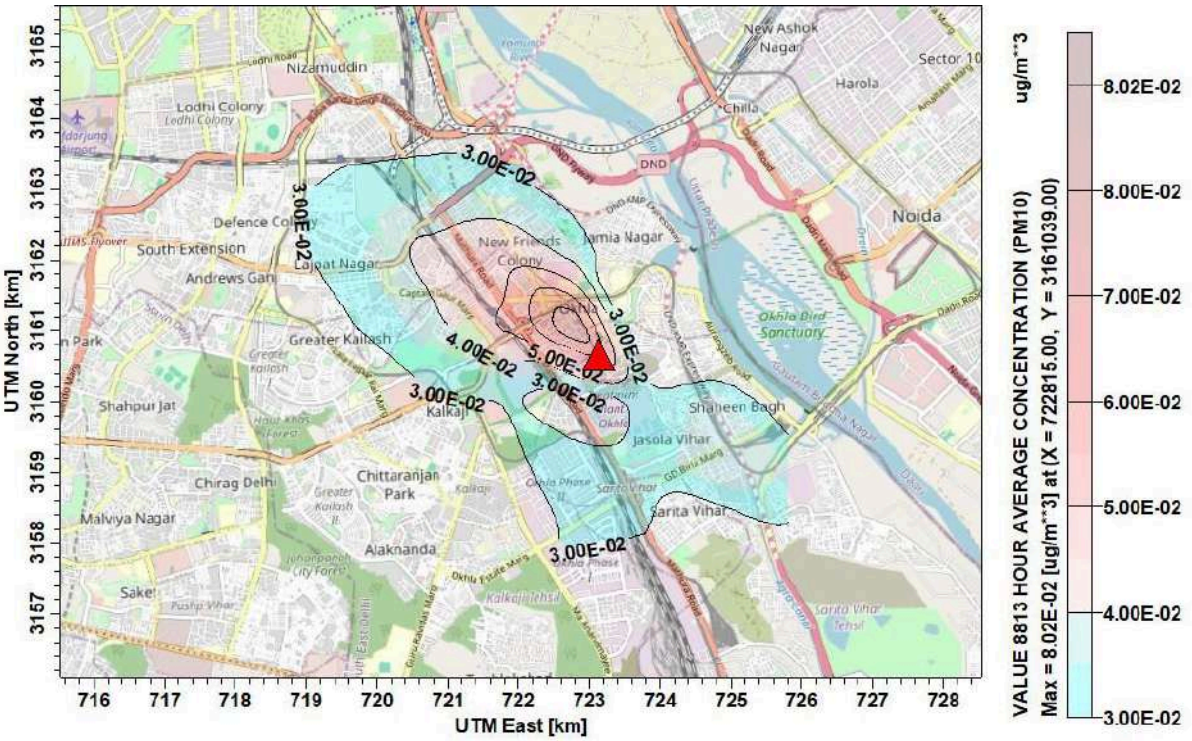


Fig. 6: Isopleth of **Annual average** GLC of PM around Okhla WtE plant.

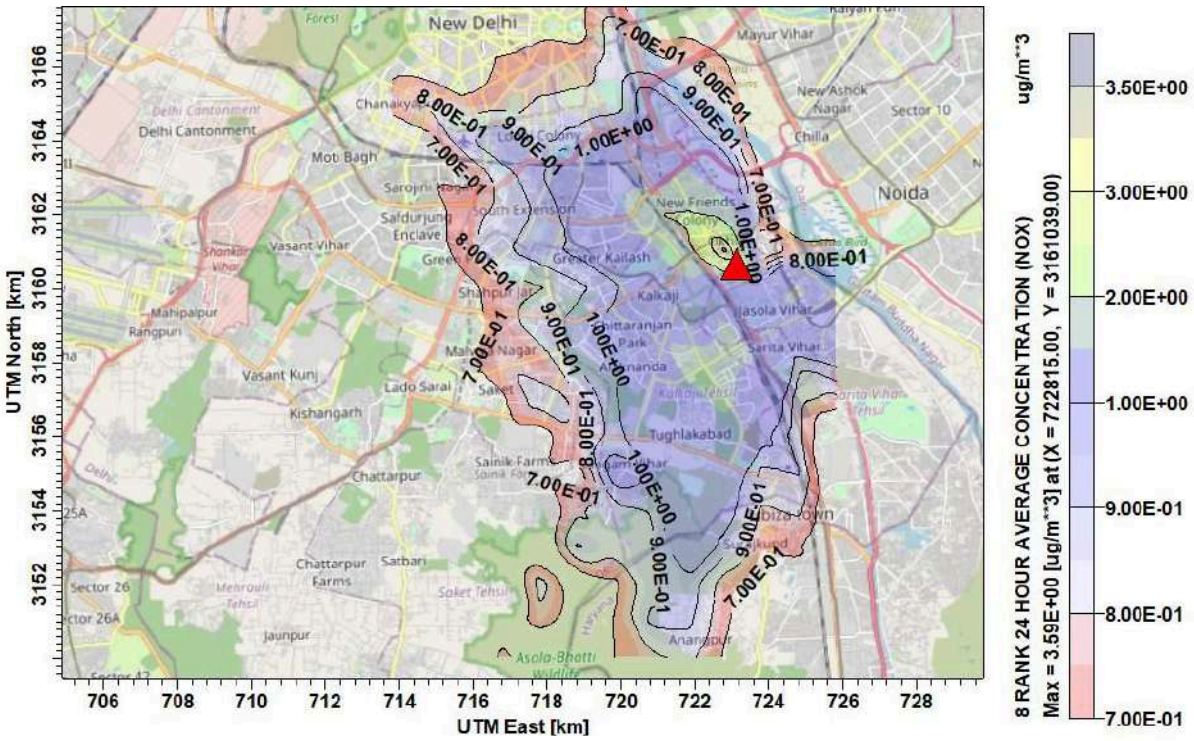


Fig. 7: Isopleth of **daily average** GLC of NOx around Okhla WtE plant.

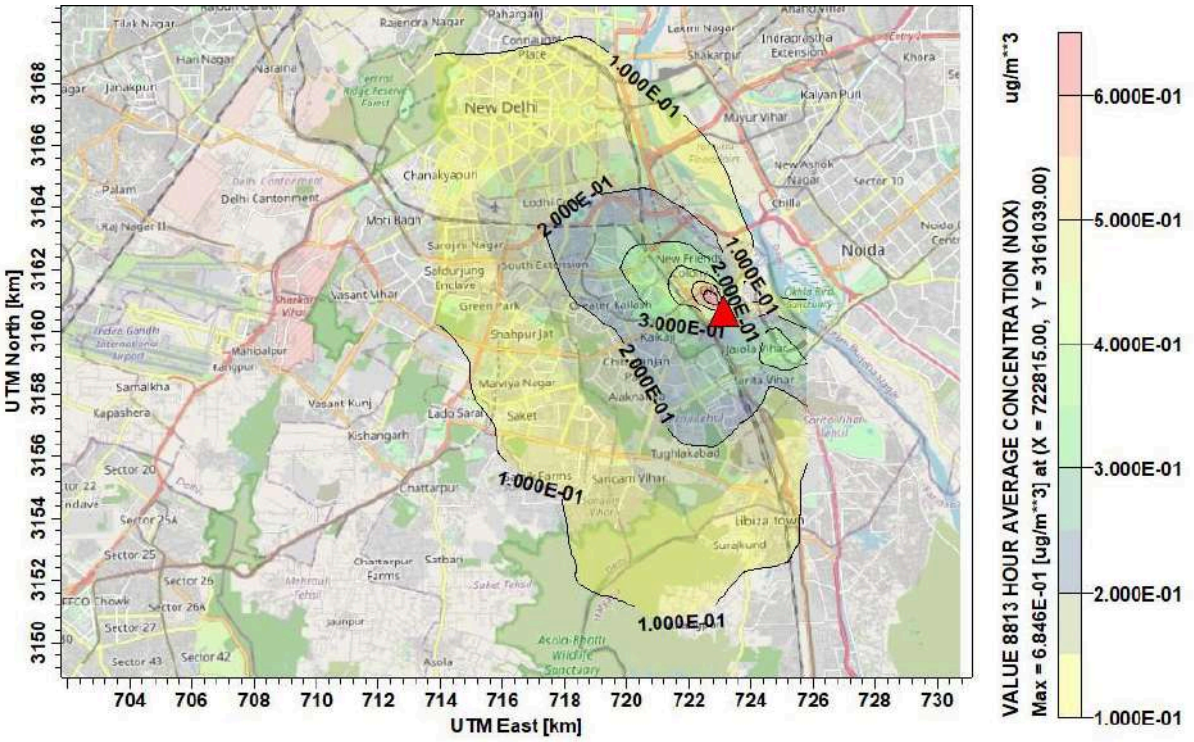


Fig. 8: Isopleth of **annual average** GLC of NOx around Okhla WtE plant.

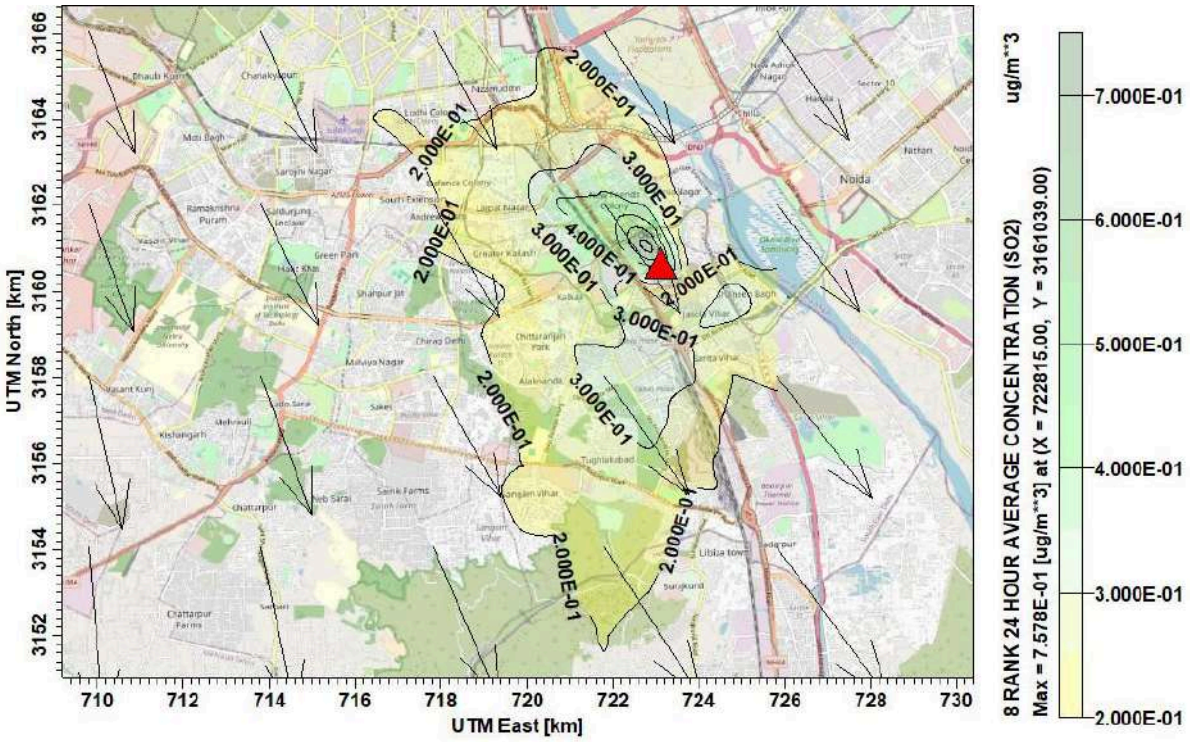


Fig. 9: Isopleth of **daily average** GLC of SO_2 around Okhla WtE plant.

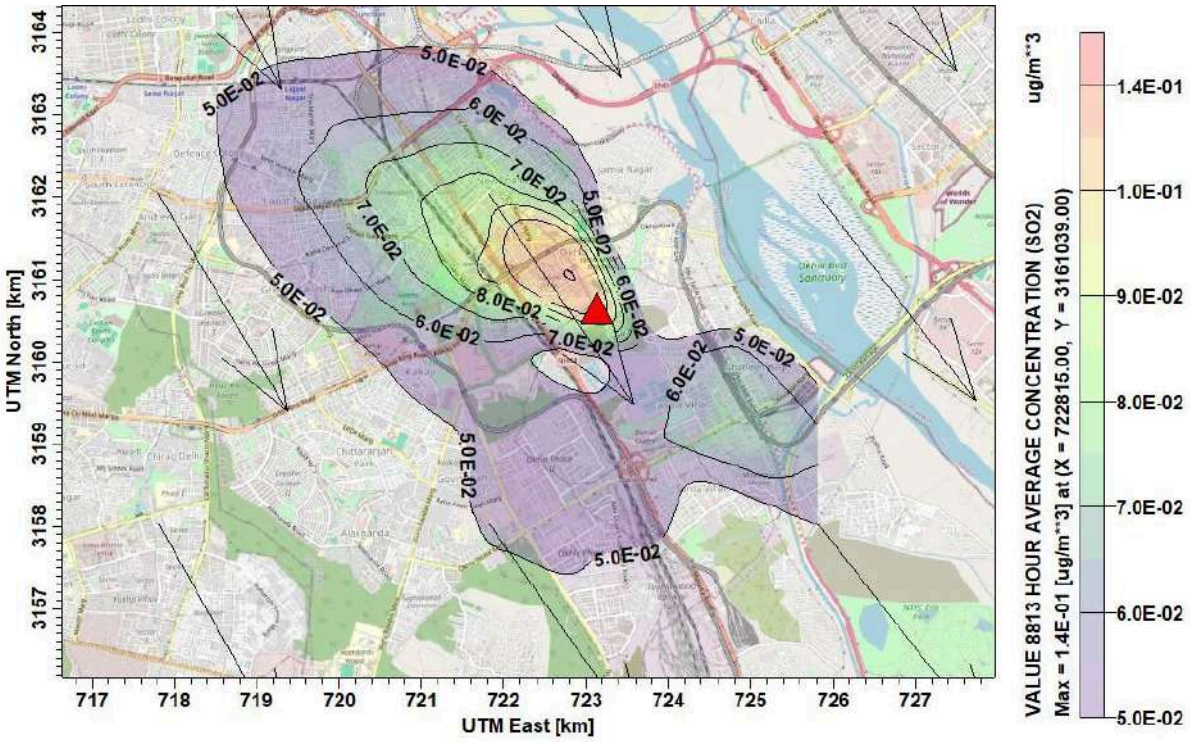


Fig. 10: Isopleth of **annual average** GLC of SO_2 around Okhla WtE plant.

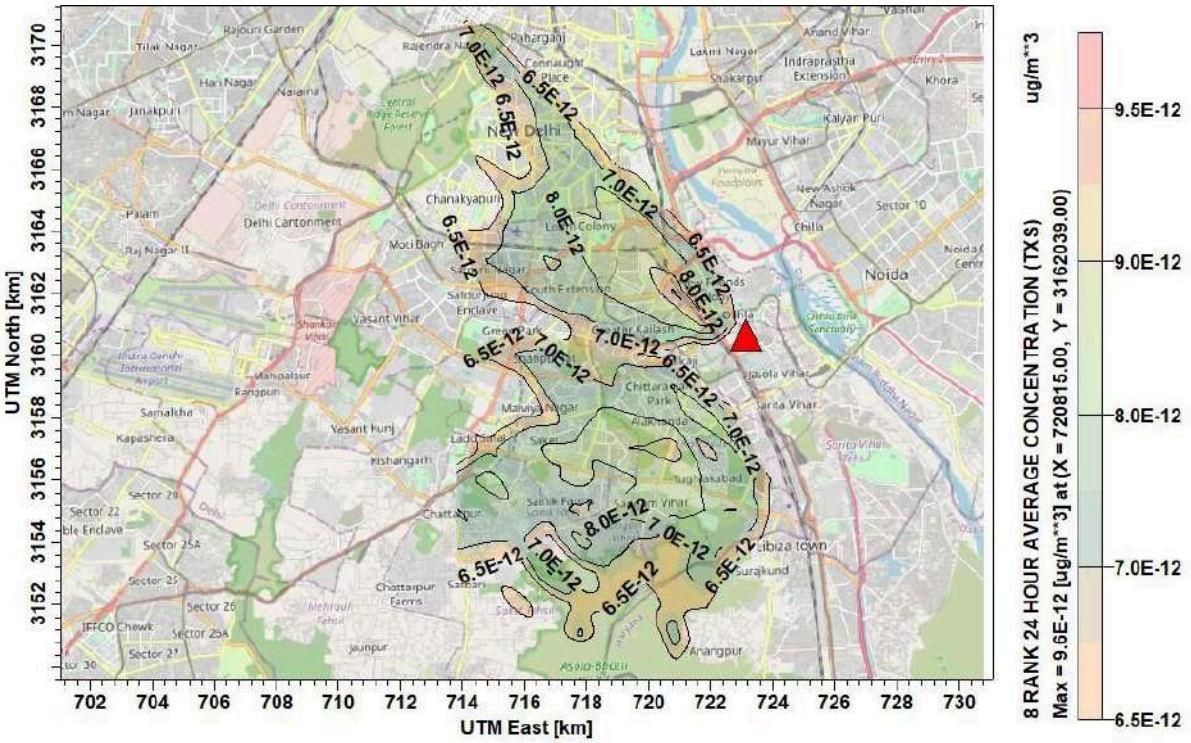


Figure 11: Isopleth of **daily average** GLC of Dioxin around Okhla WtE plant.

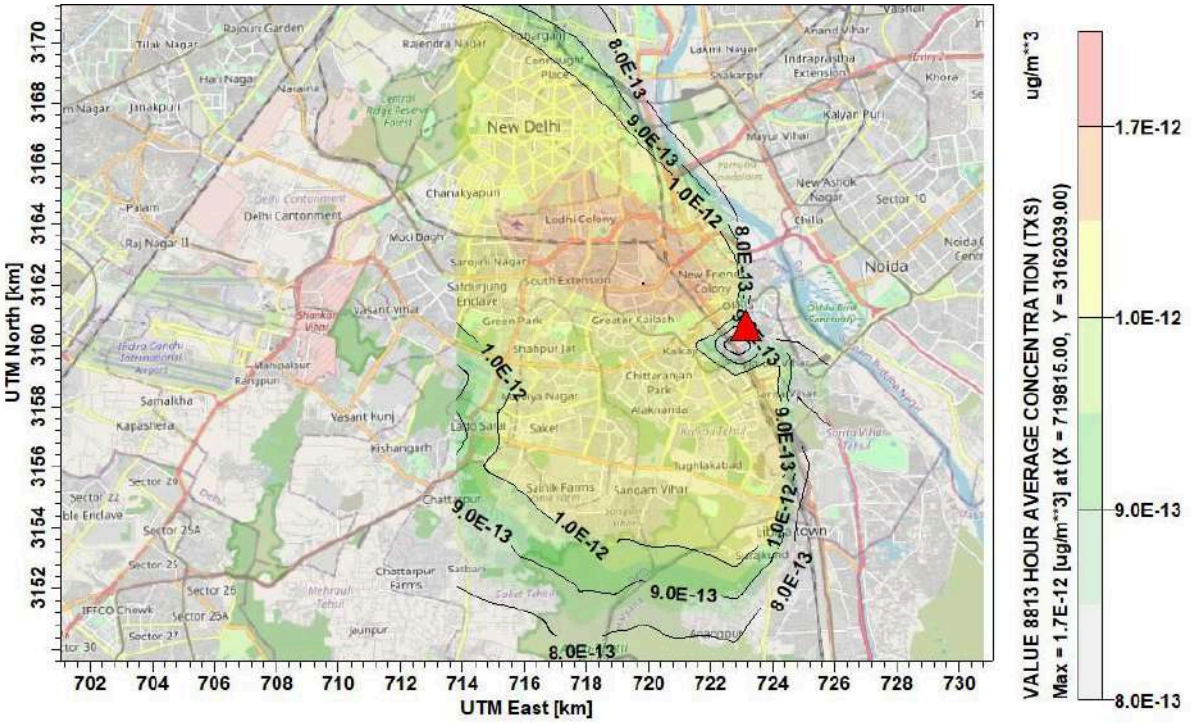


Figure 12: Isopleth of **annual average** GLC of Dioxin around Okhla WtE plant.

(ii) Dispersion of Emission from Bawana WtE Plant

The GLC due to emission from stack of WtE plant at Bawana is given in **Table 14.** The corresponding isopleths of daily average and annual average GLC of PM, NOx, SO_2 and Dioxin & Furan are given in **Figure 13 to Figure 20**.

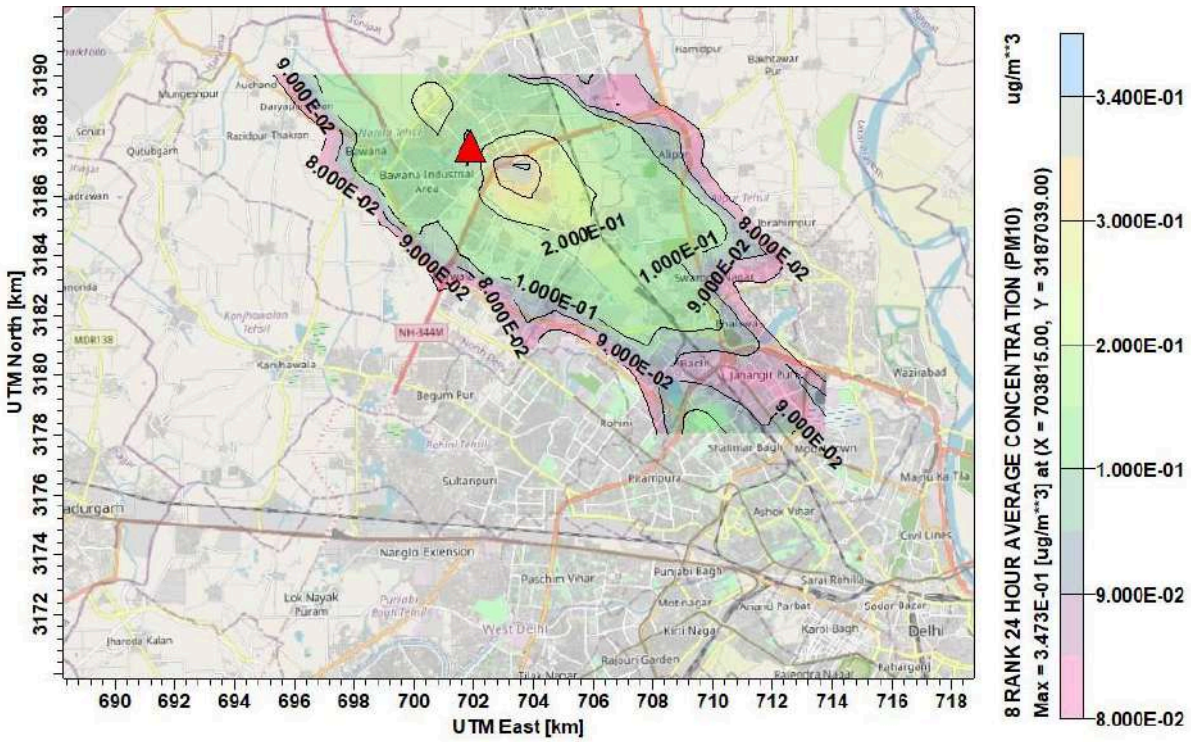


Figure 13: Isopleth of **daily average** GLC of PM around Bawana WtE plant.

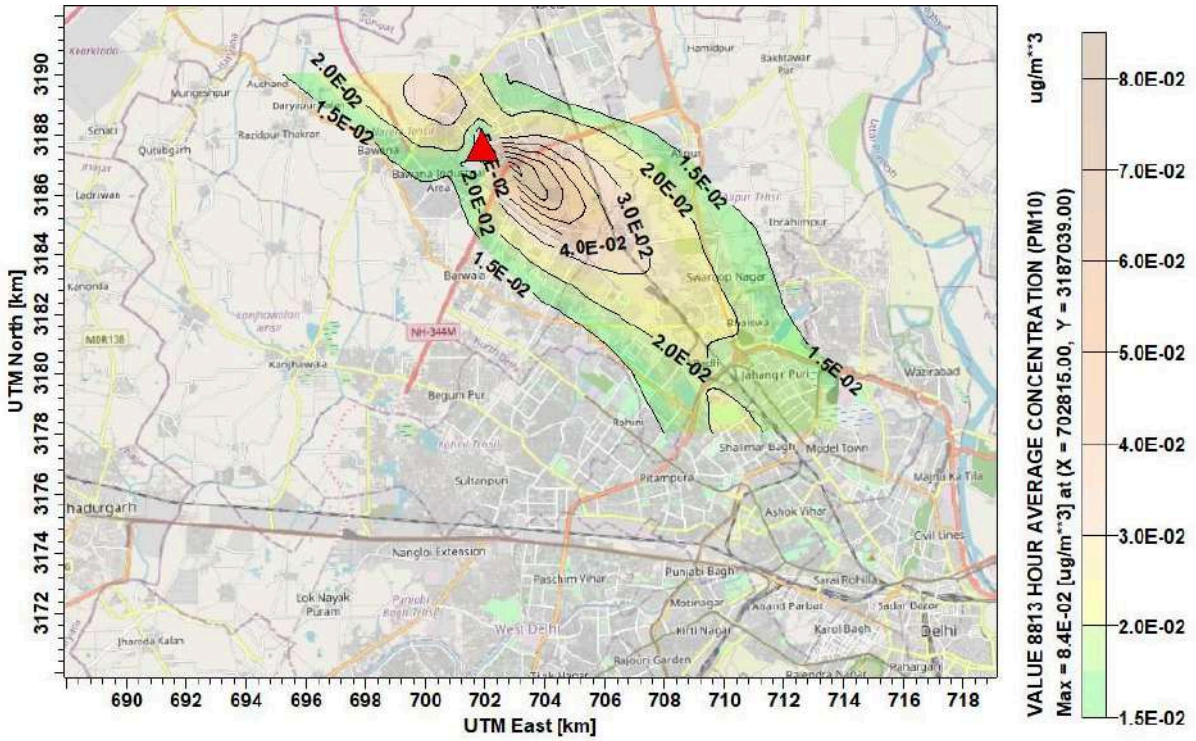


Figure 14: Isopleth of **Annual average** GLC of PM around Bawana WtE plant.

Table 14: Highest GLC due to emission from stack of WtE plant at Bawana.

	PM(µg/m^3)	**NOx**(µg/m^3)	**SO_2**(µg/m^3)	**Dioxin & Furan**(µg/m^3)
Daily Average	3.4725E-001	2.2193E-001	2.2317E-001	1.9444E-009
Annual Average	8.4250E-002	5.3845E-002	5.4145E-002	3.0420E-010

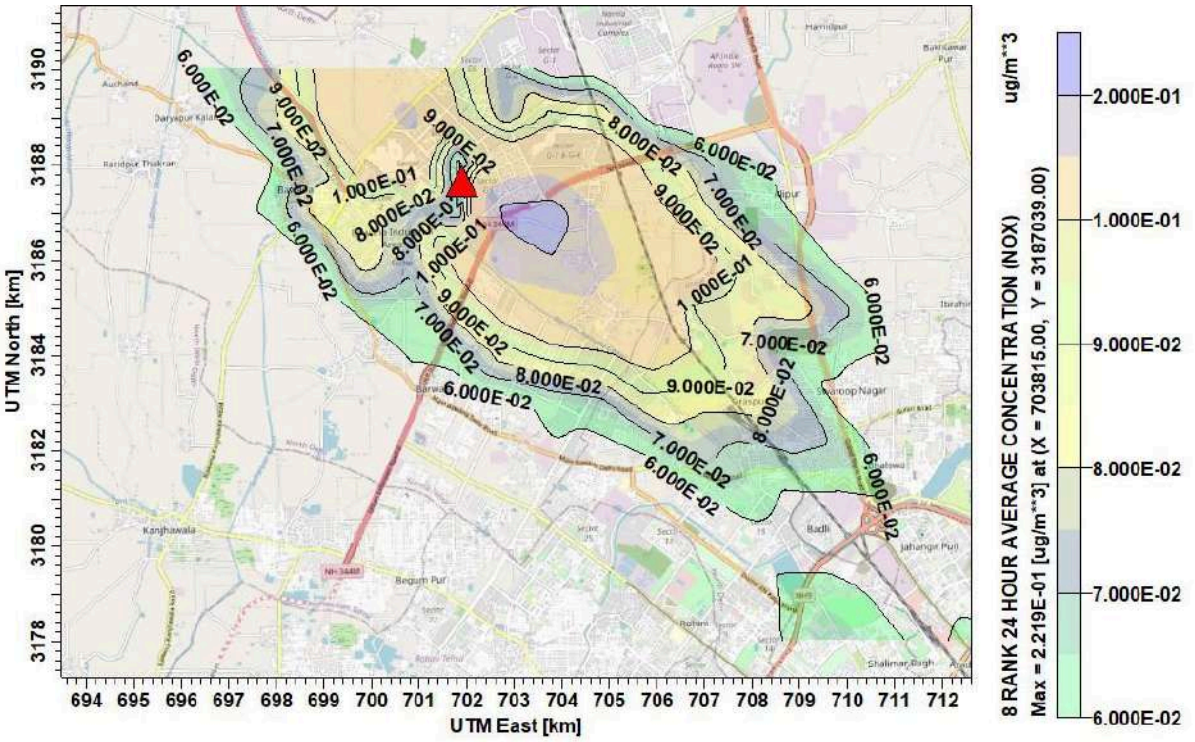


Figure 15: Isopleth of **daily average** GLC of NOx around Bawana WtE plant.

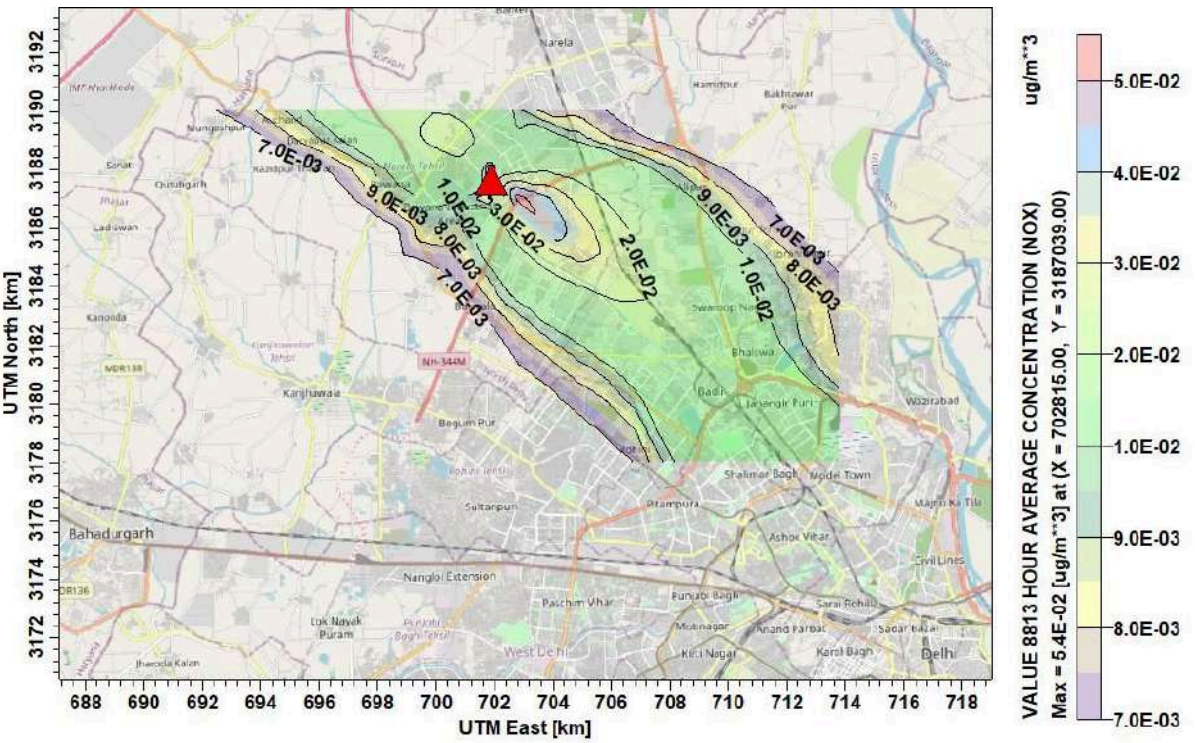


Figure 16: Isopleth of **annual average** GLC of NOx around Bawana WtE plant.



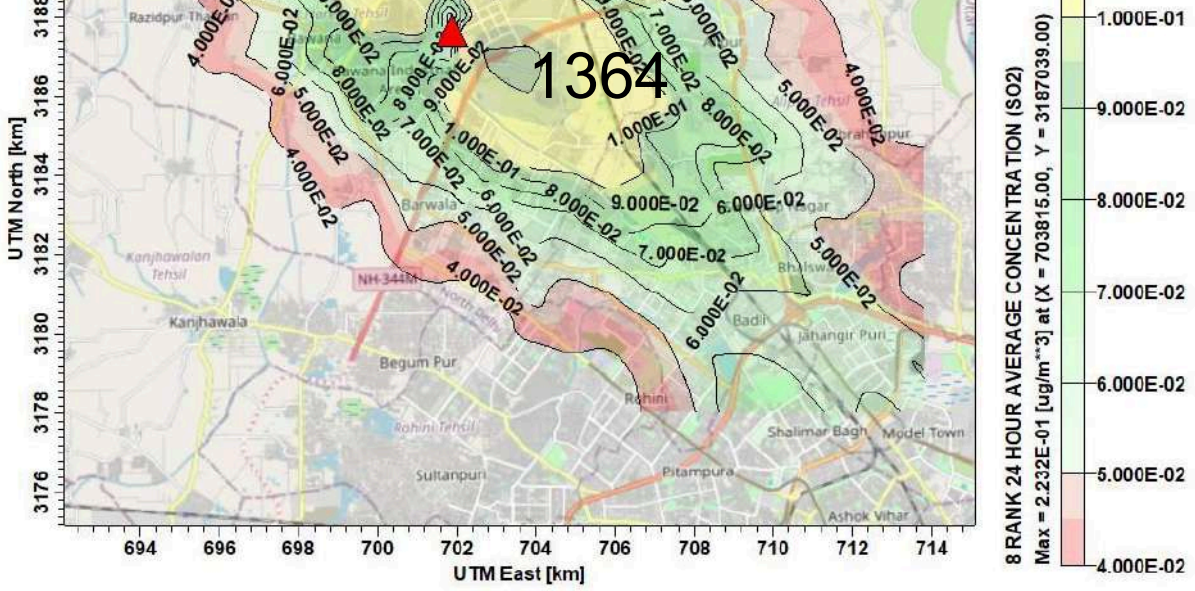


Figure 17: Isopleth of **daily average** GLC of SO_2 around Bawana WtE plant.

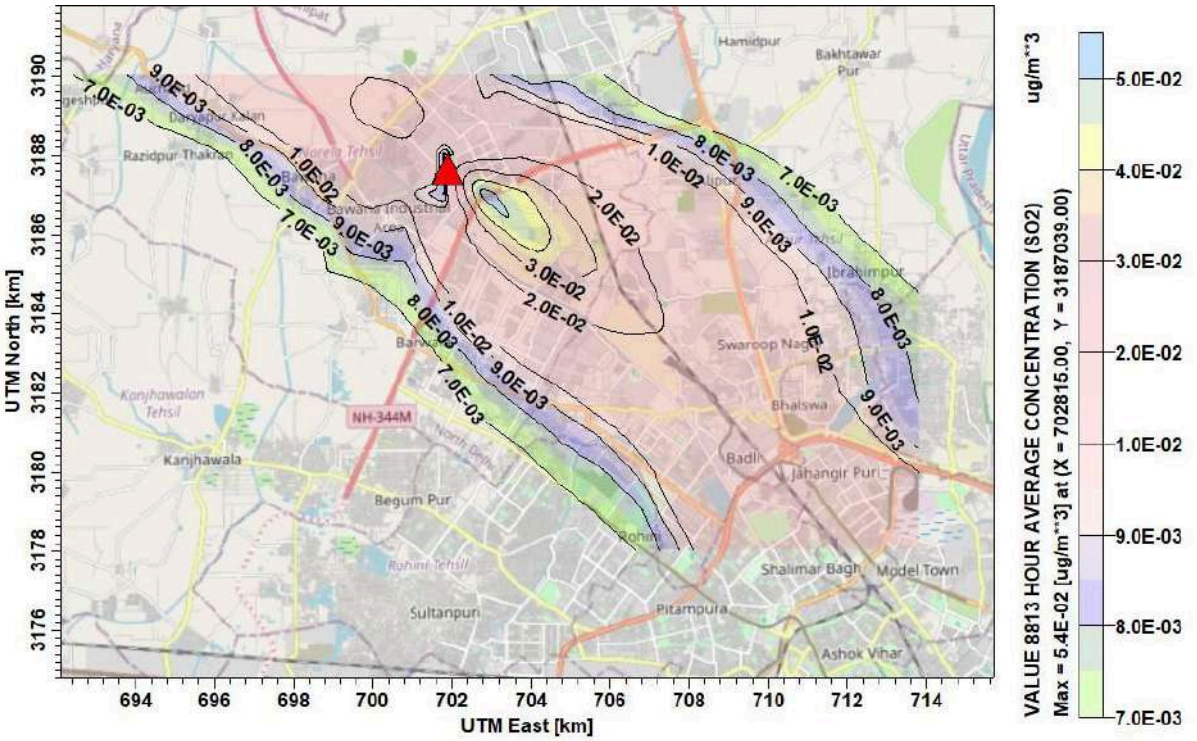


Figure 18: Isopleth of **annual average** GLC of SO_2 around Bawana WtE plant.



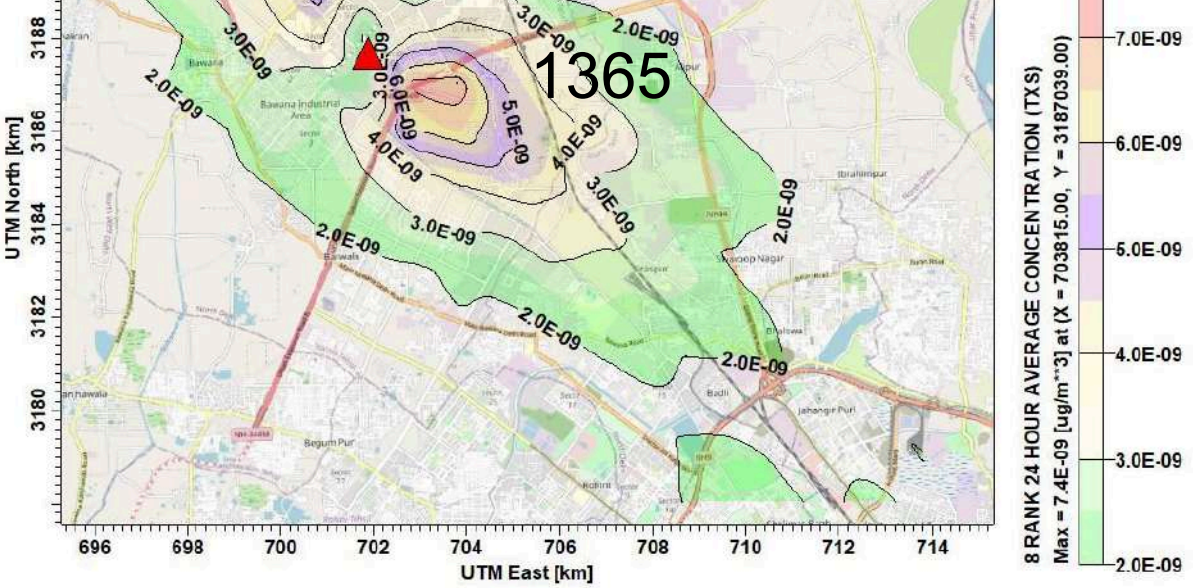


Fig. 19: Isopleth of **daily average** GLC of Dioxin around Bawana WtE plant.

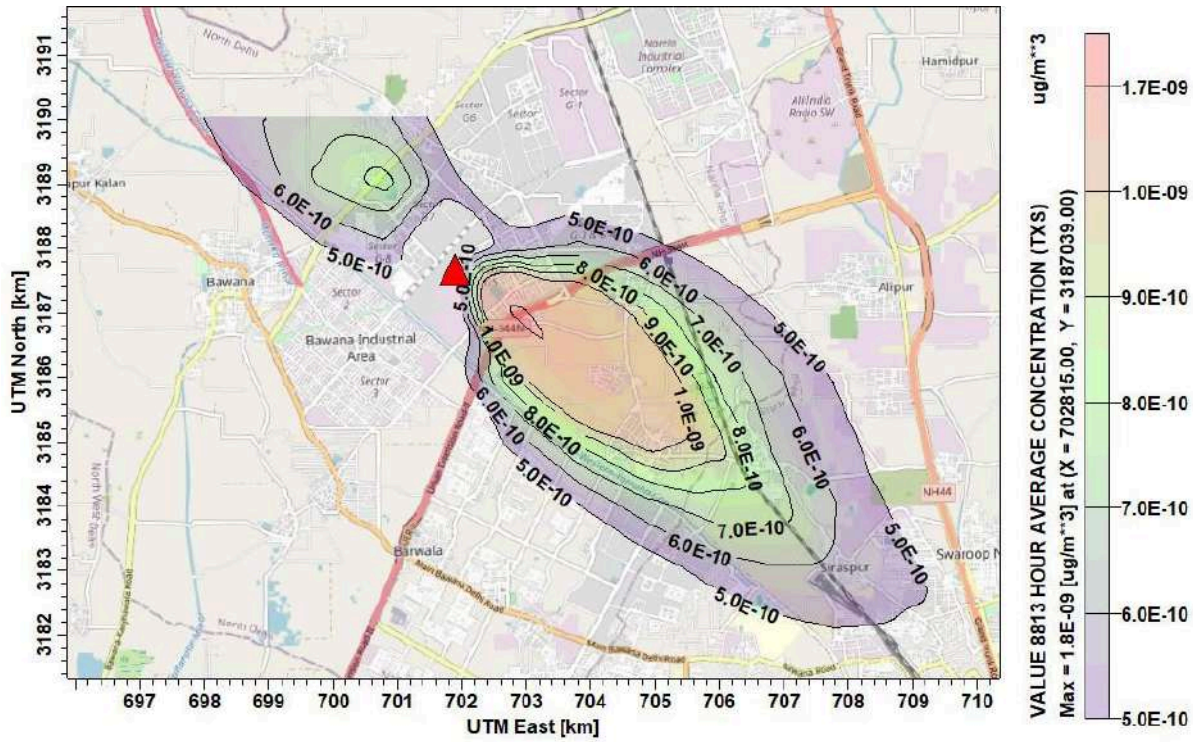


Fig. 20: Isopleth of **annual average** GLC of Dioxin around Bawana WtE plant.

(iii) Dispersion of Emission from Ghazipur WtE Plant

The GLC due to emission from stack of WtE plant at Ghazipur is given in **Table 15.** The corresponding isopleths of daily average and annual average GLC of PM, NOx, SO_2 and Dioxin & Furan are given in **Figure 21 to Figure 28**.

Table 15: Highest GLC due to emission from stack of WtE plant at Ghazipur.

	PM(µg/m^3)	**NOx**(µg/m^3)	**SO_2** (µg/m^3)	**Dioxin & Furan** (µg/m^3)

Daily Average	1.4503E-001	1.1158E+0	1.6042E-001	5.2595E-010
Annual Average	2.0832E-002	1.6027E-001	2.3043E-002	7.5548E-011

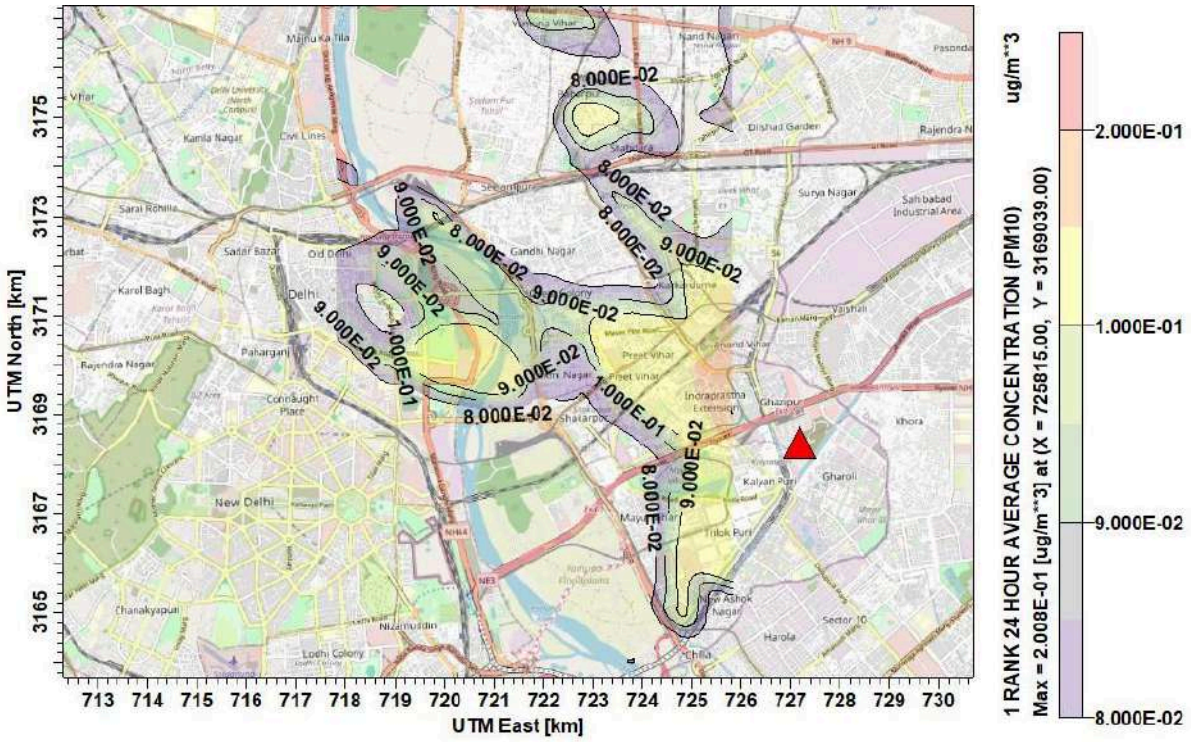


Figure 21: Isopleth of **daily average** GLC of PM around Ghazipur WtE plant.

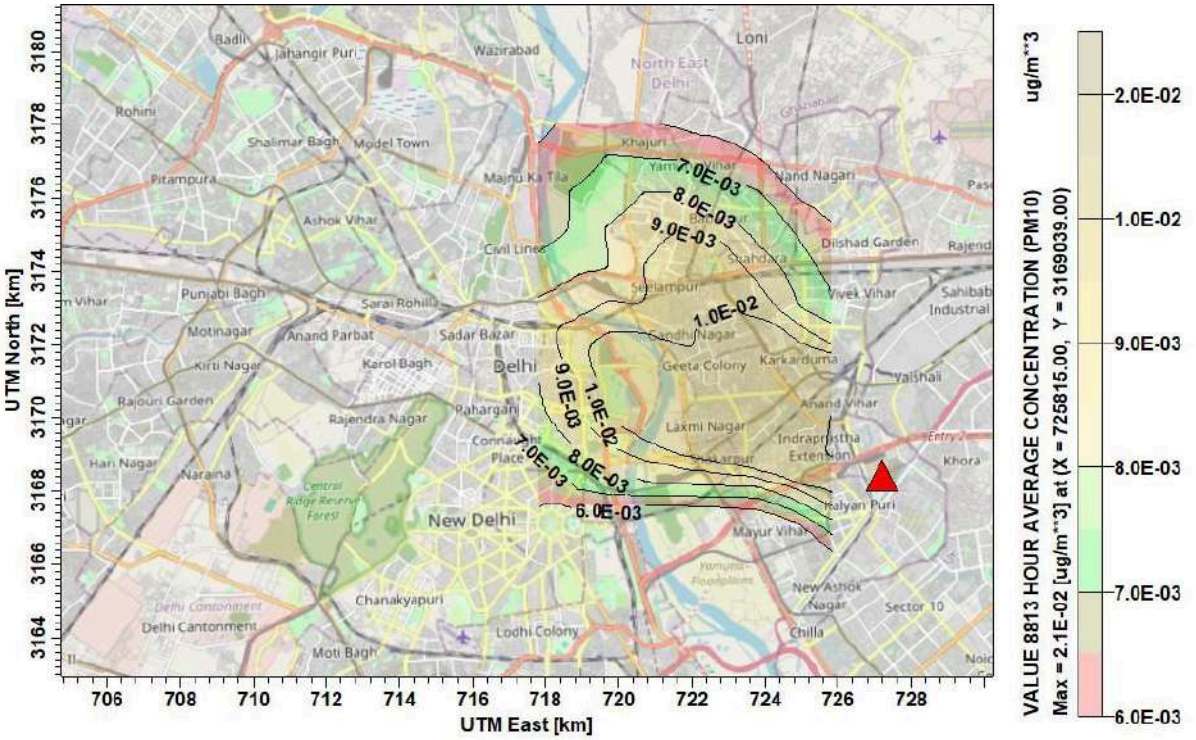


Figure 22: Isopleth of **annual average** GLC of PM around Ghazipur WtE plant.

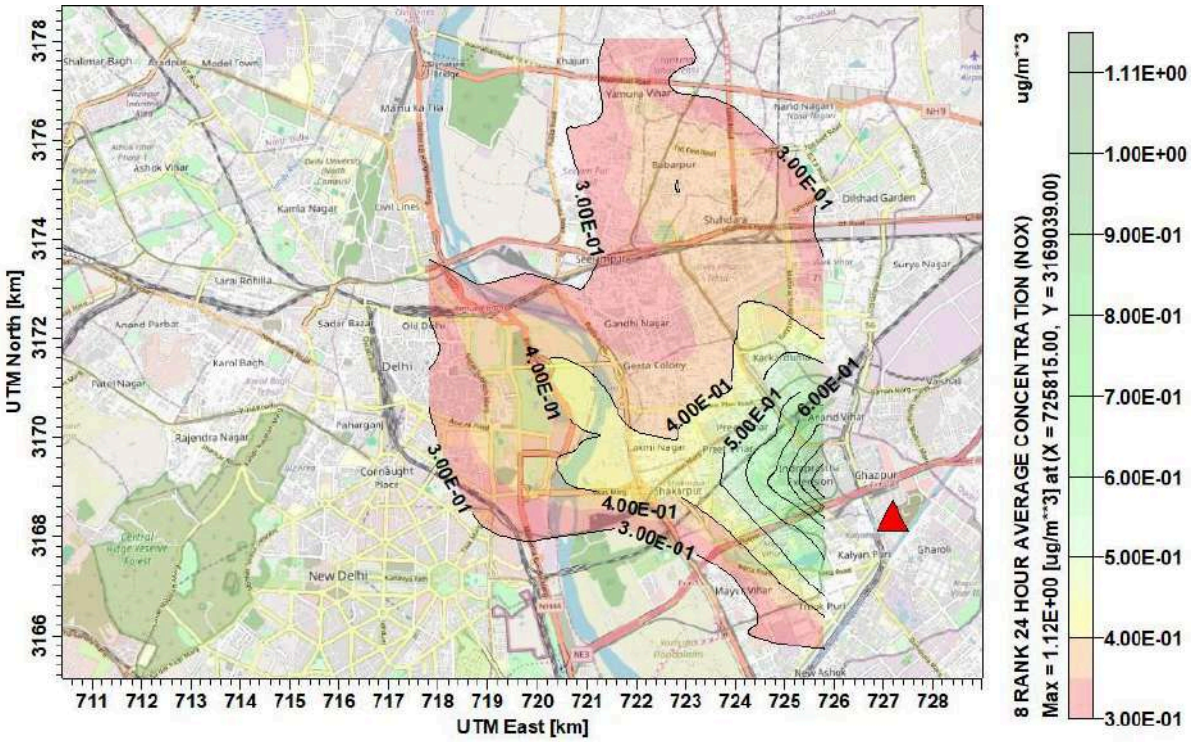


Figure 23: Isopleth of **daily average** GLC of NOx around Ghazipur WtE plant.

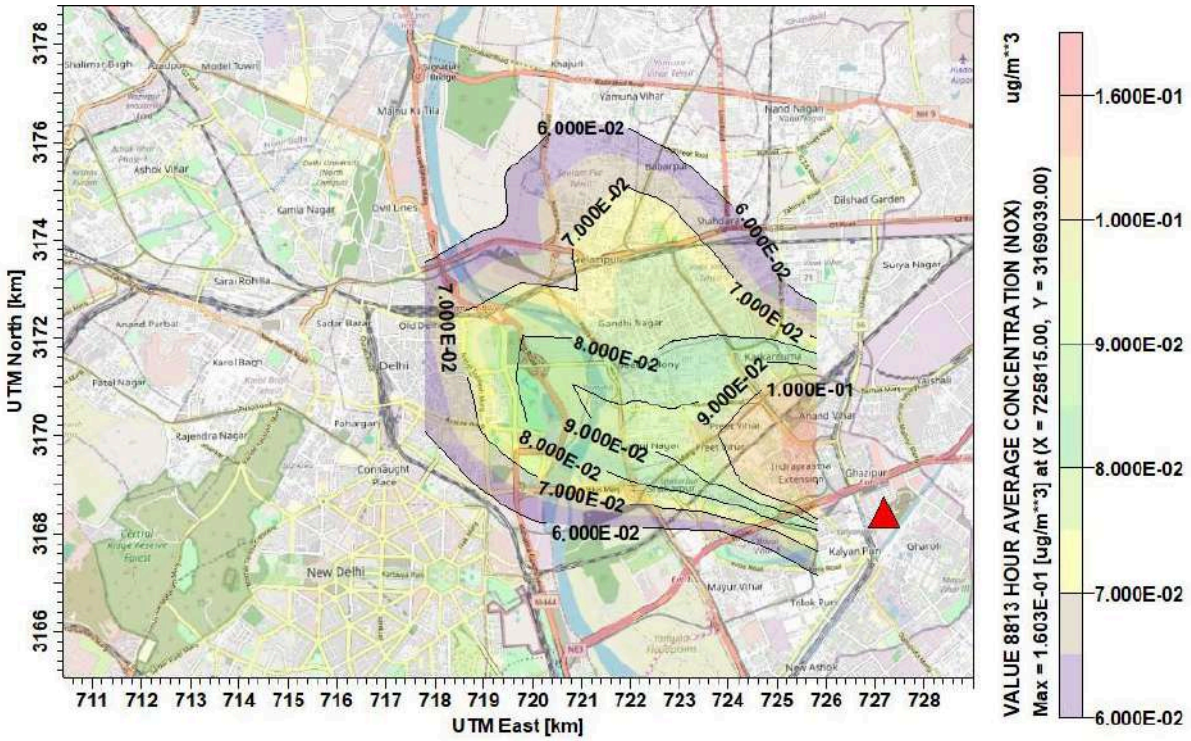


Figure 24: Isopleth of **annual average** GLC of NOx around Ghazipur WtE plant.

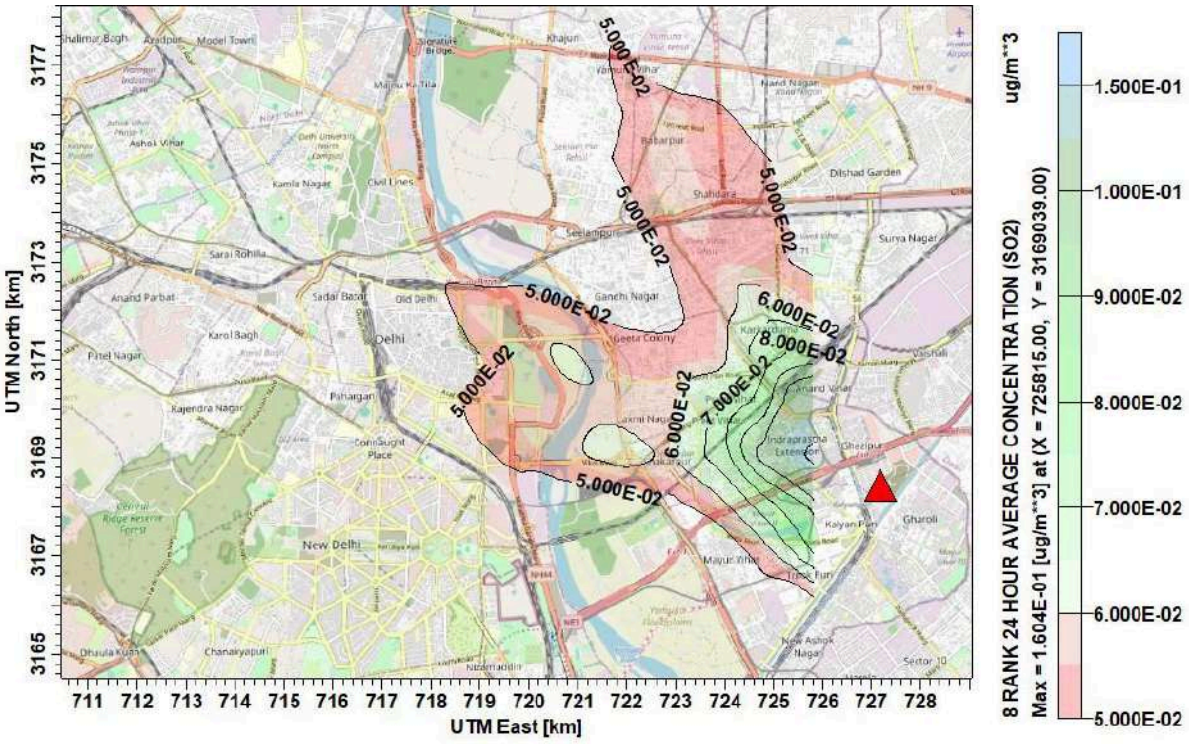


Figure 25: Isopleth of **daily average** GLC of SO_2 around Ghazipur WtE plant.

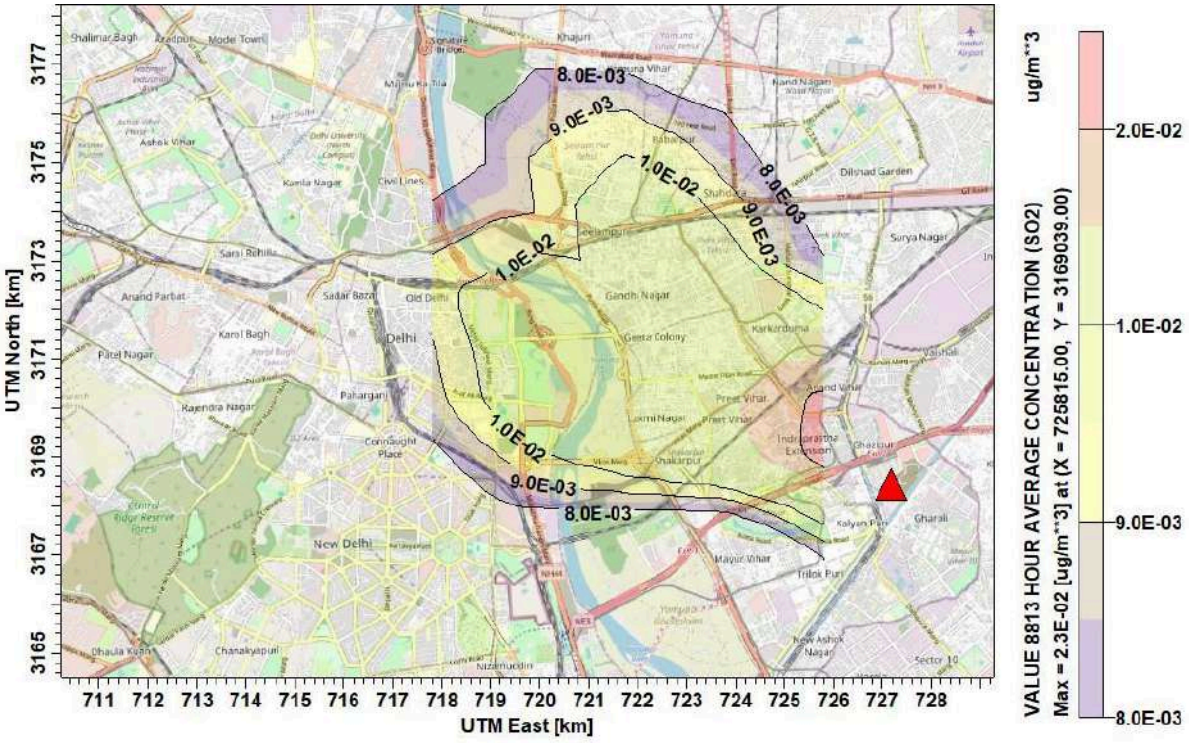


Figure 26: Isopleth of **annual average** GLC of SO_2 around Ghazipur WtE plant.

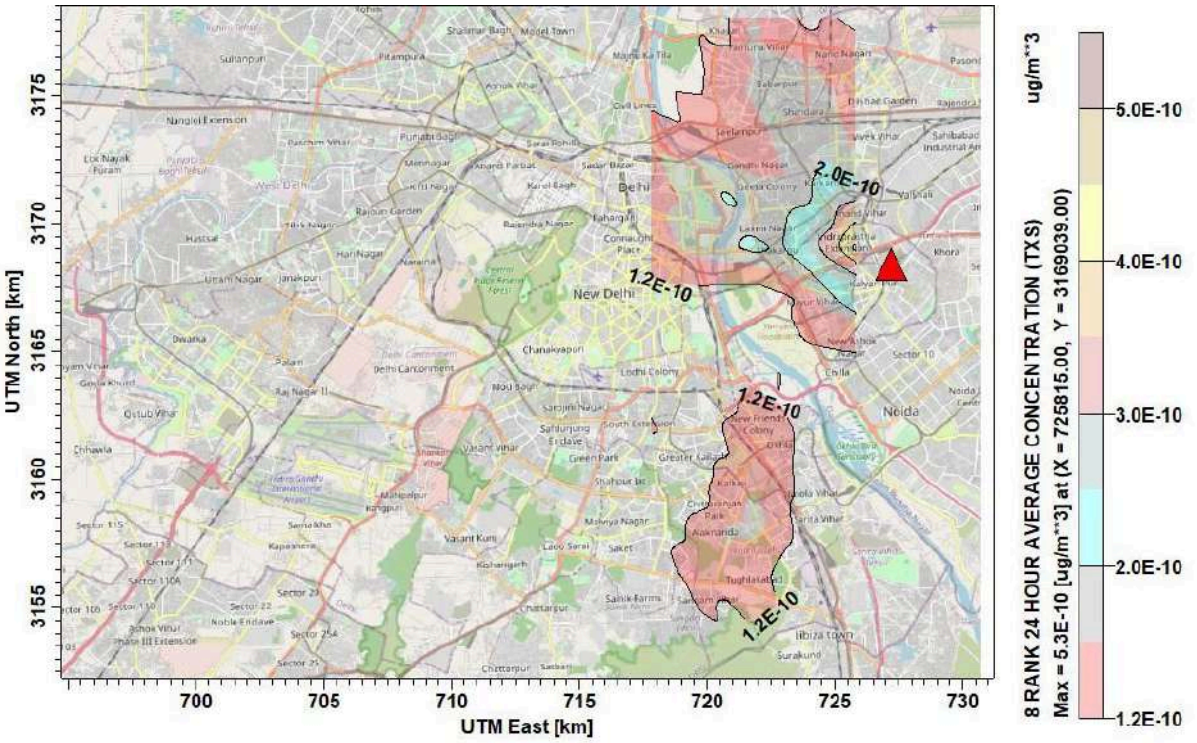


Figure 27: Isopleth of **daily average** GLC of Dioxin around Ghazipur WtE plant.

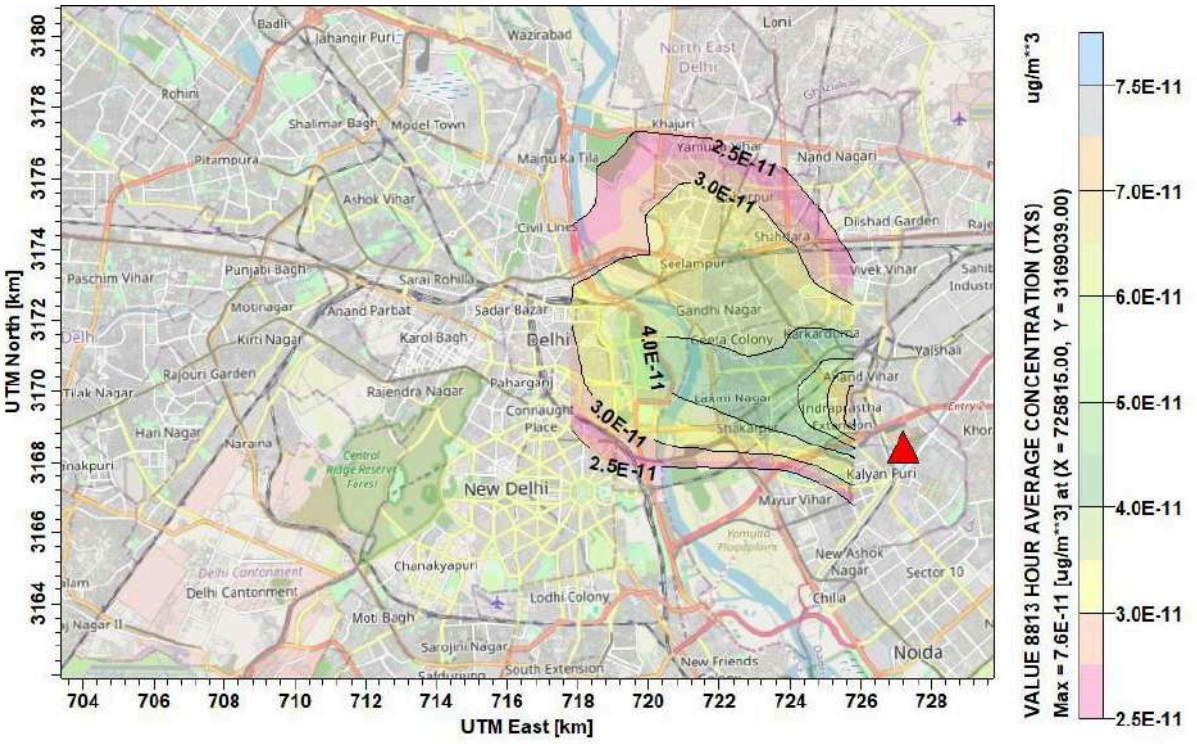


Figure 28: Isopleth of **annual average** GLC of Dioxin around Ghazipur WtE plant.

(iv) Dispersion of Emission from Tehkhand WtE Plant

The GLC due to emission from stack of WtE plant at Tehkhand is given in **Table 16.** The corresponding isopleths of daily average and annual average GLC of PM, NOx, SO_2 and Dioxin & Furan are given in **Figure 29 to Figure 36**.

Table 16: Highest GLC due to emission from stack of WtE plant at Tehkhand.

	PM(µg/m^3)	**NOx**(µg/m^3)	**SO_2**(µg/m^3)	**Dioxin & Furan**(µg/m^3)
Daily Average	5.5979E-001	3.2137E+0	3.2137E+0	1.1656E-009
Annual Average	1.2244E-001	7.0291E-001	7.0291E-001	2.5496E-010

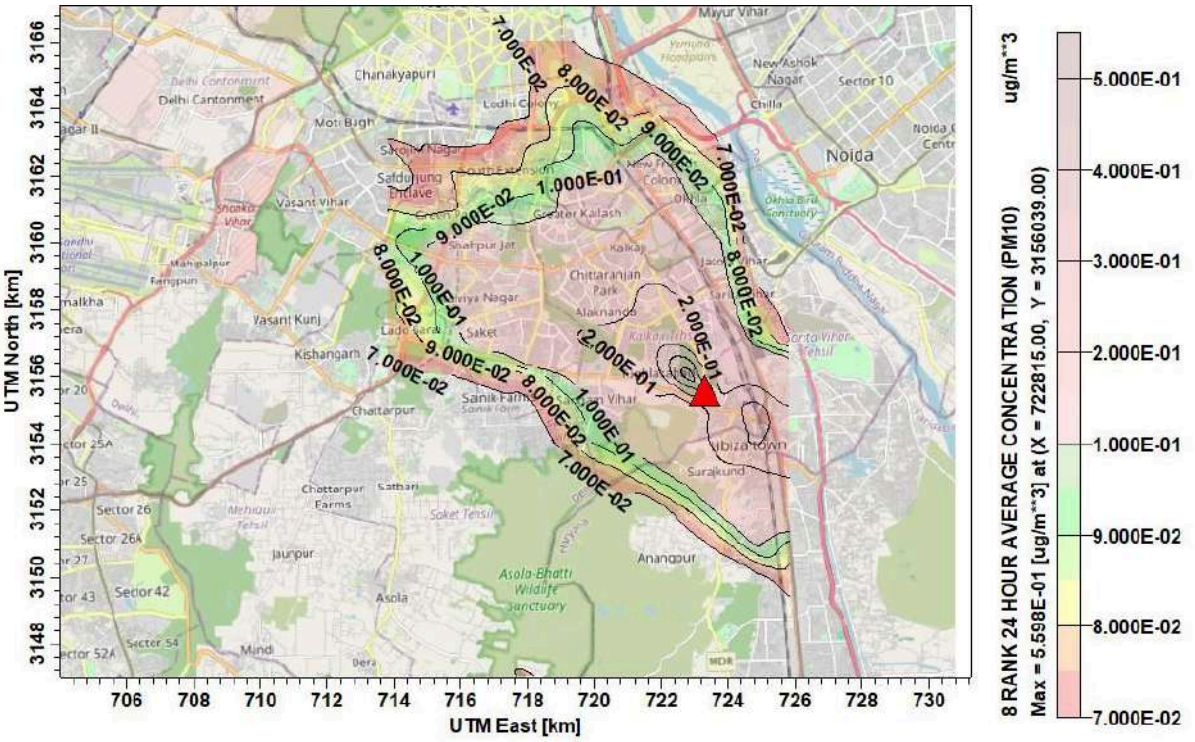


Figure 29: Isopleth of **daily average** GLC of PM around Tehkhand WtE plant.

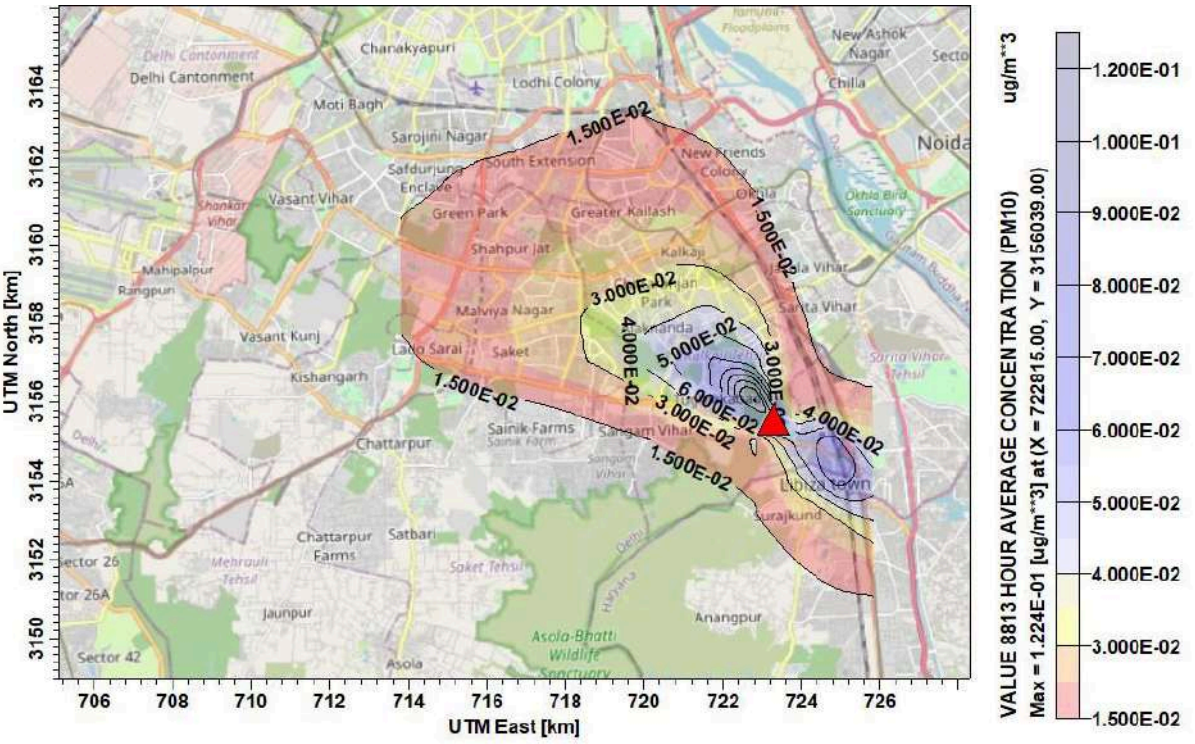


Figure 30: Isopleth of **annual average** GLC of PM around Ghazipur WtE plant.

