MAHARASHTRA POLLUTION CONTROL BOARD

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RED/LSI

Consent No: BO/RO(HQ)/HWMD/EIC No.PN-27617-15 /CR/CC-9363 *Date:22/07/2016*

Consent to Operate under Section 26 of the Water (Prevention and Control of Pollution) Act. 1974, as amended; under Section 21 of the Air (Prevention and Control of Pollution) Act.1981, as amended and Authorization under Rule 6 of the Hazardous & Other Wastes (Management & Transboundry Movement) Rules, 2016 under the Environment (Protection) Act, 1986 [To be hereinafter referred as Water Act, Air Act and HW Rules respectively] is hereby granted to

M/s. Maharashtra Enviro Power Limited,
Plot No. P-56, Ranjangaon MIDC,
Tal: Shirur, Dist: Pune.

Subject:- Your application for renewal of consent for incineration, captive power generation and secured landfill facility with amendment dated 16/11/2015.

To operate a common facility as an operator for Collection, transportation, storage, treatment and disposal of composite hazardous wastes (hereinafter referred as CHWTSDF) subjected to the following conditions :-

1. The **Consent to Operate** is granted **as an Operator of the facility** under Rule 6 of the Hazardous & Other Wastes (Management & Transboundry Movement) Rules, 2016 and to set up common hazardous wastes collection, transportation, storage, treatment and disposal facility (CHWTSDF) at **Plot No. P-56, Ranjangaon MIDC, Tal: Shirur, Dist: Pune.**

2. The Consent to Operate is valid for the period up to: **31/10/2020.**
3. The installed and operating capacity of the CHWTSDF shall be as under:-

Secured Landfill : **60,000 MT/A**
(Stabilization and landfillable Hazardous Waste and Incinerated ash i.e. @ 20% of Hazardous Waste Incinerated.)

HW Incineration Capacity : **25000 MT/A**
Captive Power Generation : 6 MW/Hr

4. The CHWTSDF shall cater to the requirements of environments of environmentally sound management as required under the HW Rules for the landfillable, incinerable hazardous wastes generated by the industries possessing valid authorization by Maharashtra Pollution Control Board (MPCB) and operating in the following MIDC and nearby non-MIDC Industrial Areas, as per revised area allocation order of the Board No. MPCB/RO(HQ)/HSMD/TSDF/B-7446, dated 11/12/2008.

[a] Depending upon the technical capacity and feasibility hazardous wastes from industries operating in non MIDC Industrial areas and also Industries operating in MIDC areas within Maharashtra other than mentioned at sr. no. [a] above and authorized by or prior permission of MPCB, can also be accepted by CHWTSDF at Ranjangaon, Pune.

5. MPCB will issues suitable amendment in the authorization issued under Rule-5 of HW Rules, to the member industries generating hazardous wastes and operating in the areas mentioned revised area allocation order of the Board No.

MPCB/RO(HQ)/HSMD/TSDF/B-7446, dated 11/12/2008, directing them to send their wastes to the CHWTSDF at Ranjangaon, through implementation of manifest stipulated in the HW Rules, and through MPCB authorized hazardous waste Transporter failing which their authorization shall be revoked, suspended or not granted.

6. The generators of the hazardous wastes utilizing the common facility of CHWTSDF at Ranjangaon shall be bound to pay the costs to the CHWTSDF Operator (on polluter pays principle as enunciated by the Honorable Supreme Court of India) based on the criteria adopted by the MIDC in its RFP (Request for Proposal) documents No. 3 based on which MIDC has entered into an agreement with the CHWTSDF operator. The revision of costs involved in CHWTSDF operations shall be further governed accordingly. MPCB will issue suitable direction in this regard to all concerned.

7. In case of variations in the quantities of hazardous wastes available for CHWTSDF operations, MPCB shall review, as may be required and revise the jurisdiction of the common area allocated to the CHWTSDF at Ranjangaon.

8. The Operator of the CHWTSDF shall only accept the wastes covered under the HW Rules with prior approval of MPCB.

9. Transportation of hazardous wastes shall be done in compliance with the H & OW Rules respectively and the guidelines issued by CPCB in this respect from time to time. Suitable transport vehicle, closed containers etc. shall be provided commensurate with the nature. Characteristics of wastes. Transportation costs shall be recovered from the waste generators in accordance with the RFP and the agreement of MIDC with the CHWTSDF Operator.

10. The CHWTSDF operator shall be responsible for implementation of conditions and criteria as laid down in the RFP document and agreement with MIDC.

11. The CHWTSDF Operator shall be legally bound under this authorization to co-operate and comply with the directions as may be issued by MIDC in terms of its agreement with CHWTSDF Operator.

12. Treatment and disposal of the hazardous wastes shall be done as under:

[a]Secured Landfill

[a-1] Direct landfill

[a-2] Landfill after Treatment

[b] Physical-Chemical Treatment as required before landfill to stabilize the hazardous waste as the case may be.

[c] **Incineration**

[c-1] Direct incineration by Plasma Gasification

[c-2] Physical – Chemical Treatment as per requirement as the case may be followed by Plasma – Gasification and disposal / reuse of non – hazardous vitrified slag.

13. MIDC being an authority notified under Rule 16 of H & OW Rules shall coordinate with the CHWTSDF Operator for Implementation of the project in accordance with its agreement with the Operator. For this purpose, continuance of the role of the Expert Committee for HWM set up by MIDC is envisaged for advice from time to time and this may inter-alia include arbitration in terms of cost escalations and dispute resolution.

14. Treatment and disposal of Incinerable Hazardous Waste shall be done as under :-

a) 14.1 Plasma Gasification

i. Using Plasma Gasification Vitrification Reactor (PGVR) Technology

ii. Physical – Chemical Treatment as per requirement as the case may be will be followed by PGVR and disposal/ reuse of Non hazardous vitrified Slag.

1. Plasma Gasification Vitrification Reactor (PGVR)

1.1 General Characteristics of PGVR –

a. PGVR (Primary and Secondary chamber) should be of suitable design, lined with refractory & connected with Thermal Oxidizer, WHRB – ESP APC System, ID Fan & then flue gas through rubber lined stack of height 45 m.

b. The PGVR shall be capable of operating to severe operating conditions in the ambient temperature range 0-50^{0}C and humidity up to 95%.

c. The PGVR shall be designed to gasify industrial waste with capacity as per requirement.

d. The PGVR should be designed/ manufactured to meet specification and norms of CPCB, MoEF and SPCB norms and guidelines as may be published from time to time.

e. The PGVR should be capable of gasifying the hazardous waste.

1.2 **Technical Features :-**

1. Material of construction for the PGVR should be of MS sheet of suitable specs. The reactor shall be lined with high quality refractory and insulation capable of with standing temperature up to 1500^{0}C.

2. The PGVR should have adequate interlocks and safety system which are controlled by PLC.

3. The PGVR working temperature shall be maintained (1000^{0}C to 1200^{0}C) for complete gasification of Hazardous waste. The Thermal oxidizer temperature should be maintained at 1200^{0}C +100^{0}C.

3. The flue gas from Thermal oxidizer should pass through the air pollution control system. The system should be designed to remove the pollutant and particulate matter present in the flue gas from Thermal oxidizer.

4. The emission control system comprises of, Ventury (alkali) scrubber, Direct Contact Scrubber, Wet ESP, Polishing Scrubber, followed by ID Fans connected to Stack etc to meet the emission norms as given at sr. No. 14.7, 14.7.1, 14.7.2, 14.7.3 of this document. This system also brings down the outlet temperature of flue gases to approx 50 ± 5^0 C.