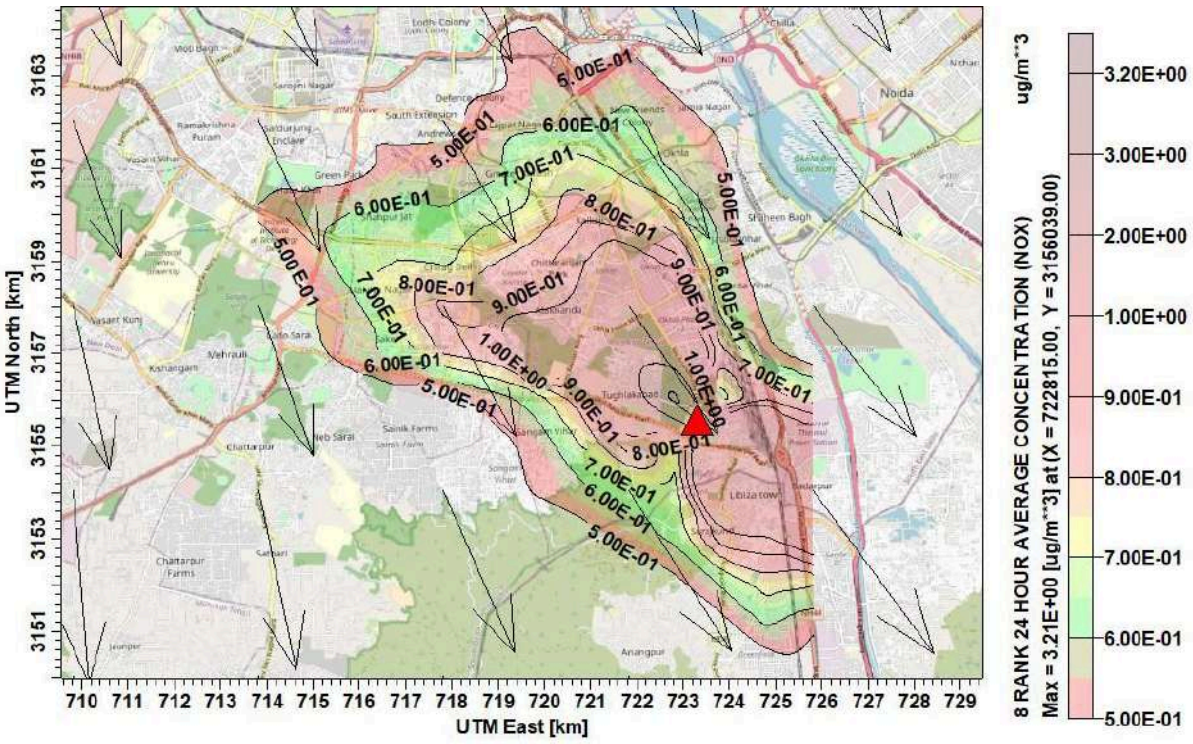


Figure 31: Isopleth of **daily average** GLC of NOx around Tehkhand WtE plant.

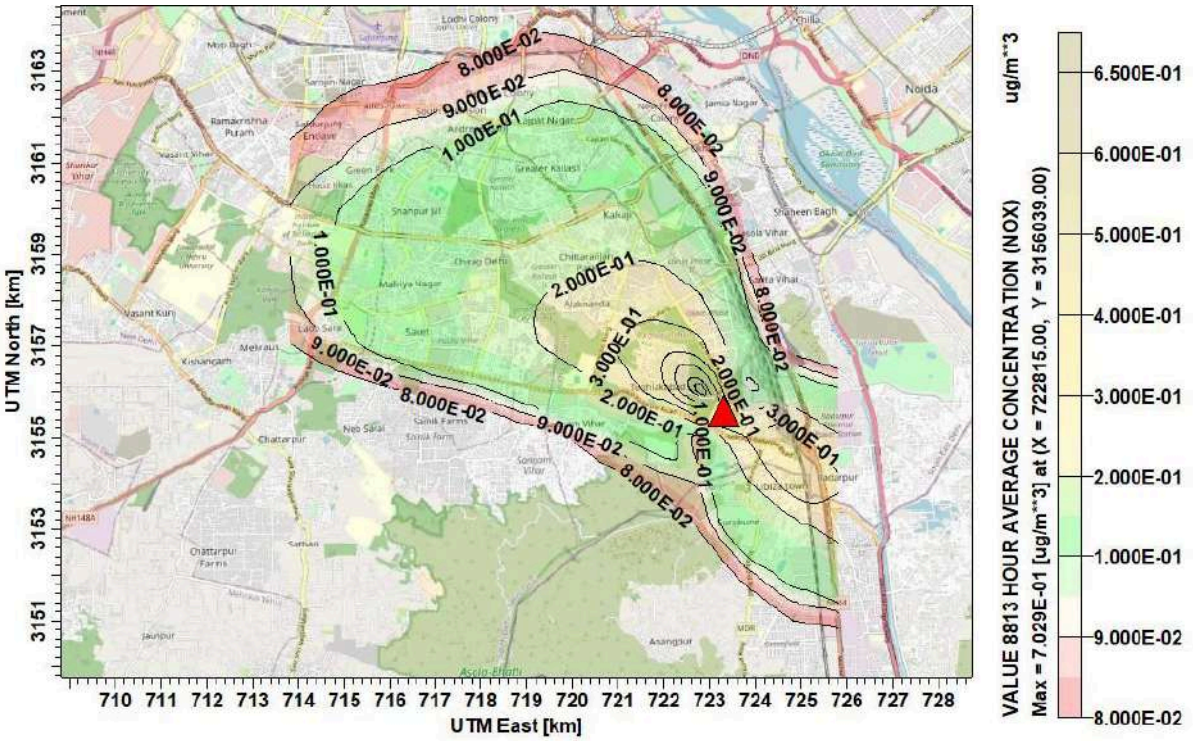


Figure 32: Isopleth of **annual average** GLC of NOx around Tehkhand WtE plant.

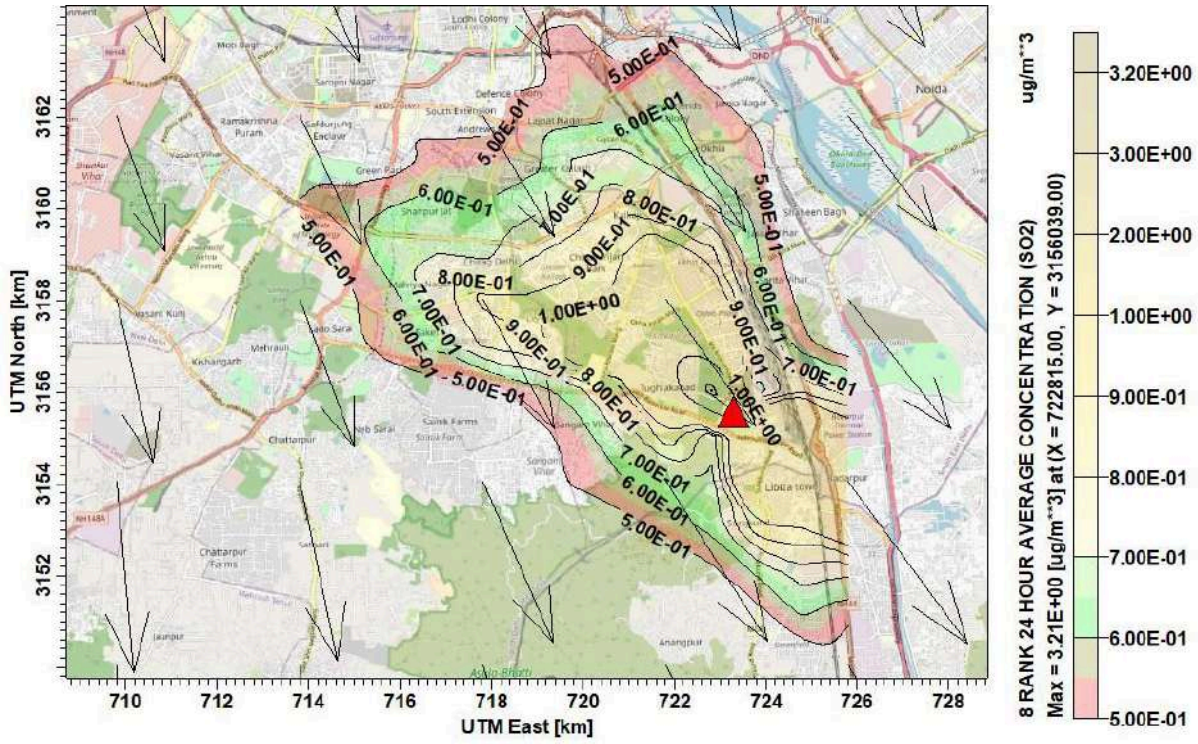


Figure 33: Isopleth of **daily average** GLC of SO_2 around Tehkhand WtE plant.

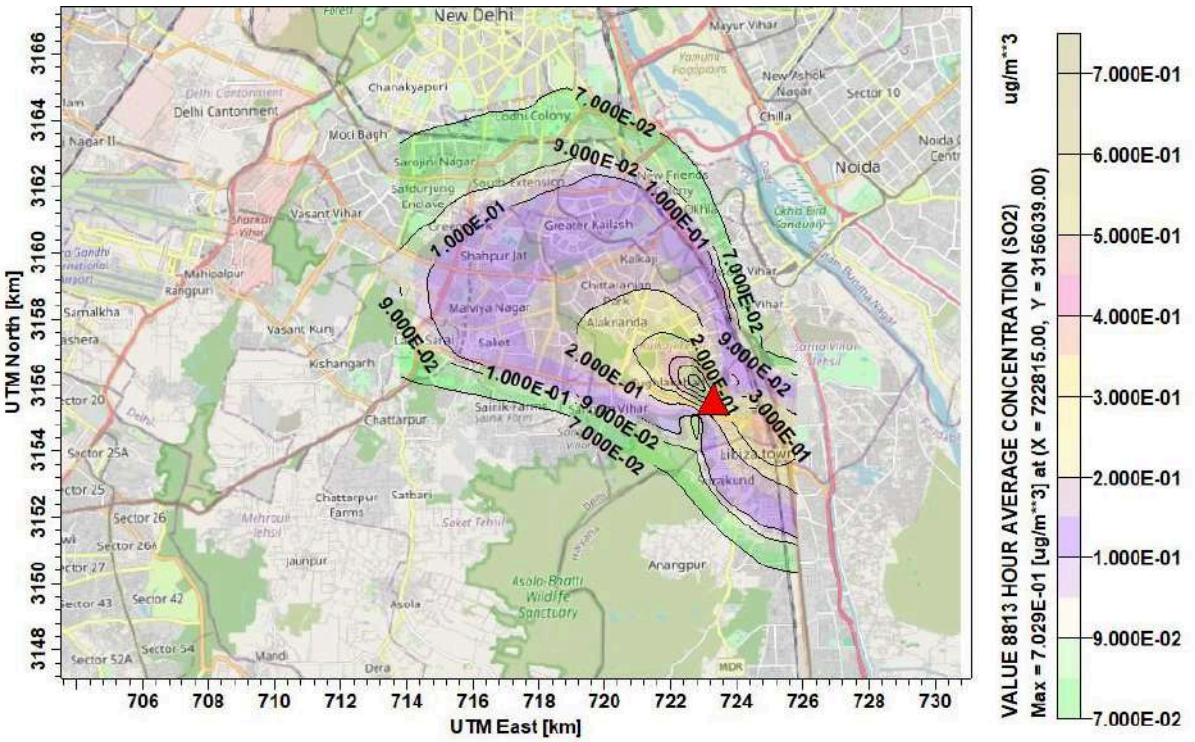


Figure 34: Isopleth of **annual average** GLC of SO_2 around Tehkhand WtE plant.

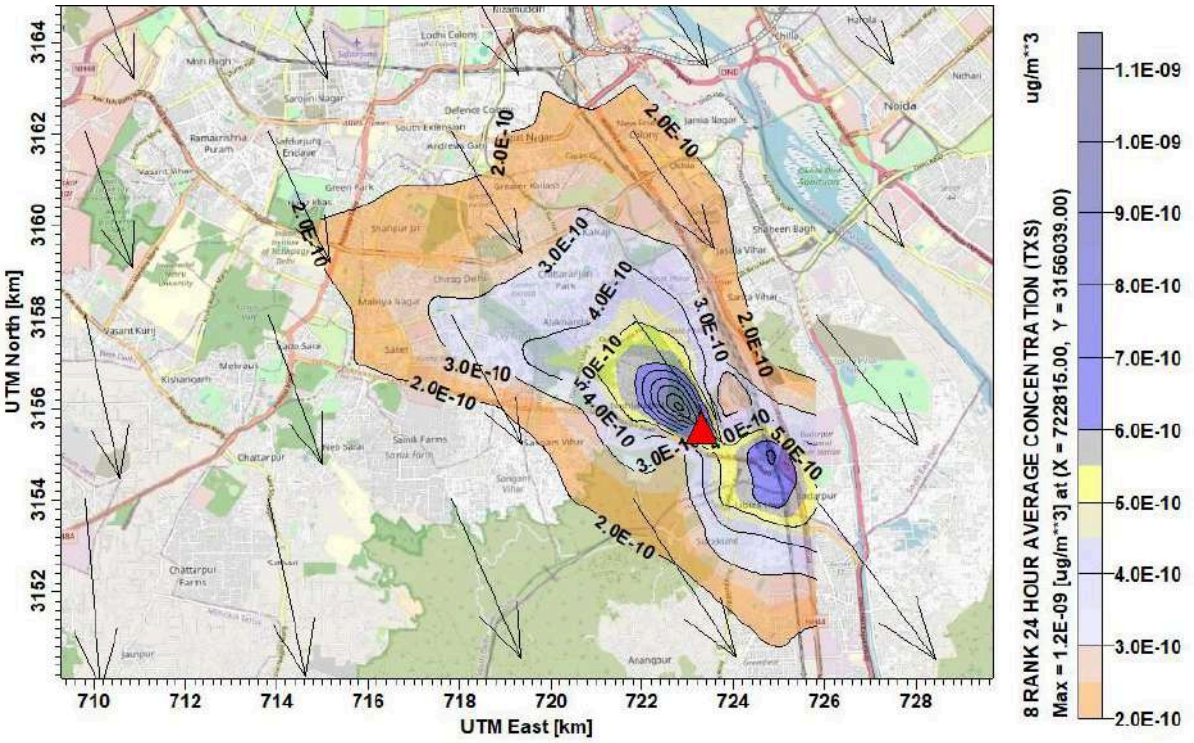


Figure 35: Isopleth of **daily average** GLC of Dioxin around Tehkhand WtE plant.

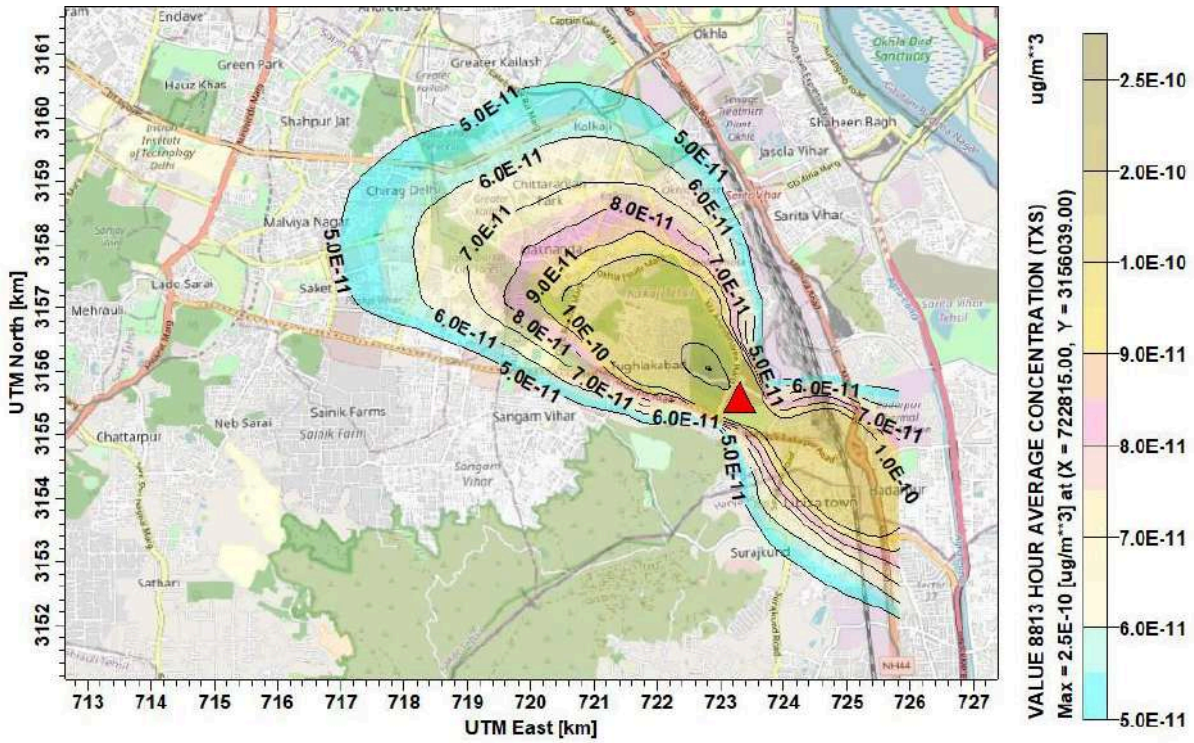


Figure 36: Isopleth of **annual average** GLC of Dioxin around Ghazipur WtE plant.

The maximum model computed both 24 hr and annual concentrations are extremely low at less than 0.05 µg/m^3 (NAAQS (µg/ m^3): PM_{10} (100), SO_2 (80), NO_2 (80)) and do not pose any significant contribution to the air quality in the area.

It is to be noted that GLC has been simulated for four criteria pollutants – PM, SO_2, NO_x ,Dioxin & Furan. As per the Source distribution monitoring, particulate component is very minuscule (<0.5%). The contribution of Heavy metals, which are a constituent of the particulate matter, is hence expected to be very low.

2.2.11 Impact of Dioxin from WtE Plant on Public Health

Dioxins are a group of chemically related compounds that are persistent organic pollutants (POPs). Risk Analysis has been carried out for the most potent Dioxin 2.3.7,8TCDD (Tetra Chlor Di-Benbo p-Dioxin)

The Incremental Cancer Risk through Inhalation Route from Waste-to-Energy Plants has been calculated using USEPA prescribed unit risk factor and is given in **Table 17**.

Table 17: Estimated inhalation incremental cancer risk at WtE plants

S. No.	Incineration Plant	Daily Avg, GLC (pg/m^3) (Refer Section 2.2.9)	Incremental Cancer Risk
1.	Okhla	9.56×10^{-6}	3.15×10^{-10} (or 4 persons out of 1000 crore)
2.	Ghazipur	5.26×10^{-4}	1.73×10^{-8} (or 2 persons out of 10 crore)
3.	Bawana	1.94×10^{-3}	6.40×10^{-8} (or 7 persons out of 10 crore)
4	Tehkhand	1.16×10^{-3}	3.83×10^{-8} (or 4 persons out of 10 crore)

As per USEPA (Refer: https://www.epa.gov/radiation/radiation-health-effects#:~:text=Risks%20that%20are%20low%20for,radiation%20dose%20over%20a%20lifetime) acceptable risk is one in million. It is observed that the estimated inhalation incremental cancer risk at all four WtE sites is much less than acceptable risk as per the USEPA

3.0 Summary and Conclusions

a) It is observed that basic operational conditions & pollution control measures as per SWM Rules, 2016, Consent conditions and observations made during inspection of the four WtE in Delhi 2016, are similar to those followed at international levels as per UNEP's CCET Guidelines. Further, as per the UNEP there are more than 1700 thermal WtE plants operational across the world. However, only 21 thermal WtE plants are operational in India, as on date.

b) It is observed that as all four WtE plants have installed pre-processing facilities, the calorific value of pre-processed waste at the boiler feed point improves as compared to that of unsegregated waste at the inlet point of the WtE plant. Further, it is observed that calorific value of pre-processed waste at the incinerator feed point is more than 1500 Kcal /kg, which is in compliance of Rule 21(1) of SWM Rules, 2016.

c) It is observed that all the four WtE plants are complying with Design specifications/ process conditions as specified in Schedule II (C) of SWM Rules, 2016.

d) It is observed that the emissions from the four WtE are complying with the stipulated

emission norms. However, in case of Bawana, Dioxin & Furan & Cd+Th concentration are exceeding the stipulated stack emission norms. The operator of WtE plant, Bawana, shall take necessary measures (improving Operation & maintenance/upgrading Air Pollution Control System/etc. of the WtE) ensuring that stack emissions should meet the stipulated standards as per the conditions stipulated in the CTO issued by DPCC. It is,however, observed that the estimated inhalation incremental cancer risk (7 out of 10 Crore- Refer Section 2.2.11) due to Dioxin emissions from all four WtE plants including the Bawana plant is much less than acceptable risk of one in million as per USEPA. (Refer: https://www.epa.gov/radiation/radiation-health-effects#:~:text=Risks%20that%20are%20low%20for,radiation%20dose%20over%20a%20lifetime)

e) The following are the observations w.r.t Ambient Air Quality:
   (i) PM_{10} concentration levels at all eight stations monitored at the Four WtE plants is exceeding the prescribed limits. It is, however, within the range of concentration levels monitored at the 39 CAAQMS stations in Delhi.
   (ii) $PM_{2.5}$ levels at one station at Ghazipur WtE, one station at WtE Okhla and at both the stations at WtE Tehkhand is exceeding the prescribed limits. It is, however, within the range of concentration levels monitored at the 39 CAAQMS stations in Delhi.
   (iii) Ozone concentration levels in ambient air at five stations (2 at Ghazipur, 2 at Bawana and 1 at Okhla) is exceeding the prescribed limits. Presence of NOx is a precursor for Ozone generation. There are multiple sources for NOx in the environment. As detailed in Section 2.2.10, GLC level of NOx due to WtE plants is minuscule. Hence, contribution of WtE plants to increase in Ozone concentration in ambient air is negligible.
   (iv) Nickel concentration in ambient air has been reported as > 20 ng/m^3 at one station each in Ghazipur and Bawana during 24 hr monitoring at these stattions. The Nickel measurements are one-day (24 hr) measurements and as such are not comparable with annual average for which minimum monitoring of 104 days is required.
   Further, it is also to be noted that the higher concentration of PM_{10}/$PM_{2.5}$/Ozone/Nickel at the above locations may also be due to other local activities/influences of regional air quality. DPCC to conduct Nickel monitoring at the stations in Ghazipur and Bawana and take further remedial measures, as required. It is further to be noted that stack emissions from all four WtE plants are meeting the stipulated norms w.r.t Suspended Particulate Matter and Heavy metal concentration including Nickel.

f) It is observed that bottom ash is meeting the stipulated norms in Okhla, Ghazipur & Tehkhand and is exceeding the norms w.r.t. LoI in case of Bawana. Flyash is meeting the stipulated norms in Okhla WtE, and is exceeding the stipulated norms w.r.t. Cd,Mn, Pb and Cu in case of Bawana, Cd in case of Ghazipur and Pb in case of Tehkand WtE plant. The flyash and bottom ash is to be disposed/utilized as per the conditions stipulated in the CTO issued to the Unit by DPCC. Improvement in segregation may control such exceedance and also improving combustion in the WtE plants. It is further observed that the concentration of three metals viz Cd, Cu & Pb in Groundwater in and around the WtE plant premises is within the stipulated norms (BDL) at all four WtE plants. It is further to be noted that norms for concentration of Mn has not been stipulated in the SWM Rules,2016.

g) It is observed that adequate measures for odour control have been taken at the four plants. Three WtE plants, Okhla, Ghazipur & Tehkhand, are located close to residential areas and in case of Ghazipur plant, no green belt has been developed around Ghazipur plant. It is recommended that adequate green belt should be developed around Ghazipur plant as stipulated in the Consent and Environment Clearance issued by

DPCC & MoEFCC respectively

h) It is observed that BOD in the treated leachate is exceeding the prescribed norms in case of Bawana plant, Dissolved Solids & Chlorides in case of Ghazipur plant & Chloride is exceeding in case of Tehkhand plant. It is further observed that the leachate generated is reused in Bawana, Okhla and Tehkhand Plant. The same is used for horticulture as per the CTO in case of Ghazipur plant. The operator WtE plant of Bawana, Ghazipur and Tehkhand shall take necessary measures (improving Operation & maintainance/upgrading Effluent Treatment Plant/etc.) ensuring that treated leachate should meet the stipulated standards and should be reused as per the conditions stipulated in the CTO issued by DPCC.

i) With regard to ground water monitoring, it is observed that the metal concentration is within the stipulated norms except for iron at one location each at Bawana & Ghazipur. Further TDS, Hardness and Sulphate is found to be exceeding in case of Bawana, Nitrate in case of Ghazipur, Total Hardness in case of Okhla and Total Hardness, Dissolved Solids & Phenolic Compounds are exceeding in case of Tehkhand Plant. As per CGWB report entitled “Aquifer mapping & ground water management plan of NCT Delhi”, 2016, it is observed that Iron in excess of maximum permissible limit has been reported from Northwest, North, Northeast, West, East, Central, Southwest and South districts of NCT, Delhi. Also total hardness, sulphate and Nitrate have also been reported in excess of maximum permissible limit from parts of Northwest, East, Southwest and South Districts of Delhi. Further, Tehkand WtE is located in close vicinity of the Okhla dumpsite and hence high concentration of phenolic compounds may be attributed to the leachate generated from the dumpsite. Additionally, the Ghazipur & Okhla WtE plants are located in very close vicinity of the Ghazipur & Okhla dumpsites respectively. A detailed study through expert agencies may be taken by DPCC to examine impact on ground water quality due to handling of leachate operation at these WtEs and remedial measures required, if any, may be implemented.

j) The maximum model computed GLC(24 hr and annual concentrations) of PM, SOx, NO_2 and Dioxin & Furan at all 4 WtE plants are extremely low (<than 0.05 µg/m^3) when compared to the corresponding NAAQS. Hence, they do not pose any significant incremental contribution to the air quality in the area. It has been estimated that inhalation incremental cancer risk due to Dioxin Emissions at all four sites is much less than acceptable risk of one in million as per USEPA (Refer: https://www.epa.gov/radiation/radiation-health-effects#:~:text=Risks%20that%20are%20low%20for,radiation%20dose%20over%20a%20lifetime)

k) Segregating waste and plastics, especially those containing chlorine like PVC, is crucial to prevent Dioxin & Furans formation during incineration, as chlorine is a key precursor to Dioxins & Furans. By preventing chlorine-containing waste entering waste to energy or incinerators, one can significantly lower dioxin emissions. The WtE operators, therefore, shall continue their efforts in segregating such wastes.

Segregation of waste at source, as stipulated in the SWM Rules,2016, may result in further emission control including Dioxins & Furans from WtE plants, which could be achieved by awareness among the public by the Municipal Corporation.

l) The fly ash/bottom ash should be tested periodically and in case it exceeds the prescribed limit, the same shall be disposed of at hazardous Treatment, Storage Disposal Facility (TSDF) in accordance with conditions stipulated by DPCC under the CTO.

m) In view of the aforementioned points, it is concluded that the WtE shall have minimal impact of health and environment, provided requisite measures are implemented in these plants to comply with standards specified in the SWM Rules, 2016

n) The concerned SPCBs/PCCs are required to take necessary measures to ensure that

the WtE plants operational in their jurisdiction comply with the stipulated norms, specifically w.r.t Stack emissions, fly ash & bottom ash and treated leachate.

ITEM NO.10 COURT NO.4 SECTION PIL-W

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Writ Petition(s)(Civil) No(s). 13029/1985

M.C. MEHTA Petitioner(s)

VERSUS

UNION OF INDIA & ORS. Respondent(s)

IN RE: MUNICIPAL SOLID WASTE

NAME OF THE FOLLOWING ADVOCATES MAY BE TREATED TO HAVE BEEN SHOWN IN THE LIST:
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MS. APARAJITA SINGH, SR. ADVOCATE (A.C.)
MS. UTTARA BABBAR, SR. ADVOCATE (A.C.)
MR. A.D.N. RAO, SR. ADVOCATE (A.C.)
MS. SHIBANI GHOSH, ADVOCATE (A.C.)
MR. SIDDHARTHA CHOWDHURY, ADVOCATE (A.C.)
MR. G.S. MAKKER,
MR. AMRISH KUMAR,
MR. M.K. MARORIA,
MR. SANJAY KR. VISEN,
MR. SUDEEP KUMAR,
MR. KARAN SHARMA,
MR. SANDEEP KR. JHA,
MR. JYOTI MENDIRATTA,
MR. RAHUL KHURANA,
ADVOCATES

Date : 24-02-2025 This petition was called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE ABHAY S. OKA
HON'BLE MR. JUSTICE UJJAL BHUYAN

Ms. Aparajita Singh,Sr.Adv. (Amicus Curiae)
Ms. Uttara Babbar,Sr.Adv. (Amicus Curiae)
Mr. A.D.N. Rao,Sr.Adv. (Amicus Curiae)
Ms. Shibani Ghosh,Adv. (Amicus Curiae)
Mr. Siddhartha Chowdhury,Adv.(Amicus Curiae)
Mr. Ishank Ranjan,Adv.

For the parties:
Ms. Aishwarya Bhati, A.S.G.
Ms. Archana Pathak Dave,ASG
Ms. Swarupma Chaturvedi, Sr. Adv.
Ms. Ruchi Kohli,Sr.Adv.

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Ms. Suhashini Sen, Adv.
Mr. Chitvan Singhal, Adv.
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Ms. Neelakshi Bhadauria, Adv.
Mr. Mukesh Kumar Maroria, AOR
Mr. Rajesh Kr. Singh, Adv.
Mr. Subhranshu Padhi, Adv.
Mr. Jagdish Chandra Solanki, Adv.
Mr. Gaurang Bhushan, Adv.
Mr. Raj Bahadur Yadav, AOR
Mrs. Alka Agarwal, Adv.
Ms. Sonali Jain, Adv.
Mr. Ashok Kumar B, Adv.
Ms. Baby Devi Bonia, Adv.
Mr. Anirudh Bhat, Adv.
Mr. Prashant Singh II, Adv.
Dr. N. Visakamurthy, AOR
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Ms. Kanu Agrawal, Adv.
Mr. Bhuvan Kapoor, Adv.
Mr. Varun Chugh, Adv.
Mr. Krishna Kant Dubey, Adv.
Ms. Indira Bhakar, Adv.
Mr. Jagdish Chandra, Adv.
Mr. Shreekant Neelappa Terdal, AOR

Mr. Wasim S. Qadri, Sr. Adv.
Mr. Utkarsh Pratap, Adv.
Ms. Arunima Das, Adv.
Ms. Aditi Tripathi, Adv.
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Mr. Lokesh Sinhal, Sr. A.A.G.
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Mr. Satya Mitra, AOR

M/S. M. V. Kini & Associates, AOR

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Mr. Parijat Sinha, AOR

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UPON hearing the counsel the Court made the following

O R D E R

IN RE: MUNICIPAL SOLID WASTE

1. We have perused the note submitted by the learned Amicus Curiae on the issue of Solid Waste Management in the National Capital Region (NCR) States.

2. Firstly, we direct all the NCR States to file comprehensive affidavits dealing with compliance so far made by all Urban Local Bodies with the provisions of the Solid Waste Management Rules, 2016 (for short, "the 2016 Rules"). This direction will apply only to all Urban

Local Bodies forming part of the NCR.

3. Another important issue flagged by the learned senior counsel appointed as Amicus Curiae is that the percentage of segregation waste is very low in Municipal Corporation of Delhi area, Gurugram and Faridabad. The State of Uttar Pradesh has not furnished any figures. As rightly submitted by the learned Amicus Curiae, the segregation of waste at source is of vital importance for the environment. If there is no proper segregation, even waste to energy projects will cause more pollution.

4. We, therefore, direct the NCR States, while filing the affidavits as aforesaid, to set out a comprehensive plan containing timelines and implementing agencies for waste management. Needless to add that the affidavits will state compliance with the 2016 Rules in relation to all Urban Local Bodies within the NCR States. We also direct them to set out the best practices that they propose to follow including those listed in the report of the Niti Aayog and "Waste-wise cities, Best Practices in the Solid Waste Management, 2021".

5. We may also add that the concerned Urban Local Bodies are also free to file affidavits in terms of the aforesaid directions.

6. We direct the Central Pollution Control Board to submit a report to this Court on the impact of waste to energy projects on the environment and public health.

7. The affidavit by the NCR States shall be filed by end of March, 2025. No further time shall be granted. The Central Pollution Control Board shall also file a report by end of March, 2025. The affidavits and the report will be considered on 2nd April, 2025 at 3.00 p.m.

IN RE: TRANSPORT AND PAYMENT OF SUBSISTENCE ALLOWANCE

8. All the States and other stake holders shall file affidavits on the issues relating to Transport and Payment of Subsistence Allowance to be dealt with on 28th February, 2025 and advance copy thereof be furnished to the learned Amicus Curiae.

IN RE: ORDER DATED 27TH JANUARY, 2025

9. In the second last line of paragraph 13 of this Court's order dated 27th January, 2025, the year "2025" shall be replaced by "2019".

(ANITA MALHOTRA)
AR-CUM-PS

(AVGV RAMU)
COURT MASTER

ITEM NO.14 COURT NO.4 SECTION PIL-W

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

WRIT PETITION(S)(CIVIL) NO(S). 13029/1985

M.C. MEHTA Petitioner(s)

VERSUS

UNION OF INDIA & ORS. Respondent(s)

[TO BE TAKEN UP AT 2:00 P.M.]
IN RE: STRENGTHENING AIR QUALITY MANAGEMENT MONITORING NETWORK ENFORCEMENT VACANCIES IN SPCBS AND IN RE: CONSTRUCTIONS AND ROAD DUST AND IN RE: GRIEVANCE REDRESSAL MECHANISM AND IN RE: SOLID WASTE MANAGEMENT IN RE: COMPLIANCE REPORTED BY THE OTHER ENTITES NAME OF THE FOLLOWING ADVOCATES MAY BE TREATED TO HAVE BEEN SHOWN IN THE LIST: MR. HARISH N. SALVE, SR. ADVOCATE (A.C.) MS. APARAJITA SINGH, SR. ADVOCATE (A.C.) MS. UTTARA BABBAR, SR. ADVOCATE (A.C.) MR. A.D.N. RAO, SR. ADVOCATE (A.C.) MS. SHIBANI GHOSH, ADVOCATE (A.C.) MR. SIDDHARTHA CHOWDHURY, ADVOCATE (A.C.) MR. G.S. MAKKER, MR. AMRISH KUMAR, MR. M.K. MARORIA, MR. SANJAY KR. VISEN, MR. SUDEEP KUMAR, MR. KARAN SHARMA, MR. SANDEEP KR. JHA, MR. JYOTI MENDIRATTA, MR. RAHUL KHURANA, ADVOCATES)

Date : 24-04-2025 This petition was called on for hearing today.

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Mr. Avijit Mani Tripathi, AOR
Mr. Upendra Mishra, Adv.
Mr. P.S. Negi, Adv.
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Mr. Sameer Kumar, AOR

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Mr. Ravindra S. Garia, AOR

Mr. Gaurav Choudhary, AOR

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Mr. Vinodh Kanna B., AOR

Mr. Prasanna S., AOR

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Mr. Sahil Tagotra, AOR

Mr. Talha Abdul Rahman, AOR

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Ms. Divya Jyoti Singh, AOR

Mr. Yoginder Handoo, AOR

Ms. Misha Rohatgi, AOR
Mr. Nakul Mohta, Adv.
Mr. Amulya Upadhyay, Adv.
Mr. Ayush Kahsyap, Adv.

Mr. Sandeep Singh, AOR

Ms. Mithu Jain, AOR

Ms. Asha Gopalan Nair, AOR

Mr. Akhil Anand, AOR

Mrs. Prerna Dhall, Adv.
Ms. Akanksha Singh, Adv.
Mr. Ambuj Swaroop, Adv.
Mr. Shivam Ganeshia, Adv.
Mr. Piyush Yadav, Adv.
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Mr. Varun Chugh, Adv.
Mr. Krishna Kant Dubey, Adv.
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Mr. Anupam Misra, Adv.
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Mr. Syed Miran Ahmad, Adv.
Mr. Abhaya Nath Das, Adv.
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Mr. Shishir Deshpande, AOR

Mr. D. Kumanan, AOR

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Ms. Mayuri Raghuvanshi, AOR

Mr. Neeraj Kumar Gupta, AOR

Ms. Pritha Srikumar Iyer, AOR

Ms. Rooh-e-hina Dua, AOR

Ms. Vrinda Bhandari, AOR

Ms. Charu Mathur, AOR

Mr. Shrirang B. Varma, Adv.
Mr. Siddharth Dharmadhikari, Adv.
Mr. Aaditya Aniruddha Pande, AOR

UPON hearing the counsel the Court made the following

O R D E R

IN RE: STRENGTHENING AIR QUALITY MANAGEMENT, MONITORING NETWORK, ENFORCEMENT AND VACANCIES IN SPCBS

1. We have heard Ms. Aparajita Singh, learned Senior Advocate appointed as Amicus Curiae on the suggestions for strengthening air quality governance. We have perused paragraph 10 of the Note filed by the learned Amicus Curiae for hearing on 23.04.2024, wherein she has incorporated the issues on which directions of this Court are required. Ms. Aishwarya Bhati, learned ASG, seeks time to respond to the same. We will also hear the NCR States on these directions on 8th May, 2025 at 12:00 noon.

2. The other issue regarding filling-in of the vacant posts in State Pollution Control Boards will be also considered on 8th May, 2025.

3. We have heard the learned Amicus Curiae on the Solid Waste Management Rules, 2016 (for short, "the 2016 Rules"). She has rightly emphasised on achieving the target of 100 per cent segregation of waste within the fixed timelines and 100 per cent collection of solid waste by 31st December, 2025.

4. We clarify that the directions which we propose to issue today will supplement the directions already issued against the Municipal Corporation of Delhi (for short, "the MCD") by our earlier order dated 8th April, 2025 and, therefore, the directions will be in addition to what is already directed.

5. As far as 100 per cent segregation of waste is concerned, we have dealt with the issue while dealing with the compliance by the MCD of the 2016 Rules. As achieving this target is of immense importance, we direct the States of Delhi, Haryana, Rajasthan and Uttar Pradesh as well as the MCD to designate high ranking officers as nodal officers to supervise the compliance activities of achieving 100 per cent segregation of waste. The same nodal officers shall also supervise the target of achieving 100 per cent collection of solid waste. As far as the MCD is concerned, it has laid down the timelines for achieving this target. However, the other NCR States have not done so. Therefore, we direct the states of Delhi, Haryana, Rajasthan and Uttar Pradesh to fix an outer limit for achieving the target of 100 per cent collection of solid waste. The nodal officers dealing with both the issues (100 per cent segregation of waste and 100 per cent collection of solid

waste) shall file regular compliance reports starting from 1st September, 2025. After every quarter, compliance reports shall be filed by the nodal officers in this Court. As and when the compliance reports are filed, the Registrar (Judicial) of this Court shall ensure that the same are placed before the appropriate Bench dealing with the case.

6. For implementation of the 2016 Rules, it is necessary to ensure that the penalties are imposed in case of non-compliances. Unless proper publicity is given to the provisions of the 2016 Rules and the penalties provided therein for non-compliance, the provisions of the 2016 Rules cannot be effectively implemented. Therefore, we direct that the NCR States as well as the MCD to undertake a massive awareness campaign about the provisions of the 2016 Rules. Needless to add that in the awareness campaign, publicity shall be given to the existing grievance redressal mechanism which can be used by the citizens to lodge complaints about the breaches or non-compliances with the 2016 Rules. We direct the NCR States and the MCD to report compliance with the above direction as well as to produce data before the Court regarding the penalties imposed and recovered so far.

7. There is another important issue flagged by the learned Amicus Curiae. She has rightly submitted that the activity of recycling the product from the construction and dust waste must be incentivized. Her submission is that the rate of GST should be reduced to minimum or ideally zero. We direct the Union of India to consider this aspect by placing it before the appropriate authority. We recommend that this activity needs to be

incentivized which will help the cause of environment protection.

8. As regards commissioning of the landfill facilities in MCD area is concerned, at this stage, no further directions are required in view of what was observed in the order dated 8th April, 2025.

9. The other issue which remains as regards the MCD is of formation of the Standing Committee. On this aspect, we propose to issue directions after hearing the concerned parties on 08th May 2025 at 12 noon.

10. On the issue of solid waste management, we may note here that this Court is dealing with the issues which arise at present. Considering the large-scale construction/development projects in the NCR region, the generation of the municipal solid waste is bound to be multiplied and, therefore, all the NCR States must make a realistic assessment of the expected generation of municipal solid waste in the next 25 years so that all the authorities will be in the state of preparedness to deal with the ever-increasing quantum of municipal solid waste generated in the cities. We direct the Governments of the NCR States to file affidavits on or before 1st September, 2025 dealing with the steps taken in this behalf. We make it clear that the affidavits shall give data of all the local authorities falling within the jurisdiction of the respective States which are in the NCR region. As far as these directions are concerned, we direct that all the affidavits shall be filed by the nodal officers who shall be responsible for providing copies to the office of the learned Amicus Curiae as well as the learned counsel appearing for the respective parties.

11. At this stage, we may also note that the learned senior counsel appearing for the Greater NOIDA Industrial Development Authority pointed out that in the affidavit of compliance filed on 4th April, 2025, the Authority has stated that an action is being taken to ensure that by the end of August 2025, legacy waste will be reduced to zero. We hope and trust that this target is achieved by the Authority.

12. As far as the issue of Waste to Energy Plants is concerned, the Central Pollution Control Board by filing an affidavit dated 22nd April, 2025 has sought time of one month to make compliance. We, accordingly, grant time of one month to the Central Pollution Control Board to make compliance from 22nd April, 2025. At this stage, the learned Amicus Curiae has invited our attention to a letter dated 12th February, 2025 addressed by the Member Secretary of the Central Pollution Control Board to the State Pollution Control Boards. She has invited our attention to page 03 of the said letter and has raised concerns about a new category mentioned therein. To enable the learned ASG to seek clarification, this aspect will be considered on 8th May, 2025 at 12:00 noon.

IN RE: CONSTRUCTION AND ROAD DUST

13. As regards the issue of prosecutions concerning violation of the Construction and Demolition Waste Rules of 2016, a compliance report dated 25th March, 2025 has been filed by the Commission for Air Quality Management (for short, "the CAQM"), in which, paragraphs 8 to 10 are relevant. It is stated that the Member Secretaries of the NCR State Pollution Control Boards/DPCC have

been authorised to file prosecutions under the Commission for Air Quality Management in NCR & Adjoining Areas Act, 2021 (for short, "the CAQM") where area of a plot is more than 500 square metre. As regards the plots having an area of less than 500 square metre, by a statutory direction dated 2nd January, 2025, the authorities in the ULBs concerned have been empowered to file prosecutions under the CAQM Act. We direct the CAQM to call for the data of the action taken by the concerned authorities in terms of paragraphs 8 and 9 of the compliance report dated 25th March, 2025 filed by the CAQM. The CAQM shall compile the data up to 31st July 2025 and file an affidavit by 1st September, 2025. While filing the affidavit on 1st September, 2025, the CAQM will give categorised data indicating the number of complaints filed against the private individuals and the number of complaints filed against the Government entities.

14. As regards the compliance with the 2016 Rules, the same will be considered on 8th May, 2025.

IA NOS.194489/2024 (FOR IMPLEADMENT) AND IA NO.194490/2024 (SEEKING PERMISSION FOR REGISTRATION OF FIRE TENDER VEHICLE HAVING BS-IV ENGINE)

15. List on 8th May, 2025 at 12:00 noon.

(ASHISH KONDLE)
ASTT. REGISTRAR-cum-PS

(AVGV RAMU)
COURT MASTER (NSH)

Annexure II

List of Municipal Solid Waste based (MSW) Waste to Energy Plants operational in India (As per Information provided by States/UTs)

S.No.	State /UT & No of WTEs	Name of WTE plant & Location
1	**Andhra Pradesh (02)**	Jindal Urban Waste Management, Visakhapatnam, A.P
2		Jindal Urban Waste Management, Limited Guntur **,** A.P
3	**Delhi (04)**	East Delhi Waste Processing Company Ghazipur,Delhi
4		Tehkhand Waste to Electricity Project Ltd. Delhi
5		Timarpur Okhala, waste management Company Ltd. Delhi
6		M/S Delhi MSW Solutions Ltd.Delhi
7	**Gujarat (02)**	Goodwatts WtE Jamnagr Pvt Ltd., Gujarat
8		Jindal WtE Pvt. Ltd .Ahmedabad., Gujarat
9	**Haryana (01)**	Integrated Solid Waste Management Facility , Murthal ,Sonipat , Haryana
10	**Karnataka (01)**	Bidadi Waste to Energy Plant, Bidadi, Karnataka
11	**Madhya Pradesh (02)**	Rewa MSW Energy Solution Pvt Ltd ,M.P
12		Jabalpur MSW Pvt. Ltd Kathonda, Jabalpur , M.P
13	**Maharashtra(02)**	Anotny Lara Renewable Energy Private Limited, Waste to Energy, PimpriChinchwad, Mahararashtra
14		Bhumi Green Energy Pvt. Ltd., Sangli, Maharashtra
15	**Telangana (02)**	Hyderabad MSW Energy Solution Ltd, Telangana
16		Dundigal WtE Pvt. Ltd , Telangana
17	**Uttarakhand (03)**	Sidharth Papers Ltd., US Nagar, Uttarakhand
18		Siddheshwari Paper Udyog Pvt Ltd., Kashipur Uttarakhand
19		Bahl Paper Mills Ltd., Kashipur, Uttarakahnd
20	**Uttar Pradesh (02)**	Rollz India Waste Management Pvt. Ltd., Deenanathpur, Ghaziabad
21		Rollz India Waste Management Pvt. Ltd., Bahadarpur, Ghaziabad

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

CP-18/1/2023-IPC-VI-HO-CPCB-HO

Date: 12.02.2025

To

The Chairman
State Pollution Control Board/Pollution Control Committee
(As per the list)

Sub: Directions under section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 regarding harmonization of classification of industrial sectors under Red, Orange, Green, White and Blue categories.

WHEREAS, under section 16 (2)(b) of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 16 (2)(c) of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the Central Pollution Control Board (CPCB), constituted under the Water (Prevention and Control of Pollution) Act, 1974, is to coordinate activities of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs); and

WHEREAS, under section 16 (2)(c) of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 16 (2)(d) of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the CPCB is to provide technical assistance and guidance to SPCBs and PCCs; and

WHEREAS, it was brought to the notice of CPCB, that different SPCBs/PCCs were following different criteria for the classification of industrial sectors under different categories. Therefore, in 2012, to have uniformity in classification throughout the country, CPCB vide letter no. B-29012/1/2012/ESS/1526-1563, dated 04.06.2012 issued directions under section 18(1(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs to adopt and implement standardized list of Red, Orange and Green categories of industries; and

WHEREAS, in 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for classification of industrial sectors. The PI is determined based on Precautionary Principle- by evaluating potential of water pollution, air pollution, and hazardous waste generation from particular sector. CPCB vide letter no. B-29012//ESS(CPA)/2015-16, dated 07.03.2016 issued directions under section 18(1(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs to adopt and implement revised classification. SPCBs/PCCs were also directed to categorize any new or left over sectors at their level by constituting a Committee and following the methodology prescribed by CPCB; and

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Parivesh Bhawan, East Arjun Nagar, New Delhi - 110032
दूरभाष/Tel: 43102030, 22305792, वेबसाईट/Website : www.cpbc.nic.in

WHEREAS, CPCB vide letter no. B-29016/ROGW/IPC-VI/2020-21, dated 30.04.2020, issued directions under section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs regarding segregated list of non-industrial sectors (activities/ facilities/ infrastructure/ services) such as sewage treatment plants, healthcare facilities, hotels, building and construction projects, airports, highways etc. Further, CPCB also classified few additional sectors from time to time; and

WHEREAS, based on the experience gained over the years in Pollution Index calculation, use of cleaner fuels like PNG/CNG etc., adoption of cleaner technology resulting in reduced emission/wastewater generation, a need was felt to revisit the classification methodology of 2016; and

WHEREAS, during July 2023, CPCB prepared a "Draft Report on Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management" which was uploaded on CPCB website for seeking comments/suggestions of the stakeholders/public on the same. The draft report was also circulated to SPCBs/PCCs/MoEF&CC for comments; and

WHEREAS, CPCB vide office order dated 26.09.2023 constituted a committee to critically examine and analyse the comments/suggestions and to make recommendations for suitable incorporation in the finalizing the methodology and classification; and

WHEREAS, based on the stakeholders' comments, a need was felt to promote/incentivize units for adopting measures resulting in better environmental performance. Additionally, a requirement was also felt for separate category – Blue Category- for essential environmental services for management of environmental pollution arising from domestic/household activities. Accordingly, CPCB prepared an "Addendum and substitution thereto in Draft Report on Classification of Sectors into Red, Orange, Green, White and Blue Categories", which was shared with SPCBs/PCCs and also uploaded on CPCB website on 11.07.2024 for seeking inputs/comments; and

WHEREAS, the amendment in Section-21 of the Air (Prevention and Control of Pollution) Act, 1981 through the Jan Vishwas (Amendment of Provisions) Act, 2023 and amendment in Section-25 of the Water (Prevention and Control of Pollution) Act, 1974 through the Water (Prevention and Control of Pollution) Amendment Act, 2024, grant exemption to certain categories of industries, as notified by Central Government, for obtaining consent under these Acts; and

WHEREAS, the Ministry of Environment, Forest and Climate Change, Government of India vide notification no. G.S.R. 702(E), dated 12.11.2024 granted exemption of consent under the Water Act, 1974 and the Air Act, 1981 to exemption of Consent to Establish (CTE) and Consent to Operate (CTO) to all industrial plants having pollution index score upto 20 (at present total 39 industrial sectors under white categories as per 2016 methodology) subject to

condition that such plant shall inform in writing to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC); and

WHEREAS, the MoEF&CC vide letter no. Q-15012/2/2022/-CPW-Part (1)/e-240741, dated 14.11.2024 has issued Standard Operating Procedure for implementation of the said Notification dated 12.11.2024. The SOP includes the following provisions for White categories of industries:

i. Industry to intimate to concerned SPCB/PCC about operations and self-declare the compliance with prevalent rules & regulations,
ii. Concerned SPCB/PCC to maintain separate list of such industries/activities, and
iii. Concerned SPCB/PCC to ensure that no activities other than those intimated, are carried out by exempted units.

WHEREAS, the Committee constituted by CPCB evaluated the comments, incorporated the suitable changes and finalized the revised methodology as well as classification of sectors. Final report in this regard titled as "Classification of sectors in to Red, Orange, Green, White and Blue Categories (A tool for progressive environmental management)" was submitted to Ministry of Environment, Forest and Climate Change (MoEF&CC) for concurrence. The MoEF&CC vide letter no. Q-16017-57-2015-CPA, dated 15.01.2025 granted concurrence to the revised classification; and

WHEREAS, as per the revised methodology, the category of the sector is decided based on the following ranges of Pollution Index:

i. Red: $PI \geq 80$,
ii. Orange: $55 \leq PI < 80$,
iii. Green: $25 \leq PI < 55$,
iv. White: $PI < 25$; and

WHEREAS, based on the revised methodology, CPCB has classified a total of 419 sectors and sub-sectors as under:

i. The Red Category: 125
ii. The Orange Category: 137
iii. The Green Category: 94
iv. The White Category: 54
v. The Blue Category: 9; and

WHEREAS, the purpose of classification is to ensure that the industry is established in a manner consistent with the environmental objectives and also to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in the generation of no or minimum pollutants. The revised classification system also defines criteria for incentivizing such industry. The industry may self-assess the PI score as per defined criteria and can submit application to respective SPCBs/PCCs for consideration; and

NOW, THEREFORE, in the exercise of the powers delegated under Section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and Section 18(1)(b) of the Air (Prevention & Control of Pollution), Act, 1981 the earlier directions dated 07.03.2016 and subsequent directions/letter in the context of categorization of industries are withdrawn with immediate effect and following **'Directions'** are hereby issued for compliance by all SPCBs and PCCs:

1. That SPCBs and PCCs shall immediately adopt the revised methodology for classification of sectors and list of 419 sectors/sub-sectors classified under Red, Orange, Green, White, and Blue categories as detailed in the **attached** report- "Classification of Sectors into Red, Orange, Green, White and Blue Categories (A tool for progressive environmental management)".
2. That all pending application for consideration of consent (CTE/CTO) and future such application shall be processed as per the revised classification. In case CTE granted before the revised classification, applicability of CTO will be as per revised classification.
3. That the revised sectors/subsectors classified under Red, Orange, Green, White, and Blue category of sectors as given in the attached document shall be used by the SPCBs and PCCs for consent management, inventorization of units under different categories, siting criteria, deciding environmental surveillance frequency, calculation of environmental compensation, etc., as per the guidelines issued from time to time.
4. That SPCBs and PCCs shall prepare the inventory of Red, Orange, Green, White and Blue categories of units operating in their jurisdictions, based on the revised classification. SPCBs and PCCs shall upload the category and sector-wise list of such units on their website. SPCBs and PCCs shall also forward such list to CPCB, latest by 30.06.2025 and thereafter updated list by 30th June every year.
5. That the classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.
6. That any further addition of any new or left-out sector and their classification which is not listed in the revised list of Red, Orange, Green, and White categories, shall be done at the level of concerned SPCB /PCC by constituting a Committee and following revised criteria & guidelines as detailed in the attached report and no concurrence of CPCB shall normally be required. Intimation of same from time to time will suffice. However, addition in Blue Category Sectors-Essential Environmental Services for domestic waste management, will be done at the level of CPCB only. SPCBs/PCCs may forward their proposal, if any, to CPCB in this regard.
7. That SPCBs and PCCs are required to prepare and submit list of additional sector classified under white category to CPCB on annual basis, by 30th of June every year, in the prescribed format (Annexure-V) as given in the attached report, for further notification for exemption from consent as per the provisions of the Jan Vishwas (Amendment of Provisions) Act, 2023, the Water Act, and the Air Act as amended from time to time by MoEF&CC.
8. That SPCBs and PCCs shall constitute a committee as prescribed in the report to evaluate the applications of the units for incentives due to adopting measures resulting in better environmental performance and reduction in PI score. The SPCB/PCC shall

place the separate list of such units on their website and also submit list of such units to CPCB on Annual Basis by 30th June every year.

The SPCBs/PCCs shall acknowledge the receipt of directions and submit the "Action Taken Report" in compliance with these directions to CPCB before 20.02.2025.

Encl. As above.

(Bharat Kumar Sharma)
Member Secretary

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(Bharat Kumar Sharma)
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Classification of Sectors into Red, Orange, Green, White and Blue Categories

(A tool for progressive environmental management)

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar

Delhi-110032

(January 2025)

तन्मय कुमार, भा.प्र.से.
अध्यक्ष
Tanmay Kumar, I. A. S.
Chairman

सत्यमेव जयते

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

FOREWORD

The concept of classifying industries into different pollution categories originated in 1989 with the Doon Valley (Uttarakhand) Notification issued by Ministry of Environment and Forests. Subsequently the concept of pollution index was developed by Central Pollution Control Board (CPCB) during 2016 to classify the sectors into different category. The 2016 classification helped State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) in streamlining consent management, prioritizing regulatory oversight & environmental monitoring, taking decision related to siting of units, etc. However, necessity felt for refining the concept of calculating Pollution Index to overcome certain limitation and to bifurcate sub-sectors based on pollution load, scale of operation etc.

Accordingly, draft methodology was prepared and widely circulated for inputs/comments/suggestions by placing the same on CPCB website (public domain) as well as by inviting comments from MoEF&CC/SPCBs/PCCs. As of 11.08.2024, i.e. the extended date for receipt of suggestions, CPCB received 170 representations, comprising over 700 comments from PSUs, NGOs, industries, industrial associations, including feedback from SPCBs of Kerala, Nagaland, Tamil Nadu, Mizoram, West Bengal, Punjab and Lakshadweep. The report has been finalised after examining all the comments by a working committee.

The 2025 classification methodology bifurcates sub-sectors based on pollution load, scale of operation, production technology, and type of fuel used into Red, Orange, Green, White and Blue categories. Red indicates the highest pollution potential, requiring stringent regulatory oversight, while White signifies minimal or no pollution, with much reduced compliance burden of merely intimation to the concerned SPCBs/PCCs. **A new Blue Category has also been introduced to distinguish the Essential Environmental Services** required for management of environmental concerns arising from anthropogenic pollution due to domestic/household activities which otherwise will have large littering potential. Additional 2 years validity for consent to operate (as per Pollution Index) is prescribed for the blue category.

This report also outlines the implementation pathway, which includes guidelines for State Pollution Control Boards/Pollution Control Committees to follow and implement the new classification system. Earlier classified 257 sectors have now been bifurcated and classified into 403 sectors (including sub sectors) and additionally, 16 new sectors have been introduced. Thus, the revised classification of 273 key sectors comprising of total 419 sectors/sub-sectors are further classified into Red Category (125 nos.), Orange Category (137 nos.), Green Category (94 nos.), White Category (54 nos.) and Blue Category (9 nos.). Progression between red, orange and green categories for the industrial sectors is also incorporated based on the use of less polluting available processes and technologies.

The report also comprises provisions for individual units to adopt cleaner technologies and practices resulting in reduction of pollution load in any sector. Incentives, such as extended validity for Consent to Operate (CTO) and reduced inspection frequencies, are outlined to encourage continual improvement of environmental performance. The incentive mechanism allowing progression between categories will thereby promote Ease of Doing Business by extended consent validity and enhance duration between inspections, thereby leading to reduced compliance burden.

To sum up, this report aims to create a more transparent, consistent, and incentivized regulatory mechanism for better environment management, promoting sustainable industrial development and better governance. I hope the report will be useful to all concerned in the field of industrial pollution control in the country and would incentivise the industries to switch over to cleaner process and technology leading to reduced air, water and soil pollution and also encourage setting up of blue category industries.

I would like to place on record my sincere appreciation for the hard work and valuable contributions by the CPCB team comprising of Shri Amit R. Thakkar, Add. Director, Shri Saubhagya Dixit, Scientist D, and Dr. Anantha N. S., SSA under the guidance of Shri Bharat Kumar Sharma, Member Secretary. I would also like to extend my thanks to Dr. Prashant Gargava, former Member Secretary, Shri P. K. Gupta, former Director and Shri Ajay Aggarwal, former Director, for their contribution. I would also express gratitude to the Working Committee, CPCB, MoEF&CC, SPCBs/PCCs and others for their contributions in the preparation of this report.

(Tanmay Kumar)

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EXECUTIVE SUMMARY

The concept of classification of industrial sectors into red, orange, and green categories based on the size of operations and consumption of resources was first introduced in 1989 for Doon Valley, Uttarakhand. This classification aimed to aid decisions regarding siting of industries. Over the period of time, this concept was extended nationwide to manage consents and establish norms for surveillance and inspection of industry. In 2012, to have uniformity in classification throughout the country, the Central Pollution Control Board (CPCB) issued a standardized list of 244 sectors, classified under red (85 sectors), orange (73 sectors) and green (86 sectors) categories.

In 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for categorizing industries. This PI was determined by evaluating water pollution, air pollution, and hazardous waste generation. Using this methodology, CPCB classified 257 industrial sectors into four categories: Red (63 sectors), Orange (91 sectors), Green (65 sectors), and White (38 sectors). The White category was introduced for sectors considered "practically non-polluting" during 2016. Additionally, State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were authorized to categorize any new or left over sectors according to the CPCB's 2016 methodology.

Further, based on the experience gained over the years, the increased use of cleaner fuels like PNG and bio-CNG, adoption of cleaner technology resulting into reduced wastewater generation, normalisation approach & different formula for calculating PI etc. a need was felt to revisit the classification methodology of 2016 for several such identified areas for improvement. Separate scoring for trade effluent and sewage effluent was also required due to differing characteristics and treatment methods.

Considering the scope of revision, CPCB published a draft report revising the methodology for calculating PI and accordingly classification of sectors into Red, Orange, Green, and White categories based on pollution index range was placed in the public domain for inputs/comments. Around 160 representations comprising more than 700 comments were received. Based on feedback/suggestions and examination of same by the working committee constituted for the purpose, the methodology was finalised. As per the final methodology, the scoring criteria for the following three major pollutant groups are as follows:

i. Water Pollutant Score (PI_W): Assesses the water pollution potential considering the oxygen demand of wastewater, other pollutants in the wastewater and quantity of wastewater generated.
ii. Air Pollutant Score (PI_A): Evaluates the potential air pollution due to process emissions (point source), work zone emissions (fugitive and odour) and type & quantity of fuel used.
iii. Waste Pollutant Score (PI_H): Considering the type and quantity of waste (which are hazardous/toxic/infectious/bulk in nature) generated.

Each pollutant group is scored out of 100, and the Cumulative Pollution Index is calculated. The category of the sector is decided based on the pollution index range, if $PI \geq 80$ the category

of sector is Red, if PI ranges between 55 ≤ PI < 80, the category of sector is orange, similarly for the range of PI between 25 ≤ PI < 55, the category is Green and for PI < 25, the category of the sector is white.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised. Based on the revised methodology, CPCB has classified total 419 sectors and sub-sectors under Red (125), Orange (137), Green (94), White (54) and Blue (9) categories.

The report introduced incentive mechanism for the units in any sector that adopt environment friendly practices such as treatment and recovery of 100% wastewater, use of 100% cleaner fuel/renewal energy etc. and ensuring continuous compliance. These incentives are designed to encourage continuous improvement in environmental performance and to reward units that demonstrate proven implementation of sustainable practices and compliances.

Following are the salient features of the revised classification methodology:

- Methodology focusses on "Potential to pollute the environment" by the sector.
- Simplified single formula for Cumulative Pollution Index for all cases.
- Equal weightage to all three pollutant groups- Air, Water, and Waste.
- Cumulative PI based on weighted proportionate scores of pollutant groups.
- Separate scoring criteria for sectors generating sewage (such as Building & construction projects, STPs, Airports, etc.) and bio-medical waste (Health Care Facilities).
- Introduced Blue Category for 9 sectors under Essential Environmental Services required for management of waste generated from domestic/household activities.
- Appropriate weightage to scale of operations by introducing more slabs to bifurcates sub-sectors based on pollution load, scale of operation, production technology and type of fuel used.
- Introduction of sub-categories for sectors based on cleaner technologies, fuel types, integrated/segregated operations etc.
- Motivation to industries for progressive environmental management.
- A tool to assess the Cumulative Pollution Index and category based on revised method.

This report, prepared by the Central Pollution Control Board (CPCB), presents a revised methodology for classifying sectors based on their pollution potential. The classification aims to enhance environmental management and regulatory oversight by classifying sectors into red, orange, green, white, and blue categories. The report covers in detail about the genesis of

classification, need for the revision of 2016 methodology, scoring methodology for calculation of cumulative PI, etc.

The report also outlines guidelines for implementing the classification system. The classification may be used for consent management, inspection frequency, siting criteria, cluster development, pollution control plans, levying environmental compensation, promoting progressive environmental management, etc.

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LIST OF ABBREVIATION

CBG: Compressed Biogas

CNG: Compressed Natural Gas

CPI: Cumulative Pollution Index

CPCB: Central Pollution Control Board

CTE: Consent to Establishment

CTO: Consent to Operate

EC: Environment Compensation

ETP: Effluent Treatment Plant

EES: Essential Environmental Services

Gen-Set: Generator Set

HAPs: Hazardous Air Pollutants

HCFs: Health Care Facilities

HW: Hazardous Waste

MoEF&CC: Ministry of Environment, Forest & Climate Change

LNG: Liquefied Natural Gas

LPG: Liquefied Petroleum Gas

NGT: National Green Tribunal

NOC: No Objection Certificate

OCEMS: Online Continuous Effluent/Emission Monitoring System

PCC: Pollution Control Committee

PM: Particulate Matter

PI: Pollution Index

PI_A: Air pollutant score

PI_H: Waste pollutant score

PI_W: Water pollutant score

PNG: Piped Natural Gas

SPCB: State Pollution Control Board

TTZ: Taz Trapezium Zone

VOCs: Volatile Organic Compounds

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1

Genesis and Journey of Classification

1.1 Introduction

The notifications issued by the Ministry of Environment and Forest during 1989 for Doon Valley, Uttarakhand introduced the concept of classification of industries as red, orange, and green categories. The purpose of this classification was to facilitate decisions related to location of these industries. The criteria for classification of industries was primarily based on quantity of industrial effluent, quantity of fuel/coal, and the number of employees, and amount of waste generated. The notification included list of 129 sectors, classified under red (45), orange (35), and green (39) categories. The criteria used for Doon Valley Notification, 1989 is summarized in the **Figure I**.

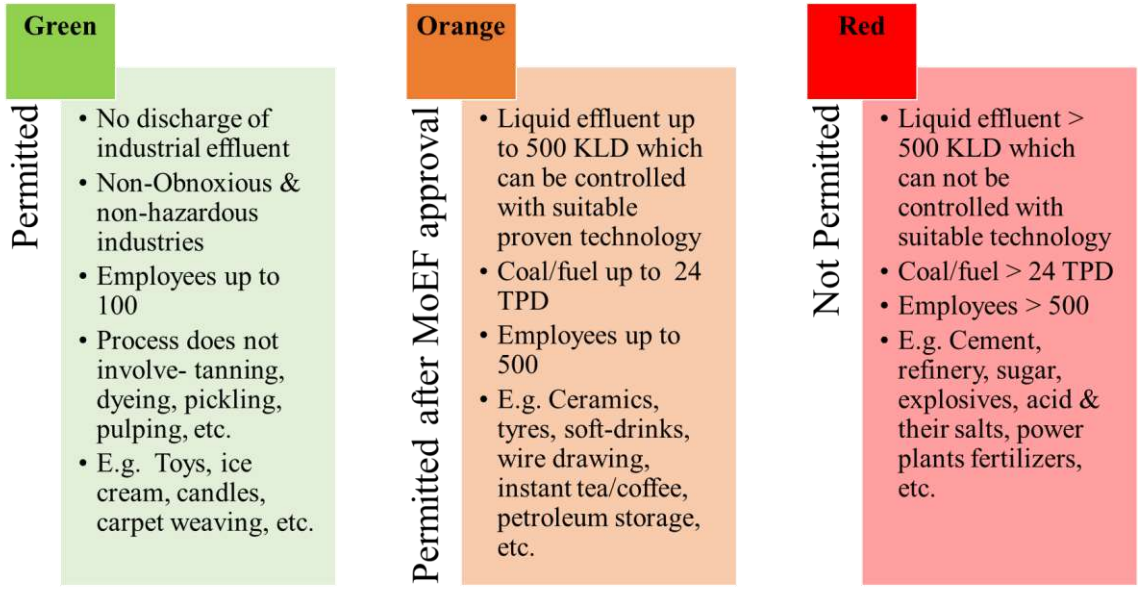


Figure I: Criteria for classification of industries in Doon Valley Notification, 1989

Subsequently, the application of this concept was extended to other parts of the country not only for the purpose of location of industries, but also for the purpose of consent management and formulation of norms related to surveillance/inspection of industries. As the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were following different

categorization of industries, to maintain the uniformity across the country, during 2012, CPCB issued a list of 244 sectors, classified under red (85), orange (73) and green (86) categories.

In order to harmonize the criteria for categorization, during the year 2016, CPCB developed the scoring methodology to classify the industries based on the Pollution Index (PI) which was a function of water pollution, air pollution and hazardous waste generation. Based on this methodology, CPCB has classified 257 sectors under red (63), orange (91), green (65) and white (38) categories and directed SPCBs/PCCs to adopt the same. During 2016, CPCB introduced white category as a new category for such sectors which are "practically non-polluting". SPCBs/PCCs were also empowered to categorize any new/left-out sector at their own level, following the methodology prescribed by CPCB. Additionally, during 2020, CPCB also segregated the list of non-industrial operations/facilities. The overall journey of classification may be understood with the help of milestone chart shown in **Figure II**.

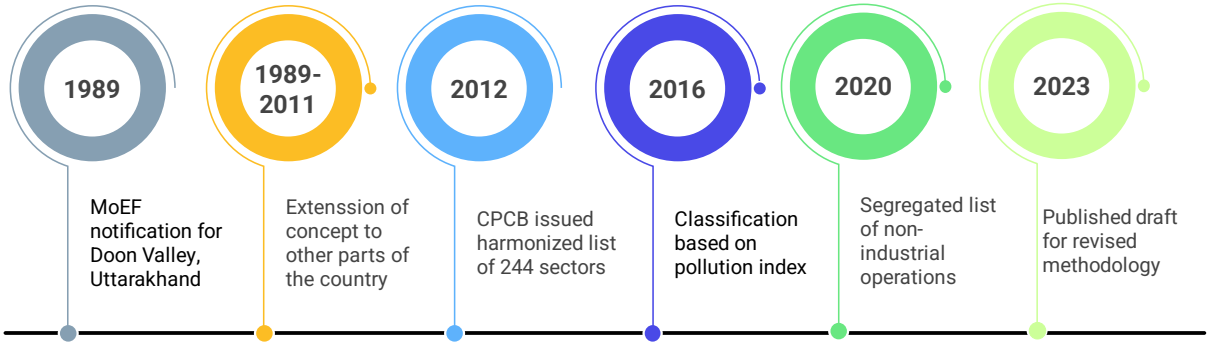


Figure II: Genisis and journey of classification of sectors

The concept of categorization is based on the "Precautionary Principle", which focuses on potential of industries to pollute the environment. The purpose of categorization is to ensure that the industry is established in a manner consistent with the environmental objectives and to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in generation of minimum pollutants.

*****

2

Modified Methodology for Classification

2.1 Need and scope for revision of methodology

Based on the experience gained over the years, a need was felt to revisit the 2016 methodology for classification of sectors considering following scope of improvement:

i. Assessment of Pollution Index:

The category of any industrial sector depends on the Pollution Index (PI), which comprises of scores of three pollutant groups i.e., air pollution, water pollution and hazardous waste. The water and air pollutants were each assigned a weight of 40%. However, the hazardous waste generation was given 20% weightage in pollution index.

As per the classification methodology of 2016, in case of absence of any pollutant groups, pollution index was normalized to 100. As a result, different formulas were required to compute pollution index.

Further, the normalization method has certain limitations while comparing pollution potential among sectors having scores for all three pollutant groups verses score only for any one/two pollutant group(s). Moreover, it was also observed that in some sectors normalization involved subjectivity based on perception.

ii. Size of operations of industrial activities:

It was observed that, there was less variation in PI score of industry based on size of operation in same sector. Limited variables/slabs were considered for the quantity of wastewater discharge and fuel consumption. It was also observed that adequate weightage in the considered variables/slabs to account the variation in size of operations of industrial activities need to introduce.

iii. Consideration to segregated industrial activities:

Although there were differences in pollution potential of integrated and standalone units of a particular sector, the classification methodology (2016) classifies the integrated or standalone units in the same sector. For example, standalone cement grinding units will have less pollution potential than integrated cement plants, but both were classified under red category.

iv. Consideration of type of fuel used:

In industrial operations requiring fuels, the amount of emissions is governed by many factors such as the type of fuel and its calorific value, combustion efficiency, emission factors, etc. Use of biomass and cleaner gaseous fuels such as Piped Natural Gas (PNG), Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), bio-CNG etc. have increased significantly in recent years. It was observed that adequate weightage based on type of fuel used is required.

v. Separate scoring for sewage and trade effluent:

It is desirable to have separate wastewater scoring criteria for the sectors generating trade effluent and sewage effluent, as characteristics, treatment method and impact are different for trade effluent generated from industrial sectors and sewage effluent generated from infrastructure & development sectors.

vi. Motivation to industries for progressive environmental management:

In the previous classification regime, there was no effective provision for change in category of industries based on the variation in pollution potential of a sector, even if the industries adopt cleaner technologies or switch over to cleaner raw material/cleaner fuel etc., resulting into reduction in pollution index.

2.2 Modified methodology for classification of sectors

Considering the scope of revision, CPCB prepared a draft report on "Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management". As per the draft report, a revised methodology for the classification is proposed which incorporates, water pollutant score, air pollutant score and waste generation score, based on the pollution potential of a sector on the environment. Scores out of 100 were given to each three pollutant groups and formula for calculating cumulative score based on the impact pollutant is devised. These scores are used for computation of pollution index for deciding the

category of industrial sector. The cut-offs for deciding the category were based on the quartiles of pollution indices, pollution potential of sectors, etc. The draft report was placed on CPCB website in July 2023, for comments/feedback from stakeholders.

CPCB received 161 representations, comprising more than 700 comments from various State Pollution Control Boards, research and technical institutions, industrial associations, NGOs, individual industries, and the public. The stakeholder-wise representations are shown with the help of pie-chart in **Figure III**.