5. Minimum Two Plasma Torches to be installed fully automatic along with auxiliaries of suitable capacity.

6. Burners shall be of standard make pressure atomized type, capable of maintaining the temperature uniform inside the Thermal Oxidizer.

7. The Thermal Oxidizer shall be made of mild steel conforming to IS: 2062 and of suitable thickness lined with high grade refractory and insulation.

8. Suitable capacity blowers will be provided to provide sufficient air as per process requirement.

9. Automatic waste feed system to the PGVR should be provided.

10. Easily operating of charging door shall be provided with PLC control to facilities easy loading of the HW to the PGVR.

11. Liquid waste which is not suitable for handling and pumping shall be repacked in containers of suitable size for charging in PGVR.

12. The charging door should be fitted with the limit switches with PLC control which in turn shall cut off the feeding of HW and shall provide all safety measures to the operator while charging.

13. There shall be no waste accumulation inside the PGVR and shall have the capability of smooth working.

14. The control panel housing provided with the unit shall be of L & T or Siemens or any other reputed make, button, starters and contractors shall have digital temperature controls The ON/OFF switch shall light indication etc.

15. The Inorganic waste generated in the form of vitrified slag which is non Hazardous in nature should be disposal or reused in road filling, Brick Making for construction purpose.

16. Power consumption for gasifying hazardous waste is important consideration while selection of vendor. Power/ electrical consumption should also be considered.

17. A Stack of 45 meter height with conical base should be provided along with PGVR. It should be made as per the specification of guidelines of CPCB / IS – 5533 as applicable.

18. The PGVR shall be provided with suitable lifting lugs for maintenance purpose, as required.

19. The PGVR shall have sufficient number of peepholes fitted with Min 50 mm safety view glass for viewing.

20. The residence time for flow gases should not be less then 2 secs to achieve complete combustion in Thermal Oxidizer with minimum % of oxygen.

21. Sampling platform should be provided as per CPCB norms to collect stack samples from the stack for monitoring the air pollutants, as and when required. Pointed to be provided on stack as per standard CPCB norms against diametric calculations.

22. The FD fan should be centrifugal type, having standards make suitable power motor of suitable material.

23. The ID fans should be centrifugal type, with suitable power motor to meet with effective control of emission from stack.

24. The Venture Scrubber and Direct Contact Scrubber unit shall be of high energy type of MS make. The scrubbing medium should be water with 5% caustic approximately. It should bring the outlet temperature of the gas to 50 ± 5^0C.

25. Recirculation pumps of approximate capacity and of standards make motor should be provided for recirculation of scrubbing medium.

26. Oil service tank capacity min. 1000 Liters made out of 5 mm thick MS plate complete with pimping along with required MS supporting structure control valve and fuel indicators / gauge, fuel lifting pumps etc should be provided for Thermal Oxidizer.

27. The whole equipment should be painted with two coats of heat resistant aluminum paint.

28. Any other system required to bring the flue gas parameters within limits as per Central/ State Pollution Control Board norms should be provided.

29. You shall provide all civil works drawing for PGVR control room, foundation of stack and water tanks etc. You should also provide effluent treatment plant for the treatment of effluents at the discharge points of the scrubbing medium so that discharge of waste water comply with the General Standards of Waste Water Quality notified under the Environment (protection) Act, 1986 and rules made under.

1.3 **Material of construction**

a) Body: Fabricated from MS sheet.
b) Lining: Both the PGVR and Thermal Oxidizer to be lined with high quality refractory and insulation.
c) Interlock system: Plasma Torches electrically interlocked with PLC system.
d) Alarm : Audio visual alarm for all

i. Drive failure
ii. Excess temperature in PGVR / To.
iii. ID fan failure,
iv. Any other failure in the equipment, plant.

e) Accessories

Standard spares –

i) Min. One Plasma Torch for PGVR & Min. One Burner for TO.
ii) Refractory Material.
iii) Temperature controller and Indicators – one set.

1.4 Requirement of stack :

a) Height: 45 meters.
b) Material of Stack: Mild steel with rubber lining.
c) Type: It shall be self supported having sampling points at appropriate places of appropriate dia, along with ladder and platform for testing emission level from stack. Ports to be provided at distances required for standard method of testing.
d) Stack should be made as per the specifications of guidelines of CPCB / IS 6533 as applicable.

1.5 Approximate life of PGVR –

Expected life of PGVR shall not less than 20 years. You shall furnish the expected minimum life of PGVR for gasifying waste in terms of Kgs/day for moderate working of 24 Hrs/day.

1.6 Combustion efficiency :

After gasification vitrified slag will be free from organics.

1.7 **Emission Standards:**

The PGVT technology along with suitably designed pollution controlled devises should be installed operated and maintained, so that to achieve emission levels as given below:

Sr. No.	Parameters	Limiting concentration in mg/Nm^3 unless stated	Sampling Duration in (minutes) unless stated
1	Particulate matter	50	30
2	HCl	50	30
3	SO2	200	30
4	CO	100	30
5		50	24 Hrs.
6	Total Organic carbon	20	30
7	HF	4	30
8	Nox (NO and NO_2 expressed as No_2)	400	30
9	Total dioxins and furnace	0.1ng TEQ / Nm^3	**1. 8 Hrs**
10	Cd+ Th + their compound	0.05	2 Hrs.
11	Hg and its compound	0.05	2 Hrs.
12	Sb + As + Pb + Cr + CO + Cu + Mn + Ni +V + their compounds	0.05	2 Hrs.

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

14.7.1 Hydrocarbons: 10 ppm over and hourly rolling average dry basis, measure as propane.

14.7.2 Opacity : While operating properly at 100% rated capacity, the system shall have a visible emission rate of less than or equal to 10% except for condensed water vapor from the discharge stake to atmosphere (one hour rolling average).

14.7.3 Dioxin / Furans: While operating properly at 100% rated capacity, the system shall have an emission of dioxins and furnaces of less than or equal to 0.1 ng TEQ / Nm^3 corrected to 11% oxygen. Sampling period shall be minimum 6 hours and maximum 8 hours. Analysis of dioxin and furans as well as reference measurement methods to calibrate automated measurement systems shall be carried out as given by CEN – Standards. It CEN Standards are not available, ISO Standards, National or International Standards which will ensure the provision data of an equivalent scientific quality shall apply.

{Note: You should monitor Dioxin and Furans 6 monthly up to 2 years after commissioning and submit emission reports to MPCB.}

14.7.4 Metals: While operating properly at rated capacity the system shall have an emission rate from the discharge of stack to atmosphere less than or equal to as mentioned above.

14.7.5 Air Pollution Control devices: The emission control system shall be installed for gas cleaning and removal of air pollutants. The system shall comprise of following equipment singly or in combination with design efficiencies to meet the emission norms:

i. Waste Heat Recovery Boiler / Heat Exchanger / Quencher
ii. ESP
iii. Dry / Wet Scrubber with hydrated lime or Sodium Hydroxie injection in case of Polishing Scrubber Caustic Lye solution of Min. 45% strength.
iv. Stack of Min. 45 m height or as per formula 14 (Q) 0.3 [Where Q is emission rate of SO2 in Kg/Hr] which ever is more and designed as per GEP.

Note: Dry / Wet ESP and mist eliminator shall also be considered as may be required to meet the emission standards.

14.7.6 Monitoring Requirement: Three continues ambient air quality monitoring stations and recording system for opacity, CO, SO2, and NOx shall be installed and reports shall be sent to the Maharashtra Pollution Control Boards on regular basis. Interlocking arrangements for CO and temperature controls (in PGVR and Thermal Oxidizer) with feeding devices shall be also be provided.