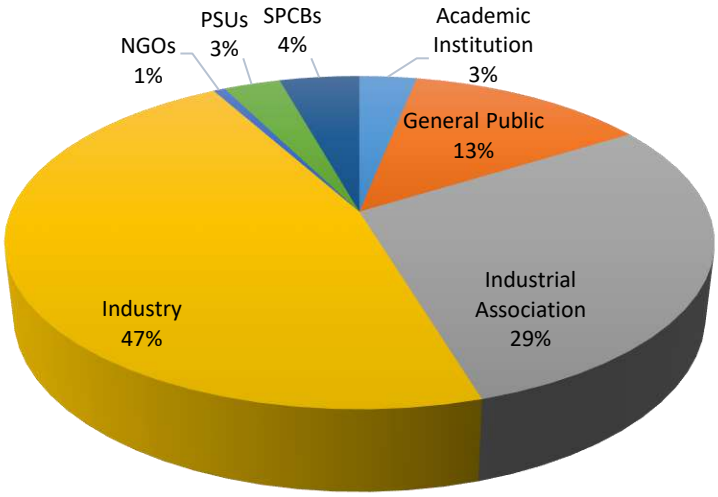


Figure III: Stakeholder-wise representations received

Subsequently, CPCB constituted a committee to critically examine and analyse the comments and to make recommendations for suitable incorporation in the final methodology and classification. After incorporating the feedback received from stakeholders, the Committee has finalized the basic methodology which can be used as a yardstick for classification of the sectors into Red, Orange, Green and White Categories.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. Till last date (i.e. 11.08.2024) 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised.

It is worth to mention that to safeguard the environment, following the fundamental principle of classification i.e., “Precautionary Principle", scope is always available for application of mind and collective wisdom. As per the precautionary principle, when human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. Therefore, variation from methodology is possible in case of projects having high chances of damage to the environment/eco-system such as river mining, etc. or having associated accidental risk such as major accident hazards installations wherein risk is associated with industrial activities having potential in terms of operation or process, manufacturing, transportation, and storage of one or more hazardous chemicals as prescribed by the Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989.

Considering the above issues, the classification methodology was modified based on the potential of three pollutant groups, namely, water pollutant, air pollutant and waste pollutant (which are hazardous/toxic/infectious/bulk in nature), which have been given scores out of 100, each. Slabs are assigned for selection of pollutant groups respectively for water, air, and waste. Score can be decided based on dominant pollutants in the pollutant groups and quantity as detailed in Table-I, Table-II and Table-III. These scores are used for computation of pollution index for deciding the category of sector. The scoring methodology is based on the pollution potential during generation and not at the end of pipe/ after treatment considering the fact that all pollutants need to be treated and disposed as per the provisions/rules notified under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 and as amended.

The details of scoring criteria for PI_W for “water pollutant,” PI_A for “air pollutant” and PI_H for “waste generating sector” are as follows:

2.2.1 Scoring criteria for Water Pollutant “PI_W”

Water pollution score consider the potential water pollution load from any sector in terms of characteristics and quantity of untreated trade effluent (wastewater). The “trade effluent” includes any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any [industry, operation or process, or treatment and disposal system], other than domestic sewage.

The water pollutant score (PI_W) is the addition of three sub-scores which are based on organic content in terms of oxygen demand of wastewater (W1), potential of other pollutants (W2) and

quantum of wastewater (W3). The weightages of W1, W2 and W3 in the water pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating trade effluent of high BOD and/or high COD, heavy metals/toxic compounds, and large volume of wastewater. The scores are assigned considering the potential for causing damage to the environment. It may be noted that for sectors generating industrial effluent, dominant quantity of trade effluent is considered in score W3 (W3-1 to W3-5). Whereas, for sectors generating huge volume of sewage effluent such as railway stations, STPs, residential building projects, airports etc., the separate scores W3 (W3-6 to W3-10) are assigned. The term used, "Sewage effluent" means effluent from any sewerage system or sewage disposal works and includes sullage from open drains. The scoring criteria for water polluting sectors are given in **Table-I**.

Table I: Scoring Criteria for Water Polluting Sector

Water Pollutant Group	Description	Score
Score W1: Score based on the oxygen demand of wastewater (Maximum of the following scores to be considered)		
W1-1	BOD ≥ 5,000 mg/l or COD ≥ 10,000 mg/l	35
W1-2	1000 ≤ BOD < 5,000 mg/l or 5000 ≤ COD < 10,000 mg/l	30
W1-3	500 ≤ BOD < 1,000 mg/l or 1000 ≤ COD < 5,000 mg/l	25
W1-4	100 ≤ BOD < 500 mg/l or 250 ≤ COD < 1,000 mg/l	20
W1-5	10 ≤ BOD < 100 mg/l or 50 ≤ COD < 250 mg/l	10
Score W2: Score based on other pollutants in the wastewater (Maximum of the following scores to be considered)		
W2-1	Pollutants like pesticides, heavy metals, and toxic compounds: *(Aluminium, Anionic detergents, Barium, Chloramines, Copper, Fluoride, Total residual chlorine, Iron, Manganese, Mineral oil, Phenolic compounds, Selenium, Silver, Sulphide, Cadmium, Cyanide, Lead, Zinc, Mercury, Tin, Vanadium, Antimony, Benzene, Benzo-a-pyrene, Molybdenum, Nickel, Phosphates, Polychlorinated biphenyls, Polynuclear aromatic hydrocarbons, Arsenic, Total/Hexavalent Chromium, Trichloroethane, Trichloroethylene, Adsorbable Organic Halogens (AOx), Pesticides compounds, Residual antibiotic, Radioactive materials, etc.)*	30
W2-2	Pollutants like Nitrate Nitrogen, Nitrate, Ammonical Nitrogen, Total Kjeldahl Nitrogen (TKN), Oil & grease, pH<5.5 or > 9	25
W2-3	Pollutants mainly in terms of inorganic dissolved solids and associated other impurities due to process e.g. wastewater generated from DM water rejects, boiler blowdowns, brine solution rejects, fresh-water RO rejects, etc.	20
W2-4	Pollutants mainly in terms of inorganic dissolved solids e.g. wastewater from cooling towers, cooling-re-circulation processes, etc.	15

Score W3: Score based on quantity of wastewater generated		
A. For sectors generating Industrial Trade effluent (Maximum score to be considered)		
W3-1	Wastewater ≥ 500 KLD	35
W3-2	100 KLD ≤ Wastewater < 500 KLD	30
W3-3	50 KLD ≤ Wastewater < 100 KLD	25
W3-4	10 KLD ≤ Wastewater < 50 KLD	20
W3-5	Wastewater < 10 KLD	15
B. For sectors such as STPs, building projects, etc. generating/handling only high-volume Sewage (Maximum score to be considered)		
W3-6	Sewage ≥ 5,000 KLD	35
W3-7	2,000 KLD ≤ Sewage < 5,000 KLD	30
W3-8	500 KLD ≤ Sewage < 2,000 KLD	25
W3-9	100 KLD ≤ Sewage < 500 KLD	20
W3-10	Sewage < 100 KLD	15
Water Pollutant Score (PI_W) = W1+W2+W3		

2.2.2 Scoring criteria for Air Pollutant "PI_A":

Air pollution score consider the potential air pollution load from any sector in terms of characteristics of emissions and its quantum/scale in terms of quantity of fuel. The air pollutant score is based on generation of emission. The "air pollutant" means any solid, liquid, or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The air pollution score (PI_A) is the addition of three sub-scores which are based on the type of pollutants in emissions (A1), work zone emission/fugitive emissions & odour nuisance (A2), and fuel type & quantity (A3). The weightages of A1, A2 and A3 in air pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating emissions with hazardous air pollutants, process-based fugitive emissions and using solid/liquid fuels, as such pollutants have higher potential to damage the environment.

The California Air Resources Board defines fugitive emissions as "Emissions not caught by a capture system which are often due to equipment leaks, evaporative processes and windblown disturbances." The fugitive emissions from any process having acid mist, VOCs, etc. are given higher weightage (score A2=30) as compared to the fugitive emissions of inert material (score A2=25). Sectors having persistent foul odour issue, will get score A2=20. Sectors/units using solid/liquid fuel will get higher score-A3, compared to the sectors using cleaner gaseous fuel or electricity. The scoring criteria for air polluting sectors are given at **Table-II.**

Table II : Scoring criteria for air polluting sectors

Air Pollutant Group	Description	Score
Score A1: Score based on Process emissions (point source) (Maximum of the following scores to be considered)		
A1-1	Hazardous Air Pollutants (HAPs) and heavy metals: *HAPs (Phosgene, Benzene, Benzo(α)pyrene, Butadiene, Toluene Di-isocyanate, Methylene-di-phenyl Di-isocyanate, Ethylene Oxide, Ethylene Di Chloride, Acrylonitrile, Propylene Oxide), Dioxins & Furans, Asbestos, Polycyclic Aromatic Hydrocarbons (PAHs), HCN, Cd, Th, Hg, Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, etc.*	35
A1-2	Halogens, acids, and pesticides-based pollutants: *H_2S, HF, HBr, P_2O_5 as H_3PO_4, NH_3, TOC, Cl, HCl, SO_3, CH_3Cl, Total Fluoride, PM having pesticide compounds/other organic compounds, Acid mist, etc.*	30
A1-3	Pollutants due to combustion of fuel or due to process: *PM, CO_2, CO, NOx, SO_2, etc.*	25
A1-4	Volatile Organic Compounds (VOCs): *Ethyl benzene, Styrene, Toluene, Xylene, Aromatics, Propylene Glycol, Ethylene Glycol, etc.*	20
Score A2: Score based on fugitive emissions and odour nuisance (Maximum of the following scores to be considered)		
A2-1	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. from process	30
A2-2	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. due to storage and handling, etc.	25
A2-3	Odour nuisance, including odour due to the use of binding gums, cements, adhesives, enamels etc.	20
Score A3: Score based on quantity of fuel (Maximum of the following scores to be considered)		
	Coal or liquid fuels	
A3-1	Fuel consumption ≥ 24 TPD	35
A3-2	12 TPD ≤ Fuel consumption < 24 TPD	30
A3-3	Fuel consumption < 12 TPD	25
	Biomass-based fuels	
A3-4	Fuel consumption ≥ 48 TPD	25
A3-5	24 TPD ≤ Fuel consumption < 48 TPD	20
A3-6	Fuel consumption < 24 TPD	15
	Cleaner/gaseous fuels, such as, PNG, CNG, LPG, Compressed Biogas (CBG), propane, butane etc.	
A3-7	Fuel consumption ≥ 120 TPD	20
A3-8	60 TPD ≤ Fuel consumption < 120 TPD	15
A3-9	Fuel consumption < 60 TPD	10
A3-10	Electricity	0
Air Pollutant Score (PI_A) =A1+A2+A3		
Note: In case, any sector/unit is using more than one type of fuel, the most polluting fuel category, will be considered.		

2.2.3 Scoring criteria for Industrial Waste Generating Sector "PI_H"

Industrial waste generating sectors are considered based on the generation of hazardous waste/high volume low effect waste. As per the Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, the "hazardous waste" means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances and shall include waste as per the Schedule I, Schedule II and Schedule III of the rule. Further, scores are also assigned to the high-volume low effect wastes such as fly ash, phosphogypsum, red mud, jarosite, slags from pyro-metallurgical operations, mine tailings and ore beneficiation rejects.

The score for waste comprises of two sub-scores H1 and H2. The H1 score is based on the different type of hazardous waste which are generated during the process, and which required to be managed/disposed through common facility OR based on the generation of high-volume low effect waste/ HW like contaminated bags/ drums etc. The H2 score is based on the total quantum of waste generated.

The desirable disposal method such as incineration, landfill after treatment, landfill etc. signifies the potency of hazardous waste. In recent time, the utilization of hazardous waste as per the Rule-9 of Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, as alternate fuel and raw material in cement kilns, as recyclable hazardous waste etc. has increased. The classification is based on the pollution potential due to generation of such types of hazardous waste from any sector. The score for the quantum of hazardous waste is total potential of generation of such hazardous waste by any sector., Score H1: Based on potency of hazardous waste and score H2: Based on quantum of hazardous waste, are given weightage of 30% and 70%, respectively. Considering the higher risk due to amount of hazardous waste generated rather than its disposal method, more weightage is given to the quantity. Overall waste generation score in case of waste generating sector will be PI_H =H1+H2. The scoring criteria for hazardous waste generating sectors are given at **Table-III**.

A separate scoring criterion has been included for sectors generating bio-medical waste. Bio-medical waste means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule-I appended to the Bio-Medical Waste Management Rules, 2016. As any Health Care

Facilities (HCFs) generates all types of bio-medical waste (red, yellow, blue, and white) and quantities of such wastes may vary considerably based on the type of facility/location of facility (rural/urban), and other such factors. Therefore, scoring based on number of beds in a healthcare facility is considered as sole criteria for assigning waste score (H: B-1 to B-7) as tabulated in **Table-III**.

Least score of 25 is given to non-bedded healthcare facilities and maximum score of 100 is given to facilities having more than 1,000 beds. Overall waste generation score in case of bio-medical waste generating sector will be PI_H.

Table III: Scoring criteria for waste generating Sectors

Waste Pollutant Group	Description	Score
A. Score for sectors generating hazardous waste		
Score H1: Score based on the hazardous waste management/disposal method. (Maximum of the following scores to be considered)		
H1-1	Hazardous wastes which are flammable, ignitable, corrosive, oxidizing toxic, etc. and requiring disposal through incineration	30
H1-2	Hazardous wastes which are reactive, capable of yielding another material post disposal, etc. and requiring disposal in secured landfill after stabilization/treatment	25
H1-3	Hazardous wastes which are requiring direct disposal in secured landfill without stabilization	20
H1-4	High volume and low effect wastes, contaminated bags/ drums/ containers etc.	10
Score H2: Score based on quantity of hazardous waste generation. (Maximum of the following scores to be considered)		
H2-1	Hazardous Waste ≥ 5000 TPA	70
H2-2	1000 TPA ≤ Hazardous Waste < 5000 TPA	50
H2-3	200 TPA ≤ Hazardous Waste < 1000 TPA	30
H2-4	10 TPA ≤ Hazardous Waste < 200 TPA	20
H2-5	Hazardous Waste < 10 TPA	10
B. Scores for the sectors generating bio-medical waste		
B-1	No. of beds ≥ 1,000	100
B-2	500 ≤ No. of beds < 1,000	80
B-3	200 ≤ No. of beds < 500	60
B-4	50 ≤ No. of beds < 200	50
B-5	10 ≤ No. of beds < 50	40
B-6	No. of beds < 10	30
B-7	Non-bedded facility	25
For sectors generating hazardous waste PI_H =H1+H2 **For sectors generating bio-medical waste PI_H =B**		

2.3 Computation of Cumulative Pollution Index and criteria for deciding category of sector

In the revised methodology of classification (2025), all three pollutant scores due to water, air and industrial waste generation are taken into account while computing pollution index. The formula for computing cumulative pollution index (PI) is as follows:

$$PI = i_{max} + (100 - i_{max})\left(\frac{i_2 + i_3}{200}\right)$$

Where, $i_{max,}$ is the maximum score among Water (PI_W), Air (PI_A), and Waste (PI_H) pollutant scores and i_2 & i_3 are the remaining pollutant scores.

The category of the sector will be decided based on the pollution index ranges given at **Table-IV.**

Table IV: Ranges of Cumulative Pollution Index for different categories

Cumulative Pollution Index (PI)	Category of industrial sector
PI ≥ 80	Red
55 ≤ PI < 80	Orange
25 ≤ PI < 55	Green
PI < 25	White

The purpose of classification is to have uniform consent mechanism, defined routine monitoring frequency by concerned SPCB/PCC, environmental protection plans etc. Modified methodology also considers the variation in pollution potential due to various type of activities and operations in a particular sector.

The scores/pollution index/category of any two sectors may be same, however, comparing two different sectors based on the category or pollution index is not desirable as the cumulative PI is a function of air pollutant, water pollutant, and waste pollutant and the cumulative score is arithmetically relates the maximum score of one pollutant with the remaining other two pollutants. Hence, PI/category of sectors may be same but may have different impact on environment.

2.4 Blue Category Projects- Essential Environmental Services for management of environmental pollution arising from domestic/household activities

Essential Environmental Services may be defined as those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. Such Essential environment services for Industrial Activity includes CETP, CHWTSDF, Effluent conveying system etc. and essential environment services for domestic activities includes STP, MSW etc. Both the type of EES plays a vital role in Environment Management. However, during the treatment of waste, some EES generates/handle hazardous waste/infectious waste. The EES which do not generate Hazardous Waste, and which otherwise have large littering potential can be categorised as Blue Category Projects. Further, there are past legal references wherein Hon'ble Apex court has also considered the importance and requirement of such Essential Environment Services.

Human settlements whether located in rural/urban/eco-sensitive area generate sewage, solid waste, and C&D waste, which are required to be managed to prevent adverse impact on environment and human health. Basic environment management facilities are required to be set-up to manage such waste which includes STP, C&D waste processing facility, MSW management facility like sanitary landfill, material recovery facility & waste processing units, bio-methanation, bio-composting, waste to energy, etc.

These facilities are basically essential environment services which play a vital role in protecting environment and human health. These facilities may also bring value addition by producing various by-products such as secondary raw material, compost, energy, etc. and promotes circular economy and sustainable development by converting waste into wealth. Moreover, these categories do not generate hazardous or infectious wastes.

As the role and importance of these facilities is different in nature as compared to other activities and industries in the sense that they are primarily set-up for prevention, control and abatement of soil, water and air pollution. It is more appropriate to have a separate colour category-Blue Category for essential environmental services facilizes related to environmental pollution arising from domestic/household activities. These activities are required to meet all the prescribed environmental norms/rules notified from time to time and the pollution index for such Essential Environmental Services (EES) shall continue to be calculated as per the formula and consent to operate will be governed based on the pollution index. However, the

category of the EES will be termed “Blue Category sector” and as an incentive for the essential services, additional 2 years validity for consent to operate (as per PI) will be provided.

The list of EES facilities is given at **Annexure-II**.

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3

Classification of Sectors as per Revised Methodology

3.1 Types of sectors based on their activities

The revised methodology of classification will be applicable to all industries which may have potential for generation of environmental pollutants. As per the Section 2(j) of the Industrial Disputes Act, 1947, "Industry" means any business, trade, undertaking, manufacture, or calling of employers and includes any calling, service, employment, handicraft or industrial occupation or avocation of workman", however, based on type of operational activities, the industries are divided into following four sectors:

i. Industrial Sectors
ii. Essential Environmental Services (EES)
    a. EES for Industrial Waste
    b. EES for Domestic Waste (Blue Category Sector)
iii. Service/Infrastructure Development Sectors
iv. Others/Special Category Sectors

The sectors which are involved in production of goods, products, etc. are considered under "Industrial Sectors". The sectors covered under "Essential Environmental Services (EES)" are those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. These services are essential facilities which are required to reduce pollution load on the environment, such as sewage treatment plants, common bio-medical waste treatment facilities, construction & demolition waste processing plants, etc. Essential Environmental Services Sectors are sub classified as "EES for industrial waste" and "EES for domestic waste (Blue category sectors which do not handle or generate infectious or hazardous waste)". On the other hand, sectors which carry out service-related activities such as infrastructure projects, railways, airports, hospitals, etc. are covered under "Service/infrastructure development sectors".

"Other/special category sectors" include those projects which cannot be classified based on the scoring methodology of pollution index but require classification based on precautionary principle and considering the potential of ecological damage/ health and environment related risk, etc. Few such sectors are sand mining, hydel power plants, etc.

The revised methodology of classification, sub-categorises the main sector based on the usage of cleaner technology/cleaner production/cleaner fuel which has proven reduction in trade effluent generation, emissions, waste, etc., for better environmental management, resulting into overall reduction of pollution index compared to main sector. For example, if coffee seeds processing industries use eco-pulping technology, which generates less water pollution, the pollution index of the said sector gets reduced and category changes from orange to green. Similarly, variation in type/scale of activities in a particular sector is also considered for classification of sub-sectors.

The methodology and scores have been screened through stakeholder feedback/consultation and public opinion. Available standard literature, various documents and guidelines, inspection reports, etc. were also referred, while assessing the scores for water pollution, air pollution, and waste generation for classification of sectors. Based on the modified methodology, the list of sectors and sector specific sub-classification is given at **Annexure-I to Annexure-IV**. Summary of classified sectors is given in **Table-V**.

Table V: Number of sectors classified under different categories

Sl. No.	Type of sector	Total number of sectors/sub-sectors	Red	Orange	Green	White	Blue
1.	Industrial Sectors	**359**	**107**	**120**	**81**	**51**	-
2.	Essential Environmental Services (ESS)						
2.a.	ESS for domestic waste	**9**	**-**	**-**	-	-	**9**
2.b.	ESS for industrial waste	**9**	**9**	**-**	-	-	-
3.	Service/Infrastructure Development Sectors	**37**	**7**	**15**	**13**	**2**	-
4.	Others/Special Category Sectors	**5**	**2**	**2**	`-	**1**	-
	Total	**419**	**125**	**137**	**94**	**54**	**9**

3.2. Usage of classification of sectors

The classification of sectors may be used for the following purposes:

i. **Consent management:** SPCBs/PCCs may grant Consent to Operate (CTO) to red, orange, and green categories of industries for validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. The validity of blue category sectors will be 2 years more than the category based on PI.

ii. **Inspection frequency:** SPCBs/PCCs may prioritize their environmental surveillance programs based on the categories of sectors. SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common facilities and 17 categories of industries are to be inspected at least once in every three-months.

iii. **Siting criteria:** The categorization may be used as a tool for deciding the location/siting of an industry in a particular location.

iv. **Development of cluster:** The classification will help in planning of sector specific cluster, based on scoring of various pollutants and development of adequate environment management infrastructure facility, accordingly.

v. **Sector specific plans for pollution control:** The plans for control of pollution may be prepared and implemented on priority for the sectors having higher pollution index and overall higher pollution load.

vi. **Levying environmental compensation:** Pollution index may be used for determining and levying environmental compensation on industries violating the environmental norms.

vii. **A tool for progressive environmental management:** Industrial units may adopt cleaner technologies, cleaner fuels, etc. which may result in reduction of pollution index, thus, moving to lower pollution potential category. It will provide incentives to industries in terms of less consent renewal fees, less environmental surveillance/compliance burden, more validity period for consents/authorizations, etc.

3.3 Classification of left-out/new sectors

The revised methodology of classification (2025) and list of sectors classified by CPCB is required to be adopted and implemented by all SPCBs/PCCs. In case of any new or left-out

sector, the SPCB/PCC may categorize the sector at its own level. For this purpose, a committee headed by the Member Secretary, SPCB/PCC and comprising of at least two senior cadre engineers/scientists of the SPCB/PCC (as nominated by the Member secretary of the concerned SPCB/PCC) may be constituted to examine the matter and classify the sector in accordance with the methodology prescribed by CPCB. The State Level Committee may also co-opt subject experts, industrial association representative, etc., as member, as per requirement. CPCB has also developed a tool to assess the Cumulative Pollution Index and category of any sector, which is available on CPCB website (https://cpcb.nic.in/categorization-of-industrial-sectors/).

In addition, all SPCBs/PCCs are required to submit list of all such sector classified under white category to CPCB in the prescribed format (**Annexure-V**), for notification as per provisions of Jan Vishwas (Amendment of Provisions) Act, 2023.

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4

Incentives to unit in a sector for adopting measures resulting to better environmental performance

A methodology has been strategized to provide incentives to the unit in a sector which are dedicated to reduce environmental impacts from their operations/process. The objective can be achieved by 100% treatment and reuse of wastewater generated, having complete dependency on cleaner fuel alternatives (such as PNG, LPG, compressed biogas, propane, butane, electricity etc. for meeting energy requirement), implementation & achievements of targets of sector-specific charters of CPCB/SPCB for environmental management, EPR obligations and use of cleaner process/cleaner technology to eliminate generation of toxic/hazardous pollutants.

The units fulfilling the following eligibility criteria may submit their formal proposal to the concerned SPCB/PCC for consideration:

4.1 Eligibility Criteria

- The unit should have completed at least one year of completion of production/operations with demonstrated, verifiable steps and submitted audit report from institute of repute for considering the unit for the purpose by concerned SPCB/PCC. To facilitate verification, the unit must have properly maintained logbooks/bills for production, electricity consumption, fuel, water consumption, wastewater treatment and use of treated wastewater.
- The unit should be located in conforming area with applicable Environment Clearance, Consent to Establishment (CTE) and Consent to Operate (CTO) and hazardous/bio-medical waste authorization from SPCB/PCC.
- Unit should comply with all the norms/conditions stipulated under EC, CTO and Guidelines/Rules issued by CPCB.

- In case, unit using ground water resource, it should have valid permission/NOC and also required to install electronic flowmeter.
- No penalty or legal obligation is imposed/pending against unit for violation of environmental norms. Records for last 5 years may be verified. In case establishment period of the unit is less than 5 years, the past records since the start of production may be verified.
- Unit should not be involved in any sort of accident/incident resulting into emission /discharge into the environment. Records for last 5 years may be verified.

All such units, interested in availing incentives are required to demonstrate and prove their initiatives to the Committee (to be constituted at the level of concerned SPCB/PCC), comprising of members as mentioned in **Table VI**.

Table VI: Structure of Committee to evaluate the request of units adopting measures resulting in better environmental performance

Sl. No.	Members	Role
1	Member Secretary, SPCB/PCC	Chairman
2	Subject expert from Indian Institute of Technologies (IITs) or National Institute of Technologies (NITs) or any other institute/university of repute.	Member
3	Expert from CSIR institute/laboratories, having expertise in industrial process and pollution control technologies/ environmental management	Member
4	Two officials of concerned SPCB/PCC, as nominated by the Member Secretary, SPCB/PCC	Member

4.2. Evaluation Criteria

The committee shall scrutinize the proposals based on the eligibility criteria. The basis of evaluation will be- (i) Measures taken for treatment and reuse of wastewater to reduce freshwater consumption, (ii) Use of alternative cleaner fuel to reduce emissions, and (iii) Use of cleaner technology/ cleaner production which results in reduction in pollution/hazardous waste generation (iv) Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.

The unit is required to demonstrate the successful implementation of measures by annual submission of third-party audit report (through institute of repute) regarding performance of environmental management measures. The Committee members may also inspect unit, collect samples, and get it analysed, check logbooks, electricity/water bills, examine system feasibility through mass-balances, ensure real-time submission of environment data to SPCB/PCC server, etc. The check and balances to examine the industry claims are summarized in **Table VII.**

Table VII: Checks and balances to assess the adequacy of environment management measures

Criteria	Checks and balances
I. Wastewater Management	
Installation of wastewater recovery system resulting into treatment and 100% reuse of treated wastewater in industrial process.	• Unit must have adequate operational Effluent Treatment Plant (ETP). The freshwater requirement of the unit has shown proportionate reduction. • There should not be any flow/ponding of wastewater inside the premises or discharge outside from the premises. Further, there should not be any by-pass. • Electronic flowmeters and Pan-tilt-zoom (PTZ) camera should have been installed with connectivity for continuous transmission of data to SPCB/PCC and CPCB servers (as applicable). • Recirculation system should be clearly mapped and visible for inspection and flow meter should be installed at required locations with records. • Mass/water balance based on actual production need to be checked. The claim regarding reduction in freshwater consumption should have concurrency with the readings of flow meters, water bill, log-books, etc. • Treated wastewater should not be used for horticulture or agriculture purposes. • Sludge generated from treatment of wastewater should be managed properly as per the authorization issued by the concerned SPCB/PCC and timely submission of Form-IV as per the requirement of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
II. Air Pollution Management	
100% fuel dependency on cleaner fuels, such as- Piped Natural Gas (PNG), Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) Liquefied Petroleum Gas (LPG), Compressed	• No other fuel (coal, pet-coke, furnace oil, etc.) should be stored/used in the unit premises. Diesel for Gensets (as an auxiliary power source) may be allowed. Preference may be given to the units using gas based Gensets. • Adequate facility for stack monitoring (port holes, zig-zag ladder etc.) should be available with provision of OCEMS (as applicable).

Biogas (CBG), propane, butane, etc.	• Use of upgraded air pollution control devices with higher efficiency for the reduction of emissions. • Adoption of cleaner technology, advanced pollution control systems etc. to control fugitive/emissions • Use of alternate cleaner raw material for generation of less pollution. • Use of renewable energy as an alternate to conventional fuel/power should be considered.
III. Waste Management	
The unit has adopted cleaner technology/ cleaner production which results in reduction in pollution/ hazardous waste generation	• Reduction in generation of pollution/waste due to adoption of cleaner technology/change in raw material etc. • Mass balance based on actual production need to be checked. There should be concurrency in generation of hazardous waste, utilization, disposal, etc. with respect to net reduction in generation.
IV. EPR Targets (for recycling facilities)	
Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.	• Complying with the requirement of EPR obligation identified by CPCB from time to time.

4.3. Re-assessment of Pollution Index (PI)

The purpose of giving star category is to classify the unit in the sector as star performing units. The category of the unit may be re-assessed as detailed below:

A. For Industries, Service/Infrastructure facilities and Essential Environmental Services Sectors for management of waste.

The pollution index of the units in any sector which have proven reduction in trade effluent generation and/or air pollution management and/or waste management measures, can be calculated based on submission of same with the supporting documents for considering the modified score based on the same methodology.

The revised cumulative pollution index (PI) will be calculated with modified air/water/waste scores as discussed in the methodology given in previous section. If revised, cumulative PI results to change in the category of unit in the sector, the nomenclature for revised category will be as per the **Table VIII**.

Table VIII: Nomenclature for revised category

Change in category	Nomenclature of revised category
Red to Orange	Red*
Orange to Green	Orange*
Green to White	Green*

B. Essential Environmental Service Sectors for Domestic/Household Waste- "Blue Category Sectors":

Units under Blue Category are required to reduce their existing PI score by 25%, by meeting evaluation criteria/check and balances, as mentioned in **Table III** to qualify for change in category to Blue*.

4.4 Incentives to the units for better environmental management

Units which have demonstrated the successful implementation of environmental management measures and verified by the Committee, shall be eligible for the incentives, as listed in the **Table IX**.

Table IX: Incentives to units for better environmental performance

Category	Incentives
Red*	• CTO may be granted for the validity of max. 10 years. • Prescribed random environmental surveillance inspection frequency may be once a year, considering the change in category.
Orange*	• CTO may be granted for the validity of max. 15 years. • Prescribed random environmental surveillance inspection frequency may be once in two years, considering the change in category.
Green*	• CTO may be granted for the validity of max. 20 years. • Prescribed random environmental surveillance inspection frequency may be once in four years, considering the change in category and given incentives twice the original category.
Blue*	• CTO may be granted with additional 3 years validity period. • Prescribed random environmental surveillance inspection frequency may be once in 3 months.

In case of non-compliance(s) observed in future, the State Board can remove the star status and for calculation of EC, the PI of original category shall be considered.

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5 Implementation pathway/guidelines

The revised methodology and classification of sectors will be implemented in prospective manner. For this purpose, following guidelines may be referred:

i. All pending application for consideration of CTE/CTO and future such application shall be processed as per the revised methodology of classification. In case CTE granted before the revised classification, applicability of CTO will be as per new classification.

ii. New classification will be applicable to existing units at the time of renewal of CTO or within one year from the date of directions issued by CPCB regarding implementation of revised classification, whichever is earlier. The annual fees or cumulative fees for the remaining period shall be as per the revised category.

iii. SPCBs/PCCs may grant Consent to Operate (CTO) to units under red, orange, and green categories for maximum validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. SPCBs/PCCs may grant Consent to Operate (CTO) to units under Blue Category sectors with additional 2 years validity, considering their role as Essential Environmental Services for management of waste generated from domestic/household activities.

iv. Requirement of intimation/consent for white category of industries, shall be governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023//Water Act, as amended.

v. All sectors irrespective of category shall follow guidelines for pollution control, if any, issued by SPCB/PCC/CPCB time to time.

vi. Siting of units shall be only in the conforming area as per the guidelines of CPCB/SPCB/PCC. Further, as per the Section 17(1)(n) of the Water Act, 1974 and the Section 17(1)(h) of the Air Act, 1981, SPCB/PCC may also frame policies/advisory with respect to the location of any industry/operations, the carrying on of which is likely to cause air/water pollution, considering the scale/type of industries and sensitivity of area. Siting of units in eco-sensitive area will be governed by their respective notifications.

vii. The classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.

viii. In the matter of Taz Trapezium Zone (TTZ), for air pollution scores of 10 and 20 (as per 2016 methodology), equivalent scores of 30 and 60 (as per 2025 methodology), respectively, may be considered for sectoral guidelines/opinion from NEERI (Ref: Order dated 08.12.2021, in the matter of M.C. Mehta v/s Union of India, Writ Petition (Civil) No.13381/1984, before Hon'ble Supreme Court).

ix. As per CPCB directions dated 12.12.2019, issued under Section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981, SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common waste treatment facilities and 17 categories of industries are to be inspected at least once in every three-months. (Ref: Order dated 05.11.2019, in the matter of Shailesh Singh v/s State of Haryana & Ors., OA No.639/2018, before Hon'ble National Green Tribunal, Principal Bench).

x. The sectors which are classified under white or green category and if such sectors have installed Genset(s) of higher capacity which are classified under orange/green category, then such sector will be considered under higher category.

xi. All Industrial units are encouraged to adopt measures such as cleaner technology/cleaner production, cleaner raw material, cleaner fuel etc., for better environmental management. If such measures result into overall reduction of pollution

index, request regarding change in category of such sectors/units may be made to concerned SPCB/PCC as detailed under Section 8 of this report.

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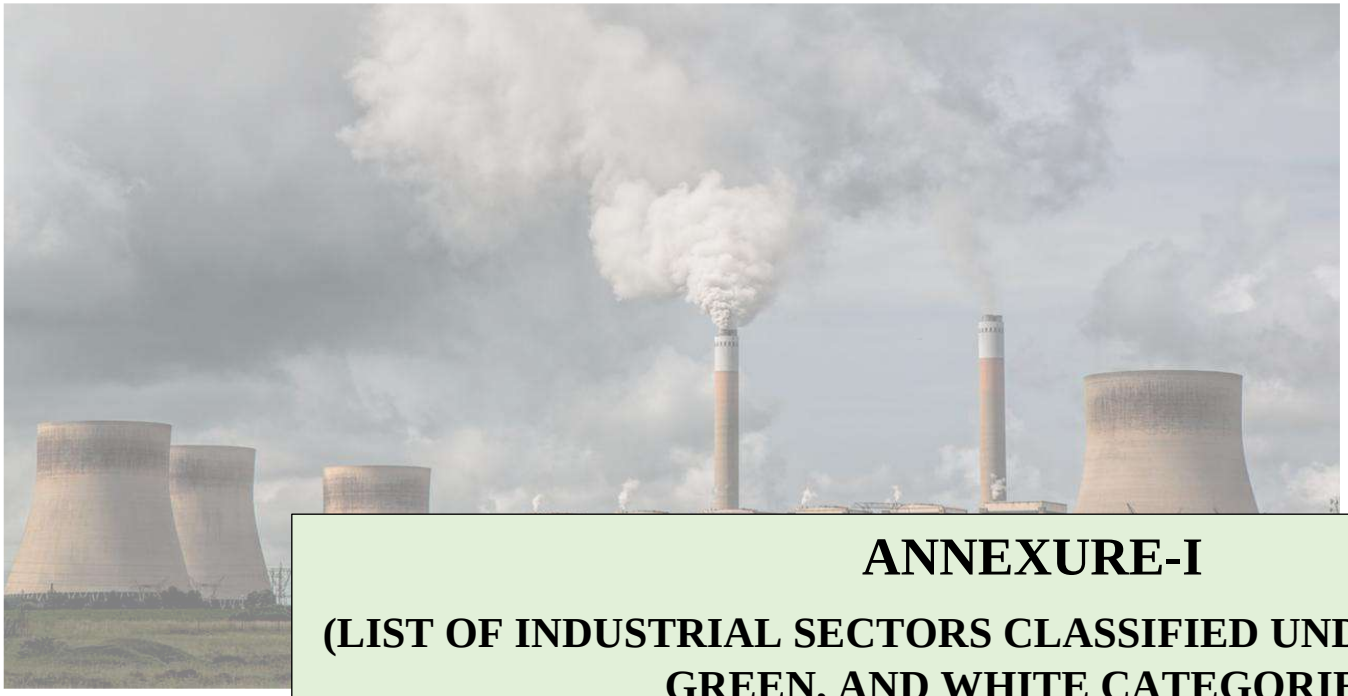
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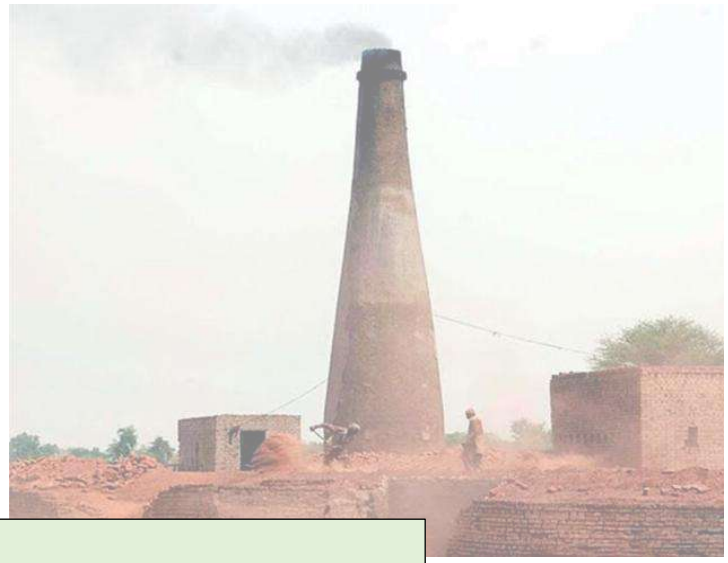
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ANNEXURE-I

(LIST OF INDUSTRIAL SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)





LIST OF INDUSTRIAL SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	~A~															
1	Manufacturing of **Automobiles** (integrated facilities)	20	30	25	**75**	0	25	0	**25**	25	20	**45**	83.8	Red	i. Such types of plants are having either one or combinations of polluting activities viz. washing, metal surface finishing operations, pickling, plating, electro-plating, phosphating, painting, heat treatment etc. ii. Some of such plants may outsource some /all of the polluting activities or may have stand-alone units. In such cases, after thorough inspection of such units by concerned SPCB, re-categorization of the industry shall be made accordingly.	IPC-V
2	**Asbestos** and asbestos based industries	10	30	25	**65**	35	30	30	**95**	25	30	**55**	98	Red	Asbestos is carcinogenic and banned in many countries.	IPC-II
3	**Almirah**, Grill Manufacturing (Dry Mechanical Process)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
	~B~															
4.0	**BAKERY**, CONFECTIONERY AND SWEETS PRODUCTS															
4.1	Bakery, confectionery, sweets with production capacity ≥ 1 TPD	25	0	20	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
4.2	Bakery, confectionery, sweets with production capacity ≥ 1 TPD. (using cleaner/gaseous fuel)	25	0	20	**45**	25	0	10	**35**	0	0	**0**	54.6	Green		IPC-III
5.0	**BRICK** MANUFACTURING															
5.1	Brick kilns using coal as fuel	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
5.2	Brick kilns using biomass as fuel	0	0	0	**0**	25	25	15	**65**	0	0	**0**	65	Orange		IPC-V
5.3	Tunnel brick kilns (gas fired)	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
6.0	MANUFACTURING OF AUTOCLAVED AERATED CONCRETE (AAC) **BRICKS/BLOCKS.**															
6.1	AAC bricks/blocks manufacturing using coal as fuel (12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
6.2	AAC bricks/blocks manufacturing using coal as fuel (less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
6.3	AAC bricks/blocks manufacturing using biomass as fuel	0	0	0	**0**	25	25	20	**70**	0	0	**0**	70	Orange		IPC-V
6.4	AAC bricks/blocks manufacturing using gas as fuel	0	0	0	**0**	25	25	15	**65**	0	0	**0**	65	Orange		IPC-V
7.0	FLY ASH **BRICKS / BLOCK** MANUFACTURING															
7.1	Fly ash bricks/ block manufacturing (with boiler)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
7.2	Fly ash bricks/ block manufacturing (without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
8.0	MANUFACTURING OF NON-ALCOHOLIC **BEVERAGES**															
8.1	Wastewater generation ≥ 100 KLD	25	20	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		IPC-III
8.2	Wastewater generation < 100 KLD	25	20	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
9.0	**BATTERY** MANUFACTURING															
9.1	Lead-acid **Battery** manufacturing (excluding assembling and charging of lead acid **Battery** in micro-scale)	0	30	20	**50**	35	30	25	**90**	25	10	**35**	94.3	Red		IPC-V
9.2	Dry cell **Battery** (excluding manufacturing of electrodes) and assembling & charging of acid lead battery on micro scale	0	30	15	**45**	25	25	10	**60**	25	10	**35**	76	Orange		IPC-V
9.3	**Battery** manufacturing without boiler (excluding lead acid battery)	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		IPC-V
10	**Briquette** manufacturing (coal/biomass/coke)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	The process involves mixing, mechanized compression and drying.	IPC-II
11	Assembly of **Bicycles**, **Baby** carriages and other small non motorizing vehicles	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
12	**Bailing** (hydraulic press) of waste papers	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
13	**Bio fertilizer** and bio-pesticides without using inorganic chemicals	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
14	**Block** making of printing without foundry (excluding wooden block making)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
15	Flavoured **Betel** nuts production/ grinding (completely dry mechanical operations)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
16	Manufacturing of shoe **Brush** and wire **Brush**	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
	~C~															
17.0	MANUFACTURING OF INDUSTRIAL **CARBON** INCLUDING ELECTRODES AND GRAPHITE BLOCKS, ACTIVATED **CARBON**, **CARBON BLACK**															
17.1	Carbon black manufacturing	20	15	20	**55**	25	30	30	**85**	30	20	**50**	92.9	Red		IPC-I
17.2	Industrial carbon including electrodes & graphite blocks and calcined pet coke	20	15	20	**55**	25	25	25	**75**	30	10	**40**	86.9	Red		IPC-II
17.3	Activated carbon manufacturing (with steam activation)	20	15	20	**55**	25	25	15	**65**	0	0	**0**	74.6	Orange		IPC-V
18.0	INORGANIC **CHEMICALS**															
18.1	Basic inorganic chemicals and electro chemicals and its derivatives including manufacturing of acid	10	30	25	**65**	30	30	20	**80**	20	20	**40**	90.5	Red		IPC-I
18.2	Phosphorous and its compounds, including phosphorous rock processing	20	30	20	**70**	35	25	10	**70**	10	30	**40**	86.5	Red		IPC-I
18.3	Chlorates, per-chlorates & peroxides	20	30	20	**70**	30	20	25	**75**	20	20	**40**	88.8	Red		IPC-I
18.4	Chlorine, fluorine, bromine, iodine, and their compounds	10	30	25	**65**	35	20	10	**65**	20	20	**40**	83.4	Red		IPC-I
19	Coke oven plant, coal liquefaction, coal tar distillation and fuel gas-making	30	30	30	**90**	25	30	35	**90**	25	50	**75**	98.3	Red		IPC-II
20.0	**CEMENT** PLANTS															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
20.1	With co-processing with CPP (Captive Power Plant)	20	25	35	**80**	35	30	35	**100**	10	50	**60**	100	Red		IPC-II
20.2	With co-processing without CPP	20	0	20	**40**	35	30	35	**100**	30	20	**50**	100	Red		IPC-II
20.3	Without co-processing with CPP	10	25	35	**70**	35	30	35	**100**	10	50	**60**	100	Red		IPC-II
20.4	Without co-processing without CPP	0	0	0	**0**	25	30	35	**90**	30	10	**40**	92	Red		IPC-II
20.5	Stand-alone grinding units with CPP	20	25	35	**80**	25	30	35	**90**	10	50	**60**	97	Red		IPC-II
20.6	Stand-alone grinding units without CPP	0	0	0	**0**	25	30	0	**55**	30	10	**40**	64	Orange		IPC-II
20.7	Bulk terminals for storage and packaging of cement	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-II
21.0	**CHLOR** ALKALI															
21.1	Chlor alkali	10	20	25	**55**	30	25	25	**80**	20	20	**40**	89.5	Red		IPC-I
21.2	Chlor alkali using washed salt	10	20	15	**45**	30	25	25	**80**	20	10	**30**	87.5	Red		IPC-I
21.3	Chlor alkali using cleaner/gaseous fuel	10	20	25	**55**	30	25	10	**65**	20	20	**40**	81.6	Red		IPC-I
21.4	Chlor alkali using cleaner/gaseous fuel and washed salt	10	20	15	**45**	30	25	10	**65**	20	10	**30**	78.1	Orange		IPC-I
22	Manufacturing of **Compact** disc **Computer** (CD/DVD) / cassette manufacturing / reel manufacturing	0	15	15	**30**	30	0	0	**30**	20	10	**30**	51	Green		IPC-V
23.0	MANUFACTURING OF **COIR/COIR** PITH AND **COIR** PRODUCTS															
23.1	Coir bleaching and dyeing/printing units	25	0	25	**50**	25	25	20	**70**	0	0	**0**	77.5	Orange		IPC-V
23.2	Coir fibre/pith processing units generating effluent	25	0	20	**45**	0	25	0	**25**	0	0	**0**	51.9	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
23.3	Coir fibre/pith processing and/or Manufacturing of coir products from coir (only dry process)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
24.0	**CERAMICS**															
24.1	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: 12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
24.2	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
24.3	Ceramics/ Glass /Earthen potteries and tile manufacturing (using gas fired kilns)/tunnel kiln	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
24.4	Ceramics/ Glass /Earthen potteries and tile manufacturing (using only electrical kiln)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
25	**Coal Washeries**	20	25	30	**75**	0	25	0	**25**	0	0	**0**	78.1	Orange		IPC-II
26	Liquid floor **Cleaner**, black phenyl, liquid soap, glycerol mono-stearate manufacturing	25	25	15	**65**	0	20	0	**20**	0	0	**0**	68.5	Orange		IPC-V
27	Phenyl/toilet **Cleaner** formulation and bottling	10	0	15	**25**	0	20	0	**20**	0	0	**0**	32.5	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
28	**Cashew** nut processing	20	0	15	**35**	25	20	15	**60**	0	0	**0**	67	Orange		IPC-III
29.0	**COFFEE** SEEDS PROCESSING INDUSTRY															
29.1	Coffee seeds processing (wet process)	35	0	20	**55**	25	0	15	**40**	0	0	**0**	64	Orange		IPC-III
29.2	Coffee seeds processing with eco-pulper	20	0	15	**35**	25	0	15	**40**	0	0	**0**	50.5	Green		IPC-III
30	Manufacturing of **Candy**	10	0	15	**25**	0	0	0	**0**	0	0	**0**	25	Green		IPC-V
31	**Cardboard** or corrugated box and paper products (excluding paper or pulp manufacturing and without using boilers)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
32	Manufacturing of precast **Cement** products (without using asbestos/ boiler / steam curing) like pipe, pillar, jafri, well ring, block/tiles etc.(should be done in closed covered shed to control fugitive emissions)	0	0	15	**15**	0	25	0	**25**	0	0	**0**	30.6	Green		IPC-V
33	Manufacturing of **Ceramic Colour** by mixing & blending only (not using boiler and wastewater recycling process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
34.0	**CHILLING** PLANT, COLD STORAGE AND ICE-MAKING															
34.1	Chilling plant	20	15	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-IV
34.2	Cold storage	0	15	15	**30**	0	0	0	**0**	0	0	**0**	30	Green		IPC-V
34.3	Ice Making	0	20	15	**35**	0	0	0	**0**	0	0	**0**	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
35	Decoration of **Ceramic Cup**s and plates by electric furnace	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
36	Ready mix **Cement Concrete**	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
37	**CO_2** recovery plant	0	0	0	**0**	0	0	0	**0**	20	10	**30**	30	Green	Exhausted molecular sieves are generated as hazardous waste.	IPC-V
38	Assembly of air **Coolers/Conditioners**, repairing and servicing	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
39	**Chalk** making from plaster of Paris (only casting without boilers etc. - sun drying / electrical oven)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
40	Standalone manufacturing of **Concrete** admixtures up to 1000 MT per Month capacity by physical mixing (without boiler and reactor and no generation of wastewater)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater. The unit needs to be re-classified as per the methodology in case the capacity exceeds 1000 MT per Month.	IPC-V
41	Used **Cooking** oil (UCO) collection centers	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
~D~																
42.0	**DYES, DYE** INTERMEDIATES AND PIGMENT PRODUCTIONS															
42.1	Dyes, Dye Intermediates and Pigments produced by chemical synthesis	35	30	25	**90**	30	20	25	**75**	30	20	**50**	96.3	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
42.2	Natural Dye and Pigments requiring acidic/ alkaline/ solvent extraction	30	30	20	**80**	25	20	25	**70**	20	10	**30**	90	Red		IPC-I
42.3	Natural Dye and Pigments not require acidic/ alkaline/ solvent extraction	30	20	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-I
43.0	SYNTHETIC **DETERGENT** AND SOAPS															
43.1	Synthetic detergents and soaps (wastewater generation ≥ 100 KLD)	20	20	30	**70**	25	0	25	**50**	25	10	**35**	82.8	Red		IPC-I
43.2	Synthetic detergents and soaps (wastewater generation < 100 KLD)	20	20	25	**65**	25	0	25	**50**	25	10	**35**	79.9	Orange		IPC-I
43.3	Synthetic detergents and soaps (only formulation)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-I
43.4	Soap manufacturing (handmade -without steam boiling / boiler)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
DISTILLERIES AND FERMENTATION SECTORS																
44.0	**DISTILLERIES** AND FERMENTATION INDUSTRIES															
44.1	Distillery (Molasses based)	35	25	35	**95**	25	25	35	**85**	0	0	**0**	97.1	Red		IPC-III
44.2	Distillery (Grain based)	35	25	30	**90**	25	25	25	**75**	0	0	**0**	93.8	Red		IPC-III
44.3	Distillery (Grain based) with Distiller's Dried Grains with Soluble (DDGS) as by-product	25	25	20	**70**	25	25	25	**75**	0	0	**0**	83.8	Red		IPC-III
44.4	Standalone yeast manufacturing units	35	25	35	**95**	25	20	25	**70**	0	0	**0**	96.8	Red		IPC-III
44.5	Breweries and malteries industry (with fermentation)- Wastewater generation ≥ 100 KLD	30	15	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		IPC-III
44.6	Breweries and malteries industry (with fermentation)- Wastewater generation < 100 KLD	30	15	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
44.7	Potable alcohol by blending, bottling of alcohol products	20	0	25	**45**	0	0	0	**0**	0	0	**0**	45	Green		IPC-III
45	**Diesel** pump repairing and servicing (complete mechanical dry process)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White		IPC-V
~E~																
46	Manufacturing of **Explosives**, detonators, fuses, etc.	25	30	15	**70**	0	30	0	**30**	30	10	**40**	80.5	Red	Explosives manufacture contribute to release of hazardous pollutants, including generation of other toxic chemicals. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-I
47	Manufacturing of coated **Electrode**	0	15	15	**30**	0	25	0	**25**	0	0	**0**	38.8	Green	Process involves preparation of core wire / rod, preparation of dry mix, preparation of wet mix, application of coating by extrusion, baking of coated electrodes.	IPC-V
48	**Emery** powder (fine dust of sand) manufacturing	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	Fugitive emissions from grinding operations.	IPC-V
49	**Electric** lamp (bulb) and CFL manufacturing by assembling only	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
50	**Electrical** and electronic item assembling (completely dry process)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
51	**Engineering** and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
								~F~								
52.0	**FIBRE** GLASS (FIBRE REINFORCED PLASTIC) PRODUCTION															
52.1	Fibre glass (containing lead) production and processing (excluding moulding)	0	0	0	**0**	35	0	25	**60**	25	20	**45**	69	Orange		IPC-V
52.2	Fibre glass (without lead) production and processing (excluding moulding)	0	0	0	**0**	30	0	25	**55**	25	20	**45**	65.1	Orange	The use of styrene in most methods of fibre glass production causes hazardous air pollution that is harmful to breathe at excessive levels.	IPC-V
53	Manufacturing of **Firecrackers** including improved crackers/green crackers, etc.	0	0	0	**0**	35	30	0	**65**	30	10	**40**	72	Orange	Various hazardous chemicals are used in the manufacturing process. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-V
54.0	SYNTHETIC **FIBRES** MANUFACTURING															
54.1	Synthetic fibres-PSF & PFY, generated from petrochemical	35	30	35	**100**	30	25	35	**90**	30	20	**50**	100	Red		IPC-I
54.2	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres	25	20	25	**70**	30	20	25	**75**	20	10	**30**	87.5	Red		IPC-I
54.3	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres using cleaner/gaseous fuel	25	20	25	**70**	30	20	10	**60**	20	10	**30**	83.5	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
55.0	**FERTILIZERS** PRODUCTION															
55.1	Fertilizers (Urea)	10	30	35	**75**	30	30	20	**80**	20	30	**50**	92.5	Red		IPC-I
55.2	Fertilizers (Calcium Ammonium Nitrate/Ammonium Nitrate)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.3	Fertilizers (NPK)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.4	Fertilizers (Straight Phosphatic Fertilizers)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.5	Fertilizer (granulation /formulation / blending) generating wastewater through floor washings, cooling towers etc.	10	30	15	**55**	30	30	0	**60**	10	10	**20**	75	Orange		IPC-I
55.6	Fertilizer (granulation /formulation / blending) not generating wastewater	0	0	0	**0**	30	30	0	**60**	10	10	**20**	64	Orange		IPC-I
56.0	**FOOD** AND **FOOD PROCESSING** INCLUDING FRUITS AND VEGETABLE PROCESSING															
56.1	Wastewater generation ≥ 10 KLD	25	0	25	**50**	25	0	25	**50**	0	0	**0**	62.5	Orange		IPC-III
56.2	Wastewater generation < 10 KLD (without boiler)	25	0	15	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-III
57.0	**FISH** FEED, POULTRY FEED AND CATTLE FEED															
57.1	Fish feed, poultry feed and cattle feed (with boiler)	0	20	15	**35**	25	25	25	**75**	0	0	**0**	79.4	Orange		IPC-V
57.2	Fish feed, poultry feed and cattle feed (without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
58	**Fish** processing and packing (excluding chilling of fishes)	25	25	20	**70**	0	20	0	**20**	0	0	**0**	73	Orange		IPC-IV
59.0	MANUFACTURING OF MODULAR WOODEN **FURNITURE**															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
59.1	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (With boiler)	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
59.2	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (Without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
60.0	CARPENTRY & WOODEN **FURNITURE** MANUFACTURING															
60.1	Carpentry & wooden furniture manufacturing with spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
60.2	Carpentry & wooden furniture manufacturing without spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
61	**Foam** manufacturing	0	0	0	**0**	35	0	0	**35**	20	10	**30**	44.8	Green	Emissions of VOCs and HAPs. Raw materials are polyurethane, latex etc.	IPC-V
62	**Flour** mills (dry process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green	Separate classification for domestic flour mills may not require.	IPC-V
63.0	STEEL **FURNITURE** INDUSTRY															
63.1	Steel furniture with spray painting	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green	Obnoxious gases from welding.	IPC-V
63.2	Steel furniture without spray painting	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~G~															
64.0	MANUFACTURING OF **GLUE** AND **GELATIN**															
64.1	Manufacturing of glue and gelatin using coal/liquid fuel	25	20	15	**60**	25	20	25	**70**	10	10	**20**	82	Red		IPC-I
64.2	Manufacturing of glue and gelatin by using biomass/cleaner fuel	25	20	15	**60**	25	20	15	**60**	10	10	**20**	76	Orange		IPC-I
65.0	MANUFACTURING OF **GLASS** (INCLUDING PRINTING OR ETCHING OF **GLASS** SHEET USING HYDROFLUORIC ACID)															
65.1	Manufacturing of glass (Oil/coal fired)	0	15	15	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-V
65.2	Manufacturing of glass (gas fired)	0	15	15	**30**	25	25	10	**60**	0	0	**0**	66	Orange		IPC-V
66	Producer **Gas** plant using conventional coal **Gasification**	20	25	15	**60**	25	0	25	**50**	30	10	**40**	78	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
67.0	COMPRESSED **BIOGAS** (CBG)/BIO-CNG PLANTS															
67.1	CBG plants based on Municipal Solid Waste (MSW) as feed	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82	Red		UPC-II
67.2	CBG plants based on process waste (industrial/ process liquid effluent & solid waste like press mud, organic sludge, molasses, etc.) as feed	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82	Red		IPC-III
67.3	CBG plants based on crop residue (paddy straw /wheat straw /corn sweet sorghum/ Napier grass, etc.) as feed	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-III
67.4	CBG plants based on animal waste (dairy farms, poultry farms, and other animal waste) as feed	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-III
67.5	CBG plants producing Fermented Organic Manure (FOM) & Liquid Fermented Organic Manure (LFOM) as by-products	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White	CBG plants producing FOM & LFOM as by-products in conformity with requirements of Gazette Notification No. 2051 dated 14.07.2020 & No. 1972 dated 01.06.2021, respectively, and utilizing entire FOM & LFOM as a fertilizer or manure on land and also not discharging any waste-water, to be considered under White category, subject to verification by SPCB on case-to-case basis.	IPC-III
68.0	STANDALONE PRODUCTION OF **HYDROGEN** AND/OR **AMMONIA** (WITHOUT CAPTIVE POWER PLANT USING FOSSIL FUEL)															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.1	Integrated unit for production of Ammonia through Hydrogen generated by pyrolysis/gasification	20	25	20	**65**	20	25	25	**70**	30	20	**50**	87.3	Red	i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities. ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste. iii. The process will generate fugitive emissions and due to pyrolysis operation.	IPC-I
68.2	Integrated unit for production of ammonia through Hydrogen generated by electrolysis using renewable energy (capacity ≥ 15 TPD)	10	25	35	**70**	0	20	0	**20**	30	20	**50**	80.5	Red	i. Ammonia manufacturing process (Haber process) and associated safety hazards remain same as per the chemical properties of ammonia. ii. Wastewater generation due to the production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc. iii.Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.3	Integrated unit for production of Ammonia through hydrogen generated by electrolysis using renewable energy (Capacity < 15 TPD)	10	25	20	**55**	0	20	0	**20**	30	10	**40**	68.5	Orange	i. Ammonia manufacturing process (Haber process) and associated safety hazards remains same as per the chemical properties of ammonia. ii. Wastewater generation due to production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc. iii.Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.4	Hydrogen production through pyrolysis/gasification	20	25	20	**65**	20	25	25	**70**	30	10	**40**	85.8	Red	i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities. ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste. iii.The process will generate fugitive emissions and due to pyrolysis operation.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.5	Hydrogen production through electrolysis using raw/seawater and renewable energy (capacity ≥ 2.5 TPD)	0	20	35	**55**	0	0	0	**0**	30	10	**40**	64.0	Orange	i. Type of electrolysers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc. ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater. iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.6	Hydrogen production through electrolysis using raw/sea water and renewable energy (capacity < 2.5 TPD)	0	20	20	**40**	0	0	0	**0**	30	10	**40**	52.0	Green	i. Type of electrolysers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc. ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater. iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.7	Hydrogen production through electrolysis (using	0	0	0	**0**	0	0	0	**0**	0	10	**10**	10.0	White	i. DM water as feed water for electrolyser and cooling/chilling	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	renewable energy) on BOO/BOOT/BOT, mode etc., located in the premises of end user industry and directly using de-mineralized water & other utilities (cooling tower, ETP, etc.) sourced from end user industry														water requirement to be met by the end user industry. ii. Wastewater and other waste generated during O&M shall also be managed by the end user industry.	
69	**Glue** from starch (physical mixing) with Gas/ electrically operated oven /boiler.	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35	Green		IPC-V
70	**Gold** and silver smithy (purification with acid smelting operation and sulphuric acid polishing operation) (using less or equal to 1 litre of sulphuric acid/ nitric acid per month)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
71	Compressed oxygen **Gas** from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other **Gases**)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
72	**Glass** and ampules and vials making from **Glass** tubes	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
73	**Ground** nut decorticating	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
74	**Medical Oxygen**	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater	IPC-V
	~H~															
75.0	**HOT** MIX PLANTS															
75.1	Hot mix plants using oil as fuel	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
75.2	Hot mix plants using gaseous as fuel	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
76	**Hazardous** waste pre-processing/processing facility including spent acid processing, spent solvent recovery, etc.	25	30	15	**70**	25	25	15	**65**	30	20	**50**	87.3	Red		WM-II
77	**Handloom**/ carpet weaving (without dying and bleaching operation)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~I~															
78	**Ice** cream manufacturing units	25	25	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-IV
79	Printing **Ink** Manufacturing	20	30	15	**65**	0	20	10	**30**	30	10	**40**	77.3	Orange	In the process pigments, binders and solvents are used. VOCs are generated.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
80	Manufacturing of scientific and mathematical **Instrument** (assembling only)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
~J~																
81.0	**JUTE** PROCESSING															
81.1	Jute processing (with dyeing / with boiler)	25	20	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
81.2	Jute processing (without dyeing / without boiler)	20	0	20	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-III
81.3	Manufacturing of products from jute (without dyeing/ without boiler)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-III
~L~																
82	**Lime** manufacturing (using lime kiln)	0	0	0	**0**	25	0	30	**55**	0	0	**0**	55	Orange		IPC-V
83	**Leather** foot wear and **Leather** products (excluding tanning and hide processing)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White	Fumes due to use of adhesives / gums.	IPC-IV
84	Manufacturing of optical **Lenses** (using electrical furnace)	0	20	15	**35**	0	0	0	**0**	0	0	**0**	35	Green		IPC-V
85	**Leather** cutting and stitching (more than 10 machine and using motor)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
~M~																

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
86	**Mobile** towers using genset(s)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green	i. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Order dated 24.08.2017 in the related matter with OA No. 83(THC) OF 2012 (Bharti Infratel Ltd.) may be referred for issuance of composite consent in case of mobile towers.	UPC-I
87.0	**MILK** PROCESSES AND DAIRY PRODUCTS															
87.1	Milk processes and dairy products (integrated project)	30	25	30	**85**	25	20	30	**75**	0	0	**0**	90.6	Red		IPC-IV
87.2	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation ≥ 100 KLD)	25	25	30	**80**	25	0	25	**50**	0	0	**0**	85	Red		IPC-IV
87.3	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation < 100 KLD)	25	25	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-IV
87.4	Dairy and dairy products, (Small scale units), using PNG as fuel	25	25	20	**70**	0	0	10	**10**	0	0	**0**	71.5	Orange		IPC-IV
88.0	**MINING** AND ORE BENEFICIATION															
88.1	Open-cast coal mining	10	25	35	**70**	25	30	35	**90**	10	70	**80**	97.5	Red		IPC-II
88.2	Underground coal mining	0	25	35	**60**	25	30	35	**90**	0	0	**0**	93	Red		IPC-II
88.3	Mining of major minerals and ore beneficiation	20	30	35	**85**	25	30	35	**90**	25	70	**95**	99.4	Red	Includes captive limestone mining.	IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
88.4	Mining of minor minerals (except Sand/riverbed material mining)	10	0	20	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-II
88.5	Grinding, processing, and screening of minor minerals	0	0	0	**0**	25	30	0	**55**	0	0	**0**	55	Orange		IPC-II
89	Manufacturing of **Mirror** from sheet glass	0	0	0	**0**	30	20	0	**50**	25	10	**35**	58.8	Orange		IPC-V
90	**Mineral** processing, industries involving ore sintering, pelletisating, grinding & pulverization	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-II
91	**Malteries** (without fermentation)	30	15	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
92	Manufacturing of **Mosquito** repellent & coil	0	0	0	**0**	30	0	25	**55**	0	0	**0**	55	Orange	Toxic fumes may be released.	IPC-V
93	Organic **Manure** (physical mixing)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
94	Packing of powdered **Milk**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
METALS AND METALLURGICAL SECTORS																
95.0	**IRON & STEEL** (PRIMARY PROCESSING FROM ORE, INTEGRATED STEEL PLANTS AND SPONGE IRON UNITS)															
95.1	Integrated iron and steel plants	25	30	35	**90**	25	30	35	**90**	25	50	**75**	98.3	Red		IPC-II
95.2	Stand-alone sintering/palletisation	0	0	0	**0**	25	30	35	**90**	0	0	**0**	90	Red		IPC-II
95.3	Sponge iron with CPP (Captive Power Plant)	20	25	35	**80**	25	30	35	**90**	10	50	**60**	97	Red		IPC-II
95.4	Sponge iron without CPP	20	15	30	**65**	25	30	35	**90**	10	50	**60**	96.3	Red		IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
95.5	Stand-alone coke oven gas plants	25	30	30	**85**	25	30	35	**90**	25	50	**75**	98	Red		IPC-II
96.0	**ALUMINIUM** PROCESSING															
96.1	Aluminium Refinery	10	30	35	**75**	25	25	35	**85**	10	70	**80**	96.6	Red		IPC-II
96.2	Aluminium Smelter	10	30	35	**75**	30	25	35	**90**	25	70	**95**	99.1	Red		IPC-II
97	**Copper Smelter**	10	30	35	**75**	30	25	35	**90**	10	70	**80**	97.8	Red		IPC-II
98	**Zinc smelter**	10	30	35	**75**	30	25	35	**90**	10	70	**80**	97.8	Red		IPC-II
99.0	**FERROUS AND NON-FERROUS METAL** SECONDARY PROCESSING/REPROCESSING UNITS INVOLVING DIFFERENT FURNACES THROUGH MELTING, REFINING, CASTING, ALLOY-MAKING															
99.1	All Ferrous and Non-ferrous metal secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using coal/liquid fuels)	0	15	15	**30**	25	25	25	**75**	25	10	**35**	83.1	Red		IPC-V
99.2	Ferrous and Non-ferrous metal (excluding lead, nickel, and manganese) secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using cleaner fuels/electricity)	0	15	15	**30**	25	25	10	**60**	10	10	**20**	70	Orange		IPC-V
100	Aluminium & copper extraction from scrap using an oil-fired furnace (dry process only)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
101.0	INDUSTRY OR PROCESS INVOLVING **METAL** SURFACE TREATMENT OR PROCESS/HEAT TREATMENT															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
101.1	Industry or process involving metal surface treatment or process such as pickling/ electroplating/paint stripping/ heat treatment using cyanide bath/ phosphating or finishing and anodizing / enamellings/ galvanizing	25	30	20	**75**	30	25	0	**55**	25	30	**55**	88.8	Red		IPC-V
101.2	Plasma electrolytic polishing (electroplating)	25	30	15	**70**	30	25	0	**55**	0	0	**0**	78.3	Orange		IPC-V
101.3	Heat treatment using furnace (without cyaniding)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
101.4	Heat treatment with any of the new technology like ultrasound probe, induction hardening, ionization beam, gas carburizing etc.	0	15	15	**30**	0	25	0	**25**	0	0	**0**	38.8	Green		IPC-V
102.0	FORGING OF **FERROUS AND NON- FERROUS METALS**															
102.1	Forging of ferrous and non-ferrous metals using liquid fuel	0	0	0	**0**	25	25	20	**70**	30	10	**40**	76	Orange		IPC-V
102.2	Forging of ferrous and non-ferrous metals using gaseous fuel	0	0	0	**0**	25	25	10	**60**	30	10	**40**	68	Orange		IPC-V
102.3	Forging of ferrous and non-ferrous metals using electricity	0	0	0	**0**	25	25	0	**50**	30	10	**40**	60	Orange		IPC-V
102.4	Forging of ferrous and non-ferrous metals (cold forging, without any heat treatment)	0	0	0	**0**	0	0	0	**0**	30	10	**40**	40	Green		IPC-V
103.0	ROLLING **MILLS**															
103.1	Rolling and pickling	25	30	15	**70**	25	30	25	**80**	25	10	**35**	90.5	Red		IPC-V
103.2	Rolling mills (oil and coal fired)	0	15	15	**30**	25	0	25	**50**	0	0	**0**	57.5	Orange		IPC-V
103.3	Rolling mills (gas fired)	0	15	15	**30**	25	0	10	**35**	0	0	**0**	44.8	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
103.4	Cold rolling mill (without heat treatment)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
104.0	**FOUNDRY OPERATIONS**															
104.1	Cupola furnace	**0**	**0**	**0**	**0**	25	25	25	**75**	10	10	20	77.5	Orange		IPC-V
104.2	Induction furnace/arc furnace	0	0	0	**0**	25	30	0	**55**	10	10	**20**	59.5	Orange		IPC-V
105.0	**WIRE** DRAWING AND **WIRE** NETTING															
105.1	Wire drawing and wire netting (with pickling)	25	30	15	**70**	30	25	0	**55**	10	10	**20**	81.3	Red		IPC-V
105.2	Wire drawing and wire netting (without pickling and with heat treatment)	0	0	0	**0**	25	0	20	**45**	10	10	**20**	50.5	Green		IPC-V
105.3	Wire drawing and wire netting (without pickling and without heat treatment)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
106	**Die-casting** /extrusion process only	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
107	Manufacturing of aluminium utensils from aluminium circles pressing/ Brass and bell **Metal** utensils manufacturing from circles (dry mechanical operation only)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	Emissions during buffing	IPC-V
108	Manufacturing of **Metal** caps containers etc	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

~N~

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
109	Formulation/palletisation of camphor tablets, **Naphthalene** balls from camphor/ naphthalene powders.	0	0	0	**0**	35	20	0	**55**	0	0	**0**	55	Orange	Emissions of benzene, hydrocarbons etc. are expected.	IPC-V
110	Organic and inorganic **Nutrients** by physical mixing (without boiler and without any reactor)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater	IPC-V
111.0	**ORGANIC** CHEMICALS INCLUDING HALOGENATED HYDROCARBONS															
111.1	Organic chemicals including halogenated hydrocarbons (using solid/liquid fuel)	30	30	25	**85**	35	0	30	**65**	30	20	**50**	93.6	Red		IPC-I
111.2	Organic chemicals including halogenated hydrocarbons (using cleaner fuel)	30	30	25	**85**	35	0	10	**45**	30	20	**50**	92.1	Red		IPC-I
112	**Oil** and gas extraction (offshore & onshore extraction through drilling wells), Coal Bed Methane (CBM) drilling and shale gas, including group gathering stations (GGS), etc.	25	30	15	**70**	20	25	0	**45**	30	10	**40**	82.8	Red		IPC-I
113.0	EDIBLE **OIL** MILLS															
113.1	Vegetable oil manufacturing including solvent extraction and refinery /hydrogenated oils	25	25	20	**70**	25	0	20	**45**	0	0	**0**	76.8	Orange		IPC-III
113.2	Oil mills Ghani and extraction without boiler (no refining/ hydrogenation)	10	25	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
~P~																
114.0	**POWER** GENERATION PLANTS															
114.1	Power plants based on coal	0	15	35	**50**	35	25	35	**95**	10	70	**80**	98.3	Red		IPC-II
114.2	Power plants based on liquid fuels	0	15	35	**50**	25	25	35	**85**	30	20	**50**	92.5	Red		IPC-II
114.3	Biomass-based power plants	0	15	30	**45**	25	25	25	**75**	10	50	**60**	88.1	Red		IPC-II
114.4	Nuclear energy-based power plants (> 220 MW)	0	30	35	**65**	25	0	25	**50**	25	20	**45**	81.6	Red	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II
114.5	Nuclear energy-based power plants (up to 220 MW)	0	30	35	**65**	25	0	25	**50**	25	10	**35**	79.9	Orange	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II
114.6	Gas-based power plants	0	15	35	**50**	25	0	20	**45**	0	0	**0**	61.3	Orange		IPC-II
115.0	**PULP & PAPER** (AGRO & WOOD)															
115.1	Manufacturing of bleached chemical pulp, papers, and paperboards	30	30	35	**95**	30	0	35	**65**	30	30	**60**	98.1	Red		IPC-III
115.2	Unbleached or Totally Chlorine Free (TCF) bleaching for manufacturing of chemical pulp, papers, and paperboards	30	20	35	**85**	30	0	35	**65**	10	30	**40**	92.9	Red		IPC-III
115.3	Bleached grades of chemical pulp, paper, and paperboard having Totally Chlorine Free (TCF) bleaching	30	20	35	**85**	30	0	35	**65**	10	30	**40**	92.9	Red		IPC-III
116.0	**PULP AND PAPER** (RECYCLED FIBRE/WASTE PAPER BASED)															
116.1	Pulp & Paper (With bleaching)	30	15	35	**80**	25	0	25	**50**	10	30	**40**	89	Red		IPC-III
116.2	Pulp & Paper (Without bleaching, capacity ≥15 TPD)	25	15	35	**75**	25	0	25	**50**	10	30	**40**	86.3	Red		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
116.3	Pulp & Paper (Without bleaching; plant capacity <15 TPD)	25	15	20	**60**	25	0	25	**50**	10	10	**20**	74	Orange		IPC-III
117.0	MANUFACTURING OF **PAINTS**, VARNISHES															
117.1	Manufacturing of solvent-based paints/varnish	35	30	20	**85**	25	20	25	**70**	25	30	**55**	94.4	Red	The process may cause considerable emissions of volatile organic compounds (VOC)	IPC-I
117.2	Manufacturing of water-based paints	25	30	20	**75**	25	20	25	**70**	20	20	**40**	88.8	Red		IPC-I
117.3	Manufacturing of powder coatings	0	15	15	**30**	20	30	25	**75**	10	20	**30**	82.5	Red		IPC-I
117.4	Manufacturing of paint and varnishes (only blending and mixing)	20	30	15	**65**	0	20	0	**20**	30	20	**50**	77.3	Orange		IPC-I
118.0	**PESTICIDE** INDUSTRIES															
118.1	Pesticide technical (organic chemicals based)	30	30	20	**80**	30	25	25	**80**	30	30	**60**	94	Red		IPC-I
118.2	Pesticide technical (inorganic chemicals based like Zinc Phosphide and Aluminium Phosphide)	20	30	20	**70**	30	25	25	**80**	20	20	**40**	91	Red		IPC-I
118.3	Pesticide formulation industries (Liquid formulation only) having boiler/thermopack	20	30	20	**70**	25	20	25	**70**	20	20	**40**	86.5	Red		IPC-I
118.4	Pesticide formulation industries (Liquid formulation only) without having boiler/thermopack	20	30	20	**70**	0	20	0	**20**	20	20	**40**	79	Orange	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
118.5	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) without having boiler / thermopack	20	30	20	**70**	30	20	0	**50**	20	20	**40**	83.5	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
118.6	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) having boiler / thermopack	20	30	20	**70**	30	20	25	**75**	20	20	**40**	88.8	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
119	**Photographic** film and its chemicals	20	20	15	**55**	30	0	25	**55**	20	10	**30**	74.1	Orange	Silver salts and other chemicals are used	IPC-I
120	**Petroleum** oil refineries	35	30	30	**95**	35	20	35	**90**	20	20	**40**	98.3	Red		IPC-I
121.0	**PETROCHEMICALS**															
121.1	Petrochemicals (Naphtha cracker.)	30	30	30	**90**	35	25	35	**95**	30	20	**50**	98.5	Red		IPC-I
121.2	Petrochemicals (Gas cracker)	30	30	30	**90**	35	25	25	**85**	30	20	**50**	96.8	Red		IPC-I
121.3	Petrochemicals (without cracker)	25	30	20	**75**	25	25	15	**65**	20	20	**40**	88.1	Red		IPC-I
121.4	Petrochemicals (without cracker and using cleaner/gaseous fuel)	25	30	20	**75**	25	25	10	**60**	20	20	**40**	87.5	Red		IPC-I
122.0	MANUFACTURING OF LUBRICATING OILS, GREASE AND **PETROLEUM**-BASED PRODUCTS															
122.1	Manufacturing of lubricating oils, grease, and petroleum-based products	20	15	15	**50**	25	20	10	**55**	30	10	**40**	75.3	Orange	Such unit uses distillation columns/ boilers etc	IPC-I
122.2	Manufacturing of lubricating oils, grease, and petroleum-based products (only blending)	0	0	0	**0**	0	25	0	**25**	10	10	**20**	32.5	Green		IPC-I
123.0	**PHARMACEUTICAL** INDUSTRY															
123.1	Pharmaceuticals manufacturing	35	30	30	**95**	35	25	35	**95**	30	20	**50**	98.6	Red		IPC-I
123.2	Pharmaceuticals manufacturing using cleaner/gaseous fuel	35	30	30	**95**	35	25	10	**70**	30	20	**50**	98	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
123.3	Pharmaceuticals (Formulation)	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.4	Pharmaceuticals (Formulation) using cleaner/gaseous fuel	20	15	15	**50**	25	0	10	**35**	30	10	**40**	68.8	Orange		IPC-I
123.5	Vaccine manufacturing	20	15	15	**50**	25	0	35	**60**	30	10	**40**	78	Orange		IPC-I
123.6	Vaccine manufacturing using cleaner/gaseous fuel	20	15	15	**50**	25	0	10	**35**	30	10	**40**	68.8	Orange		IPC-I
123.7	Pharmaceutical R&D facilities	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.8	Ayurvedic or Unani medicines manufacturing	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.9	Ayurvedic or unani medicines manufacturing using cleaner fuel	20	15	15	**50**	25	0	10	**35**	0	0	**0**	58.8	Orange		IPC-I
123.10	Ayurvedic or unani medicines manufacturing (Without boiler)	20	15	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-I
124	Digital **Printing** on flex /vinyl, PVC etc. (more than 5 machines)	0	0	0	**0**	20	0	0	**20**	30	10	**40**	46	Green		IPC-V
125	Spray **Painting**, Paint baking, Paint shipping	0	0	0	**0**	0	25	0	**25**	30	10	**40**	47.5	Green	Emissions in the form of VOCs and HC are generated.	IPC-V
126	**Plywood**/board manufacturing (including Veneer and laminate) with biomass fired boiler / thermic fluid heater (without resin plant)	20	20	15	**55**	25	20	25	**70**	0	0	**0**	78.3	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
127	**Printing** press (newspaper, books, magazines, etc./ Gravure printing	20	0	15	**35**	20	0	0	**20**	30	10	**40**	56.5	Orange		IPC-V
128	Manufacturing of bi-axially oriented **Polypropylene** (PP) film along with metalizing operations	0	15	15	**30**	0	0	0	**0**	0	0	**0**	30	Green	Mainly extrusion process involving	IPC-V
129	**Pulse**/Dal Mills	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
130	Insulation and other coated **Papers** (excluding paper or pipe manufacturing)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
131	**Packaging** materials manufacturing from non-asbestos fibre, vegetable fibre yarn	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
132	**Polythene** and plastic processed products manufacturing (virgin/compostable plastic)	0	15	15	**30**	0	20	0	**20**	0	0	**0**	37	Green		IPC-V
133	**Poultry**, piggery, and hatchery	0	0	0	**0**	30	20	0	**50**	0	0	**0**	50	Green		IPC-V
134	**Puffed** rice (muri) (using gas)	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
135	Biscuits trays etc from rolled **PVC** sheet (using automatic vacuum forming machines)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
136	Fountain **Pen** manufacturing by assembling only	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
137	Glass **Putty** and sealant (by mixing with machine only)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
138	Manufacturing of **Paper** Pins, U-clips, etc.	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
139	Solar **Power** generation through solar photovoltaic cell and wind power	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~R~															
140	Synthetic **Rubber** excluding molding	20	15	15	**50**	20	0	25	**45**	20	10	**30**	68.8	Orange	Most synthetic rubber is created from two materials, styrene, and butadiene.	IPC-I
141.0	**REFRACTORIES**															
141.1	Refractories based on coal/liquid fuel (fuel consumption: 12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
141.2	Refractories based on coal/liquid fuel (fuel consumption: less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
141.3	Refractories based on cleaner fuels	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
142.0	**RUBBER** PRODUCTS MANUFACTURING															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
142.1	Tyre and tube manufacturing	0	15	15	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-V
142.2	Tyres and tubes vulcanization/ hot retreading	0	15	15	**30**	25	20	10	**55**	0	0	**0**	61.8	Orange	Emissions of PM, VOCs and obnoxious odour are generated.	IPC-V
142.3	Rubber goods industry (with solid fuel/oil-based boiler)	0	15	15	**30**	25	0	25	**50**	0	0	**0**	57.5	Orange		IPC-V
142.4	Rubber goods industry (with gas-based boiler)	0	15	15	**30**	25	0	10	**35**	0	0	**0**	44.8	Green		IPC-V
143.0	SYNTHETIC **RESINS**															
143.1	Synthetic resins manufacturing	20	15	15	**50**	25	20	25	**70**	20	10	**30**	82	Red		IPC-I
143.2	Synthetic resins manufacturing (using only gaseous fuel)	20	15	15	**50**	25	20	10	**55**	20	10	**30**	73	Orange		IPC-I
144	Blending of melamine **Resins** & different powder, additives by physical mixing, including phenolic resin (without boiler)	0	15	15	**30**	0	30	0	**30**	20	10	**30**	51	Green		IPC-I
145.0	**RICE** MILLS															
145.1	Parboiled rice mill (with soaking and steam/drier)	25	0	20	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		IPC-V
145.2	Raw rice mill (Without soaking and steam/drier)/ hullers)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
146	**Repairing** of electric motors and generators (dry mechanical process)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
147	Manufacturing of plastic or cotton **Rope**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
148	Tyre **Retraders**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		WM-III
RECYCLING AND REPROCESSING SECTOR																
149.0	INDUSTRIES ENGAGED IN **RECYCLING/REPROCESSING/ RECOVERY/REUSE** OF HAZARDOUS WASTE UNDER SCHEDULE IV OF H&OW(M & TBM) RULES, 2016 - ITEMS, NAMELY, SPENT CATALYSTS CONTAINING NICKEL, CADMIUM, ZINC, COPPER, ARSENIC, VANADIUM, AND COBALT, INCLUDING DRY BATTERY (EXCEPT LEAD), AND CLEARED METAL CATALYST.															
149.1	Hydro & pyro metallurgy	0	30	15	**45**	35	25	25	**85**	25	10	**35**	91	Red		WM-II
149.2	Hydro & pyro metallurgy (using cleaner/gaseous fuels & without crushing of materials)	0	30	15	**45**	35	25	10	**70**	25	10	**35**	82	Red		WM-II
149.3	Pyro metallurgy (using coal/liquid fuels)	0	0	0	**0**	35	25	25	**85**	20	10	**30**	87.3	Red		WM-II
149.4	Pyro metallurgy (using cleaner/gaseous fuels)	0	0	0	**0**	35	25	10	**70**	20	10	**30**	74.5	Orange		WM-II
149.5	Hydro metallurgy	0	30	15	**45**	30	25	0	**55**	25	10	**35**	73	Orange		WM-II
150.0	E-WASTE DISMANTLING / **RECYCLING**															
150.1	Industry engaged in recycling of e-waste generated from the electrical and electronic Equipment (EEE) listed in the E-Waste (Management) Rules 2022 using pyro/ hydro/ electro-metallurgical processing and recycling of plastic separated from Waste EEE	30	30	20	**80**	35	25	15	**75**	25	20	**45**	92	Red		WM-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
150.2	Industry engaged in recycling of e-waste generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022 (PCB processing limited to only mechanical processing and separation without pyro/ hydro/ electro-metallurgical processing), production of Al, Cu, and other metals from non-PCB sources and/or recycling of plastic separated from Waste EEE.	0	15	15	**30**	20	25	15	**60**	25	10	**35**	73	Orange		WM-III
150.3	Industry engaged in dismantling (only) of e-waste, generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
150.4	E-waste refurbishing centres	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
151.0	INDUSTRIES ENGAGED IN **RECYCLING/REPROCESSING/ RECOVERY/REUSE** OF HAZARDOUS WASTE (Items as per Schedule IV of H&OW(M & TBM) Rules, 2016.)															
151.1	Lead Recycling (Lead Acid Batteries with Acids; Lead Scrap Recycling) Rotary Furnace/ Pit Furnace (Mandir/Canopy Bhatti)	0	30	20	**50**	35	30	25	**90**	20	20	**40**	94.5	Red	This also includes battery scrap, namely: Lead battery plates covered by ISRI, Code word “Rails” Battery lugs covered by ISRI, Code word “Rakes.” Scrap drained/dry while intact, lead batteries covered by ISRI, Code word “rains.”	WM-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
151.2	Lead Recycling (Drained Lead Acid Batteries; Lead Scrap Recycling) Rotary Furnace/Mandir Bhatti on Cleaner Fuel	0	30	15	**45**	35	30	10	**75**	20	10	**30**	84.4	Red	This also includes, battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes." Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains."	WM-II
151.3	Isolated storages (as defined under Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989 as amended)	10	25	15	**50**	20	25	0	**45**	30	10	**40**	71.3	Orange		IPC-I
151.4	Paint and ink sludge / residues recycling	20	25	15	**60**	0	20	0	**20**	30	10	**40**	72	Orange		WM-II
151.5	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste, excluding lead, paint, and ink sludge	0	30	15	**45**	35	0	25	**60**	20	10	**30**	75	Orange	This includes items namely - Brass Dross, Copper Dross, Copper Oxide Mill Scale, Copper everts, Cake & Residues, Waste Copper and copper alloys in dispersible form, Slags from copper processing for further processing or refining, Insulated Copper Wire, Scrap/copper with PVC sheathing including ISRI-code material namely "Druid" Jelly filled Copper cables, Zinc Dross-Hot dip Galvanizers SLAB,, Zinc Dross-Bottom Dross, Zinc ash/Skimming arising from galvanizing and die casting operations, Zinc ash/Skimming/other zinc bearing wastes arising from smelting and refining,, Zinc ash and residues including zinc alloy residues in dispersible form.	WM-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
151.6	Refining of used oil by hydro-treating/using solvent extraction	10	25	25	**60**	25	0	25	**50**	20	20	**40**	78	Orange		WM-II
151.7	Refining of used oil by using thin film evaporation/vacuum distillation with clay treatment	10	25	15	**50**	25	0	15	**40**	20	10	**30**	67.5	Orange		WM-II
151.8	Recycling / reprocessing of waste oil	20	25	15	**60**	25	0	15	**40**	20	10	**30**	74	Orange		WM-II
152.0	**RECYCLING** OF PLASTIC WASTE															
152.1	Manufacturing of flakes/staple fibre/strip from the recycling of PET bottles	20	15	25	**60**	0	20	0	**20**	0	0	**0**	64	Orange		IPC-I
152.2	Plastic waste processing (manufacturing of flakes/granules)	20	15	15	**50**	0	20	0	**20**	0	0	**0**	55	Orange	Process using In-built heaters.Washwater and fugitive emission.	UPC-II
153.0	SCRAPING FACILITIES FOR **RECYCLING** END-OF-LIFE VEHICLES, WAGONS, AND COACHES															
153.1	Collection, Depollution and Dismantling Centers (Without shredding)	0	30	15	**45**	0	30	0	**30**	25	10	**35**	62.9	Orange		WM-II
153.2	Collection, Depollution, Dismantling and shredding Centers	0	30	15	**45**	0	30	0	**30**	25	10	**35**	62.9	Orange		WM-II
153.3	Common Shredders (Standalone)	0	0	0	**0**	0	30	0	**30**	25	10	**35**	44.8	Green		WM-II
153.4	Collection Centers (Without depollution, dismantling and shredding)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		WM-II
	~S~															
154	**Sugar** (excluding khandsari/jaggery)	30	25	35	**90**	25	0	25	**50**	30	10	**40**	94.5	Red	Generates large volume of wastewater.	IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
155	**Ship** breaking industries	0	0	0	**0**	0	30	0	**30**	30	20	**50**	57.5	Orange	Ship breaking releases a large number of pollutants, including toxic waste, used/waste oil, poly-chlorinated biphenyls, and heavy metals.	WM-III
156	**Slaughterhouse** / **Slaughterhouse** (with rendering plant)/ integrated slaughtering unit, meat processing units, bone mill, processing of animal horns, hoofs and other body parts	30	25	30	**85**	25	20	25	**70**	0	0	**0**	90.3	Red		IPC-IV
157	Manufacturing of **Silica** gel	10	25	20	**55**	30	0	20	**50**	25	10	**35**	74.1	Orange		IPC-I
158	Manufacturing of Iodized **Salt** from Crude / Raw Salt	10	20	15	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange	Process may involve boiling in evaporators (multiple effect evaporators), centrifuging, iodization, mixing, etc.	IPC-V
159	Manufacturing of **Starch** / Sago / Sorbitol	20	25	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
160	**Stone** crushers	0	0	0	**0**	25	30	0	**55**	0	0	**0**	55	Orange		IPC-V
161	**Stone** crushing/grinding/washing & screening of riverbed material(s)	10	0	25	**35**	25	30	0	**55**	0	0	**0**	62.9	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
162.0	MANUFACTURING OF **SURGICAL** AND MEDICAL PRODUCTS															
162.1	Manufacturing of **Surgical** and medical products	10	25	15	**50**	25	0	10	**35**	0	0	**0**	58.8	Orange		IPC-V
162.2	Surgical and medical products assembled only (with effluent-generating processes)	10	25	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-V
162.3	Surgical and medical products assembled only (without effluent-generating processes)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
163.0	**SEMICONDUCTOR** MANUFACTURING INDUSTRIES															
163.1	Semiconductor fabs manufacturing	25	30	35	**90**	35	30	0	**65**	25	10	**35**	95	Red	i. Toxic wastewater is generated due to presence of Hydrofluoric acid (HF), Mixed Nitric HF ($HF+HNO_3$), Phosphoric acid, Sulphuric acid (H_2SO_4), Hydrogen Peroxide, Isopropyl alcohol (IPA) / Methanol (Methanol Only), Stripper EKC-265 /ACT N396 (ACT N396 Only), BHF – 63 U, Choline etchant, etc. ii. The air pollutants which are being emitted during the manufacturing process are SiH_4, PH_3, B_2H_6, HF, HBr, DCS, NF_3, SF_6, BCl_3, Cl_2, HCL, NH_3, $C2F_6$, CHF_3, CF_4, C_4F_8, C_2F_6 etc. iii. Process waste, used oil etc. are generated as hazardous waste.	WM-III
163.2	Display fabs manufacturing	25	30	35	**90**	25	30	0	**55**	25	10	**35**	94.5	Red		WM-III
163.3	Sensor fabs manufacturing/ Compound semiconductors/ silicon photonics	25	30	35	**90**	25	30	0	**55**	25	10	**35**	94.5	Red		WM-III
163.4	Semiconductor Assembly, Testing, Marking and Packaging Facility (ATMP)	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
164	**Saw** mills	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
165	**Spice** grinding	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
166	Cutting, **Sizing** and polishing of marble, granite and other stones	10	0	20	**30**	0	30	0	**30**	0	0	**0**	40.5	Green		IPC-V
167	Manufacturing of **Solar** module/ non-conventional energy apparatus	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~T~															
168.0	**TANNERIES**															
168.1	Tanneries (Raw to finish)	35	30	25	**90**	0	20	0	**20**	25	30	**55**	93.8	Red		IPC-IV
168.2	Tanneries (Raw to wet blue)	35	30	25	**90**	0	20	0	**20**	25	30	**55**	93.8	Red		IPC-IV
168.3	Tanneries (Wet blue to finish)	35	30	20	**85**	0	20	0	**20**	25	30	**55**	90.6	Red		IPC-IV
168.4	Vegetable tanning	20	25	25	**70**	0	20	0	**20**	20	10	**30**	77.5	Orange		IPC-IV
169.0	MANUFACTURING OF **TOOTH** POWDER, TOOTHPASTE, TALCUM POWDER AND OTHER COSMETIC ITEMS															
169.1	Manufacturing of toothpaste and other cosmetic items	20	25	20	**65**	25	0	25	**50**	0	0	**0**	73.8	Orange		IPC-V
169.2	Manufacturing of tooth powder, talcum powder	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
170.0	**THERMOMETER** MANUFACTURING															
170.1	Glass (mercury based) thermometer manufacturing	10	30	15	**55**	25	0	10	**35**	25	10	**35**	70.8	Orange	Process involves making of glass bulb, forming reservoir in the glass tube for fluid, inserting fluid, scale marking. Use of fuel to heat the glass tubes and hydrofluoric acid to seal the scaling. Small quantities of spent acids are generated.	IPC-V
170.2	Digital thermometer manufacturing	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
171	Manufacturing of **Teflon**-based products	10	0	15	**25**	25	25	25	**75**	0	0	**0**	78.1	Orange	Due to spraying applications, emissions (HC) are generated	IPC-V
172	**Thermocol** manufacturing (with boiler)	0	20	15	**35**	25	0	25	**50**	0	0	**0**	58.8	Orange		IPC-V
173.0	MANUFACTURING OF **TOBACCO** PRODUCTS INCLUDING CIGARETTES AND TOBACCO PROCESSES															
173.1	Manufacturing of tobacco products including cigarettes and tobacco processes (with boiler)	20	0	15	**35**	25	20	25	**70**	0	0	**0**	75.3	Orange		IPC-III
173.2	Manufacturing of tobacco products including cigarettes and tobacco processes (without boiler)	20	0	15	**35**	0	20	0	**20**	0	0	**0**	41.5	Green		IPC-III
174	**Transformer** repairing/ manufacturing (dry process only)	0	0	0	**0**	0	25	0	**25**	30	10	**40**	47.5	Green		IPC-V
175	**Tyre** Pyrolysis Oil Industries-Applicable for advanced batch automated process / continuous TPO units	10	0	15	**25**	25	25	25	**75**	0	0	**0**	78.1	Orange		WM-III
176	**Tamarind** powder manufacturing	10	15	15	**40**	25	0	10	**35**	0	0	**0**	50.5	Green	Dried tamarind fruits are cleaned, soaked, and boiled in steam jacketed kettle. Then pulp is extracted in pulper and dried in drum type drier.	IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
177.0	**TEA** PROCESSING AND BLENDING															
177.1	Tea processing (with boiler)	10	0	15	**25**	25	0	25	**50**	0	0	**0**	56.3	Orange		IPC-III
177.2	Tea processing (without boiler)	10	0	15	**25**	0	0	0	**0**	0	0	**0**	25	Green		IPC-III
177.3	Blending and packing of tea	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	TEXTILE SECTOR															
178.0	**TEXTILE** INDUSTRY															
178.1	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing, and colouring, including the garment and apparel manufacturing industry	30	30	30	**90**	25	0	35	**60**	30	20	**50**	95.5	Red		IPC-III
178.2	Yarn to grey fabric manufacturing with water jet machines	20	25	25	**70**	0	0	0	**0**	0	0	**0**	70	Orange		IPC-III
178.3	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-with boiler	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-III
178.4	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-without boiler	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-III
179.0	**SAREE/FABRIC PRINTING** BY SCREEN / WOODEN BLOCK /HAND BLOCK															
179.1	Saree/fabric printing by screen / wooden block/hand block	25	0	25	**50**	25	0	20	**45**	30	10	**40**	71.3	Orange		IPC-III
179.2	Hand block printing without effluent generation	0	0	0	**0**	25	0	20	**45**	0	0	**0**	45	Green		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
180.0	**TEXTILE** SPINNING**,** SIZING AND WEAVING MILLS															
180.1	Textile spinning, sizing and weaving mills (wastewater generation≥ 10 KLD)	10	20	20	**50**	25	0	15	**40**	0	0	**0**	60	Orange		IPC-III
180.2	Textile spinning, sizing and weaving mills (wastewater generation <10 KLD)	10	20	15	**45**	25	0	10	**35**	0	0	**0**	54.6	Green		IPC-III
181	**Power looms** (without dye and bleaching)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-III
182.0	REPROCESSING OF WASTE **TEXTILE** FABRIC															
182.1	Integrated facility for reprocessing of waste textile fabric (including washing, bleaching, dyeing etc.)	30	30	20	**80**	25	25	15	**65**	0	0	**0**	86.5	Red		IPC-III
182.2	Reprocessing of waste textile fabric (dry process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-III
183	**Cotton and woollen Hosiers** making (Dry process only without any dying / washing operation)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~W~															
184	Seasoning of **Wood** in steam heated chamber	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
185	Pulverization of bamboo and scrap **Wood**	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
186	Distilled **Water** (without boiler) with electricity as source of heat	0	20	20	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
187	Purification of **Water** and packaging (mineralized/non-mineralized water)	0	20	25	**45**	0	0	0	**0**	0	0	**0**	45	Green	RO Rejects.	IPC-V



ANNEXURE-II

(LIST OF ESSENTIAL ENVIRONMENTAL SERVICES)

LIST OF ESSENTIAL ENVIRONMENTAL SERVICES

i. Essential Environmental Services for Industrial Waste Management

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**COMMON EFFLUENT TREATMENT PLANT (CETP)**															
1.1	CETP having MEE/spray drier	30	30	35	**95**	25	0	25	**50**	25	50	**75**	98.1	Red		IPC-VII
1.2	CETP (without having MEE/spray drier), Common MEE/common spray driers	25	30	30	**85**	0	0	0	**0**	25	30	**55**	89.1	Red		IPC-VII
1.3	Common Sewage-Effluent Treatment Plant (CSETP)	25	30	30	**85**	0	0	0	**0**	25	20	**45**	88.4	Red		WQM-I & IPC-VII
2.0	Effluent conveyance projects	20	30	35	**85**	0	0	0	**0**	25	10	**35**	87.6	Red	Such projects during O&M operation will generate deposited sludge, spillage etc. in addition regular operation of handling of effluent and its disposal.	IPC-VII
3.0	**COMMON HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITY**															
3.1	Integrated facility (Secured landfill and incinerator)	35	30	15	**80**	25	25	15	**65**	30	70	**100**	100.0	Red		WM-II
3.2	Only secured landfill	35	30	15	**80**	0	25	0	**25**	25	70	**95**	97.6	Red		WM-II
3.3	Only incinerator	35	30	15	**80**	25	25	15	**65**	30	70	**100**	100.0	Red		WM-II
4.0	**COMMON BIO-MEDICAL WASTE TREATMENT FACILITY (CBWTF)**															
4.1	CBWTF	20	25	20	**65**	35	20	25	**80**	20	20	**40**	90.5	Red		WM-I
4.2	CBWTF using cleaner/gaseous fuel	20	25	20	**65**	35	20	10	**65**	20	20	**40**	83.4	Red		WM-I

ii. LIST OF BLUE CATEGORY SECTORS- Essential Environmental Services for Domestic/Household Activities:

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**MUNICIPAL SOLID WASTE MANAGEMENT FACILITY**															
1.1	Municipal Solid Waste Management Facility (Sanitary landfill/ Integrated Sanitary landfill with material recycling facility/ refused derived fuel, etc.)	35	30	15	**80**	35	25	0	**60**	0	0	**0**	86.0	Blue		UPC-II
1.2	Waste to energy power plants	0	15	30	**45**	35	25	35	**95**	10	50	**60**	97.6	Blue		UPC-II
1.3	Bio-mining of legacy waste projects	35	30	25	**90**	35	25	0	**60**	0	0	**0**	93.0	Blue		UPC-II
1.4	Municipal Solid Waste Bio-methanation plant (Quantity of MSW ≥ 5 TPD)	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82.0	Blue		UPC-II
1.5	Municipal Solid Waste Composting Facility (Quantity of MSW ≥ 5 TPD)	30	25	15	**70**	0	30	0	**30**	0	0	**0**	74.5	Blue		UPC-II
1.6	Municipal Solid Waste Material Recovery Facility (Quantity of MSW ≥ 5 TPD)	20	25	15	**60**	0	30	0	**30**	0	0	**0**	66.0	Blue		UPC-II
2.0	Construction and Demolition (C&D) Waste Processing Plants	10	0	15	**25**	25	25	0	**50**	0	0	**0**	56.3	Blue	Wastewater of high TDS of inorganic nature is generated.	UPC-I
3.0	**SEWAGE TREATMENT PLANT**															
3.1	Sewage Treatment Plant (5 MLD and above)	20	0	35	**55**	0	20	0	**20**	0	0	**0**	59.5	Blue		WQM-I
3.2	Sewage Treatment Plant (less than 5 MLD)	20	0	25	**45**	0	20	0	**20**	0	0	**0**	50.5	Blue		WQM-I





ANNEXURE-III

(LIST OF SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)





SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS

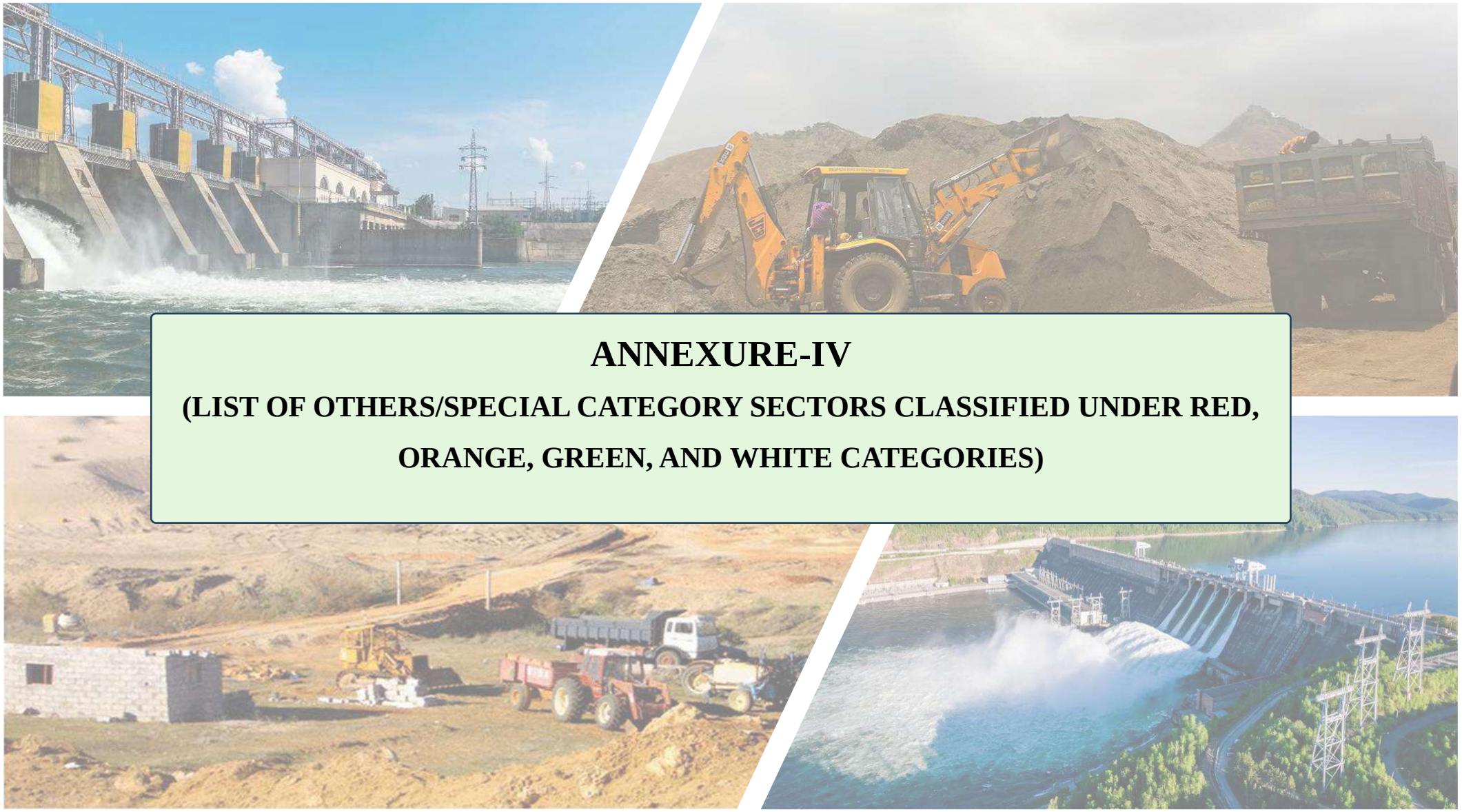
S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**STANDALONE GENERATOR SET** (Genset)															
1.1	Genset(s) of total capacity ≥ 1 MVA, using liquid fuel	0	0	0	**0**	25	0	25	**50**	30	10	**40**	60.0	Orange	i. Standalone genset(s) of total capacity less than 1000 KVA may not require additional classification. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Projects such data centers etc. having pollution potential due to gensets only, may be classified based on the capacity and fuel used.	UPC-I
1.2	Genset(s) of total capacity ≥ 1 MVA, using cleaner/gaseous fuel	0	0	0	**0**	25	0	10	**35**	30	10	**40**	50.5	Green		UPC-I
2.0	Airports	20	0	35	**55**	25	0	25	**50**	30	10	**40**	75.3	Orange	Airports generates mainly domestic sewage as wastewater. Emissions and generation of hazardous waste due to overall operations in airport are considered.	UPC-I
3.0	**HEALTH CARE FACILITIES (HCFS, AS DEFINED UNDER BIO-MEDICAL WASTE MANAGEMENT RULES, 2016)**															
3.1	HCFs with captive incinerator, irrespective of number of beds	20	0	15	**35**	35	20	25	**80**			**50**	88.5	Red	Sector generates bio-medical waste. As per methodology scores assigned to H.	WM-I
3.2	more than 1000 bedded HCFs	20	0	35	**55**	0	0	0	**0**			**100**	100.0	Red		WM-I
3.3	501 to 1,000 bedded HCFs	20	0	30	**50**	0	0	0	**0**			**80**	85.0	Red		WM-I
3.4	201 to 500 bedded HCFs	20	0	30	**50**	0	0	0	**0**			**60**	70.0	Orange		WM-I
3.5	51 to 200 bedded HCFs	20	0	20	**40**	0	0	0	**0**			**50**	60.0	Orange		WM-I
3.6	11 to 50 bedded HCFs	20	0	20	**40**	0	0	0	**0**			**40**	52.0	Green		WM-I
3.7	Up to 10 bedded HCFs	20	0	15	**35**	0	0	0	**0**			**30**	44.8	Green		WM-I
3.8	Non-bedded HCFs	0	0	0	**0**	0	0	0	**0**			**25**	25.0	Green		WM-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
4.0	**HOTELS/BANQUET HALLS HAVING ROOM FACILITY**															
4.1	Hotels (above 3 star) or having 100 & above rooms	20	25	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		UPC-I
4.2	Hotels (above 3 star) or having 100 & above rooms (based on cleaner /gaseous fuel)	20	25	30	**75**	25	0	10	**35**	0	0	**0**	79.4	Orange		UPC-I
4.3	Hotels (up to 3 star) or having more than 20 rooms but less than 100 rooms.	20	25	20	**65**	25	0	25	**50**	0	0	**0**	73.8	Orange		UPC-I
4.4	Up to 20 rooms	10	25	15	**50**	0	0	10	**10**	0	0	**0**	52.5	Green		UPC-I
5.0	**RAILWAY LOCOMOTIVE WORK SHOP/ INTEGRATED ROAD TRANSPORT WORKSHOP/ AUTHORIZED SERVICE CENTERS**															
5.1	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation ≥ 10 KLD)	20	25	25	**70**	30	25	0	**55**	30	10	**40**	84.3	Red		IPC-V
5.2	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation <10 KLD)	20	25	15	**60**	30	25	0	**55**	30	10	**40**	79.0	Orange		IPC-V
6.0	**RAILWAY STATIONS**															
6.1	Railway Stations (Wastewater Generation ≥ 5 MLD)	20	0	35	**55**	25	0	25	**50**	30	10	**40**	75.3	Orange	Wastewater generating from public toilets, public taps, platform, and apron washing, coach cleaning, laundry, restaurants etc. Emissions and generation of hazardous waste due to overall operations are considered.	UPC-I
6.2	Railway Stations (Wastewater Generation ≥ 100 KLD, but < 5 MLD)	20	0	15	**35**	0	0	0	**0**	0	0	**0**	35.0	Green	Wastewater generating from various domestic uses as public toilets, public taps, platforms, and apron washing, restaurants etc.	UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
7.0	**RAILWAY SIDINGS**															
7.1	Railway sidings / Mineral stock yard	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green	Fugitive emissions due to loading, unloading, storage and transportation of the minerals.	UPC-I
7.2	Railway sidings only for defence purpose	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0.0	White		UPC-I
8.0	**PORTS AND HARBOURS**															
8.1	Ports and harbours, jetties and dredging operations	20	30	25	**75**	0	25	0	**25**	30	20	**50**	84.4	Red		WM-I
8.2	Ports and harbours (only containers handling)/ Captive jetties	20	25	20	**65**	0	25	0	**25**	30	10	**40**	76.4	Orange		WM-I
9.0	Automobile service stations/ workshops	20	25	20	**65**	20	0	0	**20**	30	10	**40**	75.5	Orange		IPC-V
10.0	**BUILDING CONSTRUCTION PROJECTS**															
10.1	Building construction project ≥ 20,000 sq. m. built-up area	20	0	25	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange	i. During the construction phase, the sector is mainly air polluting. However, in post construction phase it is mainly water polluting due to generation of sewage. Consent to Establish/Operate to be taken as per EC conditions, as applicable. ii. Building construction project ≥ 5,000 sq. m., but < 20,000 sq. m. built-up area (with connectivity to terminal STP) may not require separate classification. iii. For projects < 5000 the wastewater shall be managed according to on-site sanitation methods as mentioned in the Manual on Sewerage and Sewage Treatment System (2013), published by the	UPC-I
10.2	Building construction project ≥ 5,000 sq. m., but < 20,000 sq. m. built-up area (without connectivity to terminal STP)	20	0	20	**40**	0	0	0	**0**	0	0	**0**	40.0	Green		UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
															Central Public Health and Environmental Engineering Organisation (CPHEEO), and as amended from time to time.	
11.0	Standalone mechanized laundry (using boiler)	20	0	20	**40**	25	0	25	**50**	0	0	**0**	60.0	Orange		IPC-V
12.0	New highway construction project	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75.0	Orange	Such projects involve use of hot mix plants, ready-mix concrete plants, construction activities generating fugitive emissions, etc.	UPC-I
13.0	**DAIRY FARM**															
13.1	Dairy Farm (having more than 500 animals)	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82.0	Red	Dairy farms having less than 15 animals do not require separate classification.	IPC-IV
13.2	Dairy Farm (having 101 to 500 animals)	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-IV
13.3	Dairy Farm (having 15 to 100 animals)	30	25	15	**70**	0	20	0	**20**	0	0	**0**	73.0	Orange		IPC-IV
14.0	Gold Assaying & Hallmarking Centres	0	0	0	**0**	35	0	0	**35**	25	10	**35**	46.4	Green	Lead oxide, nitrous fumes are generated during cupellation and parting acid treatment, respectively contributing to the air emissions.The hazardous waste is generated during fire assay in the form of spent cupels bearing lead, spent acid, scrubbed water etc.	IPC-V
15.0	Facility of handling, storage, and transportation of food grains in bulk	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		IPC-V
16.0	Flyash export or disposal operations	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
17.0	Oil and gas transportation pipeline (excluding pipeline covered under definition of isolated storage of hazardous chemicals, as per Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989)	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35.0	Green		IPC-I
18.0	Gaushalas	20	0	15	**35**	0	20	0	**20**	0	0	**0**	41.5	Green		IPC-IV
19.0	Household bio-digesters/gobar-gas (cow-dung) plants based on biodegradable wastes, etc.	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20.0	White		IPC-V



ANNEXURE-IV

(LIST OF OTHERS/SPECIAL CATEGORY SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)

OTHERS/SPECIAL CATEGORY SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**HYDEL POWER PLANTS INCLUDING PUMPED STORAGE PROJECTS**															
1.1	Hydel power plants (Capacity > 50 MW)													Red	PI may be considered as 90.	IPC-II
1.2	Mini Hydel power plants (Capacity from more than 25 MVA and up to 50 MW)													Orange	PI may be considered as 67.5.	IPC-II
1.3	Mini Hydel power plants (Capacity ≤ 25 MW)													White	PI may be considered as 12.5.	IPC-II
2.0	**SAND / RIVERBED MATERIAL MINING FROM RIVERBED AND ITS FLOODPLAINS** (excluding manual excavation)															
2.1	Mining lease area more than 5 hectares or Mining lease area up to 5 hectares which is part of cluster mining													Red	i. Sand / riverbed material mining from riverbed and its floodplains may cause ecological disturbances, erosion of riverbed, change in hydro-geological conditions & river ecosystem, etc.	IPC-II
2.2	Standalone mining lease area up to five hectares in areas (not a part of any cluster mining)													Orange	ii. Cluster mining means that the distance of mining lease area is less than 500 m from periphery of another lease area. iii. This categorization is made considering the ecological damages and not based on pollution potential/index. iv. Cluster mining as defined in 'Enforcement & Monitoring Guidelines for Sand Mining, 2020', issued by MoEF&CC. v. PI may be considered as 90 and 67.5 for red and orange category, respectively.	IPC-II

ANNEXURE-V

FORMAT FOR SUBMISSION OF INFORMATION BY SPCBS/PCCS REGARDING SECTORS CLASSIFIED UNDER WHITE CATEGORY

S. No.	Sector	Water Pollutant Score (PI_W)				Air Pollutant Score (PI_A)				Waste Pollutant Score (PI_H)			Pollution Index (PI)	Remarks (including brief description of process and pollution potential)
		W1	W2	W3	W	A1	A2	A3	A	H1	H2	H		



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CPCB

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar, Delhi - 110032

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

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अधिसूचना

नई दिल्ली, 8 अप्रैल, 2016

का.आ. 1357(अ).—ठोस अपशिष्ट प्रबंधन नियम, 2015 का प्ररुप भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. सा.का.नि.451 (अ) तारीख 3 जून, 2015 को भारत के राजपत्र भाग II, खंड-3, उप खंड (i) में उसी तारीख को प्रकाशित किए गए थे, जिसमें उनसे प्रभावित होने वाले संभावित व्यक्तियों से नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन) नियम 2000 को अधिक्रांत करते हुए उक्त अधिसूचना के द्वारा ठोस अपशिष्ट प्रबंधन नियम, 2015 के प्रकाशन की तारीख से साठ दिनों की अवधि की समाप्ति से पूर्व आक्षेप और सुझाव आमंत्रित किए थे।

उक्त राजपत्र की प्रतियां जनता को तारीख 3 जून, 2015 को उपलब्ध कराई गईं थीं;

निर्धारित अवधि के भीतर उक्त प्रारूप नियमों पर प्राप्त आपत्तियों तथा टिप्पणियों पर केन्द्र सरकार द्वारा सम्यक रूप से विचार किया गया था;

पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3, 6 और 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए और नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन) नियम, 2000, उन बातों के सिवाय अधिक्रांत करते हुए जिन्हें ऐसे अधिक्रमणों से पहले किया गया है या किए जाने का लोप किया गया है, केन्द्रीय सरकार ठोस अपशिष्टों का प्रबंधन करने के लिए निम्नलिखित नियम बनाती है अर्थात् :

1. संक्षिप्त नाम और प्रारंभ.–

(1) इन नियमों का संक्षिप्त नाम ठोस अपशिष्ट प्रबंधन नियम, 2016 है।

(2) ये राजपत्र में इनके प्रकाशन की तारीख से प्रवृत्त होंगे ।

2. लागू होना- ये नियम प्रत्येक शहरी स्थानीय निकाय, शहरी क्षेत्रों के विस्तार, भारत के महारजिस्ट्रार और जनगणना आयुक्त द्वारा यथा घोषित जनगणना नगरों, अधिसूचित क्षेत्रों, अधिसूचित औद्योगिक नगरी, भारतीय रेल के अधीन क्षेत्रों, विमानपत्तनों, वायुयान बेस, बंदरगाह और हारबर, रक्षा स्थापनाओं, विशेष आर्थिक जोन, राज्य और केन्द्रीय सरकारों के संगठनों, समय-समय पर क्रमश: राज्य सरकार द्वारा यथा अधिसूचित तीर्थ, धार्मिक तथा ऐतिहासिक महत्व के स्थानों और जिसमें औद्योगिक अपशिष्ट, परिसंकटमय अपशिष्ट, परिसंकटमय रसायन, जैव चिकित्सा अपशिट, ई-अपशिष्ट, सीस-अम्ल बैटरियां और रेडियो सक्रिय अपशिष्ट पर्यावरण (संरक्षण) अधिनियम, 1986 के अधीन अलग से बनाए गए नियमों के अधीन आते हैं, के सिवाय प्रत्येक घरेलू, सांस्थानिक, वाणिज्यिक और किसी भी अन्य गैर-आवासीय ठोस अपशिष्ट जनित्रों पर लागू होंगे:-

3. परिभाषाएं- (1) इन नियमों में, जब तक कि संदर्भ से अन्यथा अपेक्षित न हो,- (1) **"वातजीवी कम्पोस्टीकरण"** से ऑक्सीजन की विद्यमानता में जैविक पदार्थ का सूक्ष्म जैवकीय विघटन अंतर्वलित कोई नियंत्रित प्रक्रिया अभिप्रेत है;

2. **''अवायुजीवी उपचारण''** से ऑक्सीजन के अभाव में जैविक पदार्थ का सूक्ष्म जैवकीय विघटन अंतर्वलित कोई नियंत्रित प्रक्रिया अभिप्रेत है;

3. **"प्राधिकार"** से यथास्थिति, राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा किसी प्रसुविधा के प्रचालक या शहरी स्थानीय प्राधिकरण या ठोस अपशिष्ट के प्रसंस्करण और निपटान के उत्तरदायी किसी अन्य अभिकरण को दी गई अनुज्ञा अभिप्रेत है;

4. **''जैविक रूप से अपघटित अपशिष्ट''** से कोई ऐसी कार्बनिक सामग्री अभिप्रेत है जिसे सूक्ष्म जीव द्वारा सरलतर टिकाऊ सम्मिश्रण में निम्नीकृत किया जा सकता है;

5. **''जैविक मिथेनीकरण''** से ऐसी प्रक्रिया अभिप्रेत है जिसमें मिथेन से भरपूर जैव गैस का उत्पादन करने के लिए सूक्ष्मजीवी क्रिया द्वारा कार्बनिक पदार्थ का इंजाइमी अपघटन को अपरिहार्य बनाता है;

6. **"ब्रांडस्वामी"** से कोई व्यक्ति या कंपनी अभिप्रेत है जो किसी रजिस्ट्रीकृत ब्रांड लेवल के अधीन कोई वाणिज्यिक विक्रय करता है;

7. **''मध्यवर्ती परिक्षेत्र''** से ऐसा विकास रहित परिक्षेत्र अभिप्रेत है जिसमें 5 टीपीडी से अधिक की संस्थापित क्षमता वाली ठोस अपशिष्ट प्रसंस्करण तथा निपटान सुविधा के चारों ओर अनुरक्षित किया जाएगा। इसे ठोस अपशिष्ट के प्रसंस्करण तथा निपटान संबंधी सुविधा के लिए आवंटित कुल क्षेत्र के भीतर अनुरक्षित किया जाएगा;

8. **'भारी मात्रा में अपशिष्ट उत्पादक"** से अभिप्रेत है और इसके अंतर्गत औसतन 100 कि.ग्रा. प्रतिदिन की दर से अधिक अपशिष्ट उत्पादित करते हैं तथा इनसे केन्द्रीय सरकार के विभागों अथवा उपक्रमों, राज्य सरकार के विभागों या उपक्रमों, स्थानीय निकायों, सार्वजनिक या प्राइवेट सेक्टर की कंपनियों, अस्पतालों, नर्सिंग होम, स्कूलों, कॉलेजों, विश्वविद्यालयों, अन्य शैक्षिक संस्थाओं, छात्रावासों, होटलों, वाणिज्यिक स्थापनाओं, बाजारों, पूजा स्थलों, स्टेडियमों और खेल परिसरों द्वारा अधिकृत भवन भी है;

9. **"उप-विधि"** से स्थानीय निकाय, जनगणना शहर और अधिसूचित क्षेत्र टाउनशिप द्वारा, अपने अधिकारिता वाले क्षेत्र में इन नियमों को प्रभावी ढ़ंग से कार्यान्वित करने को सुविधाजनक बनाने के लिए, अधिसूचित नियामक ढांचा अभिप्रेत है;

10. **"जनगणना नगर"** से भारत के महारजिस्ट्रार और जनगणना आयुक्त द्वारा यथा परिभाषित शहरी क्षेत्र अभिप्रेत है;

11. **"ज्वलनशील अपशिष्ट"** से प्लास्टिक, काष्ठ लुगदी आदि जैसी क्लोरोनीकृत सामग्री को छोड़कर गैर-जैवअवक्रमणीय, गैर-पुनर्चक्रणीय, गैर-पुन:उपभोज्य, गैर-परिसंकटमय ठोस अपशिष्ट अभिप्रेत है जिनका 1500 किलो कैलोरी प्रति कि.ग्रा. से न्यूनतम कैलोरिफिक मान हो;

12. **''कम्पोस्टीकरण''** से जैविक पदार्थ का सूक्ष्मजीवी अपघटन अंतर्वलित की एक ऐसी नियंत्रित प्रक्रिया अभिप्रेत है;

13. **''ठेकेदार''** से ऐसा व्यक्ति या फर्म अभिप्रेत है जो कोई सेवा करने के लिए या सेवा प्रदाता प्राधिकारी के लिए कार्य करने के लिए सामग्री या श्रम प्रदान करने की संविदा करता है या करती है;

14. **''सह प्रसंस्करण''** से प्राकृतिक खनिज संसाधनों और औद्योगिक प्रक्रियाओं में जीवाश्म ईंधनों को प्रतिस्थापित करने या उन्हें अनुपूरित, दोनों को करने के लिए कच्ची सामग्री के रूप में या ऊर्जा के स्रोत के रूप में 1500 किलो कैलोरी से अधिक कैलोरिफिक मूल्य वाले गैर-जैव अवक्रमणीय और गैर-पुनर्चक्रणीय ठोस अपशिष्ट का उपयोग अभिप्रेत है;

15. **"विकेंद्रित प्रसंस्करण"** से जैव अवक्रमणीय अपशिष्ट के प्रसंस्करण को अधिकतम करने के लिए बिखरी हुई सुविधाओं की स्थापना और उत्पादन के स्रोत से निकटतम पुनर्चक्रण योग्य सामग्रियों की प्रतिप्राप्ति करना अभिप्रेत है ताकि प्रसंस्करण या निपटान के लिए अपशिष्ट का न्यूनतम परिवहन करना पड़े;

16. **''निपटान''** से भूजल, सतही जल, परिवेशी वायु के संदूषण तथा पशुओं या पक्षियों के आकर्षण को रोकने के लिए अनुसूची 1 में यथा विनिर्दिष्ट भूमि पर प्रसंस्करण के उपरांत अवशिष्ट ठोस अपशिष्ट और निष्क्रिय गली का कूड़ा, करकट और सतही नाले की गाद का अंतिम तथा सुरक्षित निपटान अभिप्रेत है;

17. **''घरेलू परिसंकटमय अपशिष्ट''** से घरेलू स्तर पर उत्पन्न संक्रामक अपशिष्टों जैसे फेंके हुए पेंट के ड्रम, कीटनाशी के डिब्बे, सीएफएल बल्ब, ट्यूब लाइटें, अवधि समाप्त औषधियां, टूटे हुई पारा वाले थर्मामीटर, प्रयुक्त बैटरियां, प्रयुक्त सूइयां, तथा सिरिंज और संदूषित पट्टियां आदि अभिप्रेत हैं;

18. **"द्वार-द्वार संग्रहण"** से घरों, दुकानों, वाणिज्यिक प्रतिष्ठानों, कार्यालयों, संस्थागत या किसी अन्य गैर आवासीय परिसरों से द्वार तक जाकर ठोस अपशिष्ट का संग्रहण करना और जिसके अंतर्गत किसी आवासीय सोसायटी, बहुमंजिले भवन या अपार्टमेंट, बड़े आवासीय, वाणिज्यिक या संस्थागत कॉम्प्लैक्स या परिसरों में भूतल पर प्रवेश द्वार या किसी अभिहित स्थल से ठोस अपशिष्ट का संग्रहण करना भी अभिप्रेत है;

19. **''शुष्क अपशिष्ट''** से जैव-निम्नीकरण अपशिष्ट और निष्क्रिय गली का कूड़ा-करकट से भिन्न अपशिष्ट अभिप्रेत है और जिसके अंतर्गत पुनर्चक्रणीय अपशिष्ट, गैर पुनर्चक्रणीय अपशिष्ट, दाह्य अपशिष्ट और स्वास्थ्यकर नैपकिन और डायपर आदि अपशिष्ट भी है;

20. **''क्षेपण स्थल''** से जिसका स्वास्थ्यकर भूमिभरण के लिए सिद्धांतों को पालन किए बिना ठोस अपशिष्ट के निपटान के लिए शहरी स्थानीय निकाय द्वारा उपयोग की गई कोई भूमि अभिप्रेत है;

21. **"विस्तारित उत्पादक दायित्व"** से पैकेजिंग उत्पादों के जीवन काल के अंत तक पर्यावरण की दृष्टि से अनुकूल प्रबंधन के लिए, पैकेजिंग उत्पादों जैसे प्लास्टिक, टिन, कांच और कॉरूगेटेड बक्सों इत्यादि के किसी उत्पादक के उत्तरदायित्व अभिप्रेत है;

22. **''सुविधा''** से ऐसा कोई स्थापन अभिप्रेत है जिसमें ठोस अपशिष्ट प्रबंध प्रक्रियाएं अर्थात् पृथक्करण पुन:प्राप्ति, भंडारण, संग्रहण, पुनर्चक्रण, प्रसंस्करण, उपचार या सुरक्षित निपटान किया जाता है;

23. **"जुर्माना"** से इन नियमों तथा/अथवा उप-विधियों के निदेशों के अनुपालन के लिए उपविधियों के अधीन अपशिष्ट जनित्रों या अपशिष्ट प्रसंस्करण के प्रचालकों और निपटान सुविधाओं पर लगाए गए जुर्माना अभिप्रेत है;

24. **''प्ररूप''** से इन नियमों से उपाबद्ध प्ररूप अभिप्रेत है;

25. **''प्रहस्तन''** के अंतर्गत ठोस अपशिष्टों की छंटाई, पृथक्करण, सामग्री की पुन:प्राप्ति, संग्रहण, गौण भंडारण, काटना, गट्ठा बनाना, दलन, लदाई, उतराई, परिवहन, प्रसंस्करण तथा निपटान से संबंधित सभी क्रियाकलाप भी हैं;

26. **''निष्क्रिय''** से ऐसा अपशिष्ट अभिप्रेत है जो जैव अपघटनीय, पुन:चक्रणीय या दाह्य नहीं है, गली की सफाई तथा सतही नालियों से निकाली गई धूल तथा गाद भी हैं;

27. **"भस्मीकरण"** से उच्च तापमान पर अपशिष्ट सामग्रियों को तापीय रूप से निम्नीकृत करने के लिए ठोस अपशिष्ट का जलाना या दहन अंतर्वलित इंजीनियरीकृत प्रक्रिया अभिप्रेत है;

28. **"अनौपचारिक अपशिष्ट संग्राहक"** के अंतर्गत व्यष्टि, संगम ऐसे या अपशिष्ट व्यापारी सम्मिलित है जो पुनर्चक्रणीय सामग्रियों की छंटाई, विक्रय और खरीद से अंतर्वलित है;

29. **"निक्षालितक"** से ऐसा द्रव अभिप्रेत है जो ठोस अपशिष्ट के माध्यम से या अन्य माध्यम से रिसता है जिसमें उसमें घुली हुई या निलंबित सामग्री का सत्व है;

30. **"स्थानीय निकाय"** से अभिप्रेत इन नियमों के प्रयोजन के लिए और जिसके अंतर्गत म्युनिसपल कॉरपोरेशन, नगर निगम, म्युनिसपल कौंसिल, नगरपालिका, नगरपालिका परिषद, म्युनिसपल बोर्ड, नगर पंचायत, और टाउन पंचायत, जनगणना नगर, अधिसूचित क्षेत्र और भारत के विभिन्न राज्यों और संघ राज्य क्षेत्रों में औद्योगिक नगरी चाहे उसका कोई भी नाम से पुकारा जाए, भी है;

31. **"सामग्री पुनर्प्राप्ति सुविधा (एमआरएफ)"** से ऐसी सुविधा अभिप्रेत है जहां गैर कंपोस्टीय ठोस अपशिष्ट को स्थानीय निकाय या नियम 2 में वर्णित कोई अन्य अस्तित्व या इसमें से किसी के द्वारा प्राधिकृत कोई व्यक्ति या अभिकरण जो अपशिष्ट को प्रसंस्करण या निपटान के लिए उसे परिदान या देने के पूर्व इस प्रयोजन के लिए स्थानीय निकाय या नियम 2 में वर्णित अस्तित्व द्वारा नियोजित अपशिष्ट चुनने वाले, अनौपचारिक पुनर्चक्रणकर्ता या कोई अन्य नियोजित कार्यबल को प्राधिकृत अनौपचारिक सेक्टर द्वारा अपशिष्ट के विभिन्न संघटकों से पृथक्करण, छंटाई या पुनर्चक्रण योग्य की पुनर्प्राप्ति की प्रसुविधा है;

32. **"अजैविक निम्नीकरण योग्य अपशिष्ट"** से कोई ऐसा अपशिष्ट अभिप्रेत है जिसका सूक्ष्म जीव द्वारा सरलतर स्थायी यौगिक में निम्नीकरण नहीं किया जा सकता है;

33. **"सुविधा का प्रचालक"** से ऐसा व्यक्ति या अस्तित्व अभिप्रेत है जो ऐसे ठोस अपशिष्ट के प्रहस्तन के लिए सुविधा का स्वामी है या प्रचालित करता है जिसके अंतर्गत स्थानीय निकाय और स्थानीय निकाय द्वारा नियुक्त कोई अन्य अस्तित्व या अभिकरण भी है;

34. **"प्राथमिक संग्रहण"** से पृथक्कृत ठोस अपशिष्ट को उसके उत्पादन के स्रोत जिसके अंतर्गत घर, दुकानें, कार्यालय और कोई अन्य गैर आवासीय परिसर भी हैं से या किसी संग्रहण बिंदु या शहरी स्थानीय निकाय द्वारा विर्निदिष्ट किसी अन्य अवस्थान से संगृहीत करना, उठाना या हटाना अभिप्रेत है;

35. **"प्रसंस्करण"** से कोई वैज्ञानिक प्रक्रिया जिसके द्वारा ठोस अपशिष्ट को पुन: उपयोग, पुन: चक्रित या नए उत्पादों में परिवर्तित करने के प्रयोजन के लिए हथालित करना अभिप्रेत है;

36. **"पुनर्चक्रण"** से पृथक्कृत ठोस अपशिष्ट को अजैव निम्नीकृत नए पदार्थ या उत्पाद या नए उत्पादों का उत्पादन करने के लिए कच्ची सामग्री के रूप में परिवर्तित करने की प्रक्रिया अभिप्रेत है, जिसमें मूल उत्पादों को समरूप किया जा सकेगा या नहीं किया जा सकेगा;

37. **"पुनर्विकास"** से जहां विद्यमान भवन और अन्य अवसंरचनाएं जीर्णशीर्ण हो गई हैं वहां उसी स्थल पर पुरानी आवासीय या वाणिज्यिक भवनों का पुनर्निर्माण अभिप्रेत है;

38. **"कचरा व्युत्पन्न ईंधन (आरडीएफ)"** से ठोस अपशिष्ट, जैसे प्लास्टिक, काष्ठ, लुगदी या कार्बनिक अपशिष्ट, क्लोरीनीकृत पदार्थों से भिन्न ठोस अपशिष्ट को सुखाकर कतरन, निर्जलीकरण और संहनन द्वारा गुटिका या रोएं के कप में उत्पादित बाह्य अपशिष्ट प्रभाजी से व्युत्पन ईंधन अभिप्रेत है;

39. **"अवशिष्ट ठोस अपशिष्ट"** से और उसके अंतर्गत ऐसी ठोस अपशिष्ट प्रसंस्करण सुविधाओं, जो पुनर्चक्रण या अतिरिक्त प्रसंस्करण के लिए उपयुक्त नहीं है, से प्राप्त अपशिष्ट और अस्वीकृत भी अभिप्रेत है;

40. **"स्वास्थ्यकर भूमिभरण"** से अवशिष्ट ठोस अपशिष्ट के अंतिम और सुरक्षित निपटान और भूजल, सतही जल या क्षणभंगुर वायु धूल, हवा से उड़ा हुआ कूड़ाकरकट, दुर्गंध, अग्नि परिसंकट, पशुओं का खतरा, पक्षियों का खतरा, नाशकजीव, कृंतकनाशी, ग्रीनहाउस गैस उत्सर्जन, सतत जैव प्रदूषणकारी तत्व प्रावण्य अस्थिरता तथा अपरदन के प्रदूषण के प्रति संरक्षात्मक उपायों सहित प्रकल्पित सुविधा में भूमि पर निष्क्रिय अपशिष्ट अभिप्रेत है;

41. **"स्वास्थ्यकर अपशिष्ट"** से प्रयोग किए गए डायपर, स्वास्थ्यकार तौलिए या नैपकिन, टैम्पोन, कन्डोम, इनकंटीनेंस शीट और कोई अन्य समरूप अपशिष्ट से मिलकर बना अपशिष्ट अभिप्रेत है;

42. **"अनुसूची"** से इन नियमों से उपाबद्ध अनुसूची अभिप्रेत है;

43. **"गौण भंडारण"** से प्रसंस्करण या निपटान सुविधा को अपशिष्ट के आगे परिवहन के लिए गौण भंडारण डिपो या एमआरएफ या आधानों पर संग्रहण के पश्चात ठोस अपशिष्ट का अस्थायी संदूषक अभिप्रेत है;

44. **"पृथककरण"** से ठोस अपशिष्ट के विभिन्न संघटकों अर्थात जैविक निम्नीकरण अपशिष्ट जिसके अंतर्गत कृषि और दुग्धपालन अपशिष्ट अजैविक निम्नीकरण अपशिष्ट जिसके अंतर्गत पुन:चक्रणयोग्य अपशिष्ट, गैर पुन:चक्रणयोग्य दाह्य योग्य अपशिष्ट, स्वास्थ्यकर अपशिष्ट और गैर चक्रण योग्य कूड़ाकरकट अपशिष्ट, घरेलू परिसंकटमय अपशिष्ट तथा संनिर्माण और विध्वंस अपशिष्ट भी है, की छंटाई और पृथक भंडारण अभिप्रेत है;

45. **"सेवा प्रदाता"** से जल, मलवहन, विद्युत, टेलीफोन, सड़क, जल निकास आदि अभिप्रेत हैं;

46. **"ठोस अपशिष्ट"** से ठोस या अर्द्धठोस घरेलू अपशिष्ट अभिप्रेत है और इसके अंतर्गत स्थानीय प्राधिकरण और नियम 2 में वर्णित अन्य अस्तित्व के अधीन क्षेत्र में उत्पन्न स्वास्थ्यकर अपशिष्ट, वाणिज्यिक अपशिष्ट, सांस्थानिक अपशिष्ट, खानपान और बाजार अपशिष्ट तथा अन्य गैर–आवासीय अपशिष्ट, गली की सफाई, सतह नालियों से हटाई गई या एकत्रित गाद, उद्यान कृषि अपशिष्ट, कृषि और डेयरी अपशिष्ट, औद्योगिक अपशिष्ट को छोड़कर उपचारित जैव चिकित्सक अपशिष्ट और ई-अपशिष्ट, बैटरी अपशिष्ट, रेडियो सक्रिय अपशिष्ट भी अभिप्रेत है;

47. **"छंटाई करना"** से मिश्रित अपशिष्ट से पुन:चक्रणयोग्य विभिन्न संघटकों और प्रवर्गों जैसे कागज, प्लास्टिक, गत्ता, धातु, कांच आदि को समुचित पुन:चक्रण सुविधा में पृथक करना अभिप्रेत है;

48. **"स्थिरीकरण"** से जैव निम्नीकरण अपशिष्ट को जैवीय अपघटन को स्थायी अवस्था में परिवर्तित करना अभिप्रेत है जहां वह निक्षालन या अरूचिकर सुगंध उत्पन्न नहीं करता है और कृषि भूमि, भू-कटाव नियंत्रण तथा भूमि उपचार के लिए उपयुक्त है;

49. **"मार्गविक्रेता"** से किसी गली, लेन, पार्श्व पथ, पैदल पथ, खडंजा, सार्वजनिक उद्यान या किसी अन्य सावर्जनिक स्थान या प्राइवेट क्षेत्र, अस्थायी रूप से निर्मित संरचना या स्थान से स्थान घूमकर साधारण जनता को दैनिक उपयोग के वस्तु, माल, सौदा, खाद्य मद या वाणिज्यिक वस्तु के विक्रय करने या उन्हें एक स्थान से दूसरे स्थान तक स्थानांतरित करने में लगे व्यक्ति अभिप्रेत हैं जिसके अंतर्गत फेरीवाला, पैकार, आबादकर तथा ऐसी सभी अन्य समानार्थी पद जो स्थानीय या विनिर्दिष्ट क्षेत्र में हो सकते हैं, भी है और "मार्ग विक्रय" शब्दों को उनके व्याकरणिक रूप भेदों और सजातीय पदों का अर्थ तदनुकूल किया जाएगा;

50. **"बख्शीश फीस"** से स्थानीय प्राधिकरण या राज्य सरकार द्वारा प्राधिकृत कोई राज्य अभिकरण द्वारा कोई फीस या समर्थन मूल्य अभिप्रेत है जो ठोस अपशिष्ट प्रसंस्करण सुविधा के ग्राही या प्रचालक या भूमिभरण पर ठोस अपशिष्ट के निपटान के लिए अवधारित संदात्त है;

51. **"अंतरण स्थल"** से संग्रह क्षेत्रों से ठोस अपशिष्ट प्राप्त करने को सृजित सुविधा और अपशिष्ट प्रसंस्करण और, या निपटान सुविधा को आच्छादित यानों या आधानों में बड़ी मात्रा में परिवहन अभिप्रेत है;

52. **"परिवहन"** से ठोस अपशिष्ट चाहे वह या तो उपचारित आंशिक उपचारित या अनुपचारित को एक स्थान से दूसरे स्थान पर किसी पर्यावरणीय रूप से युक्ति युक्त रीति में विशिष्ट रूप से अभिहित और आच्छादित परिवहन प्रणाली जैसे दुर्गध, कूड़ा कचरा और घृणित दशा को रोकने के लिए प्रवहन अभिप्रेत है;

53. **"उपचार"** से किसी अपशिष्ट के भौतिक, रसायनिक या जैविक लक्षणों या संघटन में रूपांतरण की अभिहित पद्धति, तकनीक या प्रक्रिया अभिप्रेत है जिससे उसके आयतन और क्षितिकारक क्षमता को कम करता है;

54. **"उपयोक्ता फीस"** से ठोस अपशिष्ट संग्रहण, परिवहन प्रसंस्करण और निपटान सेवाओं को उपलब्ध कराने की कुल या आंशिक लागत को प्राप्त करने में अपशिष्ट जनित पर स्थानीय निकाय और नियम 2 में वर्णित किसी अस्तित्व द्वारा अधिरोपित फीस अभिप्रेत है;

55. **"कृमि कम्पोस्ट बनाना"** से केचुओं का प्रयोग करते हुए कम्पोस्ट में सपंरिवर्तित करने की जैव निम्नीकरण प्रक्रिया अभिप्रेत है;

56. **"अपशिष्ट जनित्र"** से और इसके अंतर्गत सम्मिलित से, रेल तथा रक्षा स्थापनाओं सहित प्रत्येक व्यक्ति या व्यक्तियों का समूह या प्रत्येक आवासीय परिसर तथा गैर आवासीय स्थापनाएं भी है, जो ठोस अपशिष्ट उत्पन्न करते हैं, अभिप्रेत है;

57. **''अपशिष्ट की क्रमबद्धता''** से ऐसा प्राथमिकता क्रम अभिप्रेत है जिसके अनुसार ठोस अपशिष्ट का प्रबंधन निवारण, कटौती, पुन:उपयोग, पुनर्चक्रण, पुन: प्राप्ति और निपटान पर बल देकर किया जाना चाहिए जिसमें निवारण को सर्वाधिक प्राथमिकता और भू-भरण में निपटान को न्यूनतम वरीयता का विकल्प होगा;

58. **"अपशिष्ट चुनने वाला"** से ऐसा व्यक्ति या व्यक्तियों का समूह अभिप्रेत है जो अपशिष्ट उत्पादन के स्रोत से पुनः उपयोजनीय तथा पुनर्चक्रण योग्य ठोस अपशिष्ट के संग्रहण और साथ ही पुनर्चक्रकों को उनकी आजीविका अर्जित करने के लिए सीधे या उनके मध्यवर्तियों के माध्यम से विक्रय के लिए गलियों, डिब्बों, प्रसंस्करण तथा अपशिष्ट निपटान सुविधाओं से अपशिष्ट को उठाने में औपचारिक रूप से लगे हुए है;

(2) इसमें प्रयुक्त जिन शब्दों और पदों का अर्थ परिभाषित नहीं किया गया है, परंतु जो पर्यावरण (सरंक्षण) अधिनयम 1986, जल (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1974 जल (प्रदूषण निवारण और नियंत्रण) उपकर अधिनियम 1977 तथा वायु (प्रदूषण निवारण और नियंत्रण) अधिनयम, 1981 में परिभाषित है, के अर्थ होंगे जो संबंधित अधिनियमों में हैं।

4. अपशिष्ट उत्पन्नकर्ताओं के कर्तव्य. प्रत्येक अपशिष्ट उत्पन्नकर्ता,-

(क) उनके द्वारा उत्पन्न किए गए अपशिष्ट को पृथक्कृत और तीन पृथक शाखाओं अर्थात जैव निम्नीकरणयोग्य, गैर निम्नजीकरणयोग्य और घरेलू परिसंकटमय अपशिष्ट के तीन अलग-अलग डिब्बों में भंडारित करेगा और समय-समय पर स्थानीय प्राधिकरणों द्वारा निदेश या अधिसूचना के अनुसार पृथक किए गए अपशिष्टों को प्राधिकृत अपशिष्ट चुनने वालों या अपशिष्ट संग्रहकर्ताओं को सौंपेगा;

(ख) प्रयोग किए गए स्वास्थ्यकर अपशिष्ट जैसे डायपरों और स्वास्थ्यकर पैडों आदि इन उत्पादों के निर्माताओं या ब्रांड स्वामियों द्वारा उपलब्ध कराई गई थैली में या स्थानीय प्राधिकारियों द्वारा यथा निर्देशित उपयुक्त लपेटन सामग्री में शुष्क अपशिष्ट या अजैविक निम्नीकरण अपशिष्ट के लिए बनाए गए डिब्बे में उसे डालेगा;

(ग) संनिर्माण और विध्वंस अपशिष्ट को पृथक रूप से अपने ही परिसर में भंडारित करेगा, जब कभी वह उत्पन्न होता हो, और उसे संनिर्माण और विध्वंस अपशिष्ट नियम, 2016 के अनुसार निपटान करेगा; और

(घ) अपने परिसर से उत्पन्न कृषि उद्यान अपशिष्ट और उद्यान अपशिष्ट को अपने ही परिसर में पृथक रूप से भंडारित करेगा और समय समय पर स्थानीय निकाय द्वारा निदेशानुसार इसका निपटान करेगा;

(2) कोई अपशिष्ट जनित्र उसके द्वारा उत्पन्न अपशिष्ट को गली, खुले सार्वजनिक स्थानों, नाली या जलाशयों में न फेंकेगा, न जलाएगा और न गाड़ेगा;

(3) सभी अपशिष्ट उत्पन्नकर्ता ऐसी उपयोक्ता फीस का संदाय करेंगे जो ठोस अपशिष्ट प्रबंधन के लिए स्थानीय निकायों की उपविधियों में विनिर्दिष्ट किया जाए;

(4) कोई व्यक्ति अग्रिम रूप से कम से कम तीन कार्य दिवस पूर्व स्थानीय निकाय को सूचित किए बिना किसी गैर अनुज्ञप्ति वाले स्थान पर एक सौ व्यक्तियों से अधिक का ऐसा कोई आयोजन या समारोह आयोजित नहीं करेगा । ऐसा व्यक्ति या ऐसे आयोजन का आयोजक स्रोत पर अपशिष्ट के पृथककरण की व्यवस्था करेगा और पृथक्कृत अपशिष्ट को स्थानीय निकाय द्वारा अभिहित अपशिष्ट चुनने वाले को या अपशिष्ट संग्रहण अभिकरण को सौंपेगा;

(5) प्रत्येक मार्ग विक्रेता अपने कार्यकलाप के दौरान उत्पन्न अपशिष्ट जैसेकि खाद्य अपशिष्ट प्रयोज्य (डिस्पोजेबल) प्लेटों, कपों, डिब्बों, रैपरों, नारियल के छिलको, शेष बचे भोजन, सब्जियों, फलों आदि के लिए उपयुक्त पात्र रखेगा और ऐसे अपशिष्ट को स्थानीय प्राधिकरण द्वारा यथा अधिसूचित अपशिष्ट भंडारण डिपो या पात्र या वाहन में डालेगा;

(6) इन नियमों के अधिसूचित होने की तारीख से एक वर्ष से अंदर सभी आवास कल्याण और बाजार संघ स्थानीय प्राधिकरण की भागीदारी में इन नियमों में यथा विहित जनित्रों द्वारा अपशिष्ट को स्रोत पर पृथक करने, पृथक किए गए अपशिष्ट को अलग-अलग पात्रों में संग्रहण करने में सहायता और पुनर्चक्रणीय सामग्री को प्राधिकृत अपशिष्ट उठाने वालों अथवा प्राधिकृत पुनर्चक्रकों को सौंपना सुनिश्चित करेंगे। जैव-अवक्रमणीय अपशिष्ट का जहां तक संभव होगा परिसर के अंदर संसाधित, उपचारित और कंपोस्ट करके अथवा बायोमिथानेशन के जरिए निपटान किया जाएगा। शेष अपशिष्ट स्थानीय प्राधिकरण द्वारा यथा निर्देशित अपशिष्ट संग्रहकर्ताओं या अभिकरण को दिया जाएगा;