Waste feed has also to be terminated on failure of PGVR system.
Vent valve in case of higher pressure development in the PGVR.

14.7.7 Online stack monitoring with display and recording system of standard makes for maximum possible parameters shall be provided.

14.7.8 Infrared / Digital temperature with display and recording system shall be provided at the PGVR, Thermal Oxidizer, stack outlet and other places as required to gasify.

15. **Laboratory**

The CHWTSDF Operator shall set up the laboratory for analysis of hazardous wastes in accordance with the provisions contained in the RFP document. The laboratory shall have the capability to carry out the comprehensive and finger print parameters analysis as may be necessary for treatment and disposal of the hazardous waste. The laboratory shall be adequately staffed and equipped to carry out the above work. The laboratory shall be responsible to maintain the analytical records.

Laboratory instruments and equipments as indicated in the RFP documents of MIDC and the techno-business proposal submitted by the CHWTSDF Operator shall be installed and commissioned. Any additional instruments/equipments required for sampling, storage, transportation, analysis etc. shall also be procured by CHWTSDF Operator.

16. **Storage of Hazardous Waste**

- Separate area should be earmarked for storing the waste and storage area may consist of different cells for storing different kinds of hazardous wastes.
- Ignitable, reactive and non-compatible wastes shall be stored separately.
- Adequate storage capacity shall be provided in the premises
- No open storage is permissible and the designated hazardous waste storage area shall have proper enclosures, including safety requirements.
- In order to have appropriate measures to prevent percolation of spills, leaks etc. to the soil and ground water, the storage area may be provided with concrete pavement and / or welded iron sheet depending on the characteristics of the waste handled.
- Storage area shall be designed in such a way that the floor level is at least 150 mm above the maximum flood level.
- Proper stacking of drums with wooden frames shall be practiced.
- Incase of spills / leaks, cotton shall be used for cleaning instead of water.
- Signboards showing precautionary measures to be taken, in case of normal and emergency situations shall be displayed at appropriate locations.
- To the extent possible, manual operations with in storage area are to be avoided. Incase of personnel use, proper precautions need to be taken, particularly during loading / unloading of liquid hazardous. Waste in drums
- A system for inspection of storage area to check the conditions of the containers, spillages, leakages etc. shall be established and proper records shall be maintained.

17. **Transportation of Wastes**

The CHWTSDF Operator shall also be responsible for safe transportation of hazardous wastes as "transporter" from HW generated/occupier authorized by MPCB to CHWTSDF at Ranjangaon, Dist-Pune. The transportation vehicle and containers shall be suitably designed to handle the hazardous wastes and bio-medical wastes. The transporter shall carry/ display the TREM card during transportation of the hazardous waste and comply with the provisions under Motor Vehicles Act (MVA), 1988; as amended and rules made hereunder and as per Guidelines of HW transportation issued by CPCB as amended from time to time.

The CHWTSDF Operator shall be responsible for cleanup and remedial operation in case of spillage, leakage or any other accidental/ incidental discharge of hazardous wastes at its own costs as consequences and shall keep the MPCB suitably informed. The transporter shall be responsible to maintain the manifest system.

18. The transporter shall ensure that the hazardous wastes are packed, based on the composition in a manner suitable for handling and transportation. The labeling and packaging shall be easily visible and shall be such as to withstand physical conditions and climatic factors.

19. The packaging, labeling and transportation of hazardous wastes shall be in accordance with the provisions or rules made by the Central Government under the Motor Vehicles Act, 1988 and other guidelines issued from time to time.

20. All hazardous wastes containers shall be provided with a general label as given in Form-12 of hazardous waste rules.

21 The Transporter shall not accept hazardous waste from an occupier/generator for storage, treatment for disposal unless it is accompanied by six copies of the manifest (Form-10) as per the colour codes. The transporter shall give two copies of the manifest signed and dated to the generator/ occupier and retain the remaining four copies to be used as prescribed in Sub-rule (4), in following manner.

Copy number with colour code	Purpose
(1)	(2)
Copy 1 (White)	To be forwarded by the sender to the State Pollution Control Board after signing all the seven copies.
Copy 2 (Yellow)	To be retained by the sender after taking signature on it from the transporter and the rest of the five signed copies to be carried by the transporter.
Copy 3 (Pink)	To be retained by the receiver (actual user or treatment storage and disposal facility operator) after receiving the waste and the remaining four copies are to be duly signed by the receiver.
Copy 4 (Orange)	To be handed over to the transporter by the receiver after accepting waste.
Copy 5 (Green)	To be sent by the receiver to the State Pollution Control Board.
Copy 6 (Blue)	To be sent by the receiver to the sender.
Copy 7 (Grey)	To be sent by the receiver to the State Pollution Control Board of the sender in case the sender is in another State.

22. The transporter shall obtain relevant information in Form-09 Rule 18(2) [TREM Card] from occupier, regarding the hazardous nature of the wastes and measures to be taken in case of an emergency.

23. The transporter shall not export or import any type of hazardous wastes.

24. No processing of hazardous wastes shall be carried out by the transporter.

25. The transporter remaining proper record for receipt and delivery of the hazardous wastes. This record shall be made available for inspection.

26. It shall be the responsibility of the transporter to take all steps to ensure that the waste listed in schedule -1, 2 and 3 are properly handled and transported without any adverse effects on the environment.

27. The transporter of hazardous wastes shall maintain record of such transportation in Form-3. The transporter of hazardous waste shall send annual returns to the concern State Pollution Control Board / MPCB in Form-4.

28. The transporter shall be liable for damages caused to the environmental resulting due to improper handling & or transport of hazardous wastes and shall be liable to reinstate or restore damaged and destroyed elements of the environment.

29. The transporter shall comply with the provisions of Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 2008.

30. The transporter shall comply with the guidelines for packaging, labeling and transportation for Hazardous Wastes given as under:-

1. **PACKAGING:-**
The containers must be able to withstand normal handling and retain integrity for a minimum of 6 months. In general, packaging for hazardous substances must meet the following requirement.

i) Items must be of such a strength, construction and type as not to break open or become defective during transportation.

ii) Items must be constructed and closed in a manner to prevent spillage of hazardous substances.

iii) Re-packaging materials including fastening must not be affected by the contents or form a dangerous combination with them.

The containers when used for packaging of the hazardous wastes should meet the following requirements:-

a) Container shall be of mild steel with suitable corrosion resistance coating and roll-on-roll-off cover which may either be handled by articulated crane or by a hook lift system works comfortably for a large variety of wastes. Other modes of packaging like collection in 200-L MS and plastic drums, card board cartons, PP and HDPE/LDPE containers also works for variety of wastes. However, all such container should be amenable to mechanical handling. The design and use of containers should be case specific.

b) It should be leak proof.;

c) In general, containers for liquid hazardous waste should be completely closed (in fact: sealed). There should be no gas generation due to chemical reaction and therefore, no need for air vents; expansion due to temperature increase/ decrease normally does not need air vents.

d) Container should be covered with solid lid or canvas to avoid emissions, spillage, and dust and to minimize odor generation both at the point of loading as well as during transportation.

e) Container should be easy to handle during transportation and emptying.

f) CHWTSDF shall not exceed the hazardous waste carrying capacity of the transportation vehicle.

g) As far as possible, manual handling of containers should be minimized. Appropriate material handling equipments shall be used to load, transport and unload containers. This equipment includes drum, dollies, forklifts, drum handling equipments, lift gates and pallets. Drums should not be rolled on or off vehicles.

h) Where 2-tier or 3-tier storage is envisaged the frame should have adequate strength to hold the containers;

i) The multi-use containers should be re-usable. One way containers (especially 160 L-drums) are also allowed.