(7) इन नियमों के अधिसूचित होने की तारीख से एक वर्ष के अंदर 5,000 वर्ग मीटर से अधिक क्षेत्रफल वाले सभी गेट लगे समुदाय और संस्थान स्थानीय प्राधिकरण की भागीदारी में इन नियमों में यथा विहित जनित्रों द्वारा अपशिष्ट को स्रोत पर ही पृथक करना, पृथक किए गए अपशिष्ट को अलग-अलग पात्रों में संग्रहण करने में सहायता करना तथा पुनर्चक्रकों को सौंपना सुनिश्चित करेंगे। जैव अवक्रमणीय अपशिष्ट का जहां तक संभव होगा परिसर के अंदर संसाधित, उपचारित और कंपोस्ट करके अथवा बायोमिथानेशन के जरिए निपटान किया जाएगा। शेष अपशिष्ट स्थानीय प्राधिकरण द्वारा यथा निर्देशित अपशिष्ट संग्रहकर्ताओं या अभिकरण को सौंप दिया जाएगा;

(8) इन नियमों के अधिसूचित होने की तारीख से एक वर्ष के अंदर सभी होटल और रेस्टोरेंट स्थानीय प्राधिकरण की भागीदारी में इन नियमों में यथा विहित जनित्रों द्वारा अपशिष्ट को स्रोत पर पृथक करना, पृथक किए गए अपशिष्ट को अलग-अलग पात्रों में संग्रह करने में सहायता करना तथा पुनर्चक्रणीय सामग्री को प्राधिकृत अपशिष्ट उठाने वालों अथवा प्राधिकृत

पुनर्चक्रकों को सौंपना सुनिश्चित करेंगे। जैव-अवक्रमणीय अपशिष्ट का जहां तक संभव होगा परिसर के अंदर संसाधित उपचारित और कंपोस्ट करके अथवा बायोमिथानेशन के जरिए निपटान किया जाएगा। शेष अपशिष्ट स्थानीय प्राधिकरणद्वारा यथा निर्देशित अपशिष्ट संग्रहकर्ताओं या अभिकरण को दिया जाएगा।

5. पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय के कर्तव्य.- (1) पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय देश में इन नियमों के अनुपालन की मॉनीटरी के लिए उत्तरदायी होगा। यह सचिव, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अध्यक्षता के अधीन केन्द्रीय मॉनीटरी समिति का गठन करेगा, जिसमें निम्नलिखित अधिकारी शामिल होंगे जो संयुक्त सचिव या सलाहकार की पंक्ति से निम्न के नहीं होंगे अर्थात् :

(1) शहरी विकास मंत्रालय

(2) ग्रामीण विकास मंत्रालय

(3) रसायन एवं उर्वरक मंत्रालय

(4) कृषि मंत्रालय

(5) केंद्रीय प्रदूषण नियंत्रण बोर्ड

(6) तीन राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति, चक्राणुक्रम द्वारा

(7) तीन राज्य सरकारों के शहरी विकास विभाग, चक्राणुक्रम द्वारा

(8) दो राज्य सरकारों के ग्रामीण विकास विभाग, चक्राणुक्रम द्वारा

(9) तीन शहरी स्थानीय निकाय, चक्राणुक्रम द्वारा

(10) दो जनगणना (सेंसस) शहर, चक्राणुक्रम द्वारा

(11) एफआईसीसीआई, सीआईआई

(12) दो विषय विशेषज्ञ

2. इस केन्द्रीय मानीटरी समिति की बैठक इन नियमों के अनुपालन का मॉनीटर करने और पुनर्विलोकन करने के लिए एक वर्ष में कम से कम एक बार होगी। पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय दो विशेषज्ञों को, यदि आवश्यक हो, सहयोजित कर सकेगा। समिति का प्रत्येक तीन वर्ष में नवीकरण किया जाएगा।

6. शहरी विकास मंत्रालय के कर्त्तव्य.- (1) शहरी विकास मंत्रालय राज्य सरकारों तथा संघ राज्य क्षेत्र के प्रशासनों के साथ निम्नलिखित के लिए समन्वय करेगा, -

(क) ठोस अपशिष्ट प्रबंधन व्यवहारों को सुधारने के लिए राज्यों तथा स्थानीय निकायों द्वारा किए गए उपायों तथा मंत्रालय और बाह्य अभिकरणों द्वारा वित्त पोषित ठोस अपशिष्ट प्रबंधन परियोजनाओं के निष्पादन का वर्ष में कम से कम एक बार आवधिक पुनर्विलोकन करेगा तथा सुधारात्मक उपाय करने पर सलाह देगा;

(ख) इन नियमों की अधिसूचना की तारीख से छह मास के भीतर पणधारियों के साथ परामर्श से ठोस अपशिष्ट प्रबंधन पर राष्ट्रीय नीति तथा रणनीति तैयार करना, जिसके अंतर्गत अपशिष्ट से ऊर्जा की नीति भी है;

(ग) राष्ट्रीय ठोस अपशिष्ट प्रबंधन नीति और राष्ट्रीय शहरी स्वच्छता नीति पर आधारित ठोस प्रबंध के संबंध में राज्य नीति और रणनीति को तैयार करने में राज्यों तथा संघ राज्य क्षेत्रों का मार्गदर्शन करना और उन्हें सुकर बनाना;

(घ) ठोस अपशिष्ट प्रबंध सेक्टर में अनुसंधान और विकास को प्रोत्साहन देना तथा राज्यों और स्थानीय निकायों के लिए सूचना का प्रसार करना;

(ड.) स्थानीय निकायों और अन्य पणधारियों को प्रशिक्षण देना और उनका क्षमता निर्माण करना; और

(च) समय सीमाओं और मानकों को सुकर बनाने के लिए ठोस अपशिष्ट प्रबंधन पर राज्यों, संघ राज्य क्षेत्रों और स्थानीय निकायों को तकनीकी मार्गदर्शी सिद्धांत तथा परियोजना वित्त प्रदान करना;

7. उर्वरक विभाग, रसायन और उर्वरक मंत्रालय के कर्त्तव्य.- (1) उर्वरक विभाग समुचित क्रियाविधि के माध्यम से, -

(क) नगर कम्पोस्ट के बाजार विकास में सहायता उपलब्ध कराएगा; और

(ख) कंपनियों को विपणन के लिए इस सीमा तक उपलब्ध कराना कि उर्वरक कंपनियों द्वारा 3 से 4 थैले: 6 से 7 थैले के अनुपात में रासायनिक उर्वरकों के साथ कम्पोस्ट के सह विपणन का संर्वधन सुनिश्चित हो।

8. कृषि मंत्रालय, भारत सरकार के कर्तव्य :- कृषि मंत्रालय समुचित तंत्र के माध्यम से.-

(क) कंपोस्ट के विनिर्माण एवं बिक्री के लिए उर्वरक नियंत्रण आदेश को लचीलापन प्रदान करेगा;

(ख) कृषि भूमि पर कंपोस्ट के उपयोग को बढ़ावा देगा;

(ग) स्थानीय प्राधिकारियों या उनकी प्राधिकृत एजेंसियों द्वारा उत्पादित कंपोस्ट की गुणता जांच के लिए प्रयोगशालाएं स्थापित करेगा;

(घ) कंपोस्ट की गुणता बनाए रखने और कृषि भूमि पर कंपोस्ट का उपयोग करते समय कंपोस्ट की तुलना में रासायनिक उर्वरकों के उपयोग के अनुपात के लिए समुचित मार्गदर्शक सिद्धांत जारी करेगा।

9. विद्युत मंत्रालय के कर्तव्य.- विद्युत मंत्रालय समुचित तंत्र के माध्यम से :- (क) ठोस अपशिष्ट पर आधारित अपशिष्ट से ऊर्जा पैदा करने वाले संयंत्रों से उत्पादित विद्युत के लिए टैरिफ या प्रभार निर्धारित करेगा;

(ख) ऐसे अपशिष्ट से उत्पन्न विद्युत की खरीद को वितरण कंपनियों द्वारा ऊर्जा संयंत्रों के लिए अनिवार्य बनाएगा।

10. नवीन और नवीकरणीय ऊर्जा स्रोत मंत्रालय के कर्तव्य.- नवीन और नवीकरणीय ऊर्जा स्रोत मंत्रालय समुचित तंत्र के माध्यम से :-

(क) अपशिष्ट से ऊर्जा पैदा करने वाले संयंत्रों के लिए अवसंरचना सृजन को सुविधाजनक बनाएगा; और

(ख) ऐसे अपशिष्ट से ऊर्जा पैदा करने वाले संयंत्रों के लिए समुचित सब्सिडी या प्रोत्साहन प्रदान करेगा।

11. राज्यों और संघ राज्य क्षेत्रों में शहरी विकास के प्रभारी सचिव के कर्तव्य.-

(1) राज्य या संघ राज्य क्षेत्र में सचिव, राज्य शहरी विकास विभाग म्युनिसिपल प्रशासन के आयुक्त या निदेशक या स्थानीय निकायों के निदेशक के माध्यम से निम्नलिखित सुनिश्चित करेगा :

(क) इन नियमों से सुसंगत अपशिष्ट प्रबंधन के क्षेत्र में अपशिष्ट चुनने वालों के प्रतिनिधियों, स्वयं सहायता समूह और समान समूहों सहित पणधारियों के परामर्श से राज्य या संघ राज्य क्षेत्र के लिए राज्य नीति और ठोस अपशिष्ट प्रबंधन रणनीति तैयार करना जो इन नियमों की अधिसूचना की तारीख से एक वर्ष की अवधि के भीतर शहरी विकास मंत्रालय को राष्ट्रीय ठोस अपशिष्ट प्रबंधन नीति और राष्ट्रीय शहरी स्वच्छता नीति से समरूप होगी;

(ख) ठोस अपशिष्ट प्रबंधन के संबंध में राज्य नीति और रणनीति तैयार करते समय भूमिभरण में जाने वाले अपशिष्ट का न्यूनीकरण को सुनिश्चित करने तथा राज्य नीति और ठोस अपशिष्ट प्रबंध रणनीति में मानव स्वास्थ्य और पर्यावरण पर ठोस अपशिष्ट के प्रभाव को न्यूनीकृत करने के लिए ठोस अपशिष्ट के विभिन्न संघटकों के अपशिष्ट में कमी, पुन:उपयोग, पुनर्चक्रण, वसूली और अनुकूलतम उपयोग पर बल देगा;

(ग) राज्य नीतियों और रणनीतियों में कूड़ा चुनने वालों एवं अपशिष्ट संग्रहकर्ताओं और पुनर्चक्रण उद्योग के अनौपचारिक सेक्टर द्वारा अपशिष्ट को कम करने में निभाई गई महत्वपूर्ण भूमिका को स्वीकार किया जाना और अपशिष्ट प्रबंधन प्रणाली में अपशिष्ट चुनने वालों या अनौपचारिक अपशिष्ट संग्रहकर्ताओं के एकीकरण के बारे में विस्तृत मार्गदर्शक सिद्धांत उपलब्ध कराना;

(घ) सभी स्थानीय प्राधिकरणों द्वारा इन नियमों के उपबंधों के क्रियान्वयन को सुनिश्चित करना;

(ड.) राज्य के शहरी योजना विभाग को यह सुनिश्चित करने के लिए निदेश देना कि उन शहरों को छोड़कर जो साझा अपशिष्ट प्रसंस्करण सुविधा या शहरों के एक समूह के लिए क्षेत्रीय स्वच्छता भूमिभरण के सदस्य है, राज्य या संघ राज्य क्षेत्र में प्रत्येक शहर की मास्टर प्लान में ठोस अपशिष्ट प्रसंस्करण और निपटान सुविधाएं स्थापित करने के लिए प्रावधान है;

(च) ठोस अपशिष्ट के लिए प्रसंस्करण और निपटान सुविधाएं स्थापित करने के लिए एक वर्ष के अंदर स्थानीय निकायों के वास्ते उपयुक्त भूमि की पहचान और आवंटन सुनिश्चित करना और उन्हें महानगर एवं जिला योजना समितियों या नगर एवं ग्राम योजना विभाग के माध्यम से राज्य/शहरों की मास्टर योजना (भूमि उपयोग की योजना) में शामिल करना;

(छ) राज्य और स्थानीय निकायों के शहरी योजना विभाग को यह सुनिश्चित करने के लिए निदेश देना कि 200 से अधिक आवास वाले या 5,000 वर्ग मीटर से अधिक क्षेत्रफल के प्लॉट वाली ग्रुप हाउसिंग या वाणिज्यिक, सांस्थानिक या अन्य गैर-आवासीय परिसर के लिए विकास योजना में ठोस अपशिष्ट के पृथक्करण, भंडारण, विकेंद्रित प्रसंस्करण के लिए एक अलग स्थल चिन्हित किया जाता है;

(ज) विशेष आर्थिक जोन, औद्योगिक संपदा, औद्योगिक पार्क के विकासकों को निदेश देना कि प्लॉट के कुल क्षेत्रफल का कम से कम 5 प्रतिशत प्लॉट या शैड वसूली या पुनर्चक्रण सुविधा के लिए आरक्षित करें;

(झ) लागत भागीदारी आधार पर क्षेत्रीय सुविधा से 50 कि. मी. (या अधिक) की दूरी के अन्तर्गत आने वाले शहरों और नगरों के समूह के साझा क्षेत्रीय स्वास्थ्यकर भूमिभरण की स्थापना को सुकर बनाना और ऐसे स्वास्थ्यकर भूमिकरणों के वृत्तिक प्रबंधन को सुनिश्चित करना;

(ञ) ठोस अपशिष्ट के प्रबंधन में शहरी स्थानीय निकायों के क्षमता निर्माण तथा स्रोत पर अपशिष्ट के पृथक्करण एवं परिवहन या प्रसंसकरण की व्यवस्था करना;

(ट) राज्य प्रदूषण नियंत्रण बोर्ड के साथ परामर्श करके 5 टन प्रतिदिन से अधिक के ठोस अपशिष्ट प्रसंस्करण और निपटान सुविधाओं के लिए बफर जोन अधिसूचित करना; और

(ठ) अपशिष्ट चुनने वालों और अपशिष्ट के व्यापारियों के पंजीकरण के संबंध में एक योजना शुरू करना ।

12. जिला मजिस्ट्रेट या जिला कलक्टर या उपायुक्त के कर्त्तव्य.- यथा स्थिति, जिला मजिस्ट्रेट या जिला कलक्टर या उपायुक्त,

(क) इन नियमों की अधिसूचना की तारीख से एक वर्ष के भीतर राज्य शहरी विकास विभाग के प्रभारी सचिव के निकट समन्वय से अपने जिले में स्थानीय निकायों को ठोस अपशिष्ट प्रसंस्करण तथा निपटान सुविधाओं की स्थापना करने के लिए नियम 11 के खंड (च) के अनुसार उपयुक्त भूमि की पहचान तथा आबंटन को सुकर बनाएगा;

(ख) अपशिष्ट के पृथक्करण, प्रसंस्करण, उपचार और निपटान पर एक तिमाही में कम से कम तीन मास में एक बार स्थानीय निकायों के अनुपालन का पुनर्विलोकन करेगा और निदेशक या नगरपालिका प्रशासन के आयुक्त या स्थानीय निकायों के निदेशक और राज्य शहरी विकास के प्रभारी सचिव के साथ परामर्श करके उपचारात्मक उपाय करेगा ।

13. राज्य और संघ राज्य क्षेत्र में ग्राम पंचायत या ग्रामीण विकास विभाग के प्रभारी सचिव के कर्तव्य.- (1) उन क्षेत्रों के लिए जो इन नियमों के अधीन आते हैं और उनके अधिकार क्षेत्र में हैं, राज्य और संघ राज्य क्षेत्र में ग्राम पंचायत या शहरी विकास विभाग के प्रभारी सचिव के कर्तव्य वहीं होंगे जो राज्य या संघ राज्य क्षेत्र में शहरी विकास के प्रभारी सचिव के हैं ।

14. केन्द्रीय प्रदूषण नियंत्रण बोर्ड के कर्त्तव्य.- केन्द्रीय प्रदूषण नियंत्रण बोर्ड –

(क) इन नियमों के कार्यान्वयन के लिए राज्य प्रदूषण नियंत्रण बोर्डों और प्रदूषण नियंत्रण समितियों के साथ समन्वय करेगा और स्थानीय निकायों द्वारा विहित मानकों का पालन करेगा;

(ख) सभी ठोस अपशिष्ट प्रसंस्करण और निपटान सुविधाओं की बाबत भूजल, परिवेशी वायु, ध्वनि प्रदूषण, निक्षालन के लिए मानक निश्चित करेगा;

(ग) ठोस अपशिष्ट प्रसंस्करण सुविधाओं या उपचार प्रौद्योगिकियों के लिए विहित पर्यावरणीय मानकों और सन्नियमों का पुनर्विलोकन करना और जब कभी भी अपेक्षित हो, उनको अद्यतन करना;

(घ) ठोस अपशिष्ट प्रसंस्करण सुविधाओं या उपचार प्रौद्योगिकियों के लिए विहित पर्यावरणीय मानकों के कार्यान्वयन को वर्ष में कम से कम एक बार राज्य प्रदूषण नियंत्रण बोर्डों/प्रदूषण नियंत्रण समितियों के माध्यम से पुनर्विलोकन और उनके द्वारा मॉनीटर किए गए आंकड़ों का संकलन करना;

(ड.) ठोस अपशिष्ट के प्रसंस्करण, पुनर्चक्रण और उपचार के लिए किसी नई प्रौद्योगिकी के प्रयोग पर राज्य प्रदूषण नियंत्रण बोर्डों या प्रदूषण नियंत्रण समितियों के प्रस्तावों का पुनर्विलोकन करना और छ: माह के अंदर उनके लिए निष्पादन मानक, उत्सर्जन मानदंड विहित करना;

(च) स्थानीय निकायों द्वारा इन नियमों के कार्यान्वयन को राज्य प्रदूषण नियंत्रण बोर्डों या प्रदूषण नियंत्रण समितियों के माध्यम से मॉनीटर करना;

(छ) राज्य प्रदूषण नियंत्रण बोर्डों और समितियों से प्राप्त रिपोर्टों के आधार पर इन नियमों के कार्यान्वयन पर वार्षिक रिपोर्ट तैयार करना और उसे पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को प्रस्तुत करना तथा यह रिपोर्ट लोक अधिकार क्षेत्र में भी रखी जाएंगी;

(ज) प्रतिदिन 5 टन से अधिक ठोस अपशिष्ट का प्रबंधन करने वाली सुविधाओं के विभिन्न आकारों के लिए अपशिष्ट प्रसंस्करण और निपटान सुविधाओं की बाहरी सीमाओं से किसी आवासीय, वाणिज्यिक या किसी अन्य संनिर्माण संबंधी क्रियाकलाप को प्रतिबंधित करने वाले बफर जोन को बनाए रखने के लिए मार्गदर्शक सिद्धांतों को प्रकाशित करना;

(झ) इन नियमों के प्रावधानों का अनुपालन करने के लिए ठोस अपशिष्ट के शहरी स्थानीय निकायों के समर्थ बनाने के लिए प्रसंस्करण और निपटान के पर्यावरणीय पहलुओं पर समय-समय पर मार्गदर्शक सिद्धांत प्रकाशित करना; और

(ञ) अपशिष्ट के अंतरराज्यीय संचलन पर राज्यों या संघ राज्य क्षेत्रों को मार्गदर्शन प्रदान करना ।

15. स्थानीय निकायों, और जनगणना नगरों की ग्राम पंचायतों तथा शहरी समूहों के कर्तव्य और उत्तरदायित्व.- (1) स्थानीय निकाय और पंचायतें :-

(क) राज्य नीति और रणनीति की अधिसूचना की तारीख से छह मास के भीतर ठोस अपशिष्ट प्रबंधन पर राज्य नीति और रणनीति के अनुसार ठोस अपशिष्ट प्रबंध योजना तैयार करना और उसकी एक प्रति राज्य सरकार या संघ राज्य प्रशासन द्वारा राज्य सरकार या संघ राज्य प्रशासन द्वारा प्राधिकृत अभिकरण से उसे अनुमोदित कराना;

(ख) मलिन बस्तियों तथा अनौपचारिक बसावटों, वाणिज्यिक, संस्थागत और अन्य गैर आवासीय परिसरों सहित सभी घरों से पृथक्कृत ठोस अपशिष्ट का द्वार-द्वार के संग्रहण की व्यवस्था करना। बहु मंजिलों भवनों, बड़े वाणिजियक परिसरों, मॉलों, आवासीय परिसरों इत्यादि से अपशिष्ट का संग्रहण प्रवेश द्वार या किसी अन्य अभिहित स्थान किया जा सकता है;

(ग) कूड़ा चुनने वालों/अनौपचारिक अपशिष्ट संग्रहकर्ताओं के संगठनों को मान्यता प्रदान करने की प्रणाली स्थापित करना और द्वार-द्वार जाकर अपशिष्ट संग्रह करने सहित ठोस अपशिष्ट के प्रबंधन में इनकी भागीदारी को सुकर बनाने के लिए इन प्राधिकृत चुनने वालों और अपशिष्ट संग्रहणकर्ताओं के एकीकरण के लिए एक प्रणाली स्थापित करना;

(घ) स्वयं सहायता समूह बनाने को सुकर बनाना, पहचान पत्र उपलब्ध कराना और तदुपरांत घर-घर जाकर अपशिष्ट संग्रह करने सहित ठोस अपशिष्ट प्रबंधन में एकीकरण को प्रोत्साहन देना;

(ड.) इन नियमों की अधिसूचना की तारीख से एक वर्ष के भीतर इन नियमों के उपबंधों को समाविष्ट करते हुए उपविधियां बनाना और समय पर कार्यान्वयन सुनिश्चित करना;

(च) उपयोक्ता फीस, जो समुचित समझी जाए, समय-समय पर विहित करना और स्वयं या प्राधिकृत अभिकरण के माध्यम से ठोस अपशिष्ट उत्पन्नकर्ताओं से फीस का संग्रह करना;

(छ) अपशिष्ट उत्पन्नकर्ताओं को निदेश देना कि कूड़ा करकट न फैलाएं अथवा कागज, पानी की बोतलें, पेय पदार्थों के केनों, टेट्रा पैक्स, फलों के छिलके, रैपर आदि या सड़क खुले सार्वजनिक स्थान, नालों अपशिष्ट निकायों पर न जलाए या कुंड में न फैंके या उनका निपटान न करें तथा इन नियमों के अधीन विहित किए गए अनुसार स्रोत अपशिष्ट को अलग-अलग करें और पृथक किए गए अपशिष्ट को स्थानीय निकाय द्वारा प्राधिकृत अपशिष्ट चुनने वालों या प्राधिकृत अपशिष्ट संग्रहकर्ता को सौंप दें;

(ज) पुनर्चक्रणीय सामग्रियों छंटाई करने के लिए पर्याप्त स्थान के साथ सामग्री वसूली सुविधाएं या गौण भंडारण सुविधाएं स्थापित करना ताकि अनौपचारिक या प्राधिकृत अपशिष्ट चुनने वाले और अपशिष्ट संग्रह करने वाले अपशिष्ट में से पुनर्चक्रणीय सामग्रियों को अलग कर सकें या उत्पादन के स्रोत से या सामग्री वसूली सुविधाओं से कागज, प्लास्टिक, धातु, शीशा, कपड़ा आदि जैसे पृथक किए गए पुनर्चक्रणीय अपशिष्ट को संग्रह करने के लिए अपशिष्ट चुनने वालों और पुनर्चक्रकों को सुलभ मार्ग उपलब्ध कराना; जैव निम्नीकरण अपशिष्ट के भंडारण के लिए डिब्बे हरे रंग से मुद्रित होंगे, जो पुनर्चक्रण के अपशिष्ट के भंडारण के लिए सफेद रंग से मुद्रित होंगे और अन्य अपशिष्ट के भंडारण के लिए काले रंग से मुद्रित होंगे;

(झ) घरेलू परिसंकटमय अपशिष्ट के लिए अपशिष्ट निक्षेपण केंद्रों की स्थापना करना और अपशिष्ट उत्पन्नकर्ताओं को निदेश देना कि घरेलू परिसंकटमय अपशिष्टों निक्षेपण परिसंकटमय अपशिष्ट निपटान सुविधा में उसके सुरक्षित निपटान के लिए इस केंद्र में करें। ऐसी सुविधा की स्थापना किसी शहर या नगर में इस ढंग से की जाएगी कि एक केंद्र की स्थापना बीस किलोमीटर क्षेत्रफल या उसके भाग के लिए हो जाए और इन केंद्रों में घरेलू परिसंकटमय अपशिष्ट प्राप्त करने के समय अधिसूचित होगा;

(ञ) परिसंकटमय अपशिष्ट निपटान सुविधा तक घरेलू परिसंकटमय अपशिष्ट का सुरक्षित भंडारण और परिवहन सुनिश्चित करना या जो राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति द्वारा निर्देश किया जाए;

(ट) गली के सफाई कर्मचारियों को निदेश देना कि गली की सफाई से संग्रहीत पेड़ के पत्तों को न जलाएं तथा उन्हें अलग से भंडारण करे और स्थानीय निकाय द्वारा प्राधिकृत अपशिष्ट संग्रहकर्ता या अभिकरण को सौंपे;

(ठ) अपशिष्ट चुनने वालों और अपशिष्ट संग्रहकर्ताओं को ठोस अपशिष्ट प्रबंधन का प्रशिक्षण देना;

(ड) दिन-प्रतिदिन आधार पर बाजारों से सब्जियों, फलों, फूलों, मांस, कुक्कुट पालन और मछली बाजार से अपशिष्ट संग्रह करना और स्वास्थ्यकर स्थिति सुनिश्चित करने के लिए बाजारों में उचित स्थानों पर या बाजारों के आस-पास विकेन्द्रीकृत कंपोस्ट प्लांट या जैव मिथेनीकरण प्लांट की स्थापना को प्रोत्साहन देना;

(ढ) जनसंख्या के घनत्व, वाणिज्यिक क्रियाकलाप और स्थानीय स्थिति पर निर्भर करते हुए दैनिक या वैकल्पिक दिवसों या सप्ताह में दो बार सड़कों, मार्गों, गलियों और उप-गलियों की सफाई के अपशिष्ट को पृथक रूप से संग्रह करना;

(ण) सड़क की सफाई के कूड़े और सतही नालियों से निकाली गई गाद को जिन मामलों में इन अपशिष्टों का सीधा संग्रह करने के लिए परिवहन वाहन सुविधाजनक व्यवहार्य नहीं है, अस्थाई रूप से भंडारण करने के लिए आच्छादित गौण भंडारण सुविधा स्थापित करना। इस प्रकार संग्रह किए गए अपशिष्ट का संग्रह और निपटान स्थानीय निकाय द्वारा यथा निर्धारित नियमित अंतराल पर किया जाएगा;

(त) बागवानी, उद्यानों और बगीचों के अपशिष्ट को पृथक रूप से संग्रह करना और जहां तक संभव हो उसका प्रसंस्करण पार्कों और बगीचों में करना;

(थ) पृथक किए गए जैव निम्नीकरणीय अपशिष्ट का परिवहन प्रसंस्करण सुविधाओं जैसे कंपोस्ट प्लांट, जैव मिथेनिकरण संयंत्र या ऐसी कोई सुविधा तक करना। ऐसे अपशिष्ट के स्थल पर प्रसंस्करण को अधिमान्यता दी जानी चाहिए;

(द) क्रमवर्ती प्रसंस्करण सुविधा या सामग्री पुन:प्राप्ति सुविधाओं या द्वितीयक भंडारण सुविधा को गैर जैव निम्नीकरणीय अपशिष्ट को परिवहन करना;

(ध) निर्माण और विध्वंस अपशिष्ट का परिवहन समय-समय पर यथासंशोधित निर्माण और विध्वंस अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार करना;

(न) समुदाय सुविधा के आस-पास दुर्गंध के नियंत्रण और स्वास्थ्य रक्षक स्थितियों के अनुरक्षण के अध्यधीन समुदाय स्तर पर घरेलू कंपोस्टिंग, बायोगैस उत्पादन, अपशिष्ट के विकेंद्रित प्रसंस्करण में समुदायों को अंतर्वलित करना;

(प) दो वर्षों के भीतर रासायनिक खाद के उपयोग को चरणबद्ध रूप से समाप्त करना और स्थानीय निकायों द्वारा अनुरक्षित सभी उद्यानों, बगीचों में कंपोस्ट का प्रयोग करना और जहां कहीं संभव हो इसके अधिकारिता के अधीन अन्य स्थानों पर भी ऐसा करना अनौपचारिक अपशिष्ट पुनर्चक्रण क्षेत्र द्वारा की जाने वाली पुनर्चक्रण पहलों को प्रोत्साहन उपलब्ध कराए जा सकते हैं;

(फ) उपयुक्त प्रौद्योगिकी जिसके अंतर्गत निम्नलिखित प्रौद्योगिकियां भी हैं, को अंगीकृत करते हुए और समय-समय पर शहरी विकास मंत्रालय द्वारा समय-समय पर जारी मार्गदर्शी सिद्धांतों और केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी दिशानिर्देशों का पालन करते हुए ठोस अपशिष्ट के विभिन्न अवयवों के उचित उपयोग के लिए स्वयं या निजी क्षेत्र के सहभागी या किसी अभिकरण के माध्यम से ठोस अपशिष्ट प्रसंस्करण सुविधाओं और संबंधित अवसंरचना के संनिर्माण, प्रचालन और अनुरक्षण को सुकर बनाना: परिवहन लागत और पर्यावरणीय आघात को न्यूनतम करने के लिए विकेन्द्रीयकृत प्रसंस्करण को अधिमान्यता देना जैसे.-

(क) जैव-मिथैनिकरण, सूक्ष्म जैविक कंपोस्टिंग, वर्मी कंपोस्टिंग, अनारोबिक डाईजेशन या जैव निम्नकरणीय-अपशिष्टों के जैव स्थिरीकरण के लिए कोई अन्य समुचित प्रसंस्करण;

(ख) अपशिष्ट के दहनशील भाग के लिए अवशिष्ट जनित ईंधन सहित अपशिष्ट से ऊर्जा प्रक्रियाएं या अपशिष्ट आधारित विद्युत प्लांटों या सीमेंट भट्टियों को फीड स्टॉक के रूप में आपूर्ति;

(ब) इन नियमों के अधीन विहित रीति से अवशेष अपशिष्टों के निपटान के लिए अनुसूची-I के अनुसार स्वास्थ्यकर भरण स्थलों और आनुषंगिक अवसंरचना का निर्माण, प्रचालन और अनुरक्षण स्वयं या किसी अन्य अभिकरण के माध्यम से करना;

(भ) वार्षिक बजट में पूंजी निवेश के साथ-साथ ठोस अपशिष्ट प्रबंधन सेवाओं के प्रचालन और अनुरक्षण के लिए निधियों का पर्याप्त उपबंध करना और यह सुनिश्चित करना कि स्थानीय निकाय के वैवेकिक कृत्यों के लिए निधियां ठोस अपशिष्ट प्रबंधन तथा इन नियमों के अनुसार स्थानीय निकाय के अन्य बाध्यकारी कृत्यों के लिए आवश्यक निधियों की अपेक्षा पूर्ण करने के पश्चात् की आबंटित की जाएं;

(म) प्ररूप-1 में अपशिष्ट प्रसंस्करण, शोधन या निस्तारण सुविधा स्थापित करने के लिए प्राधिकार अनुदत्त करने के लिए आवेदन करना जिसके अंतर्गत यथास्थिति राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति से स्वास्थ्यकर भरण स्थल सहित प्रतिदिन 5 मीट्रिक टन से अधिक अपशिष्ट हो;

(य) प्राधिकार की विधिमान्यता समाप्त होने से कम से कम साठ दिन पूर्व प्राधिकार के नवीकरण के लिए आवेदन करना;

(यक) उत्तरवर्ती वर्ष के 30 अप्रैल या उसके पूर्व आयुक्त या निदेशक, नगरपालिका प्रशासन को या प्राधिकृत अधिकारी को प्ररूप-4 में वार्षिक रिपोर्ट तैयार और प्रस्तुत करना;

(यख) वार्षिक रिपोर्ट प्रत्येक वर्ष के 31 मई तक शहरी विकास विभाग के प्रभारी सचिव या ग्राम पंचायत या ग्रामीण विकास विभाग और संबंधित राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति को भेजी जाएगी;

(यग) कार्मिकों जिसके अंतर्गत संविदा कार्मिकों और पर्यवेक्षकों भी है, को पृथक किए गए अपशिष्ट के द्वार-द्वार से संग्रहण के लिए और प्रसंस्करण या निपटान सुविधा को प्राथमिक और द्वितीयक परिवहन के दौरान अमिश्रित अपशिष्ट के संबंध में प्रशिक्षण;

(यघ) यह सुनिश्चित करना कि प्रसुविधा का प्रचालक व्यक्तिगत सुरक्षा उपकरण अर्थात् वर्दी, प्रदीप्त जैकट, हाथ के दस्ताने, बरसाती, समुचित जूते और मास्क ठोस अपशिष्ट के प्रहस्तन में लगे सभी कार्मिकों को उपलब्ध कराए और कार्यबल द्वारा इनका उपयोग सुनिश्चित किया जाए;

(यड.) किसी ग्रुप हाउसिंग सोसाइटी या मार्केट काम्पलैक्स की निर्माण योजना के अनुमोदन से पूर्व सुनिश्चित करने की भवन योजना में पृथक किए गए अपशिष्टों के संग्रहण, पृथक्करण और भंडारण के लिए अपशिष्ट संग्रहण केन्द्र स्थापित किया जाना सुनिश्चित किया जाए;

(यच) कचरा फैलाने वाले या इन नियमों के उपबंधों का अनुपालन करने में असफल रहने वाले व्यक्तियों के लिए स्थल ही जुर्माना लगाने के लिए उपविधि बनाना और मापदंड विहित करना तथा बनाई गई उपविधियों के अनुसार स्थल पर ही जुर्माना लगाने की शक्तियां उचित अधिकारियों या स्थानीय निकायों को प्रत्यायोजित करना; और

(यछ) सूचना, शिक्षण और संचार अभियान के माध्यम से लोक जागरुकता का सृजन करना और निम्नलिखित के संबंध में अपशिष्ट उत्पन्न करने वालों को जानकारी देना;

i. कचरा न फैलाना;

ii. कम अपशिष्ट उत्पन्न करना;

iii. संभव सीमा तक अपशिष्ट का पुन:उपयोग;

iv. अपशिष्ट का जैव निम्नीकरणीय, गैर-जैव निम्नीकरणीय (पुनर्चक्रण योग्य तथा दहनयोग्य), स्वास्थ्यकर अपशिष्ट और घरेलू परिसंकटमय अपशिष्ट के रूप में स्रोत पर पृथक्करण;

v. घरेलू कंपोस्टिंग, वर्मिन कंपोस्टिंग, बायोगैस उत्पादन या समुदाय स्तरीय कंपोस्टिंग/बायोगैस उत्पादन का व्यवहार करना;

vi. उपयोग हुए प्रसाधन अपशिष्ट को ब्रांड स्वामियों द्वारा उपलब्ध कराए गए पाउचों या स्थानीय निकाय द्वारा विहित उपयुक्त लपेटने वाली सामग्री में लपेटना और इसे गैर जैव निम्नीकरणीय अपशिष्ट के लिए रखे गए डिब्बों में डालना;

vii. स्त्रोत पर पृथक्कृत अपशिष्टों का अलग-अलग डिब्बों में भंडारण करना;

viii. अपशिष्ट चुनने वालों, अपशिष्ट संग्राहकों, पुन:चक्रणकर्ताओं या अपशिष्ट संग्रहण अभिकरणों को पृथक्कृत अपशिष्ट सौंपना; और

ix. अपशिष्ट एकत्र करने वालों या स्थानीय निकायों या स्थानीय निकाय द्वारा प्राधिकृत किसी अन्य व्यक्ति को ठोस अपशिष्ट प्रबंधन के लिए मासिक उपयोक्ता फीस या प्रभार का संदाय करना।

(यज) स्वास्थ्यकर स्थल की स्थापना और प्रचालन के लिए नियम 23 में यथाविनिर्दिष्ट समय सीमा के समाप्त होने के तुरंत पश्चात् मिश्रित अपशिष्ट से भरण स्थल को भरना या एकत्र करना बंद किया जाए;

(यझ) अपशिष्ट प्रसंस्करण सुविधाओं से केवल अप्रयोजनीय, गैर-पुनर्चक्रणयोग्य, गैर-जैवनिम्नीकरणीय, गैर-दहनशील और गैर-सक्रिय अपशिष्ट और पूर्व प्रसंस्करण अपशिष्टों तथा अवशिष्टों को ही स्वास्थ्यकर भरण स्थल पर जाने देने की अनुमति दी जाए और स्वास्थ्यकर भरण स्थलों द्वारा अनुसूची 1 में दी गई विशिष्टयों का अनुपालन किया जाएगा। तथापि, अवशिष्टों का यथासंभव पुनर्चक्रण या पुनप्रयोग किए जाने के प्रयास किए जाने चाहिए ताकि भरण स्थल तक शून्य अपशिष्ट जाने के अपेक्षित लक्ष्य की प्राप्ति हो सके;

(यञ) सभी पुराने खुले मलबा स्थलों तथा विद्यमान प्रचालनरत मलबा स्थलों के जैव-खनन तथा जैव-उपचार की संभाव्यता के लिए जांच और विश्लेषण करना और जहां कहीं व्यवहार्य हो स्थलों के जैव-खनन या जैव-उपचार हेतु आवश्यक कार्रवाई करना;

(यट) मलबा स्थल के जैव-खनन और जैव-उपचार की संभाव्यता न होने की स्थिति में पर्यावरण को होने वाली क्षति को रोकने के लिए इसे भरण स्थल कैपिंग मानकों के अनुसार वैज्ञानिक रूप से आच्छादित जाएगा।

16. राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति के कर्तव्य.- (1) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा -

(क) अपनी-अपनी अधिकारिता में स्थानीय निकायों के माध्यम से राज्य में इन नियमों का प्रवर्तन किया जाएगा तथा संबंधित नगरपालिका प्रशासन निदेशालय या राज्य शहरी विकास विभाग के प्रभारी सचिव के निकट समन्वय से वर्ष में कम से कम दो बार इन नियमों के क्रियान्वयन की समीक्षा की जाएगी;

(ख) अपशिष्ट प्रसंस्करण और निस्तारण स्थलों के लिए अनुसूची । और अनुसूची ।। के अधीन यथा विर्निदिष्ट पर्यावरणीय मानकों को मॉनीटर करना तथा शर्त का पालन करना;

(ग) स्थानीय निकाय या स्थानीय निकाय द्वारा प्राधिकृत किसी अन्य अभिकरण से प्ररूप 1 में आवेदन की प्राप्ति के पश्चात् प्रस्ताव का परीक्षण करना और ऐसी जांच करना जो उचित समझा जाए;

(घ) प्राधिकार के प्रस्ताव की जांच करते समय, संबंधित अधिनियमितियों के अधीन सहमति की अपेक्षा और अन्य अभिकरणों जैसे राज्य शहरी विकास विभाग, नगर और ग्राम योजना विभाग, जिला योजना समिति या महानगरीय क्षेत्र योजना समिति, जैसा लागू हो, विमानपत्तन या एयरबेस प्राधिकरण, भू-जल बोर्ड, रेलवे, विद्युत वितरण कंपनियां, राजमार्ग विभाग और अन्य संबंधित अभिकरणों के विचारों को ध्यान में रखा जाएगा और उन्हें अपने विचार, यदि कोई हों, देने के लिए चार सप्ताह का समय दिया जाएगा;

(ड.) स्थानीय निकाय या किसी सुविधा प्रचालक या स्थानीय प्राधिकरण द्वारा प्राधिकृत किसी अन्य अभिकरण को प्ररूप 2 में साठ दिन की अवधि के भीतर प्राधिकार जारी करना जिसमें यथाआवश्यक अन्य शर्तों सहित अनुसूची 1 और 2 में यथाविर्निदिष्ट अनुपालन मापदंड और पर्यावरण मानक अधिकथित हों;

(च) ऐसे प्राधिकार की विधिमान्यता सहमतियों की विधिमान्यता के साथ समकालिक होगी;

(छ) यदि स्थानीय प्राधिकरण या सुविधा प्रचालक सुविधा का प्रचालन विहित शर्तों के अनुसार करने में असफल रहता है तो राज्य प्रदूषण नियंत्रण बोर्ड द्वारा खंड (क) के अधीन जारी उक्त प्राधिकार को निलंबित या रद्द किया जा सकेगा;

परंतु यथास्थिति, स्थानीय निकाय या प्रचालक को सूचना दिए बिना ऐसा कोई प्राधिकार निलंबित या रद्द नहीं किया जाएगा; और

(ज) नवीकरण के लिए आवेदन की प्राप्ति पर, प्रत्येक आवेदन को गुणागुण के आधार पर परीक्षा करने के पश्चात् और इस शर्त के अधीन रहते हुए कि सुविधा के प्रचालन में नियमों के सभी उपबंधों, प्राधिकार, सहमति या पर्यावरण अनापत्ति में विनिर्दिष्ट मानकों या शर्तों को पूर्ण कर दिया है, अगले पांच वर्षों के लिए प्राधिकार का नवीकरण करेगा;

(2) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति आवेदक को सुने जाने का युक्तियुक्त अवसर देने के पश्चात् और लिखित में कारणों को लेखबद्ध करने के पश्चात् प्राधिकार अनुदत्त करने या नवीकरण करने से इंकार कर सकेगा।

(3) नई प्रोद्यौगिकियों के मामले में, जहां यथास्थिति, केन्द्रीय प्रदूषण नियंत्रण बोर्ड, राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा कोई मानक विहित नहीं किया गया है, मानक विनिर्दिष्ट करने के लिए केन्द्रीय प्रदूषण नियंत्रण बोर्ड से निवेदन करेगा ।

(4) यथास्थिति, राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति जब कभी उचित समझा जाए किन्तु वर्ष में कम से कम एक बार, यथाअभिहित या अधिकथित मानकों तथा यथाअनुमोदित उपचार प्रोद्यौगिकी तथा प्राधिकार में निर्दिष्ट शर्तों और इन नियमों के अधीन अनुसूची-1 और अनुसूची-2 में विनिर्दिष्ट मानकों का अनुपालन मॉनीटर करेगा ।

(5) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति परिसंकटमय अपशिष्ट भंडारण सुविधाओं में अपशिष्ट उत्पादकों द्वारा एकत्रित घरेलू परिसंकटमय अपशिष्ट के सुरक्षित प्रहस्तन और निस्तारण के लिए स्थानीय निकायों को निदेश देगा ।

(6) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा अपशिष्ट के अंतर राज्य प्रचालन को विनियमित किया जाएगा।

17. निपटानयोग्य उत्पादों तथा स्वास्थ्यकर नैपकिनों और डायपरों के विनिर्माताओं या ब्रांड स्वामियों के कर्तव्य.- (1) निपटान योग्य उत्पादों जैसे टिन, कांच, प्लास्टिक पैकेजिंग इत्यादि के सभी निर्माता या ऐसे उत्पादों को बाजार में लाने वाले ब्रांड स्वामी अपशिष्ट प्रबंधन प्रणाली की स्थापना के लिए स्थानीय निकायों को आवश्यक वित्तीय सहायता उपलब्ध कराएंगे।

(2) गैर जैव-निम्नीकरणीय पैकेजिंग सामग्री में अपने उत्पादों की बिक्री या विपणन करने वाले ऐसे सभी ब्रांड स्वामी उनके उत्पाद के कारण उत्पन्न हुए पैकेजिंग अपशिष्ट को वापस ग्रहण करने के लिए प्रणाली की व्यवस्था करेंगे।

(3) स्वास्थ्यकर नैपकिनों तथा डायपरों के विनिर्माताओं या ब्रांड स्वामियों या विपणन कंपनियों द्वारा अपने उत्पादों में सभी पुनर्चक्रणयोग्य सामग्रियों के प्रयोग की संभाव्यता का पता लगाएंगे या अपने स्वास्थ्यकर उत्पादों के पैकेट के साथ प्रत्येक नैपकिन या डायपर के निस्तारण के लिए एक पाउच या रैपर उपलब्ध कराएंगे।

(4) ऐसे सभी विनिर्माताओं, ब्रांड स्वामियों या विपणन कंपनियों द्वारा अपने उत्पादों को लपेटने और उनका निस्तारण करने के संबंध में लोगों को जानकारी दी जाएगी।

18. कचरा व्युत्पन ईंधन से सौ कि.मी. के अंदर अवस्थित औद्योगिक इकाईयों और ठोस अपशिष्ट आधारित ऊर्जा संयंत्रों के कर्तव्य.- ईंधन का प्रयोग करने वाली और ठोस अपशिष्ट आधारित कचरा व्युत्पन ईंधन संयंत्र से सौ कि.मी. के भीतर अवस्थित सभी औद्योगिक इकाइयां इस प्रकार उत्पन्न कचरा व्युत्पन ईंधन द्वारा अपनी ईंधन अपेक्षा के कम से कम 5 प्रतिशत का प्रतिस्थापन करने के लिए इन नियमों की अधिसूचना की तारीख से छह मास के भीतर व्यवस्था करेंगे।

19. ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधा की स्थापना के लिए मानदंड.- (1) भूमि समनुदेशन कार्य आबंटन विभाग ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं की स्थापना के लिए उपयुक्त भूमि उपलब्ध कराने और राज्य सरकार या संघ राज्य क्षेत्र प्रशासन से ऐसे स्थलों को अधिसूचित करने के लिए उत्तरदायी होंगे।

(2) सुविधा का प्रचालक समय-समय पर इस संबंध में केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी तकनीकी मार्गदर्शी सिद्धांतों और शहरी विकास मंत्रालय द्वारा तैयार किए गए ठोस अपशिष्ट प्रबंधन संबंधी मैनुअल के अनुसार सुविधा का डिजाइन करेगा और इसकी स्थापना करेगा।

(3) सुविधा के प्रचालक द्वारा राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति से आवश्यक अनुमोदन प्राप्त किया जाएगा।

(4) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं के प्रचालन के पर्यावरण मानकों की मॉनीटरी की जाएगी।

(5) सुविधा के प्रचालक का उत्तरदायित्व समय-समय पर केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी मार्गदर्शी सिद्धांतों और समय-समय पर शहरी विकास मंत्रालय द्वारा प्रकाशित नगरीय ठोस अपशिष्ट प्रबंधन संबंधी मैनुअल के अनुसार ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं के पर्यावरण के दृष्टि से अनुकूल प्रचालन की होगी।

(6) ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधा के प्रचालक द्वारा राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति और स्थानीय प्राधिकरण को प्रत्येक वर्ष 30 अप्रैल तक प्ररूप 3 में वार्षिक रिपोर्ट प्रस्तुत करेगा।

20. पर्वतीय क्षेत्रों में ठोस अपशिष्ट प्रबंधन के मानदंड और की जाने वाली कार्रवाईयां.- पर्वतीय क्षेत्रों में स्थानीय प्राधिकरणों के कर्तव्य और दायित्व निम्नलिखित अतिरिक्त खंडों के सहित नियम 15 में उल्लिखित के समान होंगे :

(क) पर्वत पर भरण स्थल के संनिर्माण से बचना होगा। प्रसंस्करण सुविधा से अवशिष्ट अपशिष्ट और निष्क्रिय अपशिष्ट का संग्रहण करने के लिए एक उपयुक्त निकटतम अवस्थान पर एक अंतरण स्थान स्थापित किया जाएगा। स्वास्थ्यकर भरण की स्थापना करने के लिए 25 किलोमीटर के भीतर पहाड़ी के नीचे समतल भूमि क्षेत्र में योग्य भूमि का पहचान की जाएगी। अंतरण स्थान से अवशिष्ट अपशिष्ट का निपटान इस स्वास्थ्यकर भरण स्थल पर किया जाएगा।

(ख) ऐसी भूमि उपलब्ध न होने पर की दशा में निष्क्रिय और अवशिष्ट अपशिष्ट के लिए क्षेत्रीय स्वास्थ्यकर भरण स्थल स्थापित करने के प्रयास किए जाएंगे।

(ग) स्थानीय निकाय उपविधि बनाएगा और नागरिकों को गलियों में अपशिष्ट फैंकने से प्रतिषिद्ध करने तथा पर्यटकों को गलियों में या पहाड़ियों से नीचे न फैंकने किसी अपशिष्ट जैसे कागज, पानी की बोतल, शराब की बोतल, सॉफ्ट ड्रिंक के केन, टेट्रा पैक, अन्य कोई प्लास्टिक या कागज अपशिष्ट के स्थान पर सभी पर्यटक स्थलों पर स्थानीय निकाय द्वारा रखे गए कूड़ेदान में फेंकने के निर्देश देना।

(घ) स्थानीय निकाय द्वारा, पर्वतीय क्षेत्रों का भ्रमण करने वाले सभी पर्यटकों को उपविधियों के अधीन ठोस अपशिष्ट प्रबंधन के उपबंधों को नगर में प्रवेश बिंदु के साथ-साथ होटलों तथा अतिथि गृहों इत्यादि के माध्यम से, जहां वे ठहरते हैं और पर्यटन स्थलों पर उपयुक्त विज्ञापन बोर्ड लगाकर, व्यवस्था करेगा।

(ड.) स्थानीय निकाय ठोस अपशिष्ट प्रबंधन सेवाएं संवहनीय बनाने को प्रवेश द्वार पर पर्यटक से ठोस प्रबंधन प्रभार उदगृहीत कर सकेगा ।

(च) भूमि समनुदेशन का प्रभारी विभाग विकेन्द्रीकृत अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना के लिए पर्वतों पर उपयुक्त स्थल की पहचान और आबंटन करेगा। स्थानीय निकाय द्वारा ऐसी सुविधाएं स्थापित की जाएंगी। पर्वतीय स्थान का अनुकूलतम उपयोग करने के लिए सीढ़ी उद्यान प्रणाली को अपनाया जा सकेगा।

21. अपशिष्ट से उर्जा प्रसंस्करण के लिए मानदंड - (1) 1500 कि./कैल./कि.ग्रा. या अधिक के कैलोरिफिक मान रखने वाले गैर पुनःचक्रण अपशिष्टों को भरण स्थलों में निस्तारित नहीं किया जाएगा और उनका उपयोग या तो केवल व्युत्पन्न ईंधन

अवशेष के माध्यम से या अवशेष व्युत्पन्न ईंधन तैयार करने के लिए फीड स्टॉक के रूप में देकर या ऊर्जा का उत्पादन करने के लिए ही किया जाएगा।

(2) उच्च कैलोरिफिक अपशिष्टों का उपयोग सीमेंट या ताप विद्युत संयंत्रों में सह-प्रसंस्करण के लिए किया जाएगा।

(3) स्थानीय निकाय या सुविधा का प्रचालक या उनके द्वारा नामनिर्दिष्ट अभिकरण जो पांच टन प्रतिदिन से अधिक प्रसंस्करण क्षमता वाली सुविधा के अपशिष्ट के ऊर्जा संयंत्र की स्थापना करना चाहते हों, वे यथास्थिति, राज्य प्रदूषण नियंत्रक बोर्ड या प्रदूषण नियंत्रण समिति को प्राधिकार के लिए प्ररुप-1 में आवेदन प्रस्तुत करेंगे।

(4) अपशिष्ट से ऊर्जा सुविधा की स्थापना करने के लिए ऐसे आवेदनों की प्राप्ति पर राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति उसका परीक्षण करेगा और साठ दिनों के अंदर अनुमति प्रदान करेगा।

22. क्रियान्वयन की समय-सीमा - इन नियमों के क्रियान्वयन के लिए आवश्यक अवसंरचना यथास्थिति, स्थानीय निकायों और अन्य संबंधित प्राधिकरणों द्वारा प्रत्यक्ष तथा स्वयं या नियोजित अभिकरणों द्वारा निम्नलिखित विनिर्दिष्ट समय-सीमा में सृजित की जाएंगी :

क्रम सं.	क्रियाकलाप	नियमों की अधिसूचना की तारीख से समय-सीमा
(1)	ठोस अपशिष्ट प्रसंस्करण सुविधा को स्थापित करने के लिए उपयुक्त स्थलों की पहचान करना	1 वर्ष
(2)	0.5 करोड़ जनसंख्या से कम के स्थानीय निकायों के योग्य उपयुक्त समूह के लिए साझा क्षेत्रीय स्वास्थ्यकर भरण सुविधा को स्थापित करने के लिए और 0.5 करोड़ या अधिक की जनसंख्या वाले सभी स्थानीय प्राधिकरणों द्वारा साझा क्षेत्रीय स्वास्थ्यकर भरण स्थल सुविधाओं या एकल भरण सुविधाओं की स्थापना करने के लिए उपयुक्त स्थलों की पहचान।	1 वर्ष
(3)	ठोस अपशिष्ट प्रसंस्करण सुविधा और स्वास्थ्यकर भरण स्थल सुविधाओं के लिए उपयुक्त स्थलों का उपापन।	2 वर्ष
(4)	जैव निम्नीकरणीय, पुनःचक्रण योग्य, दहन योग्य, स्वास्थ्यकर अपशिष्ट, घरेलू परिसंकटमय तथा निष्क्रिय ठोस अपशिष्टों का स्रोत पर पृथक्करण के लिए चलन के लिए अपशिष्ट उत्पन्नकर्ताओं को बाध्य करना ।	2 वर्ष
(5)	पृथक्कृत अपशिष्ट घर-घर से एकत्र करके और प्रसंस्करण या निपटान सुविधाओं का परिवहन आच्छादित वाहनों में सुनिश्चित करना।	2 वर्ष
(6)	संनिर्माण तथा विध्वंस अपशिष्टों का अलग-अलग भंडारण, संग्रहण और परिवहन सुनिश्चित करना।	2 वर्ष
(7)	100000 से अधिक जनसंख्या वाले सभी स्थानीय निकायों द्वारा ठोस अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना करना।	2 वर्ष
(8)	100000 से कम जनसंख्या वाले स्थानीय निकायों और नगरों द्वारा ठोस अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना करना।	3 वर्ष
(9)	इन नियमों के अधीन यथा अनुज्ञात प्रसंस्करण सुविधाओं से केवल ऐसे अवशिष्ट अपशिष्टों के साथ-साथ अशोधित निष्क्रिय अपशिष्ट के निपटान के	3 वर्ष

	लिए 0.5 करोड़ या उससे अधिक की जनसंख्या वाले सभी स्थानीय निकायों द्वारा या के लिए सम्मिलित या एकल भरण की स्थापना।	
(10)	इन नियमों के अधीन अनुज्ञात अपशिष्ट के निपटान के लिए 0.5 करोड़ से कम के अधीन सभी स्थानीय निकायों और जनसंख्या नगरों द्वारा सम्मिलित या क्षेत्रीय भरण स्थलों की स्थापना।	3 वर्ष
(11)	पुराने या परित्यक्त कूड़ा स्थलों का जैविक उपचार करना या उन्हें ढकना।	5 वर्ष

23. राज्य स्तरीय सलाहकार निकाय.- (1) संबंधित राज्य सरकार या संघ राज्य क्षेत्र प्रशासन के स्थानीय निकायों का प्रत्येक विभाग प्रभारी इन नियमों की अधिसूचना की तारीख से छह मास के भीतर एक राज्य स्तरीय सलाहकार समिति का गठन करेगा जिसमें निम्नलिखित सदस्य शामिल होंगे:-

क्रम संख्या	**पदनाम**	**सदस्य**
(1)	**(2)**	**(3)**
1.	राज्य के शहरी विकास विभाग/स्थानीय स्वशासन विभाग के सचिव	अध्यक्ष, पदेन
2	राज्य सरकार के पंचायत या ग्रामीण विकास विभाग का संयुक्त सचिव से अन्यून पंक्ति का एक प्रतिनिधि	सदस्य, पदेन
3.	राज्य सरकार के राजस्व विभाग का एक प्रतिनिधि	सदस्य, पदेन
4.	पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार का एक प्रतिनिधि	सदस्य, पदेन
5.	शहरी विकास मंत्रालय, भारत सरकार का एक प्रतिनिधि	सदस्य, पदेन
6.	ग्रामीण विकास मंत्रालय, भारत सरकार का एक प्रतिनिधि	सदस्य, पदेन
7.	केंद्रीय प्रदूषण नियंत्रण बोर्ड का एक प्रतिनिधि	सदस्य, पदेन
8.	राज्य प्रदूषण नियंत्रण बोर्ड .या प्रदूषण नियंत्रण समिति का एक प्रतिनिधि	सदस्य, पदेन
9.	भारतीय प्रौद्योगिकी संस्थान या राष्ट्रीय प्रौद्योगिकी संस्थान का एक प्रतिनिधि	सदस्य, पदेन
10.	राज्य का मुख्य नगर नियोजक	सदस्य
11.	स्थानीय निकायों के चक्रानुक्रम द्वारा तीन प्रतिनिधि,	सदस्य
12.	जनगणना नगरों/शहरी समुदायों के दो प्रतिनिधि	सदस्य
13.	अपशिष्ट चुनने वालों/अनौपचारिक पुनर्चक्रणकर्ता या ठोस अपशिष्ट प्रबंधन के लिए काम करने वाले विख्यात गैर सरकारी संगठन या सिविल सोसायटी का एक प्रतिनिधि	सदस्य

14.	राज्य या केन्द्रीय स्तर पर उद्योगों का प्रतिनिधित्व करने वाले निकाय का एक प्रतिनिधि	सदस्य
15.	अपशिष्ट पुनर्चक्रण उद्योग का एक प्रतिनिधि	सदस्य
16.	दो विषय विशेषज्ञ	सदस्य
17.	राज्य सरकार के राजस्व विभाग, कृषि विभाग और श्रम विभाग का सहयोजित एक प्रतिनिधि	सदस्य

(2) इन नियमों के क्रियान्वयन से संबंधित सभी विषयों, ठोस अपशिष्ट प्रबंध संबंधी राज्य की नीति तथा कार्यनीति की समीक्षा करने और इन नियमों के त्वरित और समुचित क्रियान्वयन के लिए आवश्यक उपाय करने के लिए राज्य सरकार को सलाह देने के लिए राज्य स्तरीय सलाहकार निकाय प्रत्येक छह माह में कम से कम एक बैठक करेगी।

(3) समीक्षा रिपोर्ट की प्रतियां आवश्यक कार्रवाई हेतु राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति को अग्रेषित की जाएंगी।

24. वार्षिक रिपोर्ट.- (1) सुविधा के प्रचालक द्वारा प्रत्येक वर्ष 30 अप्रैल को या इससे पूर्व प्ररुप III में स्थानीय निकाय को वार्षिक रिपोर्ट प्रस्तुत की जाएगी।

(2) स्थानीय नगरीय निकाय प्ररुप IV में अपनी वार्षिक रिपोर्ट राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण समिति और संबंधित राज्य या संघ राज्य क्षेत्र के शहरी विकास विभाग के प्रभारी सचिव या मेट्रोपालिटिन नगर की दशा में नगर पालिका प्रशासन के निदेशक या नगरपालिका प्रशासन के आयुक्त या राज्य के अन्य सभी स्थानीय निकायों के मामले में राज्य के स्थानीय निकायों प्रभारी अधिकारी को प्रत्येक वर्ष के 30 जून या उससे पहले अग्रेषित करेगी ।

(3) यथास्थिति, प्रत्येक राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति, इन नियमों के क्रियान्वयन और अनुपालन न करने वाले स्थानीय निकायों पर की गई कार्रवाई की समेकित वार्षिक रिपोर्ट प्ररुप V में तैयार करेगी और प्रत्येक वर्ष के 31 जुलाई तक केंद्रीय प्रदूषण नियंत्रण बोर्ड और शहरी विकास मंत्रालय को प्रस्तुत करेगी ।

(4) केंद्रीय प्रदूषण नियंत्रण बोर्ड, देश में स्थानीय निकायों द्वारा इन नियमों के क्रियान्वयन की स्थिति पर एक समेकित समीक्षा रिपोर्ट तैयार की जाएगी और शहरी विकास मंत्रालय और पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को अपनी सिफारिशों के साथ प्रत्येक वर्ष 31 अगस्त से पहले अग्रेषित की जाएगी।

(5) पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा केन्द्रीय निगरानी समिति की बैठक के दौरान वार्षिक रिपोर्ट का पुनर्विलोकन किया जाएगा।

25. दुर्घटना की रिपोर्ट देना - किसी ठोस अपशिष्ट प्रसंसकरण या सुविधा केंद्र या भराव भूमि स्थल पर कोई दुर्घटना होने की दशा में, तब सुविधा का प्रभारी अधिकारी प्ररुप VI में घटना की रिपोर्ट स्थानीय निकाय को भेजेगा। स्थानीय निकाय द्वारा समीक्षा की जाएगी और सुविधा के प्रभारी अधिकारी को अनुदेश, यदि कोई हो, जारी किया जाएगा।

अनुसूची I

[नियम 15 (ब),(यङ्ग),16(1)(ख)(ड.),16(4) देखें]

स्वास्थ्यकर भरण स्थलों के लिए विनिर्देश

क. स्थल चयन के लिए मानदंड. -

(i) भूमि निर्धारण के कार्य आबंटन में विभाग द्वारा ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं की स्थापना करने के लिए उपयुक्त स्थल उपलब्ध कराया जाएगा और ऐसे स्थलों को अधिसूचित किया जाएगा।

(ii) भूमि भरण स्थल योजनाबद्ध, तथा निर्माण योजना के साथ-साथ चरणबद्ध रीति से बंदी योजना के उचित प्रलेखन के साथ अभिकल्पित और विकसित किए जाएंगे। किसी विद्यमान भूमि भरण स्थल से लगी हुई कोई नई भूमि भरण सुविधा तैयार किए जाने की दशा में विद्यमान भूमि भरण स्थल की बंदी योजना, ऐसे नए भूमि भरण स्थल के प्रस्ताव का भाग होगी।

(iii) भरण स्थलों का चयन आसपास की अपशिष्ट प्रसंस्करण सुविधाओं का प्रयोग करने के लिए किया जाएगा। अन्यथा अपशिष्ट प्रसंस्करण सुविधा की योजना भरण स्थल के अभिन्न भाग के रूप में बनाई जाएगी।

(iv) भूमि भरण स्थल शहरी विकास मंत्रालय, भारत सरकार और केन्द्रीय प्रदूषण नियंत्रण बोर्ड के मार्गदर्शी सिद्धांतों के अनुसार स्थापित किए जाएंगे।

(v) विद्यमान भूमि भरण स्थल, जो पांच वर्षों से अधिक से उपयोग में हैं, इस अनुसूची में दिए गए विनिर्देशों के अनुसरण में उन्नत किए जाएंगे।

(vi) भूमि भरण स्थल कम से कम 20-25 वर्षों तक चलने के लिए पर्याप्त रूप से बड़े होंगे तथा जल जमाव और दुरूपयोग को रोकने के लिए चरणबद्ध रीति से "भूमि भरण सेल" विकसित किए जाएंगे।

(vii) भूमि भरण स्थल नदी से 100 मीटर, तालाब से 200 मीटर, राजमार्गों, आवास स्थलों, सार्वजनिक उद्यानों और जल आपूर्ति कुंओं से 200 मीटर तथा विमानपत्तनों या हवाई अड्डे से 20 किमी की दूरी पर होंगे । तथापि, विशेष मामले में, भूमि भरण स्थल को नागर विमानन प्राधिकरण/वायु सेना, जैसा भी मामला हो, से अनापत्ति प्रमाण पत्र प्राप्त कर लेने के बाद विमानपत्तन/हवाईअड्डे से 10 और 20 किमी की दूरी के अंदर स्थापित किया जा सकता है। तटीय विनियम जोन, नमभूमि, महत्वपूर्ण आवासीय क्षेत्रों, संवेदनशील पारि-भंगुर क्षेत्रों और गत 100 वर्षों से यथा दर्ज बाढ़ के मैदानों के अंदर भूमि भरण स्थल के लिए अनुमति नहीं दी जाएगी।

(viii) भरण स्थल और ठोस अपशिष्ट के शोधन तथा निस्तारण के लिए स्थलों को नगर आयोजना विभाग की भूमि उपयोग योजनाओं में शामिल किया जाएगा।

(ix) पांच टन प्रतिदिन से अधिक की संस्थापित क्षमता वाली ठोस अपशिष्ट प्रसंस्करण तथा निस्तारण सुविधा के आसपास गैर विकास का बफर जोन बनाए रखा जाएगा। इसका अनुरक्षण ठोस अपशिष्ट प्रसंस्करण तथा निस्तारण सुविधा के कुल क्षेत्र के अंदर किया जाएगा। बफर जोन का निर्धारण स्थानीय प्राधिकरण द्वारा संबंधित राज्य प्रदूषण नियंत्रण बोर्ड के परामर्श से मामला दर मामला आधार पर किया जाएगा।

(x) जैव-चिकित्सीय अपशिष्ट का निपटान समय-समय पर यथा संशोधित जैव-चिकित्सीय अपशिष्ट प्रबंधन नियम, 2016 के अनुसार किया जाएगा। परिसंकटमय अपशिष्टों का प्रबंधन समय-समय पर यथासंशोधित परिसंकटमय और अन्य अपशिष्ट (प्रबंधन और सीमा-पारीय संचलन) नियम, 2016 के अनुसार किया जाएगा। ई-अपशिष्टों का प्रबंधन समय-समय पर यथासंशोधित ई-अपशिष्ट (प्रबंधन) नियम, 2016 के अनुसार किया जाएगा।

(xi) अपशिष्ट प्रसंस्करण का कार्य न हो पाने और आपातकाल या प्राकृतिक आपदाओं के दौरान अपशिष्ट को रखने के लिए प्रत्येक भरण स्थल पर ठोस अपशिष्ट के लिए अस्थाई भंडारण सुविधा स्थापित की जाएगी।

ख. स्वास्थ्यकर भरण स्थलों पर सुविधाओं के विकास के लिए मानदंड .-

(i) भूमि भरण स्थल पर चार-दीवारी या बाड़ होगी और अंदर आने वाले वाहनों की निगरानी करने, अनधिकृत व्यक्तियों तथा आवारा पशुओं के प्रवेश को रोकने के लिए उचित उपयुक्त दरवाजा लगाया जाएगा।

(ii) वाहनों और अन्य मशीनरी का मुक्त संचलन सुनिश्चित करने के लिए पहुंच और/आंतरिक सड़कें ठोस या पक्की बनाई जाएगी ताकि वाहनीय संचलन के कारण धूल कणों को उड़ने से रोका जा सके।

(iii) भूमि भरण स्थल पर भूमि भरण के लिए लाए जाने वाले अपशिष्ट की मॉनीटरी करने के लिए अपशिष्ट निरीक्षण सुविधा, अभिलेख रखने के लिए कार्यालय सुविधा तथा प्रदूषण मॉनीटरी उपस्कर सहित उपस्कर और मशीनरी रखने के लिए आश्रय स्थल होंगे। सुविधा का प्रचालक अपशिष्ट प्राप्ति, प्रसंस्करण और निपटान का लेखा-जोखा रखेगा।

(iv) भूमि भरण स्थल पर लाए जाने वाले अपशिष्ट की मात्रा को मापने के लिए धर्मकांटा, अग्नि सुरक्षा उपस्कर और अन्य सुविधाएं, जो भी अपेक्षित हों, जैसे प्रावधान किए जाएंगे ।

(v) पेयजल और स्वास्थ्य सुविधाओं (अधिमानत: कर्मकारों के लिए धोने/नहाने की सुविधाओं) जैसी उपयोगिताओं और सहज भूमि भरण प्रचालनों, जब रात्रि के समय किए जाते हैं, के लिए प्रकाश व्यवस्था का प्रावधान होगा।

(vi) भूमि भरण स्थलों पर कार्मिकों के स्वास्थ्य की जांच सहित सुरक्षा प्रावधान किए जाएंगे।

(vii) परिवहन वाहनों की पार्किंग और सफाई या धुलाई के लिए प्रावधान किए जाएंगे। इस प्रकार उत्पन्न मल जल का शोधन विनिर्दिष्ट मानकों को पूरा करने के लिए किया जाएगा।

ग. भूमि भरण प्रचालनों और भूमि भरण पूर्ण होने पर उनको बंद करने के विनिर्देशों के लिए मानदण्ड.-

(i) अपशिष्ट का उच्च घनत्व प्राप्त करने के लिए भूमि भरण किए जाने वाले अपशिष्ट को भारी कम्पेक्टरों का प्रयोग करते हुए पतली परतों में संहत किया जाएगा । अधिक वर्षा वाले क्षेत्रों, जहां भारी कम्पेक्टरों का प्रयोग नहीं किया जा सकता, में वैकल्पिक उपाय अपनाए जाएंगे ।

(ii) अपशिष्टों को तत्काल या प्रत्येक कार्य दिवस के अंत में कम से कम 10 सेमी मिट्टी, अक्रिय मलबे या निर्माण सामग्री से उस समय तक ढक दिया जाएगा जब तक कि कम्पोस्टिंग या पुनर्चक्रण या ऊर्जा पुनर्प्राप्ति के लिए अपशिष्ट प्रसंस्करण सुविधाएं स्थापित न कर दी जाएं।

(iii) मानसून ऋतु के आरंभ होने से पूर्व भूमि भरण स्थल पर मानसून के दौरान पानी के रिसाव को रोकने के लिए उचित संहनन और श्रेणीकरण के साथ 40-65 सेमी मोटी मिट्टी का मध्यवर्ती आवरण बिछा दिया जाएगा। भूमि भरण स्थल के प्रभावी क्षेत्र से पानी के बहाव को विपथित करने के लिए उचित निकास नालियों का निर्माण किया जाएगा।

(iv) भूमि भरण स्थल के पूरा हो जाने के पश्चात उसके रिसाव और अपरदन को न्यूनतम करने के लिए अंतिम आवरण डिजाइन किया जाएगा। अंतिम आवरण निम्नलिखित विनिर्देशों के अनुसार होगा, अर्थात् -

(क) अंतिम आवरण में $1x10^{-7}$ सेमी/सेकंड से कम के पारगम्यता गुणांक सहित 60 सेमी की चिकनी मिट्टी या शोधित मिट्टी से युक्त अवरोधक मिट्टी की परत होगी।

(ख) अवरोधक मिट्टी की परत के ऊपर 15 सेमी की एक निकास परत होगी।

(ग) निकास परत के ऊपर प्रकृतिजन्य पादपों की वृद्धि में सहायता करने और अपरदन को कम करने के लिए 45 सेमी की एक वनस्पतिक परत होगी।

घ. प्रदूषण निवारण के मानदंड.- भूमि भरण प्रचालनों से प्रदूषण समस्याओं को रोकने के क्रम में निम्नलिखित प्रावधान किए जाएंगे, अर्थात्-

(i) तूफान जल नाले को इस तरीके से डिजाइन और निर्मित किया जाए कि सतही जल बहाव, भूमि भरण स्थल से विपथित हो जाए और ठोस अपशिष्ट स्थानों से निक्षालक, सतही जल बहाव में मिश्रित न हो। निक्षालक उत्पत्ति को कम करने और सतही जल के प्रदूषण को रोकने तथा बाढ़ और दलदली स्थितियों से बचने के लिए भी तूफान जल प्रवाह नालियों के विपथन का प्रावधान किया जाएगा।

(ii) अपशिष्ट निपटान क्षेत्र के आधार और दीवारों पर गैर-पारगम्य लाइनिंग प्रणाली का निर्माण। ऐसी अपशिष्ट प्रसंस्करण सुविधाओं के अवशिष्ट अथवा मिश्रित अपशिष्ट या खतरनाक सामग्रियों (जैसे कि ऐरोसोल, ब्लीच, पालिश, बैटरी, अपशिष्ट तेल, पेंट उत्पाद और कीटनाशक) के संदूषण वाले अपशिष्ट को भरने के लिए प्रयुक्त होने वाले भरण स्थलों के लिए न्यूनतम लाइनर विनिर्देश, एक ऐसा मिश्र अवरोधक होगा जो 1.5 मिमी मोटी उच्च घनत्व वाली पॉलीईथाइलीन (एचडीपीई) जियो-मेम्ब्रेन या जियो-सिंथेटिक लाइनर या उसके समतुल्य होगा तथा मिट्टी (चिकनी अथवा शोधित मिट्टी) के 90 सेमी के ऊपर होगी तथा इसका पारगम्यता गुणांक $1x10^{-7}$ सेमी/सेकंड से अधिक नहीं होगा। जल सारणी का अधिकतम स्तर, भूमि भरण स्थलों के निचले भाग पर उपलब्ध कराई गई चिकनी अथवा शोधित मिट्टी के अवरोधक परत के आधार से कम से कम दो मीटर नीचे होगा।

(iii) निक्षालकों के संग्रहण और शोधन सहित इनके प्रबंधन के लिए प्रावधान किए जाएंगे । शोधित निक्षालक, अनुसूची-II में निर्दिष्ट मानकों को पूरा करने के पश्चात् पुनर्चक्रित या उपयोग में लाए जाएंगे। अन्यथा इन्हें मलनिर्यास लाइन में विमुक्त कर दिया जाएगा। किसी भी हाल में निक्षालक को खुले वातावरण में विमुक्त नहीं किया जाएगा।

(iv) भूमि भरण क्षेत्र से बहने वाले जल को किसी नाले, धारा, नदी, झील या तालाब में प्रवेश करने से रोकने की व्यवस्था की जाएगी। जल बहाव के निक्षालक या ठोस अपशिष्ट के साथ मिश्रित होने के मामले में, समस्त मिश्रित जल को संबंधित प्राधिकरण द्वारा शोधित किया जाएगा।

ङ. जल गुणवत्ता मॉनीटरी के लिए मानदंड.-

(i) किसी भूमि भरण स्थल को स्थापित करने से पूर्व, क्षेत्र में भूमि जल गुणवत्ता के मूलाधार आंकड़े एकत्रित किए जाएंगे और उन्हें भविष्य में संदर्भ के लिए रिकार्ड में रखा जाएगा। भूमि भरण स्थल की परिधि के 50 मीटर के अंदर भूमि जल गुणवत्ता को वर्ष में विभिन्न ऋतुओं अर्थात ग्रीष्म, मानसून और मानसून-पश्च अवधि के दौरान आवधिक रूप से मॉनीटर किया जाएगा ताकि यह सुनिश्चित हो सके कि भू- जल, स्वीकार्य सीमा से अधिक संदूषित न हो।

(ii) किसी भी प्रयोजन (पेय जल और सिंचाई सहित) के लिए भूमि भरण स्थलों में और उनके आस-पास भूमि जल के उपयोग पर उसकी गुणवत्ता को सुनिश्चित करने के बाद विचार किया जाएगा। मॉनीटरी प्रयोजन के लिए पेयजल गुणवत्ता हेतु निम्नलिखित विनिर्देश लागू होंगे, अर्थात् :-

क्र.सं.	पैरामीटर	आईएस 10500:2012, संस्करण 2.2 (2003-09) वांछनीय सीमा (मिग्रा/ली., पीएच को छोड़कर
(1)	(2)	(3)
(1)	आर्सेनिक	0.01
(2)	कैडमियम	0.01
(3)	क्रोमियम (Cr^{6+} के रूप में)	0.05
(4)	तांबा	0.05
(5)	साइनाइड	0.05
(6)	सीसा	0.05
(7)	पारा	0.001
(8)	निकल	-
(9)	नाइट्रेट, एनओ$_3$ के रूप में	45.0
(10)	पीएच (pH)	6.5-8.5
(11)	लोहा	0.3
(12)	कुल कठोरता (सीएसीओ$_3$ के रूप में)	300.0
(13)	क्लोराइड	250
(14)	विलीन ठोस	500
(15)	फेनोलिक यौगिक (सी$_6$एच$_5$ओएच के रूप में)	0.001
(16)	जस्ता	5.0
(17)	सल्फेट (एसओ$_4$ के रूप में)	200

च. परिवेशी वायु गुणवत्ता की मानीटरी के लिए मानदंड. -

(i) भूमि भरण स्थल पर दुर्गंध को कम करने, गैसों को अपस्थलीय फैलने से रोकने, पुनर्वासित भूमि भरण स्थल सतह पर उगाई गई वनस्पति को बचाने के लिए गैस संग्रहण प्रणाली सहित भूमि भरण गैस नियंत्रण प्रणाली संस्थापित की जाएगी। भूमि भरण गैस पुनर्प्राप्ति को बढ़ाने के लिए गैस संग्रहण कुओं के साथ आच्छादन प्रणालियों में जियो मेम्ब्रेन के प्रयोग पर विचार किया जाएगा।

(ii) भूमि भरण स्थल पर निकलने वाली मीथेन गैस का सान्द्रण, निम्न विस्फोटक सीमा (एलईएल) के 25 प्रतिशत से अधिक नहीं होगा।

(iii) किसी भूमि भरण स्थल पर संग्रहण सुविधा से प्राप्त भूमि भरण गैस का उपयोग व्यवहार्यता के अनुसार या तो सीधे तापीय अनुप्रयोगों या विद्युत उत्पादन में किया जाएगा। अन्यथा, भूमि भरण गैस को जला (प्रदीप्त) दिया जाएगा और सीधे वायुमंडल में या अवैध रूप से निकासी के लिए नहीं छोड़ा जाएगा। यदि इसका उपयोग या प्रदीप्त संभव न हो तो निष्क्रिय निकास की अनुमति दी जाएगी।

(iv) भूमि भरण स्थल पर और इसके आसपास परिवेशी वायु गुणवत्ता के नियमित रूप से मॉनीटरी की जाएगी। परिवेशी वायु गुणवत्ता औद्योगिक क्षेत्र के लिए केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा विहित मानकों के अनुसार होगी।

छ. भूमि भरण स्थल पर पौधरोपण के लिए मानदंड.- तैयार स्थल के ऊपर निम्नलिखित विनिर्देशों के अनुसार वनस्पतिक आवरण बनाया जाएगा, अर्थात् :

(क) स्थानीय रूप से अंगीकृत अखाद्य बारहमासी पौधों, जो सूखे तथा अत्यधिक तापमान के प्रतिरोधी हैं, को उगाया जाएगा;

(ख) पौधे ऐसे प्रजाति के होंगे कि उनकी जड़ें 30 सेमी से अधिक गहरी न हों। यह शर्त, भूमि भरण स्थल के स्थिर होने तक लागू रहेगी;

(ग) चयनित पौधों में न्यूनतम पोषक वृद्धि के साथ न्यून-पोषक मिट्टी में पनपने की क्षमता होगी;

(घ) मिट्टी के अपरदन को कम करने के लिए पर्याप्त घनत्व में पौधरोपण किया जाएगा;

(ड.) राज्य प्रदूषण नियंत्रण बोर्डों या प्रदूषण नियंत्रण समितियों के परामर्श से भूमि भरण स्थल की सीमा के चारों ओर हरित क्षेत्र विकसित किए जाएंगे।

ज. भूमि भरण स्थल पर पश्चात्वर्ती देखरेख के लिए मानदंड. – (1) भूमि भरण स्थल की बंदी-पश्च देखरेख कम से कम पंद्रह वर्षों के लिए की जाएगी और दीर्घकालिक मॉनीटरी या देखरेख योजना निम्नलिखित से युक्त होगी, अर्थात् :-

(क) सबसे ऊपरी परत की अखंडता और प्रभाविता को बनाए रखना, मरम्मत करते रहना तथा सबसे ऊपरी परत को अपरदन या अन्य प्रकार के नुकसान के जारी रहने और बहने को रोकना;

(ख) अपेक्षानुसार निक्षालक संग्रहण प्रणाली की मॉनीटरी करना;

(ग) भरण स्थल में और इसके आसपास भू-जल की मॉनीटरी करना;

(घ) मानकों के अनुरूप भूमि भरण गैस संग्रहण प्रणाली का अनुरक्षण और प्रचालन करना।

(2) पंद्रह वर्ष की बंदी-पश्च मॉनीटरी के बाद बंद पड़े भूमि भरण स्थलों के उपयोग पर मानव बस्ती या अन्यथा प्रयोग किए जाने के बारे में यह सुनिश्चित करने के बाद ही विचार किया जाएगा कि गैसीय उत्सर्जन और निक्षालक गुणवत्ता विश्लेषण, विनिर्दिष्ट मानकों के अनुपालन में हैं और मृदा स्थिरता सुनिश्चित की गई है।

झ. पहाड़ी क्षेत्रों के लिए विशेष प्रावधानों हेतु मानदंड - पहाड़ों पर बसे नगरों और शहरों में स्थानीय प्राधिकरण द्वारा संबंधित राज्य बोर्ड या प्रदूषण नियंत्रण समिति के अनुमोदन से ठोस अपशिष्ट के अंतिम निपटान के लिए विकसित की गई स्थान-विशिष्ट पद्धतियां अपनाई जाएंगी। नगरपालिका प्राधिकरण जैवअवक्रमणीय जैविक अपशिष्ट को उपयोगी बनाने के लिए प्रसंस्करण सुविधाएं स्थापित करेगा। गैर-जैवअवक्रमणीय पुनर्चक्रण योग्य सामग्रियों का भण्डारण किया जाएगा और

इन्हें पुनर्चक्रण के लिए आवधिक रूप से भेजा जाएगा। अक्रिय और गैर-जैवअवक्रमणीय अपशिष्ट का उपयोग, सड़कें बनाने या पहाड़ों पर उपयुक्त क्षेत्रों की भराई करने के लिए किया जाएगा। पहाडी क्षेत्रों में पर्याप्त भूमि प्राप्त करने में आ रही कठिनाईयों के कारण सड़क पर बिछाने या भराई के लिए उपयुक्त न पाए गए अपशिष्ट का निपटान मैदानी क्षेत्रों में क्षेत्रीय भरण स्थलों में किया जाएगा।

ञ. पुराने मलबा स्थलों को बंद और बहाल करना - ठोस अपशिष्ट के मलबा स्थल जिन्होंने अपनी क्षमता पूरी कर ली है या नए और उपयुक्त रूप से डिजाइन किए गए भरण स्थलों की स्थापना के बाद जिनमें अतिरिक्त अपशिष्ट नहीं डाले जाते हैं, उन्हें बंद कर दिया जाना चाहिए और निम्नलिखित विकल्पों की जांच करने के बाद बहाली की जानी चाहिए :

(i) जैव खनन और अपशिष्ट प्रसंस्करण द्वारा अपशिष्ट को कम करना जिसके बाद नए भरण स्थलों या नीचे (ii) के अनुसार आच्छादन में अवशिष्टों को रखा जाएगा।

(ii) ग्रीन हाऊस गैसों के संग्रहण और चमकाने/उपयोग में समर्थ बनाने के लिए ठोस अपशिष्ट आवरण या जियो मेम्ब्रेन से संवर्धित ठोस अपशिष्ट आवरण से आच्छादित किया जाना।

(iii) ऊपर (ii) के अनुसार अतिरिक्त उपायों (जलोढ़ और अन्य खुरदरी दानेदार मिट्टियों में) जैसे संदूषित भू-जल को निकालने और शोधित करने के लिए कट-ऑफ वॉल और निष्कर्षण कुओं में आच्छादन।

(iv) स्वीकार्य स्तर तक पर्यावरणीय प्रभाव को कम करने के लिए उपयुक्त कोई अन्य पद्धति।

अनुसूची II

[नियम 16(1), (ख), (ड.),16(4) देखें]

ठोस अपशिष्ट के प्रसंस्करण और शोधन के मानक

क. खाद के मानक.- अपशिष्ट प्रसंस्करण सुविधाओं में जैव अवक्रमणीय अपशिष्ट के प्रसंस्करण हेतु प्रौद्योगिकियों में से एक के रूप में कंपोस्टिंग शामिल होगा। कंपोस्ट संयंत्र से होने वाले प्रदूषण को रोकने के उद्देश्य से निम्नलिखित का पालन किया जाएगा अर्थात् :

(क) स्थल पर पहुंचने वाले जैविक अपशिष्ट का आगे के प्रसंस्करण से पूर्व समुचित रखरखाव किया जाएगा। जहां तक संभव हो, अपशिष्ट भण्डारण क्षेत्र ढका हुआ होना चाहिए। यदि ऐसा भण्डारण खुले में किया गया हो तो निक्षालक शोधन और निपटान सुविधा तक पहुंचने वाले पंक्तिबद्ध नालों में निक्षालक और सतही जल बहाव को एकत्रित करने की सुविधा के साथ अपारगम्य आधार उपलब्ध कराया जाना चाहिए;

(ख) गंध, मक्खियों, कृंतकों, पक्षी के खतरे और आग के जोखिम की बाधा को कम करने के लिए आवश्यक सावधानियां बरती जाएंगी;

(ग) संयंत्र के ब्रेकडाउन या रखरखाव के मामले में, अपशिष्ट अंतर्ग्राही को बंद कर दिया जाएगा और अपशिष्ट को अस्थाई प्रसंस्करण स्थल या अस्थायी भूमि भरण स्थलों की दिशा में विपथित करने की व्यवस्था की जाएगी, जिनका संयंत्र के ठीक-ठाक हो जाने पर पुन:प्रसंस्करण किया जाएगा;

(घ) प्रसंस्करण सुविधा से प्रक्रिया पूर्व और प्रक्रिया-पश्च अवशिष्टों को नियमित आधार पर हटा दिया जाएगा और स्थल पर इकट्ठा नहीं होने दिया जाएगा। पुनर्चक्रण योग्य सामग्री, उपयुक्त विक्रेताओं के माध्यम से भेजी जाएगी। गैर-पुनर्चक्रण योग्य उच्च तापजनक अंशों को पृथक किया जाएगा और सीमेंट संयंत्रों में या विद्युत संयंत्रों को आरडीएफ उत्पादन, सह-प्रसंस्करण के लिए भेजा जाएगा। भूमि भरण स्थलों में केवल सभी प्रक्रियाओं के अवशिष्ट भेजे जाएंगे।

(ड.) अपारगम्य आधार के साथ विंड्रो क्षेत्र उपलब्ध कराया जाएगा। ऐसा आधार बजरी या ठोस चिकनी मिट्टी, 50 सेमी मोटी, जिसका पारगम्यता गुणांक 10^{-7} सेमी/सेकंड से कम हो, का बनाया जाएगा। आधार में 1 से 2 प्रतिशत ढाल होगी और निक्षालक या सतही बहाव का संग्रहण करने के लिए इसकी चारों तरफ नालियों का घेरा होगा।

(च) परिवेशी वायु गुणवत्ता की नियमित रूप से मॉनीटरी की जाएगी। प्रसंस्करण संयंत्र की बाहरी दीवार पर या नीचे की हवा की दिशा में गंध की समस्या की भी नियमित रूप से जांच की जाएगी।

(छ) नमी बनाए रखने के लिए खाद संयंत्र में निक्षालक को पुन:परिचालित किया जाएगा।

(ज) अंतिम उत्पाद खाद, समय-समय पर अधिसूचित उर्वरक नियंत्रण आदेश के अंतर्गत विनिर्दिष्ट मानकों के अनुसार होगा।

(झ) खाद का सुरक्षित अनुप्रयोग सुनिश्चित करने हेतु खाद गुणवत्ता के लिए निम्नलिखित विनिर्देशों को पूरा किया जाएगा, अर्थात् :-

पैरामीटर	**जैविक खाद (एफसीओ 2009)**	**फॉस्फेट संपन्न जैविक खाद (एफसीओ 2013)**
(1)	**(2)**	**(3)**
आर्सेनिक (मिग्रा/किग्रा)	10.00	10.00
कैडमियम (मिग्रा/किग्रा)	5.00	5.00
क्रोमियम (मिग्रा/किग्रा)	50.00	50.00
तांबा (मिग्रा/किग्रा)	300.00	300.00
सीसा (मिग्रा/किग्रा)	100.00	100.00
पारा (मिग्रा/किग्रा)	0.15	0.15
निकल (मिग्रा/किग्रा)	50.00	50.00
जस्ता (मिग्रा/किग्रा)	1000.00	1000.00
सी/एन अनुपात	<20	20:1 से कम
पीएच (pH)	6.5-7.5	(1:5 घोल) अधिकतम 6.7
नमी, भार का प्रतिशत, अधिकतम	15.0-25.0	25.0
थोक घनत्व (ग्राम/सेमी^{3})	<1.0	1.6 से कम
कुल जैविक कार्बन, भार द्वारा प्रतिशत, न्यूनतम	12.0	7.9
कुल नाइट्रोजन (एन के रूप में), भार द्वारा प्रतिशत, न्यूनतम	0.8	0.4

कुल फॉस्फेट (पी2ओ5 के रूप में) भार द्वारा प्रतिशत, न्यूनतम	0.4	10.4
कुल पोटेशियम ($के_2$ओ के रूप में), भार द्वारा प्रतिशत, न्यूनतम	0.4	-
रंग	गहरे भूरे से काले तक	-
गंध	बदबू की अनुपस्थिति	-
कण आकार	कम से कम 90% सामग्री, 4.0 मिमी आईएस छलनी से होकर गुजरनी चाहिए	कम से कम 90% सामग्री, 4.0 मिमी आईएस छलनी से होकर गुजरनी चाहिए
प्रवाहकत्व (डीएसएम-1 के रूप में), से कम	4.0	8.2

*उपरोक्त कथित संकेन्द्रण सीमाओं से अधिक वाली खाद (अंतिम उत्पाद) का उपयोग खाद्य फसलों के लिए नहीं किया जाएगा। तथापि, इसका उपयोग खाद्य फसलों को उगाने से भिन्न प्रयोजनों के लिए किया जा सकता है।

ख. शोधित निक्षालकों के लिए मानक. - शोधित निक्षालकों के निपटान में निम्नलिखित मानकों का पालन किया जाएगा, अर्थात्:-

क्र.सं.	**मापदंड**	**मानक (निपटान का तरीका)**		
		अंतर्देशीय सतही जल	**सार्वजनिक सीवर**	**भूमि निपटान**
(1)	(2)	(3)	(4)	(5)
1.	निलंबित ठोस, मिग्रा/ली, अधिकतम	100	600	200
2.	विलीन ठोस (अजैविक), मिग्रा/ली, अधिकतम	2100	2100	2100
3.	पीएच (ph) मान	5.5 से 9.0	5.5 से 9.0	5.5 से 9.0
4.	अमोनिकल नाइट्रोजन (एन के रूप में) मिग्रा/ली., अधिकतम	50	50	--
5.	कुल केल्डाल नाइट्रोजन (एन के रूप में) मिग्रा/ली, अधिकतम	100	--	--

6.	जैव रासायनिक ऑक्सीजन मांग (27^0 से. पर 3 दिन) अधिकतम (मिग्रा/ली)	30	350	100
7.	रासायनिक ऑक्सीजन मांग, मिग्रा/ली, अधिकतम	250	--	--
8.	आर्सेनिक (एएस के रूप में), मिग्रा/ ली, अधिकतम	0.2	0.2	0.2
9.	पारा (एचजी के रूप में), मिग्रा/ली, अधिकतम	0.01	0.01	--
10.	सीसा (पीबी के रूप में), मिग्रा/ली, अधिकतम	0.1	1.0	--
11.	कैडमियम (सीडी के रूप में), मिग्रा/ली, अधिकतम	2.0	1.0	--
12.	कुल क्रोमियम (सीआर के रूप में), मिग्रा/ली, अधिकतम	2.0	2.0	--
13.	तांबा (सीयू के रूप में), मिग्रा/ली, अधिकतम	3.0	3.0	--
14.	जस्ता ((जेडएन के रूप में), मिग्रा/ली, अधिकतम	5.0	15	--
15.	निकल (एनआई के रूप में), मिग्रा/ली, अधिकतम	3.0	3.0	--
16.	साइनाइड (सीएन के रूप में), मिग्रा/ली, अधिकतम	0.2	2.0	0.2
17.	क्लोराइड (सीएल के रूप में), मिग्रा/ली, अधिकतम	1000	1000	600
18.	फ्लोराइड (एफ के रूप में), मिग्रा/ली, अधिकतम	2.0	1.5	--
19.	फेनोलिक यौगिक ($सी_6एच_5$ ओएच के रूप में), मिग्रा/ली, अधिकतम	1.0	5.0	--

नोट : आंतरिक सतही जल-निकायों में शोधित निक्षालकों को बहाते समय, बहाए जाने वाले निक्षालकों की मात्रा और प्राप्त करने वाले जल निकाय में उपलब्ध मिश्रित जल की मात्रा पर उचित रूप से ध्यान दिया जाएगा ।

ग. भस्मीकरण के मानक : ठोस अपशिष्ट शोधन/निपटान सुविधा में भस्मकों/ताप प्रौद्योगिकियों से होने वाले उत्सर्जन में निम्नलिखित मानकों का अनुपालन किया जाएगा, अर्थात् :

मानदण्ड	उत्सर्जन मानक	
(1)	(2)	(3)
विवित्त-कण	50 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एचसीएल	50 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एसओ2	200 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
सीओ	100 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
	50 मिग्रा/एनएम^3	मानक का अर्थ दैनिक औसत मान से है
कुल जैविक कार्बन	20 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एचएफ	4 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एनओएक्स (एनओ2 के रूप में व्यक्त एनओ और एनओ2)	400 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
कुल डाइऑक्सिन और फ्यूरन	0.1 एनजी टीईक्यू/एनएम^3	मानक का अर्थ 6-8 घंटे के नमूने से है। कृपया कुल विषाक्त समतुल्यता प्राप्त करने के लिए विषाक्त समतुल्यता मानों हेतु 17 संबंधित समप्रकारी वस्तु के दिशानिर्देशों का संदर्भ लें।
सीडी+टीएच+उनके यौगिक	0.05 एमजी/एनएम^3	मानक का अर्थ 30 मिनट और 8 घंटे के बीच कहीं भी नमूना लिए गए समय से है।
एचजी और इसके यौगिक	0.05 एमजी/एनएम^3	मानक का अर्थ 30 मिनट और 8 घंटे के बीच कहीं भी नमूना लिए गए समय से है।
एसबी+एएस+पीबी+सीआर+ सीओ+सीयू+एमएन+एनआई+वी+ उनके यौगिक	0.5 एमजी/एनएम^3	मानक का अर्थ 30 मिनट और 8 घंटे के बीच कहीं भी नमूना लिए गए समय से है।
नोट : सभी मानों में शुष्क आधार पर 11% ऑक्सीजन तक शुद्धि की गई है।		

टिप्पणी :

(क) उपरोक्त उत्सर्जन सीमाओं को प्राप्त करने के लिए भस्मीकरण यंत्र के साथ उपयुक्त प्रकार के डिजाइन किए गए प्रदूषण नियंत्रण उपकरण संस्थापित या पुन:संयोजित किए जाएंगे।

(ख) भस्मीकृत किए जाने वाले अपशिष्ट को किसी क्लोरीनयुक्त कीटाणुनाशक के साथ रासायनिक तरीके से शोधित नहीं किया जाएगा।

(ग) क्लोरीनयुक्त प्लास्टिक के भस्मीकरण को दो वर्षों के अंदर क्रमबद्ध रूप से समाप्त किया जाएगा।

(घ) यदि भस्मीकरण राख में विषाक्त धातुओं की सांद्रता समय-समय पर यथासंशोधित परिसंकटमय अपशिष्ट (प्रबंधन, हथालन और सीमा-पारीय संचलन) नियम, 2008 में यथाविनिर्दिष्ट सीमाओं से अधिक हो तो ऐसे राख को परिसंकटमय अपशिष्ट शोधन, भंडारण और निपटान सुविधा को भेजा जाएगा।

(ड.) भस्मीकरण-यंत्र में ईंधन के रूप में केवल एलडीओ, एलएसएचएस, डीजल, बायोमास, कोयला, एलएनजी, सीएनजी, आरडीएफ और बायोगैस जैसे निम्न सल्फर ईंधन का ही प्रयोग किया जाएगा।

(च) अधोवायु गैस में सीओ2 संकेन्द्रण 7% से अधिक नहीं होगा।

(छ) ट्विन चैम्बर भस्मीकरण-यंत्रों में सभी सुविधाएं इस प्रकार से डिजाइन की जाएंगी कि द्वितीय ज्वलन चैम्बर में 950° से. के न्यूनतम तापमान को प्राप्त करने के लिए और 2 (दो) सेकंड से अधिक के द्वितीय ज्वलन चैम्बर में गैस रह सके।

(ज) भस्मीकरण संयंत्र (दहन चैम्बर) ऐसे तापमान, अवधारण समय और विक्षोभ के साथ परिचालित किए जाएंगे ताकि लावा और तलहटी राखों में कुल जैविक कार्बन (टीओसी) तत्व को 3% से कम किया जा सके या प्रज्वलन पर उनकी क्षति सूखे वजन के 5% से कम हो।

(झ) स्थलों से निकलने वाली गंध का प्रबंधन केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा समय-समय पर जारी मार्गदर्शी सिद्धांतों के साथ किया जाएगा।

प्ररूप -I

[नियम 15 (म), 16(1)(ग), 21(3) देखें]

ठोस अपशिष्ट के प्रसंस्करण/पुनर्चक्रण/शोधन और निपटान के लिए
ठोस अपशिष्ट प्रबंधन नियमों के अंतर्गत प्राधिकार प्राप्त करने के लिए आवेदन

सेवा में,

..... के

सदस्य सचिव

राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति

महोदय,

मैं/हम ठोस अपशिष्ट के प्रसंस्करण, पुनर्चक्रण, शोधन और निपटान के लिए ठोस अपशिष्ट नियम, 2016 के अंतर्गत प्राधिकार के लिए एतददारा आवेदन करता हूँ/करते हैं।

1.	उनके/सुविधा के प्रचालक द्वारा नियुक्त स्थानीय निकाय/अभिकरण का नाम	
2.	पत्राचार का पता दूरभाष सं. फैक्स सं.	

	ई-मेल	
3.	नोडल अधिकारी और पदनाम (प्रसंस्करण/शोधन या निपटान सुविधा के प्रचालन के लिए उत्तरदायी स्थानीय निकाय या अभिकरण द्वारा प्राधिकृत अधिकारी)	
4.	सुविधा की स्थापना करने और प्रचालन के लिए अपेक्षित प्राधिकार (कृपया निशान लगाएं)	i. अपशिष्ट प्रसंस्करण ii. पुनर्चक्रण iii. शोधन iv. भूमि भरण स्थल पर निपटान
5.	इन दस्तावेजों की प्रतियां संलग्न करें	i. स्थल स्वीकृति (स्थानीय प्राधिकरण) ii. पर्यावरणीय स्वीकृति का प्रमाण iii. स्थापना के लिए अनुमति iv. नगरपालिका प्राधिकरण और प्रचालन अभिकरण के बीच करार v. परियोजना में निवेश और अपेक्षित आय
6.	**ठोस अपशिष्ट का प्रसंस्करण/पुनर्चक्रण/शोधन** i. प्रतिदिन प्रसंस्करित अपशिष्ट की कुल मात्रा क) पुनर्चक्रित किए जाने वाले अपशिष्ट की मात्रा ख) शोधित किए जाने वाले अपशिष्ट की मात्रा ग) भूमिभरण स्थल में निपटाए जाने वाले अपशिष्ट की मात्रा ii. प्रसंस्करित अपशिष्ट के लिए उपयोगिता कार्यक्रम (उत्पाद उपयोग) iii. निपटान के लिए कार्य-पद्धति (ब्यौरा संलग्न करें) क) निक्षालक की मात्रा ख) निक्षालक के लिए शोधन प्रौद्योगिकी iv. पर्यावरणीय प्रदूषण के निवारण और नियंत्रण के लिए किए जाने वाले उपाय v. संयंत्र में कार्यरत कर्मकारों की सुरक्षा के लिए किए जाने वाले उपाय vi. ठोस अपशिष्ट प्रसंस्करण/पुनर्चक्रण/शोधन/	

	निपटान सुविधा संबंधी ब्यौरा (संलग्न किया जाए)	
7.	**ठोस अपशिष्ट का निपटान** अभिज्ञात स्थलों की संख्या प्रतिदिन निपटाए जाने वाले अपशिष्ट की मात्रा स्थल चयन के लिए अपनाई गई कार्य-पद्धति या मानदण्ड का ब्यौरा (संलग्न करें) प्रचालन के अंतर्गत विद्यमान स्थल का ब्यौरा भूमि भरण की कार्य-पद्धति और प्रचालनात्क ब्यौरा पर्यावरणीय प्रदूषण को रोकने के लिए किए गए उपाय	
8.	कोई अन्य सूचना	

हस्ताक्षर :.....

पदनाम .....

तारीख :

स्थान :

प्ररुप-II

[नियम 16(1)(ड.) देखें]

प्राधिकार जारी करने के लिए प्रपत्र

फाइल सं. : _____

दिनांक : _____

प्राधिकार सं. : _____

सेवा में,

_____

_____

_____

संदर्भ : आपका आवेदन सं. _____ दिनांक _____

_____ राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति द्वारा प्रस्ताव का परीक्षण करने के पश्चात _____ को जिनका प्रशासनिक कार्यालय _____ में है, पर अपशिष्ट प्रसंस्करण/पुनर्चक्रण/शोधन/ निपटान सुविधा स्थापित और प्रचालित करने के लिए प्राधिकृत किया जाता है।

यह प्राधिकार ठोस अपशिष्ट के प्रसंस्करण, पुनर्चक्रण, शोधन और निपटान के लिए सुविधा के प्रचालन हेतु प्रदान किया जाता है।

यह प्राधिकार नीचे उल्लिखित निबंधन एवं शर्तों और इन नियमों में अन्यथा यथानिर्दिष्ट ऐसी शर्तों और इन नियमों के अंतर्गत अनुसूचियों I और II में विनिर्धारित मानकों के अध्यधीन है।

_____ राज्य प्रदूषण नियंत्रण बोर्ड/संघ राज्य क्षेत्र प्रदूषण नियंत्रण समिति द्वारा किसी भी समय, प्राधिकार के अंतर्गत लागू किसी शर्त को रद्द किया जा सकता है और इसकी लिखित सूचना दी जाएगी।

ठोस अपशिष्ट प्रबंधन नियम, 2016 के उपबंध का उल्लंघन होने पर पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) के दंडात्मक उपबंध लागू होंगे।

दिनांक : (सदस्य सचिव)

स्थान : राज्य प्रदूषण नियंत्रण बोर्ड/संघ राज्य क्षेत्र

प्रदूषण नियंत्रण समिति

(हस्ताक्षर और पदनाम)

प्ररुप-III

[नियम 19(6), 24(1) देखें]

सुविधा के प्रचालक द्वारा स्थानीय निकाय को प्रस्तुत किए जाने के लिए वार्षिक रिपोर्ट का प्रपत्र

1.	शहर/नगर का नाम	
2.	जनसंख्या	
3.	क्षेत्रफल वर्ग किलो मीटर में	
4.	स्थानीय निकाय का नाम और पता दूरभाष सं. फैक्स ई-मेल :	
5.	सुविधा के प्रचालक का नाम और पता	
6.	सुविधा के प्रभारी अधिकारी का नाम दूरभाष सं. फैक्स ई-मेल :	

7.	शहर/नगर में परिवारों की संख्या शहर में गैर आवासीय परिसरों की संख्या शहर/नगर में चुनाव/प्रशासनिक वार्डों की संख्या	
8.	ठोस अपशिष्ट की मात्रा	
	प्रति दिन स्थानीय निकाय के क्षेत्र में उत्पन्न ठोस अपशिष्ट की अनुमानित मात्रा मीट्रिक टन में	/टीपीडी
	प्रतिदिन संग्रहित ठोस अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन संग्रहित प्रति व्यक्ति अपशिष्ट	/ग्रा./दिन
	प्रसंसकृत ठोस अपशिष्ट की मात्रा	/टीपीडी
	भरण स्थल पर निपटान किए गए ठोस अपशिष्ट की मात्रा	/टीपीडी
9.	ठोस अपशिष्ट प्रबंधन सेवा की स्थिति	
	स्रोत पर अपशिष्ट का पृथक्करण और भंडारण	हां/नहीं
	क्या घरेलू/वाणिज्यिक/संस्थागत बिनों में स्रोत पर ठोस अपशिष्ट का भंडारण किया जाता है, यदि हां	%
	घरेलू बिनों में स्रोत पर अपशिष्ट के भंडारण की घरेलू रीति की प्रतिशतता	%
	वाणिज्यिक/संस्थागत बिनों में स्रोत पर अपशिष्ट का गैर आवासीय परिसरों में भंडारण करने की प्रतिशतता	%
	गलियों में घरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	गलियों में गैर आवासीय परिसरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	क्या ठोस अपशिष्ट को स्रोत पर पृथककृत स्वरूप में भंडारित किया जाता है	हां/नहीं
	यदि हां, तो स्रोत पर अपशिष्ट का पृथककरण करने वाले परिसरों की प्रतिशतता	%
	ठोस अपशिष्ट का घर-घर जाकर संग्रहण	
	क्या शहर/नगर में ठोस अपशिष्ट का घर-घर जाकर संग्रहण किया जाता है	हां/नहीं
	यदि हां, तो अपशिष्ट के घर-घर जाकर संग्रहण किए जाने में शामिल वार्डों की संख्या	
	शामिल किए गए घरों की संख्या	
	शामिल किए गए वाणिज्यिक संस्थापनाओं, होटलों, रेस्तराओं, शैक्षिक संस्थाओं/कार्यालय इत्यादि सहित गैर आवासीय परिसरों की संख्या	
	निम्न के माध्यम से घर-घर जाकर संग्रहण किए जाने में शामिल आवासीय और गैर आवासीय परिसरों की प्रतिशतता : मोटरकृत वाहन कंटेनरकृत तिपहिया साइकिल/हैंड कार्ट अन्य साधन	

		%
		%
		%
	यदि नहीं, तो संग्रहण में अपनाई गई प्राथमिक पद्धति	
	गलियों में झाड़ू लगाया जाना	
	शहर में सड़कों, गलियों, लेनों, बाइलेनों की लम्बाई जिनकी सफाई किए जाने की आवश्यकता है	कि.मी.
	गली में झाड़ू लगाए जाने की बारंबारता और लाभान्वित जनसंख्या की प्रतिशतता	

बारंबारता	रोजाना	एकांतर दिवस पर	सप्ताह में दो बार	कभी-कभी
लाभान्वित जनसंख्या की प्रतिशतता				

	प्रयुक्त साधन	%
	हाथ से झाड़ू लगाया जाना	%
	यांत्रिक रूप से झाड़ू लगाया जाना	
	क्या सफाई कर्मचारियों द्वारा लंबी हैंडल वाले झाड़ू का प्रयोग किया जाता है	हां/नही
	क्या प्रत्येक सफाई कर्मचारी को अपशिष्ट का संग्रहण करने के लिए हैंडकार्ट/तिपहिया साइकिल दी जाती है	हां/नही
	क्या हैंडकार्ट/तिपहिया साइकिल में कंटेनर लगा है	हां/नही
	क्या संग्रहण का साधन प्रयोग किए गए संग्रहण/अपशिष्ट भंडारण के कंटेनरों समकालिक है	हां/नही
	द्वितीयक अपशिष्ट भंडारण सुविधाएं	
	शहर/नगर में अपशिष्ट भंडारण डिपो की संख्या और प्रकार	संख्या क्षमता घन मीटर में
	खुले अपशिष्ट भंडारण स्थल	
	चिनाई किए गए बिन	

	सीमेंट कंक्रीट सिलिंडर के बिन ढलाव/ढ़के हुए कक्ष/स्थान ढ़के हुए धातु/प्लास्टिक के कंटेनर 1.1 घन मीटर तक के बिन 2 से 5 घन मीटर के बिन 5 घन मीटर से बड़े कंटेनर बिन रहित शहर		
	बिन/जनसंख्या अनुपात		
	अपशिष्ट भंडारण डिपो का वार्डवार विवरण (संलग्न करें) : वार्ड सं. : क्षेत्रफल : जनसंख्या : रखे हुए बिनों की संख्या रखे गए बिनों का कुल आयतन		
	अपशिष्ट भंडारण सुविधाओं की कुल भंडारण क्षमता घन मीटर में		
	अपशिष्ट भंडारण डिपो में प्रतिदिन वास्तविक रूप से भंडारित कुल अपशिष्ट		
	डिपो से अपशिष्ट के संग्रहण की बारंबारता बताएं साफ किए गए बिनों की संख्या	बारंबारता	बिनों की संख्या
		प्रतिदिन	
		एकांतर दिवस	
		सप्ताह में दो बार	
		सप्ताह में एक बार	
		कभी-कभी	
	क्या भंडारण डिपो में पृथक्कृत अपशिष्ट को हरे, नीले और काले बिनों में भंडार करके रखने की सुविधा है	हां/नहीं (यदि हां तो विवरण दें) हरे बिनों की संख्या : नीले बिनों की संख्या : काले बिनों की संख्या :	
	भंडारण डिपो से ठोस अपशिष्ट उठाने का कार्य हाथ से किया जाता है		

	या यांत्रिक तरीके से? प्रतिशत बताएं ठोस अपशिष्ट को हाथ से उठाए जाने की प्रतिशतता यात्रिक तरीके से उठाने की प्रतिशतता	 % %
	यदि यांत्रिक है तो प्रयुक्त पद्धति का स्पष्ट उल्लेख करें	फ्रंट-एंड लोडर/टॉप लोडर
	क्या ठोस अपशिष्ट को घर-घर से उठाया जाता है और पृथककृत स्वरूप में सीधे शोधन संयंत्र तक भेजा जाता है	हां/नहीं (यदि हां तो स्पष्ट उल्लेख करें)
	प्रतिदिन अपशिष्ट का परिवहन प्रयोग किए गए वाहनों का प्रकार और संख्या (कृपया टिक करें या जोड़ें)	अपशिष्ट का परिवहन करने में लगाए गए फेरों की संख्या
	पशु गाड़ी ट्रैक्टर नॉन टीपिंग ट्रक टीपिंग ट्रक डम्पर प्लेसर अवशिष्ट संग्राहक कम्पैक्टर अन्य जेसीबी - लोडर	
	अपशिष्ट के परिवहन की बारंबारता	बारंबारता — परिवहन किए गए अपशिष्ट का प्रतिशत प्रतिदिन एकांतर दिवस पर सप्ताह में दो बार सप्ताह में एक बार कभी-कभी
	प्रत्येक दिन परिवहन किए गए अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन परिवहन किए गए कुल अपशिष्ट की प्रतिशतता	%
	प्रयोग की गई अपशिष्ट शोधन प्रौद्योगिकियां	
	क्या ठोस अपशिष्ट का प्रसंस्करण किया जाता है	हां/नहीं

	यदि हां, तो प्रतिदिन प्रसंस्करण किए गए अपशिष्ट की मात्रा	/टीपीडी
	अपशिष्ट प्रसंस्करण के लिए स्थानीय निकाय के पास उपलब्ध भूमि (हेक्टेयर में)	
	अपशिष्ट प्रसंस्करण के लिए वर्तमान में प्रयुक्त भूमि	
	प्रचालनरत ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	निर्माणाधीन ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	शहर/नगर की सीमा से प्रसंस्करण सुविधाओं की दूरी	
	अपनाई गई प्रौद्योगिकियों का विवरण	
	कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	वर्मी कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	बायो-मिथेनेशन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	अवशिष्ट जनित ईंधन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	अपशिष्ट से ऊर्जा प्रौद्योगिकी जैसे कि भष्मीकरण, गैसीकरण, पाइरोलेसिस या कोई अन्य प्रौद्योगिकी (विवरण दें)	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	सह-प्रसंस्करण	प्रसंस्करण की गई कच्ची सामग्री
	सीमेंट संयंत्र को आपूर्तित दहनशील अपशिष्ट	

	ठोस अपशिष्ट आधारित विद्युत संयंत्रों को आपूर्तित दहनशील अपशिष्ट	
	अन्य	मात्रा
	ठोस अपशिष्ट निपटान सुविधाएं	
	स्थानीय निकाय के पास उपलब्ध मलबा स्थलों की संख्या	
	स्थानीय निकाय के पास उपलब्ध स्वास्थ्यकर भरण स्थलों की संख्या	
	अपशिष्ट के निपटान हेतु उपलब्ध ऐसे प्रत्येक स्थल का क्षेत्रफल	
	अपशिष्ट के निपटान के लिए वर्तमान में प्रयुक्त भूमि का क्षेत्रफल	
	शहर/नगर से मलबा स्थल/भरण सुविधा की दूरी	कि.मी.
	निकटतम वसावट से दूरी	कि.मी.
	जल निकाय से दूरी	कि.मी.
	राज्य/राष्ट्रीय राजमार्ग से दूरी	कि.मी.
	विमानपत्तन से दूरी	कि.मी.
	महत्वपूर्ण धार्मिक स्थलों या ऐतिहासिक स्मारक से दूरी	कि.मी.
	क्या यह बाढ़ संभावित क्षेत्र में पड़ता है	हां/नहीं
	क्या यह भूकंप संभावित क्षेत्र में पड़ता है	हां/नहीं
	प्रत्येक दिन भरण में डाले गए अपशिष्ट की मात्रा	टीपीडी
	क्या भरण स्थल को घेरा गया है	हां/नहीं
	क्या स्थल पर रोशनी की सुविधा उपलब्ध है	हां/नहीं
	क्या धर्मकांटा सुविधा उपलब्ध है	हां/नहीं
	भरण स्थल पर प्रयुक्त वाहन और उपकरण (स्पष्ट करें)	उपलब्ध बुलडोजर, कम्पैक्टर इत्यादि
	भरण स्थल पर नियोजित जनशक्ति	हां/नहीं (यदि हां तो विवरण संलग्न करें)
	क्या ढ़कने का काम दैनिक आधार पर किया जाता है	हां/नहीं
	यदि नहीं, तो भरण स्थल पर जमा अपशिष्ट को ढ़कने की बारंबारता	
	ढ़कने के लिए प्रयुक्त सामग्री	
	क्या ढ़कने की पर्याप्त सामग्री उपलब्ध है	हां/नहीं
	क्या गैस निकलने की व्यवस्था की गई है	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
	निक्षालन संग्रहण का प्रावधान	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
10.	क्या शहर में ठोस अपशिष्ट प्रबंधन पद्धतियों में सुधार लाने के लिए	हां/नहीं

	कार्ययोजना बनाई गई है	(यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
11.	निम्न के लिए कौन से पृथक प्रावधान किए गए हैं : डेयरी से संबंधित कार्यकलाप : बूचड़खाने के अपशिष्ट : निर्माण एवं विध्वंस अपशिष्ट (निर्माण मलबा) :	प्रस्तावों, उठाए गए कदमों के संबंध में विवरण संलग्न करें हां/नहीं हां/नहीं हां/नहीं
12.	पश्च संवृत्ति योजना का विवरण	योजना संलग्न करें
13.	कितनी मलिन बस्तियों का निर्धारण किया गया है और क्या इनमें ठोस अपशिष्ट प्रबंधन सुविधाएं उपलब्ध कराई गई हैं :	हां/नहीं (यदि हां, तो विवरण संलग्न करें)
14.	गली में झाड़ू लगाने, अपशिष्ट के द्वितीयक भंडारण, परिवहन, प्रसंस्करण और निपटान सहित संग्रहण के लिए ठेकेदार/रियायतग्राही की नियोजित जनशक्ति का विवरण दें	
15.	इन नियमों के प्रावधानों का अनुपालन करने में स्थानीय निकाय द्वारा महसूस की जा रही कठिनाइयों का संक्षेप में उल्लेख करें	
16.	ठोस अपशिष्ट से संबंधित समस्या से निपटने के लिए किसी अभिनव विचार का संक्षेप में उल्लेख करें जिसे अन्य स्थानीय निकायों द्वारा अपनाया जा सके	

प्रचालक के हस्ताक्षर

तारीख :

स्थान :

प्ररुप-IV

[नियम 15 (यक), 24(2) देखें]

स्थानीय निकाय द्वारा प्रस्तुत किए जाने के लिए ठोस अपशिष्ट प्रबंधन संबंधी

वार्षिक रिपोर्ट का प्रारूप

कैलेंडर वर्ष	**रिपोर्ट प्रस्तुत करने की तारीख**

1.	शहर/नगर का नाम	
2.	जनसंख्या	
3.	क्षेत्रफल वर्ग किलो मीटर में	
4.	स्थानीय निकाय का नाम और पता दूरभाष सं. फैक्स ई-मेल :	
5.	ठोस अपशिष्ट प्रबंधन (वेस्टेम) से संबंधित प्रभारी अधिकारी का नाम दूरभाष सं. फैक्स ई-मेल :	
6.	शहर/नगर में परिवारों की संख्या शहर में गैर आवासीय परिसरों की संख्या शहर/नगर में चुनाव/प्रशासनिक वार्डों की संख्या	
7.	ठोस अपशिष्ट की मात्रा	
	प्रति दिन स्थानीय निकाय के क्षेत्र में उत्पन्न ठोस अपशिष्ट की अनुमानित मात्रा मीट्रिक टन में	/टीपीडी
	प्रतिदिन संग्रहित ठोस अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन संग्रहित प्रति व्यक्ति अपशिष्ट	/ग्रा./दिन
	प्रसंसकृत ठोस अपशिष्ट की मात्रा	/टीपीडी
	मलबा स्थल/भरण स्थल पर निपटान किए गए ठोस अपशिष्ट की मात्रा	/टीपीडी
8.	ठोस अपशिष्ट प्रबंधन सेवा की स्थिति	
	स्रोत पर अपशिष्ट का पृथक्करण और भंडारण	
	क्या घरेलू/वाणिज्यिक/संस्थागत बिनों में स्रोत पर ठोस अपशिष्ट का भंडारण किया जाता है, यदि हां	हां/नहीं

	घरेलू बिनों में स्रोत पर अपशिष्ट के भंडारण की घरेलू रीति की प्रतिशतता	%
	वाणिज्यिक/संस्थागत बिनों में स्रोत पर अपशिष्ट का गैर आवासीय परिसरों में भंडारण करने की प्रतिशतता	%
	गलियों में घरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	गलियों में गैर आवासीय परिसरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	ठोस अपशिष्ट का घर-घर जाकर संग्रहण	
	क्या शहर/नगर में ठोस अपशिष्ट का घर-घर जाकर संग्रहण किया जाता है	हां/नहीं
	यदि हां, तो अपशिष्ट के घर-घर जाकर संग्रहण किए जाने में शामिल वार्डों की संख्या	
	शामिल किए गए घरों की संख्या	
	शामिल किए गए वाणिज्यिक संस्थापनाओं, होटलों, रेस्तराओं, शैक्षिक संस्थाओं/कार्यालय इत्यादि सहित गैर आवासीय परिसरों की संख्या	
	निम्न के माध्यम से घर-घर जाकर संग्रहण किए जाने में शामिल आवासीय और गैर आवासीय परिसरों की प्रतिशतता : मोटरकृत वाहन कंटेनरकृत तिपहिया साइकिल/हैंड कार्ट अन्य साधन	 % % %
	यदि नहीं, तो संग्रहण में अपनाई गई प्राथमिक पद्धति	
	गलियों में झाड़ू लगाया जाना	
	शहर में सड़कों, गलियों, लेनों, बाइलेनों की लम्बाई जिनकी सफाई किए जाने की आवश्यकता है	कि.मी.
	गली में झाड़ू लगाए जाने की बारंबारता और लाभान्वित जनसंख्या की प्रतिशतता	

बारंबारता	रोजाना	एकांतर दिवस पर	सप्ताह में दो बार	कभी-कभी
लाभान्वित जनसंख्या की प्रतिशतता				

	प्रयुक्त साधन हाथ से झाड़ू लगाया जाना यांत्रिक रूप से झाड़ू लगाया जाना	 % %

	क्या सफाई कर्मचारियों द्वारा लंबी हैंडल वाले झाड़ू का प्रयोग किया जाता है	हां/नही
	क्या प्रत्येक सफाई कर्मचारी को अपशिष्ट का संग्रहण करने के लिए हैंडकार्ट/तिपहिया साइकिल दी जाती है	हां/नही
	क्या हैंडकार्ट/तिपहिया साइकिल में कंटेनर लगा है	हां/नही
	क्या संग्रहण का साधन प्रयोग किए गए संग्रहण/अपशिष्ट भंडारण के कंटेनरों समकालिक है	हां/नही
	द्वितीयक अपशिष्ट भंडारण सुविधाएं	
	शहर/नगर में अपशिष्ट भंडारण डिपो की संख्या और प्रकार खुले अपशिष्ट भंडारण स्थल चिनाई किए गए बिन सीमेंट कंक्रीट सिलिंडर के बिन ढलाव/ढ़के हुए कक्ष/स्थान ढ़के हुए धातु/प्लास्टिक के कंटेनर 1.1 घन मीटर तक के बिन 2 से 5 घन मीटर के बिन 5 घन मीटर से बड़े कंटेनर बिन रहित शहर	संख्या क्षमता घन मीटर में
	बिन/जनसंख्या अनुपात	
	अपशिष्ट भंडारण डिपो का वार्डवार विवरण (संलग्न करें) : वार्ड सं. : क्षेत्रफल : जनसंख्या : रखे हुए बिनों की संख्या रखे गए बिनों का कुल आयतन	
	अपशिष्ट भंडारण सुविधाओं की कुल भंडारण क्षमता घन मीटर में	
	अपशिष्ट भंडारण डिपो में प्रतिदिन वास्तविक रूप से भंडारित कुल अपशिष्ट	

	डिपो से अपशिष्ट के संग्रहण की बारंबारता बताएं साफ किए गए बिनों की संख्या	बारंबारता	बिनों की संख्या
		प्रतिदिन	
		एकांतर दिवस	
		सप्ताह में दो बार	
		सप्ताह में एक बार	
		कभी-कभी	
	क्या भंडारण डिपो में पृथककृत अपशिष्ट को हरे, नीले और काले बिनों में भंडार करके रखने की सुविधा है	हां/नहीं (यदि हां तो विवरण दें) हरे बिनों की संख्या : नीले बिनों की संख्या : काले बिनों की संख्या :	
	भंडारण डिपो से ठोस अपशिष्ट उठाने का कार्य हाथ से किया जाता है या यांत्रिक तरीके से? प्रतिशत बताएं ठोस अपशिष्ट को हाथ से उठाए जाने की प्रतिशतता यात्रिक तरीके से उठाने की प्रतिशतता	% %	
	यदि यांत्रिक है तो प्रयुक्त पद्धति का स्पष्ट उल्लेख करें	फ्रंट-एंड लोडर/टॉप लोडर	
	क्या ठोस अपशिष्ट को घर-घर से उठाया जाता है और पृथककृत स्वरूप में सीधे शोधन संयंत्र तक भेजा जाता है	हां/नहीं (यदि हां तो स्पष्ट उल्लेख करें)	
	प्रतिदिन अपशिष्ट का परिवहन प्रयोग किए गए वाहनों का प्रकार और संख्या	अपशिष्ट का परिवहन करने में लगाए गए फेरों की संख्या	

	पशु गाड़ी ट्रैक्टर नॉन टीपिंग ट्रक टीपिंग ट्रक डम्पर प्लेसर अवशिष्ट संग्राहक कम्पैक्टर अन्य जेसीबी - लोडर	
	अपशिष्ट के परिवहन की बारंबारता	बारंबारता — परिवहन किए गए अपशिष्ट का प्रतिशत प्रतिदिन एकांतर दिवस पर सप्ताह में दो बार सप्ताह में एक बार कभी-कभी
	प्रत्येक दिन परिवहन किए गए अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन परिवहन किए गए कुल अपशिष्ट की प्रतिशतता	%
	प्रयोग की गई अपशिष्ट शोधन प्रौद्योगिकियां	
	क्या ठोस अपशिष्ट का प्रसंस्करण किया गया है	हां/नहीं
	यदि हां, तो प्रतिदिन प्रसंस्करण किए गए अपशिष्ट की मात्रा	/टीपीडी
	क्या शोधन का कार्य स्थानीय निकाय या किसी अभिकरण के माध्यम से किया जाता है	
	अपशिष्ट प्रसंस्करण के लिए स्थानीय निकाय के पास उपलब्ध भूमि (हेक्टेयर में)	
	अपशिष्ट प्रसंस्करण के लिए वर्तमान में प्रयुक्त भूमि	
	प्रचालनरत ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	निर्माणाधीन ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	शहर/नगर की सीमा से प्रसंस्करण सुविधाओं की दूरी	

	अपनाई गई प्रौद्योगिकियों का विवरण	
	कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	वर्मी कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	बायो-मिथेनेशन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	अवशिष्ट जनित ईंधन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	सह-प्रसंस्करण	प्रसंस्करण की गई कच्ची सामग्री
	सीमेंट संयंत्र को आपूर्तित दहनशील अपशिष्ट	
	ठोस अपशिष्ट आधारित विद्युत संयंत्रों को आपूर्तित दहनशील अपशिष्ट	
	अन्य	मात्रा
	ठोस अपशिष्ट निपटान सुविधाएं	
	स्थानीय निकाय के पास उपलब्ध मलबा स्थलों की संख्या	
	स्थानीय निकाय के पास उपलब्ध स्वास्थ्यकर भरण स्थलों की संख्या	

	अपशिष्ट के निपटान हेतु उपलब्ध ऐसे प्रत्येक स्थल का क्षेत्रफल	
	अपशिष्ट के निपटान के लिए वर्तमान में प्रयुक्त भूमि का क्षेत्रफल	
	शहर/नगर से मलबा स्थल/भरण सुविधा की दूरी	कि.मी.
	निकटतम वसावट से दूरी	कि.मी.
	जल निकाय से दूरी	कि.मी.
	राज्य/राष्ट्रीय राजमार्ग से दूरी	कि.मी.
	विमानपत्तन से दूरी	कि.मी.
	महत्वपूर्ण धार्मिक स्थलों या ऐतिहासिक स्मारक से दूरी	कि.मी.
	क्या यह बाढ़ संभावित क्षेत्र में पड़ता है	हां/नहीं
	क्या यह भूकंप संभावित क्षेत्र में पड़ता है	हां/नहीं
	प्रत्येक दिन भरण में डाले गए अपशिष्ट की मात्रा	टीपीडी
	क्या भरण स्थल को घेरा गया है	हां/नहीं
	क्या स्थल पर रोशनी की सुविधा उपलब्ध है	हां/नहीं
	क्या धर्मकांटा सुविधा उपलब्ध है	हां/नहीं
	भरण स्थल पर प्रयुक्त वाहन और उपकरण (स्पष्ट करें)	उपलब्ध बुलडोजर, कम्पैक्टर इत्यादि
	भरण स्थल पर नियोजित जनशक्ति	हां/नहीं (यदि हां तो विवरण संलग्न करें)
	क्या ढ़कने का काम दैनिक आधार पर किया जाता है	हां/नहीं
	यदि नहीं, तो भरण स्थल पर जमा अपशिष्ट को ढ़कने की बारंबारता	
	ढ़कने के लिए प्रयुक्त सामग्री	
	क्या ढ़कने की पर्याप्त सामग्री उपलब्ध है	हां/नहीं
	क्या गैस निकलने की व्यवस्था की गई है	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
	निक्षालन संग्रहण का प्रावधान	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
9.	क्या शहर में ठोस अपशिष्ट प्रबंधन पद्धतियों में सुधार लाने के लिए कार्ययोजना बनाई गई है	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
10.	निम्न के लिए कौन से पृथक प्रावधान किए गए हैं : डेयरी से संबंधित कार्यकलाप : बूचड़खाने के अपशिष्ट : निर्माण एवं विध्वंस अपशिष्ट (निर्माण मलबा) :	प्रस्तावों, उठाए गए कदमों के संबंध में विवरण संलग्न करें हां/नहीं

		हां/नहीं हां/नहीं
11.	पश्च संवृत्ति योजना का विवरण	योजना संलग्न करें
12.	कितनी मलिन बस्तियों का निर्धारण किया गया है और क्या इनमें ठोस अपशिष्ट प्रबंधन सुविधाएं उपलब्ध कराई गई हैं :	हां/नहीं (यदि हां, तो विवरण संलग्न करें)
13.	कृपया विवरण दें : गली में झाड़ू लगाने, अपशिष्ट के द्वितीयक भंडारण, परिवहन, प्रसंस्करण और निपटान सहित संग्रहण के लिए स्थानीय निकाय की स्वयं की जनशक्ति	
14.	कृपया विवरण दें : गली में झाड़ू लगाने, अपशिष्ट के द्वितीयक भंडारण, परिवहन, प्रसंस्करण और निपटान सहित संग्रहण के लिए ठेकेदार/रियायतग्राही की नियोजित जनशक्ति	
15.	इन नियमों के प्रावधानों का अनुपालन करने में स्थानीय निकाय द्वारा महसूस की जा रही कठिनाइयों का संक्षेप में उल्लेख करें	
16.	ठोस अपशिष्ट से संबंधित समस्या से निपटने के लिए किसी अभिनव विचार का संक्षेप में उल्लेख करें जिसे अन्य स्थानीय निकायों द्वारा अपनाया जा सके	

मुख्य कार्यकारी अधिकारी/

नगरपालिका आयुक्त/कार्यकारी अधिकारी/

मुख्य अधिकारी के हस्ताक्षर

तारीख :

स्थान :

प्ररुप-V

[नियम 24(3) देखें]

राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समितियों द्वारा केन्द्रीय प्रदूषण नियंत्रण बोर्ड को प्रस्तुत की जाने वाली वार्षिक रिपोर्ट का प्रपत्र

भाग क

सेवा में,

अध्यक्ष,

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
परिवेश भवन, पूर्वी अर्जुन नगर,

दिल्ली-110032

1.	राज्य/संघ राज्य क्षेत्र का नाम	:	
2.	राज्य प्रदूषण नियंत्रण बोर्ड का नाम और पता	:	
3.	इन नियमों के अंतर्गत राज्य/संघ राज्य क्षेत्र में ठोस अपशिष्टों के प्रबंधन के लिए उत्तरदायी स्थानीय निकायों की संख्या	:	
4.	प्राप्त हुए प्राधिकार आवेदनों की संख्या	:	
5.	ठोस अपशिष्ट प्रबंधन के संबंध में स्थानीय निकाय द्वारा की गई प्रगति के संबंध में सारांश विवरण	:	कृपया अनुबंध- I के रूप में संलग्न करें
6.	अपशिष्ट संग्रहण, पृथक्करण, परिवहन और निपटान के संबंध में स्थानीय निकायों द्वारा की गई प्रगति के संबंध में सारांश विवरण	:	कृपया अनुबंध- II के रूप में संलग्न करें
7.	अनुसूची II के कार्यान्वयन के संबंध में स्थानीय निकायों द्वारा की गई प्रगति के संबंध में सारांश विवरण	:	कृपया अनुबंध- III के रूप में संलग्न करें

तारीख :	अध्यक्ष या सदस्य सचिव
स्थान :	राज्य प्रदूषण नियंत्रण बोर्ड/
	प्रदूषण नियंत्रण समिति

भाग ख

नगर/शहर

नगरों/शहरों की कुल संख्या

शहरी स्थानीय निकायों की कुल संख्या

श्रेणी-I तथा श्रेणी-II नगरों/शहरों की संख्या

प्राधिकार की स्थिति (नाम/संख्या)

प्राप्त हुए आवेदनों की संख्या

प्रदान किए गए प्राधिकारों की संख्या

जांच के अधीन प्राधिकार

ठोस अपशिष्ट उत्पादन की स्थिति

राज्य में ठोस अपशिष्ट उत्पादन (टीपीडी)

संग्रहित

शोधित

खत्ते में डाले गए

ठोस अपशिष्ट नियम की अनुसूची I का अनुपालन (नगरों की संख्या/नाम/क्षमता)

शहरों/नगरों में अच्छी रीतियां

घर-घर से संग्रहण

पृथक्करण

भंडारण

आवृत्त परिवहन

ठोस अपशिष्ट का प्रसंस्करण (नगरों की संख्या/नाम/क्षमता)

ठोस अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना :

क्रम सं.	कम्पोस्टिंग	वर्मी-कम्पोस्टिंग	बायो गैस	आरडीएफ/गुटिकाकरण

प्रचालनरत प्रसंस्करण सुविधा

क्रम सं.	कम्पोस्टिंग	वर्मी -कम्पोस्टिंग	बायो गैस	आरडीएफ/गुटिकाकरण

संस्थापनाधीन/योजनाकृत प्रसंस्करण सुविधा

क्रम सं.	कम्पोस्टिंग	वर्मी-कम्पोस्टिंग	बायो गैस	आरडीएफ/गुटिकाकरण

अपशिष्ट से ऊर्जा संयंत्र : (नगरों की संख्या/नाम/क्षमता)

क्रम सं.	संयंत्र का स्थान	प्रचालन की स्थिति	विद्युत उत्पादन (मेगा वाट)	अभ्युक्ति

ठोस अपशिष्ट का निपटान (नगरों की संख्या/नाम/क्षमता)

अभिनिर्धारित भरण स्थल

निर्मित भरण स्थल

निर्माणाधीन भरण स्थल

प्रचालनरत भरण स्थल

निश्शेषित भरण स्थल

आच्छादित भरण स्थल

ठोस अपशिष्ट मलबा स्थल (नगरों की संख्या/नाम/क्षमता)

विद्यमान मलबा स्थलों की कुल संख्या

पुनर्निर्मित/आच्छादित भरण स्थल

स्वास्थ्यकर भरण स्थल में परिवर्तित मलबा स्थल

अपशिष्ट प्रसंस्करण/भरण स्थलों पर निगरानी

क्रम सं.	सुविधाओं का नाम	परिवेशी वायु	भू जल	निक्षालन की गुणवत्ता	कंपोस्ट की गुणवत्ता	वीओसी
1.						
2.						
3.						

नगरपालिकाओं द्वारा तैयार की गई कार्य योजनाओं की स्थिति

नगरपालिकाओं की कुल संख्या:

प्रस्तुत की गई कार्य योजना की संख्या:

प्ररुप-VI

[नियम 25 देखें]

दुर्घटना का प्रतिवेदन

1.	दुर्घटना की तारीख और समय	:	
2.	दुर्घटना के लिए कारकों का अनुक्रम	:	
3.	दुर्घटना में शामिल अपशिष्ट	:	
4.	मानव स्वास्थ्य और पर्यावरण पर दुर्घटनाओं के प्रभावों का मूल्यांकन	:	
5.	किए गए आपातकालीन उपाय	:	
6.	दुर्घटनाओं के प्रभावों को कम करने के लिए उठाए गए कदम	:	
7.	ऐसी किसी दुर्घटना की पुनरावृत्ति को रोकने के लिए उठाए गए कदम	:	
तारीख		हस्ताक्षर	
स्थान		पदनाम	

[फा. सं.18-3/2004-एचएसएमडी]

विश्वनाथ सिन्हा, संयुक्त सचिव

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 8th April, 2016

S.O. 1357(E).—Whereas the draft of the Solid Waste Management Rules, 2015 were published under the notification of the Government of India in the Ministry of Environment, Forest and Climate Change number G.S.R. 451 (E), dated the 3rd June, 2015 in the Gazette of India, part II, Section3, sub- section (i) of the same date inviting objections or suggestions from the persons likely to be affected thereby, before the expiry of the period of sixty days from the publication of the said notification on the Solid Waste Management Rules, 2015 in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000;

And whereas, copies of the said Gazette were made available to the public on the 3rd June, 2015;

And whereas, the objections or comments received within the stipulated period were duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sections 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) and in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000, except as respect things done or omitted to be done before such supersession, the Central Government hereby makes the following rules for management of Solid Waste, namely:-

1. **Short title and commencement.-**

(1) These rules may be called the Solid Waste Management Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. **Application.-** These rules shall apply to every urban local body, outgrowths in urban agglomerations, census towns as declared by the Registrar General and Census Commissioner of India, notified areas, notified industrial townships, areas under the control of Indian Railways, airports, airbases, Ports and harbours, defence establishments, special economic zones, State and Central government organisations, places of pilgrims, religious and historical importance as may be notified by respective State government from time to time and to every domestic, institutional, commercial and any other non residential solid waste generator situated in the areas except industrial waste, hazardous waste, hazardous chemicals, bio medical wastes, e-waste, lead acid batteries and radio-active waste, that are covered under separate rules framed under the Environment (Protection) Act, 1986**.**

3. **Definitions –**(1) In these rules, unless the context otherwise requires,- (1) **"aerobic composting"** means a controlled process involving microbial decomposition of organic matter in the presence of oxygen;

2. **"anaerobic digestion"** means a controlled process involving microbial decomposition of organic matter in absence of oxygen;

3. **"authorisation"** means the permission given by the State Pollution Control Board or Pollution Control Committee, as the case may be, to the operator of a facility or urban local suthority, or any other agency responsible for processing and disposal of solid waste;

4. **"biodegradable waste "** means any organic material that can be degraded by micro-organisms into simpler stable compounds;

5. **"bio-methanation"** means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas;

6. **"brand owner"** means a person or company who sells any commodity under a registered brand label.

7. "**buffer zone**" means zone of no development to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total and area allotted for the solid waste processing and disposal facility.

8. **"bulk waste generator"** means and includes buildings occupied by the Central government departments or undertakings, State government departments or undertakings, local bodies, public sector undertakings or private companies, hospitals, nursing homes, schools, colleges, universities, other educational institutions, hostels, hotels, commercial establishments, markets, places of worship, stadia and sports complexes having an average waste generation rate exceeding 100kg per day**;**

9. **"bye-laws"** means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these rules effectively in their jurisdiction**.**

10. **"census town"** means an urban area as defined by the Registrar General and Census Commissioner of India;

11. **"combustible waste"** means non-biodegradable, non-recyclable, non-reusable, non hazardous solid waste having minimum calorific value exceeding 1500 kcal/kg and excluding chlorinated materials like plastic, wood pulp, etc**;**

12. "**composting"** means a controlled process involving microbial decomposition of organic matter;

13. "**contractor**" means a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job for service providing authority;

14. **"co-processing"** means use of non-biodegradable and non recyclable solid waste having calorific value exceeding 1500k/cal as raw material or as a source of energy or both to replace or supplement the natural mineral resources and fossil fuels in industrial processes;

15. **"decentralised processing"** means establishment of dispersed facilities for maximizing the processing of bio-degradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal;

16. "**disposal"** means the final and safe disposal of post processed residual solid waste and inert street sweepings and silt from surface drains on land as specified in Schedule I to prevent contamination of ground water, surface water, ambient air and attraction of animals or birds;

17. **"domestic hazardous waste"** means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level;

18. **"door to door collection" m**eans collection of solid waste from the door step of households, shops, commercial establishments , offices , institutional or any other non residential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society , multi storied building or apartments , large residential, commercial or institutional complex or premises;**.**

19. **"dry waste"** means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non recyclable waste, combustible waste and sanitary napkin and diapers, etc;

20. **"dump sites"** means a land utilised by local body for disposal of solid waste without following the principles of sanitary land filling;

21. **"extended producer responsibility" (EPR)** means responsibility of any producer of packaging products such as plastic, tin, glass and corrugated boxes, etc., for environmentally sound management, till end-of-life of the packaging products;

22. **"facility"** means any establishment wherein the solid waste management processes namely segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal are carried out;

23. **"fine" means** penalty imposed on waste generators or operators of waste processing and disposal facilities under the bye-laws for non-compliance of the directions contained in these rules and/or bye- laws

24. **"Form"** means a F8orm appended to these rules;

25. **"handling"** includes all activities relating to sorting, segregation, material recovery, collection, secondary storage, shredding, baling, crushing, loading, unloading, transportation, processing and disposal of solid wastes;

26. **"inerts"** means wastes which are not bio-degradable, recyclable or combustible street sweeping or dust and silt removed from the surface drains;

27. **"incineration"** means an engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures;

28. **"informal waste collector"** includes individuals, associations or waste traders who are involved in sorting, sale and purchase of recyclable materials;

29. "**leachate"** means the liquid that seeps through solid waste or other medium and has extracts of dissolved or suspended material from it;

30. **" local body"** for the purpose of these rules means and includes the municipal corporation, nagar nigam, municipal council, nagarpalika, nagar Palikaparishad, municipal board, nagar panchayat and town panchayat, census towns, notified areas and notified industrial townships with whatever name they are called in different States and union territories in India;

31. "**materials recovery facility" (MRF)** means a facility where non-compostable solid waste can be temporarily stored by the local body or any other entity mentioned in rule 2 or any person or agency authorised by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorised informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity mentioned in rule 2for the purpose before the waste is delivered or taken up for its processing or disposal;

32. **"non-biodegradable waste"** means any waste that cannot be degraded by micro organisms into simpler stable compounds;

33. **"operator of a facility"** means a person or entity, who owns or operates a facility for handling solid waste which includes the local body and any other entity or agency appointed by the local body;

34. **primary collection"** means collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices and any other non-residential premises or from any collection points or any other location specified by the local body;

35. "**processing"** means any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products**;**

36. **"recycling**" means the process of transforming segregated non-biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original products;

37. **"redevelopment"** means rebuilding of old residential or commercial buildings at the same site, where the existing buildings and other infrastructures have become dilapidated;

38. **"refused derived fuel**"(RDF) means fuel derived from combustible waste fraction of solid waste like plastic, wood, pulp or organic waste, other than chlorinated materials, in the form of pellets or fluff produced by drying, shredding, dehydrating and compacting of solid waste ;

39. "**residual solid waste"** means and includes the waste and rejects from the solid waste processing facilities which are not suitable for recycling or further processing;

40. **"sanitary land filling "** means the final and safe disposal of residual solid waste and inert wastes on land in a facility designed with protective measures against pollution of ground water, surface water and fugitive air dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants slope instability and erosion;

41. **"sanitary waste"** means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste;

42. **"Schedule"** means the Schedule appended to these rules;

43. "**secondary storage**" means the temporary containment of solid waste after collection at secondary waste storage depots or MRFs or bins for onward transportation of the waste to the processing or disposal facility;

44. **"segregation"** means sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non biodegradable wastes including recyclable waste, non-recyclable combustible waste, sanitary waste and non recyclable inert waste, domestic hazardous wastes, and construction and demolition wastes;

45. **"service provider"** means an authority providing public utility services like water, sewerage, electricity, telephone, roads, drainage, etc;

46. **"solid waste"** means and includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities and other entities mentioned in rule 2;

47. **"sorting"** means separating various components and categories of recyclables such as paper, plastic, card-boards, metal, glass, etc., from mixed waste as may be appropriate to facilitate recycling;

48. **"stabilising"** means the biological decomposition of biodegradable wastes to a stable state where it generates no leachate or offensive odours and is fit for application to farm land ,soil erosion control and soil remediation;

49. **"street vendor"** means any person engaged in vending of articles, goods, wares, food items or merchandise of everyday use or offering services to the general public, in a street, lane, side walk, footpath, pavement, public park or any other public place or private area, from a temporary built up structure or by moving from place to place and includes hawker, peddler, squatter and all other synonymous terms which may be local or region specific; and the words "street vending" with their grammatical variations and cognate expressions, shall be construed accordingly;

50. **"tipping fee"** means a fee or support price determined by the local authorities or any state agency authorised by the State government to be paid to the concessionaire or operator of waste processing facility or for disposal of residual solid waste at the landfill;

51. **"transfer station"** means a facility created to receive solid waste from collection areas and transport in bulk in covered vehicles or containers to waste processing and, or, disposal facilities;

52. **"transportation"** means conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions;

53. **"treatment"** means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its volume and potential to cause harm;

54. **"user fee"** means a fee imposed by the local body and any entity mentioned in rule 2 on the waste generator to cover full or part cost of providing solid waste collection, transportation, processing and disposal services.

55. "**vermi composting"** means the process of conversion of bio-degradable waste into compost using earth worms;

56. "**waste generator**" means and includes every person or group of persons, every residential premises and non residential establishments including Indian Railways, defense establishments, which generate solid waste;

57. **"waste hierarchy"** means the priority order in which the solid waste is to should be managed by giving

emphasis to prevention, reduction, reuse, recycling, recovery and disposal, with prevention being the most preferred option and the disposal at the landfill being the least;

58. **"waste picker"** means a person or groups of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation the streets, bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood.

(2) Words and expressions used herein but not defined, but defined in the Environment (Protection) Act, 1986, the Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and the Air (prevention and Control of Pollution) Act, 1981 shall have the same meaning as assigned to them in the respective Acts.

4 Duties of waste generators.- (1) Every waste generator shall,-

(a) segregate and store the waste generated by them in three separate streams namely bio-degradable, non bio-degradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the local authorities from time to time;

(b) wrap securely the used sanitary waste like diapers, sanitary pads etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities and shall place the same in the bin meant for dry waste or non- bio-degradable waste;

(c) store separately construction and demolition waste, as and when generated, in his own premises and shall dispose off as per the Construction and Demolition Waste Management Rules, 2016; and

(d) store horticulture waste and garden waste generated from his premises separately in his own premises and dispose of as per the directions of the local body from time to time.

(2) No waste generator shall throw**,** burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.

(3) All waste generators shall pay such user fee for solid waste management, as specified in the bye-laws of the local bodies.

(4) No person shall organise an event or gathering of more than one hundred persons at any unlicensed place without intimating the local body, at least three working days in advance and such person or the organiser of such event shall ensure segregation of waste at source and handing over of segregated waste to waste collector or agency as specified by the local body.