ii) Loads are to be properly placed on vehicles. HW containers are not to overhang, perch, lean or be placed in other unstable position. Load should be secured with straps, clamps, braces or other measures to prevent movement and loss. Design of the container should be such that it can be safely accommodated on the transport vehicle.

iii) Dissimilar wastes shall not be collected in the same container. Wastes shall be segregated and packed separately. This is necessary to ensure that each waste finds its way to the right disposal pathway.

iv) Occupier/ hazardous waste generator shall not resort to the dilution of wastes (predominantly organic wastes)

2. **LABELING:-**

There are two types of labeling requirements:-

I] Labeling of individual transport containers [ranging from a print-size to tank] and

Ii] Labeling of transport vehicles.

a. All hazardous wastes containers must be clearly marked with current contents. The marking must be water proof and firmly attached so that they cannot be removed.

b. Previous content labels, when different, should be obliterated. Proper marking of containers is essential.

c. Containers that contain HW must include the words "Hazardous Waste". The information on the label must include the code number of the waste, the waste type the origin (name, address, telephone number of generator), hazardous property (e.g. flammable) and the symbol for the hazardous property (e.g. the red square with flame symbol).

d. The label must withstand the effect of rain and sun.

Labeling of containers is important for tracking the wastes from the point of generation upto the final disposal. Following are the requirements for labeling:-

a) The label should contain the name and address of the waste management facility where it is being sent for treatment and final disposal.

b) Emergency contact phone numbers shall be prominently displayed. For example respective Regional Officer of the State Pollution Control Board, Fire Station, Police Station.

c) CHWTSDF shall send their empty drums / containers – 3000 Nos/A to authorized recycler / reconditioner for reconditioning / recycling.

3. **TRANSPORTATION**:-

Following are the requirements pertaining to the transportation of hazardous wastes.

a) Vehicle used for transportation shall be in accordance with the provisions under the Motor Vehicles Act, 1988 and rules made there under.

b) Transporter shall possess valid authorization from State Pollution Control Board for transportation of wastes.

c) PUCC (Pollution Under Control Certificate) shall be properly displayed.

d) Vehicles should be painting preferably in blue colour with white strip of 15 to 30 cm width running centrally all over the body. This is to conciliate easy rectification;

e) Vehicle should be fitted with mechanical handling equipment as may be required for safe handling and transportation of the wastes.

f) The words "HAZARDOUS WASTE", shall be displayed on all sides of the vehicle;

g) Name of the facility operator or the transporter, as the case may be shall be displayed.

h) Emergency phone numbers and TREM Card shall be displayed properly.

i) Vehicle shall be fitted with roll-on/roll-off covers if the individual containers do not possess the same.

j) Carrying of passenger expected in the cabin and those working with the waste haulers, shall be strictly prohibited.

k) Transporter shall carry documents of manifest for the wastes during Transportation as required under the Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 2008.

l) The truck shall be dedicated for transportation of hazardous wastes and they shall not be used for any other purpose.

m) Each vehicle shall carry first aid kit and fire extinguisher.

n) Educational qualification for the driver shall be minimum of 10th pass (SSC). Drivers shall be properly trained for handling the emergency situation and safety aspects involved in the transportation of hazardous wastes.

o) The design of the trucks should be such that it should prevent spillages during transportation.

p) Transporter shall promptly attend spillages/accident, if any, by providing suitable remedial action as may be required and shall inform concern, agencies the occupier, MPCB & Police.

q) Exposure of community to the odor, spillages and emission from hazardous waste shall be avoided during transportation.

31. **Emergency Preparedness Plan:**
The CHWTSDF Operator shall prepare an on-site emergency plan and provide adequate training to the staff at the facility. The emergency preparedness plan shall be prepared and put in place prior to the commencement of CHWTSDF Operations and shall be submitted to MPCB along with application for consent to Operate.

32. **Conditions regarding Water Act. :**

a) The applicant shall comply with the provision of the Water (Prevention & Control of Pollution) Cess Act, 1977 (to be referred as Cess Act) and amended Rules, 2003 there under:

The under water consumption for the following categories is as under:

i) Domestic	...	20.0 CMD
ii) Industrial Processing	...	20.0 CMD
iii) Industrial Cooling	...	CMD
iv) Agriculture / Gardening	...	1600.0 CMD

The applicant shall regularly submit to the Board the returns of water consumption in the prescribed form and pay the Cess as specific under Section 3 of the said Act.

b) The daily quantity of trade effluent shall not exceed **113.0 m^3**

c) The daily quantity of sewage effluent (CHWTSDF Operations) shall not exceed **16.0 M^3**

d) **Trade Effluent:**
Treatment: - The CHWTSDF Operation shall provide comprehensive treatment system consisting of primary/Secondary and/or Tertiary treatment as may be warranted with reference to influent quality and operate, maintain the same continuously so as to achieve the quality of the treated effluent to the following standards before disposal into CETP or shall be sent to incinerator.

Sr. No.	Parameters	Standard
1	PH	5.5 – 9.0
2	BOD, 3 days 27^0 C	100
3	Oil & Grease	20
4	Suspended solids	100
5	Residual Chlorine	1
6	NH_3 (as N)	50

7	TKN (as N)	100
8	COD	250
9	Arsenic (as As)	0.2
10	Mercury (As Hg)	0.01
11	Lead (as Pb)	1
12	Cadmium (as CD)	2
13	Total Chromium (as Cr)	2
14	Copper (as Cu)	3
15	Zinc (as Zn)	15
16	Selenium (as Se)	0.05
17	Nickel (as Ni)	5
18	Cyanide (as CN)	0.2
19	Fluoride (as F)	15
20	Sulphide (as S)	5
21	Pesticides	Absent
22	Phenolic Compounds (as C_6H_5OH)	5

(All parameters are in mg/l. expect pH)

33. **Conditions under the Air (P & CP) Act, 1981:**
The applicant shall install a comprehensive control system considering of controls as is warranted with reference to generation of emission and operate and maintain the same continuously.

33.1 The TSDF Operator shall observe the following fuel consumption:

Sr. No.	Type of Fuel	Quantity
1	LDO	750 Ltrs /Hr

33.3 Qualifying Criteria:
The incinerator must be designed comprising of primary (rotary kiln) secondary chamber, and emission control system as may be necessary. The air pollution control devices must have requisite technical capability to achieve hazardous waste emission standards.

34. DG set Conditions (750 KVA):

i) Noise from the D.G. Set should be controlled by providing an acoustic enclosure or by treating the room acoustically.

ii) TSDF operator should provide acoustic enclosure for control of noise. The acoustic enclosure/acoustic treatment of the room should be designed for minimum 25 dB(A) insertion loss or for meeting the ambient noise standards, whichever is on higher side. A suitable exhaust muffler with insertion loss of 25 dB (A) shall also be provided. The measurement of Insertion loss will be done at different points at 0.5 meters from acoustic enclosure/room and then average.

iii) TSDF operator shall take adequate measures for control of noise levels from its own sources within the premises in respect of noise to less than 55 dB(A) during day time and 45 dB(A) during the night time. Day time is reckoned between 6 a.m. to 10 p.m. and night time is reckoned between 10 p.m. to 6 a.m.

iv) TSDF operator should make efforts to bring down noise level due to DG Set, outside industrial premises, within ambient noise requirements by proper sitting and control measures.

v) Installation of DG Set must be strictly in compliance with recommend-actions of DG Set manufacturer.

vi) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.

vii) The DG set shall be operated only in case of power failure.

viii) The applicant should not cause any nuisance in the surrounding area due to operation of the DG set.

35. The TSDF Operator shall provide ports in the chimney/stack and facilities such as ladder, platform etc. as per requirements for monitoring the air emissions and the same shall be open for inspection and use by the authorities. The chimney / stacks attached to various sources of emission shall be designated by numbers such as S-1, S-2 etc. and these shall be painted/ displayed to facilitate identification.

36. The CHWTSDF Operator shall take adequate measures for control of noise levels form its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB(A) during day time and 70 dB(A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.

37. The CHWTSDF Operator shall provide uninterrupted power supply to the Air Pollution Control devices provided. An interlock shall be provided between D.G set and the Air Pollution Control systems.

38. The CHWTSDF Operator should not cause any nuisance in surrounding area.

39. The CHWTSDF Operator should monitor stack emissions and ambient air quality regularly, preferably by installing continuous stack monitoring and recording facility.

40. General Conditions presented in the Schedule 'A' Appendix I & II of this order shall be complied with by the Operator / Occupier of the CHWTSDF.

41. Whenever due to any accident or other unforeseen act or even. Such emissions occur or is apprehended to occur in excess o standards laid down, such information shall be forthwith Reported to Board, concerned Police Station, office of Directorate of health Services, Department of Explosives. Inspectorate of Factories and Local Body. In case of failure of pollution control equipments, the production connected to it shall be stopped.

42. All the conditions of this Consent shall be strictly implemented and the consent order shall be displayed at a prominent location in the factory premises.

43. This is issued subject to said site identification and notification to be issued by Govt. of Maharashtra / Maharashtra Industrial Development Corporation.

44. Board shall carry out the third party audit for important and critical processes in Hazardous Waste Disposal.

45. Issues regarding rates of wastes treatment and disposal, analysis of wastes and any other controversy shall be informed to redresser committee.

46. **General Conditions**:

I. The authorization shall comply with the provision of the Environment (Protection) Act, 1986 and the Rules made there under.

II. The Applicant shall maintain good house keeping and take adequate measures for control of pollution from all sources so as not to cause nuisance to surrounding area/ inhabitants.

III. The applicant shall bring minimum 33 % of the available open land under green coverage plantation.

IV. Solid Waste - The non-hazardous solid waste arresting in the factory premises, sweeping, etc. be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permission from civic authorities for disposal to dumping ground.

V. The applicant shall provide for an alternate electric power source sufficient to operate all pollution control facilities installed by the applicant shall stop, reduce or otherwise, control production so abide by terms and conditions of this consent regarding pollution levels.

VI. The applicant shall not change or alter the quantity, quality, of discharge, temperature or the mode of the effluent/ emission or hazardous wastes or control equipments provided for without previous permission of the Board.

VII. The applicant shall provide facility for collection of environmental samples and samples of trade and sewage effluents, air emissions and hazardous wastes to the Board staff at the terminal or discharged points and shell pay to the Board for the service rendered in this behalf.

VIII. The applicant shall make an application for renewal of the consent at least 60 days before the date of expiry of the consent.

IX. The firm shall submit to this office, the 30th day of September every year, the Environmental Statement Report for the financial year ending 31st March in the prescribed Form – V as per the provisions of rule 14 of the Environmental (Protection) (Second Amendment) Rules, 1992.

X. The industry shall submit the Annual Returns as per Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 2008 for the calendar year in Form- IV before 30TH June of every year.

XI. An inspection book shall be opened and made available the Board officers during their visit to the application.

XII. The application shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluents treatment plants and air pollution control system. A register showing consumption of chemical used for treatment shall be maintained.

XIII. Separate drainage system shall be provided for collection of trade sewage effluents. Terminal manholes shall be provided at the end of collection system with arrangement for measuring the flow No. effluent shall be admitted in the pipes sewers down-stream of the terminal manholes. No effluent shall find its way other than in designed and provided collection system.

XIV. Neither strong water nor discharged from other premises shall allowed to mix with the effluents from the factory.

XV. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises.

XVI. The authorization or its renewal shall be produce for inspection at the request of an officer authorized by the Maharashtra Pollution Control Board.

XVII. The person authorized shall not rent, land, sell, transfer or otherwise transport the

Hazardous waste without obtaining prior permission of the Maharashtra Pollution Control Board.

XVIII. Any unauthorized change in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.

XIX. It is the duty of the authorized person to take permission of the Maharashtra Pollution Control Board to close down the facility.

XX. An application for the renewal of an authorization shall be made as laid down in Rule 5(7)

47. **This is issued as per the decision taken in the Consent Committee meeting the Board held on dt: 03/02/2016.**

48. **The industry shall submit the Bank Guarantee of Rs. 5 Lacs towards operation and Maintenance of pollution control equipments.**

49. The capital investment of the unit is **Rs. 149.40 Crores.**

50. **Balance consent fees of Rs. 576704/- from previous consent is being adjusted.**

For and on behalf of the
Maharashtra Pollution Control Board

21/7/16

P. K. Mirashe
Member Secretary,
Maharashtra Pollution Control Board

D.A. : Schedule 'A', Appendix – I & II and Annexure I & II.

To,
M/s. Maharashtra Enviro Power Limited,
Plot No. P-56, Ranjangaon MIDC,
Tal: Shirur, Dist: Pune.

Copy forwarded with compliments to:

1) Regional Officer, MPCB, Pune
2) Sub-Regional Officer, MPCB, Pune-II.
3) Chief Accounts Officer, MPCB, Mumbai.

Received Consent fee of:

Amount	Demand Draft No.	Date	Drawn on
Rs. 540867/-	023672	11/12/2015	Punjab National Bank
Rs. 476602/-	023524	10/11/2015	Punjab National Bank

4) Cess Branch, MPCB.

SCHEDULE "A"
OPERATING REQUIREMETNS FOR THE CHWTSDF

Ref.: Consent to operate issued to the CHWTSDF Operator / Occupier namely M/s. Maharashtra Enviro Power Ltd., Ranjangaon, Pune

1. All operations involving collection, transport, storage and disposal shall comply with the guidelines / regulations issued by CPCB / MoEF as may be adopted by the MPCB and stipulated in the authorization under Rule 5 of the HW Rules. The Operator should ensure the hazardous wastes from the generators are accepted at the facility in compliance of the manifest notified under the said rules through Hazardous Waste Transporter authorized by MPCB.

2. **Overall responsibility of the Operator** :
   a) Accepting hazardous wastes at CHWTSDF from the generators authorized by MPCB.
   b) Establishing a system for optimal movement of hazardous wastes transportation and treatment and disposal operations, which may include resources recovery / recycling, regarding as the case may be.
   c) Operating the CHWTSDF as per conditions stipulated in the authorization.
   d) Undertaking cleanup operation and remediation in case of communication resulting from CHWTSDF or during hazardous waste transport by CHWTSDF facility operator.
   e) Abatement of pollution and the odor arising out of CHWTSDF operations.
   f) Compliance of regulations concerning occupational safety and health of CHWTSDF employees.

3. **Sequence of Operations at the CHWTSDF :**
   a) Hazardous wastes and its analysis report shall be received by Operator from the generator.
   b) The operator shall examine the report and plan pathway for hazardous waste treatment and disposal.
   c) Upon confirmation of the same by the operator to the generator the waste shall be dispatched to the CHWTSDF accompanied by transport manifest.
   d) Upon receipt at the facility, the hazardous wastes shall be weighed and properly logged.
   e) Hazardous waste shall then undergo a visual inspection to confirm the physical appearance.
   f) A representative sample of the hazardous waste shall be collected and sent to the on-site laboratory for analysis.
   g) The result of the analysis shall be compared with the results of earlier analysis.
   h) Upon confirmation, hazardous waste shall be sent for CHWTSDF operations according to the identified pathway.