(5) Every street vendor shall keep suitable containers for storage of waste generated during the course of his activity such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits, etc., and shall deposit such waste at waste storage depot or container or vehicle as notified by the local body**.**

(6) All resident welfare and market associations shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(7) All gated communities and institutions with more than 5,000 sqm area shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorizsd recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(8) All hotels and restaurants shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

5. Duties of Ministry of Environment, Forest and Climate Change.- (1) The Ministry of Environment, Forest and Climate Change shall be responsible for over all monitoring the implementation of these rules in the country. It shall constitute a Central Monitoring Committee under the Chairmanship of Secretary, Ministry of Environment, Forest and Climate Change comprising officer not below the rank of Joint Secretary or Advisor from the following namely,-

1) Ministry of Urban Development

2) Ministry of Rural Development

3) Ministry of Chemicals and Fertilizers

4) Ministry of Agriculture

5) Central Pollution Control Board

6) Three State Pollution Control Boards or Pollution Control Committees by rotation

7) Urban Development Departments of three State Governments by rotation

8) Rural Development Departments from two State Governments by rotation

9) Three Urban Local bodies by rotation

10) Two census towns by rotation

11) FICCI, CII

12) Two subject experts

2. This Central Monitoring Committee shall meet at least once in a year to monitor and review the implementation of these rules. The Ministry of Environment, Forest and Climate Change may co-opt other experts, if needed. The Committee shall be renewed every three years.

6. Duties of Ministry of Urban Development.- (1) The Ministry of Urban Development shall coordinate with State Governments and Union territory Administrations to,-

(a) take periodic review of the measures taken by the states and local bodies for improving solid waste management practices and execution of solid waste management projects funded by the Ministry and external agencies at least once in a year and give advice on taking corrective measures;

(b) formulate national policy and strategy on solid waste management including policy on waste to energy in consultation with stakeholders within six months from the date of notification of these rules;

(c) facilitate States and Union Territories in formulation of state policy and strategy on solid management based on national solid waste management policy and national urban sanitation policy;

(d) promote research and development in solid waste management sector and disseminate information to States and local bodies;

(e) undertake training and capacity building of local bodies and other stakeholders;and

(f) provide technical guidelines and project finance to states, Union territories and local bodies on solid waste management to facilitate meeting timelines and standards.

7. Duties of Department of Fertilisers, Ministry of Chemicals and Fertilisers.- (1) The Department of Fertilisers through appropriate mechanisms shall,-

(a) provide market development assistance on city compost; and

(b) ensure promotion of co-marketing of compost with chemical fertilisers in the ratio of 3 to 4 bags: 6 to 7 bags by the fertiliser companies to the extent compost is made availablefor marketing to the companies.

8. Duties of Ministry of Agriculture, Government of India.- The Ministry of Agriculture through appropriate mechanisms shall,-

(a) provide flexibility in Fertiliser Control Order for manufacturing and sale of compost;

(b) propagate utlisation of compost on farm land;

(c) set up laboratories to test quality of compost produced by local authorities or their authorised agencies; and

(d) issue suitable guidelines for maintaining the quality of compost and ratio of use of compost visa-a-vis chemical fertilizers while applying compost to farmland.

9. Duties of the Ministry of Power.-The Ministry of Power through appropriate mechanisms shall,-

(a) decide tariff or charges for the power generated from the waste to energy plants based on solid waste.

(b) compulsory purchase power generated from such waste to energy plants by distribution company.

10. Duties of Ministry of New and Renewable Energy Sources- The Ministry of New and Renewable Energy Sources through appropriate mechanisms shall,-

(a) facilitate infrastructure creation for waste to energy plants; and

(b) provide appropriate subsidy or incentives for such waste to energy plants.

11. Duties of the Secretary–in-charge, Urban Development in the States and Union territories.- (1) The Secretary, Urban Development Department in the State or Union territory through the Commissioner or Director of Municipal Administration or Director of local bodies shall,-

(a) prepare a state policy and solid waste management strategy for the state or the union territory in consultation with stakeholders including representative of waste pickers**,** self help group and similar groups working in the field of waste management consistent with these rules, national policy on solid waste management and national urban sanitation policy of the ministry of urban development, in a period not later than one year from the date of notification of these rules;

(b) while preparing State policy and strategy on solid waste management, lay emphasis on waste reduction, reuse, recycling, recovery and optimum utilisation of various components of solid waste to ensure minimisation of waste going to the landfill and minimise impact of solid waste on human health and environment;

(c) state policies and strategies should acknowledge the primary role played by the informal sector of waste pickers, waste collectors and recycling industry in reducing waste and provide broad guidelines regarding integration of waste picker or informal waste collectors in the waste management system.

(d) ensure implementation of provisions of these rules by all local authorities;

(e) direct the town planning department of the State to ensure that master plan of every city in the State or Union territory provisions for setting up of solid waste processing and disposal facilities except for the cities who are members of common waste processing facility or regional sanitary landfill for a group of cities; and

(f) ensure identification and allocation of suitable land to the local bodies within one year for setting up of processing and disposal facilities for solid wastes and incorporate them in the master plans (land use plan) of the State or as the case may be, cities through metropolitan and district planning committees or town and country planning department;

(h) direct the town planning department of the State and local bodies to ensure that a separate space for segregation, storage, decentralised processing of solid waste is demarcated in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling or having a plot area exceeding 5,000 square meters;

(i) direct the developers of Special Economic Zone, Industrial Estate, Industrial Park to earmark at least five percent of the total area of the plot or minimum five plots or sheds for recovery and recycling facility.

(j) facilitate establishment of common regional sanitary land fill for a group of cities and towns falling within a distance of 50 km (or more) from the regional facility on a cost sharing basis and ensure professional management of such sanitary landfills;

(k) arrange for capacity building of local bodies in managing solid waste, segregation and transportation or processing of such waste at source;

(l) notify buffer zone for the solid waste processing and disposal facilities of more than five tons per day in consultation with the State Pollution Control Board; and

(m) start a scheme on registration of waste pickers and waste dealers.

12. Duties of District Magistrate or District Collector or Deputy Commissioner.- The District Magistrate or District Collector or as the case may be , the Deputy Commissioner shall, -

(a) facilitate identification and allocation of suitable land as per clause (f) of rules 11 for setting up solid waste processing and disposal facilities to local authorities in his district in close coordination with the Secretary-in-charge of State Urban Development Department within one year from the date of notification of these rules;

(b) review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development.

13. Duties of the Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory.- (1) The Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory shall have the same duties as the Secretary–in-charge, Urban Development in the States and Union territories, for the areas which are covered under these rules and are under their jurisdictions.

14. Duties of Central Pollution Control Board.-The Central Pollution Control Board shall, -

(a) co-ordinate with the State Pollution Control Boards and the Pollution Control Committees for implementation of these rules and adherence to the prescribed standards by local authorities;

(b) formulate the standards for ground water, ambient air, noise pollution, leachate in respect of all solid waste processing and disposal facilities;

(c) review environmental standards and norms prescribed for solid waste processing facilities or treatment technologies and update them as and when required;

(d) review through State Pollution Control Boards or Pollution Control Committees, at least once in a year, the implementation of prescribed environmental standards for solid waste processing facilities or treatment technologies and compile the data monitored by them;

(e) review the proposals of State Pollution Control Boards or Pollution Control Committees on use of any new technologies for processing, recycling and treatment of solid waste and prescribe performance standards, emission norms for the same within 6 months;

(f) monitor through State Pollution Control Boards or Pollution Control Committees the implementation of these rules by local bodies;

(g) prepare an annual report on implementation of these rules on the basis of reports received from State Pollution Control Boards and Committees and submit to the Ministry of Environment, Forest and Climate Change and the report shall also be put in public domain;

(h) publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tons per day of solid waste;

(i) publish guidelines, from time to time, on environmental aspects of processing and disposal of solid waste to enable local bodies to comply with the provisions of these rules; and

(j) provide guidance to States or Union territories on inter-state movement of waste.

15. Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations.- The local authorities and Panchayats shall,-

(a) prepare a solid waste management plan as per state policy and strategy on solid waste management within six months from the date of notification of state policy and strategy and submit a copy to respective departments of State Government or Union territory Administration or agency authorised by the State Government or Union territory Administration;

(b) arrange for door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location;

(c) establish a system to recognise organisations of waste pickers or informal waste collectors and promote and establish a system for integration of these authorised waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste;

(d) facilitate formation of Self Help Groups, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;

(e) frame bye-laws incorporating the provisions of these rules within one year from the date of notification of these rules and ensure timely implementation;

(f) prescribe from time to time user fee as deemed appropriate and collect the fee from the waste generators on its own or through authorised agency;

(g) direct waste generators not to litter i.e throw or dispose of any waste such as paper, water bottles, liquor bottles, soft drink canes, tetra packs, fruit peel, wrappers, etc., or burn or burry waste on streets, open public spaces, drains, waste bodies and to segregate the waste at source as prescribed under these rules and hand over the segregated waste to authorised the waste pickers or waste collectors authorised by the local body;

(h) setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities; Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be printed white and those for storage of other wastes shall be printed black;

(i) establish waste deposition centres for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal. Such facility shall be established in a city or town in a manner that one centre is set up for the area of twenty square kilometers or part thereof and notify the timings of receiving domestic hazardous waste at such centres;

(j) ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility or as may be directed by the State Pollution Control Board or the Pollution Control Committee;

(k) direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and handover to the waste collectors or agency authorised by local body;

(l) provide training on solid waste management to waste-pickers and waste collectors;

(m) collect waste from vegetable, fruit, flower, meat, poultry and fish market on day to day basis and promote setting up of decentralised compost plant or bio-methanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;

(n) collect separately waste from sweeping of streets, lanes and by-lanes daily, or on alternate days or twice a week depending on the density of population, commercial activity and local situation;

(o) set up covered secondary storage facility for temporary storage of street sweepings and silt removed from surface drains in cases where direct collection of such waste into transport vehicles is not convenient. Waste so collected shall be collected and disposed of at regular intervals as decided by the local body;

(p) collect horticulture, parks and garden waste separately and process in the parks and gardens, as far as possible;

(q) transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility. Preference shall be given for on site processing of such waste;

(r) transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility;

(s) transport construction and demolition waste as per the provisions of the Construction and Demolition Waste management Rules, 2016;

(t) involve communities in waste management and promotion of home composting, bio-gas generation, decentralised processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facility;

(u) phase out the use of chemical fertilizer in two years and use compost in all parks, gardens maintained by the local body and wherever possible in other places under its jurisdiction. Incentives may be provided to recycling initiatives by informal waste recycling sector.

(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as-

a) bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;

b) waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;

(w) undertake on their own or through any other agency construction, operation and maintenance of sanitary landfill and associated infrastructure as per Schedule 1 for disposal of residual wastes in a manner prescribed under these rules;

(x) make adequate provision of funds for capital investments as well as operation and maintenance of solid waste management services in the annual budget ensuring that funds for discretionary functions of the local body have been allocated only after meeting the requirement of necessary funds for solid waste management and other obligatory functions of the local body as per these rules;

(y) make an application in Form-I for grant of authorisation for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tones per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be;

(z) submit application for renewal of authorisation at least sixty days before the expiry of the validity of authorisation;

(za) prepare and submit annual report in Form IV on or before the 30th April of the succeeding year to the Commissioner or Director, Municipal Administration or designated Officer;

(zb) the annual report shall then be sent to the Secretary -in-Charge of the State Urban Development Department or village panchayat or rural development department and to the respective State Pollution Control Board or Pollution Control Committee by the 31st May of every year;

(zc) educate workers including contract workers and supervisors for door to door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility;

(zd) ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, raincoats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the workforce;

(ze) ensure that provisions for setting up of centers for collection, segregation and storage of segregated wastes, are incorporated in building plan while granting approval of building plan of a group housing society or market complex; and

(zf) frame bye-laws and prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules and delegate powers to officers or local bodies to levy spot fines as per the bye laws framed; and

(zg) create public awareness through information, education and communication campaign and educate the waste generators on the following; namely:-

(i) not to litter;

(ii) minimise generation of waste;

(iii) reuse the waste to the extent possible;

(iv) practice segregation of waste into bio–degradable, non-biodegradable (recyclable and combustible), sanitary waste and domestic hazardous wastes at source;

(v) practice home composting, vermi-composting, bio-gas generation or community level composting;

(vi) wrap securely used sanitary waste as and when generated in the pouches provided by the brand owners or a suitable wrapping as prescribed by the local body and place the same in the bin meant for non-biodegradable waste;

(vii) storage of segregated waste at source in different bins;

(viii) handover segregated waste to waste pickers, waste collectors, recyclers or waste collection agencies; and

(ix) pay monthly user fee or charges to waste collectors or local bodies or any other person authorised by the local body for sustainability of solid waste management.

(zh) stop land filling or dumping of mixed waste soon after the timeline as specified in rule 23 for setting up and operationalisation of sanitary landfill is over;

(zi) allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill and the sanitary landfill sites shall meet the specifications as given in Schedule–I, however, every effort shall be made to recycle or reuse the rejects to achieve the desired objective of zero waste going to landfill;

(zj) investigate and analyse all old open dumpsites and existing operational dumpsites for their potential of bio-mining and bio-remediation and wheresoever feasible, take necessary actions to bio-mine or bio-remediate the sites;

(zk) in absence of the potential of bio-mining and bio-remediation of dumpsite, it shall be scientifically capped as per landfill capping norms to prevent further damage to the environment.

16. Duties of State Pollution Control Board or Pollution Control Committee.- (1) The State Pollution Control Board or Pollution Control Committee shall,-

(a) enforce these rules in their State through local bodies in their respective jurisdiction and review implementation of these rules at least twice a year in close coordination with concerned Directorate of Municipal Administration or Secretary-in-charge of State Urban Development Department;

(b) monitor environmental standards and adherence to conditions as specified under the Schedule I and Schedule II for waste processing and disposal sites;

(c) examine the proposal for authorisation and make such inquiries as deemed fit, after the receipt of the application for the same in Form I from the local body or any other agency authorised by the local body;

(d) while examining the proposal for authorisation, the requirement of consents under respective enactments and views of other agencies like the State Urban Development Department, the Town and Country Planning Department, District Planning Committee or Metropolitan Area Planning Committee, as may be applicable, Airport or Airbase Authority, the Ground Water Board, Railways, power distribution companies, highway department and other relevant agencies shall be taken into consideration and they shall be given four weeks time to give their views, if any;

(e) issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

(f) synchronise the validity of said authorisation with the validity of the consents;

(g) suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated:

provided that no such authorization shall be suspended or cancelled without giving notice to the local body or operator, as the case may be; and

(h) on receipt of application for renewal, renew the authorisation for next five years, after examining every application on merit and subject to the condition that the operator of the facility has fulfilled all the provisions of the rules, standards or conditions specified in the authorisation, consents or environment clearance.

(2) The State Pollution Control Board or Pollution Control Committee shall, after giving reasonable opportunity of being heard to the applicant and for reasons thereof to be recorded in writing, refuse to grant or renew an authorisation.

(3) In case of new technologies, where no standards have been prescribed by the Central Pollution Control Board, State Pollution Control Board or Pollution Control Committee, as the case may be, shall approach Central Pollution Control Board for getting standards specified.

(4) The State Pollution Control Board or the Pollution Control Committee, as the case may be, shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year.

(5) The State Pollution Control Board or the Pollution Control Committee may give directions to local bodies for safe handling and disposal of domestic hazardous waste deposited by the waste generators at hazardous waste deposition facilities.

(6) The State Pollution Control Board or the Pollution Control Committee shall regulate Inter-State movement of waste.

17. Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers.- (1) All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of waste management system.

(2) All such brand owners who sell or market their products in such packaging material which are non-biodegradable shall put in place a system to collect back the packaging waste generated due to their production.

(3) Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.

(4) All such manufacturers, brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

18. Duties of the industrial units located within one hundred km from the refused derived fuel and waste to energy plants based on solid waste- All industrial units using fuel and located within one hundred km from a solid waste based refused derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refused derived fuel so produced.

19. Criteria for Duties regarding setting-up solid waste processing and treatment facility.- (1) The department in- charge of the allocation of land assignment shall be responsible for providing suitable land for setting up of the solid waste processing and treatment facilities and notify such sites by the State Government or Union territory Administration.

(2) The operator of the facility shall design and set up the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Urban Development.

(3) The operator of the facility shall obtain necessary approvals from the State Pollution Control Board or Pollution Control Committee.

(4) The State Pollution Control Board or Pollution Control Committee shall monitor the environment standards of the operation of the solid waste processing and treatment facilities.

(5) The operator of the facility shall be responsible for the safe and environmentally sound operations of the solid waste processing and or treatment facilities as per the guidelines issued by the Central Pollution Control Board from time to time and the Manual on Municipal Solid Waste Management published by the Ministry of Urban Development and updated from time to time.

(6) The operator of the solid waste processing and treatment facility shall submit annual report in Form III each year by 30th April to the State Pollution Control Board or Pollution Committee and concerned local body.

20. Criteria and actions to be taken for solid waste management in hilly areas.- In the hilly areas, the duties and responsibilities of the local authorities shall be the same as mentioned in rule 15 with additional clauses as under:

(a) Construction of landfill on the hill shall be avoided. A transfer station at a suitable enclosed location shall be setup to collect residual waste from the processing facility and inert waste. A suitable land shall be identified in the plain areas down the hill within 25 kilometers for setting up sanitary landfill. The residual waste from the transfer station shall be disposed of at this sanitary landfill.

(b) In case of non-availability of such land, efforts shall be made to set up regional sanitary landfill for the inert and residual waste.

(c) Local body shall frame Bye-laws and prohibit citizen from littering wastes on the streets and give strict direction to the tourists not to dispose any waste such as paper, water bottles, liquor bottles, soft drink canes, tetra packs, any other plastic or paper waste on the streets or down the hills and instead direct to deposit such waste in the litter bins that shall be placed by the local body at all tourist destinations.

(d) Local body shall arrange to convey the provisions of solid waste management under the bye-laws to all tourists visiting the hilly areas at the entry point in the town as well as through the hotels, guest houses or like where they stay and by putting suitable hoardings at tourist destinations.

(e) Local body may levy solid waste management charge from the tourist at the entry point to make the solid waste management services sustainable.

(f) The department in- charge of the allocation of land assignment shall identify and allot suitable space on the hills for setting up decentralised waste processing facilities. Local body shall set up such facilities. Step garden system may be adopted for optimum utilisation of hill space.

21. Criteria for waste to energy process.- (1) Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.

(2) High calorific wastes shall be used for co-processing in cement or thermal power plants.

(3) The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tones per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorisation.

(4) The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

22. Time frame for implementation.- Necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own, by directly or engaging agencies within the time frame specified below:

Sl. No.	Activity	Time limit from the date of notification of rules
(1)	(2)	(3)
1.	identification of suitable sites for setting up solid waste processing facilities	1 year

2.	identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more .	1 year
3.	procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities	2 years
4.	enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source ,	2 years
5.	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 years
6.	ensure separate storage, collection and transportation of construction and demolition wastes	2 years
7.	setting up solid waste processing facilities by all local bodies having 100000 or more population	2 years
8.	Setting up solid waste processing facilities by local bodies and census towns below 100000 population.	3 years
9	setting up common or stand alone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules	3 years
10.	setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules	3years
11.	bio-remediation or capping of old and abandoned dump sites	5years

23. State Level Advisory Body. – (1) Every Department in-charge of local bodies of the concerned State Government or Union territory administration shall constitute a State Level Advisory Body within six months from the date of notification of these rules comprising the following members, namely:-

Sl. No	**Designation**	**Member**
(1)	**(2)**	**(3)**
1.	Secretary, Department of Urban Development orLocal self government department of the State	Chairperson, ex-officio
2.	One representative of Panchayats or Rural development Department not below the rank of Joint Secretary to State Government	Member, ex-officio
3.	one representative of Revenue Department of State Government	Member,ex-officio
4.	One representative from Ministry of Environment, Forest and Climate Change Government of India	Member, ex-officio

5.	One representative from Ministry of Urban Development, Government of India	Member, ex-officio
6.	One representative from Ministry of Rural Development, Government of India	Member, ex-officio
7.	One representative from the Central Pollution Control Board	Member, ex-officio
8.	One representative from the State Pollution Control Board or Pollution Control Committee	Member, ex-officio
9.	One representative from Indian Institute of Technology or National Institute of Technology	Member,Ex-officio
10.	Chief town planner of the state	Member
11.	Three representatives from the local bodies by rotation	Member
12.	Two representatives from census towns or urban agglomerations by rotation.	Member
13.	One representative from reputed Non-Governmental Organisation or Civil Society working for the waste pickers or informal recycler or solid waste management	Member
14.	One representative from a body representing Industries at the State or Central level	Member
15.	one representative from waste recycling industry	member
16.	Two subject experts	Member
17.	Co-opt one representative each from agriculture department, and labour department of State Government.	Member

(2) The State Level Advisory Body shall meet at least one in every six months to review the matters related to implementation of these rules, state policy and strategy on solid waste management and give advice to state government for taking measures that are necessary for expeditious and appropriate implementation of these rules.

(3) The copies of the review report shall be forwarded to the State Pollution Control Board or Pollution Control Committee for necessary action.

24. Annual report.- (1) The operator of facility shall submit the annual report to the local body in Form-III on or before the 30th day of April every year.

(2) The local body shall submit its annual report in Form-IV to State P Control Board or P Committee and the Secretary-in-Charge of the Department of Urban Development of the concerned State or Union Territory in case of metropolitan city and to the Director of Municipal Administration or Commissioner of Municipal Administration or Officer in -Charge of Urban local bodies in the state in case of all other local bodies of state on or before the 30th day of June every year

(3) Each State Pollution Control Board or Pollution Control Committee as the case may be, shall prepare and submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development on the implementation of these rules and action taken against non complying local body by the 31stday of July of each year in Form-V.

(4) The Central Pollution Control Board shall prepare a consolidated annual review report on the status of implementation of these rules by local bodies in the country and forward the same to the Ministry of Urban Development

and Ministry of Environment, Forest and Climate Change, along with its recommendations before the 31st day of August each year.

(5) The annual report shall be reviewed by the Ministry of Environment, Forest and Climate Change during the meeting of Central Monitoring Committee.

25. Accident reporting- In case of an accident at any solid waste processing or treatment or disposal facility or landfill site, the Officer- in- charge of the facility shall report to the local body in Form-VI and the local body shall review and issue instructions if any, to the in- charge of the facility.

SCHEDULE I

[see rule 15 (w),(zi), 16 (1) (b) (e), 16 (4)]

Specifications for Sanitary Landfills

(A) Criteria for site selection.-

(i) The department in the business allocation of land assignment shall provide suitable site for setting up of the solid waste processing and treatment facilities and notify such sites.

(ii) The sanitary landfill site shall be planned, designed and developed with proper documentation of construction plan as well as a closure planin a phased manner. In case a new landfill facility is being established adjoining an existing landfill site, the closure plan of existing landfill should form a part of the proposal of such new landfill.

(iii) The landfill sites shall be selected to make use of nearby wastes processing facilities. Otherwise, wastes processing facility shall be planned as an integral part of the landfill site.

(iv) Landfill sites shall be set up as per the guidelines of the Ministry of Urban Development, Government of India and Central Pollution Control Board.

(v) The existing landfill sites which are in use for more than five years shall be improved in accordance with the specifications given in this Schedule.

(vi) The landfill site shall be large enough to last for at least 20-25 years and shall develop 'landfill cells' in a phased manner to avoid water logging and misuse.

(vii) The landfill site shall be 100 meter away from river, 200 meter from a pond, 200 meter from Highways, Habitations, Public Parks and water supply wells and 20 km away from Airports or Airbase. However in a special case, landfill site may be set up within a distance of 10 and 20 km away from the Airport/Airbase after obtaining no objection certificate from the civil aviation authority/ Air force as the case may be. The Landfill site shall not be permitted within the flood plains as recorded for the last 100 years, zone of coastal regulation, wetland, Critical habitat areas, sensitive eco-fragile areas..

(viii) The sites for landfill and processing and disposal of solid waste shall be incorporated in the Town Planning Department's land-use plans.

(ix) A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five Tonnes per day of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. The buffer zone shall be prescribed on case to case basis by the local body in consultation with concerned State Pollution Control Board.

(x) The biomedical waste shall be disposed of in accordance with the Bio-medical Waste Management Rules, 2016, as amended from time to time . The hazardous waste shall be managed in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time. The E-waste shall be managed in accordance with the e-Waste (Management) Rules, 2016 as amended from time to time.

(xi) Temporary storage facility for solid waste shall be established in each landfill site to accommodate the waste in case of non- operation of waste processing and during emergency or natural calamities.

(B) Criteria for development of facilities at the sanitary landfills.-

(i) Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles, to prevent entry of unauthorised persons and stray animals

(ii) The approach and / internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.

(iii) The landfill site shall have waste inspection facility to monitor waste brought in for landfilling h, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipment. The operator of the facility shall maintain record of waste received, processed and disposed.

(iv) Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.

(v) Utilities such as drinking water and sanitary facilities (preferably washing/bathing facilities for workers) and lighting arrangements for easy landfill operations during night hours shall be provided.

(vi) Safety provisions including health inspections of workers at landfill sites shall be carried out made.

(vii) Provisions for parking, cleaning, washing of transport vehicles carrying solid waste shall be provided. The wastewater so generated shall be treated to meet the prescribed standards.

(C) Criteria for specifications for land filling operations and closure on completion of land filling.-

(i) Waste for land filling shall be compacted in thin layers using heavy compactors to achieve high density of the waste. In high rainfall areas where heavy compactors cannot be used, alternative measures shall be adopted.

(ii) Till the time waste processing facilities for composting or recycling or energy recovery are set up, the waste shall be sent to the sanitary landfill. The landfill cell shall be covered at the end of each working day with minimum 10 cm of soil, inert debris or construction material..

(iii) Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage shall be constructed to divert run-off away from the active cell of the landfill.

(iv) After completion of landfill, a final cover shall be designed to minimise infiltration and erosion. The final cover shall meet the following specifications, namely :--

a) The final cover shall have a barrier soil layer comprising of 60 cm of clay or amended soil with permeability coefficient less than 1 x 10^{-7} cm/sec.

b) On top of the barrier soil layer, there shall be a drainage layer of 15 cm.

c) On top of the drainage layer, there shall be a vegetative layer of 45 cm to support natural plant growth and to minimise erosion.

(D) Criteria for pollution prevention.-In order to prevent pollution from landfill operations, the following provisions shall be made, namely:-

(i) The storm water drain shall be designed and constructed in such a way that the surface runoff water is diverted from the landfilling site and leachates from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimise leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.

(ii) Non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) shall have liner of composite barrier of 1.5 mm thick high density polyethylene (HDPE) geo-membrane or geo-synthetic liners, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1 x 10-7 cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer provided at the bottom of landfills.

(iii) Provisions for management of leachates including its collection and treatment shall be made. The treated leachate shall be recycled or utilized as permitted, otherwise shall be released into the sewerage line, after meeting the standards specified in Schedule- II**.**. In no case, leachate shall be released into open environment.

(iv) Arrangement shall be made to prevent leachate runoff from landfill area entering any drain, stream, river, lake or pond. In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concern authority.

(E) Criteria for water quality monitoring.-

(i) Before establishing any landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 meter of the periphery of landfill site shall be periodically monitored covering different seasons in a year that is, summer, monsoon and post-monsoon period to ensure that the ground water is not contaminated.

(ii) Usage of groundwater in and around landfill sites for any purpose (including drinking and irrigation) shall be considered only after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose, namely :-

S. No.	Parameters	IS 10500:2012, Edition 2.2(2003-09) Desirable limit (mg/l except for pH)
(1)	(2)`	(3)
	Arsenic	0.01
	Cadmium	0.01
	Chromium(as Cr^{6+})	0.05
	Copper	0.05
	Cyanide	0.05
	Lead	0.05
	Mercury	0.001
	Nickel	-
	Nitrate as NO_3	45.0
	pH	6.5-8.5
	Iron	0.3
	Total hardness (as $CaCO_3$)	300.0
	Chlorides	250
	Dissolved solids	500
	Phenolic compounds (as C_6H_5OH)	0.001
	Zinc	5.0
	Sulphate (as SO_4)	200

(F) Criteria for ambient air quality monitoring.-

(i) Landfill gas control system including gas collection system shall be installed at landfill site to minimize odour, prevent off-site migration of gases, to protect vegetation planted on the rehabilitated landfill surface. For enhancing landfill gas recovery, use of geomembranes in cover systems along with gas collection wells should be considered.

(ii) The concentration of methane gas generated at landfill site shall not exceed 25 per cent of the lower explosive limit (LEL).

(iii) The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to escape directly to the atmosphere or for illegal tapping. Passive venting shall be allowed in case if its utilisation or flaring is not possible.

(iv) Ambient air quality at the landfill site and at the vicinity shall be regularly monitored. Ambient air quality shall

meet the standards prescribed by the Central Pollution Control Board for Industrial area.

G. Criteria for plantation at landfill Site.- A vegetative cover shall be provided over the completed site in accordance with the following specifications, namely:-

(a) Locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be planted;

(b) The selection of plants should be of such variety that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilized;

(c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;

(d) Plantation to be made in sufficient density to minimise soil erosion.

(e) Green belts shall be developed all around the boundary of the landfill in consultation with State Pollution Control Boards or Pollution Control Committees .

H. Criteria for post-care of landfill site.- (1) The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely :-'

(a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(b) Monitoring leachate collection system in accordance with the requirement;

(c) Monitoring of ground water in and around landfill;

(d) Maintaining and operating the landfill gas collection system to meet the standards.

(2) Use of closed landfill sites after fifteen years of post-closure monitoring can be considered for human settlement or otherwise only after ensuring that gaseous emission and leachate quality analysis complies with the specified standards and the soil stability is ensured.

I. Criteria for special provisions for hilly areas.-Cities and towns located on hills shall have location-specific methods evolved for final disposal of solid waste by the local body with the approval of the concerned State Pollution Control Board or the Pollution Control Committee. The local body shall set up processing facilities for utilisation of biodegradable organic waste. The non-biodegradable recyclable materials shall be stored and sent for recycling periodically. The inert and non-biodegradable waste shall be used for building roads or filling-up of appropriate areas on hills. In case of constraints in finding adequate land in hilly areas, waste not suitable for road-laying or filling up shall be disposed of in regional landfills in plain areas.

J. Closure and Rehabilitation of Old Dumps- Solid waste dumps which have reached their full capacity or those which will not receive additional waste after setting up of new and properly designed landfills should be closed and rehabilitated by examining the following options:

(i) Reduction of waste by bio mining and waste processing followed by placement of residues in new landfills or capping as in (ii) below.

(i). Capping with solid waste cover or solid waste cover enhanced with geomembrane to enable collection and flaring / utilisation of greenhouse gases.

(iii) Capping as in (ii) above with additional measures (in alluvial and other coarse grained soils) such as cut-off walls and extraction wells for pumping and treating contaminated ground water.

(iv) Any other method suitable for reducing environmental impact to acceptable level.

SCHEDULE II

[see rule 16 (1), (b), (e), 16 (4))

Standards of processing and treatment of solid waste

A. Standards for composting.- The waste processing facilities shall include composting as one of the technologies for processing of bio degradable waste. In order to prevent pollution from compost plant, the following shall be complied with namely :-

(a) The incoming organic waste at site shall be stored properly prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;

(b) Necessary precaution shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard;

(c) In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of waste to the temporary processing site or temporary landfill sites which will be again reprocessed when plant is in order;

(d) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclable high calorific fractions to be segregated and sent to waste to energy or for RDF production, co-processing in cement plants or to thermal power plants. Only rejects from all processes shall be sent for sanitary landfill site(s).

(e) The windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay of 50 cm thick having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;

(f) Ambient air quality monitoring shall be regularly carried out. Odurnuisance at down-wind direction on the boundary of processing plant shall also be checked regularly.

(g) Leachate shall be re-circulated in compost plant for moisture maintenance.

(h) The end product compost shall meet the standards prescribed under Fertilizer Control Order notified from time to time.

(i) In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:-

Parameters	**Organic Compost (FCO 2009)**	**Phosphate Rich Organic Manure (FCO 2013)**
(1)	**(2)**	**(3)**
Arsenic (mg/Kg)	10.00	10.00
Cadmium (mg/Kg)	5.00	5.00
Chromium (mg/Kg)	50.00	50.00
Copper (mg/Kg)	300.00	300.00
Lead (mg/Kg)	100.00	100.00
Mercury (mg/Kg)	0.15	0.15
Nickel (mg/Kg)	50.00	50.00
Zinc (mg/Kg)	1000.00	1000.00
C/N ratio	<20	Less than 20:1
pH	6.5-7.5	(1:5 solution) maximum 6.7
Moisture, percent by weight, maximum	15.0-25.0	25.0
Bulk density (g/cm^3)	<1.0	Less than 1.6
Total Organic Carbon, per cent by weight, minimum	12.0	7.9

Total Nitrogen (as N), per cent by weight, minimum	0.8	0.4
Total Phosphate (as P_20_5) percent by weight, minimum	0.4	10.4
Total Potassium (as K_20), percent by weight, minimum	0.4	-
Colour	Dark brown to black	-
Odour	Absence of foul Odor	-
Particle size	Minimum 90% material should pass through 4.0 mm IS sieve	Minimum 90% material should pass through 4.0 mm IS sieve
Conductivity (as dsm-1), not more than	4.0	8.2

* Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

B. Standards for treated leachates.-The disposal of treated leachates shall meet the following standards, namely:-

S. No	Parameter	Standards (Mode of Disposal)		
		Inland surface water	Public sewers	Land disposal
(1)	(2)	(3)	(4)	(5)
1.	Suspended solids, mg/l, max	100	600	200
2.	Dissolved solids (inorganic) mg/l, max.	2100	2100	2100
3	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4	Ammonical nitrogen (as N), mg/l, max.	50	50	-
5	Total Kjeldahl nitrogen (as N), mg/l, max.	100	-	-
6	Biochemical oxygen demand (3 days at 27^0 C) max.(mg/l)	30	350	100
7	Chemical oxygen demand, mg/l, max.	250	-	-
8	Arsenic (as As), mg/l, max	0.2	0.2	0.2
9	Mercury (as Hg), mg/l, max	0.01	0.01	-
10	Lead (as Pb), mg/l, max	0.1	1.0	-
11	Cadmium (as Cd), mg/l, max	2.0	1.0	-

12	Total Chromium (as Cr), mg/l, max.	2.0	2.0	-
13	Copper (as Cu), mg/l, max.	3.0	3.0	-
14	Zinc (as Zn), mg/l, max.	5.0	15	-
15	Nickel (as Ni), mg/l, max	3.0	3.0	-
16	Cyanide (as CN), mg/l, max.	0.2	2.0	0.2
17	Chloride (as Cl), mg/l, max.	1000	1000	600
18	Fluoride (as F), mg/l, max	2.0	1.5	-
19	Phenolic compounds (as C_6H_5OH) mg/l, max.	1.0	5.0	-

Note : While discharging treated leachates into inland surface waters, quantity of leachates being discharged and the quantity of dilution water available in the receiving water body shall be given due consideration.

C. Standards for incineration: The Emission from incinerators /thermal technologies in Solid Waste treatment/disposal facility shall meet the following standards, namely:-

Parameter	**Emission standard**	
(1)	**(2)**	**(3)**
Particulates	50 mg/Nm^3	Standard refers to half hourly average value
HCl	50 mg/Nm^3	Standard refers to half hourly average value
SO2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 mg/Nm^3	Standard refers to half hourly average value
	50 mg/Nm^3	Standard refers to daily average value
Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
HF	4 mg/Nm^3	Standard refers to half hourly average value
NOx (NO and NO2 expressed as NO2)	400 mg/Nm^3	Standard refers to half hourly average value
Total dioxins and furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Note.- *All values corrected to 11% oxygen on a dry basis.*		

Note:

(a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits..

(b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(c) Incineration of chlorinated plastics shall be phased out within two years.

(d) if the concentation of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal fcaility.

(e) Only low sulphur fuel like LDO, LSHS, Diesel**,** bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.

(f) The CO2 concentration in tail gas shall not be more than 7%.

(g) All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950^0C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

(h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

(i) Odour from sites shall be managed as per guidelines of CPCB issued from time to time

FORM – I

[see rule 15 (y) 16 (1) (c), 21(3)]

Application for obtaining authorisation under solid waste management rules

for processing/recycling/treatment and disposal of solid waste

To,

The Member Secretary,

State Pollution Control Board or Pollution Control Committee,

of…....

Sir,

I/We hereby apply for authorisation under the Solid Waste Management Rules, 2016 for processing, recycling, treatment and disposal of solid waste.

1.	Name of the local body/agency appointed by them/ operator of facility	
2.	Correspondence address Telephone No. Fax No. ,e-mail:	

3.	Nodal Officer & designation(Officer authorised by the local body or agency responsible for operation of processing/ treatment or disposal facility)	
4.	Authorisation required for setting up and operation of the facility (Please tick mark)	waste processing recycling treatment disposal at landfill
5.	Attach copies of the Documents Site clearance (local body) Proof of Environmental Clearance Consent for establishment Agreement between municipal authority and operating agency Investment on the project and expected return	
6.	**Processing/recycling/treatment of solid waste** (i) Total Quantity of waste to be processed per day Quantity of waste to be recycled Quantity of waste to be treated Quantity of waste to be disposed into landfill (ii)Utilisation programme for waste processed (Product utilisation) (iii)Methodology for disposal (attach details) Quantity of leachate Treatment technology for leachate (iv)Measures to be taken for prevention and control of environmental pollution (v)Measures to be taken for safety of workers working in the plant (vi)Details on solid waste processing/recycling/ treatment/disposal facility (to be attached)	
7.	**Disposal of solid waste** Number of sites identified Quantity of waste to be disposed per day Details of methodology or criteria followed for site selection (attach) Details of existing site under operation Methodology and operational details of landfilling Measures taken to check environmental pollution	
8	Any other information.	

Date: Signature:

Place: Designation

Form- II

[see rule 16 (1) (e)]

Format for issue of authorisation

File No.: _____

Dated:_____

Authorisation No_____

To

Ref: Your application number _____dt. _____

The _____State Pollution Control Board/Pollution Control Committee after examining the proposal hereby authorises_____ having administrative office at _____to set up and operate waste processing/recycling/ treatment/disposal facility at_____

The authorisation is hereby granted to operate the facility for processing, recycling, treatment and disposal of solid waste.

The authorisation is subject to the terms and conditions stated below and such conditions as may be otherwise specified in these rules and the standards laid down in Schedules I and II under these rules.

The _____State Pollution Control Board/Pollution Control Committees of the UT may, at any time, revoke any of the conditions applicable under the authorisation and shall communicate the same in writing.

Any violation of the provision of the Solid Waste Management Rules, 2016will attract the penal provision of the Environment (Protection) Act, 1986 (29 of 1986).

(Member Secretary)

State Pollution Control Board/Pollution Control Committee of the UT

(Signature and designation)

Date:

Place:

Form – III

[see rule 19 (6), 24 (1)]

Format of annual report to be submitted by the operator of facility to the local body

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of the local body Telephone No. Fax No. E-mail:	
5	Name and address of operator of the facility	
6	Name of officer in-charge of the facility Phone No: Fax No: E-mail:	

7	Number of households in the city/town , Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
8	Quantity of Solid waste	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd
	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd
	Quantity of solid waste disposed at landfill	/tpd
9	Status of Solid Waste Management (SWM) service	
	Segregation and storage of waste at source	
	Whether solid waste is stored at source in domestic/commercial/ institutional bins If yes,	Yes/No
	Percentage of households practice storage of waste at source in domestic bins	%
	Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins	%
	Percentage of households dispose of throw solid waste on the streets	%
	Percentage of non-residential premises dispose of throw solid waste on the streets	%
	Whether solid waste is stored at source in a segregated form	Yes/No
	If yes, Percentage of premises segregating the waste at source	%
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments ,hotels, restaurants educational institutions/ offices etc covered	

	Percentage of residential and non-residential premises covered in door to door collection through : Motorized vehicle Containerized tricycle/handcart Other device	% % %
	If not, method of primary collection adopted	
	Sweeping of streets	
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	km
	Frequency of street sweepings and percentage of population covered	frequency: Daily / Alternate days / Twice a week / Occasionally % of population covered
	Tools used Manual sweeping Mechanical sweeping Whether long handle broom used by sanitation workers Whether each sanitation worker is given handcart/tricycle for collection of waste Whether handcart / tricycle is containerized Whether the collection tool synchronizes with collection/ waste storage containers utilized	% % Yes/No Yes/No Yes/No Yes/No
.	Secondary Waste Storage facilities	
	No. and type of waste storage depots in the city/town Open waste storage sites Masonry bins Cement concrete cylinder bins Dhalao/covered rooms/space Covered metal/plastic containers Upto 1.1 m^3 bins 2 to 5 m^3 bins Above 5m^3 containers Bin-less city	No. Capacity in m^3
	Bin/ population ratio	

	Ward wise details of waste storage depots (attach) : Ward No: Area: Population: No. of bins placed Total volume of bins placed		
	Total storage capacity of waste storage facilities in cubic meters		
	Total waste actually stored at the waste storage depots daily		
	Give frequency of collection of waste from the depots Number of bins cleared	Frequency	No. of bins
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details) No. of green bins: No. of blue bins: No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage	(%) of Manual Lifting of SOLID WASTE	%
		(%) of Mechanical lifting	%
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	

	Waste Transportation per day Type and Number of vehicles used (pl tick or add)	No. Trips made waste transported
	Animal cart Tractors Non tipping Truck Tipping Truck Dumper Placers Refuse collectors Compactors Others JCB/loader	
	Frequency of transportation of waste	Frequency (%) of waste transported Daily Alternate day Twice a week Once a week Occasionally
	Quantity of waste transported each day	/tpd
	Percentage of total waste transported daily	%
	Waste Treatment Technologies used Whether solid waste is processed	Yes/No
	If yes, Quantity of waste processed daily Land(s) available with the local body for waste processing (in Hectares)	/tpd
	Land currently utilized for waste processing	
	Solid waste processing facilities in operation	
	Solid waste processing facilities under construction Distance of processing facilities from city/town boundary	
	Details of technologies adopted	

	Composting ,	Qty. raw material processed Qty. final product produced Qty. sold Qty. of residual waste landfilled
	vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to cement plant	
	Combustible waste supplied to solid waste based power plants	
	Others	Qty.
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	kms
	Distance from the nearest habitation	kms
	Distance from water body	kms

	Distance from state/national highway	kms
	Distance from Airport	kms
	Distance from important religious places or historical monument	kms
	Whether it falls in flood prone area	Yes/No
	Whether it falls in earthquake fault line area	Yes/No
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes / No
	Whether Lighting facility is available on site Whether Weigh bridge facility available	Yes / No Yes / No
	Vehicles and equipments used at landfill (specify) Manpower deployed at landfill site	Bulldozer, Compacters etc. available Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/No
	Provisions for gas venting provided	Yes/No, (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No, (if yes, attach technical data sheet)
10	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
11	What separate provisions are made for : Dairy related activities : Slaughter houses waste : C&D waste (construction debris) :	Attach details on Proposals, Steps taken, Yes/No Yes/No Yes/No
12	Details of Post Closure Plan	Attach Plan
13	How many slums are identified and whether these are provided with Solid Waste Management facilities :	Yes/ No (if Yes, attach details)
14	Give details of manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	

15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	
16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies.	

Signature of Operator

Dated :

Place:

Form – IV

[see rules 15(za), 24(2)]

Format for annual report on solid waste management to be submitted by the local body

CALENDAR YEAR:	**DATE OF SUBMISSION OF REPORT:**

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of local body Telephone No. Fax No. E-mail:	
5	Name of officer in-charge dealing with solid waste management (SOLID WASTEM)Phone No: Fax No: E-mail:	
6	Number of households in the city/town Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
7	Quantity of Solid waste (solid waste)	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd

	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd
	Quantity of solid waste disposed at dumpsite/ landfill	/tpd
8	Status of Solid Waste Management service	
	Segregation and storage of waste at source Whether SOLID WASTE is stored at source in domestic/commercial/ institutional bins, If yes, Percentage of households practice storage of waste at source in domestic bins Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins Percentage of households dispose or throw solid waste on the streets Percentage of non-residential premises dispose of throw solid waste on the streets Whether solid waste is stored at source in a segregated form, If yes, Percentage of premises segregating the waste at source	 Yes/No % % % % Yes/No %
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments ,hotels, restaurants educational institutions/ offices etc covered	
	Percentage of residential and non-residential premises covered in door to door collection through : Motorized vehicle Containerized tricycle/handcart Other device	 % % %
	If not, method of primary collection adopted	
	Sweeping of streets	
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	km

	Frequency of street sweepings and percentage of population covered	frequency	Daily	Alternate days	Twice a week	Occasionally
		% of population covered				
	Tools used					
	Manual sweeping			%		
	Mechanical sweeping			%		
	Whether long handle broom used by sanitation workers			Yes/No		
	Whether each sanitation worker is given handcart/tricycle for collection of waste			Yes/No		
	Whether handcart / tricycle is containerized			Yes/No		
	Whether the collection tool synchronizes with collection/ waste storage containers utilized			Yes/No		
.	Secondary Waste Storage facilities					
	No. and type of waste storage depots in the city/town	No. Capacity in m^3				
	Open waste storage sites					
	Masonry bins					
	Cement concrete cylinder bins					
	Dhalao/covered rooms/space					
	Covered metal/plastic containers					
	Upto 1.1 m3 bins					
	2 to 5 m3 bins					
	Above 5m3 containers					
	Bin-less city					
	Bin/ population ratio					
	Ward wise details of waste storage depots (attach) :					
	Ward No:					
	Area:					
	Population:					
	No. of bins placed					
	Total volume of bins placed					
	Total storage capacity of waste storage facilities in cubic meters					
	Total waste actually stored at the waste storage depots daily					

	Give frequency of collection of waste from the depots Number of bins cleared	Frequency	No. of bins
		Daily Alternate day Twice a week Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details) No. of green bins: No. of blue bins: No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage (%) of Manual Lifting of solid waste (%) of Mechanical lifting	% %	
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	
	Waste transportation per day Type and Number of vehicles used	No. Trips made waste transported	
	Animal cart Tractors Non tipping Truck Tipping Truck Dumper Placers Refuse collectors Compactors Others JCB/loader		

	Frequency of transportation of waste	Frequency (%) of waste transported Daily Alternate day Twice a week Once a week Occasionally
	Quantity of waste transported each day	/tpd
	Percentage of total waste transported daily	%
	Waste Treatment Technologies used	
	Whether solid waste is processed	Yes/No
	If yes, Quantity of waste processed daily	/tpd
	Whether treatment is done by local body or through an agency	
	Land(s) available with the local body for waste processing (in Hectares)	
	Land currently utilized for waste processing	
	Solid waste processing facilities in operation	
	Solid waste processing facilities under construction	
	Distance of processing facilities from city/town boundary	
	Details of technologies adopted	
	Composting ,	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled

	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to cement plant	
	Combustible waste supplied to solid waste based power plants	
	Others	Qty.
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	kms
	Distance from the nearest habitation	kms
	Distance from water body	kms
	Distance from state/national highway	kms
	Distance from Airport	kms
	Distance from important religious places or historical monument	kms
	Whether it falls in flood prone area	Yes/No
	Whether it falls in earthquake fault line area	Yes/No
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes / No
	Whether Lighting facility is available on site	Yes / No

	Whether Weigh bridge facility available	Yes / No
	Vehicles and equipments used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/No
	Provisions for gas venting provided	Yes/No (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No (if yes, attach technical data sheet)
9	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
10	What separate provisions are made for : Dairy related activities : Slaughter houses waste : C&D waste (construction debris) :	Attach details on Proposals,Steps taken, Yes/No Yes/No Yes/No
11	Details of Post Closure Plan	Attach Plan
12	How many slums are identified and whether these are provided with Solid Waste Management facilities :	Yes/ No (if Yes, attach details)
13	Give details of: Local body's own manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
14	Give details of: Contractor/ concessionaire's manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	

16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies	

Signature of CEO/Municipal Commissioner/

Executive Officer/Chief Officer

Date:

Place:

Form – V

[see rule 24(3)]

Format of annual report to be submitted by the state pollution control board or pollution control committee committees to the central pollution control board

PART A

To,

The Chairman

Central Pollution Control Board

Parivesh Bhawan, East Arjun Nagar

DELHI- 110 0032

1.	Name of the State/Union territory	:	
2.	Name & address of the State Pollution Control	:	
3.	Number of local bodies responsible for management of solid waste in the State/Union territory under these rules	:	
4.	No. of authorisation application Received	:	
5.	A Summary Statement on progress made by local body in respect of solid waste management	:	Please attach as Annexure-I
6.	A Summary Statement on progress made by local bodies in respect of waste collection, segregation, transportation and disposal	:	Please attach as Annexure-II
7.	A summary statement on progress made by local bodies in respect of implementation of Schedule II	:	Please attach as Annexure-III

Date: …….	Chairman or the Member Secretary
Place: ……..	State Pollution Control Board/
	Pollution Control Committee

PART B

Towns/cities

Total number of towns/cities

Total number of ULBs

Number of class I & class II cities/towns

Authorisation status (names/number)

Number of applications received

Number of authorisations granted

Authorisations under scrutiny

SOLID WASTE Generation status

Solid waste generation in the state (TPD)

collected

treated

landfilled

Compliance to Schedule I of SW Rules (Number/names of towns/capacity)

Good practices in cities/towns

House-to-house collection

Segregation

Storage

Covered transportation

Processing of SW (Number/names of towns/capacity)

Solid Waste processing facilities setup:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility operational:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility under installation/planned:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletisation

Waste-to-Energy Plants: (Number/names of towns/capacity)

Sl. No.	Plant Location	Status of operation	Power generation (MW)	Remarks

Disposal of solid waste (number/names of towns/capacity):

Landfill sites identified

Landfill constructed

Landfill under construction

Landfill in operation

Landfill exhausted

Landfilled capped

Solid Waste Dumpsites (number/names of towns/capacity):

Total number of existing dumpsites

Dumpsites reclaimed/capped

Dumpsites converted to sanitary landfill

Monitoring at Waste processing/Landfills sites

Sl. No.	Name of facilities	Ambient air	Groundwater	Leachate quality	Compost quality	VOCs
1.						
2.						
3.						

Status of Action Plan prepared by Municipalities

Total number of municipalities:

Number of Action Plan submitted:

Form – VI

[see rule 25]

Accident Reporting

1.	Date and time of accident	:	
2.	Sequence of events leading to accident	:	
3.	The waste involved in accident	:	

4.	Assessment of the effects of the accidents on human health and the environment	:	
5.	Emergency measures taken	:	
6.	Steps taken to alleviate the effects of accidents	:	
7.	Steps taken to prevent the recurrence of such an accident	:	
Date: ……		Signature:……..……	
Place: ……		Designation: ……	

[F. No. 18-3/2004-HSMD]

BISHWANATH SINHA, Jt. Secy.

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

Central Pollution Control Board
'Parivesh Bhawan 'East Arjun Nagar, Delhi-110032

File No.: CM-11/6/2025-LAW-HO-CPCB –HO **18.3.2025**

OFFICE ORDER

Sub: Constitution of Expert Committee for assessment of the *impact of waste to* energy projects on the environment and public health in the matter of Writ Petition(s)(Civil) No(s). 13029/1985, M.C Mehta Vs. Union of India & Ors

1. **Background:**

Hon'ble Supreme Court vide order dated 24.02.2025, in the matter of Writ Petition(s)(Civil) No(s). 13029/1985, M.C Mehta Vs. Union of India & Ors., directed interalia the following, reproduced herein below:

Para 3: Another important issue flagged by the learned senior counsel appointed as Amicus Curiae is that the percentage of segregation waste is very low in Municipal Corporation of Delhi area, Gurugram and Faridabad. The State of Uttar Pradesh has not furnished any figures. As rightly submitted by the learned Amicus Curiae, the segregation of waste at source is of vital importance for the environment. ***If there is no proper segregation, even waste to energy projects will cause more pollution***

Para 6: We direct the ***Central Pollution Control Board to submit a report to this Court on the impact of waste to energy projects on the environment and public health.***

Para 7. The affidavit by the NCR States shall be filed by end of March, 2025. No further time shall be granted. ***The Central Pollution Control Board shall also file a report by end of March, 2025****. The affidavits and the report will be considered on 2nd April, 2025 at 3.00 P.M.*

In this context, an Expert Committee comprising of the following members has been constituted by CPCB to assess the ***impact of waste to energy projects on the environment and public health as per Directions of the Hon'ble Supreme Court***:

S. N	Name of Official	Organization	Role
1.	Prof. Mukesh Sharma	Indian Institute of Technology, Kanpur	Member
2.	Dr.K.V.George, Chief Scientist & Head, Environmental Resource Planning and Management, Division	National Environmental Engineering , Research Institute (NEERI), Nagpur	Member
3.	Representative from Delhi Pollution Control Committee	Delhi Pollution Control Committee	Member
4.	Director & Divisional Head (UPC-II) , CPCB	Central Pollution Control Board	Member Convenor

2. **Terms of Reference:**

i. To assess impact of waste to energy projects on the environment and public health
ii. The committee may take into consideration the Environmental Impact Assessment (EIA) reports of the Waste-to-Energy (WtE) plants, facilities available at Waste-to-Energy Plants, Segregation of waste, Stack Emission, Ambient Air Quality, etc.
iii. Report of the committee be submitted on or before 26/3/2025 to CPCB.

3. **Tenure of the Expert Committee:**

The tenure of the committee will be until 26/3/2025 and may be further extended by CPCB, if required.

4. **Reimbursement of TA/DA:**

The TA/DA and sitting fee for attending the meeting shall be paid to the ex -officio members, as applicable and in accordance with the rules (under NGT EC fund) , and shall be borne by the Central Pollution Control Board (CPCB).

This issues with the approval of the Competent Authority, CPCB.

Divy

(Divya Sinha)
Director & Divisional Head, UPC-II

Encl : As above
Copy to:

1. **All Committee members: for information & necessary action, Please**
2. **DH, Law Section : For information , Please**
3. **PS to MS : For kind information to 'MS' Please**
4. **PS to CCB : For kind information to 'CCB', Please**

Divy.

(Divya Sinha)

Annexure VI

Process Flow Diagram of Four WtE Plants in Delhi

(i) WTE Bawana

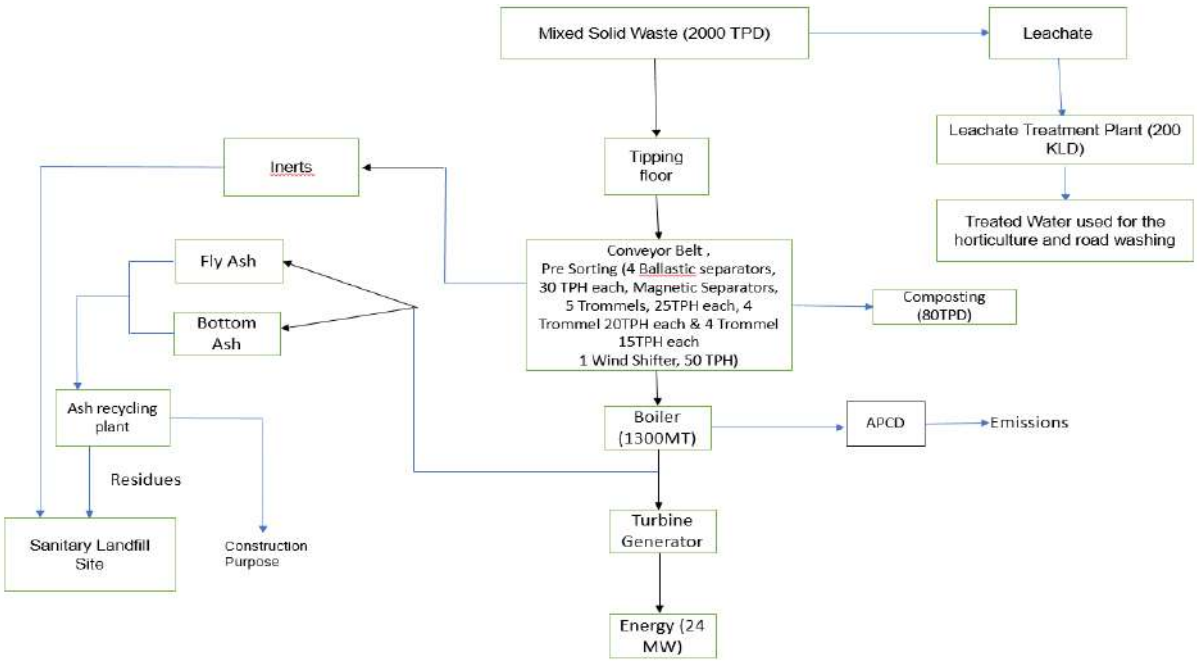


Figure: Process flow diagram of Bawana WtE

(ii) WTE Ghazipur

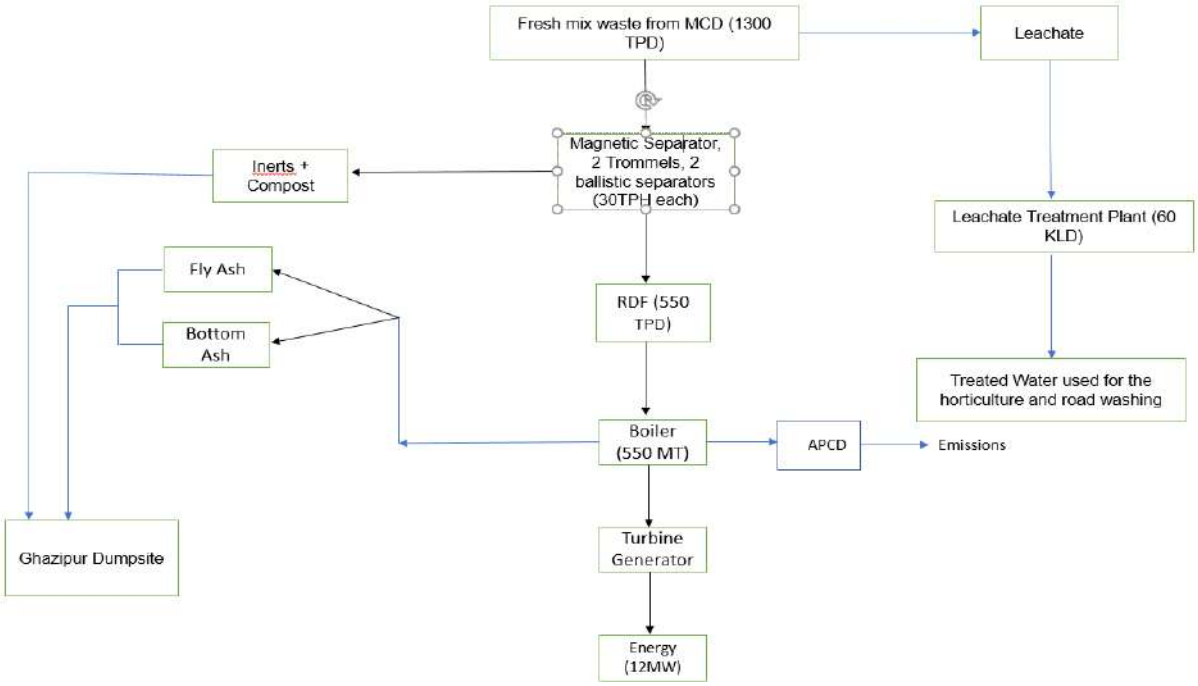


Figure: Process flow diagram of Ghazipur WtE

(iii) WTE Okhla

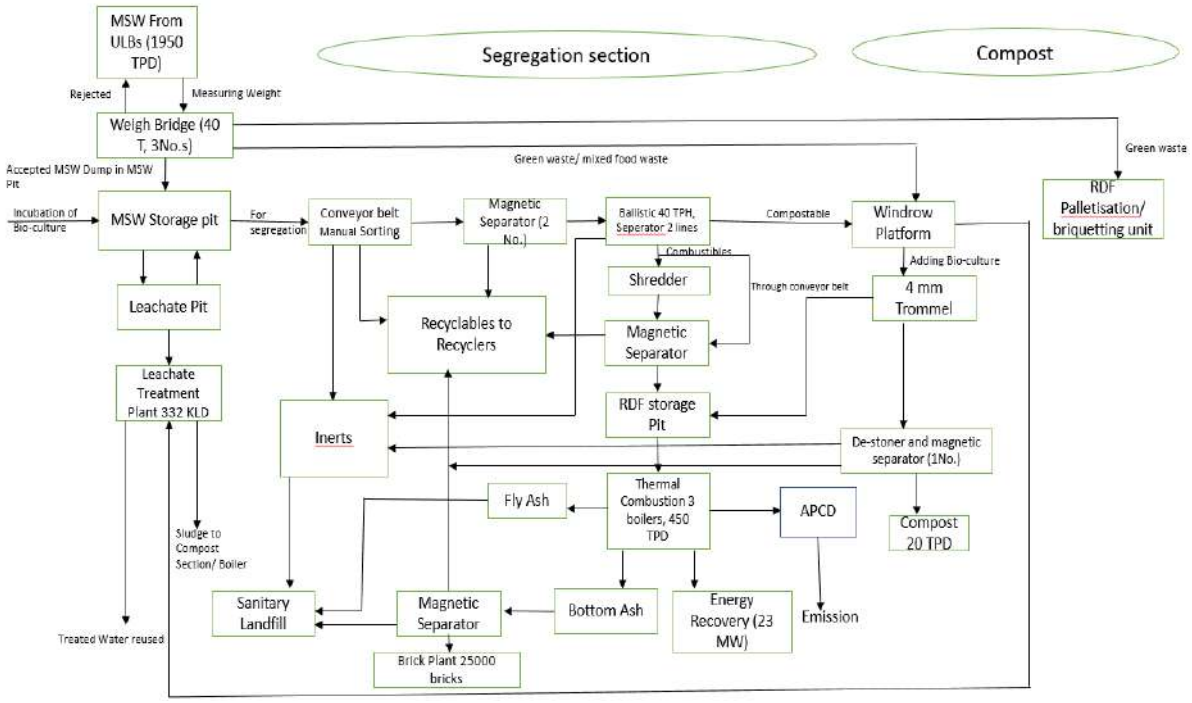


Figure: Process flow diagram of Okhla WtE

(iv) WTE Tehkhand

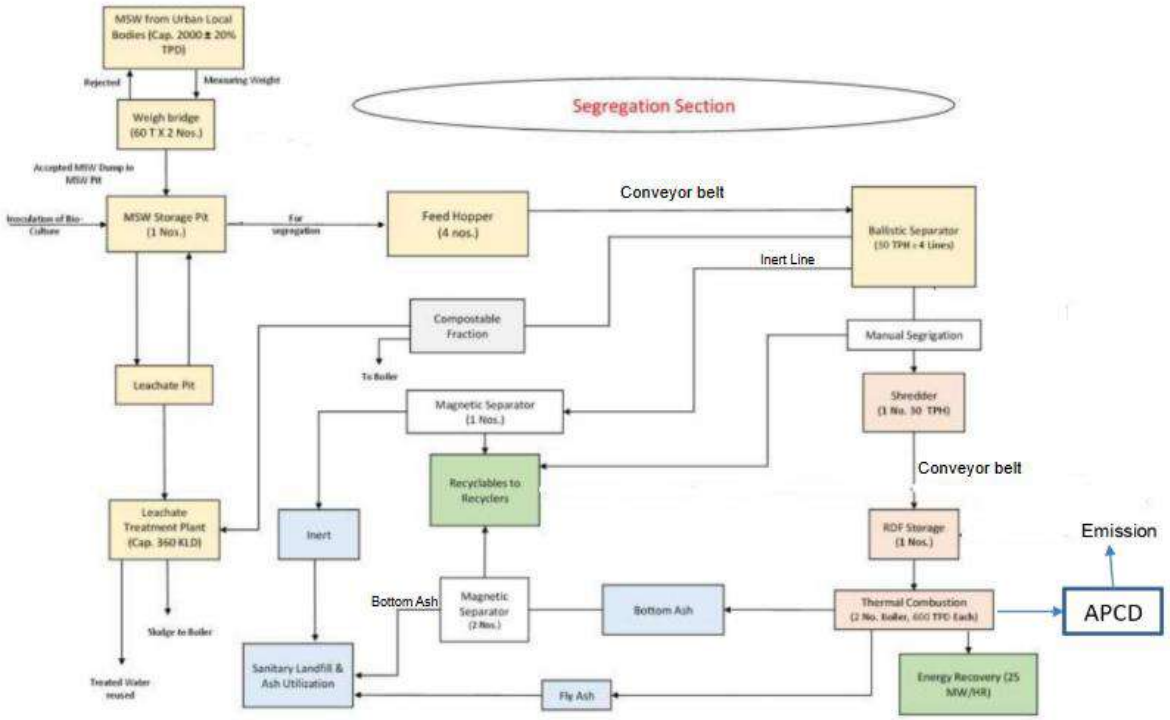


Figure: Process flow diagram of Tehkhand WtE

Annexure VII

Flow Diagram of Air Pollution Control Devices (APCD) at Four WtE Plants in Delhi

(i) WTE Bawana

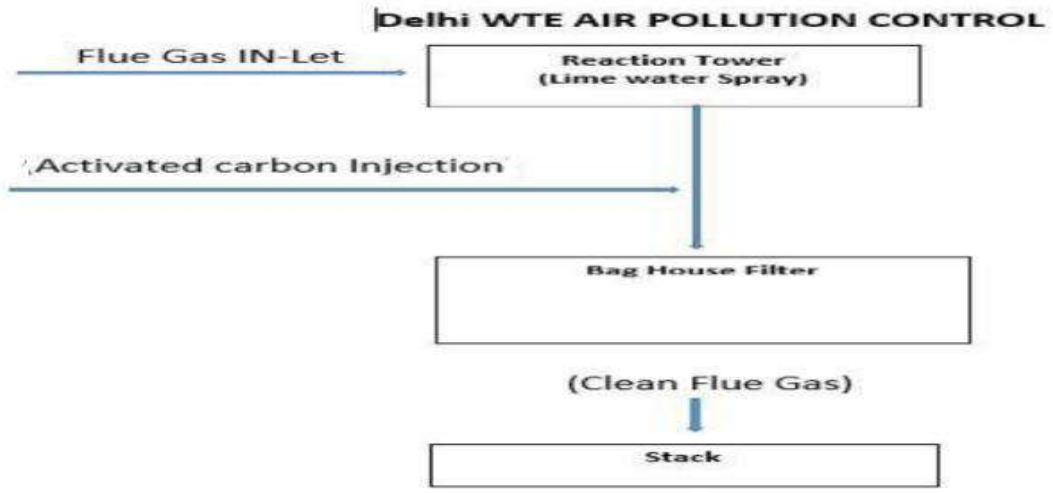


***Figure:** Flow diagram of APCD in Bawana WtE plant*

(ii) WTE Ghazipur

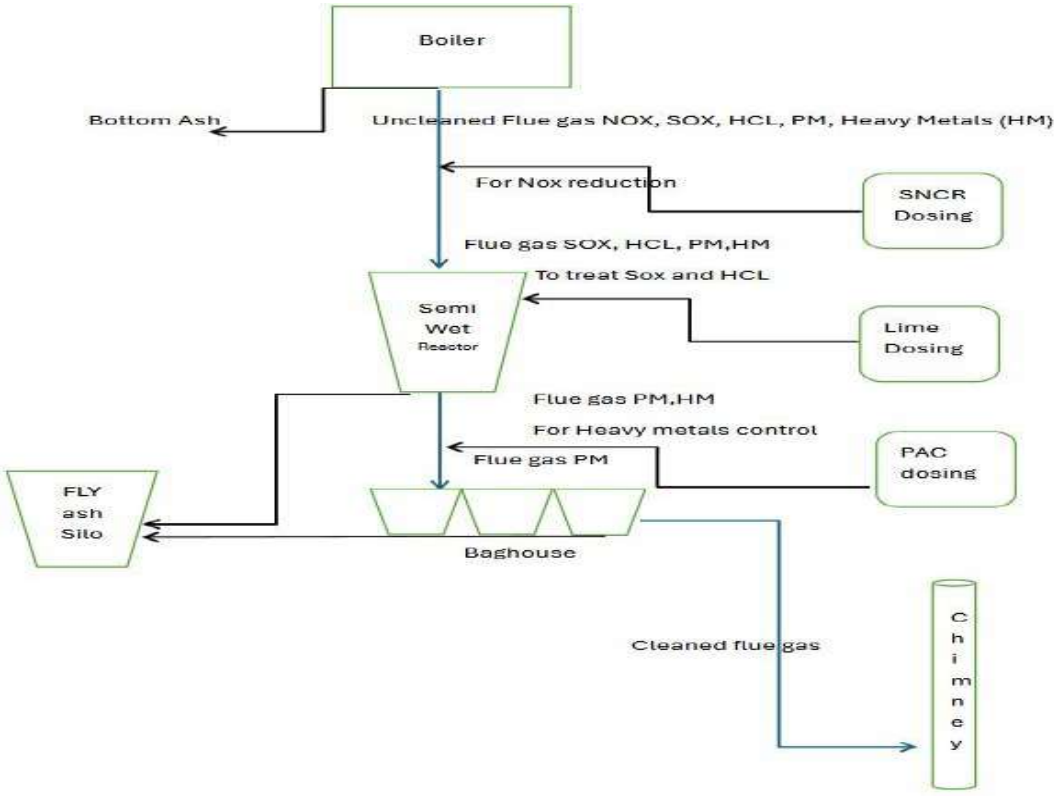


***Figure:** Flow diagram of APCD in Ghazipur WtE plant*

(iii) WTE Okhla

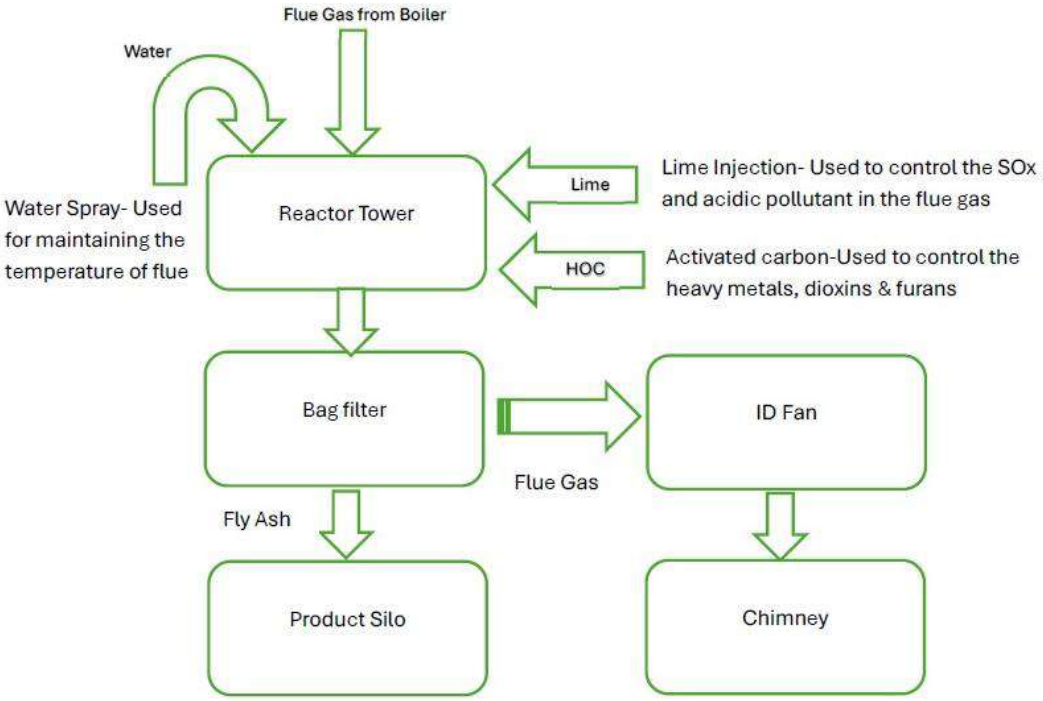


Figure: Flow diagram of APCD in Okhla WtE plant

(iv) WTE Tehkhand

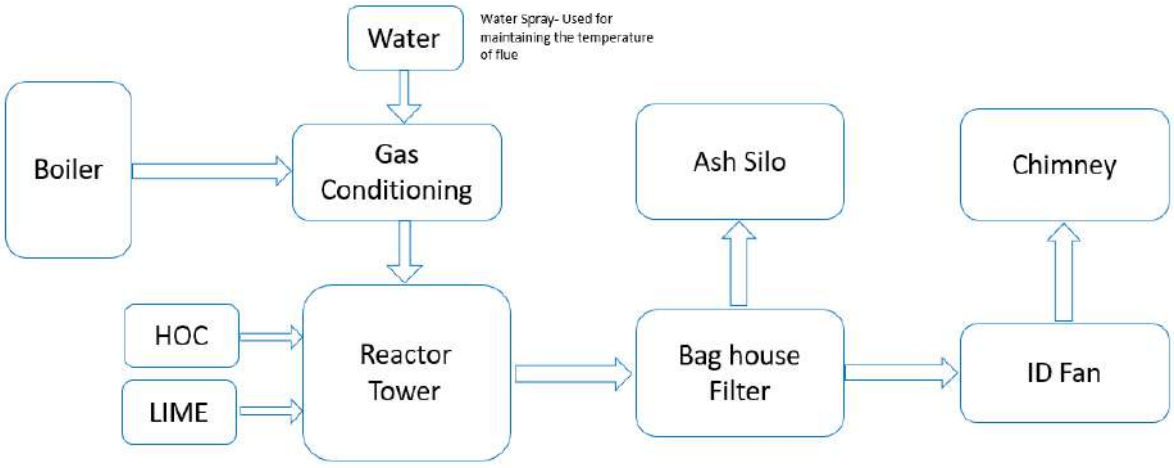


Figure: Flow diagram of APCD in Tehkhand WtE plant

Annexure-V

CPCB

LiFE Lifestyle for Environment

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

F.No. CM-13011/125/2024-LAW-HO-CPCB-HO

Date: /2 /08/2025

To,

The Chairman
All SPCBs/PCCs
(As per List enclosed)

Sub: Directions Under Section 5 of the Environment (Protection) Act, 1986 for installation of Online Continuous Emission Monitoring System (OCEMS) for self-surveillance of MSW incineration based Waste to Energy Plants (WtE) and installation of Online Continuous Effluent Monitoring System at Sanitary Landfill Sites (SLFs).