4. **Storage at Generator's premises:-**
   It is the responsibility of the Operator to inform the Generator about non-compatible wastes so that the generator may take precautions against mixing or storing of such wastes. The Operator shall have to educate the Generator's staff to make on-site storage in colour coded containers that are supplied by the Operator. The sizes of the containers, drums, trolleys, etc. shall be governed by the volume of specific type of waste and carting cycle. While considering this, the Operator shall see that the problems like odour, surface water contaminations, ground water percolation etc. does not occur.

4. **Characterization :**

5.1 Generator shall provide declaration to the effect that hazardous wastes generated are as per authorizations by the Board.

5.2 Generation of hazardous wastes shall identify and provide analysis report including CRIT criteria of the waste consignments. The operator should ensure that the generator provides such information regarding:

a. Through put and process that generates the waste, with quantities and.
b. The physical and chemical description waste as per parameters

5.3 The operator should ensure that hazardous waste codes are properly placed as per HW Rules.

6. **Pretreatment at Site:**

This aspect is basically for making the waste more amenable for transport and further treatment. This can be done by way of incinerator neutralization, oil & grease removal, change in form, dewatering etc. so as to render such waste less hazardous. This activity should be done in engineering like manner and the pollution so generated would have to be treated so as to meet the standards stipulated in this consent order.

7. **Pre-Transport:**

7.1 The Operator shall not accept hazardous wastes from a generator unless six-copy (with colour codes) manifest is provided by the generator. The transporter shall give two copies of the manifest signed and dated to the generator and retain the remaining 4-copies to be used for further necessary action prescribed in the HW Rules.

This aspect shall include the envisaged strength of fleet of hazardous waste transportation vehicles that the Operator desires to place in service. The transport vehicle shall be designed suitably to handle and transport the hazardous wastes of various characteristics. The transportation may include transferring of the containers or contents. In both the cases, however, it has to be seen that non-compatible wastes are not mixed. The wastes shall be transported in closed containers at all times. Necessary precautions should be taken as envisaged under the guidelines issued by MoEF in 1991, CPCG in 1998 and Central Motor Vehicles Rules, 1989. There should be a garage / workshop to inspect cushioning springs, sparking form silencer, engine geeing hot, staring trouble, washing of vehicles, closing arrangement etc.

7.2 Pre-transportation operations shall include pre-inspection of tankers/ containers before filing, to check for cleanliness / washing followed by packaging labeling and marking Drivers should be trained and knowledge should be provided regarding TREM (Transport Emergency) Cards and the manifest stations after unloading of wastes and not in the generator's premises before loading of fresh waste. Old label shall be removed to avoid misleading message. Proper documentation shall be done as per HW Rules.

8. **Loading & Transportation**

Since the transportation cargo would be hazardous, it is essential that mechanical loading of containers takes place with the help of mobile or in-built cranes / loading equipment in the transportation vehicles meant for transporting the hazardous wastes. Portable or inbuilt cranes should be engaged to lift the containers and place them on the transporting vehicles. Spillages should be avoided through measures such as checking shock absorbing capacity of vehicles, road surfaces, free board in the containers, curvature of the roads, unsecured fastening of drums etc. Manifest / shipping documents or a change of custody receipt books is essential. A location map may be prepared on a daily basis where every entry of hazardous waste load is shown.

9. **Spillage Handling**

9.1 Spillage during handling should be avoided by adopting good housekeeping practices and upkeep of storages / handling equipment. Operator would have to train transporting staff and provide them with instructions to use the TREM (Transport Emergency) Cards to deal with files and accidents and should equip them with road sings, placards, etc. This respect should also be covered under the insurance scheme.

9.2 The Operator shall immediately inform MPCB and other regulatory authorities in case of spillage, leakage or other accidents during transportation.

10. **Waste Treatment / Stabilization**

10.1 Waste Treatment / Stabilization is a process designed to convert hazardous wastes in the form of non-aqueous liquids, semi-solids or reactive solids in to less leachable solids that can be then deposited directly into the secured landfill. The treatment / stabilization operations will be carried out for all wastes identified for the purpose so as to minimize their contaminant leaching potential. This will change the nature of these wastes to a less hazardous category. Treatment / stabilization could involve immobilization of leachable materials by fixation of non-reactive solids, reduction of volume, reducing contaminant level of organic / inorganic components. Selection of technology would depend on the nature of waste, physical properties, option for technology applications cost. etc. The treated wastes will be assessed for compatibility with other wastes as with liner system used before being land filled.

10.2 The term treatment / stabilization is intended to cover a number of mechanisms including.

(a) Immobilization / Chemical Fixation: The chemical binding of contaminants within a cementing structure to reduce the mobility or leach ability of the waste constituent.

(b) Encapsulation: The occlusion or entrapment of contaminant particles within a solids matrix.

(c) Solidification: The conversion of slurries that do not readily de-waste into solids by addition of solidification and absorption agents.

10.3 General Operations for waste treatment / stabilization may include

(a) Receiving waste and its storage at designed place.
(b) Reagent addition as per the pre-estimated place.
(c) Mixing and curing.
(d) Thermal treatment to remove moisture, organic etc.
(e) Analysis of the stabilized sample.
(f) Transfer of stabilized material to landfill.

10.4 Ambient odor due to CHWTSDF operations has to be neutralized by the operator.

11.0 Placing bulks, containerized, or non-containerized liquid hazardous wastes containing free liquids (whether or not absorbent have been added, liquids that have absorbed I biodegradable materials and liquid that have been stabilized by absorbents but will release liquids when compressed under normal pressure that might occur during and after land filing in the landfill is prohibited regardless of the length of time, presence of liners or leachate collection system.

11.1 The Operator shall use the paint filter liquid test (PFLT) to comply with requirement. This test determines whether the waste can be accepted to landfill. If the work does not pass the PFLT, it must be treated before it can be placed in the landfill.

12.0 Waste treatment / stabilization would have to be performed on all wastes that find their final disposal into the secured landfill but do not meet the landfill disposal criteria (placed at Annexure-I of this schedule).

13.0 Identification of parameters required for waste treatment / stabilization.

Waste treatment / stabilization parameters shall include both physical and chemical tests. Physical tests shall be performed to characterize wastes before and after

stabilizations / solidification / treatment. The chemical tests shall primarily be the leaching tests, which will be conducted to evaluate the performance of specific treatment processes.

14.0 Analysis protocol to confirm treatment / stabilizations of waste.

The operator has to conduct and document the results of the following physical tests applicable to incoming waste as well as on treated / stabilized hazardous waste. The physical tests shall be classified into the following categories.

Test	Purpose
Index Properly – Particles size analysis (PSA)	To determine the particle size distribution of a material.
Moisture Content – paint filter liquid test (PFLT)	To determine the presence of free liquids in a representative sample of bulk of non-containerized waste.
Density Testing – Bulk Density	To determine the in place density.
Compaction Testing	
Moisture density relations	To determine the relation between moisture content and density of the waste
Permeability Testing – Falling head permeability / constant head (FHP/CH)	To measure the rate at which water will pass through a stabilized waste
Strength Testing – Unconfined compressive strength (UCS)	To evaluate how cohesive the stabilized materials behave under mechanical stress.
Flexure Strength (FS)	To evaluate a stabilized wastes ability to withstand loads over a large area.
Cone Index (CI)	To evaluate a stabilized wastes stability and bearing capacity
Durability Testing – Wet dry durability (WDD)	To determine how the stabilized waste behaves or degrades after repeated wet-dry cycles.

14.1 **Chemical Test :** Leading tests shall be used in evaluating the performance of treatment / stabilization / solidification processes for wastes as per the recommended TCLP procedure for the identified chemical constituents in the stabilized waste. The waste stabilized should meet the BDAT standards of USEPA before their disposal to secured landfill till the Indian Standards for BDAT are notified. It should be as per the criteria specified in Table 1 of this consent for disposal of hazardous waste directly in to the secured land fill.

15.0 Storage at CHWTSDF :

Separate area should be earmarked for storing the waste at CHWTSDF. The storage area may consist of different cells for storing different kinds of hazardous wastes. In designing these cells, the following points may be taken into consideration.

(a) That ignitable, reactive and non-compatible wastes should be stored separately.

(b) That wastes containing volatile solvents or other low vapour pressure chemicals should be adequately protected from direct exposure to sunlight.

(c) The storage are should have a proper containment system. The containment system should have a collection area to collect and remove any leak, spill or precipitation.

(d) It should be designed in such a way that the floor level of the storage area is least 150 mm above the maximum flood level.

(e) The operator should put in place a system for inspection of the storage area to check the conditions of the containers, spillages, leakages etc and maintain proper records as may specified by MPCB in the authorization to operate CHWTSDF.

(f) The hazardous wastes should not be stored for more than 90 days at this temporary storage area.

(g) In case the waste is not in accordance with the authorization issued by MPCB to the generator, the operator shall reject the wastes. Information to this effect shall be immediately sent to MPCB for advice.

(h) Incinerable hazardous wastes shall be stored as per the guidelines issued by Central Pollution Control Board for storing of Incinerable hazardous wastes.

16.0 Post treatment :

Even after complete treatment there may be some residues left and care of this post treatment residue has to be taken through physico-chemical, biological treatment i.e. separation of oil, de-water sludge, mother liquor during solvent recovery reappearance of Leachate, incinerator's ash. Salt treatment and disposal of this waste shall be done within the CHWTSDF.

17.0 **Secured Landfill :**

17.1 Prior to the placement of wastes in the secured landfill, an engineered capping over the surface shall be placed after completion or work daily so as to minimize the infiltration of rainfall.

17.2 During rains, the secured landfill would have to be capped provisionally in order to prevent entry of rain into the landfill and storage area and avoid leach ate generation. The operator should maintain a run on control system capable of preventing flow on to the active portion of the landfill as well on the storage areas. The run off from the areas in proximity to the CHWTSDF site would have to be diverted away from the site. Location map of the landfill showing disposed wastes would have to be prepared and continuously updated for monitoring and precautionary purpose.

18.0 Leachate Treatment and Disposal

Having considered leach ate quantity, and the variations associated, it is also essential to identify the components of the leach at that are to be treated or removed such as:

(a) Removal of high concentrations of degradable organic compounds.
(b) Removal of high concentrations of non-degradable organic compounds.
(c) Removal of varying concentrations of specific hazardous organic.
(d) Removal of varying concentrations of specific hazardous inorganic.
(e) Removal of ammonia.
(f) Denitrification of nitrates / nitrites.
(g) Removal of odors including sulphides.
(h) Removal of suspended solids.
(i) Disinfection (if required)
(j) The leach ate shall meet the Leach ate disposal standards depending upon the disposal made as specified in table 2 of this consent, if not disposed in the incinerator.

19.0 **Monitoring** :

19.1 Monitoring is essential because it gives final signal about the success of treatment in converting the hazardous waste to a no hazardous waste. It also allows timely intervention in case of leakages of pollutants before they could lead to serious accidents.

19.2 Monitoring shall be done with benchmarking the present environment in its original state i.e. before CHWTSDF is brought into construction or operation. Monitoring will continue during the operation and will go on during the post closure phase too. Monitoring shall have to be designed for various environmental facets such as:

(a) Air – Regular monitoring at upwind, downwind and at three stations at 120 angle around the CHWTSDF is necessary. The locations of these stations

depend on the stack height and locations of any particular ecologically sensitive feature. Sample should be collected from stacks, vents and ducts as per emission regulations stipulated by CPCB.

(b) Surface waters – Monitoring of waters at locations upstream, downstream and adjoining local nallah / river is necessary. It is also necessary to collect the sample of surface waters of the impoundment as well as the benthal deposit of the stream.

(c) Groundwater – Samples should be collected from specially dug wells one on the up gradient and at least three on the down gradient and deep enough.

(d) Soil - Samples of surrounding soil at ground level should be collected in a circular grid as per CPCB guidelines.

(e) Vegetative cover – To assess the mal effect occurrence, inspection of vegetative cover is necessary along the periphery of the site.

(f) Biological indicator – By plating sensitive plants in all directions and at different distances and to note periodically the health of each plant.

(g) Complaint – Complaint oriented monitoring and redressal will have to be done from time to time before it becomes an issue throttling the entire project under public pressure or with the public interest litigations. The complaints may be on aesthetics such as odour, hazardous accidents, noise, colouration or imparted tastes to well water and ill-health effects in residential area around the CHWTDF.

20.0 **Closure & Post facilities** :

20.1 The landfills have certain design capacity and are bound to get filled up in certain period. They will have to be guarded thereafter for a period of 30 years after closure. Monitoring would have to be continued to check for leakages and remedial measures.

20.2 The closed site will have to be looked after to avoid any disturbances created by run on and run off storm waters, stray cattle's and ignorant humans. A fenced area with security is an essential part along with routine monitoring and rectification efforts. A closure and post closure plan will have to be prepared which include the following.

(a) A description how each of this unit in the CHWTSDF will be closed.

(b) A description of how final closure of the entire CHWTSDF will be conducted.

(c) An estimate of the leaches and other hazardous waste residues that may be generated on site at any time during closure / post closure life of CHWTSDF.

(d) A description of the steps needed to remove or decontaminate all hazardous waste residues generated during post closure period of the operations.

(e) A sampling and analysis plan to know as to how much decontamination will be necessary.

(f) A timetable of commencement of closure prospects and completion.

20.3 **In practice the post closure care shall include**:

(a) Elimination all free liquid by either removing the liquid washes / residues from landfill / impoundment or by solidifying them.

(b) Stabilization of the remaining waste and waste residue to a bearing capacity sufficient to support a final cover.

(c) Installation of final cover that provides long term minisation of infiltration into the closed unit.

(d) In course of time, the material inside a landfill is likely to face setting or subsidence in a small way. The cover be such that all such subsidence of support. It should not get cracked but its integrity be maintained.

(e) Provide drainage diversion to prevent any run-on.

(f) To grow an appropriate vegetation on the top of the cover.

21 **Record keeping**

A day to day record with weekly, monthly, quarterly and annual extracts is required. Operator shall have to devise a separate format for daily record or logbook. This shall include:

(a) **Hazardous waste generation**
- Category number
- Category
- Origin of manufacturing activity.

(b) **Description of hazardous waste.**
- Physical form
- Chemical form
- Quantity (volume & weight)

(c) **Details of**
- Daily method of storage of hazardous waste
- Daily method of treatment of hazardous waste

(d) **Details of transportation**
- Name and address of consignee of package
- Mode of packing
- Mode of transportation
- Date of transportation
- Quantity transported

(e) **Details of disposal of hazardous waste (date wise)**
- Date of disposal
- Concentration of hazardous material in the final waste form
- Site of disposal (identify the location on the relevant layout drawing for reference)
- Method of disposal

(f) **Data on environmental surveillance**
- Date of measurement
- Ground water (sampling location, depth of sampling, results)
- Soil (sampling location, depth of sampling, results)
- Air (sampling location, data)
- Any other (keep record)

(g) **Details of hazardous waste reused / recycled**
- Quantity of waste received to site
- Quantity of waste minimized by reuse and recycle
- Final quantity of waste subjected to final landfill or incineration mode of disposal

(h) **Details of waste disposal operations**

(i) **Description of hazardous waste**
- Physical form and contents
- Chemical form
- Total volume of hazardous waste disposed
- No. of packages

(j) Mode of transportation of the site of disposal.