WHEREAS, the Solid Waste Management Rules, 2016, notified by Ministry of Environment Forest and Climate Change under the Environment (Protection) Act, 1986, lay down specific duties for local bodies, waste processing facility operators, and regulatory authorities including CPCB, SPCBs, and PCCs for safe and scientific management of solid waste; and

WHEREAS, as per the Clause 15(v)(b) of the Solid Waste Management (SWM) Rules, 2016, the local authorities and panchayats shall facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilization of various components of solid waste adopting suitable technology and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralized processing to minimize transportation cost and environmental impacts such as waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns

WHEREAS, as per the clause 21(1) of the SWM Rules, 2016, the non-recyclable waste with a calorific value of 1500 Kcal/kg or more shall not be landfilled and must be utilized for energy recovery, either directly or through preparation of refuse-derived fuel (RDF); and

WHEREAS, as per the clause 21(3) of the SWM Rules, 2016, the local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tonnes per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorization; and

WHEREAS, as per the clause 21(4) of the SWM Rules, 2016, the State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days; and

WHEREAS, Schedule II(B) of the SWM Rules, 2016 specifies the standards for disposal of treated leachate generated from municipal solid waste processing and disposal facilities; and

WHEREAS, Schedule II(C) of Solid Waste Management Rules, 2016, specifies standards for emission from incinerators in solid waste treatment/disposal facility; and

WHEREAS, as per clause 3(40) of SWM Rules, 2016, sanitary land filling means the final and safe disposal of residual solid waste and inert wastes on land in a facility designed with protective measures against pollution of ground water, surface water and fugitive air dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants slope instability and erosion; and

WHEREAS, as per clause 15(y) of SWM Rules, 2016, the local authorities and panchayats shall make an application in Form-I for grant of authorization for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tonnes per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be; and

WHEREAS, Schedule I(B) of SWM Rules, 2016, mandates that the landfill site shall have waste inspection facility to monitor waste brought in for landfilling, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipment; and

WHEREAS, Schedule I(E) of SWM Rules, 2016, specifies the criteria for water quality monitoring around the landfill sites; and

WHEREAS, Schedule I(F) of SWM Rules, 2016, specifies the criteria for ambient air quality monitoring around the landfill sites; and

WHEREAS, Rule 16(1) of the SWM Rules, 2016 entrusts State Pollution Control Boards/Pollution Control Committees with the responsibility to monitor environmental standards and enforce conditions prescribed for solid waste processing and disposal facilities, including Waste-to-Energy plants and Sanitary Landfills; and

WHEREAS, Central Pollution Control Board vide its letter No. B-29016/04/06PCI-1/5401 dated 05.02.2014 had already issued directions under section 18(1) (b) of the Water Act to State Pollution Control Boards and Pollution Control Committees for directing 17 categories (such as Pulp & Paper, Distillery, Sugar, Tanneries, Power Plants, Iron & Steel, Cement, Oil Refineries, Fertilizer, Chloral Alkali Plants, Dye & Dye Intermediate Units, Pesticides, Zinc, Copper, Aluminium, Petrochemicals and Pharma Sector, etc.) highly polluting industries Common Effluent Treatment Plants (CETP), Common Bio Medical Waste and Common Hazardous Waste Incinerators; for installation of online effluent quality and emission monitoring systems; and

WIHEREAS, CPCB and SPCBs/ PCCs have installed necessary software and hardware for centralized data collection, analysis and taking corrective actions. Industrial sectors as mentioned in the above para have installed OCEMS and established connectivity with servers of CPCB and SPCBs / PCCs; and

WHEREAS, as per information provided by the SPCBs/PCCs in the matter of OA no. 536/2024 NGT, PB, there are 21 Waste to Energy Plants operational across the Country; and

WHEREAS, as per annual report submitted by SPCBs/PCCs for the year 2022-23, there are 371 Sanitary Landfill Sites across the Country; and

WHEREAS, CPCB revised the system of categorization (Classification of Sectors into Red, Orange, Green, White and Blue Categories) as per which industries are now categorized into Red, Orange, Green, White, and Blue categories, based on a cumulative Pollution Index (PI); and

WHEREAS, Waste to Energy plants which mainly handle municipal solid waste have been classified in blue category as per the CPCB revised classification system; and

WHEREAS, Sanitary Landfill sites with material recycling facility and Refused derived fuel has been classified in blue category as per the CPCB revised classification system; and

WHEREAS, CPCB has issued Directions dated 12.02.2025 to all SPCBs and PCCs for the adoption and implementation of the revised classification system; and

WHEREAS, in the matter of OA 536/2024, Hon'ble NGT vide order dated 13.1.2025 directed CPCB to indicate actions taken against Waste to Energy Plants not complying with the norms and other provisions of SWM Rules, 2016; and

WHEREAS, CPCB vide letter dated 11.4.2025 has communicated to nine SPCBs/PCCs namely Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Telangana, Uttarakhand and Uttar Pradesh to provide action taken report against non-complying WtE units; and

WHEREAS, Hon'ble NGT vide order dated 16.4.2025 that eight weeks was reasonable period to wait for the response of SPCBs and to take strict action if response to the communication is not received from SPCBs; and

WHEREAS, no response was received from your office as per directions dated 16.4.2025 of Hon'ble NGT; and

WHEREAS, in compliance with the Hon'ble NGT order dated 16.04.2025, CPCB issued directions under Section 5 of the Environment (Protection) Act, 1986, on 09.07.2025, directing nine SPCBs to submit an Action Taken Report by 21.07.2025; and

WHEREAS, compliance status of the direction issued by CPCB has still not been received from the States Gujarat and Madhya Pradesh; and

WHEREAS, the compliance status regarding monitoring at Sanitary landfill sites has not been provided in the Annual Report for 2022–23; and

WHEREAS, CPCB has published guidelines for Online Continuous Effluent Monitoring and Online Continuous Emission Monitoring; and

WHEREAS, Waste-to-Energy plants & Sanitary Landfills facilities are significant sources of leachate and air emissions, which are likely to have significant adverse impact on the environment, if not managed as per stipulated norms; and

WHEREAS, significant quantity of fly ash & bottom ash is also generated in the Waste to Energy plants which is to be managed as per the stipulated norms; and

WHEREAS, various matters related to Waste to Energy plant and Solid Waste Disposal are currently under consideration in Hon'ble NGT, High Court as well as Supreme Court; and

WHEREAS, in line with the growing need for remote and continuous environmental surveillance, it is necessary to bring WtEs and SLFs under the Online Continuous Emission System and Online Continuous Effluent Monitoring regime respectively in continuation of Directions dated 5.2.2014 issued by CPCB on the matter, to strengthen self-monitoring and enable data-driven compliance of these facilities; and

NOW THEREFORE, in exercise of the power delegated to Chairman, CPCB, under section 5 of Environment (Protection) Act, 1986 and keeping in view of strengthening of monitoring mechanism for effective compliance through self-regulatory mechanism, the CPCB hereby directs all SPCBs/PCCs as follows:

1. To submit Action Taken Report with reference to Directions dated July 9, 2025 issued by CPCB regarding compliance status with the stipulated norms of Waste to Energy plants located in your jurisdiction by August 18, 2025.
2. To ensure that all operational and upcoming MSW incineration based Waste-to-Energy (WTE) plants within your jurisdiction install and operate Online Continuous Emission Monitoring Systems (OCEMS) for real-time monitoring of the parameters such as Particulate Matter (PM), Sulphur Dioxide (SO_2), Nitrogen Oxides (NO_x), Hydrogen Fluoride (HF), Hydrogen Chloride (HCl) and Carbon Monoxide (CO). The OCEMS are to be installed as per the provision in the guidelines for continuous emission monitoring prepared by CPCB.
3. To ensure that all operational and upcoming MSW incineration based Waste-to-Energy (WTE) plants and SLFs within your jurisdiction install and operate Online Continuous Effluent Monitoring Systems for treated leachate for real-time monitoring of the parameters such as pH, Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Ammoniacal Nitrogen and Fluoride. The OCEMS are to be installed as per the provisions in the guidelines for Online Continuous Effluent Monitoring prepared by CPCB.
4. To ensure that all operational SLFs are equipped with surveillance cameras at entry, exit, and active working face, to enable remote visual monitoring, prevent illegal dumping, and strengthen operational transparency and compliance.
5. To ensure that all monitoring systems installed under this directive are connected in real-time to the respective SPCB/PCC's servers and the Central Pollution Control Board's Online Monitoring server within three months from the date of issuance of this direction.

The SPCBs/PCCs shall acknowledge the receipt of these directions and submit the Action Taken Report on Sl. No. (2) to (5) of the above directions to the CPCB within 30 days from the date of receipt of these directions.

(Vir Vikram Yadav)
Chairman

Copy to:

1. **The Director (HSMD)** : For kind information, Please
   Ministry of Environment, Forest and Climate Change
   Indira Bhawan, Aliganj, Jor bagh Road,
   New Delhi-110003

2. **The Director** : For kind information, Please
   Ministry of Housing and Urban Affairs
   Maulana Azad road, Rajpath Area
   Central Secretriat, New Delhi-110001

3. **Regional Directorates** : For follow-up & further necessary action
   (Pune, Bhopal, Chennai,
   Bangalore, Chandigarh, Kolkata,
   Lucknow, Shillong and Vadodara)

4. **DH-IT division** **:** For information and further necessary action

(Bharat Kumar Sharma)
Member Secretary

O/C

Annexure-VI

GUIDELINES ON MUNICPAL SOLID WASTE (MSW) INCINERATION BASED WASTE TO ENERGY PLANTS



CENTRAL POLLUTION CONTROL BOARD
AUGUST 2025

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5.0	**Environmental Issues**	
5.1	Boiler: Stack	
5.2	Boiler: Solid Residue (Bottom Ash and Fly Ash)	
5.3	Waste Handling : Leachate	
5.4	Waste Handling: Odour	
6.0	**Environmental Management Plan**	
6.1	Air Pollution Control Measures	
6.2	Leachate Management	
6.3	Bottom Ash and Fly Ash Management	
6.4	Reduction of odour at the site	

1.0 Introduction

1.1 Background

Incineration-based Waste to Energy (WtE) systems are recognized as a technically viable and environmentally sound solution for the treatment of non-recyclable, high-calorific value municipal solid waste (MSW), particularly in urban areas facing space constraints and overburdened landfill sites. As per current estimates, urban India generates over 170,339 tonnes of MSW per day, of which a significant portion comprising plastics, paper, textiles, and other combustible residuals—cannot be effectively processed through biological methods such as composting or anaerobic digestion. These residual waste fractions, if disposed of unscientifically, pose substantial risks including uncontrolled methane emissions, leachate generation, fire hazards, vector breeding, and air quality degradation.



These plants are engineered to thermally process such waste and recover energy in the form of electricity or heat, while achieving a volume reduction. This contributes to reducing the load on landfills and aligns with the objectives of the Solid Waste Management Rules, 2016, which promote energy recovery from waste that is not suitable for material recovery. These plants also support circular economy principles by enabling resource recovery from residual waste and promoting the co-utilization of bottom ash in construction applications, subject to compliance with standards. The viability and environmental performance of WtE systems are dependent upon critical factors such as source segregation, pre-processing of waste to achieve requisite calorific value (≥1500 kcal/kg), installation of advanced air pollution control devices (APCDs) and continuous emissions monitoring systems.

Therefore, incineration-based WtE facilities can be developed and operated as integral components of an integrated solid waste management strategy, particularly for Tier-I and Tier-II cities where waste quantum, land scarcity, and environmental vulnerability necessitate high-efficiency waste treatment solutions.

However, the success of such plants depends on strict source segregation, robust pre-processing of waste to ensure adequate calorific value, compliance with emission norms, and integration with decentralized systems for biodegradable and recyclable waste streams. Therefore, while

not a standalone solution, MSW incineration-based WtE plants are essential for managing India's residual waste in an environmentally responsible and energy-efficient manner.

Moreover, experience from various cities in India has shown that several WtE plants have faced operational, environmental, and social challenges, including emissions, non-compliance with environmental norms, and public resistance due to health concerns. These issues underline the need for a well-defined and enforceable regulatory framework that ensures environmentally sound incineration practices.

Keeping in view the necessity of WtE plants to address the complex MSW management confronting our local bodies and the socio-economic issues faced in operation & maintenance of the WtE plants, this document on "Guidelines on MSW incineration based WtE Plants" has been prepared by CPCB. The document provides details regarding the sources of waste streams from WtE plants, characterization of these waste streams as well as prevention & control measures for such waste streams. The document has been prepared with the objective to facilitate the stakeholders in addressing the various issues related to WtE plants

1.2 Need for Guidelines

The management of municipal solid waste through incineration-based WtE plants presents both an opportunity and a challenge for Indian cities. While such facilities can significantly reduce waste volume and generate renewable energy, improper planning, flawed technology selection, poor waste quality, and inadequate implementation of pollution control measures may lead to grave environmental concerns

In this context, the need for comprehensive guidelines become necessary to ensure that WtE incineration projects implement proper operation & maintenance practices as well as pollution control measures to ensure that they are environmentally safe, technically and economically viable. The present guidelines are developed to serve as a uniform reference for authorities, project proponents, operators, and regulators.

These guidelines aim to:

(a) To provide guidance on waste preprocessing practices, technology configuration, emissions control, ash handling, and leachate management measures.

(b) To ensure that WtE plants set up in the country are aligned with the provisions of Solid Waste Management Rules, 2016.

1.3 Scope and Applicability of the Guidelines

The Scope of the Guidelines is given below:

(a) Waste Stream and Feedstock

- Nature and characteristics of MSW suitable for incineration
- Pre-treatment and segregation requirements before incineration

(b) Process Design and Operation

- Technologies adopted for thermal treatment
- Design criteria for incinerators, boilers, and energy recovery systems
- Ash handling, air pollution control systems, and energy output

(c) Environmental Management

- Control and monitoring of emissions (Stack, ambient air)
- Fly ash and bottom ash management, leachate treatment
- Odour control measures
- Online monitoring requirements

(d) Regulatory and Legal Compliance

- Compliance with SWM Rules, 2016,
- Hazardous Waste Management Rules, 2016
- Siting criteria

These guidelines shall be applicable to:

(a) All existing, under-construction, and proposed MSW incineration-based Waste-to-Energy plants in India, irrespective of technology or capacity.

(b) Urban Local Bodies (ULBs) responsible for municipal waste management and planning of waste treatment infrastructure.

(c) Regulatory authorities, including SPCBs/PCCs and State Urban Development Departments, for enforcement, monitoring, and compliance checks.

1.4 Classification of Waste to Energy Plants as Blue Category projects

Recently, CPCB revised the system of categorization (Classification of Sectors into Red, Orange, Green, White and Blue Categories) as per which industries are now categorized into Red, Orange, Green, White, and Blue categories, based on a cumulative Pollution Index (PI). The PI score accounts for water pollution, air pollution, and hazardous waste generation. In the revised system of classification, Essential Environmental Services Sectors (EES) have been defined as those facilities which are essential to control, abate and mitigate pollution generated

from Domestic and Industrial activities. Essential Environmental Services Sectors have further been subclassified as “EES for industrial waste” and “EES for domestic waste” The sectors falling under “EES for Domestic Waste “have been classified as Blue Category. and Waste to Energy plants which mainly handle municipal solid waste have been classified in blue category as per the revised classification system.

2.0 Regulatory Framework:

The Solid Waste Management (SWM) Rules notified by Ministry of Environment, Forest and Climate Change in 2016 delineate the provisions for Waste to Energy (WtE) plants. The relevant clauses are mentioned as under:

(a) Rule 15 specifies Responsibility of Local Bodies as per which Local bodies shall:

15 (v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such a a)bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes; b)waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kiln

15(y) make an application in Form-I for grant of authorisation for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tons per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be;

(b) Rule 16 specifies Duties of State Pollution Control Board or Pollution Control Committee as per which SPCB/PCCs shall

16 (1)(e). issue authorization within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorized by local body stipulating compliance criteria and environmental standards as specified.in Schedules I and II including other conditions, as may be necessary;

16(4): The State Pollution Control Board or the Pollution Control Committee, as the case may be, shall monitor the compliance of the standards as prescribed or laid down and

treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year.

(c) Rule 21 (1) of SWM Rules, 2016 specifies that non-recyclable waste having a calorific value of 1500 kcal/kg or more shall not be disposed of in landfills and shall only be utilized for generating energy either through refuse derived fuel or by giving away as feedstock for preparing refuse derived fuel.

(d) Schedule II (Part B) specifies the standards for treated leachate prescribing 19 parameters viz. pH, Suspended Solids (SS), Total Dissolved Solids (TDS), Ammoniacal Nitrogen (N), Total Kjeldahl Nitrogen (TKN), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Arsenic (As), Mercury (Hg), Cadmium (Cd), Lead (Pb), Total Chromium (Cr), Copper (Cu), Zinc (Zn), Nickel (Ni), Cyanide (CN), Chloride (Cl), Fluoride (F) and Phenolic compounds

(e) Schedule II (Part C) specifies the emission standards from incinerators /thermal technologies in Solid Waste treatment/disposal facility for 11 parameters namely Particulate Matter, HCl (Hydrochloric Acid) , SO_2 (Sulphur Dioxides), CO (Carbon Monoxide) , TOC (Total Organic Carbon) , HF (Hydrofluoric Acid), NOx (Nitrogen Oxides) , Dioxins & Furans , Hg (Mercury & Compounds, Cd+Th (Cadmium , Thorium & Compounds), Sb+As, Pb+ Cr, Co, Cu, Mn+ Ni+ V (Antimony , Arsenic, Lead , Chromium , Copper , Manganese , Nickel , Vanadium & Compounds). The same is applicable to WtE plants. The emission standards as specified in SWM Rules, 2016

(f) Further, the following are the major compliances to be ensured by the WtE plants as per Schedule II, Para C:

i. If the concentration of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal facility (TSDF).

ii. All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950 degrees Celsius in the secondary combustion chamber and with a gas residence time in the secondary combustion chamber not less than 2 (two) seconds.

iii. Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in

the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

(g) Buffer Zone around WtE Plants

The Solid Waste Management Rules, 2016 specified the terminology of Buffer Zone, as "no development zone to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity.. As per the Guidelines on the provision of buffer zone around waste processing and disposal facilities issued by the Central Pollution Control Board (CPCB) in 2020, WtE plants must maintain a designated buffer zone from surrounding land uses to minimize nuisance and health risks. These buffer zones act as protective barriers to reduce the impact of odour, air emissions, noise, and other pollutants on adjacent residential and ecologically sensitive areas. Further

(h) Green Belt Development

As per CPCB Buffer Zone Development Guidelines, green belt of minimum 10 m width should be developed within and all around the facility along the boundary. Vegetation, shrubs, trees, and berms with high density greenery can be incorporated into green belt. It has further been recommended that the following plant species can be selected for plantation in the green belt - Acacia nilotica (Babul), Deldergia Sissoo (Shishum), Acacia auriculiformis (Australian Babul), Azadirachta Indica (Neem), Lagerstroemia speciosa (jamun) & Prongamia pinnata (Karanji)

3.0. Status of Waste to Energy Plants

3.1 National Status

In 2007, the Municipal Corporation of Delhi (MCD) and the New Delhi Municipal Council (NDMC) facilitated the establishment of a 16 MW WtE project on a BOOT (Build-Own-Operate-Transfer) basis, creating an integrated municipal solid waste processing facility at Timarpur-Okhla. The first successful municipal solid waste (MSW) incineration-based Waste-to-Energy (WtE) plant in India, located at Timarpur-Okhla in Delhi, became operational in January 2012. As per information provided by SPCBs/PCCs in the matter of OA No. 536/2024, NGT, PB, there are presently 21 WtE plants in India. The list of Waste to Energy Plants set up in the country is given in **Table 1.0** below:

Table 1.0 : Waste to Energy Plants set up in India

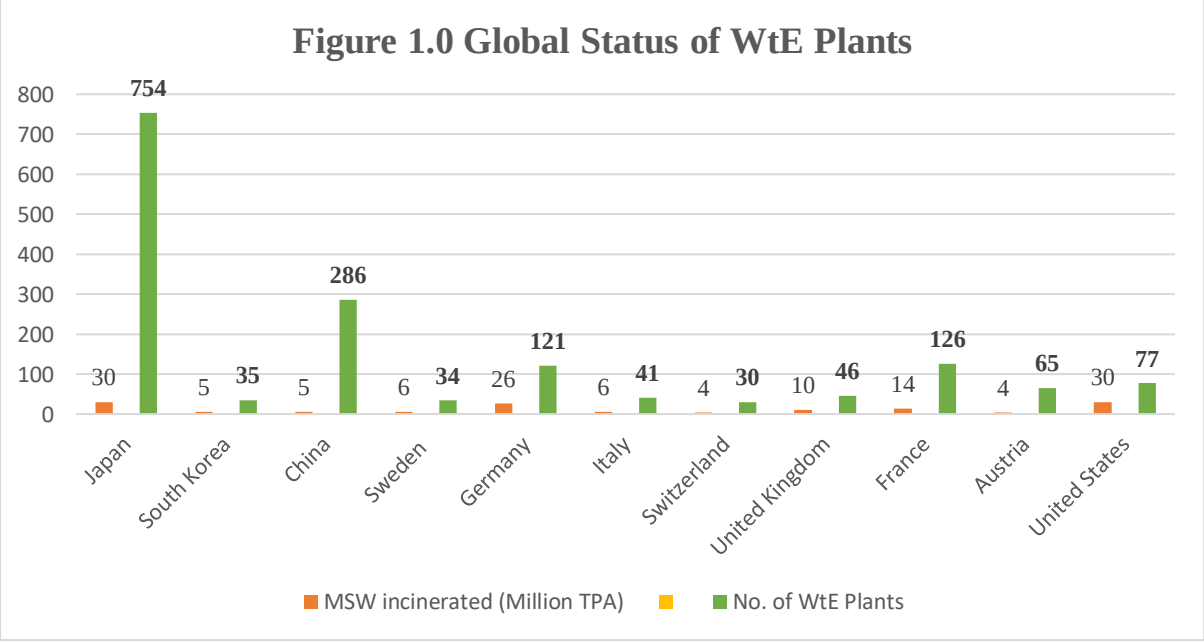
S.No.	State /UT & No of WTEs	Name of WTE plant & Location	Capacity to Process MSW (TPD)	Power generation (MW)
1	**Andhra Pradesh (02)**	Jindal Urban Waste Management, Visakhapatnam, A.P	1372	15
2		Jindal Urban Waste Management, Limited Guntur **,** A.P	1620	20
3	**Delhi (04)**	East Delhi Waste Processing Company Ghazipur,Delhi	1300	12
4		Tehkhand Waste to Electricity Project Ltd. Delhi	2000	25
5		Timarpur Okhla, waste management Company Ltd. Delhi	1950	23
6		M/S Delhi MSW Solutions Ltd.Delhi	1300	24
7	**Gujarat (02)**	Goodwatts WtE Jamnagr Pvt Ltd., Gujarat	NA	7.5
8		Jindal WtE Pvt. Ltd .Ahmedabad., Gujarat	NA	15
9	**Haryana (01)**	Integrated Solid Waste Management Facility , Murthal ,Sonipat , Haryana	NA	8
10	**Karnataka (01)**	Bidadi Waste to Energy Plant, Bidadi, Karnataka	600	11.5
11	**Madhya Pradesh (02)**	Rewa MSW Energy Solution Pvt Ltd ,M.P	500	6
12		Jabalpur MSW Pvt. Ltd Kathonda, Jabalpur , M.P	600	11.5
13	**Maharashtra (02)**	Anotny Lara Renewable Energy Private Limited, Waste to Energy, PimpriChinchwad, Mahararashtra	700	14
14		Bhumi Green Energy Pvt. Ltd., Sangli, Maharashtra	NA	10
15	**Telangana (02)**	Hyderabad MSW Energy Solution Ltd, Telangana	NA	19.8
16		Dundigal WtE Pvt. Ltd , Telangana	NA	14.5
17	**Uttarakhand (03)**	Sidharth Papers Ltd., US Nagar, Uttarakhand	185	6
18		Siddheshwari Paper Udyog Pvt Ltd., Kashipur Uttarakhand	185	6
19		Bahl Paper Mills Ltd., Kashipur, Uttarakahnd	NA	NA
20	**Uttar Pradesh (02)**	Rollz India Waste Management Pvt. Ltd., Deenanathpur, Ghaziabad	75	NA

21		Rollz India Waste Management Pvt. Ltd., Bahadarpur, Ghaziabad	340	NA
Total			12727	248.8

3.2 Global Status

According to the World Bank (2018), global annual waste generation is expected to jump from 2.01 billion tonnes in 2016 to 3.40 billion tonnes over the next 30 years, and this trend is especially true in developing countries in Asia and Africa. There are over 1,700 thermal WtE plants worldwide. Over 80 per cent of thermal WtE plants are located in developed countries, led by Japan, France, Germany and the United States. The world's largest thermal WtE plants are in Shenzhen East, China and Dubai, United Arab Emirates. These two plants can process over 5,500 tonnes of waste per day each. The WtE plant in Shenzhen East has a capacity of generating 165MW of power and the plant in Dubai has a capacity of generating 185 MW of power. Thermal WtE plants are also emerging in developing countries in Asia Pacific, including China, Thailand, the Philippines, Indonesia and Myanmar.

The global status of MSW plants with incineration technology is illustrated in **Figure 1.0**



4.0. Production Process

Waste of different categories including wet & dry waste is generated in the Indian cities However, in the absence of a well-planned, scientific system of waste including waste segregation at source, the waste received at the Waste to Energy plants is generally heterogeneous in nature and typically comprises biodegradable waste (such as food and garden waste), recyclables (like paper, plastics, and metals), inert materials (dust, silt, construction debris), and non-combustibles (glass, ceramics). The characterization of waste received in a typical WtE plant is given in **Table 1A** below

Table 1A: Characterization of Waste received in a typical waste to Energy plant

S.No.	Components	Percentage of intake of MSW
1	Compostable Fractions	8-10%
2	Refused Derived Fuel (RDF)	65-70%
3	Inerts	11-12%
4	Recyclables	1-2%

In view of the characteristics of the waste received at the Waste to Energy plant, the waste is initially segregated though manual and mechanical means to enhance its combustion properties, following which it is sent to the boiler . The steam generated in the boiler is fed to the turbine through which power is generated.

The facilities are typically designed to handle 1300 Tons per day (TPD) to 2000 TPD of MSW with the power generation in the range of 12 MW to 25 MW. The system is designed to work on unsegregated MSW having calorific values in the range of 900-1200 Kcal/Kg and 1500 Kcal/Kg & above for segregated waste (Refused derived Fuel).

- Waste Reception and Preprocessing
- Segregation of metals/inerts/recyclables etc.)
- Composting
- Incineration & Energy Recovery of waste

The process flow diagram of a typical WtE is given in **Fig 2** below:

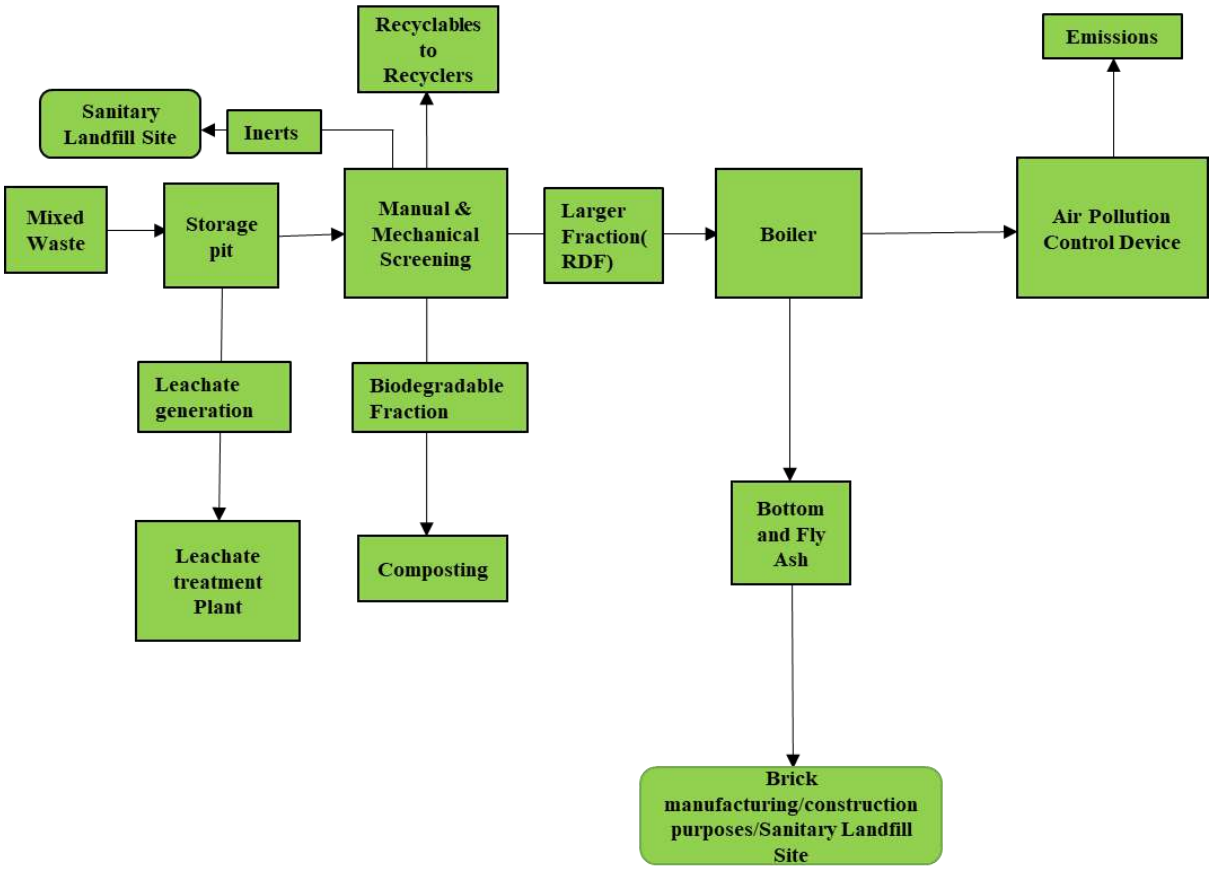


Figure 2: Process Flow diagram of a WtE Plant

4.1 Waste Reception and Preprocessing

The production process of a MSW incineration-based WtE plant is an integrated system that begins with the arrival of waste in closed compactors at the facility. The Municipal Corporation collect and deliver MSW at the WtE plant using truck, tipper and compactors These vehicles pass through a radioactive sensor to screen for hazardous materials, and then over a weighbridge to record the quantity of incoming waste. The waste is unloaded into an enclosed storage pit equipped with negative air pressure systems to contain odour The extracted air is directed to the boiler as secondary combustion air, which in turn also addresses the odour issues as the air is combusted at a high temperature of over 950^{o}C. To initiate biological stabilization, bio-culture is periodically sprayed over the waste to facilitate the degradation of organic components. Simultaneously, hot air circulation within the storage area helps in moisture reduction, thereby improving the overall calorific value of the waste. A grab crane is used to mix and homogenize the waste in the pit, ensuring uniform feedstock characteristics.



Figure 3: Weigh Bridge Section of a WtE Plant

Following provisions are to be made in this section:

(a) Homogenisation of MSW to be performed by grab cranes in storage pit to ensure uniform quality of feed to boiler hopper. Continuous movement of waste shall be maintained in this process to prevent stagnation which may lead to odour and breeding of flies.

(b) Herbal disinfectant spraying shall be done in pre-processing section for odour and flies control. The herbal disinfectant utilised should be bio-degradable which should not interfere or interact in any of the chemical reactions with the MSW in the storage process.

(c) Pit floor area to be provided with sloping floors to collect the spills directly into RCC storage pits. Leachate generated from pit should be collected for treatment.

(d) The workers in pre-treatment and handling facilities shall be provided with personal protection equipment and herbal disinfection spray would be done to maintain safe working area for manual segregators.

(e) Negative pressure by a draft air fans to be provided to create suction condition in the storage pit . Further provision to be made to direct the sucked air to the boilers to eliminate odour issues.

(f) Hot air circulation to be maintained in the storage area -to reduce moisture reduction, thereby improving the overall calorific value of the waste

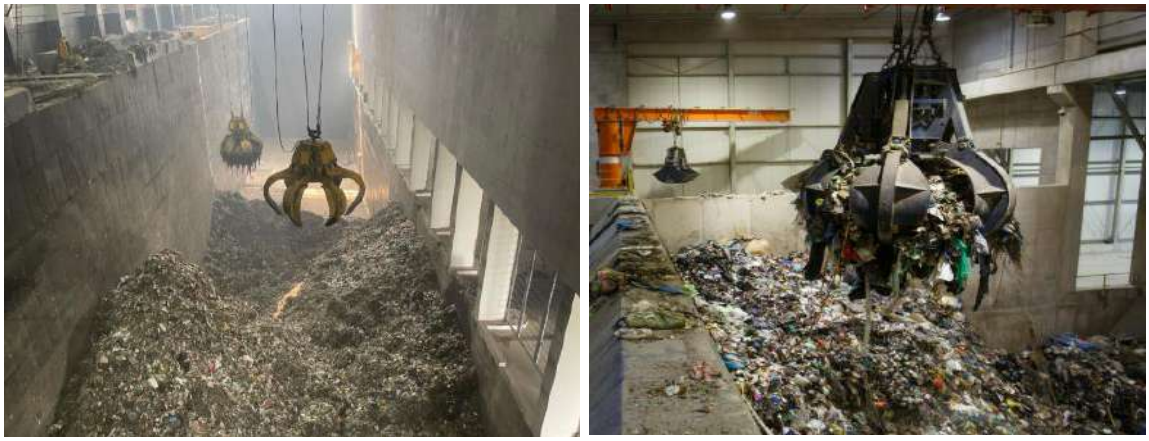


Figure 4: Grab cranes in MSW storage area

4.2 Segregation of Waste

The homogenized waste is transferred to a pre-processing system where it undergoes manual and mechanical segregation. This includes the use of magnetic separators to recover ferrous metals, shredders to reduce the particle size of the waste, and ballistic separators to divide the waste into three fractions: inert materials, compostable organics, and the high-calorific Refuse Derived Fuel (RDF). Inerts are sent to engineered landfills, recyclable materials to authorized recyclers, compostable material to composting and the RDF fraction is directed to the incinerator feeding system. Details of the above steps are given in the following sections:

4.2.1 Manual Segregation

Manual segregation is typically done on a conveyor belt system in a covered sorting area. Trained workers manually segregate large items such as metals, glass, electronic waste, rubber materials, and inert fractions that can adversely affect incineration efficiency or damage downstream equipment. This process ensures the removal of recoverable recyclables and minimizes the presence of materials that may lead to high ash content or emissions during combustion. Though increasingly being supplemented by mechanized systems, manual sorting remains vital in Indian WtE plants due to the heterogeneous nature and poor source segregation of MSW.

The effectiveness of manual sorting significantly affects the calorific value of the feedstock and the operational stability of the incineration process.

Proper occupational safety measures, including protective gear, dust suppression systems, and ventilation, are essential to safeguard worker's health during manual sorting operations.



Figure 5: Manual Segregation



Figure 6.0 : Mechanical Segregation

4.2.2 Mechanical Segregation

After manual segregation, the waste is transferred via conveyor belt to the mechanical segregation system, where it undergoes further automated sorting. Mechanical segregation in WtE plants involves the use of automated systems and equipment such as trommel, ballistic separators, magnetic separators, and shredders to separate different fractions of MSW based on size, density, magnetic properties, and composition. This process enhances efficiency, reduces manual handling, and ensures consistent quality of feedstock for incineration. Mechanical segregation typically carried out in a pre-processing area equipped with a range of specialized machinery.

Key components of a mechanical segregation system include:

(a) Trommels

Trommels are cylindrical rotating drums with perforated walls. These are used to separate waste based on particle size. Trommels of 4mm, 20mm and 50 mm can be used. Finer organic fractions pass through the perforated drum while larger materials move forward for further separation.



Figure 7: Trommels

(b) Magnetic Separators

The magnetic separators are used to extract ferrous metals from the waste stream using powerful magnets. These separators are typically positioned along the conveyor belts following initial manual or mechanical segregation stages. The system operates by generating a strong magnetic field that attracts and separates ferrous materials such as iron and steel objects—nails, tins, and metal scraps from the mixed waste. This not only enhances the quality of the feedstock for incineration by removing non-combustible materials but also facilitates the recycling of valuable metals, contributing to resource recovery.



Figure 8: Magnetic Separators



Figure 9: Shredders

(c) Shredders:

Shredders reduce the size of MSW before incineration. The primary function of shredders is to break down large, bulky, and heterogeneous waste materials into smaller, uniform fragments, which enhances the efficiency of processes such as mechanical sorting, drying, and combustion. By increasing the surface area and homogenizing the waste stream, shredding ensures more consistent thermal performance and complete combustion in the furnace. Proper shredding not only improves energy recovery but also reduces operational issues such as blockages, uneven feed rates, and incomplete incineration.

(d) Ballistic Separators

Ballistic separators are advanced mechanical segregation devices used in WtE plants for the effective separation of MSW based on physical properties such as density, size, and shape. These separators typically consist of an inclined vibrating deck or paddles that move the waste material in a ballistic motion. As the waste travels across the separator, it is divided into three main fractions: flat and flexible materials (such as plastic films and paper), rolling and rigid items (such as bottles, cans), and fine inert materials (like sand, glass, and organics). This separation facilitates better recovery of recyclables, enhances the quality of refuse-derived fuel (RDF), and reduces the burden on incinerators by removing non-combustible fractions. Ballistic separators are often used in combination with other segregation technologies such as magnetic separators to achieve higher efficiency.



Figure 10: Ballistic Separator

Waste Segregation stages in a typical WtE facility is illustarated in Figure 11

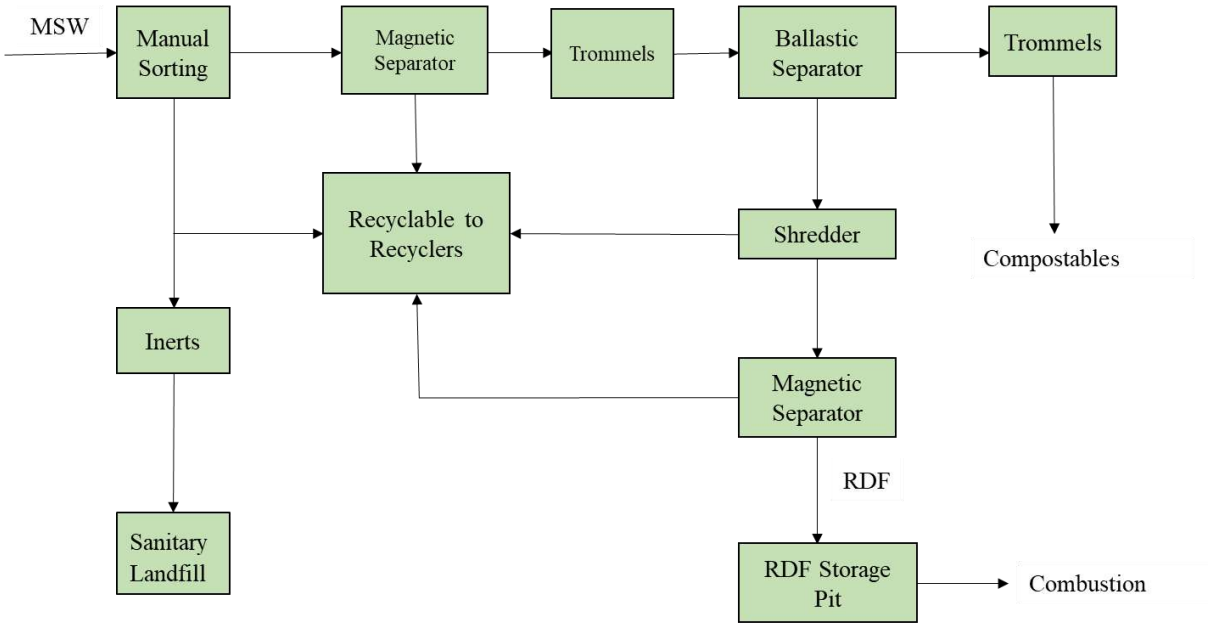


Figure 11: Segregation steps in WtE facility

4.3 Composting

The MSW received at the WtE unit consists of 8-10% of organic fractions. The biodegradable fraction is recovered through the segregation process is taken up for composting as it is unsuitable for direct thermal processing due to high moisture content, low calorific value, and potential to cause operational inefficiencies such as incomplete combustion, boiler corrosion, and increased pollutant load in flue gases..

Composting is carried out using one of several methods including open windrow composting for large land areas with cost-effective operations, aerated static piles for better odour control and reduced manual turning. Following composting, compost is packed in appropriate moisture-resistant bags

The following provisions have to be made in the Composting section of the WtE facility

(a) Collection of Leachate generated during the composting process through an engineered drainage network

(b) Recirculation of leachate to maintain pile moisture or sending it to Leachate Treatment Plant to meet discharge norms.

(c) The compost to be stored in a covered or enclosed area to prevent recontamination, moisture ingress, and odour emissions.

(d)Testing of Compost to ensure that it is meeting the norms prior to usage



Figure 11 A: Composting trommel



Figure 11 B: Composting bags



Figure 11 C: Enclosed area for composting

4.4 Incineration & Energy recovery

The RDF fraction after segregation , is directed to the incinerator feeding system. The incinerator is typically a moving grate type furnace, where RDF is fed continuously into the combustion chamber. The process begins with drying, followed by primary combustion at temperatures of 950–1100°C, facilitated by primary air introduced below the grate. This is followed by secondary combustion using secondary air injected above the grate to ensure complete oxidation of volatiles and unburnt hydrocarbons. The bottom ash generated from combustion is collected at the end of the grate and quenched before further handling. The hot flue gases from the furnace pass through a waste heat recovery boiler, where heat is transferred

to water to generate high-pressure steam. This steam is routed to a turbine generator to produce electricity, which is used in-plant.

Flue gas (containing gases & fly-ash) and bottom ash/residues are generated during the process of incineration of Waste. . The main constituent of flue gas is water vapour, nitrogen, carbon dioxide and oxygen. The flue gas also contains particulate matter (fly-ash) along with smaller amounts of CO, HCl, HF, NO_X SO_2, VOCs, Dioxin & Furans and heavy metal compounds. A typical MSW incinerator generates bottom ash of about 20-30% by weight of the solid waste input. Fly ash quantities are generally much lower (2 to 3% by weight) compared to bottom ash.

Overview of a Incineration-cum- Energy Recovery section is given in **Figure 12 & 13**

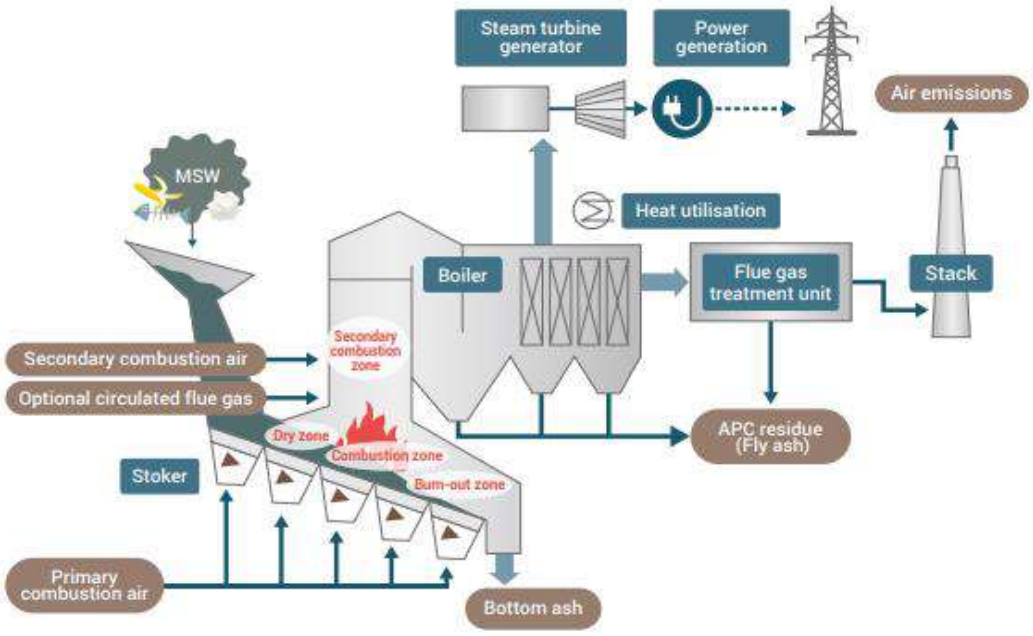


Figure 12:Incineration cum Energy Recovery Section of WtE Plant



Figure 13: MSW incineration process

4.4.1 Incineration design considerations

During incineration, waste is fed onto a mechanically moving grate, which continuously transports it through distinct thermal zones drying, combustion, and burnout. This movement ensures complete combustion of the waste while maintaining a steady and controlled flow through the incinerator. The pre-treated MSW initially gets dried as it moves slowly on an inclined grate, the material gets dried and turns into high calorific combustible material in the last section of the grate. Combustion of the material first takes place on inclined reverse acting reciprocating grate inclined at 25 degrees. Complete combustion of any residual material takes place in last section of the forward acting grate inclined at 10 degrees. The following points to be considered , while design of incineration

(a) The speed of the moving grate can be controlled to respond to different level of moisture condition in the input material. In case of higher moisture more residence time is provided in the drying section.

(b) High moisture mass would be retained longer in the drying section whereas as low moisture mass would be retained longer in the combustion section. This ensures maintenance of fairly consistent output over a wider range of input quality.

(c) The control of the stoker can be automated through a dedicated Program Logic Controller, based on furnace temperature inputs, however, the speed of the stoker can be regulated by the operator also to ensure complete combustion.

(d) An incinerator must be designed for complete combustion of both solid residue and flue gas. A sufficient temperature and retention time are required for complete combustion. The design parameters for WtE plants are governed by specific technical provisions under Schedule II(C) of the Solid Waste Management (SWM) Rules, 2016. These parameters establish minimum requirements for combustion conditions, emission control systems, and residue handling, ensuring that WtE facilities not only recover energy effectively but also safeguard public health and the environment. As per the provision of SWM Rules, in order to prevent incomplete combustion of flue gas, a temperature of 950ºC or more and a retention time of two seconds or longer with enough turbulence are required in the secondary combustion zone, which also prevents dioxins from forming.

5.0 Environmental Issues

The key environmental issues related to WtE plant include :

(i) Boiler: Stack emissions,

(ii) Boiler: Solid Residue (Bottom Ash and Fly Ash)

(iii) Waste Handling : Leachate

(iv) Waste Handling : Odour

5.1 Boiler Stack Emission:

The flue gas generated from the boiler stack may contain following pollutants emitting from the stack:

- **Particulate Mack atter (PM):** Fine particles from combustion and ash carry toxic metals and organic compounds.
- **Oxides of Nitrogen (NOx):** Result from high-temperature combustion; contribute to smog and acid rain.
- **Sulphur Dioxide (SO_2):** Emitted from sulphur-containing waste (plastics, rubber); causes acid rain and respiratory issues.
- **Carbon Monoxide (CO):** Emitted under incomplete combustion conditions.
- **Volatile Organic Compounds (VOCs):** Evaporate during combustion of organic wastes.
- **Hydrogen Chloride (HCl) & Hydrogen Fluoride (HF):** Emitted from PVC and fluorinated plastics; corrosive and harmful.
- **Dioxins & Furans:** Toxic Persistent Organic Pollutants (POPs); released during low-temperature or incomplete combustion of waste.
- **Heavy Metals:** Lead, mercury, cadmium, arsenic present in batteries, paints, and e-waste become airborne or entrapped in fly ash.

The above emission parameters shall meet the standards as prescribed in the **Table 2** below:

Table 2: Emission Standards as per SWM Rules, 2016

S.No.	Parameter	Emission Standards	
1	Particulates	50 mg/Nm^3	Standard refers to half hourly average value
2	HCl	50 mg/Nm^3	Standard refers to half hourly average value
3	SO_2	200 mg/Nm^3	Standard refers to half hourly average value
4	CO	100 mg/Nm^3	Standard refers to half hourly average value

		50 mg/Nm^3	Standard refers to daily average value
5	Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
6	HF	4 mg/Nm^3	Standard refers to half hourly average value
7	NOx (NO and NO_2 expressed as NO_2)	400 mg/Nm^3	Standard refers to half hourly average value
8	Total Dioxin and Furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
9	Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours
10	Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
11	Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Note.- All values corrected to 11% oxygen on a dry basis			

Note:

(a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits.

(b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(d) if the concentration of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal facility.

(e) Only low sulphur fuel like LDO, LSHS, Diesel, bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.

(f) The CO_2 concentration in tail gas shall not be more than 7%.

(g) All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950^oC in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

(h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

5.2 Boiler: Solid Residue (Bottom Ash and Fly Ash)

One of the critical by-products of WtE incineration technology is the generation of solid residues in the form of bottom ash, and fly ash. These residuals typically account for 20–30% of the input waste by weight and must be managed with caution due to their physical, chemical, and toxicological characteristics. If not handled, or disposed of appropriately, these residues can pose significant risks to soil quality, groundwater resources, and regulatory compliance.

Toxic leachate containing heavy metals can migrate into the subsoil and contaminate groundwater, .if the flyash is dumped in unlined ash ponds or open landfills, toxic

5.3 Waste handling : Leachate

Leachate generation during waste handling is a significant environmental concern. Leachate is the liquid that drains or 'leaches' from waste piles, particularly during storage and pre-processing stages, and it contains a complex mix of organic pollutants, heavy metals, suspended solids, ammonia, and dissolved salts. This contaminated liquid if not treated, can pose a serious threat to groundwater and surface water quality. The key factors contributing to the generation of leachate include

(i) High-moisture MSW:

Organic fractions and wet biodegradable components of MSW release leachate upon compression, biodegradation, or exposure to rainfall. This is particularly problematic in unsegregated waste streams.

(ii) Overflow during monsoon

During heavy rains, uncovered waste heaps and inadequate storm water diversion can cause leachate overflow, contaminating nearby land and water bodies.

5.4 Waste handling : Odour

Odour is a common and persistent environmental issue in WtE plants. Foul odours primarily originate from the tipping floors, waste storage areas, and pre-processing zones where biodegradable waste begins to decompose under anaerobic conditions. The problem is exacerbated during warm weather or when waste remains unprocessed for extended periods. Inadequate ventilation, poor housekeeping, and absence of odour control can lead

to significant discomfort for plant workers and nearby residents. These odour emissions often result in public complaints, and social resistance.

6.0 Environmental Management Plan:

6.1 Air Pollution Control Measures

Air Pollution Control Devices (APCDs) which are also called flue gas cleaning system (FCGS). Are installed to ensure that the flue gas generated from the boiler meets the stipulated norms (**Table 2.0)** prior to being released to the environment. The air pollutants from the stack can be treated using the from the following steps:

(i) Reduction of acidic gases (HCl, HF and SOx)

These substances can be cleaned from the flue-gas using alkaline reagents such as lime. The alkali agent can be injected either as suspension or solution into the hot flue-gas flow in a spray reactor. Water is added at a controlled rate to the collected fly ash and reagent to ensure that it remains free flowing and not prone to stickiness or scaling. The reaction products generated are solid and need to be deposited from the flue-gas as dust in a subsequent stage that is bag filter.

(ii) Reduction of NOx

The reduction of NOx can be achieved by injecting a reducing agent typically ammonia or Urea into the furnace. The temperature in the combustion chamber to be sprayed should be above 800^{o}C. The process is known as Selective Non-Catalytic Reduction (SNCR) process.

(iii) Reduction of Heavy metals and Dioxin & Furans

To ensure the reduction of heavy metals and Dioxin &Furans, activated carbon should be injected into the gas flow. The carbon is filtered from the gas flow using bag filters. The activated carbon shows a high absorption efficiency for mercury as well as for Dioxin & Furan.

(iv) Reduction of Particulate emissions:

The application of a dust removal system is considered essential for all waste incineration installations to ensure compliance with emission norms and protect downstream air pollution control equipment. Among the various technologies, bag filters can be used due to their high efficiency across a broad range of particle sizes. While their effectiveness slightly reduces below 0.1 microns, the proportion of such fine particles in the flue gas from waste incinerators is generally low. To improve filtration performance and protect the filter bags from chemical corrosion, pre-coating with reagents such as lime and activated carbon can be employed.

The process flow diagram of an APCD of WtE plant is given in **Figure 15.**



Figure 14: Bag House Filter

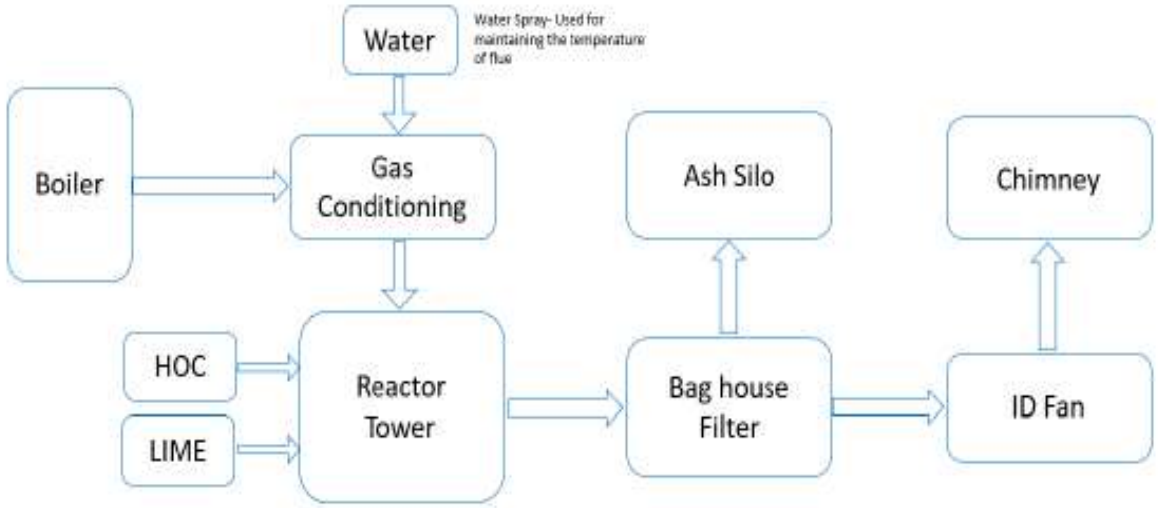


Fig 15: Process flow diagram of APCD

(v) Boiler Stack

The flue gases are discharged through a tall stack (chimney) designed to provide adequate dispersion of residual pollutants into the atmosphere. The typical height of the stack is generally 60 m, depending on the plant capacity, local terrain, air dispersion modeling, and regulatory requirements. In some facilities, the stack height may even exceed 60 meters. The diameter of the stack usually varies between 1.5 to 3.5 meters, depending on the volume and velocity of flue gas flow.

Stack are designed based on the minimum exit velocity of flue gas for re-entrainment of pollutants. Generally, exit velocity of flue gases are between 9 m/s to 18 m/s. Stacks are also equipped with OCEMS for real-time measurement and reporting of regulated parameters. The flue gases emitted through the stack may contain pollutants including dioxins and furans

Online Monitoring and reporting

As per Directions issued by CPCB , all operational MSW incineration-based WtE plants are required to install and operate Online Continuous Emission Monitoring Systems (OCEMS) to enable real-time monitoring and reporting of critical air pollutant parameters. The installation shall be in accordance with the Guidelines for Continuous Emission Monitoring System prepared by CPCB. The OCEMS shall continuously monitor and record the parameters such as PM, NOx, SO_2, HCl, HF, Carbon Monoxide (CO), Carbon Dioxide (CO_2)

The treated flue gas is required to meet the standards as specified in Schedule II C of the SWM Rules 2016 as given at **Table 2.0** of this document.

The emission analysis results from 4 WtE facilities is given in **Table 3**. It is to be noted that all these four plants have established APCS as per details given in this section of the plant.

Table 3: Stack Emissions Analysis of 4 WtE plants

S.No.	Parameters	Solid Waste Management Rules, 2016,	Measured Stack Emission mg/Nm^3(Corrected to 11% O_2 as per SWM Rules)			
			Unit 1	Unit 2	Unit 3	Unit 4
1	SPM	50 mg/Nm^3	28	20	15	25.45
2	Hydrogen Chloride	50 mg/Nm^3	0.72	BQL	1.3	0.74
3	SO_2	200 mg/Nm^3	18	22	27	BDL

4	NO_X (NO and NO_2) expressed as NO_2)	400 mg/Nm^3	179	153	128	146.1
5	CO	100 mg/Nm^3	25	30	34	0.773
6	HF	4 mg/Nm^3	BQL*	BQL	BQL	BDL**
7	Total Organic Compounds	20 mg/ Nm3	2.8	2.8	2.8	4.025
8	Sb + As + Pb +Cr+Co+ Cu+ Mn + Ni+V+ their compounds	0.5 mg/Nm^3	0.266	0.1212	0.1702	0.022
9	Cd + Th +their compounds	0.05 mg/Nm^3	**0.055**	0.086	0.028	Cd- BDL
10	Hg	0.05 mg/Nm^3	0.002	0.0008	0.0007	BDL
11	Total Dioxin & Furans	0.1 ng TEQ/Nm^3	**0.598**	0.0721	0.0031	0.053

It is observed that main parameter of concern in the stack emissions from the Boiler stack of WtE plant is Dioxin & Furan, Further, it is observed that WtE plants can comply with the stipulated norms with proper operation & maintenance of Air Pollution Control Devices.

6.2 Leachate Management

Waste storage areas in the WtE plants are to be provided with proper drainage systems, which include impervious flooring, gradient-based slopes, and covered waste storage areas to minimize rainfall ingress and facilitate gravity-based flow of leachate into collection channels. These channels are connected to leachate collection tanks or sumps equipped with level sensors and pumps for continuous monitoring and transfer.

Once collected, the leachate is conveyed to a dedicated Leachate Treatment Plant (LTP) for systematic treatment before reuse or further processing.



Figure 16: A Leachate Treatment Plant

The treatment process is typically multi-stage and may include a combination of mechanical, chemical, and thermal methods**:**

Mechanical Pre-Treatment: This stage involves coarse screening, oil-water separation, and sedimentation to remove suspended solids, grit, and floating materials. Equalization tanks are used to homogenize leachate characteristics and flow.

Chemical Treatment: Coagulation and flocculation processes are employed to remove colloidal particles, followed by pH correction and oxidation using agents like hydrogen peroxide or sodium hypochlorite for degradation of organics and heavy metals. Sometimes, advanced chemical dosing is used for precipitation of specific contaminants like chromium or arsenic.

Biological Treatment (optional): Depending on the organic load, aerobic or anaerobic biological reactors may be used to reduce BOD and COD levels. However, this step is less common in incineration WtEs.



Figure 17: Leachate Collection Pond



Figure 18: Chemical Treatment

Different technologies available for treatment of leachate include the following :

(i)Membrane Separation via RO/PTRO: Leachate is treated through Reverse Osmosis (RO) or Pre-Treatment RO (PTRO) systems. The permeate, which is relatively clean water, is reused within the plant, while the reject containing concentrated pollutants is routed to thermal treatment through Multi-Effect Evaporator (MEE).

(ii) Thermal Treatment via Multi-Effect Evaporator (MEE): The MEE is an advanced thermal treatment system widely used in WtE plants for the concentration and volume reduction of high-strength effluents such as leachate and RO reject water. MEE operates on the principle of multiple-stage evaporation under progressively lower pressure, utilizing the latent heat of vaporization from one effect (stage) to drive the next. In the first stage, the steam is used to heat and evaporate the effluent. The resulting vapour is then used as the heating medium in the second effect, and this cycle continues across all subsequent stages. This cascading use of heat significantly reduces overall steam consumption and operational costs.

In WtE applications, MEE systems are particularly effective for treating concentrated leachate, reverse osmosis (RO) reject, or high total dissolved solids (TDS) streams. The system separates the feed into two primary outputs: a condensate, which can be reused in plant processes (such as for ash quenching or for gardening purposes), and a concentrated residue, which contains the non-volatile dissolved and suspended impurities. In some cases, the concentrated stream may have sufficient calorific value to be reused as a supplementary fuel in the incinerator, promoting partial resource recovery.



Figure 19: Multi-Effect Evaporator (MEE):

(iii) **Thermal Treatment via Mechanical Vapour Recompression Evaporator (MVRE):**

It is an advanced thermal treatment technology used for the volume reduction and concentration of leachate. The MVRE system operates by compressing and reusing the vapour generated during evaporation, thereby significantly reducing energy consumption. This makes it a highly energy-efficient alternative for achieving Zero Liquid Discharge (ZLD) in effluent management.

In MVRE, the process begins with the heating of effluent (such as leachate or RO reject) to its boiling point. The vapour generated is then captured and passed through a mechanical compressor which increases its temperature and pressure. This compressed vapour is then reused as the heating medium in a heat exchanger, facilitating further evaporation of the incoming feed without the need for additional steam. The process continues in a closed-loop, wherein the heat of the vapour is continually recycled within the system. The condensate obtained, typically high in purity, is reused in plant operations, while the concentrated reject is either sent for secure landfill disposal or may be treated further, depending on its characteristics.

This integrated approach ensures Zero Liquid Discharge (ZLD) in many WtE facilities, aligning with environmental norms. Further, the treated leachate shall be disposed on land/public sewer/Inland surface water when the parameters are in accordance with the standards as prescribed in **Table 4** below:

Table 4: Standards for Parameters in Treated Leachate as per SWM Rules, 2016

S. No	Parameter	Inland Surface Water	Public Sewers	Land Disposal
1	Suspended Solids (mg/l, max)	100	600	200
2	Dissolved Solids (Inorganic) (mg/l, max)	2100	2100	2100
3	pH Value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4	Ammonical Nitrogen (as N) (mg/l, max)	50	50	-
5	Total Kjeldahl Nitrogen (as N) (mg/l, max)	100	-	-
6	Biochemical Oxygen Demand (BOD, 3 days at 27°C) (mg/l, max)	30	350	100
7	Chemical Oxygen Demand (COD) (mg/l, max)	250	-	-
8	Arsenic (as As) (mg/l, max)	0.2	0.2	0.2
9	Mercury (as Hg) (mg/l, max)	0.01	0.01	-
10	Lead (as Pb) (mg/l, max)	0.1	1.0	-
11	Cadmium (as Cd) (mg/l, max)	2.0	1.0	-
12	Total Chromium (as Cr) (mg/l, max)	2.0	2.0	-
13	Copper (as Cu) (mg/l, max)	3.0	3.0	-
14	Zinc (as Zn) (mg/l, max)	5.0	15	-
15	Nickel (as Ni) (mg/l, max)	3.0	3.0	-
16	Cyanide (as CN) (mg/l, max)	0.2	2.0	0.2
17	Chloride (as Cl) (mg/l, max)	1000	1000	600
18	Fluoride (as F) (mg/l, max)	2.0	1.5	-
19	Phenolic Compounds (as C_6H_5OH) (mg/l, max)	1.0	5.0	-

The treated leachate analysis report of four WtE plants is given in **Table 5.0** below. It is informed that these WtE Plants have installed leachate treatment plant as per details given in this section.

Table 5.0 : Treated leachate analysis in 4 WtE Plants

S. No.	Parameter	Land Disposal *(mg/l max) (Schedule II (B) of SWM Rules, 2016)	Measured Values (mg/L)			
			Unit 1	Unit 2	Unit 3	Unit 4
1	Suspended Solids (mg/l max)	200	10	8	22	11
2	Dissolved Solids (Inorganic) (mg/l max)	2100	44	2406	17	1948
3	pH Value	5.5-9.0	9.0	8.1	8.3	9.1
4	Ammonical Nitrogen (as N) (mg/l max)	-	1365	1	3.5	3
5	Total Kjeldahl Nitrogen (as N) (mg/l max)	-	1386	1.7	5.5	10
6	Biochemical Oxygen Demand (3 days at 27°C) (mg/l max)	100	1528	8	39	18
7	Chemical Oxygen Demand (mg/l max)	-	3260	56	106	131
8	Arsenic (as As) (mg/l max)	0.2	0.004	0.006	BDL	BDL
9	Mercury (as Hg) (mg/l max)	-	0.02	0.005	0.004	BDL
10	Lead (as Pb) (mg/l max)	-	BDL	BDL	BDL	BDL

11	Cadmium (as Cd) (mg/l max)	-	BDL	BDL	BDL	BDL
12	Total Chromium (as Cr) (mg/l max)	-	BDL	0.02	BDL	0.008
13	Copper (as Cu) (mg/l max)	-	BDL	0.01	BDL	0.008
14	Zinc (as Zn) (mg/l max)	-	BDL	0.02	BDL	0.067
15	Nickel (as Ni) (mg/l max)	-	BDL	0.04	BDL	0.026
16	Cyanide (as CN) (mg/l max)	0.2	0.09	BDL	BDL	BDL
17	Chloride (as Cl) (mg/l max)	600	26	**760**	2	**780**
18	Fluoride (as F) (mg/l max)	-	0.1	0.2	BDL	0.66
19	Phenolic Compounds (C_6H_5OH) (mg/l max)	-	2.8	BDL	0.09	BDL

It is observed that the main parameters of concern in the treated leachate discharged from the WtE include TDS, Chloride & BOD**.** It is further observed that the treated leachate can meet the stipulated standards, provided adequately designed Leachate Treatment Plant (LTP) is installed and proper operation & maintenance practices are followed in running the LTP.

6.3 Bottom Ash and Fly Ash Management

6.3.1 Bottom Ash

Bottom ash is collected from the combustion chamber in WtE plants after the incineration of MSW and contains inert and unburned materials A typical MSW incinerator generates bottom ash of about 20-30% by weight of the solid waste input.

To ensure that the bottom ash is non-hazardous, the concentrations of heavy metals must be within the limits prescribed under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as given in **Table 6** below. The bottom ash can be

reused/recycled/disposed in sanitary landfill , if it is found to be non-hazardous, otherwise it has to be disposed off in secured landfill.

Further, as per provisions of SWM Rules, 2016, the Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

The steps involved in recycling of non-hazardous bottom ash include the following

(a) **Extraction of ferrous particles**: A magnetic separator can be employed to extract ferrous materials from the bottom ash. The ash can be spread out on a moving belt or vibrating conveyor and all ferrous particles can be extracted using a suspended magnet. The remaining ash can be sent to the bottom ash handling facility, where it is cooled and further processed.

(b)Recycling of Bottom ash: Ash recycling plant is to be setup for recycling bottom ash. The output of the this plant includes Aggregate (8-20 mm), Coarse sand (3-8 mm), Fine sand (1-3 mm), Silt & Large objects (> 40 mm). The generated bottom ash is transported to the receiving platform of the ash recycling unit. From there, it is fed into a primary segregation unit equipped with screening mechanisms, where the material is crushed and classified into different size fractions. Oversized objects are removed at this stage. The crushed material is then segregated into three size categories: 20–40 mm, 8–20 mm, and <8 mm. The 20–40 mm fraction is directed to a cone crusher, which reduces it to the 8–20 mm range. The fraction below 8 mm is washed with water to form a slurry, which is subsequently processed in a sand washer. After washing, the <8 mm fraction is separated into coarse and fine sand. These fractions can be utilized for the brick manufacturing and construction purposes. The remaining silt and fines are utilized as landfill cover material.







Fig 18: Bottom Ash handling

6.3.2 Fly Ash

Fly ash quantities are generally much lower (2 to 3% by weight of the solid waste input) compared to bottom ash. Fly ash is normally collected using bag filters . It consists mainly of an injected alkaline agent and salt compound with an acidic gas, such as sulphur dioxide and hydrogen chloride, as well as dust containing harmful components such as heavy metals and dioxins.



Fig 19: Fly Ash handling

As in case of bottom ash, to ensure that the fly ash is non-hazardous, the concentrations of heavy metals must be within the limits prescribed under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as given in **Table 6** . The flyash

can be reused/recycled/disposed in sanitary landfill , if it is found to be non-hazardous, otherwise it has to be disposed off in secured landfill. If found non-hazardous , it can be used as secondary raw material in applications such as road construction, pavement sub-base layers, and construction materials, provided it undergoes appropriate pre-treatment. Pre-treatment techniques generally include dry treatment (such as crushing, screening, and metal separation), wet treatment (including washing to reduce soluble salts and fine particles).

The Fly Ash and Bottom Ash shall be transported in properly covered vehicles to prevent fugitive emissions. Adequate precautions must be taken during loading, unloading, and transportation to avoid any dispersion of particulate matter into the ambient.

Table 6: Toxicity Leaching Procedure Test: Bottom Ash and Fly Ash

S.No.	Parameters	Standards
1.	*Loss on Ignition (for Bottom ash only)	<5%
2.	Arsenic	5 mg/l**
3.	Cadmium	1 mg/l**
4.	Chromium	5 mg/l**
5.	Manganese	10 mg/l**
6.	Lead	5 mg/l**
7.	Selenium	1 mg/l**
8.	Copper	25 mg/l**
9.	Nickel	20 mg/l**
10.	Zinc	250 mg/l**
11.	Cobalt	80 mg/l**
12.	Vanadium	24 mg/l**
13.	Antimony	15 mg/l**

**As per Schedule II (Part C of SWM Rules 2016)*

***Concentration Limit to categorize as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 notified under Environment (Protection) Act, 1986.*

TABLE 7: ANALYSIS OF BOTTOM ASH & FLYASH AT WTE PLANTS									
Parameters	**Standards**	**Unit 1**		**Unit 2**		**Unit 3**		**Unit 4**	
		Bottom Ash	**Fly Ash**	**Bottom Ash**	**Fly Ash**	**Bottom Ash**	**Fly Ash**	**Bottom Ash**	**Fly Ash**
*Loss on Ignition (for Bottom ash only)	<5%	6.20%	NA	2.4	NA	3.4	NA	0.983	NA
Arsenic	5 mg/l**	BQL	BQL	BQL	BQL	BQL	BQL	BDL	BDL
Cadmium	1 mg/l**	0.45	**57.4**	0.31	**4**	0.46	0.02	0.147	BDL
Chromium	5 mg/l**	0.69	3.06	0.45	0.28	0.2	0.05	0.036	BDL
Manganese	10 mg/l**	7.28	**11.23**	3.29	0.52	5.46	BQL	1.578	BDL
Lead	5 mg/l**	0.79	**48**	0.4	0.05	0.38	0.38	0.056	**5.968**
Selenium	1 mg/l**	BQL	BQL	BQL	BQL	BQL	BQL	BDL	BDL
Copper	25 mg/l**	2.03	**87.8**	3.5	0.04	1.85	BQL	1.006	0.145
Nickel	20 mg/l**	0.44	1.8	0.3	0.08	0.31	0.01	0.058	BDL
Zinc	250 mg/l**	24.05	211	17.2	0.04	30.8	BQL	8.161	0.722
Cobalt	80 mg/l**	0.14	0.34	0.24	0.01	0.6	BQL	0.102	BDL
Vanadium	24 mg/l**	0.1	BQL	0.04	0.02	0.01	0.21	0.007	BDL
Antimony	15 mg/l**	0.06	0.3	0.31	1.28	0.02	0.82	0.011	BDL

The analysis of flyash and bottom ash in 4 WtE plants is given in **Table 7.** It is observed that bottom ash is meeting the stipulated requirements w.r.t Heavy metal in all the four plants. However, the concentrations are exceeding the stipulated norms for flyash in three out of four plants. In view of above results, it is essential that the flyash and bottom are tested as per provisions of SWM Rules, 2016 before being put to any beneficial use.

6.4 Reduction of Odour at the site

To effectively control and minimize odour emissions in waste storage and handling areas, a negative air pressure system is to be maintained in the storage . This can be achieved by operating suction blowers that continuously extracting air from enclosed waste storage zones. The extracted air is subsequently to be directed to the incinerator boilers where it is utilized as combustion air, thereby ensuring that potentially odorous compounds are destroyed at high

temperatures during the combustion process. This method not only prevents the escape of foul odours into the surrounding environment but also enhances combustion efficiency.

Herbal-based disinfectants are periodically sprayed within the waste storage and handling areas. These disinfectants are non-toxic, eco-friendly, and chemically stable, ensuring that they do not interfere with or alter any ongoing chemical or biological processes during storage or incineration.