(k) Site of disposal

(l) Brief description of method of disposal.

(m) Date of disposal

(n) Remark (like discrepancy in manifest etc)

(o) **Details of environmental surveillance**
- Date of measurement
- Ground water (sampling location, depth of sampling, results)
- Soil (sampling location, depth of sampling, results)
- Air (sampling location, data)
- Any other (keep record)
-

(p) **Accident Reporting**

- Date and time of accident
- Sequence of event leading to accident
- Name of hazardous waste involved in the accident
- Chemical data –sheet assessing effect of accident on health and environment
- Emergency measures taken
- Step to prevent recurrence of such wastes

(q) The operating agency shall also maintain a record of inspections and visits of officials from MPCB, CPCB, factory inspector, MIDC, Environment Department GoM, MoEF & Local authorities. This should be followed by compliance report.

22 Safety, security, contingency plans, risk management and emergency procedures.

22.1 Safety – Safe work environment should be considered, provided and maintained for the staff by operator. Safety and security considerations should be made for all facts like pretreatment at generator's site, loading, transportation and unloading of hazardous waste, spill control, treatment and disposal, laboratory and also in the post closure period. Personal protection equipment and fire control system should be provided at site (e.g. fire extinguishers sand pails etc., water tanks). Training and mock drills etc. should be conducted with staff for emergency situations. A complete primary health unit with medicines/ antidotes would have to be provided a per the factory act, 1948 and 1987. Aspects like ventilation illumination and safe duration of limited working hours would also have to be considered. Periodical check-up of health shall be undertaken and the persons be kept rotated. This should also cover other emergencies like snake bite of sabotage. EIA recommendations, statutory rules and regulations act, etc. should be considered while providing for this aspect of operations.

22.2 Security : Entry of persons or livestock shall be prevented both during operations and post closure period. Artificial barriers like fence, watchtowers should be provided. Entry hates shall be minimum and preferably one only apart from emergency gates. Cautionary boards in appropriates language and in readable letter size shall be displayed at various locations within ands on the periphery of the CHWTSDF. Register of entry and exist shall be maintained.

22.3 Risk management, Contingency Plans & Emergency procedures: An on site contingency plan and emergency procedure shall be prepared and approved from district emergency officer who in turn will prepare the off-site management plan. The contingency plan shall describe the reprocess in case of fires, explosion, unforeseen acts or events, sudden releases due to natural calamity. The strategic administrative arrangements with local police, fire dept. medical facilities of the area, dept dealing safety, health & environment officer of MIDC and revenue authority shall be designed. Latest phone and fax numbers of concerned authorities shall be printed and distributed. Evacuation plan with evacuation route shall be demonstrated by mock drills. Documentation should be immediately prepared for benefits of future planning. Other consideration as per EIA has to be integrated within this aspect of the operations of the CHWTSDF.

23.0 **Public Consultation**

Precaution will have to be taken by the operator to satisfy any peculiar situation as may be demanded by the people relating as aesthetics, discomfort etc. Regular Public Consultation and awareness programme shall be undertaken

24.0 **Greenbelt**

A green belt of 20 meters should be provided at the periphery at the site to have better visual impact, to protect the surrounding environment by abating gaseous and particulate pollution as well as reduce the noise levels and to protect area from the cyclonic winds. The plant species should be per EIA, and MoEF/ CPCB guidelines.

25.0 **Occupational Health**

25.1 This is a CHWTSDF where all kinds of hazardous waste are getting collected. Workers and staff are exposed to high levels of toxins, pollution and pathogenic environment. There is high risk of occupational hazards at such sites. It is therefore essential to formulate a health policy/ plan for the workers by the Operator. Periodical checking of workers should not show any deteriorating in their immunity levels. A medical room, concession for workers in working hours, not employing the people of tender age or old age, early retirement benefits, daily nutritional support, group insurance scheme and other such measure shall have to be adopted.

25.2 All above aspects inter-alia as prescribed under the Factory act, 1948, amended in 1987 and the rules framed there under will have to be complied with. The detailed risk analysis as per the technology adopted, and an on risk mitigation plan should be prepared and the impact on the occupational health of the workers should be as mitigates as identified in the plan.

26 Waste acceptance criteria for disposal of hazardous wastes into the secured landfill are placed at Appendix-I of this schedule.

27 Board shall carry out the third party audit for important and critical processes in Hazardous Waste Disposal.

28 Issues regarding rates of wastes treatment and disposal, analysis of wastes and any other controversy shall be informed to redresser committee.

21/7/16

P. K. Mirashe
Member Secretary,
Maharashtra Pollution Control Board

Appendix - I

CRITERIA FOR DISPOSAL OF HAZARDOUS WASTES DIRECTLY INTO THE SECURED LANDFILL.

Leachate Quality	Concentration
pH	4-12
Total phenols	< 100 mg/l
Arsenic	< 1 mg/l
Lead	< 2 mg/l
Cadmium	< 0.2 mg/l
Chromium - VI	< 0.5 mg/l
Copper	< 10 mg/l
Nickel	< 3 mg/l
Mercury	< 0.1 mg/l
Zinc	< 10 mg/l
Fluoride	< 50 mg/l
Ammonia	< 1000 mg/l
Cyanide	< 2 mg/l
Nitrate	< 30 mg/l
Absorbable organic bound chlorine	< 3 mg/
Water soluble compounds expect salts	< 10%
Strength	
Transversal Strength (Vane Testing)	> 25 KN/M^2
Unconfined Compression Test	> 50 KN/M^2
Axial Deformation	20 %
Degree of Mineralization or Content of Organic Materials (Original sample)	
Annealing loss of the dry residue at 550^0 C	< 20 Wt. % (for non-biodegradable waste) < 5 Wt. % (for biodegradable waste)
Extractable Lipophlic contents (Oil & Grease)	< 44 Wt. %

* Leachate quality is based on Water Leach Test,

21/7/16

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Member Secretary,
Maharashtra Pollution Control Board

Appendix - II

TABLE 2 : LEACHATE DISPOSAL STANDARDS

Sr. No.	Parameters	Standards (mg/l)			
		Inland surface water	STP	CETP see note-I	Martine coastal area
Additional parameters Recommended					
1	Adsorbable Organic Halogens (AOx)	0.5	--	--	0.5
2	Poly Aromatic Hydrocarbons (PAH) each	0.06	--	--	0.06
3	Benzene	0.14	--	---	0.14
4	Toluene	0.08	--	--	0.08
5	Xylene (sum of o,m, p-xylene)	0.32	--	--	0.32

Note :

1. In addition to the above, General Standards for discharge of environment pollutants part-A : Effluent notified vide G.S.R. 422 (E) dated 19/5/1993 and published in the Gazette No. 174 dated 19/5/1993 under Environment (Protection) Act, 1986 and rules made there under, shall also be applicable for disposal of leachate into sewage treatment plant, common effluent treatment plant and inland surface water bodies or coastal areas.

2. For each CETP ant its constituent units, the State Pollution Control Board will prescribe standard as per the local needs and conditions, these can be more stringent than those prescribed above. However, in case of clusters of unit, the State Pollution Control Board may prescribe suitable limits.

3. Bioassay test may be substitutes by Fish Toxicity test and a dilution factor 2 may be considered.

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